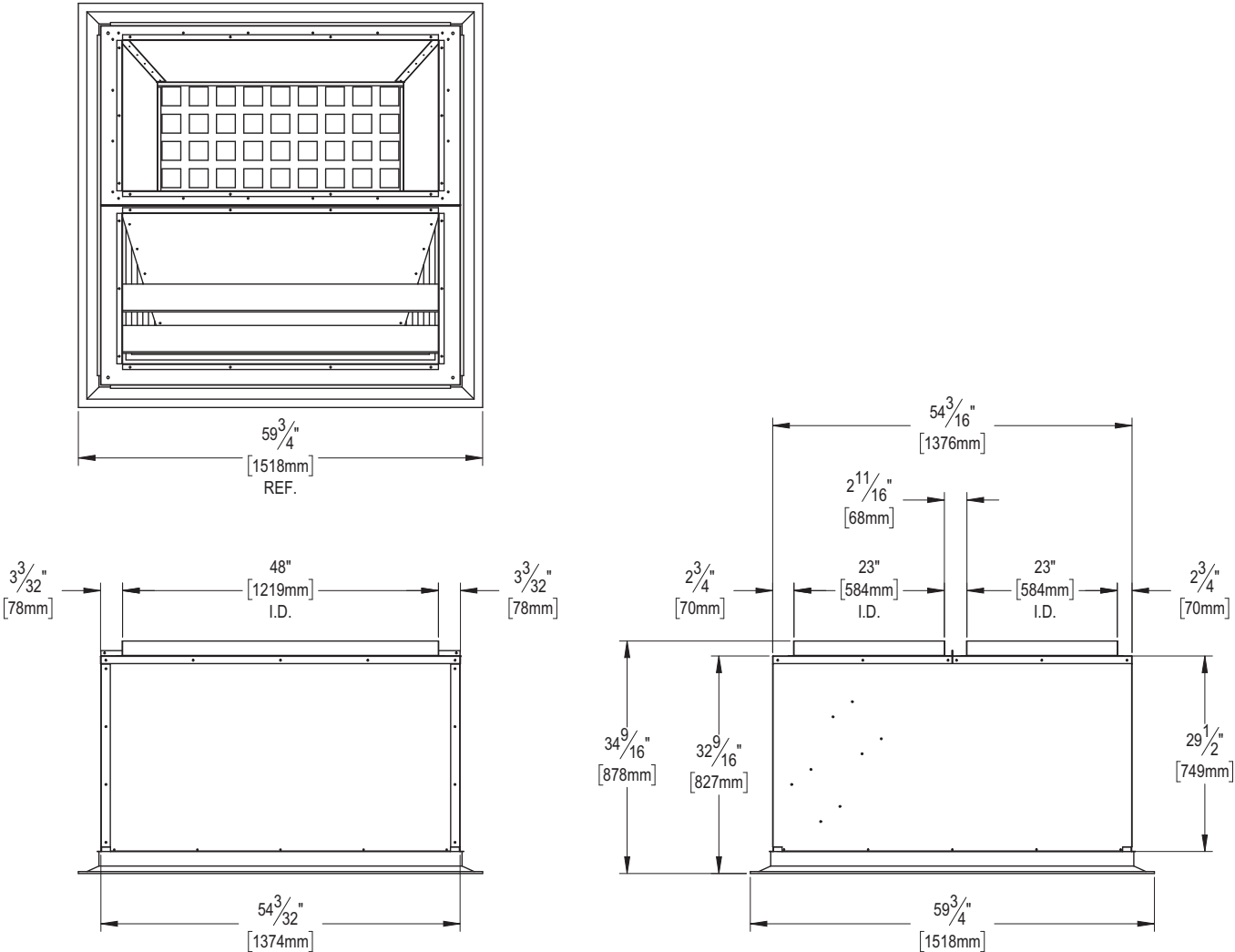


CONCENTRIC DIFFUSER 20 TON DROP
23" x 48" [584 x 1219 mm]

RXRN-AED2348

For use with Concentric Adapter RXMC-GG02 and 23" x 48" [584 x 1219 mm] Supply and Return Ducts

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



ST-A1328-11-01

MODEL NO.	FLOW RATE CFM [L/s]	THROW FEET [m] 2, 3	NECK VELOCITY FPM [m/s]	NOISE LEVEL 4, 5 [dba]
RXRN-AED2348	7200 [3398]	47-80 [14.3-24.4]	891 [4.5]	39
	8000 [3776]	48-82 [14.6-25]	990 [5.0]	39

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

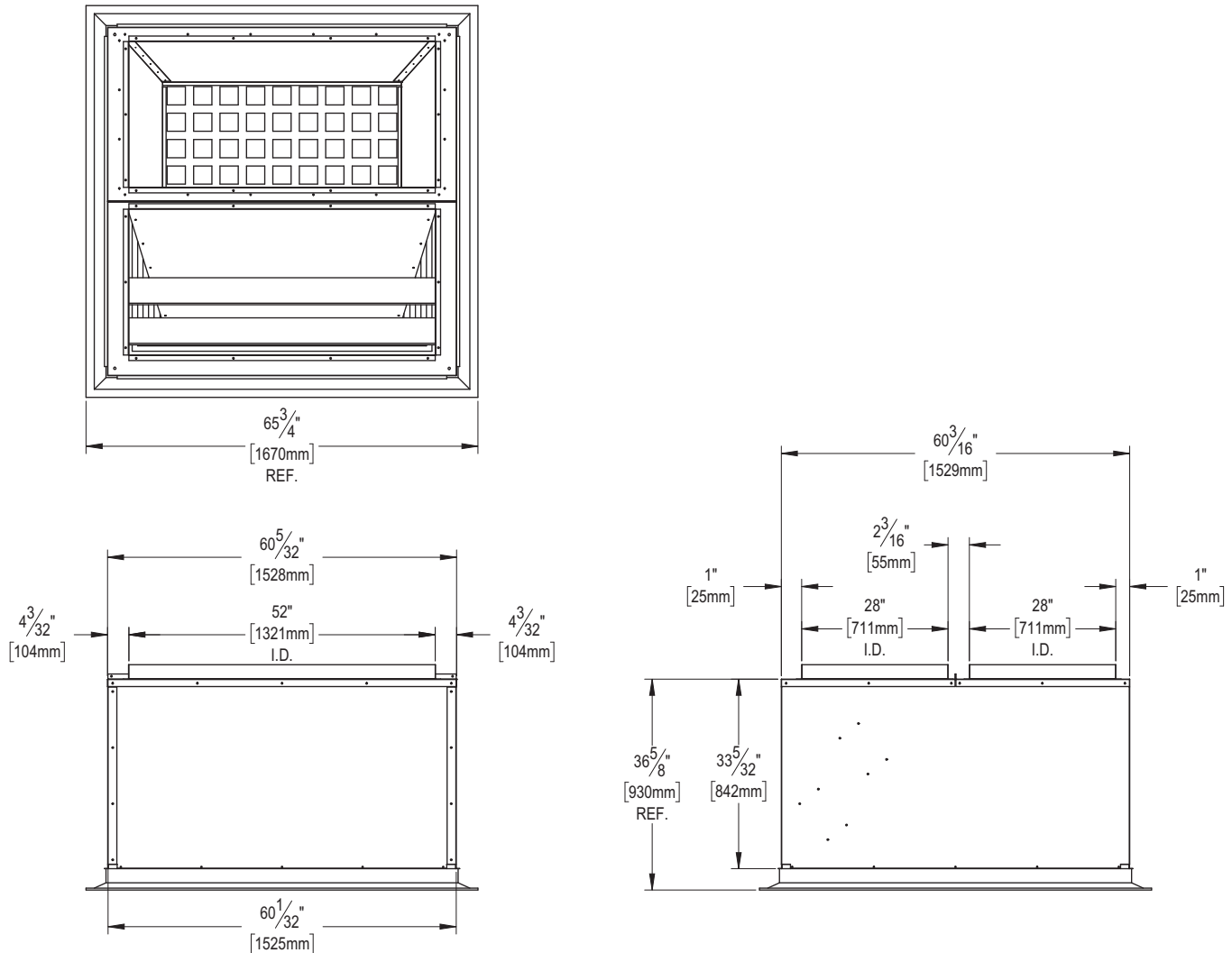
[] Designates Metric Conversions

CONCENTRIC DIFFUSER 25 TON DROP 28" x 52" [711 x 1321 mm]

RXRN-AED2852

For use with Concentric Adapter RXMC-GG03 and 28" x 52" [711 x 1321 mm] Supply and Return Ducts

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



ST-A1328-09-01

MODEL NO.	FLOW RATE CFM [L/s]	THROW FEET [m] ^{2, 3}	NECK VELOCITY FPM [m/s]	NOISE LEVEL ^{4, 5} [dba]
RXRN-AED2852	10,000 [4720]	52-90 [15.8-27.4]	1115 [5.6]	41

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

[] Designates Metric Conversions

NON-DDC ECONOMIZER WITH SINGLE ENTHALPY (DOWNFLOW/VERTICAL) MICROMETL ECONOMIZER WITH SIEMENS CONTROLS

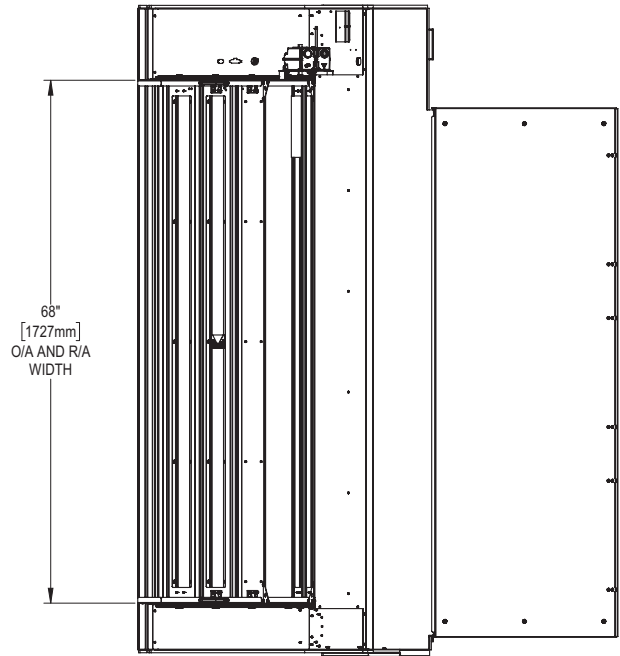
Factory or Field-Installed

RXRD-11MGDAM3—Single Enthalpy (Outdoor)

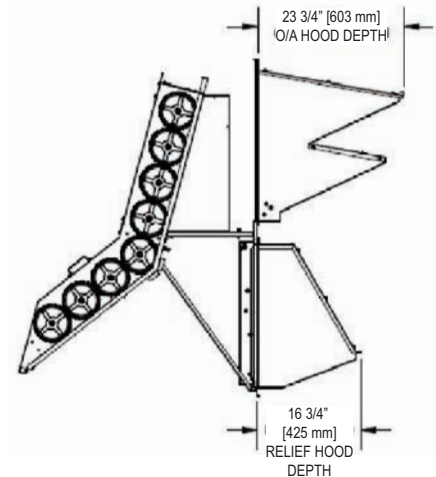
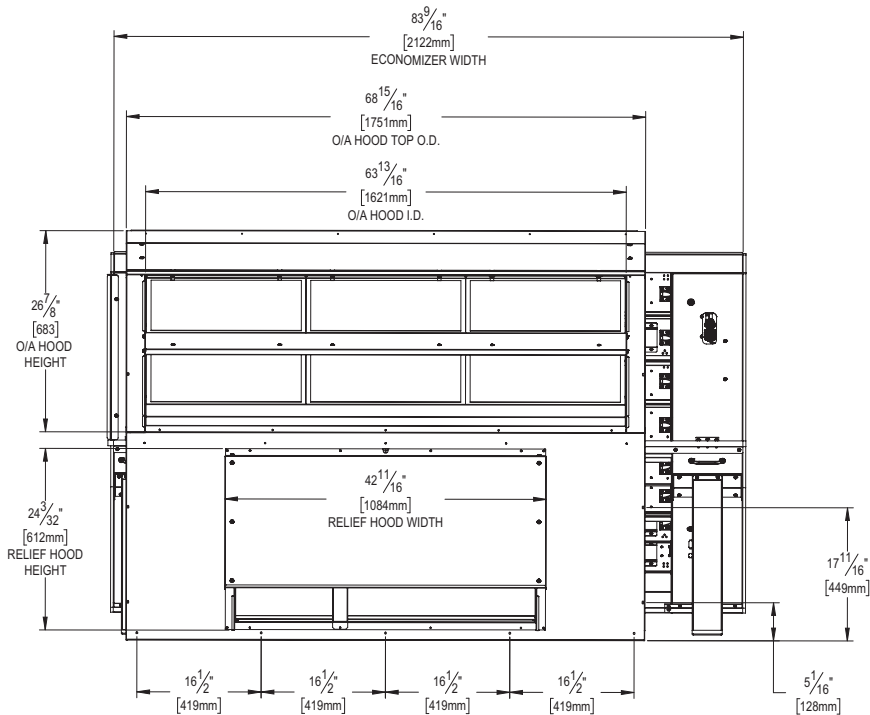
**PD555460—Dual Enthalpy, Temperature and Humidity Sensor
(for Siemens Controller)**

RRRX-AR02—Optional Wall-Mounted CO₂ Sensor

- California Energy Commission (CEC) Title 24 Listed
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Low Leakage Dampers
- Slip-In Design for Easy Installation
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO₂ Input Sensor Option
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Downflow Duct Application
- Field-Installed Power Exhaust Option
- Prewired for Smoke Detector
- If connected to a Building Automation System (BAS), all economizer functions can be viewed on the (BAS) or 16 x 2 LCD screen
- If connected to thermostat, all economizer functions can be viewed on 16 x 2 LCD screen
- Siemens WiFi Programming Stick (PD555462) Option



ST-A1341-58-01



ST-A1341-59-01

ST-A1341-60-01

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

Field-Installed Only

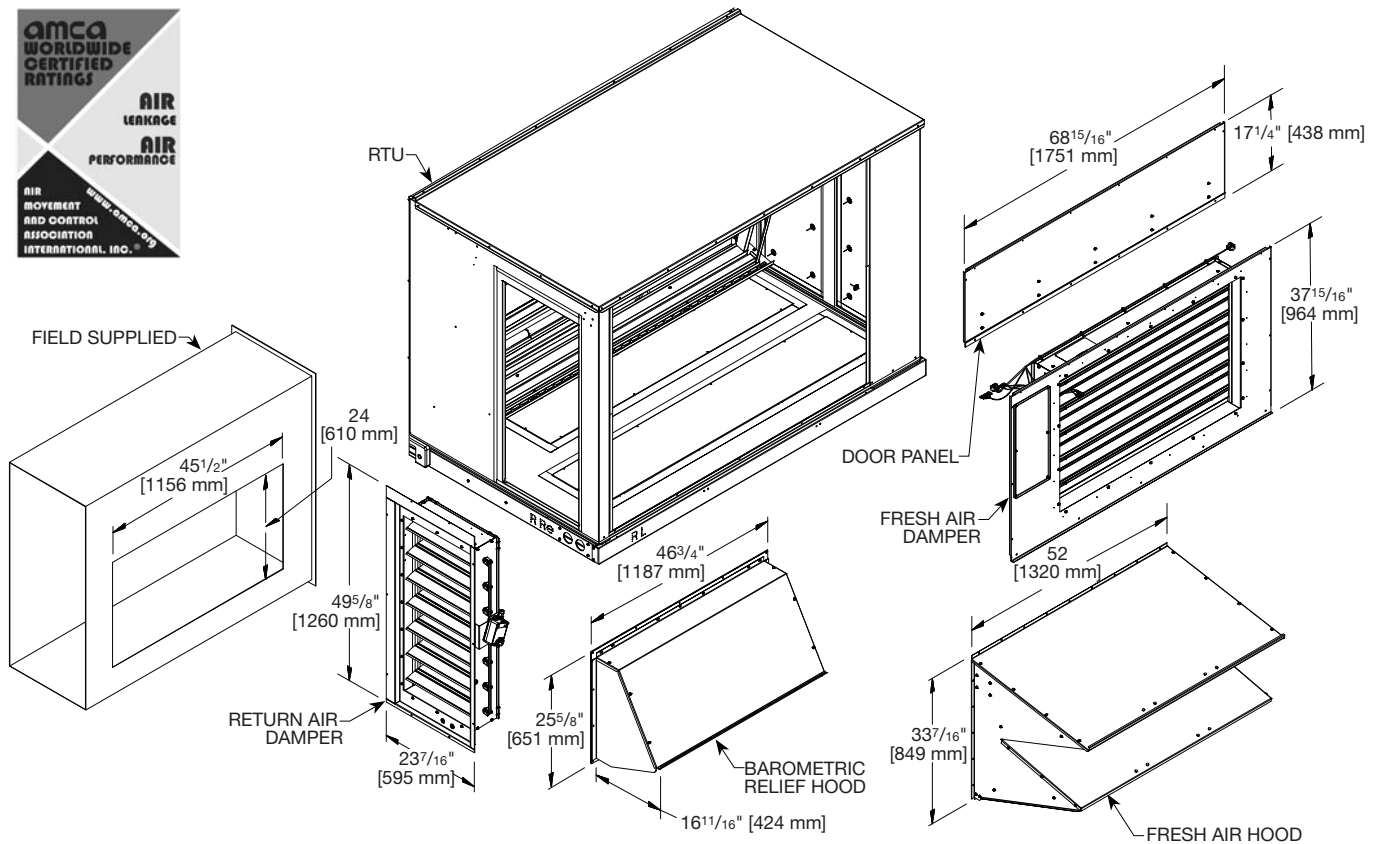
RXRD-51MGDAM3—Single Enthalpy (Outdoor)

PD555460—Dual Enthalpy, Temperature and Humidity Sensor (for Siemens Controller)

RXRX-AR02—Optional Wall-Mounted CO₂ Sensor

These ultra-low leak economizer dampers meet the following minimum construction standards:

1. Frame shall be 14 to 24 gauge galvanized steel channel.
2. Damper blades are galvanized steel airfoil shaped, double skin construction of 14 gauge [2.0] equivalent thickness, 6" [152 mm] wide. Parallel action.
3. Blade edge seals shall be Ruskiprene™ type or equivalent suitable for -72°F [-60°C] to +275°F [+135°C] mechanically locked into the blade edge. Adhesive or clip-on type seals are unacceptable.
4. Jamb seals shall be flexible metal, compression type to prevent leakage between blade end and damper frame. Blade end overlapping frame is unacceptable.
5. Bearings shall be stainless steel or nylon bushing.
6. Axles shall be hexagonal positively locked into the damper blade.
7. Drive mechanism shall be concealed out of airstream to reduce pressure drop and noise.
8. Economizer damper is tested and rated based upon AMCA Publication 500-D.
9. Controls feature the Seimens controller with JCI 24v actuator. Controls capable of Economizer Fault Detection and Diagnostics for code compliance.
10. Damper shall meet the leakage requirements of the International Energy Conservation Code by leaking less than 3 cfm/sq. ft. at 1" of static pressure and shall be AMCA licensed as a class 1A damper. Complies with reliability and performance requirements as specified by the California Energy Commission's Title 24 Standard and ASHRAE 90.1 2022. Economizer dampers shall be Ruskin Rooftop Systems ECD60 model.
11. Can be converted to DDC operation with the Economizer Universal DDC Interface Kit.



[] Designates Metric Conversions

NON-DDC ECONOMIZER WITH SINGLE ENTHALPY (HORIZONTAL) MICROMETL ECONOMIZER WITH SIEMENS CONTROLS

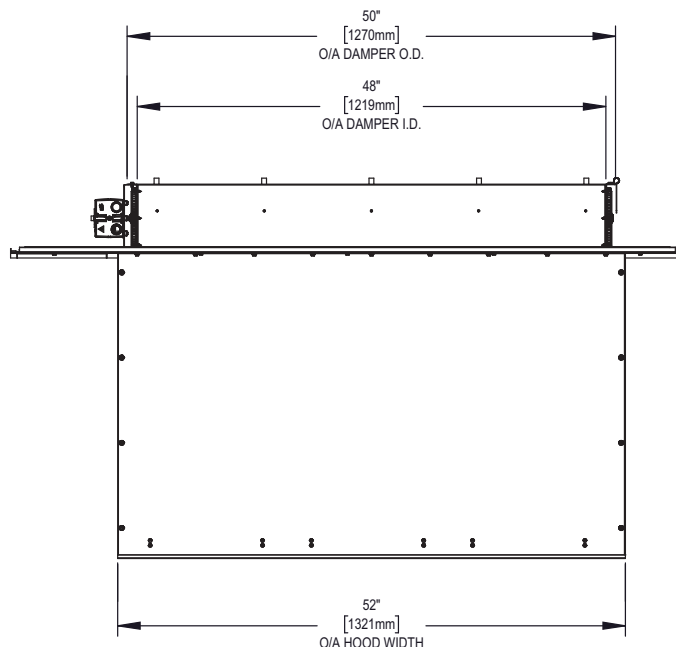
Field-Installed Only

RXRD-11MGHAM3—Single Enthalpy (Outdoor)

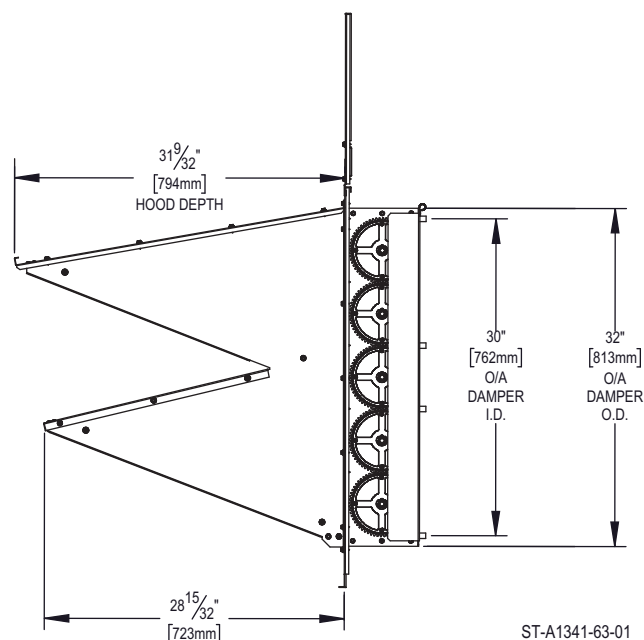
**PD555460—Dual Enthalpy, Temperature and Humidity Sensor
(for Siemens Controller)**

RXXR-AR02—Optional Wall-Mounted CO₂ Sensor

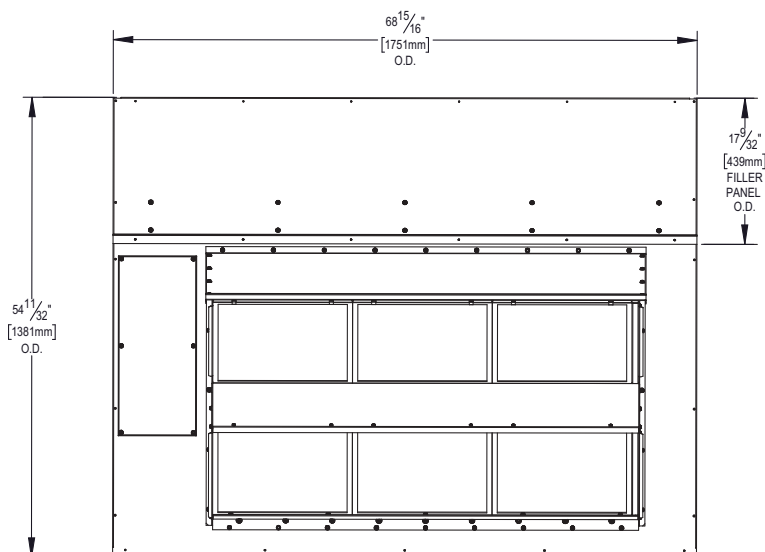
- California Energy Commission (CEC) Title 24 Listed
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Low Leakage Dampers
- Slip-In Design for Easy Installation
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO₂ Input Sensor Option
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Horizontal Duct Application
- Field Installed Power Exhaust Option
- Prewired for Smoke Detector
- If connected to a Building Automation System (BAS),
all economizer functions can be viewed on the (BAS)
or 16 x 2 LCD screen
- If connected to thermostat, all economizer functions
can be viewed on 16 x 2 LCD screen
- Siemens WiFi Programming Stick (PD555462) Option



ST-A1341-61-01



ST-A1341-63-01



ST-A1341-62-01

[] Designates Metric Conversions

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

Field-Installed Only

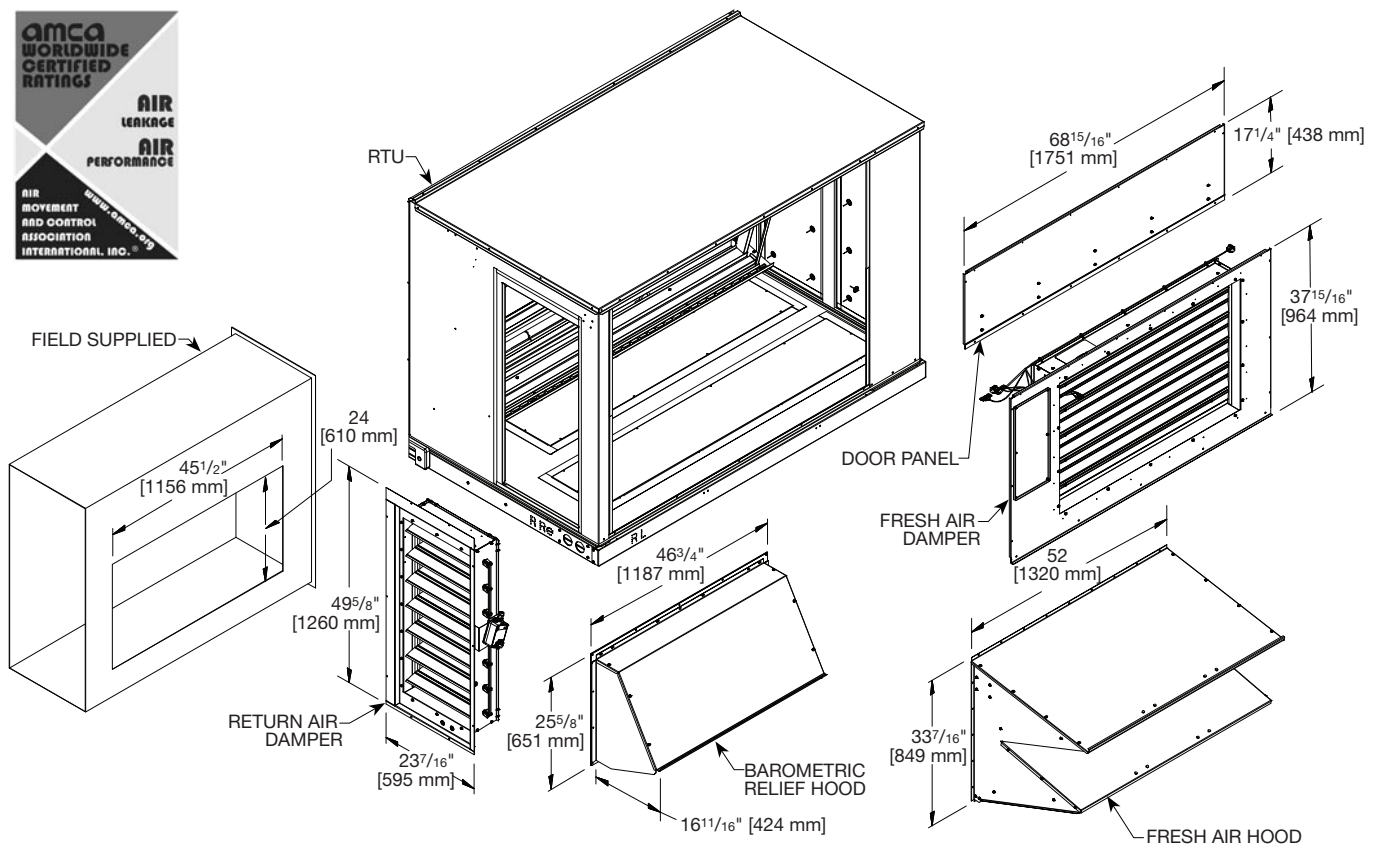
RXRD-51MGHAM3—Single Enthalpy (Outdoor)

PD555460—Dual Enthalpy, Temperature and Humidity Sensor (for Siemens Controller)

RXRX-AR02—Optional Wall-Mounted CO₂ Sensor

These ultra-low leak economizer dampers meet the following minimum construction standards:

1. Frame shall be 14 to 24 gauge galvanized steel channel.
2. Damper blades are galvanized steel airfoil shaped, double skin construction of 14 gauge [2.0] equivalent thickness, 6" [152 mm] wide. Parallel action.
3. Blade edge seals shall be Ruskiprene type or equivalent suitable for -72°F [-60°C] to +275°F [+135°C] mechanically locked into the blade edge. Adhesive or clip-on type seals are unacceptable.
4. Jamb seals shall be flexible metal, compression type to prevent leakage between blade end and damper frame. Blade end overlapping frame is unacceptable.
5. Bearings shall be stainless steel or nylon bushing.
6. Axles shall be hexagonal positively locked into the damper blade.
7. Drive mechanism shall be concealed out of airstream to reduce pressure drop and noise.
8. Economizer damper is tested and rated based upon AMCA Publication 500-D.
9. Controls feature the Siemens controller with JCI 24v actuator. Controls capable of Economizer Fault Detection and Diagnostics for code compliance.
10. Damper shall meet the leakage requirements of the International Energy Conservation Code by leaking less than 3 cfm/sq. ft. at 1" of static pressure and shall be AMCA licensed as a class 1A damper. Complies with reliability and performance requirements as specified by the California Energy Commission's Title 24 Standard and ASHRAE 90.1 2022. Economizer dampers shall be Ruskin Rooftop Systems ECD60 model.
11. Can be converted to DDC operation with the Economizer Universal DDC Interface Kit.



[] Designates Metric Conversions

ECONOMIZER UNIVERSAL DDC INTERFACE KIT

Available Factory or Field-Installed

RXXRX-DDC01

- Allows any Non-DDC Economizer to be used with a ClearControl DDC models
- 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. A2L Models will come with a software 4.0 or higher.

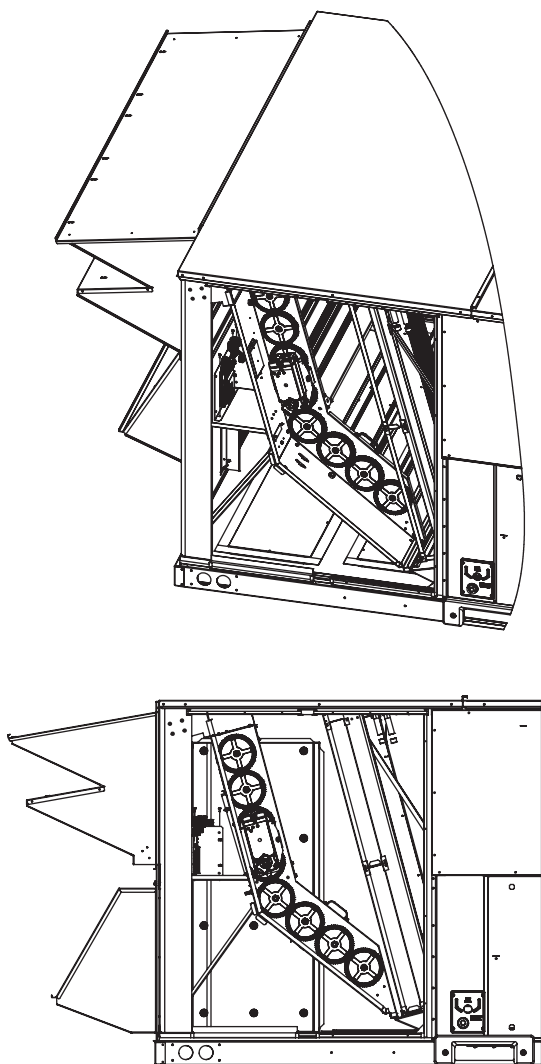


Illustration
ST-A1365-18-00

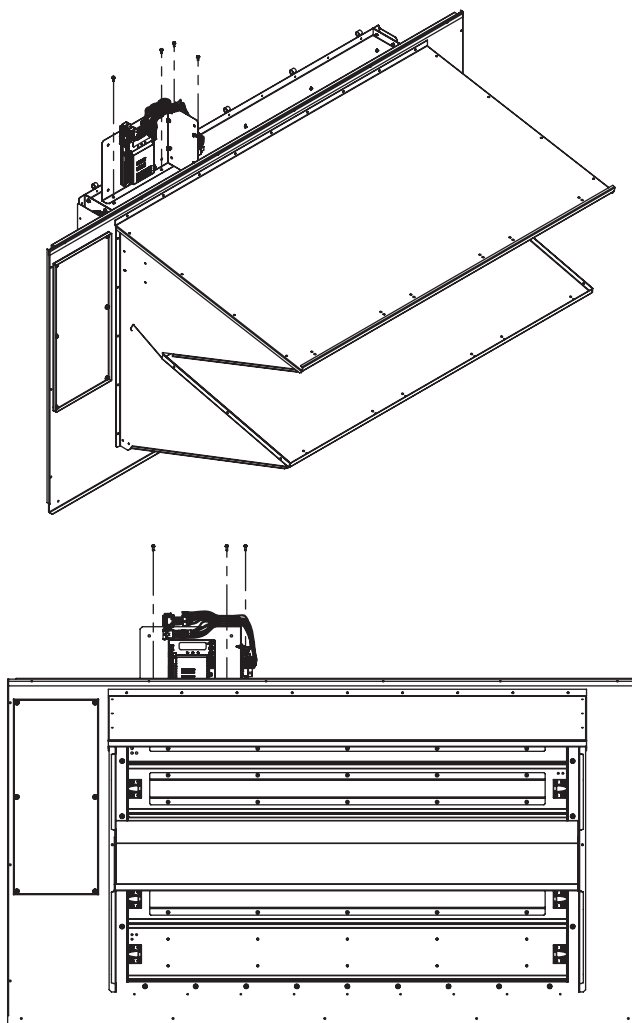


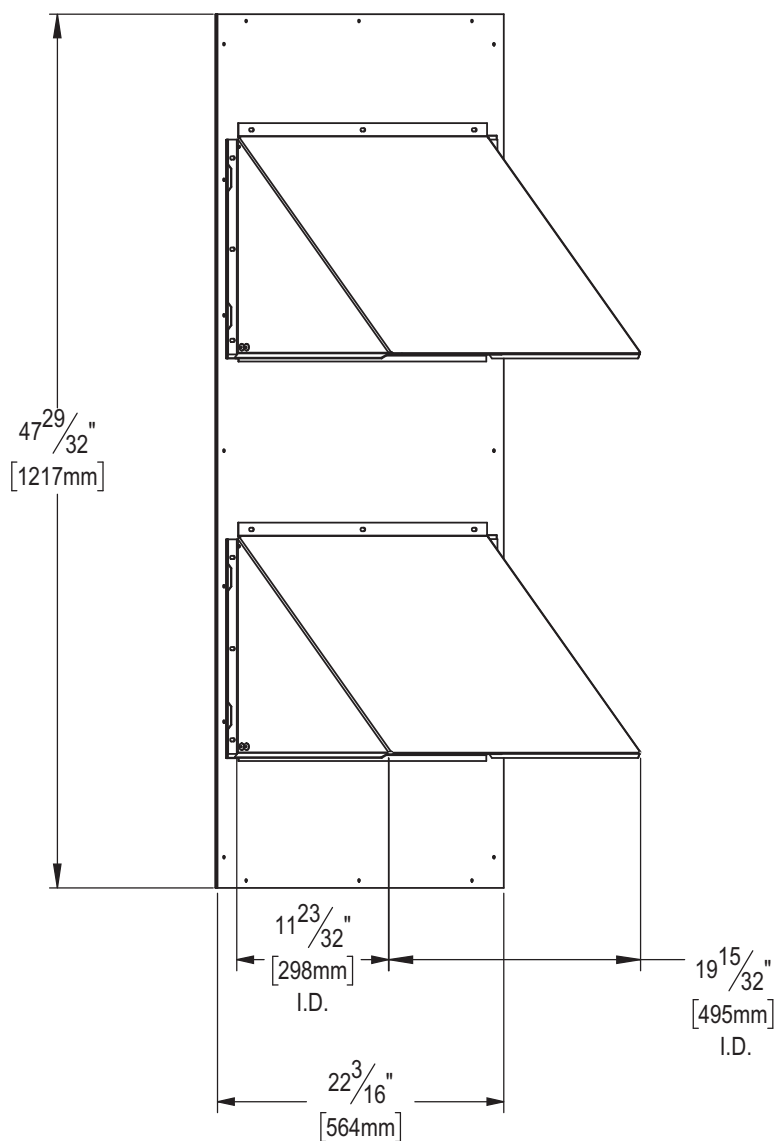
Illustration
ST-A1365-19-00

DDC Interface Kit Location may vary.

FRESH AIR DAMPER

FRESH AIR DAMPER, MANUAL RXRF-AGA1

- For mounting instructions, see the accessory installation and operation manual



ST-A1328-05-01

FRESH AIR DAMPER (CONTINUED)

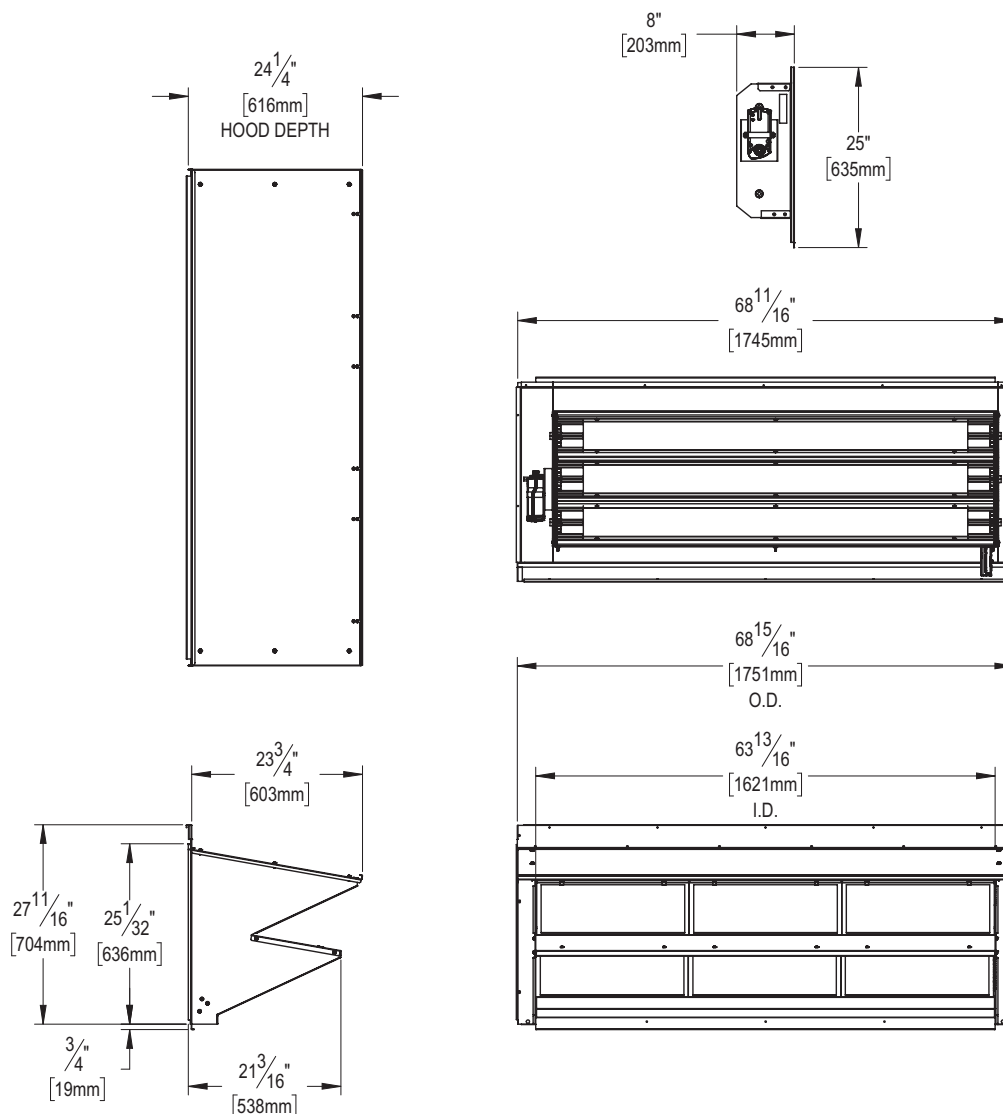
FRESH AIR DAMPER, MOTORIZED RXRF-AGB1

FRESH AIR DAMPER, MOTORIZED (DDC) RXRF-AGC1

(Modulating Motor Kit with position feedback for DDC Models)

- Features Siemens Controls
- Gear Driven Direct Drive
- Actuator Fully Modulating (0-100%)
- Low Leakage Dampers
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin and 4-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Addition of Dual Enthalpy Upgrade Kit allows limited economizer function
- CO₂ Sensor Input Available for Demand Control Ventilation (DCV)
- All DDC fresh air damper functions can be viewed at the RTU-C unit controller display

For mounting instructions, see the accessory installation and operation manual



ST-A1328-06-01

[] Designates Metric Conversions

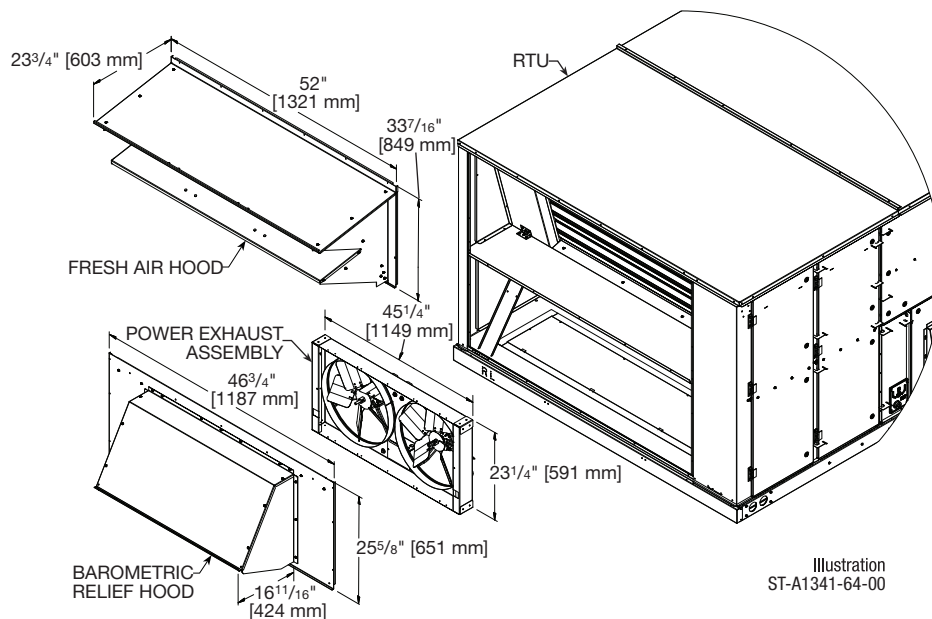
POWER EXHAUST KIT, CONVERTIBLE (MICROMETL)

RXXRX-CGF01*

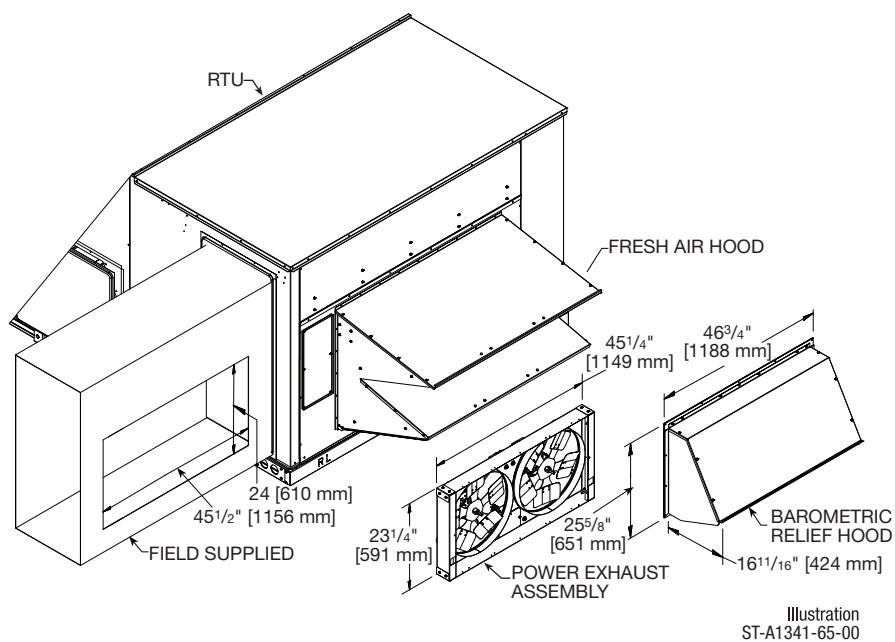
*Voltage Code: C, D, or Y

- Convertible between vertical and horizontal airflow
- Compatible with all G-cabinet economizers

VERTICAL AIRFLOW INSTALLATION



HORIZONTAL AIRFLOW INSTALLATION



MODEL NO.	NO. OF FANS	VOLT	PHASE	HP (ea.)	FLA (ea.)
RXXRX-CGF01C	2	208/230	1	0.50	1.55
RXXRX-CGF01D	2	460	3	0.50	0.51
RXXRX-CGF01Y*	2	575	1	0.50	0.62

*Use step down transformer from 575V to 208-230V.

[] Designates Metric Conversions

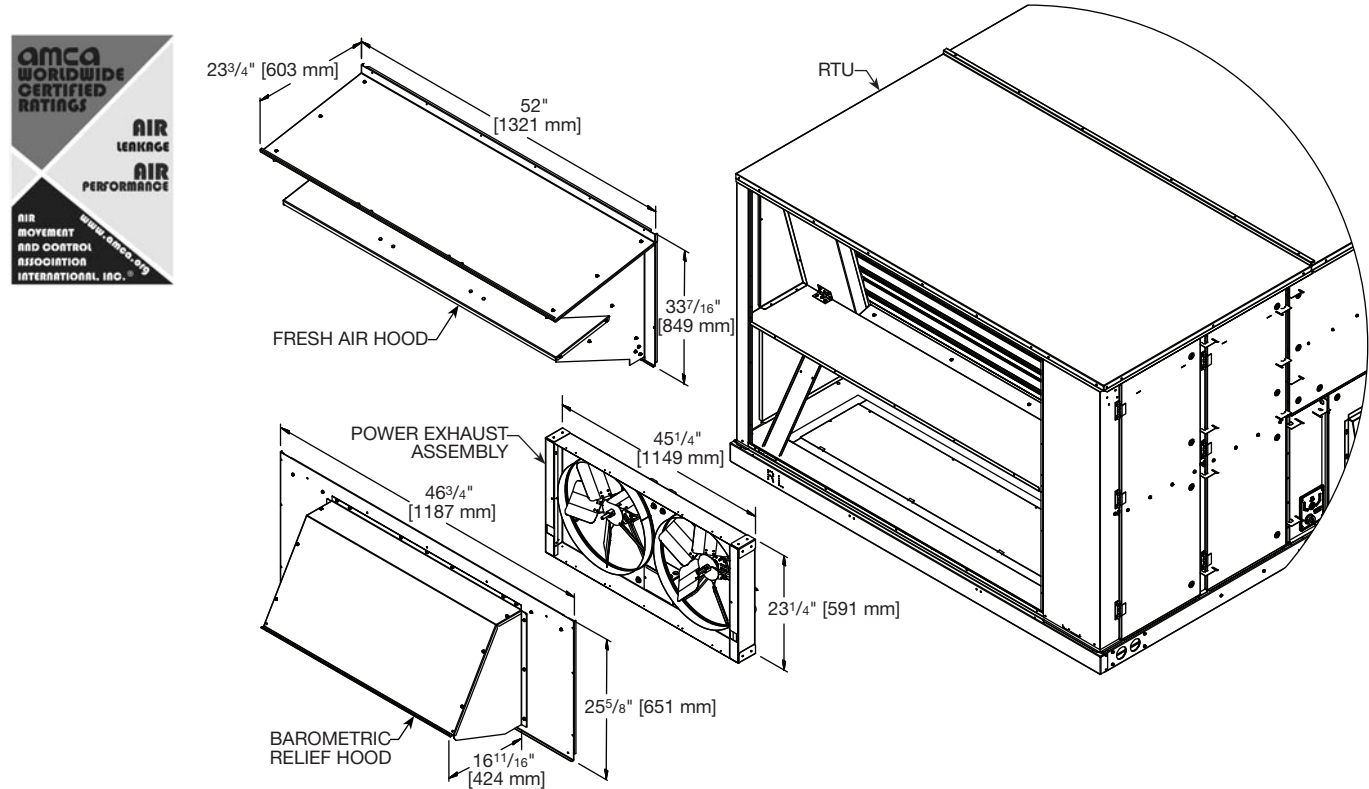
POWER EXHAUST KIT, CONVERTIBLE (RRS)

RXXR-RGF01*

*Voltage Code: C, D, or Y

- Shipped completely assembled
- All wiring from control box to economizer is supplied
- Color coordinated with the unit
- Fully insulated with 1" 1.5 lb. fiberglass insulation
- Motors are factory wired and tested
- Economizer, Fresh Air Hood and Barometric Relief Hood Sold Separately

VERTICAL AIRFLOW INSTALLATION



MODEL NO.	NO. OF FANS	VOLT	PHASE	HP (ea.)	CFM [L/s]*	RPM	FLA (ea.)	LRA (ea.)
RXXR-RGF01C	2	208/230	1	0.75	4013 [1893]	1050	5.00	5.9
RXXR-RGF01D	2	460	1	0.75	4013 [1893]	1050	2.20	3.3
RXXR-RGF01Y	2	575	1	0.75	4013 [1893]	1050	1.50	2.5

*CFM is per fan at 0.1" w.c. external static pressure.

[] Designates Metric Conversions

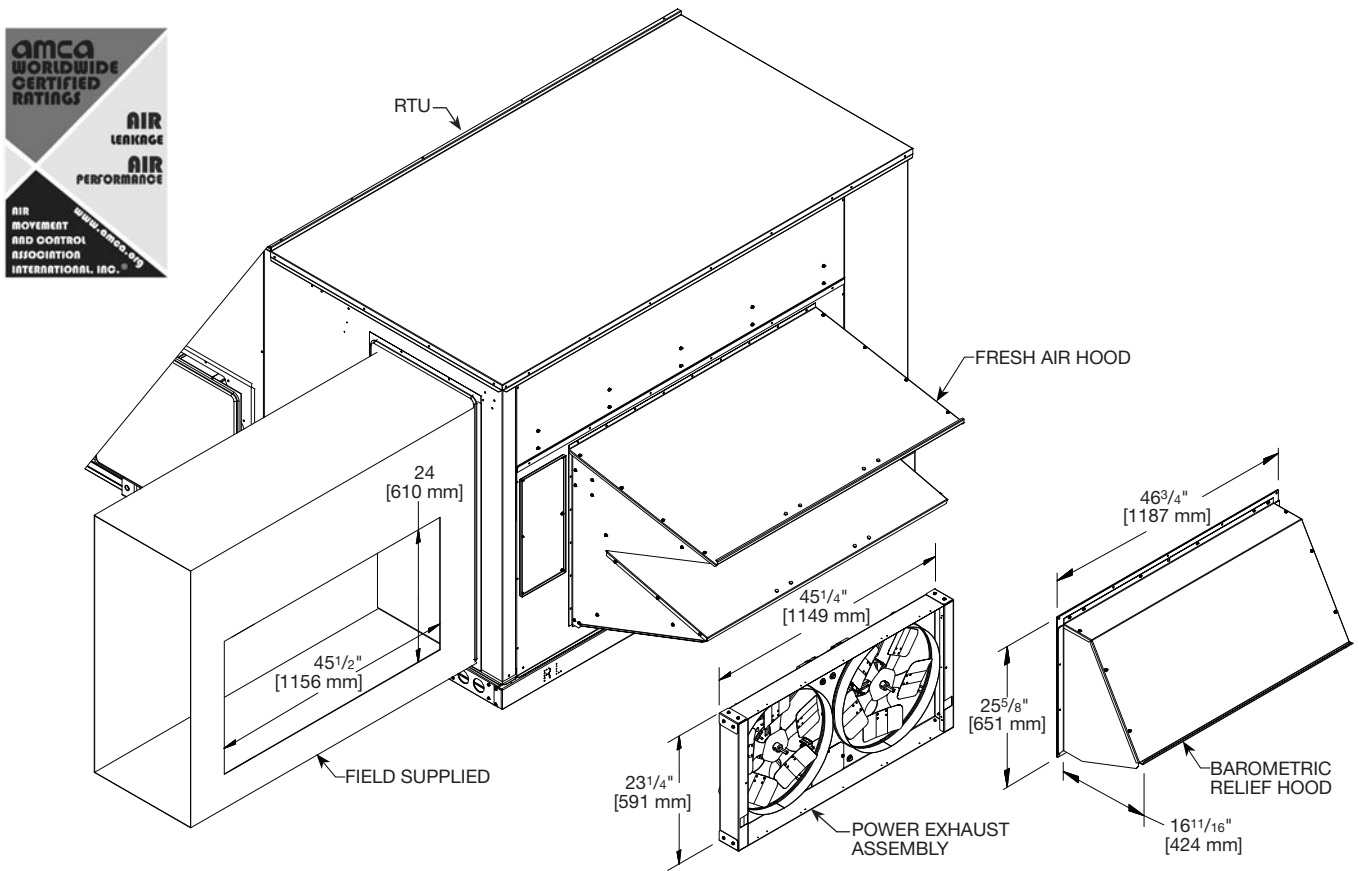
POWER EXHAUST KIT, CONVERTIBLE (RRS)

RXXR-RGF01*

*Voltage Code: C, D, or Y

- Shipped completely assembled
- All wiring from control box to economizer is supplied
- Color coordinated with the unit
- Fully insulated with 1" 1.5 lb. fiberglass insulation
- Motors are factory wired and tested
- Economizer, Fresh Air Hood and Barometric Relief Hood Sold Separately

HORIZONTAL AIRFLOW INSTALLATION



MODEL NO.	NO. OF FANS	VOLT	PHASE	HP (ea.)	CFM [L/s]*	RPM	FLA (ea.)	LRA (ea.)
RXXR-RGF01C	2	208/230	1	0.75	4013 [1893]	1050	5.00	5.9
RXXR-RGF01D	2	460	1	0.75	4013 [1893]	1050	2.20	3.3
RXXR-RGF01Y	2	575	1	0.75	4013 [1893]	1050	1.50	2.5

*CFM is per fan at 0.1" w.c. external static pressure.

[] Designates Metric Conversions

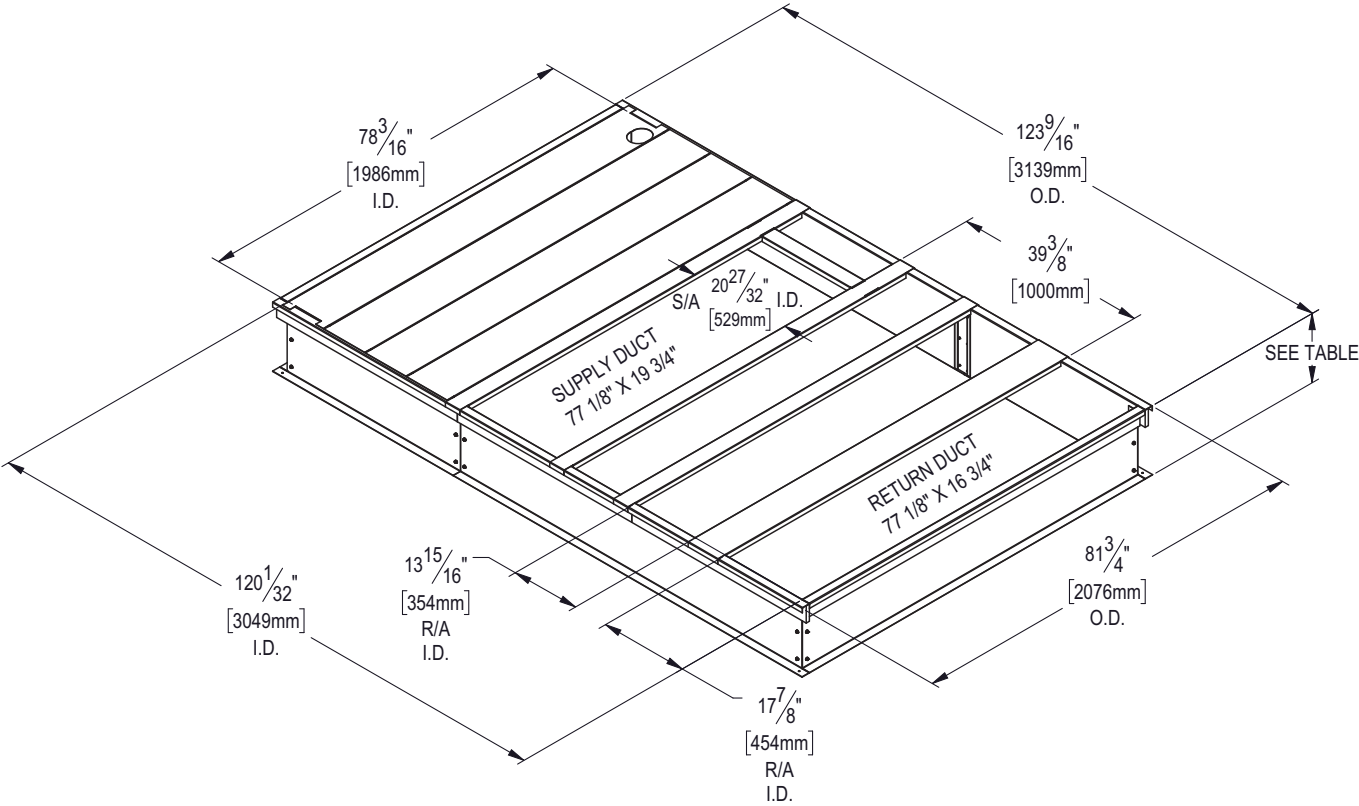
ROOFCURBS (Full Perimeter)

Roofcurb, 14" — RXRX-DGC14
Roofcurb, 18" — RXRX-DGC18
Roofcurb, 24" — RXRX-DGC24

- Rheem’s roofcurb design can be utilized on all 15-25 ton RACG models
- Three available heights (14", 18" and 24") for ALL models
- Quick assembly corners for simple and fast assembly
- Opening provided in bottom pan to match the “Thru the Curb” electrical, gas piping, condensate, connection opening provided on the unit base pan
- 1" [25 mm] x 4" [102 mm] Nailor provided
- Sealing gasket (40' [12.2 m]) provided with Roofcurb
- Packaged for easy field assembly

ROOFCURB ADAPTERS

RXRX-DGCAE
Roofcurb Adapter Z-Bracket — RXRX-DGCAZ
Roofcurb — Restraint Clips — RXRX-DGCRC



ST-A1328-04-01

VIEW	ROOF CURB	HEIGHT OF CURB
A	RXRX-DGC14	14.0
A	RXRX-DGC18	18.0
A	RXRX-DGC24	24.0

[] Designates Metric Conversions

Guide Specifications RACG—180-300

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 PACKAGED ROOFTOP

HVAC Guide Specifications

Size Range: 15 to 25 Nominal Tons

- 1.00 General:
 - A. Outdoor, rooftop mounted, electrically controlled, heating and cooling unit utilizing two hermetic scroll compressors for cooling 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 1000-hour salt spray exposure per ASTM B117 (scribed specimen).
 - 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. Plastic bumpers for handling and protection of unit during transportation and storage.
- 1.05 Unit Cabinet:
 - A. Shall be constructed of galvanized steel.
 - B. Exterior paint shall be pre-painted steel.
 - C. The sheet-metal cabinet shall be constructed of 18-gauge material for structural components with an underlying coat of G90.
 - D. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 340/360 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.
 - E. Shall utilize uniform screw sizing.
 - F. Base of unit shall have a location for thru-the-base gas and electrical connections standard.

- G. Base Rail:
 - i. Unit shall have base rails on a minimum of 4 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.
- H. Condensate pan and connections:
 - i. Shall be a sloped condensate drain pan made of a non-corrosive material and be removable for cleaning and maintenance.
 - 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.
- I. Standard factory installed condensate overflow sensor included with Non-DDC models.
- J. Top panel
 - i. Shall be a single piece top panel over indoor section.
- K. Electrical Connections:
 - i. All unit power wiring shall enter unit cabinet via a single, factory-prepared, knockout location.
 - 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.
- L. Component access panels (standard)
 - i. Cabinet panels shall be easily opened for servicing.
 - ii. Stainless steel metal hinges are optional on all doors.
 - iii. Panels covering control box, indoor fan, indoor fan motor, and filters shall have hinges with 1/4 turn fasteners on units with factory-installed hinged 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 shipped with both horizontal and vertical openings covered with insulated panels.
 - E. Unit shall be field convertible.
 - F. Unit shall have two vertical return openings to accommodate multiple curb configuration options [only one shall be utilized].
 - G. 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 "W" and "G" when calling for heat.
 - ii. Have capability to energize 2 different stages of cooling, and 2 different stages of heating.
 - iii. 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. Transformer shall have 100VA capabilities.
 - B. Shall utilize color-coded wiring.

- C. Shall include a minimum of one 8-pin screw terminal connection board for connection of control wiring.
- D. Unit control board shall be provided with 7 segment readout via LCD display for status and diagnostics.
- E. Shall include a central control terminal board to provide connection points conveniently and safely for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, DDC control options, loss of charge, freeze sensor, high pressure switches.

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 50 PSIG $\pm$ 7 and closes at approximately 95 PSIG $\pm$. Operation is slightly different between cooling and heating modes.
- C. Standard High-pressure switch:
 - i. 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 650 PSIG $\pm$ 10 and closes at approximately 450 PSIG $\pm$ 15. 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 where the automatic reset high pressure control resets. If the high pressure control opens 3 times within a particular call for heating or cooling operation, the defrost control will lock out compressor and outdoor fan operation. Freeze protection sensor comes standard on DDC models and is available as an option for Non-DDC models.
- 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.

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-inch filters.
- C. Filter face velocity shall not exceed 365 fpm at nominal airflows.
- D. Filters access is specified in the unit cabinet section of this specification.
- E. Filters shall be held in place by a sliding filter tray, facilitating easy removal and installation.
- F. Filters shall be standard, commercially available sizes.

1.12 Coils

- A. Standard Aluminum/MicroChannel Coils:
 - i. Standard evaporator and condenser coils shall be aluminum.
 - ii. MicroChannel intertwined coils for both evaporator and condenser coils.
 - iii. Evaporator and condenser coils shall be leak tested to 150 psig, pressure tested to 400 psig, and qualified to burst test at 1,800 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. External pressure gauge ports access shall be located in front exterior of cabinet.
 - vi. Access panels can be removed without disrupting condenser air flow.

B. Compressors:

- i. Shall use two fully hermetic scroll compressors.
- ii. Compressor motors shall be cooled by refrigerant gas passing through motor windings.
- iii. Shall be internally protected from high discharge temperature conditions.
- iv. Shall be protected from an over-temperature and over-ampereage conditions by an internal, motor overload device.
- v. Shall be factory mounted on rubber grommets.
- vi. Compressor motors shall have internal line break thermal and current overload.
- 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 or circuit breaker.
- iii. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating shall be required.

B. Belt-Driven 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 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.

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 accept 18-30VAC input power.
- B. Shall have an operating temperature range from -22°F (-30°C) to 158°F (70°C), 10%– 95% RH (non-condensing).
- C. Controller shall accept the following inputs: space temperature, setpoint adjustment, outdoor air temperature, indoor air quality, outdoor air enthalpy, fire shutdown, return air enthalpy, fan status, remote time clock/door switch.
- D. Shall accept a CO2 sensor in the conditioned space and be Demand Control Ventilation (DCV) ready.
- E. Shall provide the following outputs: Economizer, fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, exhaust, occupied.
- F. Unit shall provide surge protection for the controller through a circuit breaker.
- G. Shall have a field installed communication card allowing the unit to be able to communicate at a Baud rate of 19.2K or faster.
- H. Shall have an LED display independently showing the status of activity on the communication bus, and processor operation.
- I. 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.
- J. Shall be shock resistant in all planes to 5G peak, 11ms during operation, and 100G peak, 11ms during storage.
- K. Shall be vibration resistant in all planes to 1.5G @ 20-300 Hz.
- L. Shall support a bus length of 4000 ft max, 60 devices per 1000 ft section, and 1 RS-485 repeater per 1000 ft sections.

- M. Unit shall be compatible with a programmable 24 volt thermostat.
- N. 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 accept 18-30VAC, 50-60Hz, and consume 17.4VA or less power.
 - B. Shall have an operating temperature range from -22°F (-30°C) to 130°F (54°C), 10%–90% RH (non-condensing).
 - C. 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.
 - D. The BACnet plug in communication card shall include built-in protocol for BACNET (MS/TP and PTP modes)
 - E. The LonWorks plug in communication card shall include the Echelon processor required for all Lon applications.
 - F. Shall allow access of up to 62 network variables (SNVT).
 - G. 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 LED 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. Shall be supplied with an electronic variable frequency drive for the supply air fan.
 - B. Shall be factory installed in an enclosed cabinet.
 - C. 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 an access panel (optional hinged doors).
 - 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. Shall be programmed and factory run tested in the unit.
 - I. VFD shall be modular and designed for easy disconnect via wiring harness.
- 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 CO2 sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor-air damper to provide ventilation based on the sensor input.
 - 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. Shall be a Two-Position Motorized Damper. Damper travel shall be from the full closed position to the field adjustable %-open setpoint.
 - ii. Shall include adjustable damper travel from 25% to 100% (full open).
 - iii. Shall include single or dual blade, gear driven dampers and actuator motor.
 - iv. Actuator shall be directly coupled to damper gear. No linkage arms or control rods shall be acceptable.
 - v. Will admit up to 100% outdoor air for applicable rooftop units.
 - vi. 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. 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 or field-installed.
 - 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. Optional Non-Powered convenience outlet.
 - ii. Shall be powered from a separate 115-120v power source.
 - iii. A transformer shall not be included.
 - iv. Shall be field-installed and internally mounted with easily accessible 115-v female receptacle.
 - v. Shall include 15 amp GFI receptacle with independent fuse protection.
 - vi. Shall be accessible from outside the unit.
- G. Propeller Power Exhaust:
- i. 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. 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 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.
 - iii. Shall be available in heights of 14, 18, and 24 inches.
- I. Outdoor Air Enthalpy Sensor

- i. 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. Shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.
- K. Indoor Air Quality (CO₂) Sensor:
 - i. Shall be able to provide demand ventilation indoor air quality (IAQ) control.
 - ii. 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.
 - ii. 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. 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 thermostat limit controls, magnetic heater contactors (24VAC coil) and terminal block all mounted in electric heater control box (minimum 18 gauge galvanized steel) attached to end of heater assembly.
- N. Refrigerant 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.**

Parts

Commercial Applications One (1) Year

Compressor

Commercial Applications Five (5) 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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5600 Old Greenwood Road
Fort Smith, Arkansas 72908 • www.rheem.com

125 Edgeware Road, Unit 1
Brampton, Ontario • L6Y 0P5