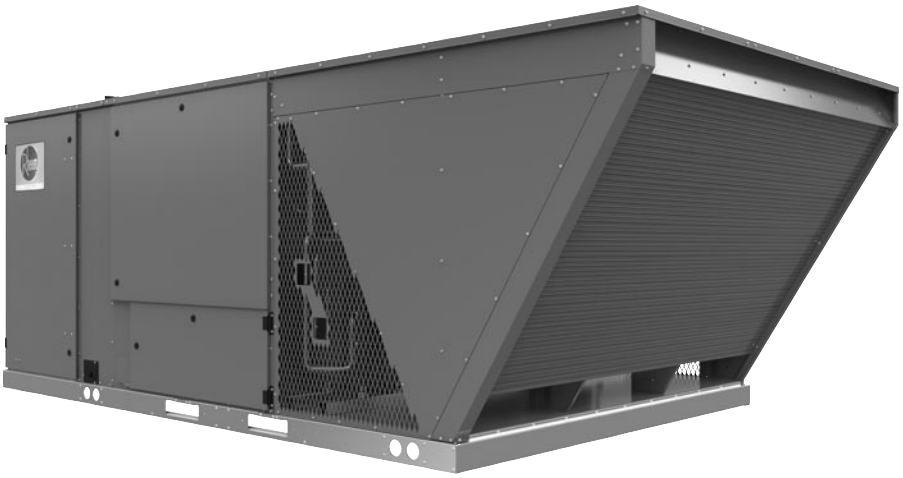
Commercial Resolute™ Line *Classic*® Series Packaged Heat Pumps



RHPH Series

Efficiencies up to: 10.6 EER, 13.5 IEER, 3.3 COP
Nominal Sizes: 15 & 20 Tons [52.8 & 70.3 kW]
Cooling Capacities: 18.0k Btu/h [52.40 kW] & 24.0k Btu/h [70.34 kW]
Refrigerant Type: R-454B
ASHRAE 90.1 2022 Compliant Models

ISO 9001:2015

c UL us LISTED

AHRI CERTIFIED™ www.ahridirectory.org
Unitary Large HP
AHRI Standard 340/360
Certification applies only when the complete system is listed with AHRI.

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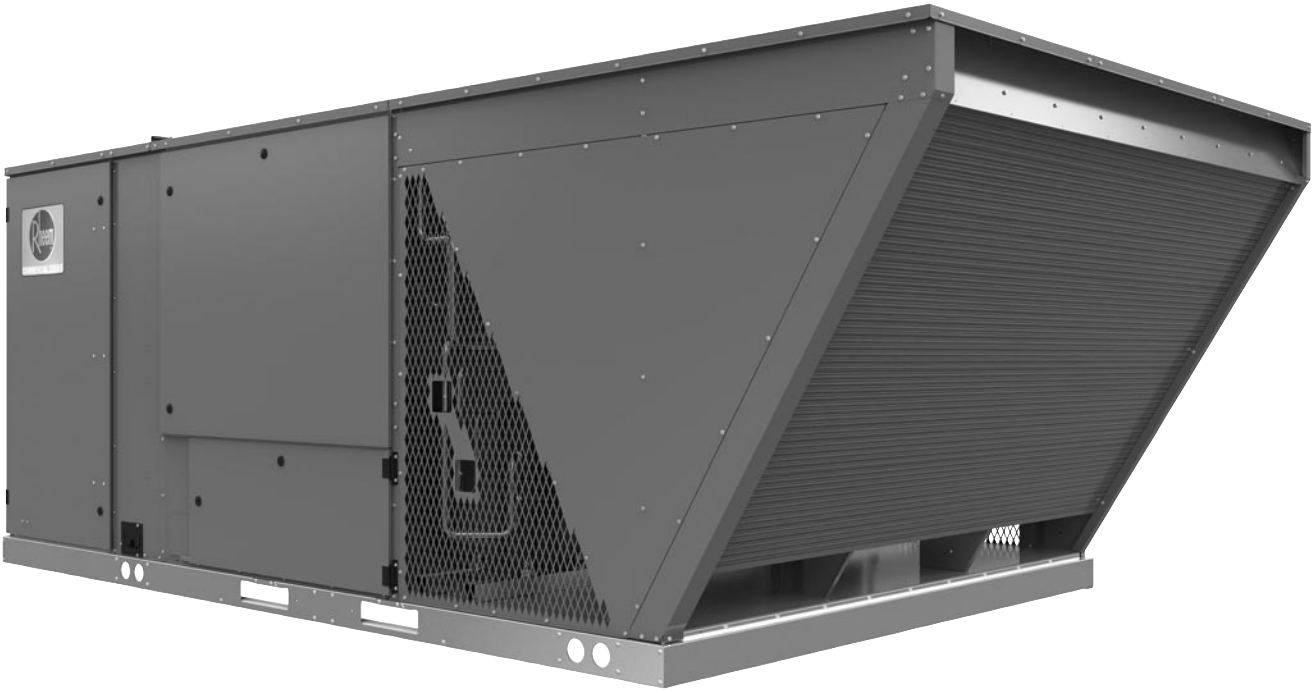


RHPH STANDARD FEATURES INCLUDE:

- Charged with R-454B refrigerant.
- Wired and run tested.
- Scroll compressors with internal line break overload and high-pressure protection.
- Two independent refrigerant circuits each with a scroll compressor provide two stage cooling/heating operation.
- 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.
- Each evaporator and condenser coil is constructed as a single slab to facilitate easy cleaning for maintaining high efficiencies.
- Cooling operation up to 125ºF ambient.
- Foil faced insulation encapsulated throughout entire unit minimizes airborne fibers from the air stream.
- Hinged major access door with heavy-duty gasketing with 1/4 latches and door retainers are standard.
- Qwik-Clean Drain Pan and Qwik-Slide Blower assembly improves service and maintenance ease.
- Powder Paint Finish meets ASTMB117 G90 galvanized steel coated on each side for maximum protection.
- Base pan with drawn supply and return opening for superior water management.
- Field convertible airflow — vertical downflow or horizontal sideflow.
- 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, and condenser motors.
- Condenser motors are internally protected, totally enclosed with shaft down design.
- 2 inch standard filter with slide-out filter rack.
- 24 volt control system with resettable circuit breakers.
- Color-coded and labeled wiring.
- Copper tube/Aluminum Fin coils.
- Blower with Variable Frequency Drive (VFD) control is standard.
- MERV 8 and MERV 13 filters available as a factory or field-installed option.
- Compliant with ASHRAE 90.1-2022 and California Title 24.
- Factory installed refrigerant leak detection system.

LOW GWP Refrigerant

Designing for Sustainability with Low GWP: For 2025, the Environmental Protection Agency (EPA) has set a global warming potential (GWP) limit of 700 for refrigerant used in heating and cooling systems. This new requirement will result in a 78%[1] lower GWP than previous-generation refrigerants — with only minimal changes to system installation. For us, this is another step toward our continued sustainability goal of reducing greenhouse gas emissions, while still delivering an exceptional level of energy efficient, dependable comfort.

[1]*When comparing the GWP of R-454B to R-410A refrigerant.*

FACTORY INSTALLED OPTIONS:

- Economizer w/Single Enthalpy (Downflow/Vertical)
- Economizer w/Single Enthalpy (Downflow/Vertical) DDC
- Low-Ambient Control Kit
- Freeze Stat Kit
- Electric Heater Kits
- Return Smoke Detector (Downflow/Vertical)
- Return/Supply Smoke Detector (Downflow/Vertical)

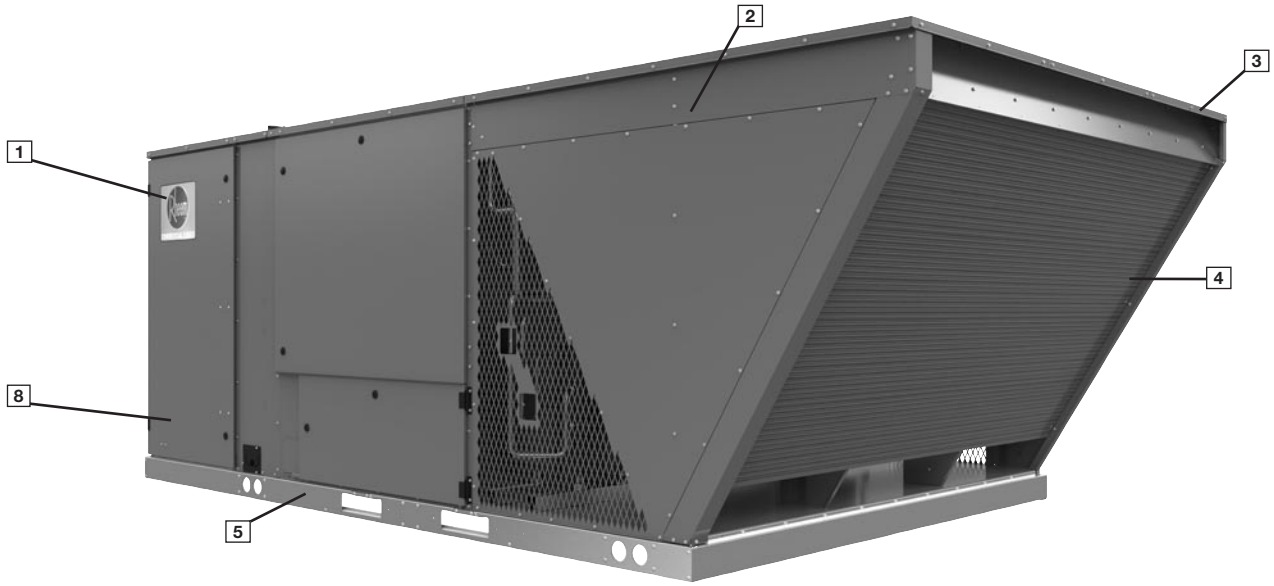
FIELD-INSTALLED ACCESSORY EQUIPMENT:

ACCESSORY	MODEL NUMBER	FACTORY INSTALLATION AVAILABLE?
Economizers		
DDC Economizer with Single Enthalpy (Downflow) *Ruskin Rooftop Systems Economizer with Honeywell Controller*	AXRD-01RMDCM3	Yes
DDC Economizer with Single Enthalpy (Horizontal) *Ruskin Rooftop Systems Economizer with Honeywell Controller*	AXRD-01RMHCM3	No
Non-DDC Economizer with Single Enthalpy (Downflow) *Ruskin Rooftop Systems Economizer with Honeywell Controller*	AXRD-01RGDAM3	Yes
Non-DDC Economizer with Single Enthalpy (Downflow) *Ruskin Rooftop Systems with Siemens Controller*	RXRD-51MHDAM3	Yes
Non-DDC Economizer with Single Enthalpy (Horizontal) *Ruskin Rooftop Systems Economizer with Honeywell Controller*	AXRD-01RGHAM3	No
Non-DDC Economizer with Single Enthalpy (Horizontal) *Ruskin Rooftop Systems with Siemens Controller*	RXRD-51MHHAM3	No
Economizer Universal DDC Interface Kit	RXRX-DDC02	Yes

ACCESSORY	MODEL NUMBER	FACTORY INSTALLATION AVAILABLE?
Comfort Alert (1 Per Compressor) (DDC)	RXRX-AZ01	Yes
Communication Card, BACnet	RXRX-AY01	No
Communication Card, LonWorks	RXRX-AY02	No
Concentric Adapter/Transition (15 ton)	RXMC-CJ07	No
Concentric Adapter/Transition (20 ton)	RXMC-CK08	No
Concentric Flush Mount Diffuser (15 ton)	RXRN-AD80	No
Concentric Step Down Diffuser (15 ton)	RXRN-AD81	No
Concentric Step Down Diffuser (20 ton)	RXRN-AD86	No
Convenience Outlet, Unwired	RXRX-AN01	Yes
Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell DDC)	RXRX-AV03	No
Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell Non-DDC)	RXRX-AV04	No
Dual Enthalpy, Temperature and Humidity Sensor (for Siemens Non-DDC)	PD555460	No
Electric Heaters (*= C, D, or Y Voltage)	RXJJ-CE20*	Yes
	RXJJ-CE40*	Yes
	RXJJ-CE60*	Yes
	RXJJ-CE75*	Yes
Fresh Air Damper* Motorized (Non-DDC)	RXRX-AW03	No
Fresh Air Damper, Motorized (DDC)	RXRX-AW05	No

ACCESSORY	MODEL NUMBER	FACTORY INSTALLATION AVAILABLE?
Fresh Air Damper*, Manual	AXRF-KFA1	No
Freeze Stat Kit	RXRX-AM05	Yes
Hail Guard Louvers	AXRX-AAD01L	Yes
Low-Ambient Control Kit DDC (1 Per Compressor)	RXRZ-C02	Yes
Low-Ambient Control Kit Non-DDC (1 Per Compressor)	RXRZ-A05	Yes
MERV 8 Filter	RXMF-M08A22520	Yes
MERV 13 Filter	RXMF-M13A22520	Yes
Power Exhaust (208/230V) Kit, Convertible (RRS)	RXRX-BGF05C	No
Power Exhaust (460V) Kit, Convertible (RRS)	RXRX-BGF05D	No
Power Exhaust (575V) Kit, Convertible (RRS)	RXRX-BGF05Y	No
Roofcurb, 14"	RXKG-CBH14	No
Roofcurb Adapter to RXRK-E56	RXRX-CJCE56	No
Roofcurb Adapter to RXKG-CAF14	RXRX-CJCF14	No
Sensor, Carbon Dioxide (Wall Mount)	RXRX-AR02	No
Smoke Detector, Return (Downflow/Vertical)	RXRX-BSH1	Yes
Smoke Detector, Return/Supply (Downflow/Vertical)	RXRX-BSH3	Yes

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

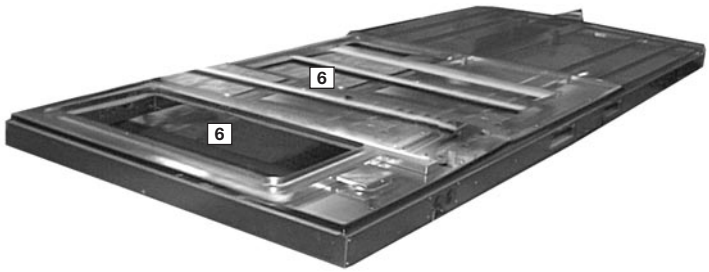


Cabinet and Foundation

Outwardly, the large *Rheem Commercial Series* label **(1)** identifies the brand to the customer. The sheet-metal cabinet **(2)** uses nothing less than 20-gauge material for structural components with an underlying coat of G90. To ensure the leak-proof integrity of these units, the design utilizes a top with a 1/8 drip lip **(3)**, gasket-protected panels and screws. **(4)** The outdoor coil is slanted to protect from hail. Every Rheem packaged 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.

Base Pan

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.



Drain Pan

The drainpan **(7)** is made of plastic that resists the growth of harmful bacteria and is sloped for the latest IAQ benefits. Furthermore, the drain pan slides out for easy cleaning.

Test Standards

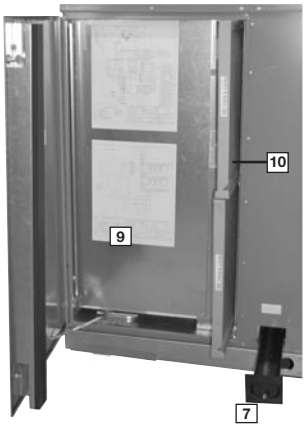
During development, each unit was tested to U.L. 60335-2-40, AHRI 340/360 and other Rheem-required reliability tests. Rheem adheres to stringent ISO 9001:2015 quality procedures, and each unit bears the U.L. and AHRI certification labels located on the unit nameplate **(8)**. Contractors can rest assured that when a Rheem packaged unit arrives at the job, it is ready to go with a factory charge and quality checks.

Easy Access

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 panel is permanently embossed with the compartment name (control/filter access, and blower access). Hinged access is standard for the electrical blower, compressor and filter compartments. Electrical and filter compartment access is through a large, hinged-access panel with 1/4 turn latches. On the outside of the panel is the unit nameplate, which contains the model and serial number, electrical data and other important unit information.

Charging Charts, Wiring Diagrams and Labels

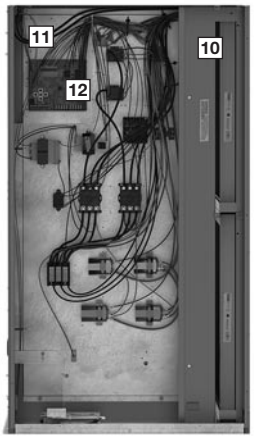
The unit charging chart is located on the inside of the electrical and filter compartment door. Electrical wiring diagrams are found on the control box cover, which allows contractors to move them to more readable locations. To the right of the control box the model and serial number can be found. Having 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)**.



Filter Rack

The tracked filter rack allows for easy change of eight 2" x 20" x 25" standard sized filters **(10)**.

Control Box



In the control compartment, components are organized centrally for ease of trouble-shooting **(11)**. 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 contactor for each compressor.

Defrost Control

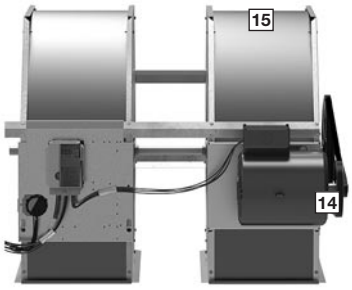
Enhanced feature demand defrost control has high and low pressure control inputs with unique pressure switch logic built into the microprocessor to provide compressor and system protection without nuisance lock-outs. LED's on the defrost control provide diagnostic information for service personnel **(12)**.

Convenience Outlet

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 through the low-voltage terminal strip. For ease of access, the U.L.-required low voltage barrier can be temporarily removed for low-voltage termination and then reinstalled. The high-voltage connection is terminated at the high voltage terminal block.

Blower Assembly

The blower compartment is to the right of the control box and can be accessed by 1/4 turn latches. To allow easy maintenance of the blower assembly, the entire assembly easily slides out by removing four #10 screws from the blower assembly. The adjustable motor pulley **(14)** can easily be adjusted by loosening the bolts on either side of the motor mount. Removing the bolts allows for easy removal of the blower pulley by pushing the blower assembly up to loosen the belt. Once the pulley is removed, the motor sheave can be adjusted to the desired number of turns, ranging from 1 to 6 turns open. Where the demands for the job require high static, Rheem has high-static drives available that deliver nominal airflow up to 2 inches of static. By referring to the airflow performance tables listed in the installation instructions, proper static pressure and CFM requirements can be dialed in. The scroll housing **(15)** and blower scroll provide quiet and efficient airflow. The blower sheave is secured by an H bushing which firmly secures the pulley to the blower shaft for years of trouble-free operation. The H bushing allows for easy removal of the blower pulley from the shaft, as opposed to the use of a set screw, which can score the shaft, creating burrs that make blower-pulley removal difficult.



Evaporator Coil

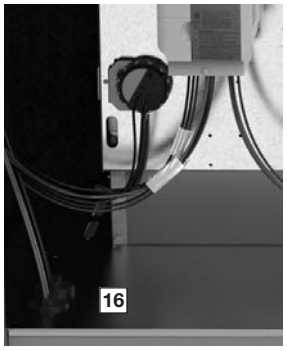
Inside the blower compartment the interlaced evaporator can also be viewed. The evaporator uses enhanced fin technology for maximum heat transfer.

Freezestats

Also in the blower compartment, the optional freezestats protect the compressors if the evaporator gets too cold (below freezing) due to low airflow. The optional freezestats clip on the suction lines near the indoor coil.

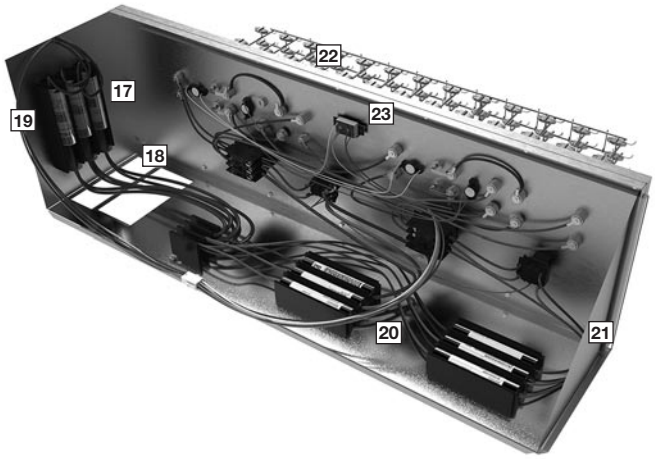
Wire Routing

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 **(16)** 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.



Electric Heater Kits

The electric heater kits are located in the heater compartment. The two-stage resistive heater kits are available for factory or field installation. With choices that range from 18 to 72 kW, the contractor is assured to get the correct amount of heating output to meet the design heating load. Engineered with ease of installation in mind, the heater kit is completely wired up for slide-in plug-and-play installation in the field.



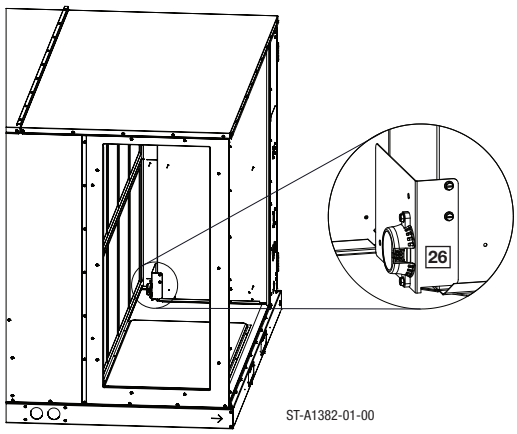
Power hook-up in the field is easy with single-point wiring to a terminal block **(17)** and a polarized plug for the low-voltage connection **(18)**. The electric furnace comes with fuses for the unit **(19)** and for the electric furnace **(20)**. For increased serviceability, the entire heat kit section is an assembly that can be removed in one piece. **(21)**. The electric heating elements are of a wound-wire construction **(22)** and isolated with ceramic bushings. The limit switch **(23)** protects the design from over-temperature conditions.

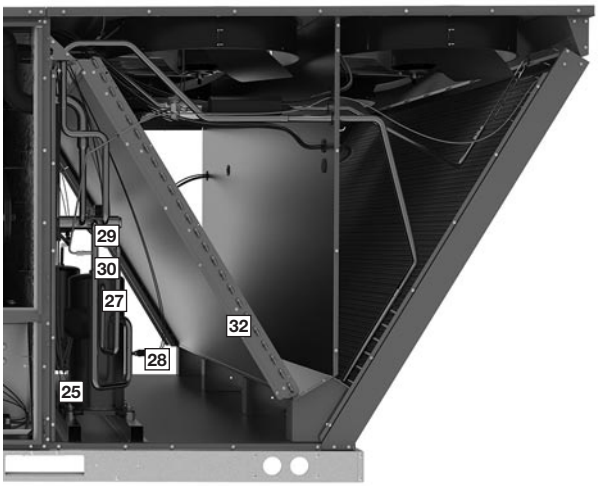
Compressor

The compressor compartment houses the heartbeat of the unit. The scroll compressor **(24)** is known for its long life, and for reliable, quiet, and efficient operation. The suction and discharge lines are designed with shock loops **(25)** 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.

Refrigerant Leak Detection

In the event of a detected refrigerant leak, the refrigerant leak detection sensor **(26)** will trigger the mitigation procedure that shuts off the compressor(s) and turns on the indoor blower motor.





External Gauge Ports

In the outdoor section are the external gauge ports **(27)**. With the gauge ports mounted externally, an accurate diagnosis of system operation can be performed quickly and easily. Also located in this area are the refrigerant safety devices: the low-pressure switches **(28)**, and the high-pressure switches **(29)**. The high-pressure switches will shut off the compressors if pressures exceeding 610 psig are detected as may occur if the outdoor fan motor fails. The low pressure switches shut off the compressors if low pressure is detected due to loss of refrigerant charge. Each factory-installed option is brazed into the appropriate high or low side and wired appropriately. The optional low ambient controls **(30)** screw to schrader valves on the discharge line. The low-ambient controls allow cooling mode operation of the compressors down to 0 degrees ambient temperature by cycling the outdoor fans based on discharge pressure.

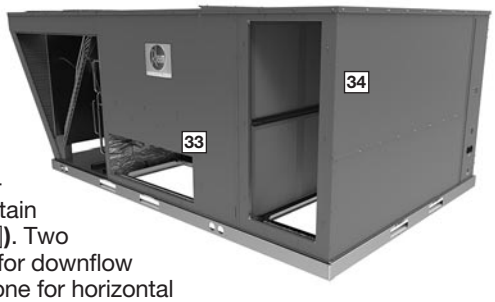
Condenser Fans

The condenser fan motor **(31)** can easily be accessed and maintained by removing the protective fan grille. The polarized plug connection allows the motor to be changed quickly and eliminates the need to snake wires through the unit.

Condenser Technology

The outdoor coil uses the latest enhanced fin design **(32)** for the most effective method of heat transfer. The outdoor coil is slanted to protect the unit from hail.

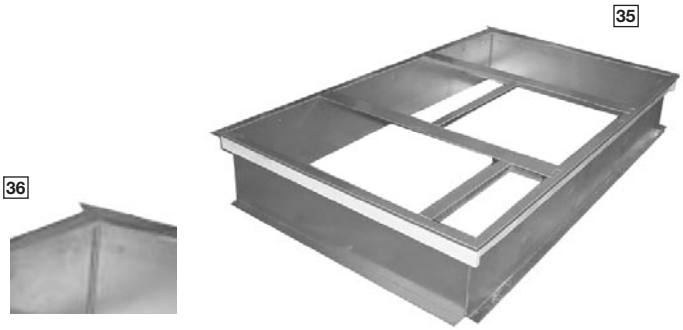
Economizers and Dampers



Each unit is designed for both downflow or horizontal applications **(33)** for job configuration flexibility. The return air compartment can also contain an economizer **(34)**. Two models exist, one for downflow applications, and one for horizontal applications. Each unit is pre-wired for the economizer to allow quick plug-in installation. The downflow economizer is also available as a factory-installed option. Power Exhaust is easily field-installed. The economizer, which provides free cooling when outdoor conditions are suitable and also provides fresh air to meet local requirements, comes standard with single enthalpy controls. The controls can be upgraded to dual enthalpy easily in the field. The direct drive actuator combined with gear drive dampers has eliminated the need for linkage adjustment in the field. The economizer control has a minimum position setpoint, an outdoor-air setpoint, a mix-air setpoint, and a CO_2 setpoint. Barometric relief is standard on all economizers. The power exhaust is housed in the barometric relief opening and is easily slipped in with a plug-in assembly.

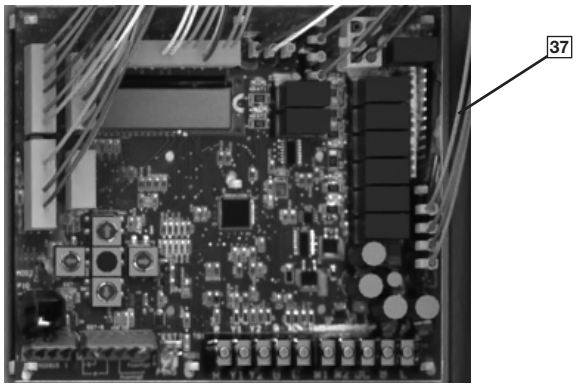
Roofcurb

The Rheem roofcurb **(35)** is made for toolless assembly at the jobsite by inserting a pin into the hinged corners **(36)**, which makes the assembly process quick and easy.



ClearControl

The optional ClearControl™ system consisting of a rooftop unit controller, temperature sensors, and pressure sensors, allows real-time monitoring and communication between rooftop units. The Rooftop Unit Controller (RTU-C) that is factory mounted and wired into 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, using proportional/integral control algorithms, performs 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 **(**37**)**. 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 freeze stats to allow measurement of refrigerant suction line temperatures.



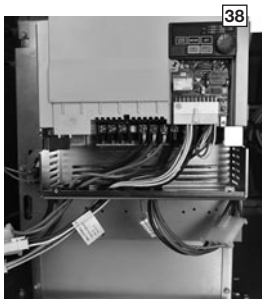
The unit with the RTU-C is specifically designed to be applied in four distinct applications:

1. **BACnet Communication —** The unit 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 the RTU-C 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.
2. **LonWorks Communication —** The unit 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 the RTU-C 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 feet with no repeater. The LonWorks limit of 64 nodes per segment applies to this device.
3. **24V Thermostat Compatibility —** The unit 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.
4. **Zone Sensor Compatibility —** The unit is compatible with a zone sensor and a 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.

ComfortAlert

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 or through the (BAS) network.

Variable Frequency Drive



The supply fan Variable Frequency Drive (VFD) (38) comes standard and optimizes energy usage year round by providing a lower speed for first stage cooling operation, improving IEER's over the conventional constant fan system. Operating in the constant fan mode at the reduced speed can use as little as 1/5 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 meets California Title 24 and ASHRAE 90.1-2022 requirements for multi blower speed control. VFD also ramps up to the desired speed, reducing stress on the supply fan components and noise from a 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.

R	HP	H	Y	B	180	A	C	F	00	2	B	A	****
1	23	4	5	6	7 8 9	10	11	12	13 14	15	16	17	18 19 20 21

1—Brand
R = Rheem

2, 3—Unit Type
HP = Packaged HP

4—Cabinet Type
H = Large Commercial

5—Refrigerant
Y = R-454B

6—Efficiency Level
B = Standard Efficiency

7, 8, 9—Capacity
180 = 15 Ton
240 = 20 Ton

10—Major Series
A = 1st Design

11—Voltage
C = 3 PH/208-230 V/60 Hz
D = 3 PH/460 V/60 Hz
Y = 3 PH/575 V/60 Hz

12—Drive
F = Belt Drive—VFD Standard
G = Belt Drive—VFD Medium
H = Belt Drive—VFD High
(H-Drive only available Field-Installed on 20 Ton)

13, 14—Heat Capacity
00 = No Heat
20 = 20 kW
40 = 40 kW
60 = 60 kW
75 = 75 kW

115—Number of Stages
0 = No heat
1 = 1-Stage
2 = 2-Stage

16—Control
B = Core Command & Phase Monitor
C = ClearControl & Phase Monitor
D = ClearControl & Comfort Alert

17 —Minor Series
A = 1st design

18, 19, 20, 21—Option Code
See next page

FACTORY INSTALLED OPTION CODES FOR RHPH (15 & 20 TON)

18	19	20	21
LV = Louver protection	NP = Non-Powered Convenience Outlet	EC = Economizer	M8 = MERV 8 Filter
HA = Hinged Access	LF = Low Ambient & Freeze Stat	SS = Supply & Return Smoke	M13 = MERV 13 Filter
		RS = Return Smoke	

OPTION CODE CHARACTER HIGHLIGHTED

C	HA		**A**	None		**0**	None		**A**	None
D	LV	HA	**B**	LF		**1**	EC		**D**	M8
			C	NP		**2**	RS		**G**	M13
			D	LF	NP	**3**	EC	RS		
						4	SS			
						5	EC	SS		

Instructions for Factory Installed Option(s) Selection

Note: Four 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, "CA0A" follows the model number.

- **Step 1:** In the table above, based on the desired features, choose option code character from highlighted options on the left side under the number 18. For example, the option code character "D" has Louver protection and hinged access panels.
- **Step 2:** In the table above, based on the desired features, choose option code character from highlighted options on the left side under the number 19. For example, the option code character "B" has Low Ambient and Freeze Stat Controls.
- **Step 3:** In the table above, based on the desired features, choose option code character from highlighted options on the left side under the number 20. For example, the option code character "3" has Economizer and Return Smoke.
- **Step 4:** In the table above, based on the desired features, choose option code from highlighted options on the left side under the number 21. For example, the option code character "D" has MERV 8 filters.
- The resulting option code from examples above is: “DB3D”
- **Step 5:** Add your option code selection to the end of model number
  - Example: RHPHYB180ACF000CA DB3D = RHPHYB180ACF000CADB3D

To select an RHPH 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—	460 V — 3 Phase — 60 Hz
Total Cooling Capacity—	170,000 Btu/h [49.8 kW]
Sensible Cooling Capacity—	140,000 Btu/h [41.0 kW]
Heating Capacity—	140,000 Btu/h [41.0 kW]
*Condenser Entering Air—	95°F [35.0 °C] DB
*Evaporator Mixed Air Entering—	67°F [19.4 °C] WB
	78°F [25.6 °C] DB
*Winter Entering Air (for Heating)	20°F [-6.6 °C] DB
*Indoor Air Flow (vertical)—	6,000 CFM [3020 L/s]
External Static Pressure—	1.2 in. WG [.30 kPa]

2. SELECT UNIT TO MEET COOLING REQUIREMENTS.

Since total cooling is within the range of a nominal 15 ton [52.7 kW] unit, use the cooling performance table at 95°F [35.0 °C] DB condenser inlet air. Interpolate between 6025 CFM [2843 L/s] and 4800 CFM [2265 L/s] to determine total and sensible capacity and Depression Ratio for inlet air at 6000 CFM [2843 L/s] indoor air flow (table basis):

Interpolation Formula:

$$Btu/h_1 + \left[(CFM - CFM_1) x \left(\frac{Btu/h_2 - Btu/h_1}{CFM_2 - CFM_1}\right)\right] = Btu/h$$

Total Cooling Capacity=

$$177{,}900 + \left[(6{,}000 - 6{,}025) x \left(\frac{169{,}600 - 177{,}900}{4{,}800 - 6{,}025}\right)\right] = 177{,}731 \text{ Btu/h}$$

Total Cooling Capacity = 177,731 Btu/h [52.1 kW]
Sensible Cooling Capacity = 149,535 Btu/h [43.8 kW]
DR = 0.018

When the entering dry bulb temperature (dbE) is not 80°F [26.7°C], the sensible capacity needs to be adjusted.
Note: total capacity is unaffected

Sensible Capacity Depression Formula:

$Cap_{sensible}$ + [1.10 x CFM x (1 – DR) x (dbE – 80)]

149,535 + [1.10 x 6,000 x (1 + 0.018) x (78 – 80)]
Sensible Cooling Capacity = 136,097 Btu/h [39.9 kW]

3. DETERMINE BLOWER SPEED AND BHP TO MEET SYSTEM DESIGN.

Total ESP (external static pressure) per the spec of 1.2 in WG [.30 kPa] includes the system duct and grilles. Add from the table “Component Air Resistance”, 0.08 in. WG [.02 kPa] for wet coil and 0.05 in. WG [.01 kPa] for downflow to get an ESP of 1.33 in. WG [.33 kPa]. Using the “Airflow Performance Table”, at the specified 6,000 CFM and 1.33 in. WG [.33 kPa] ESP, determine blower motor wattage.

RPM = 785
Motor Wattage = 2731 W
DRIVE = G

4. CALCULATE INDOOR BLOWER Btu/h HEAT EFFECT FROM MOTOR BHP IN STEP 3.

Assuming an average of 85% motor efficiency, determine the amount of heat generated by the blower motor at the specified CFM and ESP by dividing the BHP by the motor efficiency and solving for the difference. Convert this value from Watt to Btu/h, multiplying by 3.41 Btu/h/Watt:

Motor Wattage = 2731 W
AVG MOTOR EFFICIENCY = 85%

INDOOR BLOWER MOTOR HEAT =

$$\left[\left(\frac{\text{Watt}}{0.85} - \text{Watt}\right)\right] \text{ x } 3.41$$

= [(2731/0.85)-2731] x 3.41 = 1643 Btu/h [.4 kW]

5. CALCULATE THE NET COOLING CAPACITIES

Net cooling capacities can be calculated by subtracting the motor heat from the gross cooling capacities.

Net Total Capacity = Gross Total Capacity – Indoor Blower Motor Heat
= 177,731 – 1,643 = 176,088 Btu/h [51.6 kW]

Net Sensible Capacity = Gross Sensible Capacity – Indoor Blower Motor Heat
= 136,097 – 1,643 = 134,454 Btu/h [39.4 kW]

6. SELECT UNIT HEATING CAPACITY

Determine if an auxiliary electric heater is required to meet the heat requirements. Use the heating performance table at 20°F DB Winter Entering Air to determine the heat pump heating capacity. Interpolate between 6025 CFM [2843 L/s] and 4,800 CFM [2265 L/s] to determine the capacity at 6,000 CFM [2831 L/s].

Heating Capacity = 97,809 Btu/h [28.6 kW]

The required heating capacity is 140,000 Btu/h [41.0 kW]. An additional electric heater is required to meet this heating requirement. From “Heater Kit” Table, select kW to meet heating capacity requirement; multiply kW by 3412 to convert to Btu/h.

Use 20 kW Heater Kit

Heater Kit Model:
RXJJ-CE20D

Heater Kit Capacity:
68,242 Btu/h [19.9 kW]

Add Heating Capacity and Indoor Blower Motor Heat (step 4) to Heater Kit Capacity to get net total heating capacity:
68,242 + 97,809 + 1,643 = 167,694 Btu/h [49.1 kW]

7. CHOOSE MODEL RHPHYB180A with 20 kW Electric Heater

[ ] Designates Metric Conversions

GENERAL DATA—RHPHYB MODELS—15 & 20 TON [52.4 & 70.34 kW]

Model RHPHYB Series	180ACF 180ADF 180AYF	180ACG 180ADG 180AYG	240ACF 240ADF 240AYF	240ACG 240ADG 240AYG	240ACH 240ADH 240AYH
Cooling Performance[A]					
Nominal Cooling Capacity Btu/h [kW]	180,000 [52.4]	180,000 [52.4]	240,000 [70.34]	240,000 [70.34]	240,000 [70.34]
EER	10.6	10.6	9.5	9.5	9.5
IEER[B]	13.5	13.5	12.5	12.5	12.5
Nominal CFM/AHRI Rated CFM [L/s]	6,000/5,950 [2,832/2,808]	6,000/5,950 [2,832/2,808]	8,000/8,000 [3,776/3,776]	8,000/8,000 [3,776/3,776]	8,000/8,000 [3,776/3,776]
AHRI Net Cooling Capacity Btu/h [kW]	172,000 [50.4]	172,000 [50.4]	240,000 [70.34]	240,000 [70.34]	240,000 [70.34]
Net Sensible Capacity Btu/h [kW]	129,000 [37.81]	129,000 [37.81]	180,000 [52.75]	180,000 [52.75]	180,000 [52.75]
Net Latent Capacity Btu/h [kW]	43,000 [12.6]	43,000 [12.6]	60,000 [17.58]	60,000 [17.58]	60,000 [17.58]
Net System Power kW	16.22	16.22	25.26	25.26	25.26
Heating Performance (Heat Pumps)					
High Temp. Btu/h [kW] Rating @47°F	172,000 [50.4]	172,000 [50.4]	240,000 [70.34]	240,000 [70.34]	240,000 [70.34]
System Power kW/COP @47°F	15.28/3.30	15.28/3.30	21.3/3.30	21.3/3.30	21.3/3.30
Low Temp. Btu/h [kW] Rating @47°F	98,000 [28.72]	98,000 [28.72]	150,000 [43.96]	150,000 [43.96]	150,000 [43.96]
System Power kW/COP @47°F	14.01/2.05	14.01/2.05	21.44/2.05	21.44/2.05	21.44/2.05
Compressor					
No./ Stg. /Type	2/ 2/ Scroll	2/ 2/ Scroll	2/ 2/ Scroll	2/ 2/ Scroll	2/ 2/ Scroll
Outdoor Sound Rating (dB)[C]	87	87	91	91	91
Outdoor Coil - Fin Type	3/8 Louver	3/8 Louver	3/8 Louver	3/8 Louver	3/8 Louver
Tube Type	Rifle 1840	Rifle 1840	Rifle 1840	Rifle 1840	Rifle 1840
Rifled: Tube Size OD in. [mm]	0.375 [9.53]	0.375 [9.53]	0.375 [9.53]	0.375 [9.53]	0.375 [9.53]
Face Area sq. ft. [sq. m]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	2 / 22 [9]	2 / 22 [9]	2 / 22 [9]
Indoor Coil - Fin Type	3/8 Louver	3/8 Louver	3/8 Louver	3/8 Louver	/8 Louver
Tube Type	Rifle 1840	Rifle 1840	Rifle 1840	Rifle 1840	Rifle 1840
Rifled: Tube Size OD in. [mm]	0.375 [9.53]	0.375 [9.53]	0.375 [9.53]	0.375 [9.53]	0.375 [9.53]
Face Area sq. ft. [sq. m]	26.7 [2.48	26.7 [2.48	26.7 [2.48	26.7 [2.48	26.7 [2.48
Rows / FPI [FPcm]	2 / 18 [7]	2 / 18 [7]	3 / 13 [5]	3 / 13 [5]	3 / 13 [5]
Refrigerant Control	TXV	TXV	TXV	TXV	TXV
Drain Connection No./Size in. [mm]	1 / 0.750 [19.05]	1 / 0.750 [19.05]	1 / 0.750 [19.05]	1 / 0.750 [19.05]	1 / 0.750 [19.05]
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	4/24.0 [609.6]	4/24.0 [609.6]	6/24.0 [609.6]	6/24.0 [609.6]	6/24.0 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	14,800 [6,984]	14,800 [6.984]	19,800 [9,344]	19,800 [9,344]	19,800 [9,344]
No. Motors/HP	4 at 1/3	4 at 1/3	6 at 1/3	6 at 1/3	6 at 1/3
Motor RPM	1075	1075	1075	1075	1075
Indoor Fan - Type	PSC	PSC	PSC	PSC	PSC
No. Used/Diameter in. [mm]	2/19x9 [471x229]	2/19x9 [471x229]	2/19x9 [471x229]	2/19x9 [471x229]	2/19x9 [471x229]
Drive Type	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Speeds	Multiple	Multiple	Multiple	Multiple	Multiple
No. Motors	1	1	1	1	1
Motor HP	3	5	5	7.5	7.5
Motor RPM	1725	1755	1755	1760	1760
Motor Frame Size	56	184	184	213	213
Filter - Type	Disposable	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes	Yes
(NO.) Size Recommended in. [mm x mm x mm]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]
Refrigerant Charge Oz. [kg] Circuit 1/Circuit 2	194 [5.5]/ 189 [5.36]	194 [5.5]/ 189 [5.36]	322 [9.13]/ 317 [8.99]	322 [9.13]/ 317 [8.99]	322 [9.13]/ 317 [8.99]
Weights					
Net Weight lbs. [kg]	1826 [828]	1855 [841]	1865 [846]	1894 [859]	1894 [859]
Ship Weight lbs. [kg]	1926 [874]	1955 [887]	1965 [891]	1994 [904]	1994 [904]

NOTE: Please look at the rating plates pasted on the side of the unit to understand the model number of your unit. See Page 14 for Notes.

[ ] Designates Metric Conversions

NOTES:

A. 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 ±20% of nominal cfm. Units are certified in accordance with the Unitary Air Source Heat Pump Equipment certification program, which is based on AHRI Standard 340/360.

B. EER and Integrated Energy Efficiency Ratio (IEER) are rated in accordance with AHRI Standard 340/360 and DOE test standards.

C. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

WEIGHTED SOUND POWER LEVEL (dBA)

MODEL	STD. RATING (dBA)	FREQUENCY (Hz)						
		125	250	500	1000	2000	4000	8000
RHPHYB180	86.7	88.3	84.8	83.9	81.9	78.6	75.3	66.8
RHPHYB240	91.5	90.3	90.1	90.6	86.5	81.7	76.6	68.2

COOLING PERFORMANCE DATA—RHPHYB180

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]			7600 [3587]	5950 [2808]	5075 [2395]	7600 [3587]	5950 [2808]	5075 [2395]	7600 [3587]	5950 [2808]	5075 [2395]
DR ①			.05	.09	.12	.05	.09	.12	.05	.09	.12
OUTDOOR DRY BULB TEMPERATURE °F [°C]	75 [23.9]	Total kBtu/h [kW]	237.2 [69.5]	225.8 [66.2]	219.8 [64.4]	225.0 [65.9]	214.2 [62.8]	208.5 [61.1]	212.8 [62.4]	202.6 [59.4]	197.2 [57.8]
		Sens kBtu/h [kW]	150.6 [44.1]	133.3 [39.1]	124.2 [36.4]	175.7 [51.5]	155.6 [45.6]	144.9 [42.5]	200.8 [58.9]	177.8 [52.1]	165.6 [48.5]
		Power	14.4	14.1	13.9	14.3	14.0	13.8	14.2	13.9	13.7
	80 [26.7]	Total kBtu/h [kW]	230.9 [67.7]	219.8 [64.4]	213.9 [62.7]	218.7 [64.1]	208.2 [61.0]	202.6 [59.4]	206.5 [60.5]	196.6 [57.6]	191.3 [56.1]
		Sens kBtu/h [kW]	147.3 [43.2]	130.5 [38.2]	121.5 [35.6]	172.5 [50.6]	152.7 [44.8]	142.2 [41.7]	197.6 [57.9]	175.0 [51.3]	163.0 [47.8]
		Power	15.1	14.7	14.6	15.0	14.7	14.5	14.9	14.6	14.4
	85 [29.4]	Total kBtu/h [kW]	224.6 [65.8]	213.8 [62.7]	208.1 [61.0]	212.4 [62.3]	202.2 [59.3]	196.8 [57.7]	200.2 [58.7]	190.6 [55.9]	185.5 [54.4]
		Sens kBtu/h [kW]	144.1 [42.2]	127.6 [37.4]	118.8 [34.8]	169.2 [49.6]	149.8 [43.9]	139.6 [40.9]	194.4 [57.0]	172.1 [50.4]	160.3 [47.0]
		Power	15.8	15.5	15.3	15.8	15.4	15.2	15.7	15.3	15.1
	90 [32.2]	Total kBtu/h [kW]	218.3 [64.0]	207.8 [60.9]	202.2 [59.3]	206.1 [60.4]	196.2 [57.5]	190.9 [55.9]	193.9 [56.8]	184.6 [54.1]	179.6 [52.6]
		Sens kBtu/h [kW]	140.9 [41.3]	124.7 [36.5]	116.2 [34.1]	166.0 [48.7]	147.0 [43.1]	136.9 [40.1]	191.1 [56.0]	169.2 [49.6]	157.6 [46.2]
		Power	16.6	16.2	16.0	16.5	16.1	15.9	16.5	16.1	15.8
	95 [35]	Total kBtu/h [kW]	212.0 [62.1]	201.8 [59.1]	196.4 [57.6]	199.8 [58.6]	190.2 [55.7]	185.1 [54.2]	187.6 [55.0]	178.6 [52.3]	173.8 [50.9]
		Sens kBtu/h [kW]	137.6 [40.3]	121.9 [35.7]	113.5 [33.3]	162.8 [47.7]	144.1 [42.2]	134.2 [39.3]	187.6 [55.0]	166.4 [48.8]	154.9 [45.4]
		Power	17.4	17.0	16.8	17.3	16.9	16.7	17.3	16.8	16.6
	100 [37.8]	Total kBtu/h [kW]	205.6 [60.3]	195.8 [57.4]	190.5 [55.8]	193.4 [56.7]	184.2 [54.0]	179.2 [52.5]	181.2 [53.1]	172.5 [50.6]	167.9 [49.2]
		Sens kBtu/h [kW]	134.4 [39.4]	119.0 [34.9]	110.8 [32.5]	159.5 [46.7]	141.2 [41.4]	131.5 [38.5]	181.2 [53.1]	163.5 [47.9]	152.3 [44.6]
		Power	18.3	17.8	17.6	18.2	17.8	17.5	18.1	17.7	17.4
	105 [40.6]	Total kBtu/h [kW]	199.3 [58.4]	189.8 [55.6]	184.7 [54.1]	187.1 [54.8]	178.2 [52.2]	173.4 [50.8]	174.9 [51.3]	166.5 [48.8]	162.1 [47.5]
		Sens kBtu/h [kW]	131.1 [38.4]	116.1 [34.0]	108.1 [31.7]	156.3 [45.8]	138.4 [40.6]	128.9 [37.8]	174.9 [51.3]	160.6 [47.1]	149.6 [43.8]
		Power	19.2	18.7	18.5	19.1	18.6	18.4	19.0	18.5	18.3
	110 [43.3]	Total kBtu/h [kW]	193.0 [56.6]	183.8 [53.9]	178.8 [52.4]	180.8 [53.0]	172.1 [50.4]	167.5 [49.1]	168.6 [49.4]	160.5 [47.0]	156.2 [45.8]
		Sens kBtu/h [kW]	127.9 [37.5]	113.2 [33.2]	105.5 [30.9]	153.0 [44.8]	135.5 [39.7]	126.2 [37.0]	168.6 [49.4]	157.8 [46.2]	146.9 [43.1]
		Power	20.1	19.6	19.3	20.0	19.5	19.3	19.9	19.4	19.2
	115 [46.1]	Total kBtu/h [kW]	186.7 [54.7]	177.8 [52.1]	173.0 [50.7]	174.5 [51.1]	166.1 [48.7]	161.7 [47.4]	162.3 [47.6]	154.5 [45.3]	150.4 [44.1]
		Sens kBtu/h [kW]	124.7 [36.5]	110.4 [32.4]	102.8 [30.1]	149.8 [43.9]	132.6 [38.9]	123.5 [36.2]	162.3 [47.6]	154.5 [45.3]	144.3 [42.3]
		Power	21.0	20.5	20.3	20.9	20.4	20.2	20.9	20.4	20.1
	120 [48.9]	Total kBtu/h [kW]	180.4 [52.9]	171.7 [50.3]	167.2 [49.0]	168.2 [49.3]	160.1 [46.9]	155.8 [45.7]	156.0 [45.7]	148.5 [43.5]	144.5 [42.4]
		Sens kBtu/h [kW]	121.4 [35.6]	107.5 [31.5]	100.1 [29.3]	146.6 [43.0]	129.8 [38.0]	120.9 [35.4]	156.0 [45.7]	148.5 [43.5]	141.6 [41.5]
		Power	22.0	21.5	21.2	21.9	21.4	21.1	21.8	21.3	21.0
	125 [51.7]	Total kBtu/h [kW]	174.1 [51.0]	165.7 [48.6]	161.3 [47.3]	161.9 [47.5]	154.1 [45.2]	150.0 [44.0]	149.7 [43.9]	142.5 [41.8]	138.7 [40.7]
		Sens kBtu/h [kW]	118.2 [34.6]	104.6 [30.7]	97.5 [28.6]	143.3 [42.0]	126.9 [37.2]	118.2 [34.6]	149.7 [43.9]	142.5 [41.8]	138.7 [40.7]
		Power	23.0	22.5	22.2	23.0	22.4	22.1	22.9	22.3	22.0

DR —Depression ratio
dbE —Entering air dry bulb
wbE—Entering air wet bulb
Total —Total capacity x 1000 Btu/h
Sens —Sensible capacity x 1000 Btu/h
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

HEATING PERFORMANCE DATA—RHPHYB180

IDB			60°F [15.5°C]			70°F [21.1°C]			80°F [26.7°C]		
CFM [L/s]			7000 [3304]	5950 [2808]	4675 [2206]	7000 [3304]	5950 [2808]	4675 [2206]	7000 [3304]	5950 [2808]	4675 [2206]
OUTDOOR DRY BULB TEMPERATURE °F [°C]	**0 [-17.8]**	**Total kBtu/h [kW]**	64.4 [18.9]	63.6 [18.6]	62.6 [18.3]	60.6 [17.8]	59.9 [17.6]	58.9 [17.3]	56.8 [16.6]	56.1 [16.4]	55.3 [16.2]
		Power	10.7	11.0	11.3	12.0	12.2	12.6	13.2	13.5	13.9
	5 [-15]	**Total kBtu/h [kW]**	76.8 [22.5]	75.9 [22.2]	74.7 [21.9]	73.0 [21.4]	72.1 [21.1]	71.0 [20.8]	69.2 [20.3]	68.4 [20.0]	67.3 [19.7]
		Power	11.0	11.3	11.6	12.3	12.5	12.9	13.5	13.8	14.2
	10 [-12.2]	**Total kBtu/h [kW]**	89.2 [26.1]	88.1 [25.8]	86.8 [25.4]	85.4 [25.0]	84.4 [24.7]	83.1 [24.4]	81.7 [23.9]	80.6 [23.6]	79.4 [23.3]
		Power	11.3	11.5	11.8	12.5	12.8	13.2	13.8	14.1	14.5
	15 [-9.4]	**Total kBtu/h [kW]**	101.6 [29.8]	100.4 [29.4]	98.8 [29.0]	97.9 [28.7]	96.6 [28.3]	95.2 [27.9]	94.1 [27.6]	92.9 [27.2]	91.5 [26.8]
		Power	11.5	11.8	12.1	12.8	13.1	13.4	14.0	14.3	14.7
	20 [-6.7]	**Total kBtu/h [kW]**	114.1 [33.4]	112.6 [33.0]	110.9 [32.5]	110.3 [32.3]	108.9 [31.9]	107.2 [31.4]	106.5 [31.2]	105.2 [30.8]	103.6 [30.4]
		Power	11.8	12.0	12.4	13.0	13.3	13.7	14.3	14.6	15.0
	25 [-3.9]	**Total kBtu/h [kW]**	126.5 [37.1]	124.9 [36.6]	123.0 [36.0]	122.7 [36.0]	121.2 [35.5]	119.3 [35.0]	118.9 [34.8]	117.4 [34.4]	115.6 [33.9]
		Power	12.0	12.3	12.6	13.2	13.5	13.9	14.5	14.8	15.2
	30 [-1.1]	**Total kBtu/h [kW]**	138.9 [40.7]	137.2 [40.2]	135.1 [39.6]	135.1 [39.6]	133.4 [39.1]	131.4 [38.5]	131.3 [38.5]	129.7 [38.0]	127.7 [37.4]
		Power	12.2	12.5	12.8	13.5	13.8	14.1	14.7	15.0	15.4
	35 [1.7]	**Total kBtu/h [kW]**	151.3 [44.3]	149.4 [43.8]	147.1 [43.1]	147.5 [43.2]	145.7 [42.7]	143.5 [42.1]	143.7 [42.1]	141.9 [41.6]	139.8 [41.0]
		Power	12.4	12.7	13.0	13.7	14.0	14.3	14.9	15.2	15.7
	40 [4.4]	**Total kBtu/h [kW]**	163.7 [48.0]	161.7 [47.4]	159.2 [46.7]	159.9 [46.9]	157.9 [46.3]	155.5 [45.6]	156.1 [45.8]	154.2 [45.2]	151.8 [44.5]
		Power	12.6	12.9	13.2	13.9	14.2	14.5	15.1	15.4	15.9
	45 [7.2]	**Total kBtu/h [kW]**	176.1 [51.6]	173.9 [51.0]	171.3 [50.2]	172.4 [50.5]	170.2 [49.9]	167.6 [49.1]	168.6 [49.4]	166.5 [48.8]	163.9 [48.0]
		Power	12.8	13.1	13.4	14.0	14.3	14.7	15.3	15.6	16.0
	50 [10]	**Total kBtu/h [kW]**	188.6 [55.3]	186.2 [54.6]	183.4 [53.8]	184.8 [54.2]	182.5 [53.5]	179.7 [52.7]	181.0 [53.0]	178.7 [52.4]	176.0 [51.6]
		Power	12.9	13.2	13.6	14.2	14.5	14.9	15.4	15.8	16.2

IDB—Indoor air dry bulb

[ ] Designates Metric Conversions

COOLING PERFORMANCE DATA—RHPHYB240

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]			9800 [4625]	8000 [3776]	6550 [3091]	9800 [4625]	8000 [3776]	6550 [3091]	9800 [4625]	8000 [3776]	6550 [3091]
DR ①			.05	.09	.12	.05	.09	.12	.05	.09	.12
OUTDOOR DRY BULB TEMPERATURE °F [°C]	75 [23.9]	Total kBtu/h [kW]	291.0 [85.3]	279.5 [81.9]	270.3 [79.2]	273.2 [80.1]	262.4 [76.9]	253.8 [74.4]	255.4 [74.9]	245.3 [71.9]	237.3 [69.5]
		Sens kBtu/h [kW]	175.7 [51.5]	159.0 [46.6]	145.6 [42.7]	216.7 [63.5]	196.1 [57.5]	179.5 [52.6]	255.4 [74.9]	233.8 [68.5]	214.0 [62.7]
		Power	19.8	19.4	19.1	19.7	19.3	19.0	19.6	19.2	18.9
	80 [26.7]	Total kBtu/h [kW]	286.5 [84.0]	275.3 [80.7]	266.2 [78.0]	268.7 [78.8]	258.2 [75.7]	249.7 [73.2]	250.9 [73.5]	241.1 [70.7]	233.1 [68.3]
		Sens kBtu/h [kW]	173.0 [50.7]	156.6 [45.9]	143.3 [42.0]	214.0 [62.7]	193.6 [56.7]	177.2 [51.9]	250.9 [73.5]	231.3 [67.8]	211.8 [62.1]
		Power	20.7	20.3	20.0	20.6	20.2	19.9	20.5	20.1	19.8
	85 [29.4]	Total kBtu/h [kW]	282.1 [82.7]	271.0 [79.4]	262.0 [76.8]	264.3 [77.5]	253.9 [74.4]	245.5 [72.0]	246.5 [72.2]	236.8 [69.4]	229.0 [67.1]
		Sens kBtu/h [kW]	170.9 [50.1]	154.7 [45.3]	141.6 [41.5]	211.9 [62.1]	191.7 [56.2]	175.5 [51.4]	246.5 [72.2]	229.4 [67.2]	210.0 [61.5]
		Power	21.7	21.3	20.9	21.6	21.2	20.8	21.5	21.1	20.8
	90 [32.2]	Total kBtu/h [kW]	277.6 [81.4]	266.7 [78.2]	257.9 [75.6]	259.8 [76.1]	249.6 [73.2]	241.4 [70.8]	242.0 [70.9]	232.5 [68.1]	224.8 [65.9]
		Sens kBtu/h [kW]	169.4 [49.6]	153.3 [44.9]	140.3 [41.1]	210.3 [61.6]	190.4 [55.8]	174.3 [51.1]	242.0 [70.9]	228.1 [66.9]	208.8 [61.2]
		Power	22.7	22.2	21.9	22.6	22.2	21.8	22.5	22.1	21.7
	95 [35]	Total kBtu/h [kW]	273.1 [80.0]	262.4 [76.9]	253.8 [74.4]	255.3 [74.8]	245.3 [71.9]	237.2 [69.5]	237.5 [69.6]	228.2 [66.9]	220.7 [64.7]
		Sens kBtu/h [kW]	168.5 [49.4]	152.5 [44.7]	139.6 [40.9]	209.4 [61.4]	189.5 [55.5]	173.5 [50.8]	237.5 [69.6]	227.2 [66.6]	208.0 [61.0]
		Power	23.7	23.3	22.9	23.7	23.2	22.8	23.6	23.1	22.7
	100 [37.8]	Total kBtu/h [kW]	268.7 [78.8]	258.1 [75.6]	249.6 [73.2]	250.9 [73.5]	241.0 [70.6]	233.1 [68.3]	233.1 [68.3]	223.9 [65.6]	216.5 [63.5]
		Sens kBtu/h [kW]	168.2 [49.3]	152.2 [44.6]	139.3 [40.8]	209.1 [61.3]	189.2 [55.5]	173.2 [50.8]	233.1 [68.3]	223.9 [65.6]	207.7 [60.9]
		Power	24.8	24.3	23.9	24.7	24.3	23.9	24.7	24.2	23.8
	105 [40.6]	Total kBtu/h [kW]	264.2 [77.4]	253.8 [74.4]	245.5 [72.0]	246.4 [72.2]	236.7 [69.4]	228.9 [67.1]	228.6 [67.0]	219.6 [64.4]	212.4 [62.3]
		Sens kBtu/h [kW]	168.4 [49.4]	152.4 [44.7]	139.5 [40.9]	209.4 [61.4]	189.5 [55.5]	173.5 [50.8]	228.6 [67.0]	219.6 [64.4]	208.0 [61.0]
		Power	25.9	25.4	25.0	25.9	25.3	24.9	25.8	25.3	24.9
	110 [43.3]	Total kBtu/h [kW]	259.7 [76.1]	249.5 [73.1]	241.3 [70.7]	242.0 [70.9]	232.4 [68.1]	224.8 [65.9]	224.2 [65.7]	215.4 [63.1]	208.3 [61.0]
		Sens kBtu/h [kW]	169.3 [49.6]	153.2 [44.9]	140.3 [41.1]	210.3 [61.6]	190.3 [55.8]	174.2 [51.1]	224.2 [65.7]	215.4 [63.1]	208.3 [61.0]
		Power	27.1	26.6	26.1	27.0	26.5	26.1	26.9	26.4	26.0
	115 [46.1]	Total kBtu/h [kW]	255.3 [74.8]	245.3 [71.9]	237.2 [69.5]	237.5 [69.6]	228.2 [66.9]	220.6 [64.7]	219.7 [64.4]	211.1 [61.9]	204.1 [59.8]
		Sens kBtu/h [kW]	170.8 [50.1]	154.6 [45.3]	141.5 [41.5]	211.7 [62.0]	191.6 [56.2]	175.4 [51.4]	219.7 [64.4]	211.1 [61.9]	204.1 [59.8]
		Power	28.3	27.7	27.3	28.2	27.6	27.2	28.1	27.6	27.1
	120 [48.9]	Total kBtu/h [kW]	250.8 [73.5]	241.0 [70.6]	233.0 [68.3]	233.0 [68.3]	223.9 [65.6]	216.5 [63.5]	215.2 [63.1]	206.8 [60.6]	200.0 [58.6]
		Sens kBtu/h [kW]	172.8 [50.6]	156.4 [45.8]	143.2 [42.0]	213.8 [62.7]	193.5 [56.7]	177.1 [51.9]	215.2 [63.1]	206.8 [60.6]	200.0 [58.6]
		Power	29.5	28.9	28.5	29.4	28.8	28.4	29.3	28.8	28.3
	125 [51.7]	Total kBtu/h [kW]	246.4 [72.2]	236.7 [69.4]	228.9 [67.1]	228.6 [67.0]	219.6 [64.4]	212.4 [62.3]	210.8 [61.8]	202.5 [59.3]	195.8 [57.4]
		Sens kBtu/h [kW]	175.5 [51.4]	158.8 [46.5]	145.4 [42.6]	216.4 [63.4]	195.9 [57.4]	179.3 [52.5]	210.8 [61.8]	202.5 [59.3]	195.8 [57.4]
		Power	30.7	30.1	29.7	30.7	30.1	29.6	30.6	30.0	29.5

DR —Depression ratio
dbE —Entering air dry bulb
wbE—Entering air wet bulb
Total —Total capacity x 1000 Btu/h
Sens —Sensible capacity x 1000 Btu/h
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

HEATING PERFORMANCE DATA—RHPHYB240

IDB			60°F [15.5°C]			70°F [21.1°C]			80°F [26.7°C]		
CFM [L/s]			9925 [4684]	8000 [3776]	6600 [3115]	9925 [4684]	8000 [3776]	6600 [3115]	9925 [4684]	8000 [3776]	6600 [3115]
OUTDOOR DRY BULB TEMPERATURE °F [°C]	**0 [-17.8]**	**Total kBtu/h [kW]**	101.0 [29.6]	99.3 [29.1]	98.1 [28.8]	98.7 [28.9]	97.1 [28.5]	95.9 [28.1]	96.4 [28.3]	94.8 [27.8]	93.6 [27.4]
		Power	15.8	16.2	16.6	17.2	17.7	18.1	19.1	19.7	20.1
	5 [-15]	**Total kBtu/h [kW]**	117.4 [34.4]	115.4 [33.8]	113.9 [33.4]	115.1 [33.7]	113.1 [33.1]	111.7 [32.7]	112.8 [33.1]	110.9 [32.5]	109.5 [32.1]
		Power	16.1	16.6	17.0	17.5	18.1	18.5	19.5	20.1	20.5
	10 [-12.2]	**Total kBtu/h [kW]**	133.7 [39.2]	131.4 [38.5]	129.8 [38.0]	131.4 [38.5]	129.2 [37.9]	127.5 [37.4]	129.1 [37.8]	126.9 [37.2]	125.3 [36.7]
		Power	16.4	16.9	17.3	17.9	18.4	18.8	19.8	20.4	20.8
	15 [-9.4]	**Total kBtu/h [kW]**	150.0 [44.0]	147.4 [43.2]	145.6 [42.7]	147.7 [43.3]	145.2 [42.6]	143.4 [42.0]	145.4 [42.6]	142.9 [41.9]	141.1 [41.4]
		Power	16.8	17.3	17.7	18.2	18.8	19.2	20.1	20.7	21.2
	20 [-6.7]	**Total kBtu/h [kW]**	166.3 [48.7]	163.5 [47.9]	161.4 [47.3]	164.0 [48.1]	161.2 [47.2]	159.2 [46.7]	161.7 [47.4]	159.0 [46.6]	157.0 [46.0]
		Power	17.1	17.6	18.0	18.5	19.1	19.5	20.5	21.1	21.5
	25 [-3.9]	**Total kBtu/h [kW]**	182.6 [53.5]	179.5 [52.6]	177.3 [52.0]	180.3 [52.8]	177.3 [52.0]	175.0 [51.3]	178.0 [52.2]	175.0 [51.3]	172.8 [50.6]
		Power	17.4	18.0	18.4	18.9	19.5	19.9	20.8	21.4	21.9
	30 [-1.1]	**Total kBtu/h [kW]**	198.9 [58.3]	195.6 [57.3]	193.1 [56.6]	196.6 [57.6]	193.3 [56.7]	190.9 [55.9]	194.3 [56.9]	191.0 [56.0]	188.7 [55.3]
		Power	17.8	18.3	18.7	19.2	19.8	20.2	21.1	21.8	22.3
	35 [1.7]	**Total kBtu/h [kW]**	215.2 [63.1]	211.6 [62.0]	209.0 [61.3]	212.9 [62.4]	209.3 [61.3]	206.7 [60.6]	210.6 [61.7]	207.1 [60.7]	204.5 [59.9]
		Power	18.1	18.7	19.1	19.6	20.2	20.6	21.5	22.1	22.6
	40 [4.4]	**Total kBtu/h [kW]**	231.5 [67.8]	227.6 [66.7]	224.8 [65.9]	229.2 [67.2]	225.4 [66.1]	222.6 [65.2]	227.0 [66.5]	223.1 [65.4]	220.3 [64.6]
		Power	18.4	19.0	19.4	19.9	20.5	21.0	21.8	22.5	23.0
	45 [7.2]	**Total kBtu/h [kW]**	247.9 [72.7]	243.7 [71.4]	240.6 [70.5]	245.6 [72.0]	241.4 [70.8]	238.4 [69.9]	243.3 [71.3]	239.2 [70.1]	236.2 [69.2]
		Power	18.8	19.3	19.8	20.2	20.8	21.3	22.1	22.8	23.3
	50 [10]	**Total kBtu/h [kW]**	264.2 [77.4]	259.7 [76.1]	256.5 [75.2]	261.9 [76.8]	257.5 [75.5]	254.2 [74.5]	259.6 [76.1]	255.2 [74.8]	252.0 [73.9]
		Power	19.1	19.7	20.1	20.6	21.2	21.7	22.5	23.2	23.7

IDB—Indoor air dry bulb

[ ] Designates Metric Conversions

AIRFLOW PERFORMANCE— 15 TON [52.7 kW]—SIDEFLOW

Air Flow CFM [L/s]	Model RHPHYB180 Voltage 208/230, 460, 575 — 3 phase																																					
	External Static Pressure—Inches of Water [kPa]																																					
	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4800 [2265]	—	—	—	—	—	—	—	—	522	1132	555	1273	588	1418	620	1569	651	1725	681	1887	711	2054	740	2225	768	2403	796	2585	823	2773	849	2966	875	3164	899	3368	924	3577	—	—
5000 [2359]	—	—	—	—	—	—	—	—	530	1196	563	1341	595	1490	626	1645	657	1805	687	1971	717	2141	746	2317	774	2498	801	2685	828	2877	854	3074	879	3276	904	3483	927	3696	—	—
5200 [2454]	—	—	—	—	—	—	—	—	538	1269	570	1417	602	1571	633	1729	664	1893	694	2063	723	2237	752	2417	779	2602	807	2793	833	2989	859	3189	884	3396	908	3607	932	3824	—	—
5400 [2548]	—	—	—	—	—	—	513	1203	546	1350	578	1502	610	1660	641	1822	671	1990	701	2164	730	2342	758	2526	786	2715	813	2909	839	3109	864	3314	889	3524	913	3739	—	—	—	—
5600 [2643]	—	—	—	—	—	—	522	1289	555	1439	587	1596	618	1757	649	1924	679	2096	709	2273	737	2455	765	2643	793	2836	819	3035	845	3238	870	3447	895	3661	919	3880	—	—	—	—
5800 [2737]	—	—	—	—	—	—	532	1383	564	1538	596	1698	627	1863	658	2034	688	2210	717	2391	745	2577	773	2769	800	2966	826	3168	852	3376	877	3588	901	3806	924	4030	—	—	—	—
6000 [2831]	—	—	—	—	—	—	542	1486	574	1644	606	1808	637	1978	667	2152	696	2332	725	2517	753	2708	781	2903	808	3104	834	3310	859	3522	884	3738	908	3960	931	4188	—	—	—	—
6200 [2926]	—	—	—	—	520	1439	552	1597	584	1760	616	1928	646	2101	676	2279	706	2463	734	2652	762	2846	789	3046	816	3251	842	3461	867	3676	891	3897	915	4123	—	—	—	—	—	—
6400 [3020]	—	—	—	—	531	1555	563	1717	595	1883	626	2055	657	2232	686	2415	715	2603	744	2796	771	2994	798	3197	824	3406	850	3620	875	3840	899	4064	922	4294	—	—	—	—	—	—
6600 [3114]	—	—	—	—	543	1680	575	1845	606	2016	637	2191	667	2373	697	2559	726	2751	754	2948	781	3150	808	3357	834	3570	859	3788	883	4011	907	4240	930	4474	—	—	—	—	—	—
6800 [3209]	—	—	522	1649	555	1813	587	1982	618	2156	649	2336	679	2521	708	2712	736	2907	764	3108	791	3314	817	3526	843	3742	868	3964	892	4191	916	4424	—	—	—	—	—	—	—	—
7000 [3303]	—	—	535	1786	568	1954	599	2127	630	2306	661	2489	690	2678	719	2873	747	3072	775	3277	802	3487	828	3703	853	3923	878	4149	902	4380	925	4617	—	—	—	—	—	—	—	—
7200 [3398]	516	1765	549	1932	581	2104	612	2281	643	2464	673	2651	702	2844	731	3042	759	3246	786	3455	813	3669	839	3888	864	4113	888	4342	912	4577	—	—	—	—	—	—	—	—	—	—

NOTE: F-Drive left of the bold line, G-Drive right of the bold line.

Drive Package	F						G					
Motor H.P. [W]	3 [2237.1]						5 [3728.5]					
Blower Sheave	BK115H						BK105H					
Motor Sheave	1VL-44						1VP-56					
Turns Open	**1**	2	3	4	5	6	1	2	3	**4**	5	6
RPM	**660**	635	606	577	544	515	925	899	868	**836**	807	775

NOTES: 1. Factory sheave settings are shown in bold type.
2. Do not set motor sheave below minimum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

COMPONENT AIR RESISTANCE—15 TON [52.7 kW]

CFM [L/s]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]
	Resistance — Inches of Water [kPa]												
Wet Coil	0.03 [0.01]	0.04 [0.01]	0.05 [0.01]	0.06 [0.01]	0.06 [0.01]	0.07 [0.02]	0.08 [0.02]	0.09 [0.02]	0.10 [0.02]	0.10 [0.02]	0.11 [0.03]	0.12 [0.03]	0.13 [0.03]
Downflow	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.06 [0.01]	0.06 [0.01]	0.06 [0.01]	0.07 [0.02]	0.08 [0.02]	0.08 [0.02]
Downflow Economizer RA Damper Open	0.09 [0.02]	0.10 [0.02]	0.10 [0.02]	0.11 [0.03]	0.12 [0.03]	0.13 [0.03]	0.13 [0.03]	0.14 [0.03]	0.15 [0.04]	0.16 [0.04]	0.16 [0.04]	0.17 [0.04]	0.18 [0.04]
Horizontal Economizer RA Damper Open	0.00 [.00]	0.01 [.00]	0.01 [.00]	0.02 [.00]	0.02 [.00]	0.03 [.01]	0.03 [.01]	0.04 [.01]	0.04 [.01]	0.05 [.01]	0.05 [.01]	0.06 [.01]	0.06 [.01]
MERV 8 Filter	0.07 [0.02]	0.07 [0.02]	0.08 [0.02]	0.08 [0.02]	0.08 [0.02]	0.09 [0.02]	0.09 [0.02]	0.10 [0.02]	0.10 [0.02]	0.10 [0.03]	0.11 [0.03]	0.12 [0.03]	0.17 [0.04]
MERV 13 Filter	0.01 [0.00]	0.02 [0.00]	0.02 [0.01]	0.03 [0.01]	0.03 [0.01]	0.04 [0.01]	0.05 [0.01]	0.05 [0.01]	0.06 [0.01]	0.07 [0.02]	0.07 [0.02]	0.08 [0.02]	0.08 [0.02]
Concentric Diffuser RXRN-AD80 or RXRN-AD81 & Transition RXMC-CJ07	0.21 [0.05]	0.25 [0.06]	0.28 [0.07]	0.32 [0.08]	0.35 [0.09]	0.39 [0.10]	0.43 [0.11]	0.46 [0.11]	0.50 [0.12]	0.54 [0.13]	0.57 [0.14]	0.61 [0.15]	0.64 [0.16]

AIRFLOW CORRECTION FACTORS—15 TON [52.7 kW]

CFM	4800	5000	5200	5400	5600	5800	6000	6200	6400	6600	6800	7000	7200
[L/s]	[2265]	[2359]	[2454]	[2548]	[2643]	[2737]	[2831]	[2926]	[3020]	[3114]	[3209]	[3303]	[3398]
Total kBtu/h	0.97	0.97	0.98	0.98	0.99	1.00	1.00	1.01	1.02	1.02	1.03	1.03	1.04
Sensible kBtu/h	0.87	0.90	0.92	0.94	0.97	0.99	1.02	1.04	1.06	1.09	1.11	1.14	1.16
Power kW	0.98	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.02	1.02

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

[ ] Designates Metric Conversions

AIRFLOW PERFORMANCE—15 TON [52.7 kW]—DOWNFLOW

Air Flow CFM [L/s]	Model RHPHYB180 Voltage 208/230, 460, 575 — 3 phase																																							
	External Static Pressure—Inches of Water [kPa]																																								
	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4800 [2265]	—	—	—	—	—	—	—	—	548	1341	581	1480	613	1630	645	1793	676	1968	706	2155	735	2354	764	2565	792	2788	819	3023	845	3271	871	3530	896	3802	920	4086	—	—	—	—
5000 [2359]	—	—	—	—	—	—	523	1288	557	1419	589	1561	621	1716	652	1883	683	2062	712	2253	741	2457	769	2672	797	2900	824	3139	849	3391	875	3655	899	3931	923	4219	—	—	—	—
5200 [2454]	—	—	—	—	—	—	533	1366	566	1501	598	1648	629	1808	660	1979	690	2162	719	2358	747	2565	775	2785	802	3017	828	3260	854	3516	878	3785	902	4065	926	4357	—	—	—	—
5400 [2548]	—	—	—	—	—	—	542	1450	574	1590	606	1741	637	1904	667	2080	697	2267	725	2467	753	2679	781	2903	807	3139	833	3387	858	3647	882	3920	906	4204	—	—	—	—	—	—
5600 [2643]	—	—	—	—	—	—	551	1540	583	1683	615	1839	645	2006	675	2186	704	2378	732	2582	760	2798	786	3027	812	3267	838	3519	862	3784	886	4061	909	4349	—	—	—	—	—	—
5800 [2737]	—	—	—	—	529	1499	561	1634	593	1782	623	1942	653	2114	683	2298	711	2494	739	2703	766	2923	792	3156	818	3400	843	3657	867	3926	890	4207	913	4500	—	—	—	—	—	—
6000 [2831]	—	—	—	—	539	1595	571	1735	602	1887	632	2051	662	2227	690	2416	718	2616	746	2829	772	3053	798	3290	823	3539	848	3800	871	4073	894	4358	917	4656	—	—	—	—	—	—
6200 [2926]	—	—	—	—	549	1696	581	1840	611	1997	641	2165	670	2346	698	2538	726	2743	753	2960	779	3189	804	3430	829	3683	853	3949	876	4226	899	4515	920	4817	—	—	—	—	—	—
6400 [3020]	—	—	528	1667	560	1803	590	1952	621	2112	650	2285	678	2470	706	2667	734	2876	760	3097	786	3330	811	3576	835	3833	858	4103	881	4384	903	4678	924	4984	—	—	—	—	—	—
6600 [3114]	—	—	539	1775	570	1915	600	2068	630	2233	659	2410	687	2599	715	2800	741	3014	767	3239	792	3477	817	3726	841	3988	864	4262	886	4548	908	4846	—	—	—	—	—	—	—	—
6800 [3209]	—	—	550	1888	581	2033	611	2190	640	2359	668	2541	696	2734	723	2940	749	3157	775	3387	799	3629	823	3883	847	4149	869	4427	891	4717	912	5019	—	—	—	—	—	—	—	—
7000 [3303]	530	1870	561	2007	591	2156	621	2318	650	2491	678	2677	705	2874	731	3084	757	3306	782	3540	806	3786	830	4044	853	4315	875	4597	896	4892	917	5198	—	—	—	—	—	—	—	—
7200 [3398]	542	1990	573	2131	602	2285	631	2451	659	2628	687	2818	714	3020	740	3234	765	3460	790	3699	814	3949	837	4212	859	4486	881	4773	902	5072	922	5383	—	—	—	—	—	—	—	—

NOTE: F-Drive left of the bold line, G-Drive right of the bold line.

Drive Package	F						G					
Motor H.P. [W]	3 [2237.1]						5 [3728.5]					
Blower Sheave	BK115H						BK105H					
Motor Sheave	1VL-44						1VP-56					
Turns Open	**1**	2	3	4	5	6	1	2	3	**4**	5	6
RPM	**664**	638	611	582	553	524	917	893	865	**833**	802	769

NOTES: 1. Factory sheave settings are shown in bold type.
2. Do not set motor sheave below minimum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

COMPONENT AIR RESISTANCE—15 TON [52.7 kW]

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

AIRFLOW CORRECTION FACTORS—15 TON [52.7 kW]

CFM	4800	5000	5200	5400	5600	5800	6000	6200	6400	6600	6800	7000	7200
[L/s]	[2265]	[2359]	[2454]	[2548]	[2643]	[2737]	[2831]	[2926]	[3020]	[3114]	[3209]	[3303]	[3398]
Total kBtu/h	0.97	0.97	0.98	0.98	0.99	1.00	1.00	1.01	1.02	1.02	1.03	1.03	1.04
Sensible kBtu/h	0.87	0.90	0.92	0.94	0.97	0.99	1.02	1.04	1.06	1.09	1.11	1.14	1.16
Power kW	0.98	0.98	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.02	1.02

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

[ ] Designates Metric Conversions

AIRFLOW PERFORMANCE—20 TON [70.3 kW]—SIDEFLOW

Air Flow CFM [L/s]	Model RHPHYB240 Voltage 208/230, 460, 575 — 3 phase 60 Hz																																					
	External Static Pressure—Inches of Water [kPa]																																					
	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6400 [3020]	—	—	—	—	—	—	—	—	—	—	625	1907	648	2055	671	2207	694	2362	716	2520	738	2681	760	2845	782	3012	804	3182	825	3355	847	3532	868	3711	889	3894	910	4080	931	4268
6600 [3114]	—	—	—	—	—	—	—	—	—	—	632	2014	655	2164	677	2316	700	2472	722	2631	744	2793	765	2959	787	3127	808	3298	830	3473	851	3651	871	3831	892	4015	913	4202	933	4392
6800 [3209]	—	—	—	—	—	—	—	—	—	—	640	2128	662	2279	684	2433	706	2590	728	2750	749	2914	771	3080	792	3249	813	3422	834	3598	855	3776	875	3958	895	4143	916	4331	936	4522
7000 [3303]	—	—	—	—	—	—	—	—	625	2100	647	2249	669	2401	691	2557	713	2715	734	2876	755	3041	776	3208	797	3379	818	3553	838	3730	859	3909	879	4093	899	4279	919	4468	939	4660
7200 [3398]	—	—	—	—	—	—	—	—	633	2228	655	2378	677	2531	698	2687	719	2847	741	3009	761	3175	782	3344	803	3516	823	3691	843	3869	863	4050	883	4234	903	4421	922	4612	942	4805
7400 [3492]	—	—	—	—	—	—	—	—	642	2362	663	2514	685	2668	706	2825	727	2986	747	3150	768	3317	788	3487	809	3660	829	3836	848	4015	868	4197	888	4382	907	4571	926	4762	945	4957
7600 [3586]	—	—	—	—	—	—	629	2354	651	2504	672	2656	693	2812	713	2971	734	3132	754	3297	775	3465	795	3636	815	3811	834	3988	854	4168	873	4352	892	4538	911	4728	930	4921	949	5116
7800 [3681]	—	—	—	—	—	—	639	2502	660	2653	680	2806	701	2963	721	3123	742	3286	762	3452	782	3621	801	3793	821	3969	840	4147	859	4329	878	4513	897	4701	916	4892	934	5086	953	5283
8000 [3775]	—	—	—	—	627	2508	648	2657	669	2809	689	2964	710	3122	730	3283	750	3447	769	3614	789	3784	808	3958	827	4134	846	4314	865	4496	884	4682	903	4871	921	5063	939	5258	957	5456
8200 [3869]	—	—	—	—	638	2669	658	2819	678	2972	698	3128	718	3287	738	3449	758	3615	777	3783	796	3954	815	4129	834	4307	853	4488	871	4671	890	4858	908	5048	926	5241	944	5438	961	5637
8400 [3964]	—	—	628	2689	648	2837	668	2988	688	3142	708	3300	727	3460	747	3623	766	3790	785	3959	804	4132	823	4308	841	4486	860	4668	878	4853	896	5042	914	5233	931	5427	949	5624	966	5825
8600 [4058]	—	—	639	2863	659	3012	679	3165	698	3320	718	3478	737	3640	756	3804	775	3972	794	4143	812	4316	831	4493	849	4673	867	4856	885	5043	902	5232	920	5424	937	5620	954	5818	971	6020
8800 [4153]	630	2897	650	3045	670	3195	689	3348	708	3505	728	3664	746	3827	765	3992	784	4161	802	4333	820	4508	838	4686	856	4867	874	5052	891	5239	909	5429	926	5623	943	5820	960	6019	976	6222
9000 [4247]	642	3085	662	3233	681	3384	700	3539	719	3696	738	3857	756	4021	775	4188	793	4358	811	4531	829	4707	847	4886	864	5069	882	5254	899	5443	916	5634	932	5829	949	6027	966	6228	982	6432
9200 [4341]	654	3279	673	3428	692	3581	711	3737	730	3895	748	4057	767	4222	785	4390	802	4562	820	4736	838	4913	855	5093	872	5277	889	5464	906	5653	923	5846	939	6042	956	6241	972	6443	988	6648
9400[4436]	667	3480	686	3631	704	3785	723	3942	741	4102	759	4265	777	4431	795	4600	812	4772	830	4948	847	5126	864	5308	881	5493	897	5680	914	5871	930	6065	946	6262	962	6462	978	6666	994	6872
9600 [4530]	679	3689	698	3841	716	3996	734	4154	752	4315	770	4479	788	4647	805	4817	822	4990	839	5167	856	5347	873	5529	889	5715	906	5904	922	6096	938	6291	954	6490	969	6691	985	6895	1000	7103

NOTE: F-Drive left of the first bold line, G-Drive inbetween bold lines, H-Right of second bold line.

Drive Package	F						G						H (Field-Installed Only)					
Motor H.P. [W]	5 [3728.5]						7.5 [5592.7]						7.5 [5592.7]					
Blower Sheave	BK130H						BK130H						BK120H					
Motor Sheave	1VP56						1VP71						1VP71					
Turns Open	**1**	2	3	4	5	6	1	2	3	**4**	5	6	1	2	3	4	5	6
RPM	**752**	728	702	677	651	625	939	912	885	**846**	826	806	1005	978	950	910	889	869

NOTES: 1. Factory sheave settings are shown in bold type.
2. Do not set motor sheave below minimum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

COMPONENT AIR RESISTANCE—20 TON [52.7 kW]

CFM [L/s]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]	7400 [3492]	7600 [3586]	7800 [3681]	8000 [3775]	8200 [3869]	8400 [3964]	8600 [4058]	8800 [4153]	9000 [4247]	9200 [4341]	9400 [4436]	9600 [4530]
	Resistance — Inches of Water [kPa]																
Wet Coil	0.01 [0.00]	0.02 [0.00]	0.03 [0.01]	0.03 [0.01]	0.04 [0.01]	0.05 [0.01]	0.06 [0.01]	0.06 [0.01]	0.07 [0.02]	0.08 [0.02]	0.09 [0.02]	0.09 [0.02]	0.10 [0.02]	0.11 [0.03]	0.12 [0.03]	0.12 [0.03]	0.13 [0.03]
Downflow	0.06 [0.01]	0.06 [0.01]	0.07 [0.02]	0.08 [0.02]	0.08 [0.02]	0.09 [0.02]	0.10 [0.02]	0.11 [0.03]	0.12 [0.03]	0.13 [0.03]	0.14 [0.03]	0.15 [0.04]	0.16 [0.04]	0.18 [0.04]	0.19 [0.05]	0.20 [0.05]	0.22 [0.05]
Downflow Economizer RA Damper Open	0.15 [0.04]	0.16 [0.04]	0.16 [0.04]	0.17 [0.04]	0.18 [0.04]	0.19 [0.05]	0.20 [0.05]	0.21 [0.05]	0.22 [0.05]	0.23 [0.06]	0.24 [0.06]	0.25 [0.06]	0.26 [0.06]	0.27 [0.07]	0.28 [0.07]	0.29 [0.07]	0.30 [0.07]
Horizontal Economizer RA Damper Open	0.04 [0.01]	0.05 [0.01]	0.05 [0.01]	0.06 [0.01]	0.06 [0.01]	0.07 [0.02]	0.07 [0.02]	0.08 [0.02]	0.09 [0.02]	0.09 [0.02]	0.10 [0.02]	0.10 [0.02]	0.11 [0.03]	0.11 [0.03]	0.12 [0.03]	0.12 [0.03]	0.13 [0.03]
MERV 8 Filter	0.10 [0.02]	0.10 [0.03]	0.11 [0.03]	0.11 [0.03]	0.12 [0.03]	0.12 [0.03]	0.12 [0.03]	0.13 [0.03]	0.13 [0.03]	0.14 [0.03]	0.14 [0.03]	0.14 [0.04]	0.15 [0.04]	0.15 [0.04]	0.16 [0.04]	0.16 [0.04]	0.16 [0.04]
MERV 13 Filter	0.06 [0.01]	0.07 [0.02]	0.07 [0.02]	0.08 [0.02]	0.08 [0.02]	0.09 [0.02]	0.10 [0.02]	0.10 [0.03]	0.11 [0.03]	0.11 [0.03]	0.12 [0.03]	0.13 [0.03]	0.13 [0.03]	0.14 [0.03]	0.15 [0.03]	0.15 [0.04]	0.16 [0.04]
Concentric Diffuser RXRN-AD86 & Transition RXMC-CK08	-0.10 [0.02]	-0.06 [0.01]	-0.03 [0.01]	0.00 [0.00]	0.04 [0.01]	0.07 [0.02]	0.10 [0.02]	0.13 [0.03]	0.17 [0.04]	0.20 [0.05]	0.23 [0.06]	0.27 [0.07]	0.30 [0.07]	0.33 [0.08]	0.36 [0.09]	0.40 [0.10]	0.43 [0.11]

AIRFLOW CORRECTION FACTORS—20 TON [52.7 kW]

CFM	6400	6600	6800	7000	7200	7400	7600	7800	8000	8200	8400	8600	8800	9000	9200	9400	9600
[L/s]	[3020]	[3114]	[3209]	[3303]	[3398]	[3492]	[3586]	[3681]	[3775]	[3869]	[3964]	[4058]	[4153]	[4247]	[4341]	[4436]	[4530]
Total kBtu/h	0.94	0.94	0.95	0.95	0.96	0.96	0.96	0.97	0.97	0.98	0.98	0.98	0.99	0.99	0.99	1.00	1.00
Sensible kBtu/h	0.77	0.79	0.80	0.82	0.83	0.85	0.86	0.88	0.89	0.91	0.92	0.94	0.95	0.97	0.98	1.00	1.01
Power kW	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00

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

[ ] Designates Metric Conversions

AIRFLOW PERFORMANCE—20 TON [70.3 kW]—DOWNFLOW

Air Flow CFM [L/s]	Model RHPHYB240 Voltage 208/230, 460, 575 — 3 phase 60 Hz																																					
	External Static Pressure—Inches of Water [kPa]																																					
	0.1 [.02]		0.2 [.05]		0.3 [.07]		0.4 [.10]		0.5 [.12]		0.6 [.15]		0.7 [.17]		0.8 [.20]		0.9 [.22]		1.0 [.25]		1.1 [.27]		1.2 [.30]		1.3 [.32]		1.4 [.35]		1.5 [.37]		1.6 [.40]		1.7 [.42]		1.8 [.45]		1.9 [.47]		2.0 [.50]	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6400 [3020]	—	—	—	—	—	—	—	—	654	2181	682	2358	710	2540	737	2727	763	2920	788	3119	813	3323	838	3532	861	3747	884	3968	907	4194	928	4426	949	4663	970	4906	989	5154	—	—
6600 [3114]	—	—	—	—	—	—	—	—	664	2297	692	2478	719	2664	745	2856	771	3053	797	3256	821	3464	845	3678	869	3898	891	4123	913	4353	935	4589	955	4831	975	5078	995	5331	—	—
6800 [3209]	—	—	—	—	—	—	—	—	674	2421	701	2606	728	2797	754	2993	780	3194	805	3401	829	3614	853	3832	876	4056	898	4285	920	4520	941	4761	961	5006	981	5258	—	—	—	—
7000 [3303]	—	—	—	—	—	—	656	2369	684	2553	711	2742	737	2937	763	3137	789	3343	813	3555	837	3772	861	3994	883	4222	905	4456	927	4695	947	4940	967	5190	987	5446	—	—	—	—
7200 [3398]	—	—	—	—	—	—	666	2504	694	2692	721	2886	747	3085	773	3290	797	3500	822	3716	845	3937	868	4164	891	4397	912	4634	933	4878	954	5127	974	5381	993	5641	—	—	—	—
7400 [3492]	—	—	—	—	—	—	677	2648	704	2840	731	3038	757	3241	782	3450	806	3665	830	3885	854	4111	876	4342	898	4579	920	4821	940	5069	960	5322	980	5581	—	—	—	—	—	—
7600 [3586]	—	—	—	—	660	2608	687	2799	714	2996	741	3198	766	3406	791	3619	815	3838	839	4062	862	4292	884	4528	906	4769	927	5015	948	5267	967	5525	986	5788	—	—	—	—	—	—
7800 [3681]	—	—	—	—	671	2762	698	2958	725	3159	751	3366	776	3578	801	3795	825	4019	848	4247	871	4482	893	4721	914	4967	935	5218	955	5474	974	5736	993	6003	—	—	—	—	—	—
8000 [3775]	—	—	655	2731	682	2925	709	3125	735	3330	761	3541	786	3758	810	3980	834	4207	857	4440	879	4679	901	4923	922	5173	942	5428	962	5688	981	5955	—	—	—	—	—	—	—	—
8200 [3869]	—	—	666	2897	694	3096	720	3300	746	3510	771	3725	796	3946	820	4172	843	4404	866	4641	888	4884	909	5133	930	5386	950	5646	969	5911	988	6182	—	—	—	—	—	—	—	—
8400 [3964]	650	2874	678	3072	705	3274	731	3483	757	3697	782	3917	806	4142	830	4372	853	4608	875	4850	897	5097	918	5350	938	5608	958	5872	977	6141	—	—	—	—	—	—	—	—	—	—
8600 [4058]	663	3052	690	3254	717	3461	743	3674	768	3892	792	4116	816	4345	840	4580	862	4821	884	5067	906	5318	926	5575	947	5838	966	6106	985	6380	—	—	—	—	—	—	—	—	—	—
8800 [4153]	675	3238	702	3444	728	3656	754	3873	779	4095	803	4323	827	4557	850	4796	872	5041	894	5292	915	5547	935	5809	955	6076	974	6348	992	6626	—	—	—	—	—	—	—	—	—	—
9000 [4247]	688	3432	714	3642	740	3858	765	4079	790	4306	814	4539	837	4777	860	5020	882	5270	903	5524	924	5784	944	6050	963	6321	982	6598	—	—	—	—	—	—	—	—	—	—	—	—
9200 [4341]	700	3633	726	3848	752	4068	777	4294	801	4525	825	4762	848	5005	870	5252	892	5506	913	5765	933	6029	953	6299	972	6575	991	6856	—	—	—	—	—	—	—	—	—	—	—	—
9400[4436]	713	3843	739	4062	764	4287	789	4517	813	4752	836	4993	859	5240	881	5492	902	5750	923	6013	943	6282	962	6556	981	6836	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9600 [4530]	726	4061	751	4284	776	4513	801	4747	824	4987	847	5233	870	5484	891	5740	912	6002	933	6270	952	6543	971	6821	990	7106	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE: F-Drive left of the first bold line, G-Drive in between bold lines, H-Right of second bold line.

Drive Package	F						G						H (Field-Installed Only)					
Motor H.P. [W]	5 [3728.5]						7.5 [5592.7]						7.5 [5592.7]					
Blower Sheave	BK130H						BK130H						BK120H					
Motor Sheave	1VP56						1VP71						1VP71					
Turns Open	**1**	2	3	4	5	6	1	2	3	**4**	5	6	1	2	3	4	5	6
RPM	**751**	730	705	679	654	655	941	914	886	**860**	833	806	1016	989	960	932	904	875

NOTES: 1. Factory sheave settings are shown in bold type.
2. Do not set motor sheave below minimum turns open shown.
3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.
4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

COMPONENT AIR RESISTANCE—20 TON [52.7 kW]

CFM [L/s]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]	7400 [3492]	7600 [3586]	7800 [3681]	8000 [3775]	8200 [3869]	8400 [3964]	8600 [4058]	8800 [4153]	9000 [4247]	9200 [4341]	9400 [4436]	9600 [4530]
	Resistance — Inches of Water [kPa]																
Wet Coil	0.01 [0.00]	0.02 [0.00]	0.03 [0.01]	0.03 [0.01]	0.04 [0.01]	0.05 [0.01]	0.06 [0.01]	0.06 [0.01]	0.07 [0.02]	0.08 [0.02]	0.09 [0.02]	0.09 [0.02]	0.10 [0.02]	0.11 [0.03]	0.12 [0.03]	0.12 [0.03]	0.13 [0.03]
Downflow Economizer RA Damper Open	0.15 [0.04]	0.16 [0.04]	0.16 [0.04]	0.17 [0.04]	0.18 [0.04]	0.19 [0.05]	0.20 [0.05]	0.21 [0.05]	0.22 [0.05]	0.23 [0.06]	0.24 [0.06]	0.25 [0.06]	0.26 [0.06]	0.27 [0.07]	0.28 [0.07]	0.29 [0.07]	0.30 [0.07]
Horizontal Economizer RA Damper Open	0.04 [0.01]	0.05 [0.01]	0.05 [0.01]	0.06 [0.01]	0.06 [0.01]	0.07 [0.02]	0.07 [0.02]	0.08 [0.02]	0.09 [0.02]	0.09 [0.02]	0.10 [0.02]	0.10 [0.02]	0.11 [0.03]	0.11 [0.03]	0.12 [0.03]	0.12 [0.03]	0.13 [0.03]
MERV 8 Filter	0.10 [0.02]	0.10 [0.03]	0.11 [0.03]	0.11 [0.03]	0.12 [0.03]	0.12 [0.03]	0.12 [0.03]	0.13 [0.03]	0.13 [0.03]	0.14 [0.03]	0.14 [0.03]	0.14 [0.04]	0.15 [0.04]	0.15 [0.04]	0.16 [0.04]	0.16 [0.04]	0.16 [0.04]
MERV 13 Filter	0.06 [0.01]	0.07 [0.02]	0.07 [0.02]	0.08 [0.02]	0.08 [0.02]	0.09 [0.02]	0.10 [0.02]	0.10 [0.03]	0.11 [0.03]	0.11 [0.03]	0.12 [0.03]	0.13 [0.03]	0.13 [0.03]	0.14 [0.03]	0.15 [0.03]	0.15 [0.04]	0.16 [0.04]
Concentric Diffuser RXRN-AD86 & Transition RXMC-CK08	-0.10 [0.02]	-0.06 [0.01]	-0.03 [0.01]	0.00 [0.00]	0.04 [0.01]	0.07 [0.02]	0.10 [0.02]	0.13 [0.03]	0.17 [0.04]	0.20 [0.05]	0.23 [0.06]	0.27 [0.07]	0.30 [0.07]	0.33 [0.08]	0.36 [0.09]	0.40 [0.10]	0.43 [0.11]

AIRFLOW CORRECTION FACTORS—20 TON [52.7 kW]

CFM	6400	6600	6800	7000	7200	7400	7600	7800	8000	8200	8400	8600	8800	9000	9200	9400	9600
[L/s]	[3020]	[3114]	[3209]	[3303]	[3398]	[3492]	[3586]	[3681]	[3775]	[3869]	[3964]	[4058]	[4153]	[4247]	[4341]	[4436]	[4530]
Total kBtu/h	0.94	0.94	0.95	0.95	0.96	0.96	0.96	0.97	0.97	0.98	0.98	0.98	0.99	0.99	0.99	1.00	1.00
Sensible kBtu/h	0.77	0.79	0.80	0.82	0.83	0.85	0.86	0.88	0.89	0.91	0.92	0.94	0.95	0.97	0.98	1.00	1.01
Power kW	0.97	0.97	0.98	0.98	0.98	0.98	0.98	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00

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

[ ] Designates Metric Conversions

ELECTRICAL DATA – RHPHYB SERIES

		180ACF	180ACG	180ADF	180ADG	180AYF	180AYG
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Hz	60	60	60	60	60	60
	Minimum Circuit Ampacity	82	86	37	38	28	30
	Minimum Circuit Ampacity with Power Exhaust	92	96	41	43	31	33
	Minimum Overcurrent Protection Device Size	90	100	40	45	35	35
	Minimum Overcurrent Protection Device Size with Power Exhaust	100	110	45	50	35	35
	Maximum Overcurrent Protection Device Size	100	110	45	45	35	35
	Maximum Overcurrent Protection Device Size with Power Exhaust	110	110	50	50	35	40
Compressor Motor	No.	2	2	2	2	2	2
	Volts	200-230	200-230	460	460	575	575
	Phase	3	3	3	3	3	3
	Amps (RLA), Comp. 1	27.7	27.7	11.5	11.5	9	9
	Amps (LRA), Comp. 1	178.5	178.5	103	103	78	78
	Amps (RLA), Comp. 2	27.7	27.7	11.5	11.5	9	9
	Amps (LRA), Comp. 2	178.5	178.5	103	103	78	78
Condenser Motor	No.	4	4	4	4	4	4
	Volts	208-230	208-230	460	460	575	575
	Phase	1	1	1	1	1	1
	HP	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA, each)	2.4	2.4	1.4	1.4	1	1
	Amps (LRA, each)	4.7	4.7	2.4	2.4	1.5	1.5
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208-230	208-230	460	460	575	575
	Phase	3	3	3	3	3	3
	HP	3	5	3	5	3	5
	Amps (FLA, each)	9.2	13.6	4.6	6.3	3.5	5.1
	Amps (LRA, each)	74.5	95	38.1	47.5	30	38

ELECTRICAL DATA – RHPHYB SERIES

		240ACF	240ACG 240ACH	240ADF	240ADG 240ADH	240AYF	240AYG 240AYH
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	Hz	60	60	60	60	60	60
	Minimum Circuit Ampacity	99	107	48	51	38	41
	Minimum Circuit Ampacity with Power Exhaust	109	117	52	56	41	44
	Minimum Overcurrent Protection Device Size	110	125	60	60	45	45
	Minimum Overcurrent Protection Device Size with Power Exhaust	125	125	60	60	45	50
	Maximum Overcurrent Protection Device Size	125	125	60	60	50	50
	Maximum Overcurrent Protection Device Size with Power Exhaust	125	125	60	70	50	50
Compressor Motor	No.	2	2	2	2	2	2
	Volts	200-230	200-230	460	460	575	575
	Phase	3	3	3	3	3	3
	Amps (RLA), Comp. 1	33.3	33.3	15.4	15.4	13	13
	Amps (LRA), Comp. 1	255	255	140	140	107.6	107.6
	Amps (RLA), Comp. 2	29.2	29.2	13.5	13.5	10.7	10.7
	Amps (LRA), Comp. 2	255	255	123	123	93.7	93.7
Condenser Motor	No.	6	6	6	6	6	6
	Volts	208-230	208-230	460	460	575	575
	Phase	1	1	1	1	1	1
	HP	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA, each)	2.4	2.4	1.4	1.4	1	1
	Amps (LRA, each)	4.7	4.7	2.4	2.4	1.5	1.5
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	208/230	575	575
	Phase	3	3	3	3	3	3
	HP	5	7.5	5	7.5	5	7.5
	Amps (FLA, each)	13.6	21	6.3	9.6	5.1	7.7
	Amps (LRA, each)	95	127	47.5	63.5	38	50.8

208/230 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION WITHOUT POWERED EXHAUST													
				Single Power Supply				Multiple Power Supply					
Unit Model Number RHPHYB	Model No. RXJJ-	Rated Heater kW @ 208/230	Heater Kit FLA	Unit Min. Ckt. Ampacity	Unit Min. Ckt. Ampacity with Optional Powered Exhaust	Max. Fuse or Ckt. Bkr. Size	Max. Fuse or Ckt. Bkr. Size With Optional Powered Exhaust	Heater Kit Min. Ckt. Ampacity	Heater Kit Max. Fuse or Ckt.Bkr. Size	Air Cond. Min. Ckt. Ampacity	Air Cond. Ampacity With Optional Exhaust	Air Cond. Max. Fuse or Ckt. Bkr. Size	Air Cond. Max. Fuse or Ckt. Bkr. Size with Optional Powered Exhaust
180ACF	NONE*	—/—	—/—	82/82	92/92	100/100	110/110	—/—	—/—	82/82	92/92	100/100	110/110
	CE20C	14.4/19.2	40.0/46.2	132/139	142/149	150/150	150/150	50/58	50/60	82/82	92/92	100/100	110/110
	CE40C	28.8/38.4	79.9/92.4	181/197	191/207	200/200	200/225	100/116	100/125	82/82	92/92	100/100	110/110
	CE60C	43.2/57.6	119.9/138.6	231/255	241/265	250/300	250/300	150/174	150/175	82/82	92/92	100/100	110/110
	CE75C	54.0/72.0	149.9/173.2	269/298	279/308	300/300	300/350	188/217	200/225	82/82	92/92	100/100	110/110
180ACG	NONE*	—/—	—/—	86/86	96/96	110/110	110/110	—/—	—/—	86/86	96/96	110/110	110/110
	CE20C	14.4/19.2	40.0/46.2	136/144	146/154	150/150	150/175	50/58	50/60	86/86	96/96	110/110	110/110
	CE40C	28.8/38.4	79.9/92.4	186/202	196/212	200/225	200/225	100/116	100/125	86/86	96/96	110/110	110/110
	CE60C	43.2/57.6	119.9/138.6	236/259	246/269	250/300	250/300	150/174	150/175	86/86	96/96	110/110	110/110
	CE75C	54.0/72.0	149.9/173.2	273/303	283/313	300/350	300/350	188/217	200/225	86/86	96/96	110/110	110/110
240ACF	NONE*	—/—	—/—	99/99	109/109	125/125	125/125	—	—	99/99	109/109	125/125	125/125
	CE20C	14.4/19.2	40.0/46.2	149/157	159/167	150/175	175/175	50/58	50/60	99/99	109/109	125/125	125/125
	CE40C	28.8/38.4	79.9/92.4	199/215	209/225	200/225	225/225	100/116	100/125	99/99	109/109	125/125	125/125
	CE60C	43.2/57.6	119.9/138.6	249/273	259/283	250/300	300/300	150/174	150/175	99/99	109/109	125/125	125/125
	CE75C	54.0/72.0	149.9/173.2	287/316	297/326	300/350	300/350	188/217	200/225	99/99	109/109	125/125	125/125
240ACG	NONE*	—/—	—/—	107/107	117/117	125/125	125/125	—	—	107/107	117/117	125/125	125/125
	CE20C	14.4/19.2	40.0/46.2	157/164	167/174	175/175	175/175	50/58	50/60	107/107	117/117	125/125	125/125
	CE40C	28.8/38.4	79.9/92.4	207/222	217/232	225/225	225/250	100/116	100/125	107/107	117/117	125/125	125/125
	CE60C	43.2/57.6	119.9/138.6	257/280	267/290	300/300	300/300	150/174	150/175	107/107	117/117	125/125	125/125
	CE75C	54.0/72.0	149.9/173.2	294/323	304/333	300/350	350/350	188/217	200/225	107/107	117/117	125/125	125/125
240ACH	NONE*	—/—	—/—	107/107	117/117	125/125	125/125	—	—	107/107	117/117	125/125	125/125
	CE20C	14.4/19.2	40.0/46.2	157/164	167/174	175/175	175/175	50/58	50/60	107/107	117/117	125/125	125/125
	CE40C	28.8/38.4	79.9/92.4	207/222	217/232	225/225	225/250	100/116	100/125	107/107	117/117	125/125	125/125
	CE60C	43.2/57.6	119.9/138.6	257/280	267/290	300/300	300/300	150/174	150/175	107/107	117/117	125/125	125/125
	CE75C	54.0/72.0	149.9/173.2	294/323	304/333	300/350	350/350	188/217	200/225	107/107	117/117	125/125	125/125

460 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION WITHOUT POWERED EXHAUST													
				Single Power Supply				Multiple Power Supply					
Unit Model Number RHPHYB	Model No. RXJJ-	Rated Heater kW @ 460	Heater Kit FLA	Unit Min. Ckt. Ampacity	Unit Min. Ckt. Ampacity with Optional Powered Exhaust	Max. Fuse or Ckt. Bkr. Size	Max. Fuse or Ckt. Bkr. Size With Optional Powered Exhaust	Heater Kit Min. Ckt. Ampacity	Heater Kit Max. Fuse or Ckt. Bkr. Size	Air Cond. Min. Ckt. Ampacity	Air Cond. Ampacity With Optional Exhaust	Air Cond. Max. Fuse or Ckt. Bkr. Size	Air Cond. Max. Fuse or Ckt. Bkr. Size with Optional Powered Exhaust
180ADF	NONE*	—	—	37	41	45	50	—	—	37	41	45	50
	CE20D	19.2	23.1	65	70	70	70	29	30	37	41	45	50
	CE40D	38.4	46.2	94	99	100	100	58	60	37	41	45	50
	CE60D	57.6	69.3	123	128	125	150	87	90	37	41	45	50
	CE75D	72.0	86.6	145	149	150	150	109	110	37	41	45	50
180ADG	NONE*	—	—	38	43	45	50	—	—	38	43	45	50
	CE20D	19.2	23.1	67	71	70	80	29	30	38	43	45	50
	CE40D	38.4	46.2	96	100	100	100	58	60	38	43	45	50
	CE60D	57.6	69.3	125	129	125	150	87	90	38	43	45	50
	CE75D	72.0	86.6	146	151	150	175	109	110	38	43	45	50
240ADF	NONE*	—	—	48	52	60	60	—	—	48	52	60	60
	CE20D	19.2	23.1	77	81	80	90	29	30	48	52	60	60
	CE40D	38.4	46.2	106	110	110	110	58	60	48	52	60	60
	CE60D	57.6	69.3	135	139	150	150	87	90	48	52	60	60
	CE75D	72.0	86.6	156	161	175	175	109	110	48	52	60	60
240ADG	NONE*	—	—	51	56	60	70	—	—	51	56	60	70
	CE20D	19.2	23.1	80	84	80	90	29	30	51	56	60	70
	CE40D	38.4	46.2	109	113	110	125	58	60	51	56	60	70
	CE60D	57.6	69.3	138	142	150	150	87	90	51	56	60	70
	CE75D	72.0	86.6	159	164	175	175	109	110	51	56	60	70
240ADH	NONE*	—	—	51	56	60	70	—	—	51	56	60	70
	CE20D	19.2	23.1	80	84	80	90	29	30	51	56	60	70
	CE40D	38.4	46.2	109	113	110	125	58	60	51	56	60	70
	CE60D	57.6	69.3	138	142	150	150	87	90	51	56	60	70
	CE75D	72.0	86.6	159	164	175	175	109	110	51	56	60	70

575 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION WITHOUT POWERED EXHAUST													
				Single Power Supply				Multiple Power Supply					
Unit Model Number RHPHYB	Model No. RXJJ-	Rated Heater kW @ 575	Heater Kit FLA	Unit Min. Ckt. Ampacity	Unit Min. Ckt. Ampacity with Optional Powered Exhaust	Max. Fuse or Ckt. Bkr. Size	Max. Fuse or Ckt. Bkr. Size With Optional Powered Exhaust	Heater Kit Min. Ckt. Ampacity	Heater Kit Max. Fuse or Ckt. Bkr. Size	Air Cond. Min. Ckt. Ampacity	Air Cond. Ampacity With Optional Exhaust	Air Cond. Max. Fuse or Ckt. Bkr. Size	Air Cond. Max. Fuse or Ckt. Bkr. Size with Optional Powered Exhaust
180AYF	NONE*	—	—	28	31	35	35	—	—	28	31	35	35
	CE20Y	19.2	18.5	51	54	60	60	24	25	28	31	35	35
	CE40Y	38.4	37.0	75	78	80	80	47	50	28	31	35	35
	CE60Y	57.6	55.4	98	101	100	110	70	70	28	31	35	35
	CE75Y	72.0	69.3	115	118	125	125	87	90	28	31	35	35
180AYG	NONE*	—	—	30	33	35	40	—	—	30	33	35	40
	CE20Y	19.2	18.5	53	56	60	60	24	25	30	33	35	40
	CE40Y	38.4	37.0	76	79	80	80	47	50	30	33	35	40
	CE60Y	57.6	55.4	99	102	100	110	70	70	30	33	35	40
	CE75Y	72.0	69.3	117	120	125	125	87	90	30	33	35	40
240AYF	NONE*	—	—	38	41	50	50	—	—	38	41	50	50
	CE20Y	19.2	18.5	62	65	70	70	24	25	38	41	50	50
	CE40Y	38.4	37.0	85	88	90	90	47	50	38	41	50	50
	CE60Y	57.6	55.4	108	111	110	125	70	70	38	41	50	50
	CE75Y	72.0	69.3	125	128	125	150	87	90	38	41	50	50
240AYG	NONE*	—	—	41	44	50	50	—	—	41	44	50	50
	CE20Y	19.2	18.5	64	67	70	70	24	25	41	44	50	50
	CE40Y	38.4	37.0	87	90	90	90	47	50	41	44	50	50
	CE60Y	57.6	55.4	110	113	110	125	70	70	41	44	50	50
	CE75Y	72.0	69.3	128	131	150	150	87	90	41	44	50	50
240AYH	NONE*	—	—	41	44	50	50	—	—	41	44	50	50
	CE20Y	19.2	18.5	64	67	70	70	24	25	41	44	50	50
	CE40Y	38.4	37.0	87	90	90	90	47	50	41	44	50	50
	CE60Y	57.6	55.4	110	113	110	125	70	70	41	44	50	50
	CE75Y	72.0	69.3	128	131	150	150	87	90	41	44	50	50

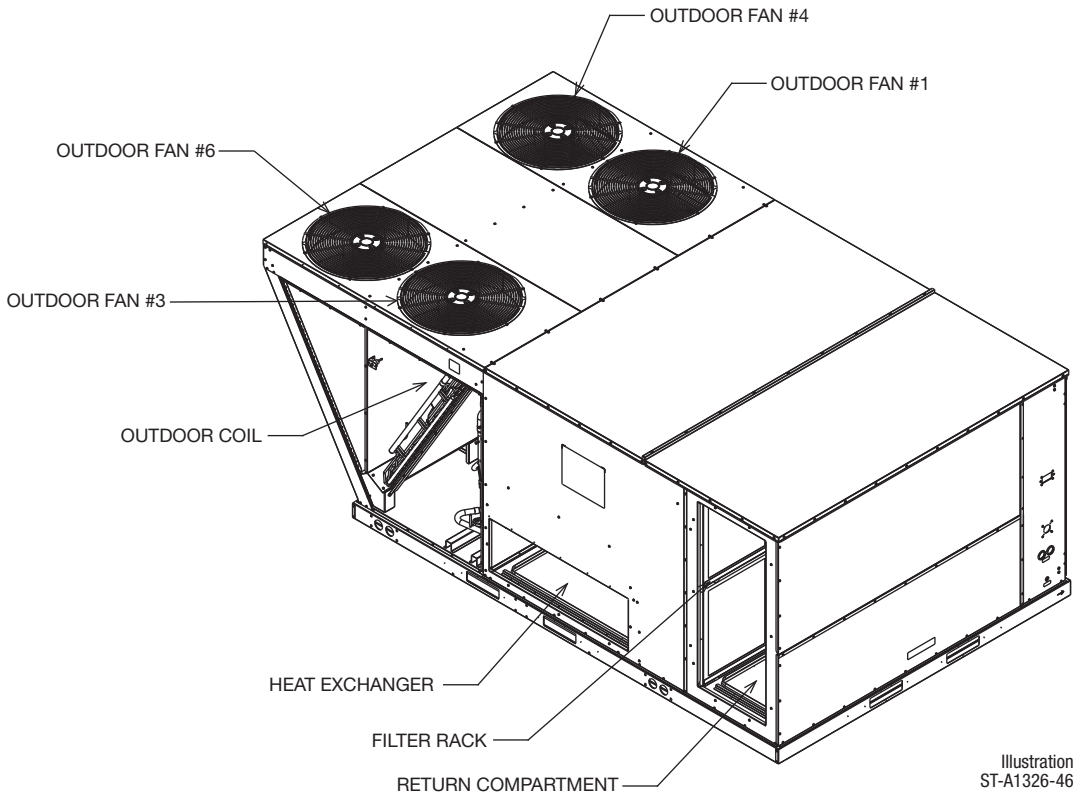


Illustration
ST-A1326-46

BOTTOM VIEW

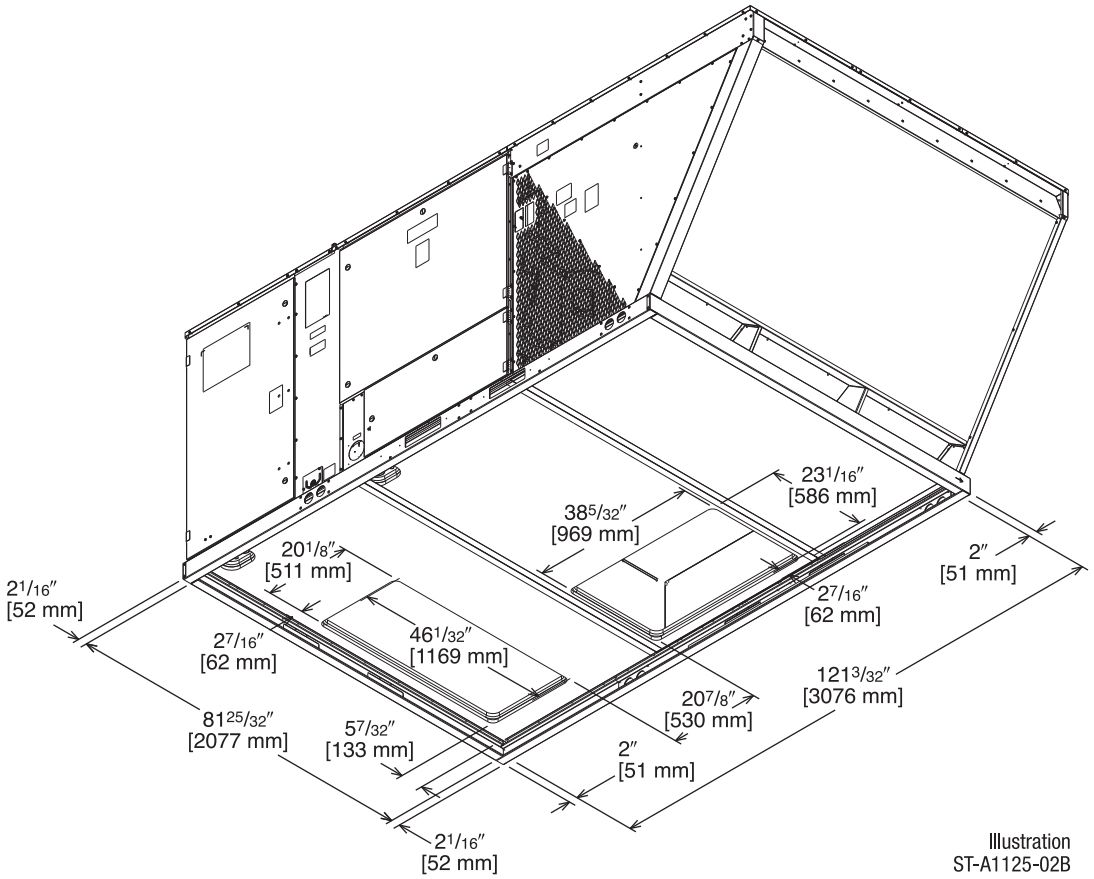


Illustration
ST-A1125-02B

[ ] Designates Metric Conversions

SUPPLY AND RETURN DIMENSIONS FOR HORIZONTAL APPLICATIONS (VIEW FROM REAR DUCT SIDE)

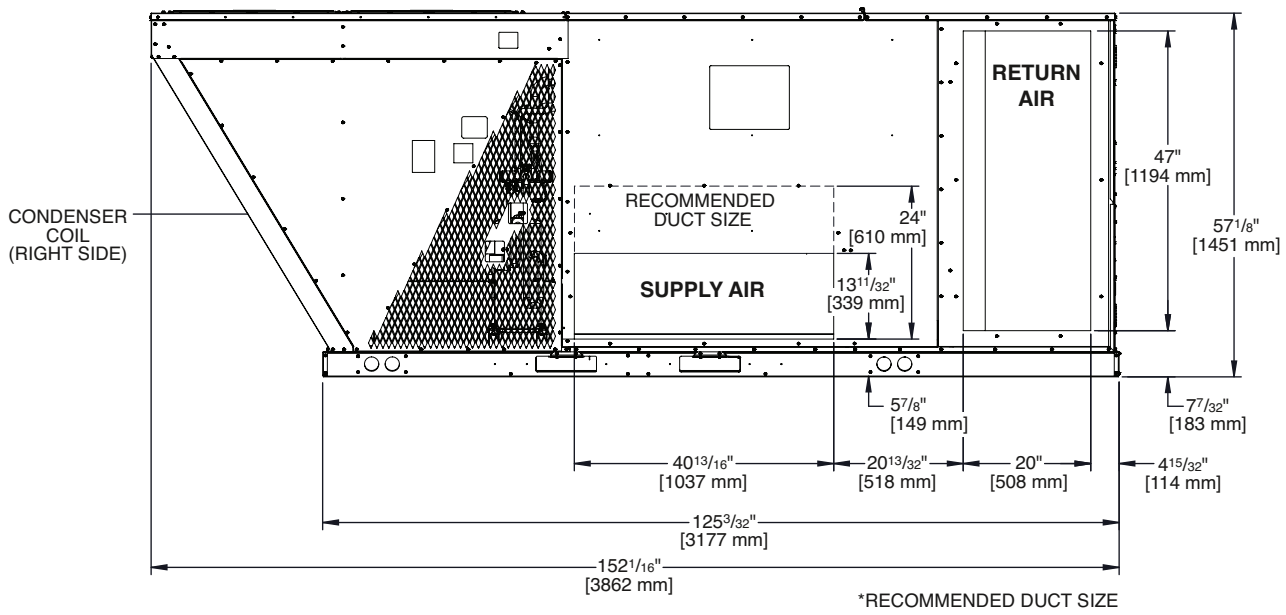


Illustration ST-A1326-47

SUPPLY AND RETURN DIMENSIONS FOR DOWNFLOW APPLICATIONS (VIEW FROM BOTTOM UP)

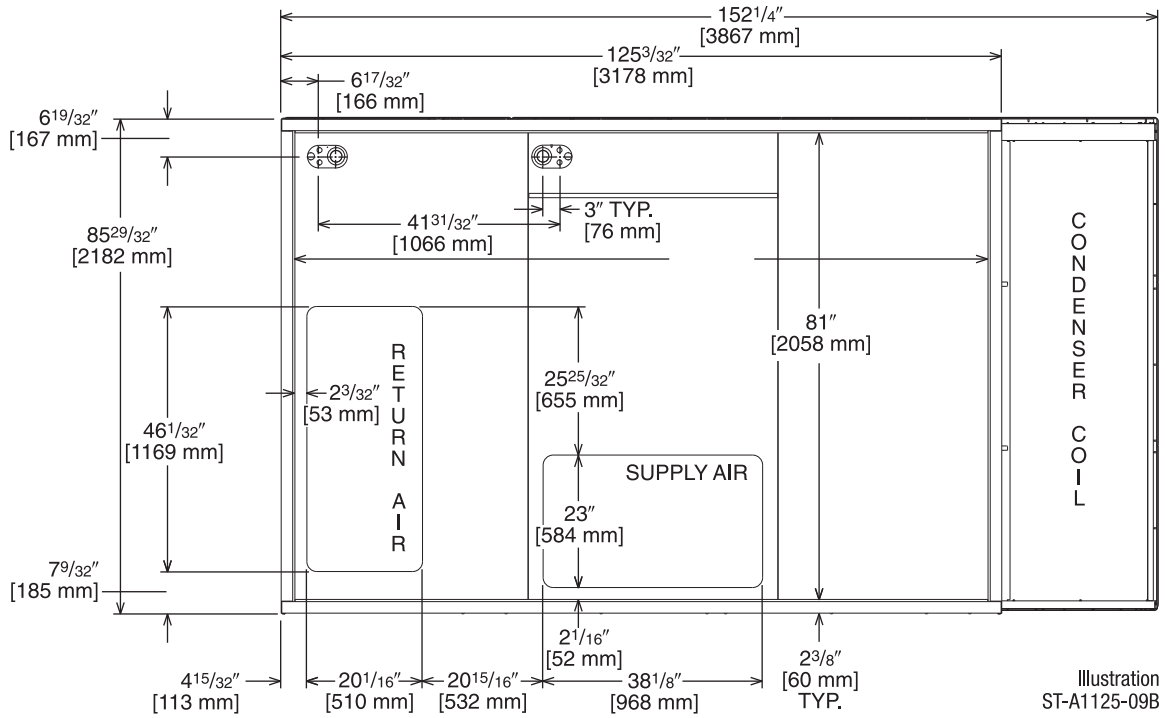


Illustration ST-A1125-09B

[ ] Designates Metric Conversions

UNIT DIMENSIONS

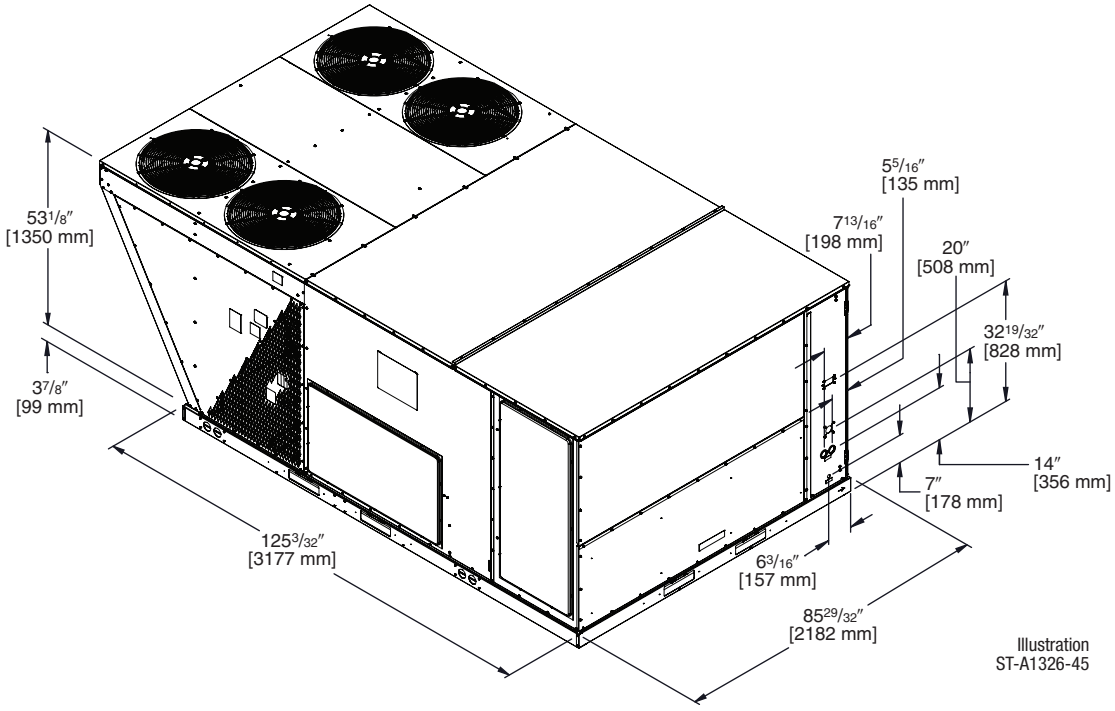


Illustration
ST-A1326-45

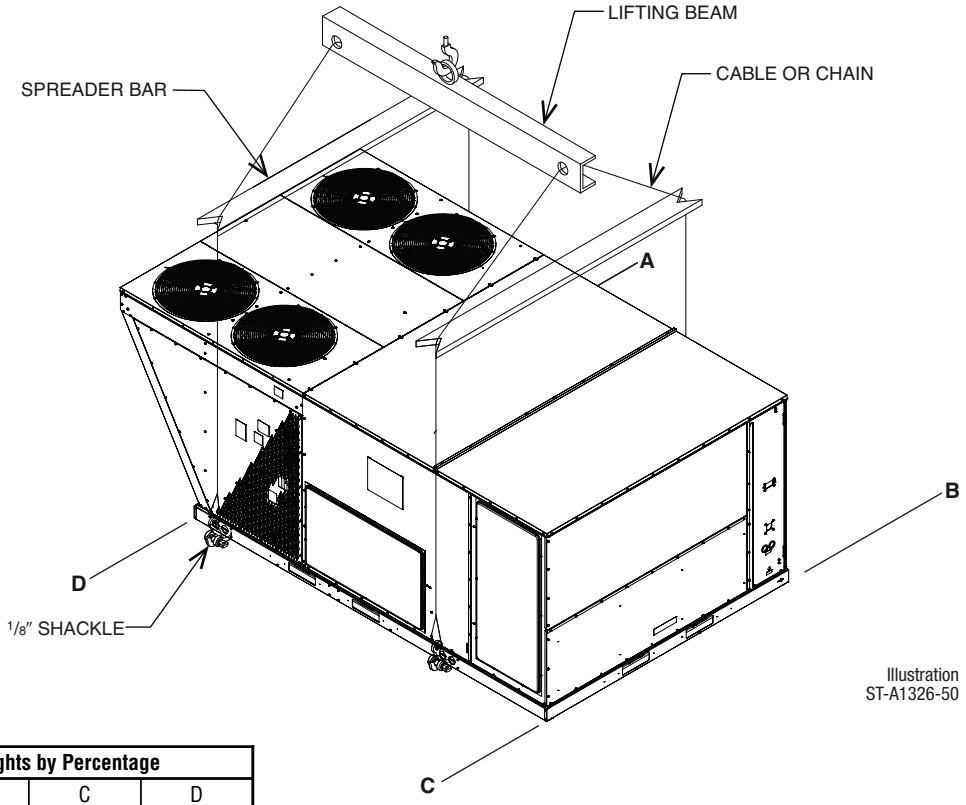


Illustration
ST-A1326-50

WEIGHTS

Corner Weights by Percentage			
A	B	C	D
32%	27%	16%	24%

*Note: Corner weights measured at base of unit.

[ ] Designates Metric Conversions

SLAB INSTALLATION

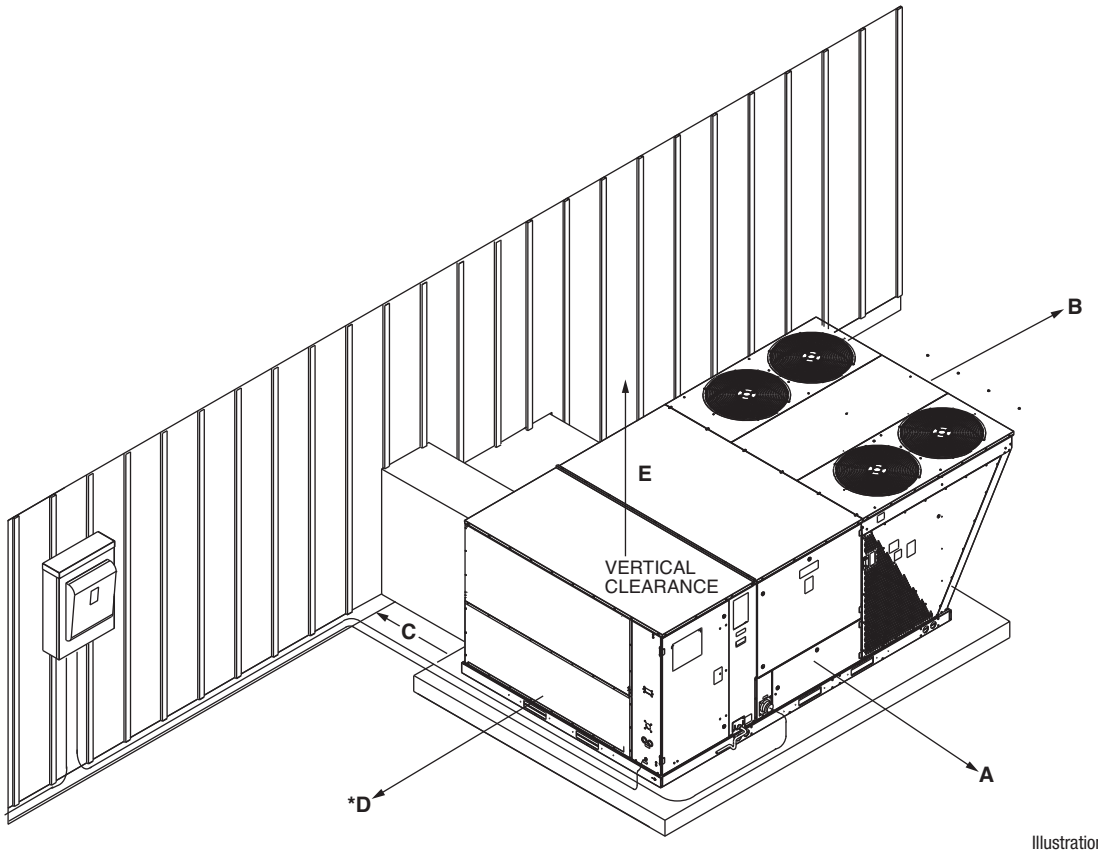


Illustration
ST-A1326-49

CLEARANCES

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

Recommended Clearance In. [mm]	Location
80 [2032]	A - Front
18 [457]	B - Condenser Coil
18 [457]	+C - Duct Side
18 [457]	*D - Evaporator End
60 [1524]	E - Above

*Without Economizer 18" [457 mm].
With Economizer 48" [1219 mm].
+Without Horizontal Economizer 18" [457 mm].
With Horizontal Economizer 42" [1067 mm].

[ ] Designates Metric Conversions

FIELD INSTALLED ACCESSORY EQUIPMENT—SELF CONTAINED HEAT PUMP

Accessory	Model Number	Shipping Weight Lbs. [kg]	Installed Weight Lbs. [kg]	Factory Installation Available?
Economizers				
DDC Economizer with Single Enthalpy (Downflow) *Ruskin Rooftop Systems Economizer with Honeywell Controller*	AXRD-01RMDCM3	277 [125.6]	168 [76.2]	Yes
DDC Economizer with Single Enthalpy (Horizontal) *Ruskin Rooftop Systems Economizer with Honeywell Controller*	AXRD-01RMHCM3	333 [151.0]	301 [36.5]	No
Non-DDC Economizer with Single Enthalpy (Downflow) *Ruskin Rooftop Systems Economizer with Honeywell Controller*	AXRD-01RGDAM3	277 [125.6]	168 [76.2]	Yes
Non-DDC Economizer with Single Enthalpy (Downflow) *Ruskin Rooftop Systems with Siemens Controller*	RXRD-51MHDAM3	277 [125.6]	168 [76.2]	Yes
Non-DDC Economizer with Single Enthalpy (Horizontal) *Ruskin Rooftop Systems Economizer with Honeywell Controller*	AXRD-01RGHAM3	333 [151.0]	301 [36.5]	No
Non-DDC Economizer with Single Enthalpy (Horizontal) *Ruskin Rooftop Systems with Siemens Controller*	RXRD-51MHHAM3	333 [151.0]	301 [36.5]	No
Economizer Universal DDC Interface Kit	RXRX-DDC02	40 [18.1]	34 [15.4]	Yes

Accessory	Model Number	Shipping Weight Lbs. [kg]	Installed Weight Lbs. [kg]	Factory Installation Available?
Comfort Alert (1 Per Compressor) (DDC)	RXRX-AZ01	3 [1.4]	2 [1.0]	Yes
Communication Card, BACnet	RXRX-AY01	1 [0.5]	1 [0.5]	No
Communication Card, LonWorks	RXRX-AY02	1 [0.5]	1 [0.5]	No
Concentric Adapter/Transition (15 ton)	RXMC-CJ07	81 [36.7]	74 [33.6]	No
Concentric Adapter/Transition (20 ton)	RXMC-CK08	81 [36.7]	74 [33.6]	No
Concentric Flush Mount Diffuser (15 ton)	RXRN-AD80	213 [96.6]	115 [52.2]	No
Concentric Step Down Diffuser (15 ton)	RXRN-AD81	310 [140.6]	157 [71.2]	No
Concentric Step Down Diffuser (20 ton)	RXRN-AD86	367 [166.5]	212 [96.2]	No
Convenience Outlet, Unwired	RXRX-AN01	1 [0.5]	1.5 [0.7]	Yes
Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell DDC)	RXRX-AV03	1 [0.5]	1 [0.5]	No
Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell Non-DDC)	RXRX-AV04	1 [0.5]	1 [0.5]	No
Dual Enthalpy, Temperature and Humidity Sensor (for Siemens Non-DDC)	PD555460	1 [0.5]	2 [1.0]	No
Electric Heaters (*=C, D, or Y Voltage)	RXJJ-CE20*	41 [18.6]	31 [14.1]	Yes
	RXJJ-CE40*	44 [20.0]	34 [15.4]	Yes
	RXJJ-CE60*	45 [20.4]	35 [15.9]	Yes
	RXJJ-CE75*	46 [20.8]	36 [16.3]	Yes
Fresh Air Damper[1], Motorized (DDC)	RXRX-AW03	42 [19.1]	35 [15.9]	No
Fresh Air Damper[1], Motorized (Non-DDC)	RXRX-AW05	45 [20.4]	38 [17.2]	No
Fresh Air Damper[1], Manual	AXRF-KFA1	61 [27.7]	52 [23.6]	No
Freeze Stat Kit	RXRX-AM05	3 [1.4]	2 [1.0]	Yes
Hail Guard Louvers	AXRX-AAD01L	55 [24.8]	45 [20.3]	Yes
Low-Ambient Control Kit DDC (1 Per Compressor)	RXRZ-C02	3 [1.4]	2 [1.0]	Yes
Low-Ambient Control Kit Non-DDC (1 Per Compressor)	RXRZ-A05	3 [1.4]	2 [1.0]	Yes
MERV 8 Filter	RXMF-M08A22520	2 [0.9]	1 [0.45]	Yes
MERV 13 Filter	RXMF-M13A22520	2 [0.9]	1 [0.45]	Yes
Power Exhaust (208/230V) Kit, Convertible (RRS)	RXRX-BGF05C	119 [53.9]	59 [26.7]	No
Power Exhaust (460V) Kit, Convertible (RRS)	RXRX-BGF05D	119 [53.9]	59 [26.7]	No
Power Exhaust (575V) Kit, Convertible (RRS)	RXRX-BGF05Y	119 [53.9]	59 [26.7]	No
Roofcurb, 14"	RXKG-CBH14	184 [83.5]	176 [79.8]	No
Roofcurb Adapter to RXRK-E56	RXRX-CJCE56	465 [210.9]	415 [88.2]	No
Roofcurb Adapter to RXKG-CAF14	RXRX-CJCF14	555 [251.7]	505 [29.1]	No
Sensor, Carbon Dioxide (Wall Mount)	RXRX-AR02	3 [1.4]	2 [1.0]	No
Smoke Detector, Return (Downflow/Vertical)	RXRX-BSH1	7 [3.2]	6 [2.7]	Yes
Smoke Detector, Return/Supply (Downflow/Vertical)	RXRX-BSH3	10 [4.5]	9 [4.1]	Yes

[1]Motorized Kit and Manual Fresh Air Damper must be combined for a complete Motorized Outside Air Damper Selection.

[ ] Designates Metric Conversions

CONCENTRIC DIFFUSER APPLICATION

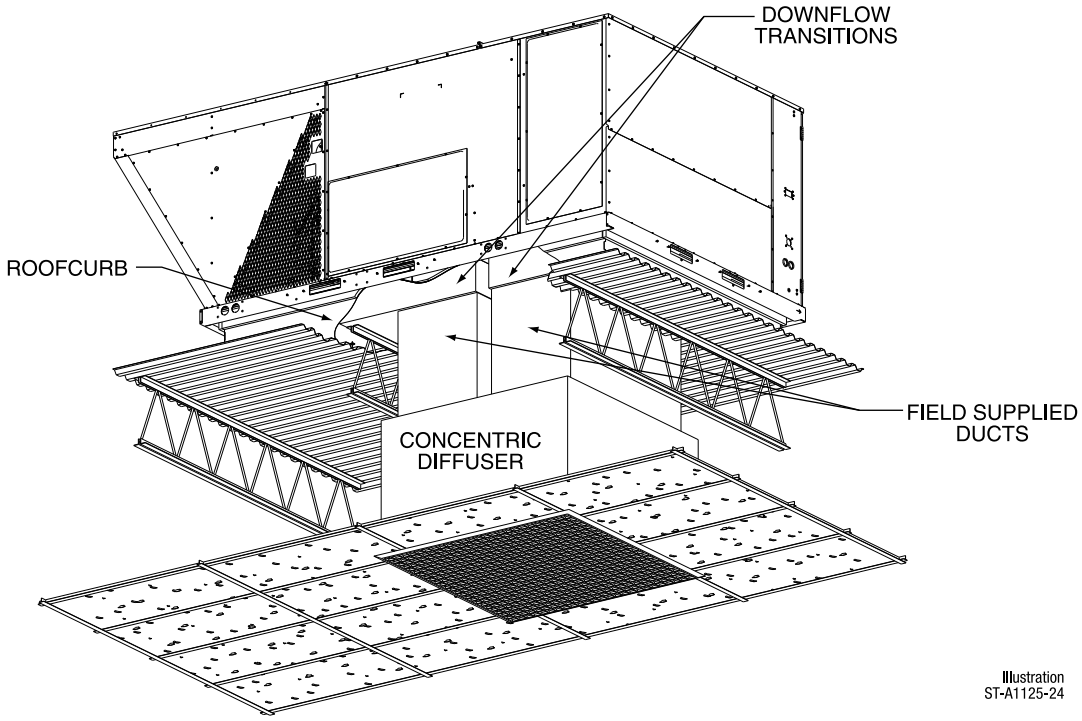


Illustration
ST-A1125-24

DOWNFLOW TRANSITION DRAWINGS

RXMC-CJ07—Concentric Adapter/Transition (15 Ton)

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

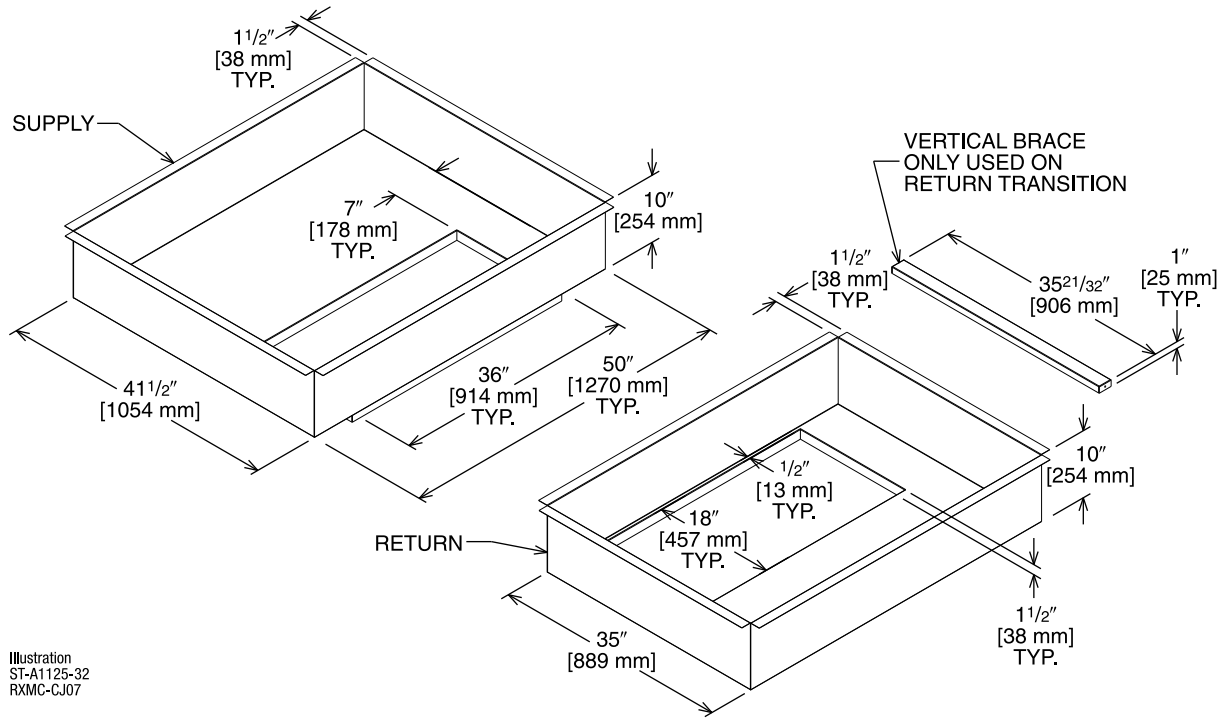


Illustration
ST-A1125-32
RXMC-CJ07

[ ] Designates Metric Conversions

DOWNFLOW TRANSITION DRAWINGS (CONTINUED)

RXMC-CK08—Concentric Adapter/Transition (20 Ton)

- Used with RXRN-AD86 Concentric Diffusers

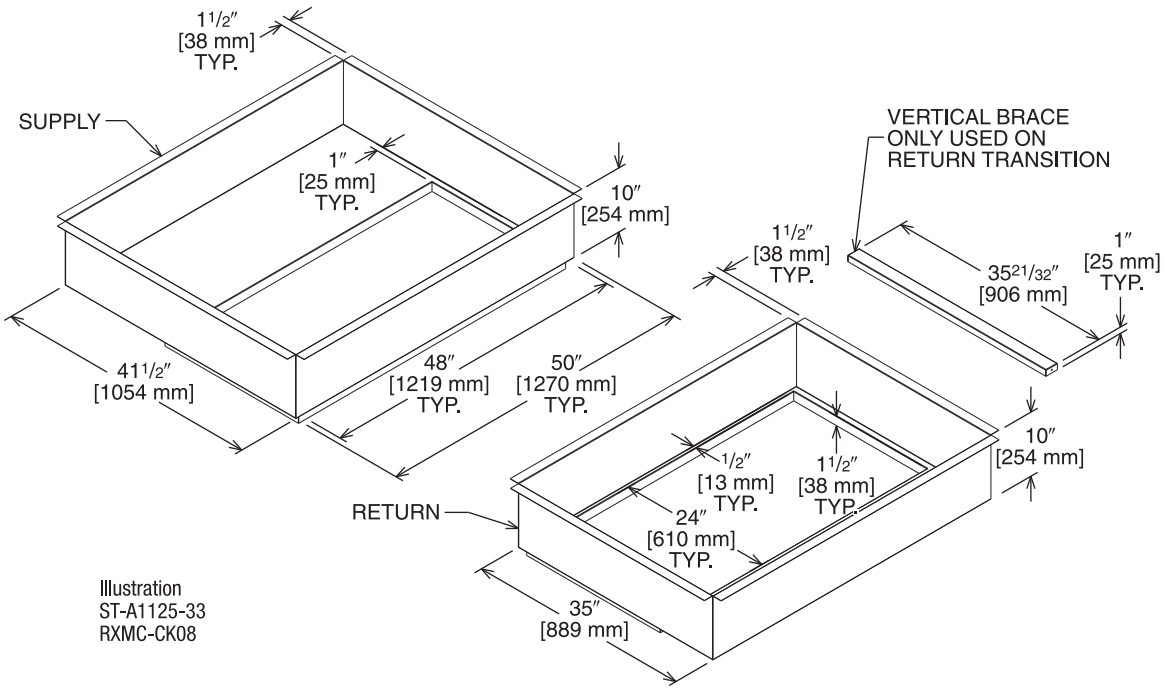


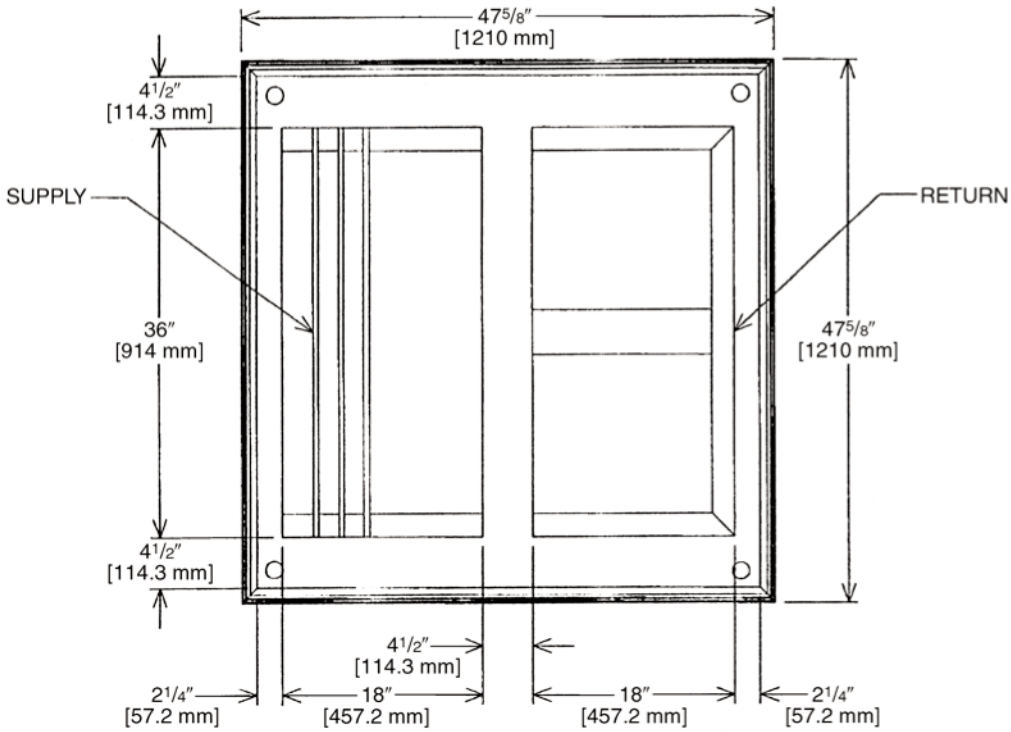
Illustration
ST-A1125-33
RXMC-CK08

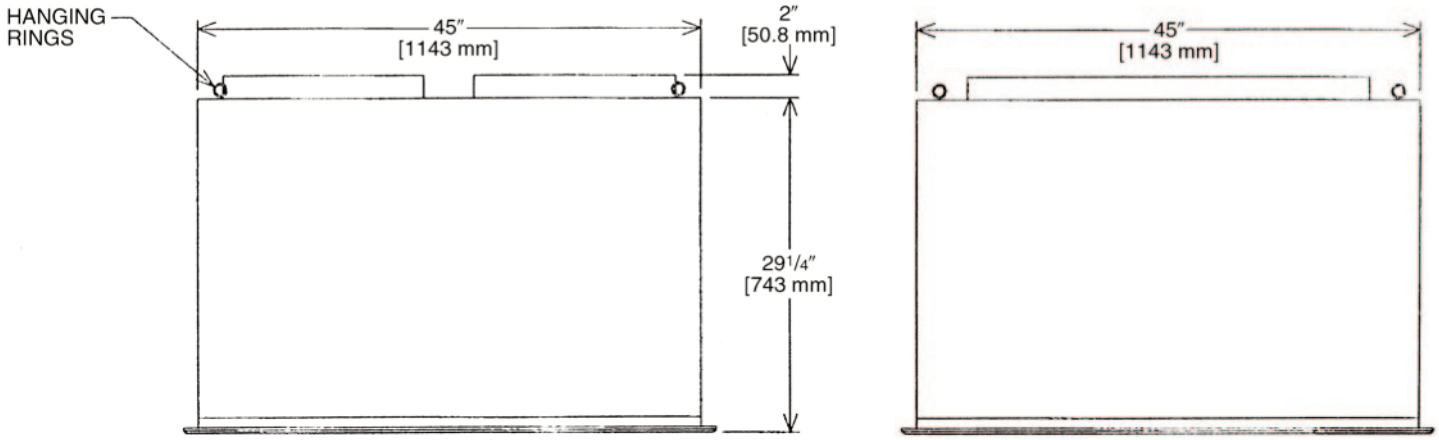
[ ] Designates Metric Conversions

CONCENTRIC FLUSH MOUNT DIFFUSER (15 TON)

RXRN-AD80

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





CONCENTRIC DIFFUSER SPECIFICATIONS

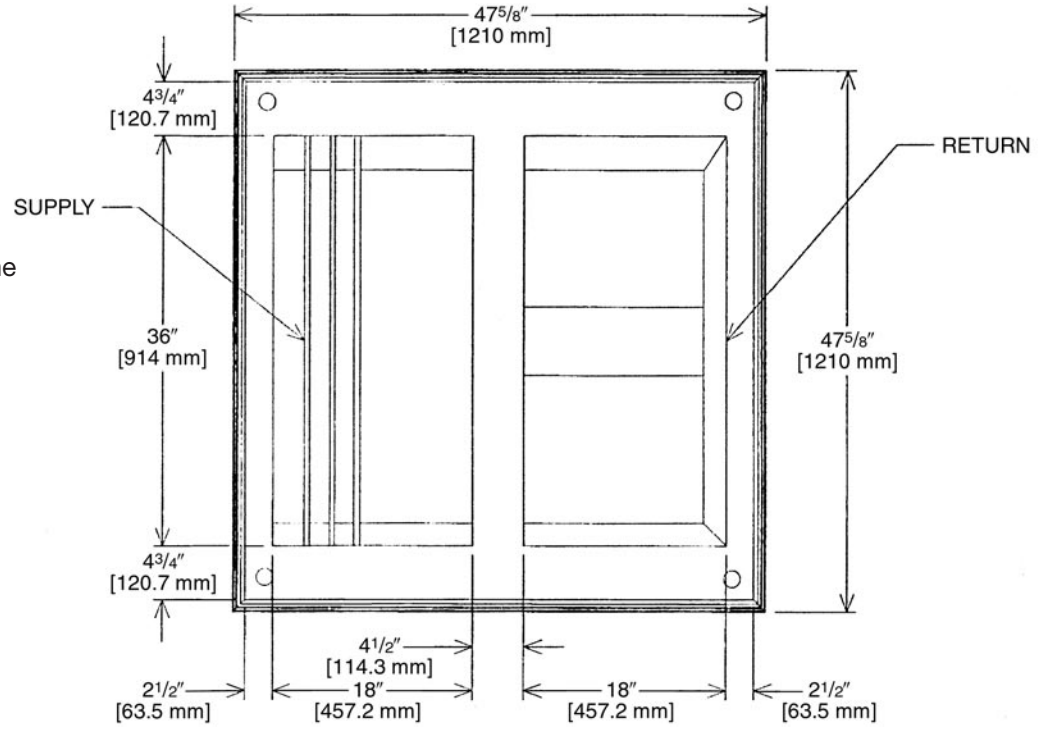
PART NUMBER	CFM [L/s]	STATIC PRESSURE	THROW FEET	NECK VELOCITY	JET VELOCITY
RXRN-AD80	5600 [2643]	0.36	28-37	1000	2082
	5800 [2737]	0.39	29-38	1036	2156
	6000 [2832]	0.42	40-50	1071	2230
	6200 [2926]	0.46	42-51	1107	2308
	6400 [3020]	0.50	43-52	1143	2379
	6600 [3115]	0.54	45-56	1179	2454

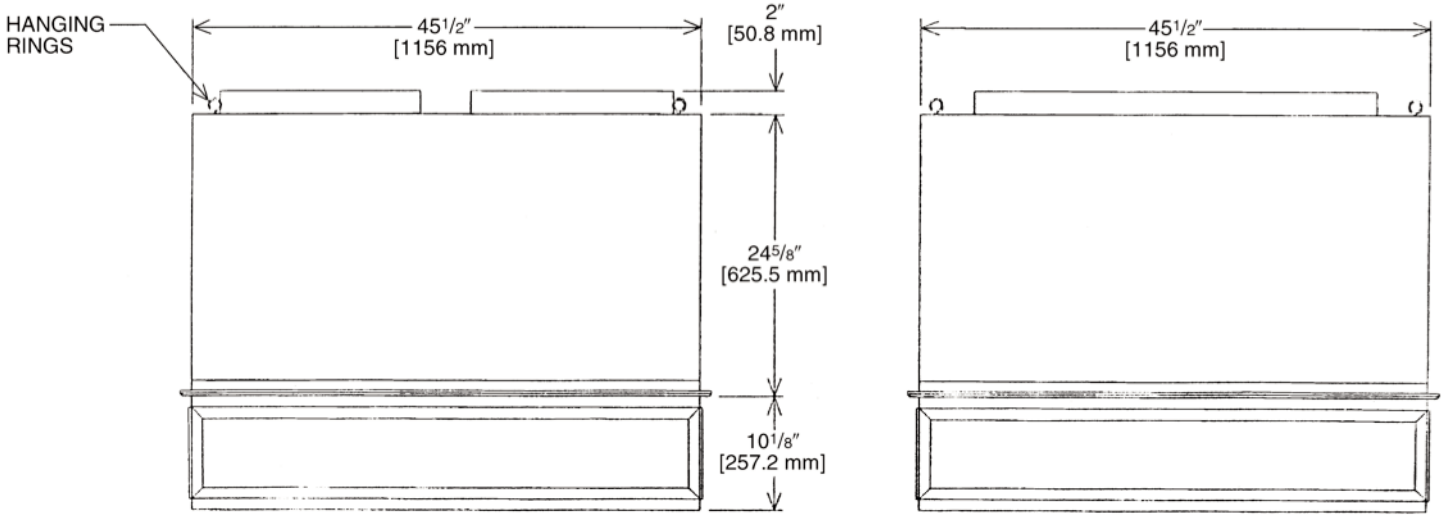
[ ] Designates Metric Conversions

CONCENTRIC STEP DOWN DIFFUSER (15 TON)

RXRN-AD81

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





CONCENTRIC DIFFUSER SPECIFICATIONS

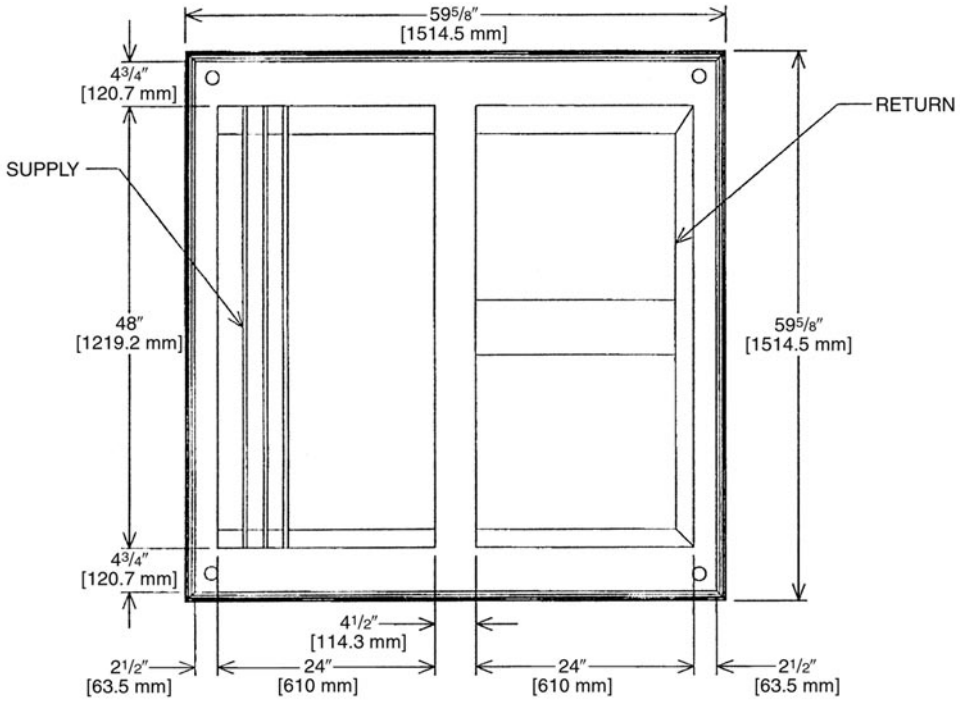
PART NUMBER	CFM [L/s]	STATIC PRESSURE	THROW FEET	NECK VELOCITY	JET VELOCITY
RXRN-AD81	5600 [2643]	0.36	39-49	920	920
	5800 [2737]	0.39	42-51	954	954
	6000 [2832]	0.42	44-54	1022	1022
	6200 [2926]	0.46	45-55	1056	1056
	6400 [3020]	0.50	46-55	1090	1090
	6600 [3115]	0.54	47-56	1124	1124

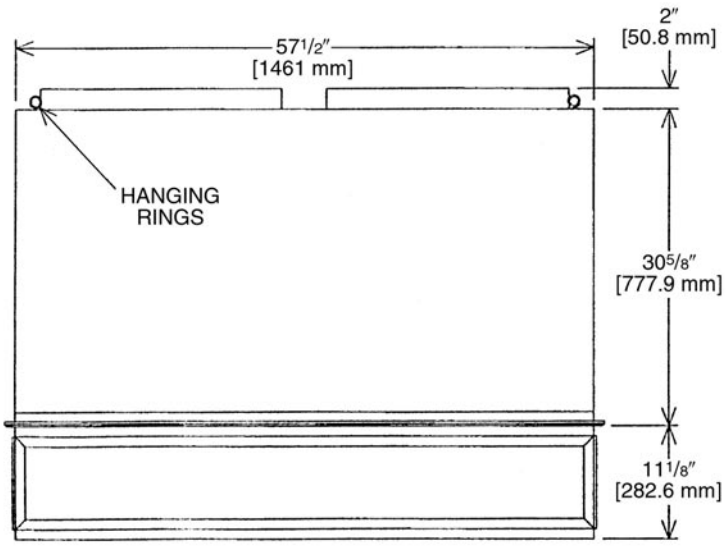
[ ] Designates Metric Conversions

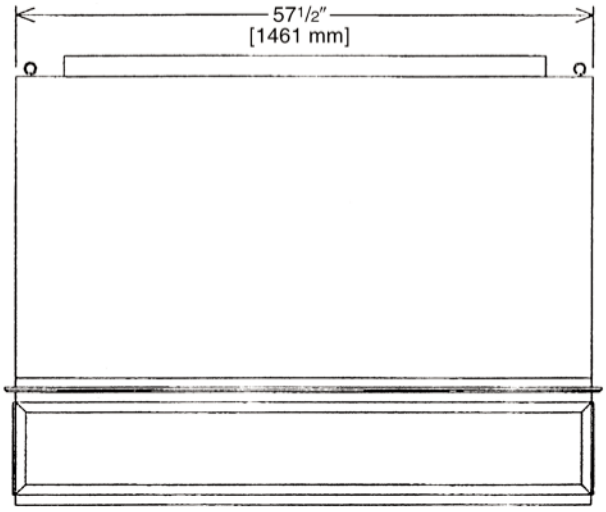
CONCENTRIC STEP DOWN DIFFUSER (20 TON)

RXRN-AD86

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







CONCENTRIC DIFFUSER SPECIFICATIONS

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

[ ] Designates Metric Conversions

DDC ECONOMIZER WITH SINGLE ENTHALPY (DOWNFLOW) RUSKIN ROOFTOP SYSTEMS ECONOMIZER WITH HONEYWELL CONTROLLER

Factory or Field-Installed

AXRD-01RMDCM3
RXRX-AV03—Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell DDC)
RXRX-AR02—Sensor, Carbon Dioxide (Wall Mount)

- Features **Honeywell** Controls
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Slip-In Design for Easy Installation
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO_2 Input Sensor Available
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Downflow Duct Application
- Field Installed Power Exhaust Option
- Low Leak Dampers meet California Title 24 requirements and ASHRAE 90.1 2022

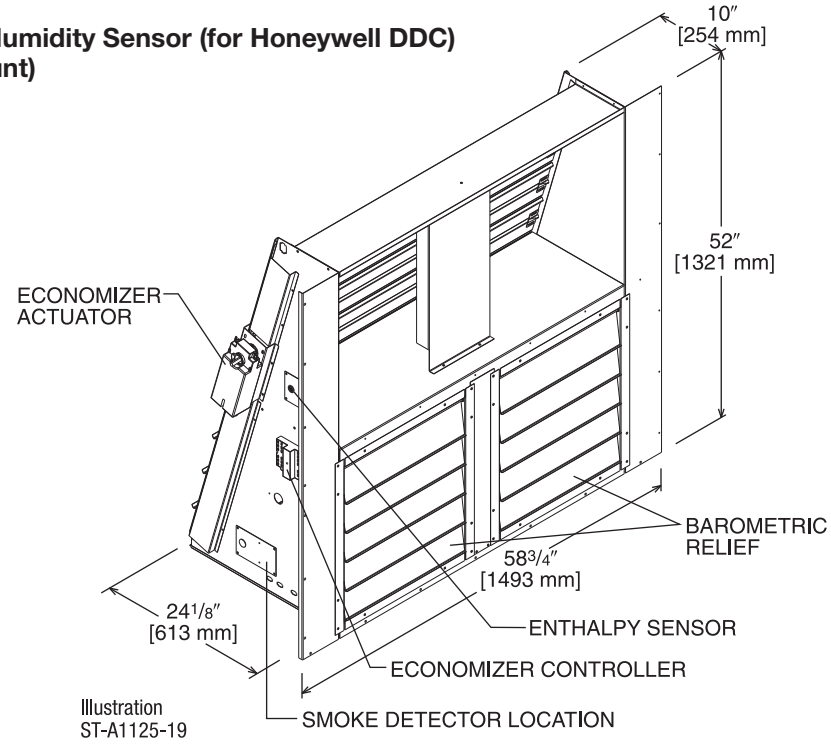


Illustration
ST-A1125-19

TOLERANCE ± .125

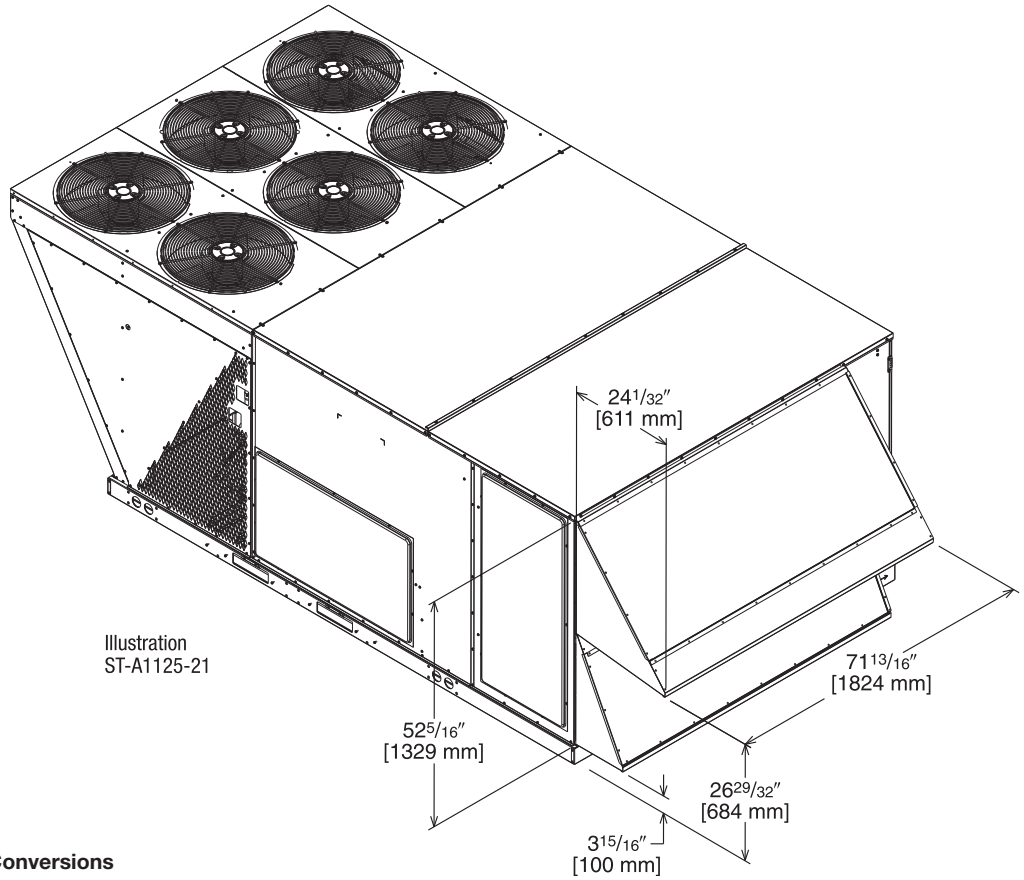


Illustration
ST-A1125-21

[ ] Designates Metric Conversions

DDC ECONOMIZER WITH SINGLE ENTHALPY (DOWNFLOW) RUSKIN ROOFTOP SYSTEMS ECONOMIZER WITH HONEYWELL CONTROLLER WITH SMOKE DETECTOR

Factory or Field-Installed

AXRD-01RMDDM3
RXRX-AV03—Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell DDC)
RXRX-AR02—Sensor, Carbon Dioxide (Wall Mount)

- Features Honeywell Controls
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Ultra Low Leak Dampers meet California Title 24 requirements
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin & 4-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO_2 Input Sensor Available
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Downflow Duct Application
- Optional Remote Minimum Position Potentiometer (Honeywell #S963B1128) is Available from Prostock
- Field-Installed Power Exhaust Available
- If connected to a Building Automation System (BAS), all economizer functions can be viewed on the BAS

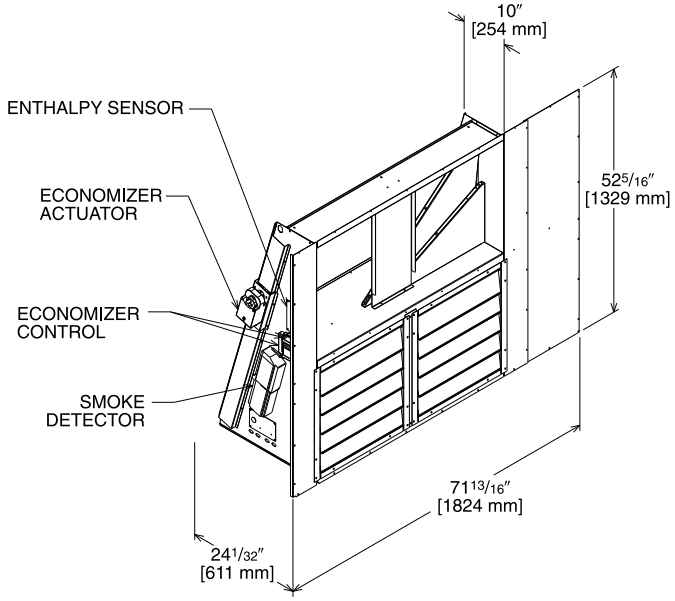


Illustration
ST-A00566-58

TOLERANCE ±.125

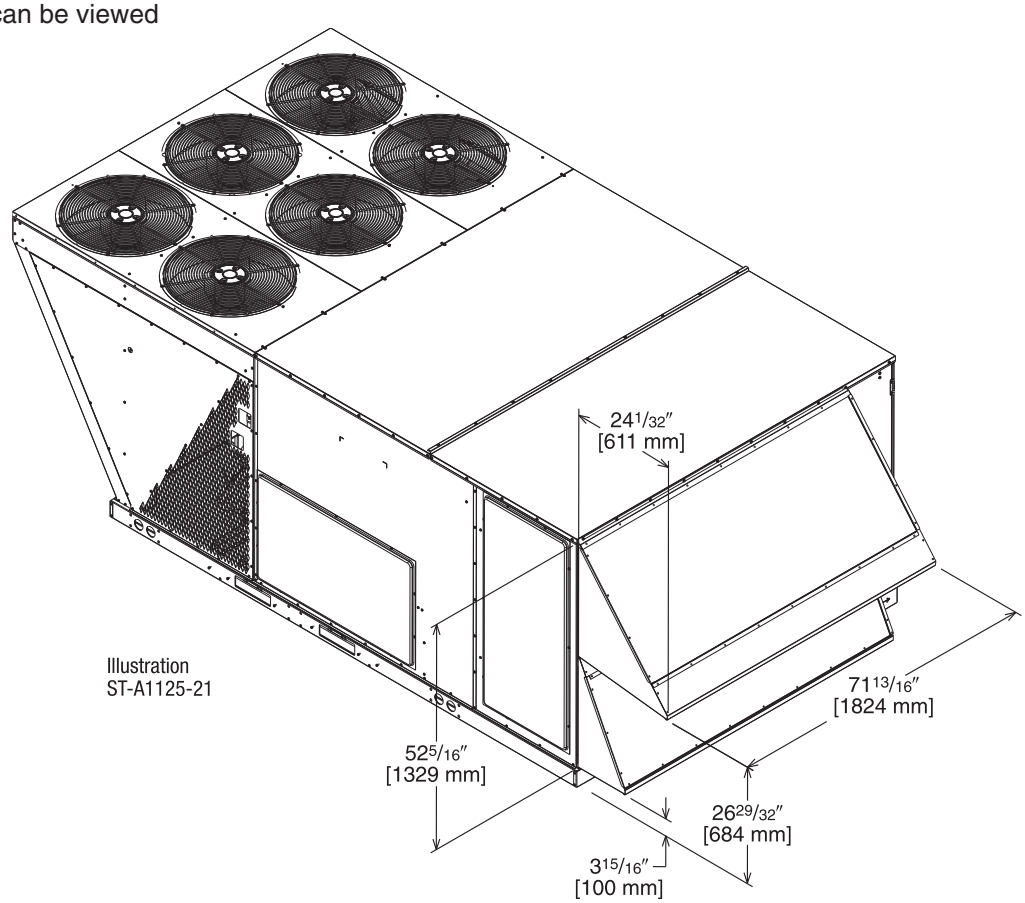


Illustration
ST-A1125-21

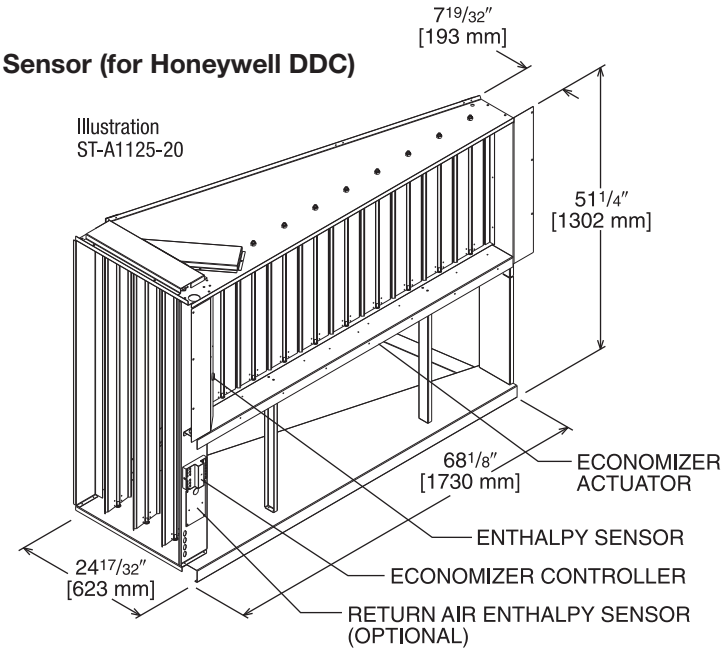
[ ] Designates Metric Conversions

DDC ECONOMIZER SMOKE DETECTOR (HORIZONTAL) RUSKIN ROOFTOP SYSTEMS ECONOMIZER WITH HONEYWELL CONTROLLER

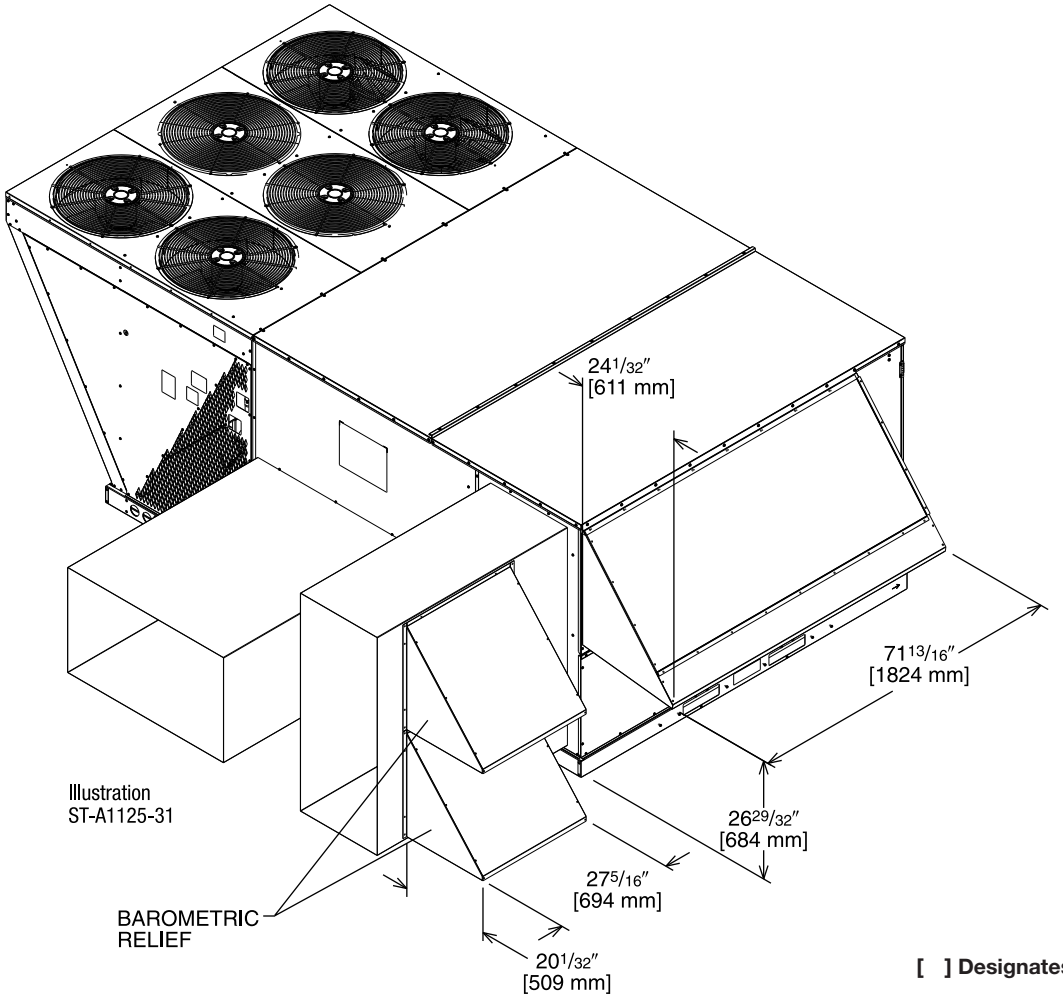
Field-Installed Only

AXRD-01RMHCM3
RXRX-AV03—Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell DDC)
RXRX-AR02—Sensor, Carbon Dioxide (Wall Mount)

- Features **Honeywell** Controls
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- 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
- CO_2 Input Sensor Available
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Horizontal Duct Application
- Field Installed Power Exhaust Option
- Low Leak Dampers meet California Title 24 requirements and ASHRAE 90.1 2022



TOLERANCE ± .125



[ ] Designates Metric Conversions

NON-DDC ECONOMIZER WITH SINGLE ENTHALPY (DOWNFLOW) RUSKIN ROOFTOP SYSTEMS ECONOMIZER WITH HONEYWELL CONTROLLER

Factory or Field-Installed

AXRD-01RGDAM3
RXRX-AR02—Sensor, Carbon Dioxide (Wall Mount)
RXRX-AV04—Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell Non-DDC)

- Features **Honeywell** Controls
- Available Factory Installed or Field Accessory
- Fully Modulating (0-100%)
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO_2 Input Sensor Option
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Downflow Duct Application
- Field Installed Power Exhaust Available
- Smoke Detector optional
- Low Leak Dampers meet California Title 24 requirements and ASHRAE 90.1 2022

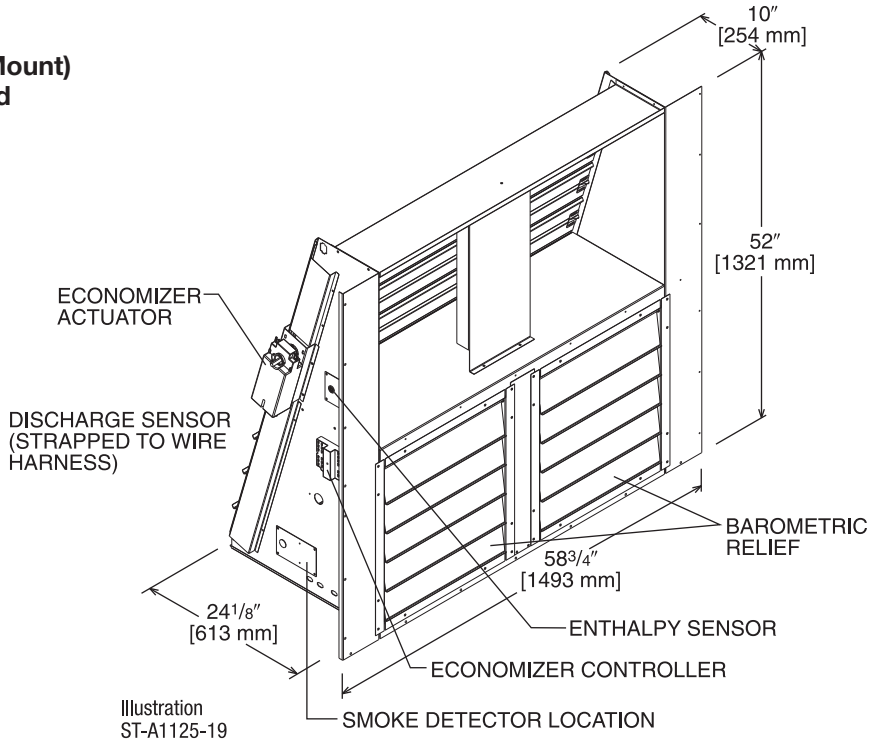


Illustration ST-A1125-19

TOLERANCE ±.125

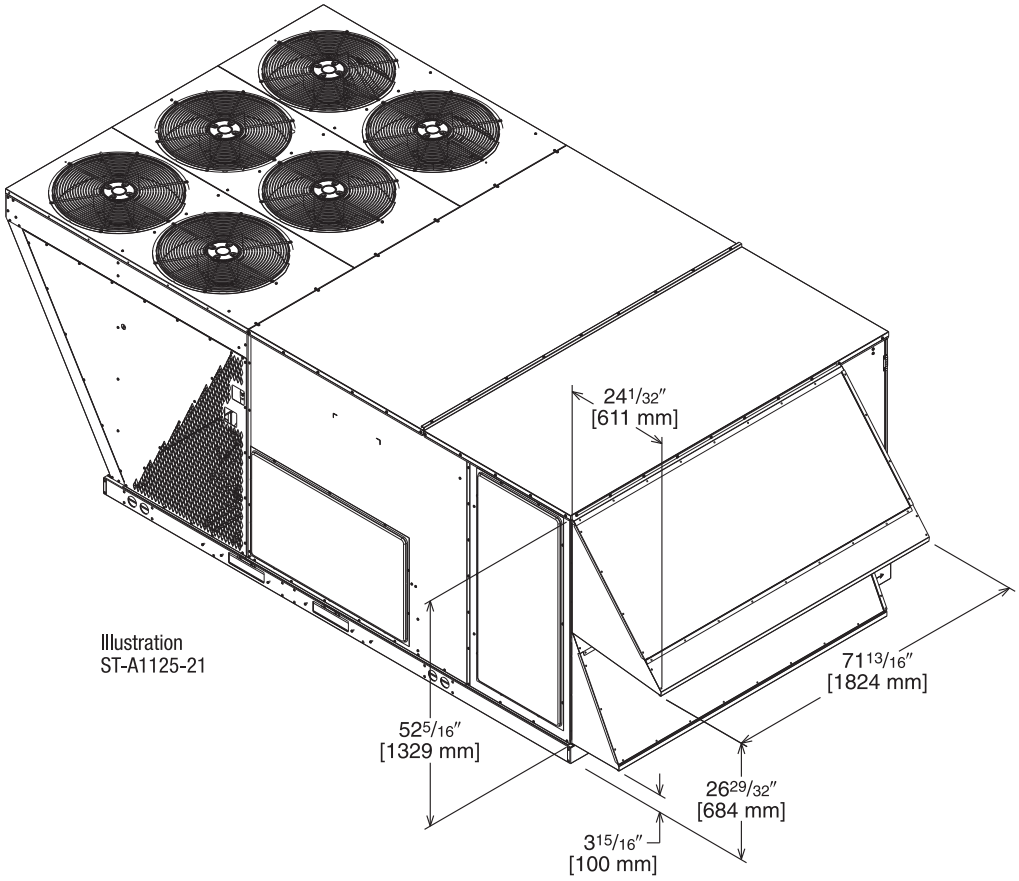


Illustration ST-A1125-21

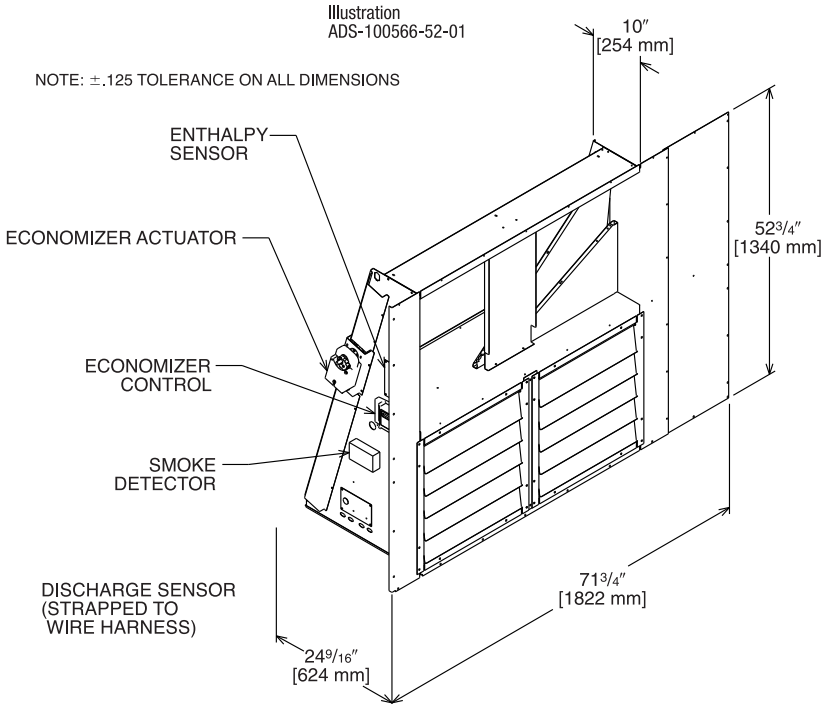
[ ] Designates Metric Conversions

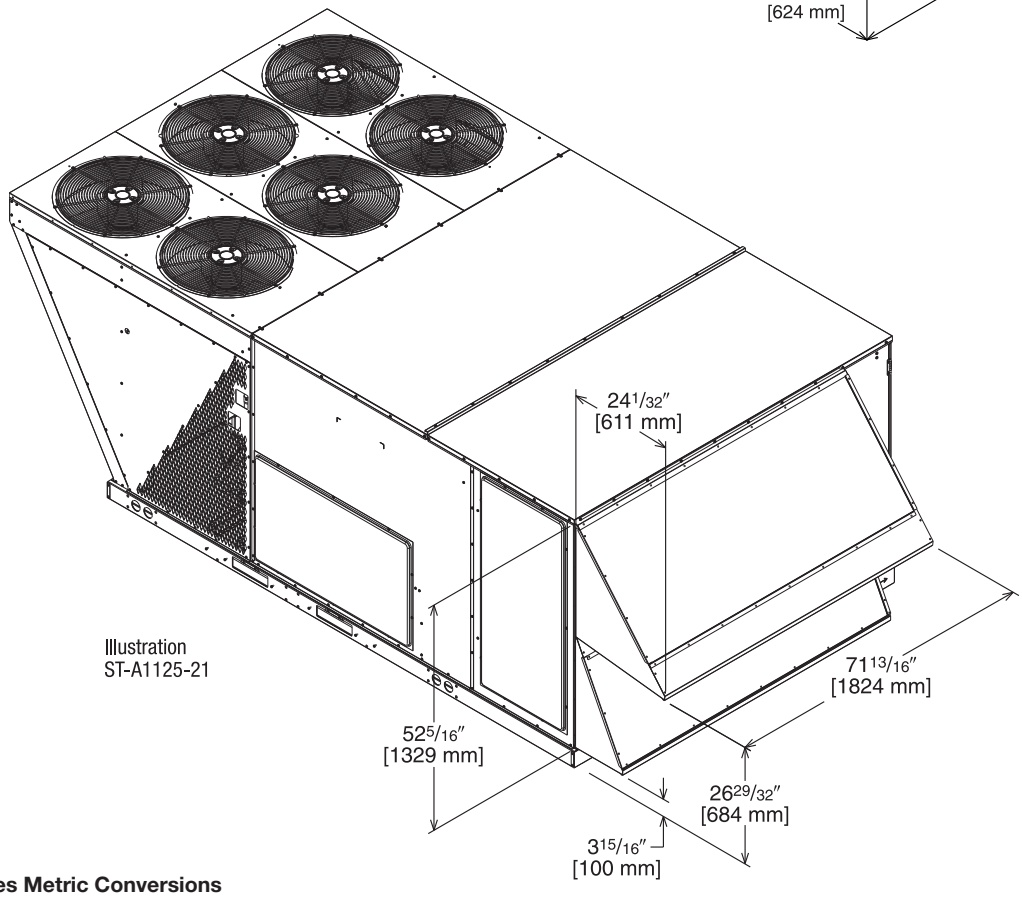
NON-DDC ECONOMIZER WITH SINGLE ENTHALPY (DOWNFLOW) RUSKIN ROOFTOP SYSTEMS ECONOMIZER WITH HONEYWELL CONTROLLER W/ SMOKE DETECTOR

Factory or Field-Installed

AXRD-01RGDBM3
RXRX-AV04—Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell Non-DDC)
RXRX-AR02—Sensor, Carbon Dioxide (Wall-Mount)

- Features **Honeywell JADE™** Digital Controls
- Gear Driven Direct Drive Actuator Fully Modulating (0-100%)
- Ultra Low Leak Dampers meet California Title 24 requirements
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO_2 Input Sensor Available
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Downflow Duct Application
- Optional Remote Minimum Position Potentiometer (Honeywell #S963B1128) is Available from Prostock
- Field Installed Power Exhaust Available





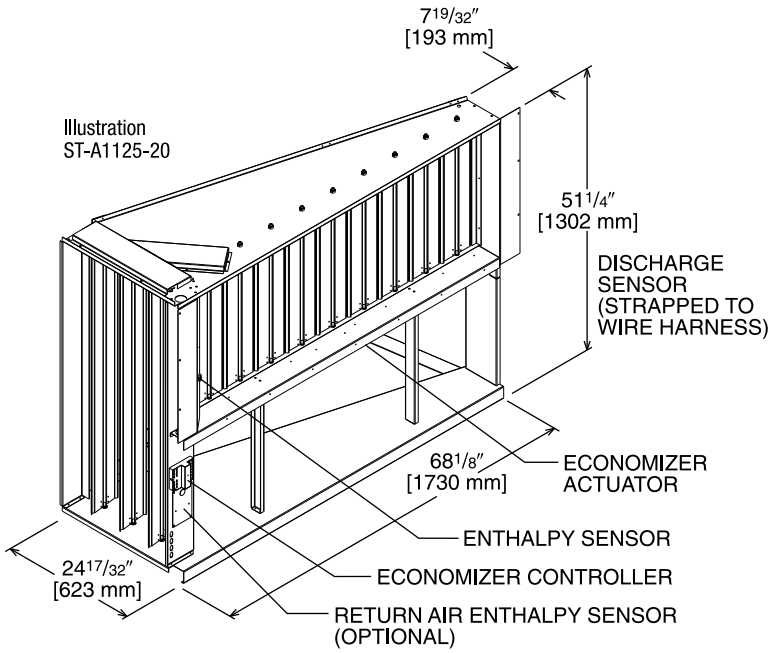
[ ] Designates Metric Conversions

NON-DDC ECONOMIZER WITH SINGLE ENTHALPY (DOWNFLOW) RUSKIN ROOFTOP SYSTEMS ECONOMIZER WITH SIEMENS CONTROLLER

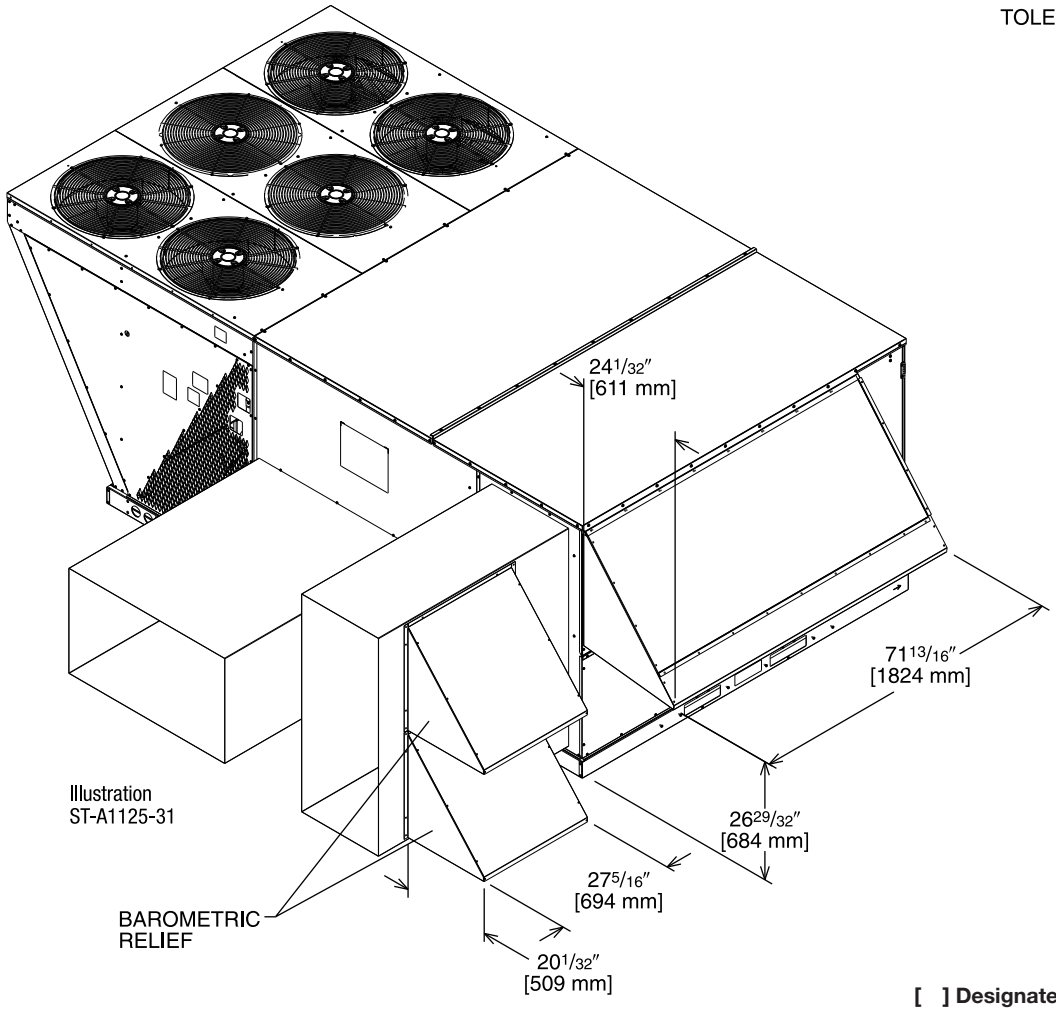
Factory or Field-Installed

RXRD-51MHDAM3
PD555460—Dual Enthalpy, Temperature and Humidity Sensor (for Siemens Non-DDC)
RXRX-AR02—Sensor, Carbon Dioxide (Wall Mount)

- Features **Siemens** Controls
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- 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
- CO_2 Input Sensor Available
- Economizer Ships Complete for Downflow Duct Application
- Field Assembled Hood Ships with Economizer
- Field Installed Power Exhaust Option
- Can be Converted to DDC Operation with the Economizer Universal DDC Interface Kit (RXRX-DDC02)



TOLERANCE ± .125



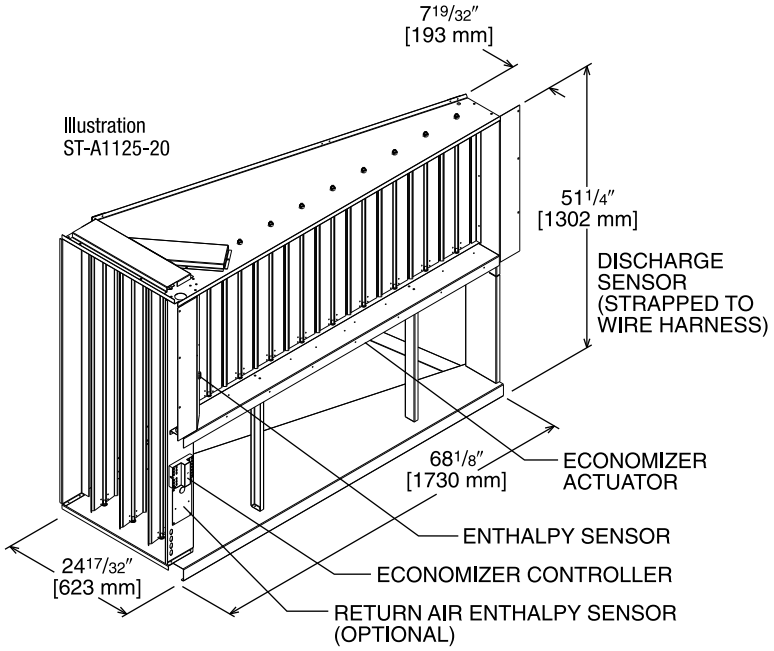
[ ] Designates Metric Conversions

NON-DDC ECONOMIZER WITH SINGLE ENTHALPY (HORIZONTAL) RUSKIN ROOFTOP SYSTEMS ECONOMIZER WITH HONEYWELL CONTROLLER

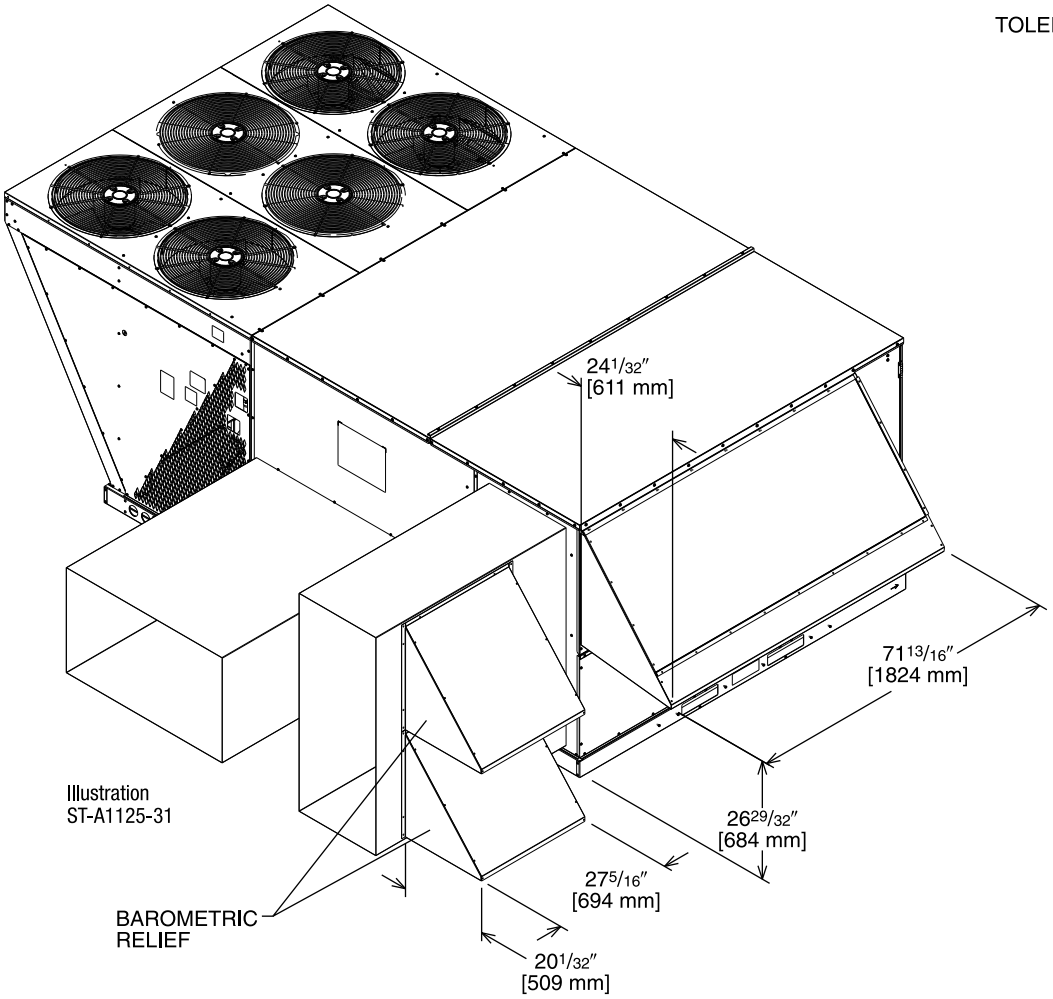
Field-Installed Only

AXRD-01RGHAM3
RXRX-AR02—Sensor, Carbon Dioxide (Wall Mount)
RXRX-AV04—Dual Enthalpy, Temperature and Humidity Sensor (for Honeywell Non-DDC)

- Features **Honeywell** Controls
- Fully Modulating (0-100%)
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO_2 Input Sensor Option
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Horizontal Duct Application
- Field Installed Power Exhaust Available
- Low Leak Dampers meet California Title 24 requirements and ASHRAE 90.1 2022



TOLERANCE ± .125



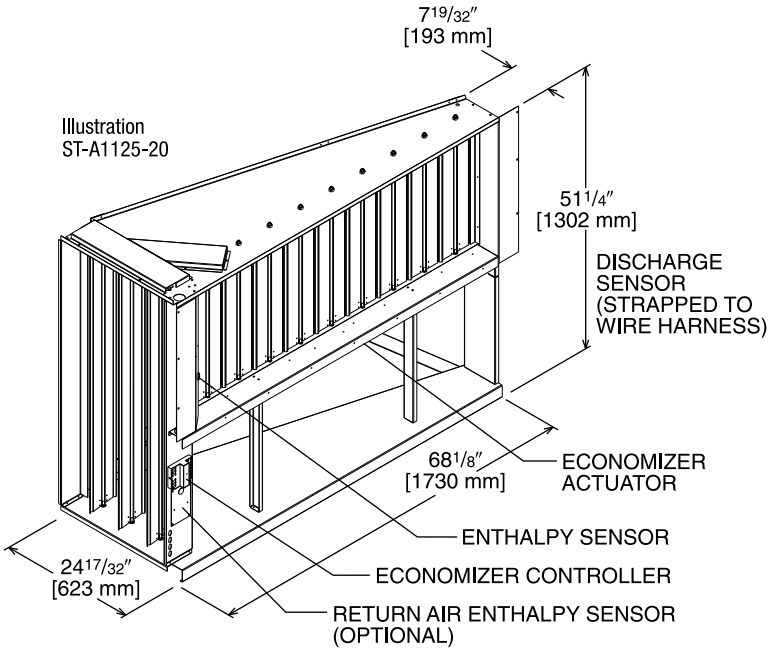
[ ] Designates Metric Conversions

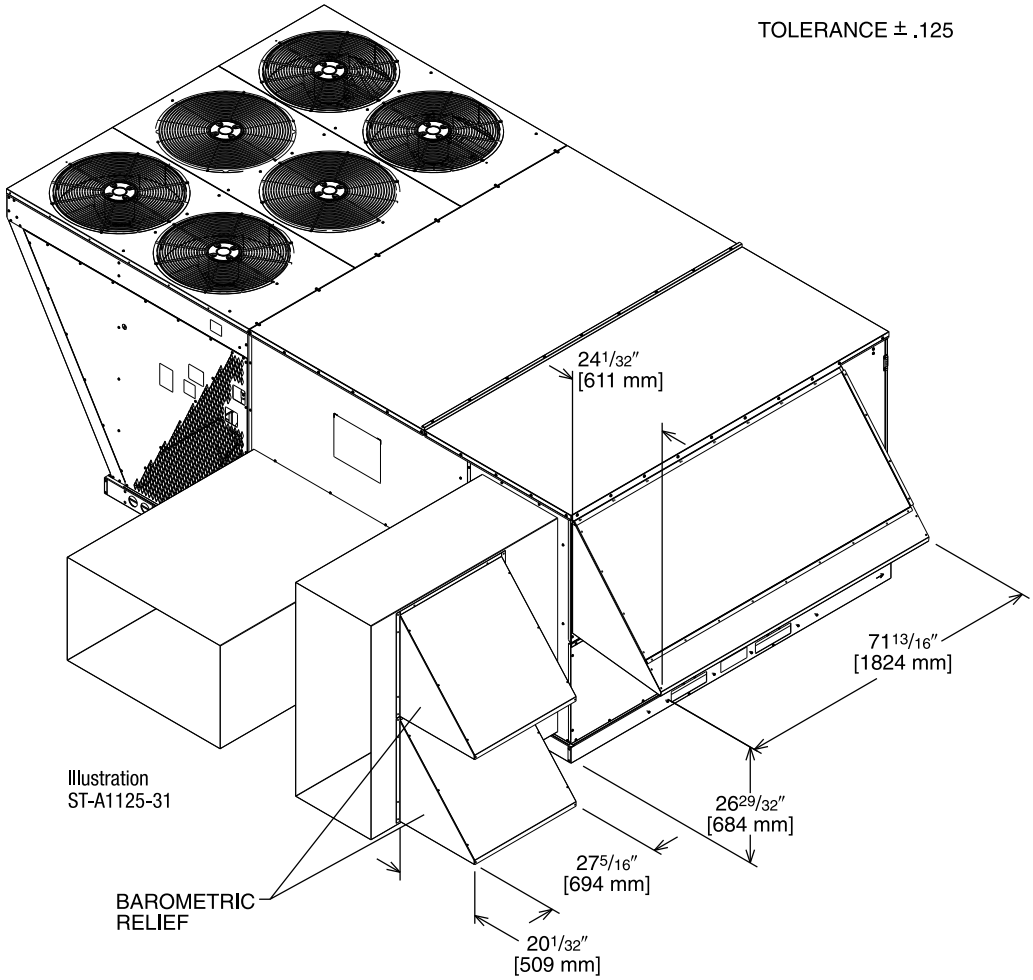
NON-DDC ECONOMIZER WITH SINGLE ENTHALPY (HORIZONTAL) RUSKIN ROOFTOP SYSTEMS ECONOMIZER WITH SIEMENS CONTROLLER

Field-Installed Only

RXRD-51MHHAM3
PD555460—Dual Enthalpy, Temperature and Humidity Sensor (for Siemens Non-DDC)
RXRX-AR02—Sensor, Carbon Dioxide (Wall Mount)

- Features **Siemens** Controls
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- 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
- CO_2 Input Sensor Option
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Horizontal Duct Application
- Low Leak Dampers meet California Title 24 requirements and ASHRAE 90.1 2022
- Field Installed Power Exhaust Available
- Can be Converted to DDC Operation with the Economizer Universal DDC Interface Kit (RXRX-DDC02)





[ ] Designates Metric Conversions

ECONOMIZER UNIVERSAL DDC INTERFACE KIT

Available Factory or Field-Installed

RXRX-DDC02

- Allows any Non-DDC Economizer to be used with a ClearControl DDC model
- Mounts on the Economizer
- Provides Mounting location for Economizer Controller
- Provides wire management for excess wire

NOTE: Older DDC Models, Prior to A2L, may require a field update to the ClearControl Software. The minimum version required is 3.15. Models with R-454B refrigerant will come with software version 4.0 or higher.

FRESH AIR DAMPER

AXRF-KFA1—Fresh Air Damper, Manual
RXRX-AW03—Fresh Air Damper, Motorized (Non-DDC)
RXRX-AW05—Fresh Air Damper, Motorized (DDC)

- 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
- CO_2 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), on 16 x 2 LCD screen
- If connected to thermostat, all fresh air damper functions can be viewed on 16 x 2 LCD screen
- A motorized kit is needed for a complete motorized outside air damper selection

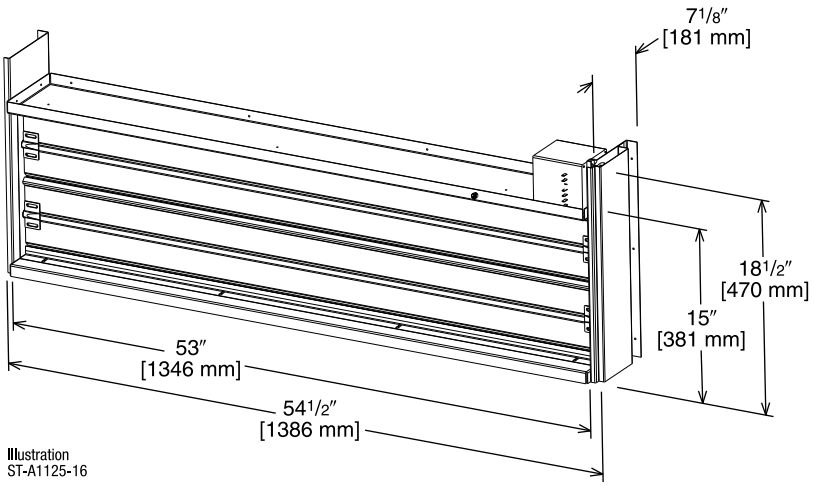
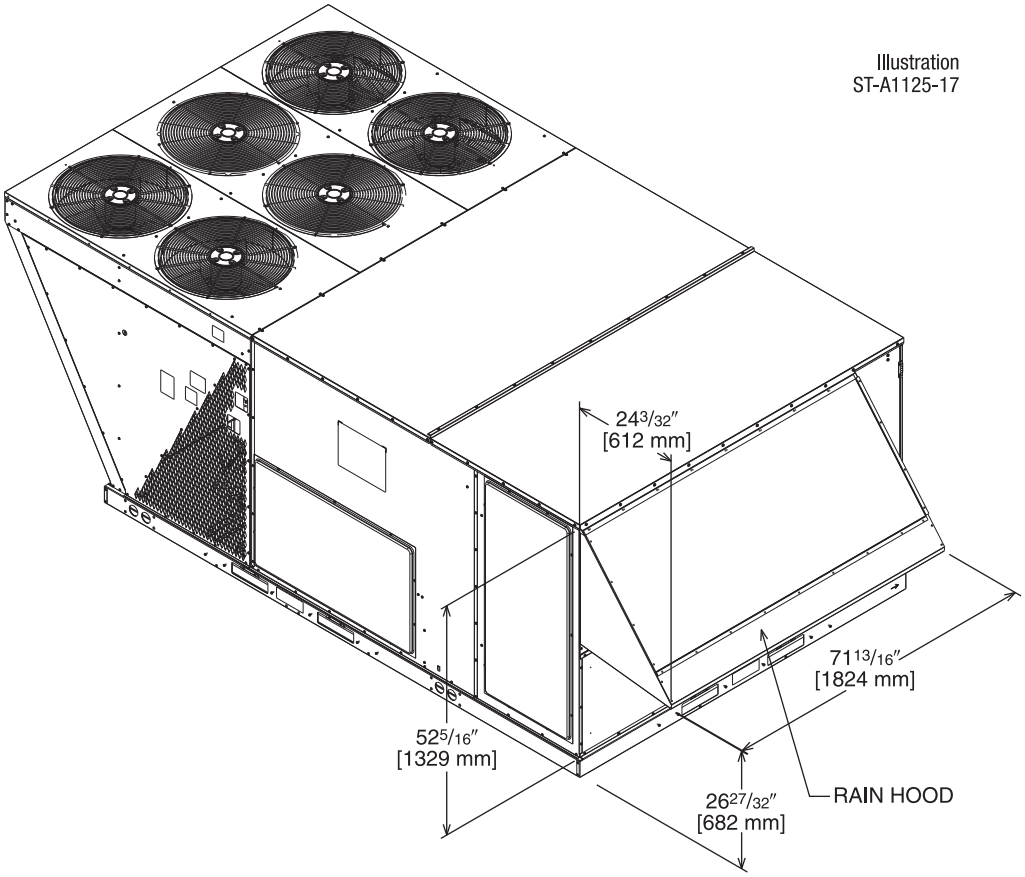


Illustration
ST-A1125-16

Illustration
ST-A1125-17



[ ] Designates Metric Conversions

POWER EXHAUST KIT, CONVERTIBLE

RXRX-BGF05*

***Voltage Code: C, D or Y**

- Convertible between vertical and horizontal airflow
- Compatible with all H-cabinet economizers
- **Economizer sold separately**

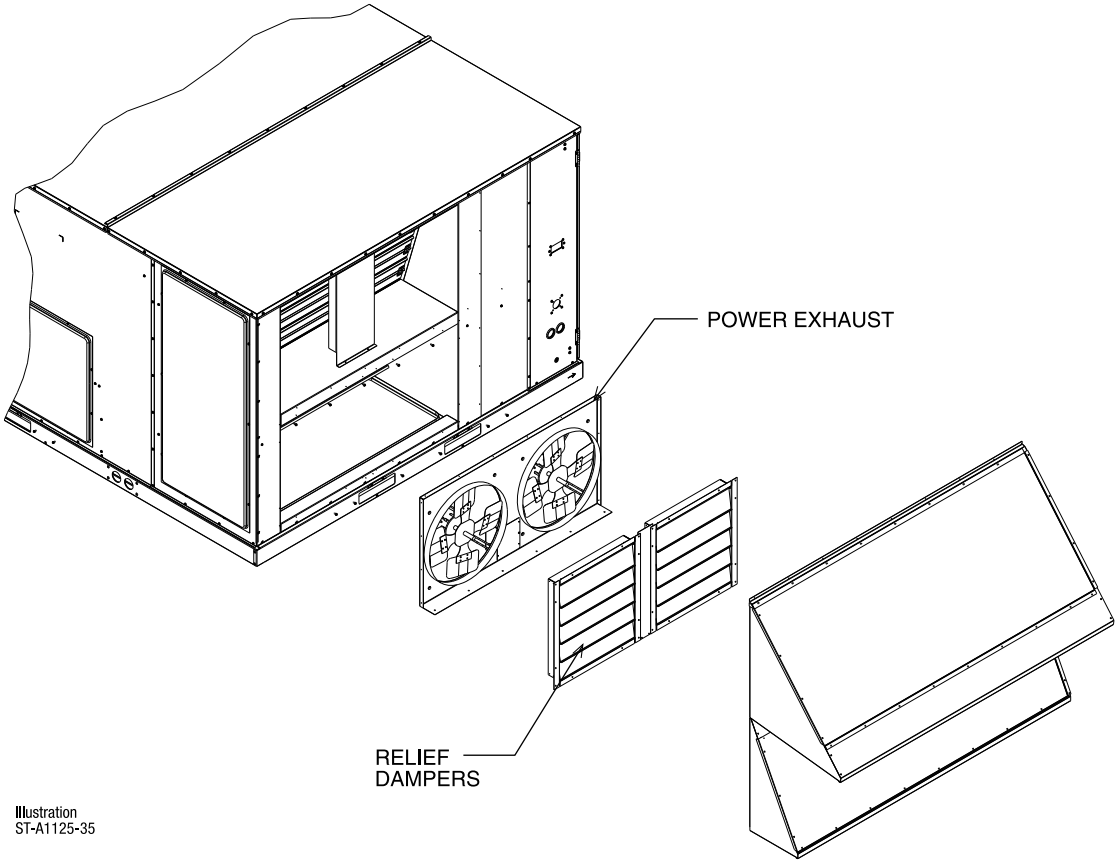


Illustration
ST-A1125-35

MODEL NO.	NO. OF FANS	VOLTS	PHASE	HP (EA.)	LOW SPEED		HIGH SPEED		FLA (EA.)	LRA (EA.)
					CFM [L/s]	RPM	CFM [L/s]	RPM		
RXRX-BGF05C	2	208-230	1	0.75	4100 [1935]	850	5200 [2454]	1050	5.0	4.97
RXRX-BGF05D	2	460	1	0.75	4100 [1935]	850	5200 [2454]	1050	2.2	3.40
RXRX-BGF05Y	2	575	1	0.75	4100 [1935]	850	5200 [2454]	1050	1.5	2.84

NOTES: Power exhaust is factory set on high speed motor tap.
CFM is per fan at 0 w.c. external static pressure.

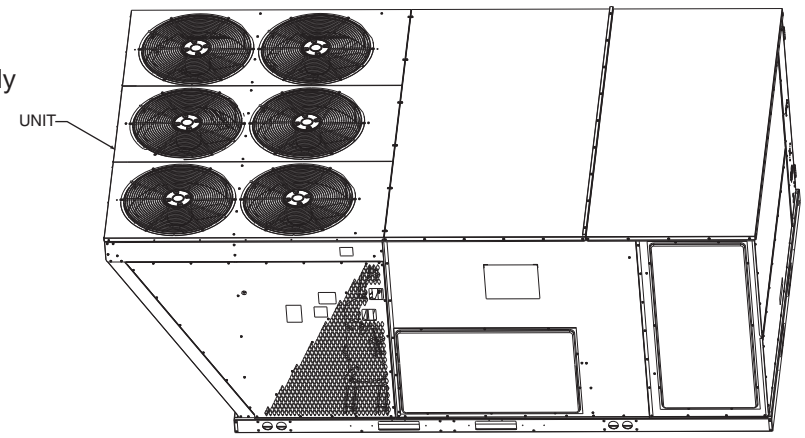
[ ] Designates Metric Conversions

ROOFCURBS (Full Perimeter)

RXKG-CBH14

- One available height (14" [356 mm])
- Quick assembly corners for simple and fast assembly
- 1" [25.4 mm] x 4" [102 mm] Nailer provided
- Insulating panels not required because of insulated outdoor base pan
- Sealing gasket (28" [711 mm]) provided with Roofcurb
- Packaged for easy field assembly

TYPICAL INSTALLATION



ROOFCURB ASSEMBLY

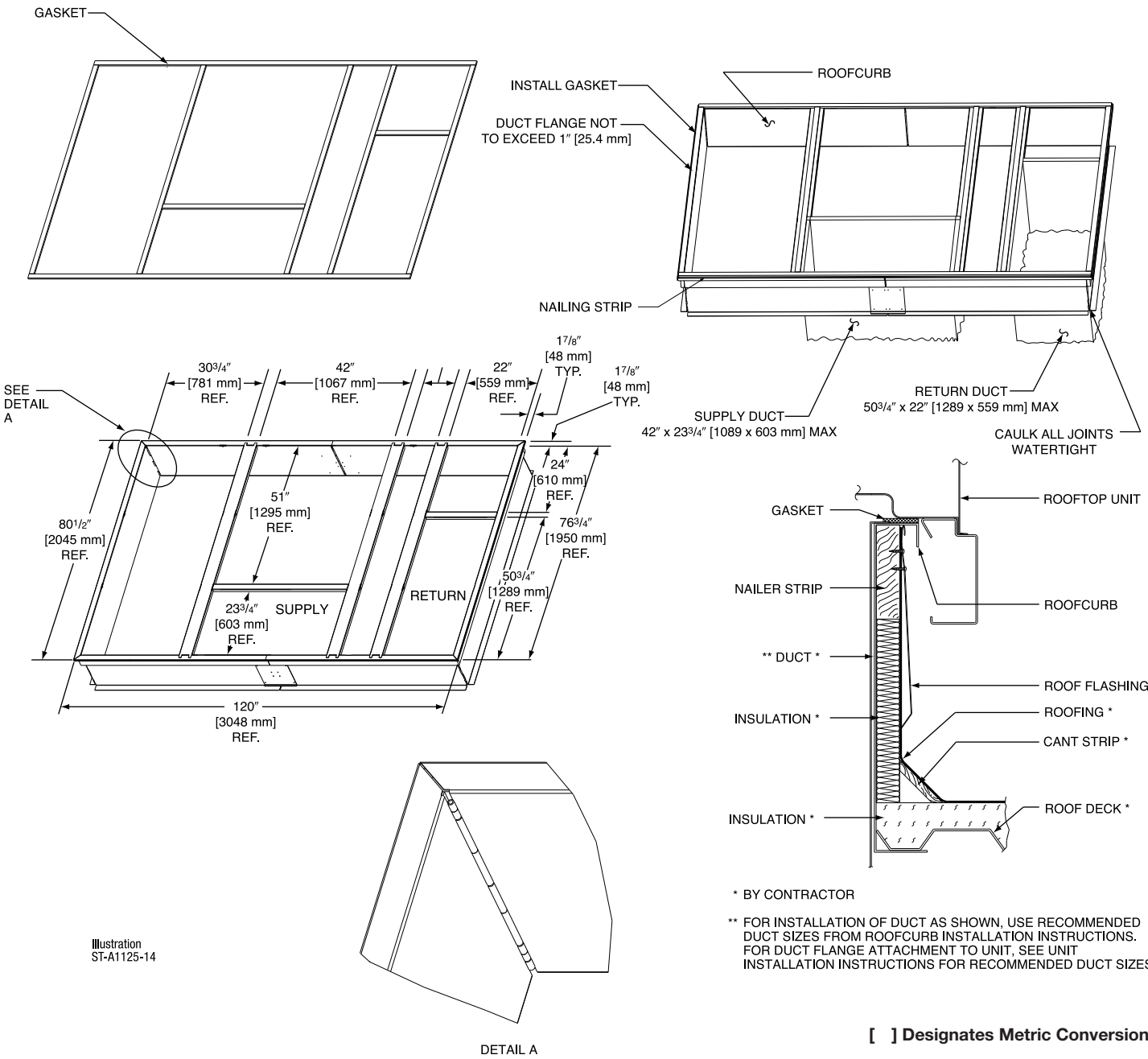


Illustration ST-A1125-14

* 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.

[ ] Designates Metric Conversions

ROOFCURB ADAPTERS

OLD MODELS	OLD CURB MODEL	ROOFCURB ADAPTER	NEW MODEL
COMMERCIAL CABINET (12.5, 15 & 20 TON) [44, 52.8 & 70.3 kW] (-)RCF, (-)RGF, (-)REF	RXRK-E56	RXRX-CJCE56	RHPH (15 & 20 TON) [52.8 & 70.3 kW]

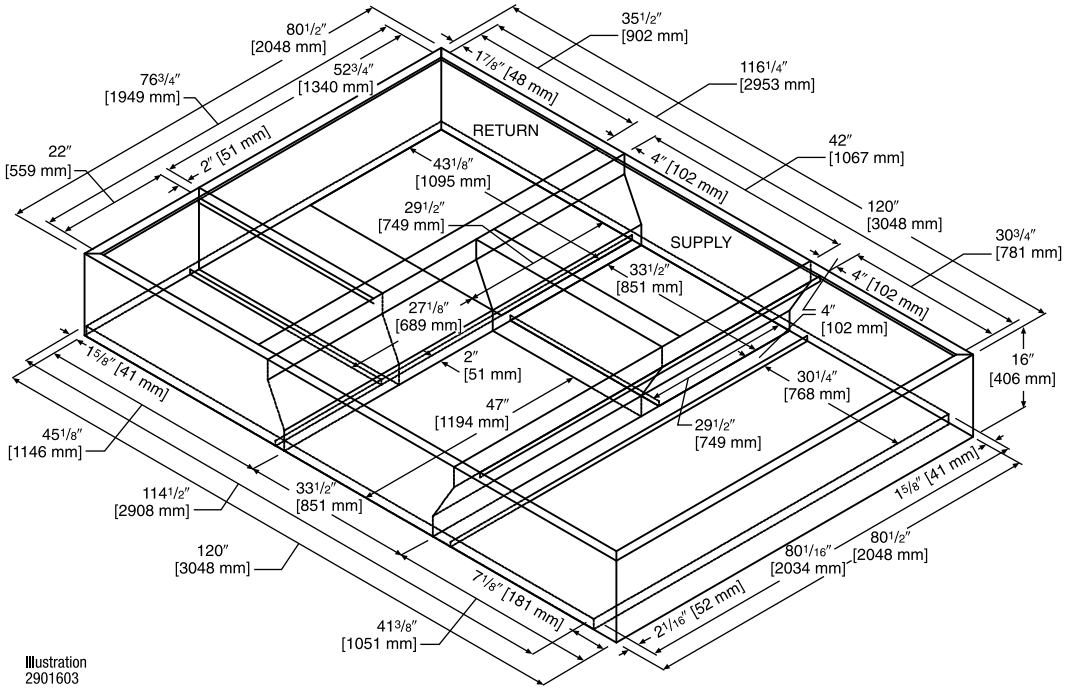


Illustration 2901603

COMMERCIAL CABINET (15, 20 & 25 TON) [52.8, 70.3 & 87.9 kW] (-)LKB, LMB, LNB (COOLING ONLY) (-)KKB, KMB, KNB (GAS/ELECTRIC)	RXKG-CAF14	RXRX-CJCF14	RHPH (15 & 20 TON) [52.8 & 70.3 kW]

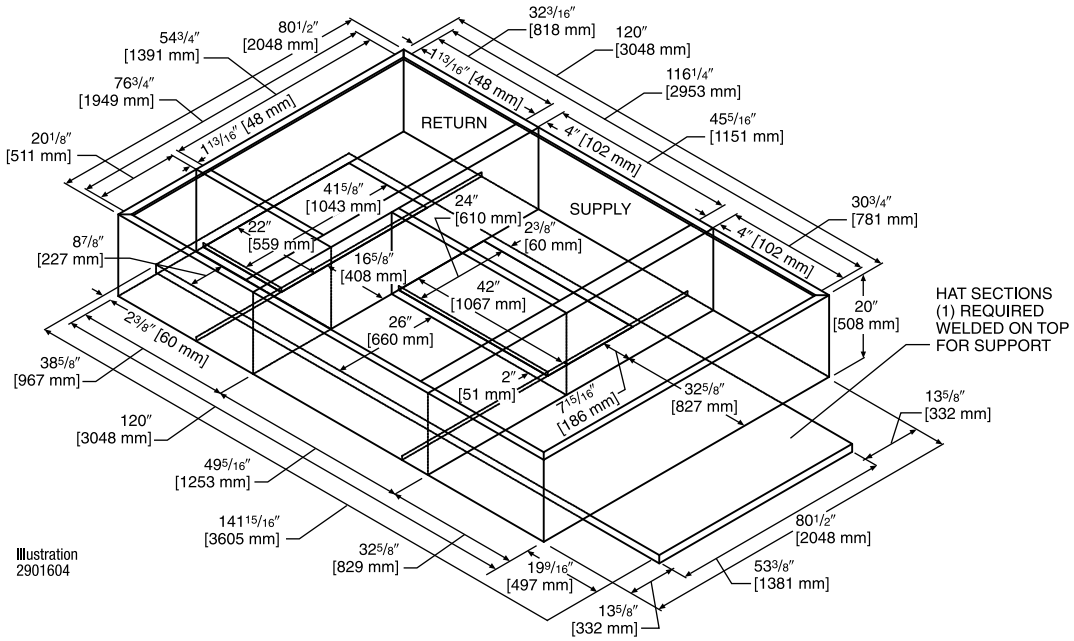


Illustration 2901604

[ ] Designates Metric Conversions

Guide Specifications RHPH

You may copy this document directly into your building specification. This specification is written to comply with the 2016 version of the "master format" as published by the Construction Specification Institute. www.csinet.org.

ELECTRIC HEAT PUMP PACKAGED ROOFTOP

HVAC Guide Specifications

Size Range: 15 & 20 Nominal Tons

1.00 General:

A. 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.

B. 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.

C. Unit shall use environmentally safe, R-454B refrigerant.

D. Unit shall be installed in accordance with the manufacturer's instructions.

E. Unit must be selected and installed in compliance with local, state, and federal codes.

F. Model and serial data shall be printed inside the control box.

1.01 Quality Assurance:

A. Unit meets ASHRAE 90.1 2022 minimum efficiency requirements.

B. Unit shall be rated in accordance with AHRI Standards 340/360.

C. Unit shall be designed to conform to ASHRAE 15.

D. Unit shall be UL-tested and certified in accordance with Standards and UL-listed and certified under Canadian standards as a total package for safety requirements.

E. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

F. Unit casing shall be capable of withstanding 500-hour salt spray exposure per ASTM B117.

G. Roof curb shall be designed to conform to NRCA Standards.

H. 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.

I. Unit shall be designed in accordance with UL Standard 60335-2-40 4th Edition. Including tested to withstand rain.

J. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph.

1.02 Manufacturer Qualifications

A. Unit shall be designed in accordance with ISO 9001:2015, and shall be manufactured in a facility registered by ISO 9001:2015.

1.03 Installer Qualifications

A. The installer shall be trained to install and service equipment with A2L refrigerants.

1.04 Delivery, Storage, and Handling:

A. Unit shall be stored and handled per manufacturer's recommendations.

B. Lifted by crane requires either shipping top panel or spreader bars.

C. Unit shall only be stored or positioned in the upright position.

D. Wooden bumpers for handling and protection of unit during transportation and storage.

1.05 Unit Cabinet:

A. Unit cabinet shall be constructed of galvanized steel and shall be bonderized and coated with a baked enamel finish on all externally exposed surfaces.

B. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003 inches minimum, gloss (per ASTM D523,60F): 60, Hardness: H-2H Pencil hardness.

C. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 210 or 360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum 1/2-in. thick, 1.6 lb density, flexible fiberglass insulation, foil faced on the air side. Aluminum foil-faced fiberglass insulation shall be used in the gas heat compartment.

D. Shall utilize uniform screw sizing.

E. Base of unit shall have a location for thru-the-base gas and electrical connections standard.

F. Base Rail:

i. Unit shall have base rails on all sides.

ii. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.

iii. Holes shall be provided in the base rail for moving the rooftop for fork truck.

iv. Base rail shall be a minimum of 14 gauge thickness.

G. Condensate pan and connections:
   i. Shall be a sloped condensate drain pan made of a non-corrosive material and be removable for cleaning.
   ii. Shall comply with ASHRAE Standard 62.
   iii. Shall use a 1" NPT drain connection, possible either through the bottom or side of the drain pan. Connection shall be made per manufacturer's recommendations.
   iv. Shall be able to slide out completely.
   v. Shall be separate from the coil.

H. Standard factory installed condensate overflow sensor.

I. Top Panel
   i. Shall be a single piece top panel over indoor section.

J. Electrical Connections:
   i. All unit power wiring shall enter unit cabinet a single, factory-prepared, continuous raised flange opening in the basepan.
   ii. Thru-the-base capability:
      a. Standard unit shall have a thru-the-base electrical location(s) using a raised, continuous raised flange opening in the basepan.
      b. No basepan penetration, other than those authorized by the manufacturer, is permitted.
      c. Factory standard phase-monitor on all Non-DDC models and optional on DDC models.

K. Component access panels (standard):
   i. Cabinet panels shall be easily opened for servicing.
   ii. Stainless steel metal hinges are standard on all doors.
   iii. Panels covering control box, indoor fan, indoor fan motor, filter, and electric or gas heater components (where applicable), shall have 1/4 turn latches on units with the factory-installed option.

1.06 Operating Characteristics:

A. Unit shall be capable of starting and running at 125°F (52°C) ambient outdoor temperature, meeting maximum load criteria of AHRI Standard 340/360 at ± 10% voltage.

B. Compressor with standard controls shall be capable of operation down to 50°F (10°C), ambient outdoor temperatures. Low ambient accessory kit is necessary if mechanically cooling at ambient temperatures to 0°F (-17.7°C).

C. Unit shall discharge supply air vertically or horizontally as shown on contract drawings.

D. Unit shall be factory configured for vertical supply & return configurations.

E. Unit shall be field convertible from vertical to horizontal configuration.

F. Unit shall be capable of mixed operation: vertical supply with horizontal return or horizontal supply with vertical return.

1.07 Electrical Requirements

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

1.08 Evaporator Fan Compartment:

A. Interior cabinet surfaces shall be insulated with a minimum 1/2-in. thick, minimum 1.6 LB density, flexible fiberglass insulation bonded with foil face on the air side.

B. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

C. Insulation shall also be mechanically fastened with welded pin and retainer washer.

1.09 Thermostats

A. Thermostat must:
   i. Energize both "W1" and "W2" when calling for heat on DDC, and 'W3' on non-DDC.
   ii. Have capability to energize 2 different stages of cooling, and 2 different stages of heating and a reversing valve output.
   iii. Must include capability for occupancy scheduling.

1.10 Electronic Control System for HVAC

A. Shall be complete with self-contained low-voltage control circuit protected by a fuse on the 24-V transformer side (090-150 units have a resettable circuit breaker).

B. Shall utilize color-coded wiring.

C. 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.

D. Unit shall include a minimum of one 10-pin screw terminal connection board for connection of control wiring.

E. Unit control board shall be provided with 7 segment readout via LCD display for status and diagnostics.
F. Shall include integrated defrost system to prevent excessive frost accumulation during heating duty, and shall be controlled as follows:
    i. Defrost shall be initiated on the basis of Demand Defrost.
    ii. The need for a defrost cycle is determined by one of two factors: Time or Frost Detection.
    iii. Should six hours of compressor run time elapse without a defrost cycle and the coil temperature is below the frost accumulation temperature, a defrost cycle will be initiated.
    iv. The control shall be capable of detecting frost accumulation on the outdoor coil and initiate a defrost cycle when necessary.

1.10.01 Safeties:

A. Compressor over-temperature, over current.
B. Standard Low-pressure Switch:
    i. Units shall have low pressure, loss of charge automatic reset device that will shut off compressor when tripped.
    ii. Low pressure control:
        a. Provides active protection in both heating and cooling modes at all outdoor ambient temperatures. The low pressure control is an automatic reset type and opens at approximately 15 psig and closes at approximately 40 psig. Operation is slightly different between cooling and heating modes.
C. Standard High-pressure Switch:
    i. Unit shall be equipped with high pressure switch device that will shut off compressor when tripped.
    ii. High pressure control:
        a. The high pressure control is an automatic reset type and opens at approximately 610 psig and closes at approximately 420 psig. The compressor and fan motor will stop when the high pressure control opens and will start again if the high side pressure drops to approximately 420 psig. If the high pressure control opens 3 times within a particular call for heating or cooling operation, the controls will lock out the compressor and outdoor fan operation.
D. Automatic reset, motor thermal overload protector.
E. The unit must be permanently grounded.
F. Components are not compatible between different refrigerants. Do not use R-410A service equipment or components on R-454B equipment. System or part failure could occur.
G. Freeze protection sensor, evaporator. Freeze protection sensor is a standard feature for all DDC units and optional for Non-DDC units.

1.11 Standard Filter Section:

A. Shall consist of factory-installed, low velocity, throwaway 2-in. thick fiberglass filters of commercially available sizes.
B. Unit will accept only 2-in. filters.
C. Compatible with 2-in. MERV 8 and MERV 13 filters.
D. Filter face velocity shall not exceed 365 fpm at nominal airflows.
E. Filters shall be accessible through an access panel as described in the unit cabinet section of the specification.
F. Filters access is specified in the unit cabinet section of this specification.
G. Filters shall be held in place by sliding filter tray, facilitating easy removal and installation metal rods, facilitating easy removal and installation.

1.12 Coils

A. Standard Aluminum/MicroChannel Coils:
    i. Standard evaporator and condenser coils shall be aluminum.
    ii. Evaporator and condenser coils shall be leak tested to 150 psig, pressure tested to 400 psig, and qualified to burst test at 2,200 psi.

1.13 Refrigerant Components

A. Refrigerant circuit shall include the following control, safety, and maintenance features:
    i. TXV metering system shall prevent mal-distribution of two-phase refrigerant.
    ii. Thermal Expansion Valve (TXV).
    iii. Refrigerant filter drier.
    iv. Service gauge connections on suction and discharge lines.
    v. Access panels can be removed without disrupting condenser

B. Compressors
   i. Unit shall use one fully hermetic, single-stage scroll compressor for each independent refrigeration circuit.
   ii. Compressor motors shall be cooled by refrigerant gas passing through motor windings.
   iii. Compressors shall be internally protected from high discharge temperature conditions.
   iv. Compressors shall be protected from an over-temperature and over-amperage conditions by an internal, motor overload device.
   v. Compressor shall be factory mounted on rubber grommets.
   vi. Compressor motors shall have internal line break thermal and current overload protection.
   vii. Crankcase heaters shall not be required for normal operating range.
   viii. 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.

1.14 Evaporator Fan and Motor:

A. Evaporator Fan Motor:
   i. Shall have permanently lubricated bearings
   ii. Shall have inherent automatic-reset thermal overload protection.
   iii. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating shall be required.

B. Belt Drive Evaporator Fan:
   i. Belt drive shall include an adjustable-pitch motor pulley.
   ii. Shall use sealed, permanently lubricated ball-bearing type.
   iii. Blower fan shall be double-inlet type with forward-curved blades.
   iv. Shall be constructed from steel with a corrosion resistant finish and dynamically balanced.

C. Blower Assembly:
   i. Entire assembly shall be able to slide out completely, including VFD, two blowers and the motor.
   ii. Shall be able to slide-out without the removal of the roof and condenser fan motors.

1.15 Condenser Fans and Motors:

A. Condenser Fan Motors:
   i. Shall be a totally enclosed motor.
   ii. Shall use permanently lubricated bearings.
   iii. Shall have inherent thermal overload protection with an automatic reset feature.
   iv. Shall use a shaft-down design. Shaft-up designs including those with “rain-slinger devices” shall not be allowed.

B. Condenser Fans:
   i. Shall be a direct-driven propeller type fan.
   ii. Shall have blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.

1.16 RTU-C Controller:

A. Shall be ASHRAE 62-2001 compliant.
B. Shall accept 18-32VAC input power.
C. Shall have an operating temperature range from 0ºF (-18ºC) to 125ºF (52ºC), 10%– 95% RH (non-condensing).
D. Controller shall accept the following inputs: space temperature, setpoint adjustment, outdoor air temperature, indoor air quality, outdoor air enthalpy, return air enthalpy, fan status, remote time clock/door switch.
E. Shall accept a CO2 sensor in the conditioned space, and be Demand Control Ventilation (DCV) ready.
F. Shall provide the following outputs: Economizer, fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, exhaust, occupied.
G. Unit shall provide surge protection for the controller through a circuit breaker.
H. Shall have a field installed communication card allowing the unit to be able to communicate at a Baud rate of 19.2K or faster.
I. Shall have an LCD display independently showing the status of activity on the communication bus, and processor operation.
J. Optional field installed BACnet® plug-in communication card which includes an EIA-485 protocol communication port, or an optional field installed LonWorks™ plug-in communications card.
K. Software upgrades will be accomplished by local download. Software upgrades through chip replacements are not allowed.
L. Shall be shock resistant in all planes to 5G peak, 11ms during operation, and 100G peak, 11ms during storage.

M. Shall be vibration resistant in all planes to 1.5G @ 20-300 Hz.
N. Shall support a bus length of 4000 ft max, 60 devices per 1000 ft section, and 1 RS-485 repeater per 1000 ft sections.
O. Unit shall be compatible with a programmable 24 volt thermostat.
P. Unit shall be compatible with a zone sensor and a mechanical or solid state time clock connected to the RTU-C.

1.17 Open Protocol, Direct Digital Controller:

A. Shall be ASHRAE 62-2001 compliant.
B. Shall accept 18-30VAC, 50-60Hz, and consumer 15VA or less power.
C. Shall have an operating temperature range from 0ºF (-18ºC) to 125ºF (52ºC), 10% - 90% RH (non-condensing).
D. 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.
E. The BACnet plug in communication card shall include built-in protocol for BACNET (MS/TP and PTP modes)
F. The LonWorks plug in communication card shall include the Echelon processor required for all Lon applications.
G. Shall allow access of up to 62 network variables (SNVT). Shall be compatible with all open controllers
H. Baud rate Controller shall be selectable through the EIA-485 protocol communication port.
I. Shall have an LCD display independently showing the status of serial communication, running, errors, power, all digital outputs, and all analog inputs.
J. 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.
K. Shall provide the following outputs: economizer, fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, exhaust.
L. Software upgrades will be accomplished by either local or remote download. No software upgrades through chip replacements are allowed.
M. Shall be natively equipped with Modbus communication protocol.

1.18 Adjustable Frequency Drive:

A. Unit shall be supplied with an electronic variable frequency drive for the supply air fan.
B. Drive shall be factory installed in an enclosed cabinet.
C. Drive shall meet UL Standard 60335-2-40 4th Edition.
D. The completed unit assembly shall be UL listed.
E. Drives are to be accessible through a tooled access hinged door assembly.
F. The unit manufacturer shall install all power and control wiring.
G. 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.
H. Drive shall be programmed and factory run tested in the unit.

1.19 Special Features:

A. Integrated Economizers:
   i. Integrated, gear-driven parallel modulating blade design type capable of simultaneous economizer and compressor operation.
   ii. Independent modules for vertical or horizontal return configurations shall be available. Vertical return modules shall be available as a factory installed option.
   iii. Damper blades shall be galvanized steel with metal gears. Plastic or composite blades on intake or return shall not be acceptable.
   iv. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
   v. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
   vi. Shall be equipped with low-leakage dampers, not to exceed 2% leakage at 1 in. wg pressure differential.
   vii. Shall be capable of introducing up to 100% outdoor air.
   viii. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air.
   ix. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
   x. Enthalpy sensor shall be provided as standard. Outdoor air sensor set point shall be adjustable and shall range from 40 to 100°F / 4 to 38°C. Additional sensor options shall be available as accessories.
   xi. 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%.

xii. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy. A remote potentiometer may be used to override the damper set point.
xiii. Dampers shall be completely closed when the unit is in the unoccupied mode.
xiv. Economizer controller shall accept a 2-10Vdc CO_2 sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor-air damper to provide ventilation based on the sensor input.
xv. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
xvi. Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.
xvii. Economizer wire harness will have provision for smoke detector available in supply and return options.
xviii. Shall provide fault detection and diagnostics (FDD) system in accordance with local code. Faults shall be communicated out on an alarm signal.

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

C. Manual Damper
i. 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.

D. Condenser Coil Hail Guard Assembly:
i. Shall protect against damage from hail.
ii. Shall be louvered style.

E. Unit-Mounted, Non-Fused Disconnect Switch:
i. Shall be factory-installed, internally mounted.
ii. Shall be internally mounted with external access.
iii. National Electric Code (NEC) and UL approved non-fused switch shall provide unit power shutoff.
iv. Shall be accessible from outside the unit.
v. Shall provide local shutdown and lockout capability.

F. Convenience Outlet:
i. Non-Powered convenience outlet.
ii. Outlet shall be powered from a separate 115-120v power source.
iii. A transformer shall not be included.
iv. Outlet shall be field-installed and internally mounted with easily accessible 115-v female receptacle.
v. Outlet shall include 15 amp GFI receptacle with independent fuse protection.
vi. Outlet shall be accessible from outside the unit.

G. Propeller Power Exhaust:
i. Power exhaust shall be used in conjunction with an integrated economizer.
ii. Configurable for vertical or horizontal installation.
iii. Horizontal power exhaust shall be mounted in return ductwork.
iv. 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.
v. Capable of adjustable but constant volume.

H. Roof Curbs (Vertical):
i. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
ii. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.

I. Outdoor Air Enthalpy Sensor
i. 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.

J. Return Air Enthalpy Sensor
   i. The return air enthalpy sensor shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.

K. Indoor Air Quality (CO_2) Sensor:
   i. Shall be able to provide demand ventilation indoor air quality (IAQ) control.
   ii. The IAQ sensor shall be available in duct mount, wall mount, or wall mount with LED display. The set point shall have adjustment capability.

L. Smoke Detectors:
   i. Shall be a Four-Wire Controller and Detector.
   ii. Shall be environmental compensated with differential sensing for reliable, stable, and drift-free sensitivity.
   iii. Shall use magnet-activated test/reset sensor switches.
   iv. Shall have tool-less connection terminal access.
   v. Shall have a recessed momentary switch for testing and resetting the detector.
   vi. Controller shall include:
      a. One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel
      b. Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment
      c. One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station
      d. Capable of direct connection to two individual detector modules.
      e. Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.

M. Barometric Relief:
   i. Shall include damper, seals, hard-ware, and hoods to relieve excess building pressure.
   ii. Damper shall gravity-close upon shutdown.

N. Time Guard:
   i. Shall prevent compressor short cycling by providing a 5-minute delay (±2 minutes) before restarting a compressor after shutdown for any reason.
   ii. One device shall be required per compressor.

O. Standard Factory Installed Overflow Switch
   i. Switch shall monitor the condensate level in drain pan and stops compression operation when overflow conditions occur

P. Access Panels:
   i. Hinges with ¼ turn fasteners shall be permanently attached.
   ii. Hinges shall be powder coated and made from stainless steel.

Q. Head Pressure Control Package
   i. Controller shall control coil head pressure by condenser-fan cycling.

R. Fan/Filter Status Switch:
   i. Switch shall provide status of indoor evaporator fan (ON/OFF) or filter (CLEAN/DIRTY).
   ii. 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.

S. Electric Heat
   i. 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.
   ii. 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.

T. Refrigerant Leak Detection System:
   i. In the event of a detected refrigerant leak, the refrigerant leak detection sensor(s) will trigger the mitigation procedure that shuts off the compressor(s) and turns on the indoor blower motor.
   ii. In the event of a detected refrigerant leak, the system will display a fault code on the unitary controller. For DDC systems, ‘A2L Event’ will appear on the LCD module. For Non-DDC systems, a fault code of 40 will appear on the dual seven segment display.

GENERAL TERMS OF LIMITED WARRANTY*

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

***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
Commercial Applications .....Five (5) Years
Parts
Commercial Applications .....One (1) Year

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

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