

Unit Report For RTU 1-5

Joe Gardea

Project: Nike 162 Canutillo TX
Prepared By: Dan Dillman

01/20/2023
11:16AM

Unit Parameters

Unit Model:.....**50FCQM12B5M5-3F4A0**
 Unit Size:.....**12 (10 Tons)**
 Volts-Phase-Hertz:.....**208-3-60**
 Heating Type:.....**Heat Pump**
 Heat Control:.....**Two-Stage Cooling / One Circuit**
 Duct Cfg:.....**Vertical Supply / Vertical Return**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length:.....**7' 4.125"**
 Unit Width:.....**4' 11.5"**
 Unit Height:.....**4' 1.375"**

*** Weights and Dimensions are approximate. Weight does not include roof curbs, unit packaging, field installed accessories or factory installed options. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Base Unit Weight (Does not include any accessories):
955.....lb

Lines and Filters

Return Air Filter Type:.....**Throwaway**
 Return Air Filter Quantity:.....**4**
 Return Air Filter Size:.....**20 x 20 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

RA Smoke Detector
 Standard/Medium Static (EcoBlue) with Filter Status Switch
 Al/Cu - Al/Cu - Louvered Hail Guards
 SystemVu Controller
 Enthalpy Economizer with Barometric Relief
 Hinged Panels and Unpowered Convenience Outlet
 Standard Packaging

Warranty Information

5-Year electric heaters (STD.)
 1-Year parts (STD.)
 5-Year Compressor (std.)
 Complete Unit Year 2-5 Parts Only

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
50FCQM12B5M5-3F4A0	Rooftop Unit	5
	Base Unit	
	RA Smoke Detector	
	Standard/Medium Static (EcoBlue) with Filter Status Switch	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged Panels and Unpowered Convenience Outlet	
	SystemVu controller, Low Leak EconoMi\$er2 enthalpy economizer with barometric relief. SystemVu contr	
Field Installed Accessories		
CRHEATER412A00	Electric Heater	5
CRSINGLE049A00	Single Point Kit	5

Certified Drawing for RTU 1-5

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- NOTES:
1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE IN MILLIMETERS.
 2. CENTER OF GRAVITY
 3. DIRECTION OF AIR FLOW
 4. ALL VIEW DRAWN USING 3RD ANGLE

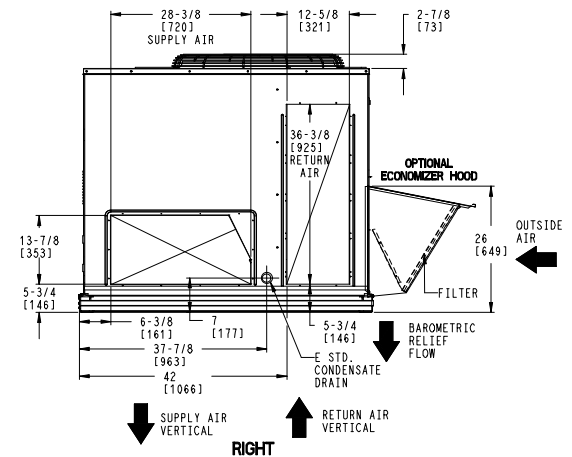
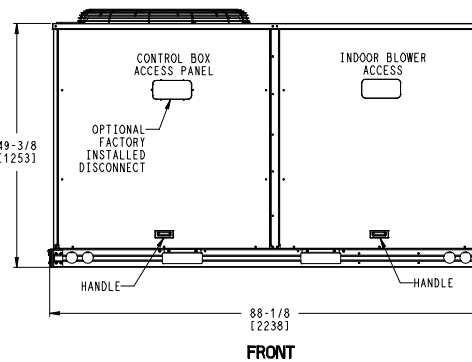
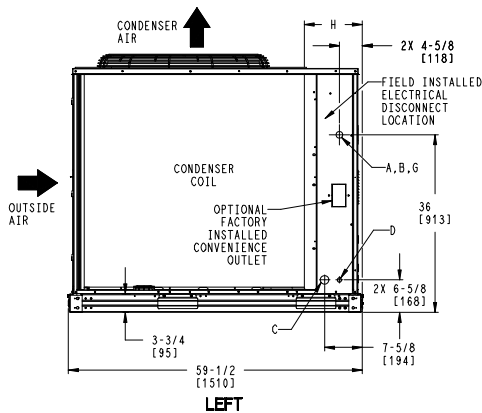
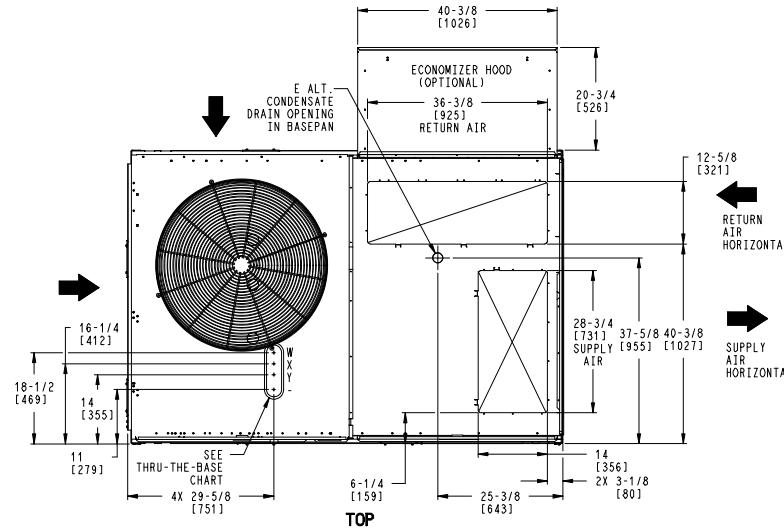
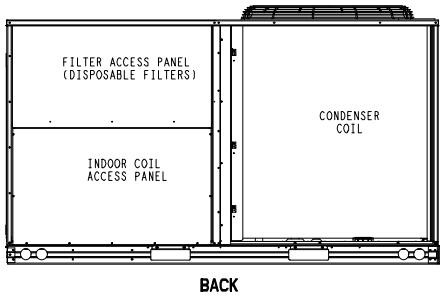
UNIT	OUTDOOR COIL TYPE	H
50FCO-12	RTPF	15 7/8 [403]
RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)		

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CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
G	2" [51] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART THESE HOLES REQUIRED FOR USE CRBTMPWR002A01			
	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC.	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	1 1/4" [002]	POWER	1 3/4" [44.4]

FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X & Y ARE PROVIDED



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	50FCO 12 SINGLE ZONE ELECTRICAL HEAT PUMP	48TM009024	REV
U.S. ECCN:NSR	1 OF 3	04/01/22	-			-

Certified Drawing for RTU 1-5

Project: Nike 162 Canutillo TX
Prepared By: Dan Dillman

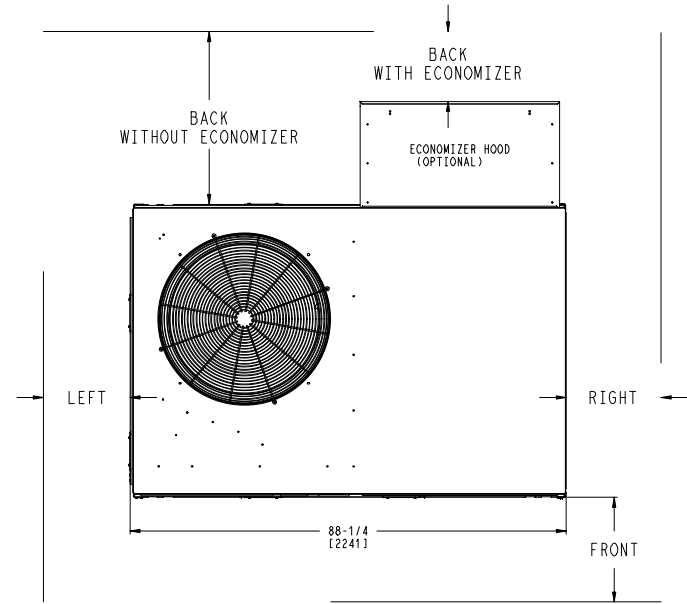
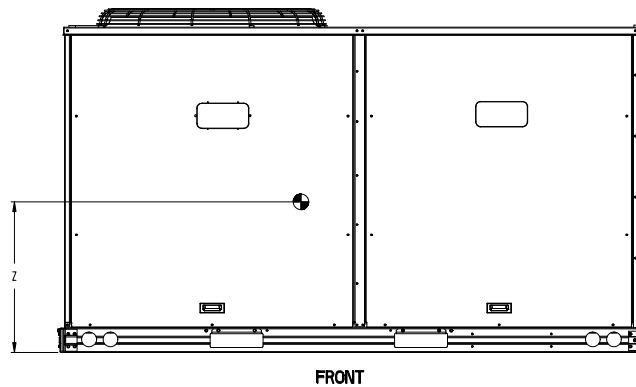
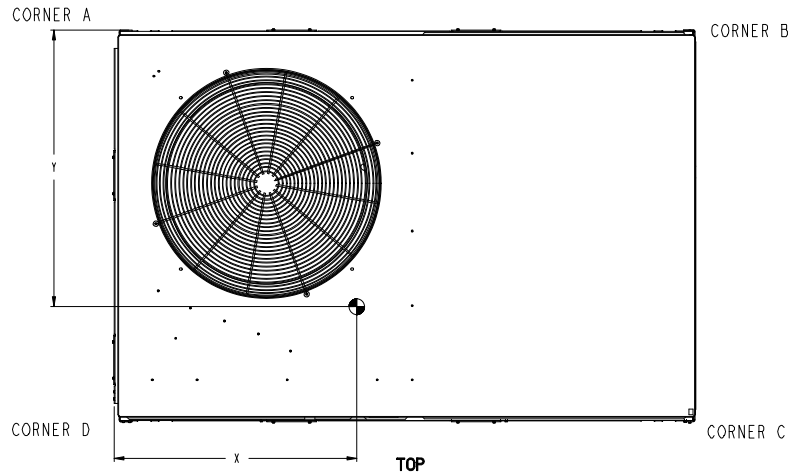
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UNIT	OUTDOOR COIL TYPE	STD. UNIT WEIGHT***		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.					
		LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z			
50FCQ-12	RTPF	955	433	190	86	243	110	293	133	229	104	49 1/2	[1257]	32 1/2	[826]	19 1/8	[486]

RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)

*** STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING. FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.

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NOTE:

1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

SURFACE	CLEARANCE	
	SERVICE WITH CONDUCTIVE BARRIER	SERVICE WITH NONCONDUCTIVE BARRIER
FRONT	48 [1219mm]	36 [914mm]
LEFT	48 [1219mm]	42 [1067mm]
BACK W/O ECON	48 [1219mm]	42 [1067mm]
BACK W/ECON	36 [914mm]	36 [914mm]
RIGHT	36 [914mm]	36 [914mm]
TOP	72 [1829mm]	72 [1829mm]

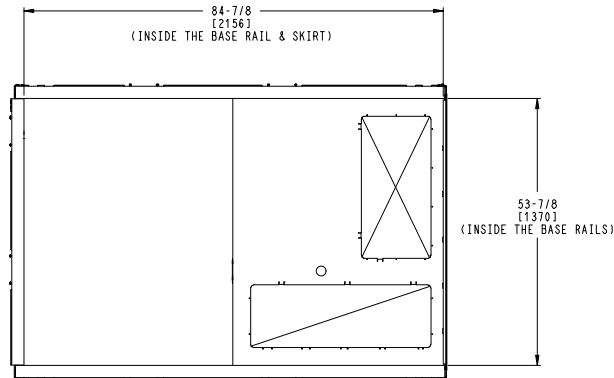
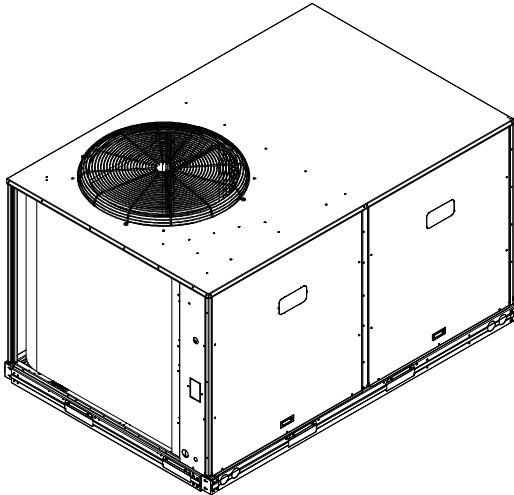
ITC CLASSIFICATION U. S. ECCN: NSR	SHEET 2 OF 3	DATE 04/01/22	SUPERCEDES -	50FCQ 12 SINGLE ZONE ELECTRICAL HEAT PUMP	48TM009024	REV -
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Certified Drawing for RTU 1-5

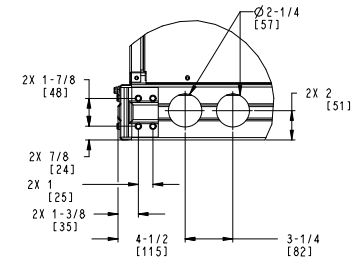
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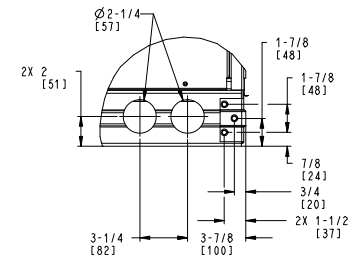
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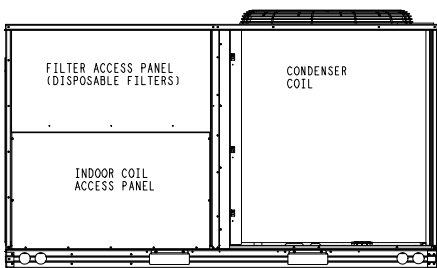
INSIDE BASERAIL DIMENSIONS
BOTTOM



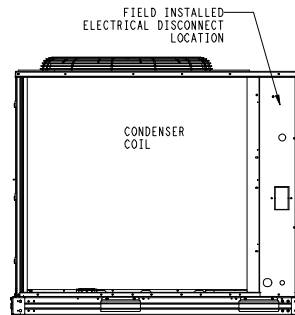
DETAIL B
 TYP 2 PLCS



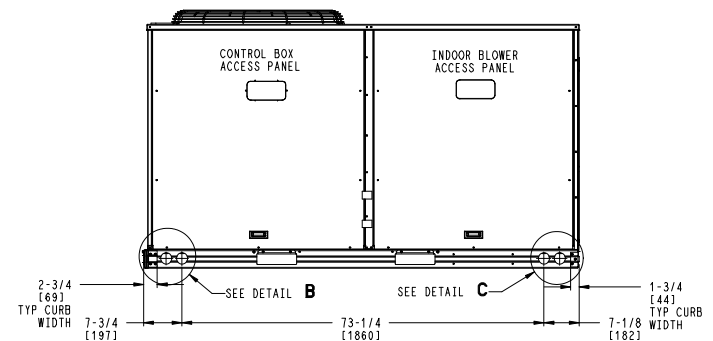
DETAIL C
 TYP 2 PLCS



BACK



LEFT



FRONT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	50FCQ 12 SINGLE ZONE ELECTRICAL HEAT PUMP	48TM009024	REV
U. S. ECCN: NSR	3 OF 3	04/01/22	-			-

Performance Summary For RTU 1-5

Project: Nike 162 Canutillo TX
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01/20/2023
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Part Number:50FCQM12B5M5-3F4A0

ARI EER:.....11.00
IEER:.....15.0

Base Unit Dimensions

Unit Length:.....88.1 in
Unit Width:.....59.5 in
Unit Height:.....49.4 in
Base Unit Weight (Does not include any accessories):.....955 lb

Unit

Unit Voltage-Phase-Hertz:.....208-3-60
Air Discharge:.....Vertical
Fan Drive Type:.....Vane Axial
Actual Airflow:.....4000 CFM
Site Altitude:.....3917 ft

Cooling Performance

Condenser Entering Air DB:.....101.0 F
Evaporator Entering Air DB:.....81.0 F
Evaporator Entering Air WB:.....64.0 F
Entering Air Enthalpy:.....31.33 BTU/lb
Evaporator Leaving Air DB:.....56.6 F
Evaporator Leaving Air WB:.....54.3 F
Evaporator Leaving Air Enthalpy:.....24.23 BTU/lb
Gross Cooling Capacity:.....110.67 MBH
Gross Sensible Capacity:.....91.42 MBH
Compressor Power Input:.....9.44 kW
Coil Bypass Factor:.....0.102

Mixed Air

Outdoor Air Airflow:.....800 CFM
Outdoor Air DB:.....101.0 F
Outdoor Air WB:.....64.0 F
Outdoor Air Htg. Temp.:.....21.0 F
Return Air DB:.....76.0 F
Return Air WB:.....64.0 F
Return Air Htg. Temp.:.....70.0 F

Heating Performance

Outdoor Ambient Temperature:.....47.0 F
Entering Air Indoor Coil DB:.....60.2 F
Leaving Air Indoor Coil DB:.....88.2 F
Total Heating Capacity:.....104.71 MBH
Integrated Heating Capacity:.....104.71 MBH
Heating Power Input:.....8.62 kW
High Temperature COP:.....3.40
Low Temperature COP:.....2.25
Electric Heating Capacity:.....12.00 kW
Unit Leaving Air Temp:.....99.1 F

Supply Fan

External Static Pressure:.....0.85 in wg
Options / Accessories Static Pressure
Electric Heaters:.....0.08 in wg
Economizer:.....0.20 in wg
Application External Static (ESP + Unit Opts/Acc.):.....1.14 in wg
Fan RPM:.....1915
Fan Power:.....2.15 BHP

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NOTE:.....Selected IFM RPM Range: 990 - 2000

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range:.....	187 - 253
Compressor #1 RLA:.....	15.6
Compressor #1 LRA:.....	110
Compressor #2 RLA:.....	15.6
Compressor #2 LRA:.....	110
Actual Electric Heater kW:.....	12
Electric Heater FLA:.....	33.4
Indoor Fan Motor Type:.....	MED
Indoor Fan Motor FLA (Total):.....	6.4
Power Supply MCA:.....	91
Power Supply MOCP (Fuse or HACR):.....	100
Disconnect Size FLA:.....	90
Disconnect Size LRA:.....	269
Electrical Convenience Outlet:.....	None
Outdoor Fan [Qty / FLA (ea)]:.....	1 / 7.4
Electric Heater Part Number:.....	412A
Electric Heater Number of Stages:.....	1

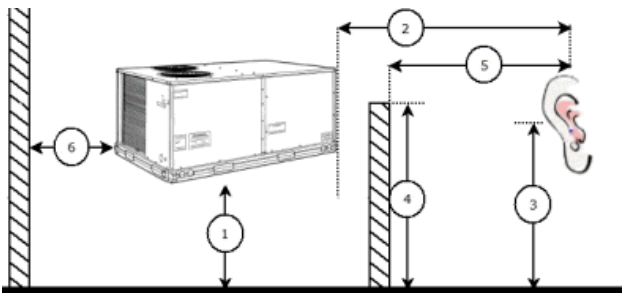
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	90.3	86.6	88.1
125 Hz	86.1	80.1	90.0
250 Hz	72.3	66.8	85.9
500 Hz	71.6	66.3	83.0
1000 Hz	70.2	65.1	81.6
2000 Hz	67.1	59.4	78.5
4000 Hz	68.1	57.1	76.4
8000 Hz	64.3	51.1	75.5
A-Weighted	76.9	70.6	87.0

Advanced Acoustics



Advanced Acoustics Parameters

1. Unit height above ground:.....	30.0	ft
2. Horizontal distance from unit to receiver:.....	50.0	ft
3. Receiver height above ground:.....	5.7	ft
4. Height of obstruction:.....	0.0	ft
5. Horizontal distance from obstruction to receiver:.....	0.0	ft

Performance Summary For RTU 1-5

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6. Horizontal distance from unit to obstruction:.....**0.0** ft

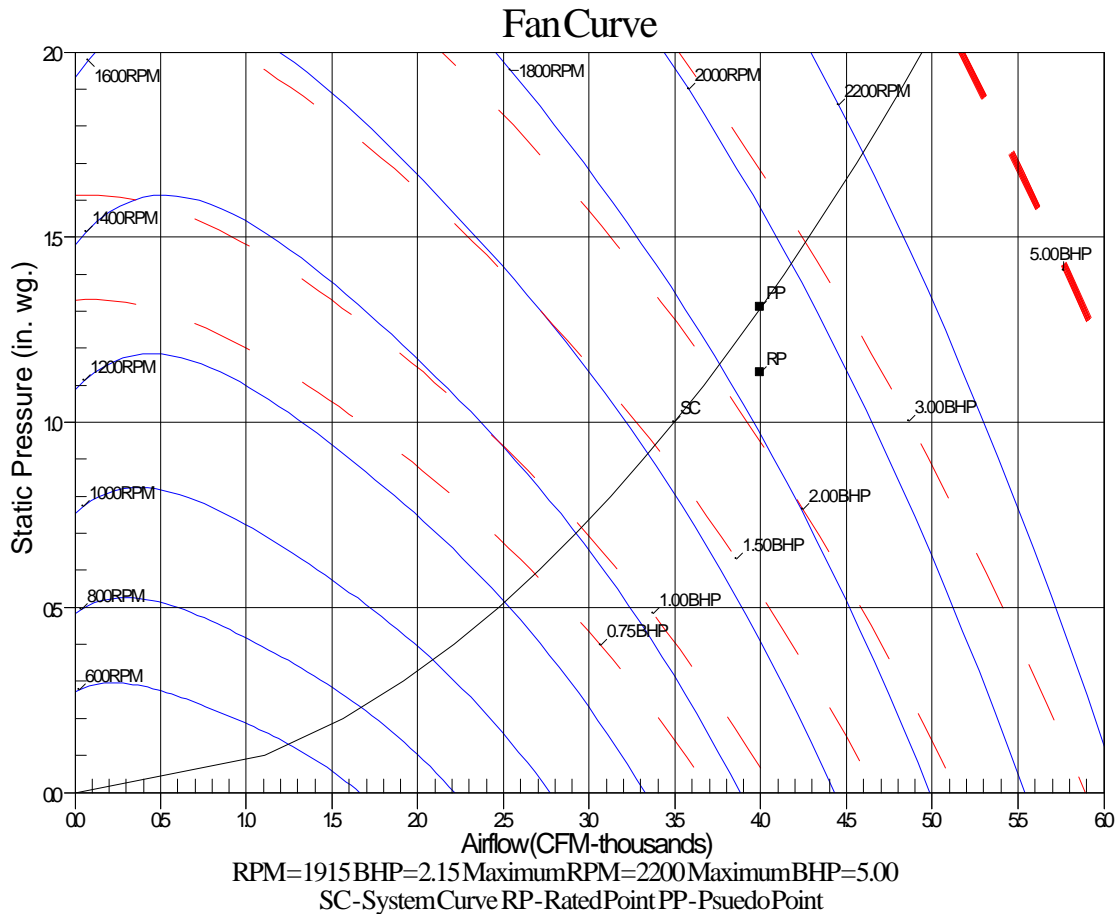
Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	88.1	90.0	85.9	83.0	81.6	78.5	76.4	75.5	94.0 Lw
B	61.9	73.9	77.3	79.8	81.6	79.7	77.4	74.4	87.0 LwA
C	55.7	57.6	53.5	50.6	49.2	46.1	44.0	43.1	61.6 Lp
D	29.5	41.5	44.9	47.4	49.2	47.3	45.0	42.0	54.6 LpA

Legend

- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



Unit Feature Sheet for RTU 1-5

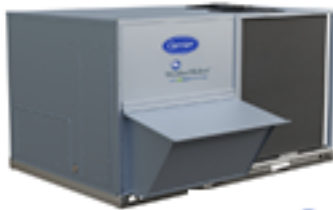
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11:16AM



- 50FCQ

PACKAGED ROOFTOP HEAT PUMP UNIT S
15.0 IEER 7.5, 8.5, 10, 12.5 TONS



ecoblow technology



WEATHERMAKER™ SERIES

50FCQ units are single packaged heat pump units with field installed electric heaters. The units are pre-wired and charged with Puron (R-410) refrigerant and factory tested in both heating and cooling modes. All models use two stage cooling capacity control with a full active evaporator coil and new Ecoblow™ direct drive ECM indoor fan system

Approved and certified by:



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahriindustry.org.

STANDARD FEATURES INCLUDE:

- Rated in accordance with AHRI Standards 340/360
- Puron (R-410A) HFC refrigerant
- Two-stage cooling capacity control on all models
- IEER's of 15.0, COP's up to 3.4
- Exceeds current DOE IEER efficiency requirements while meeting DOE's new stringent 2023 IEER efficiency requirements
- 2023 DOE, ASHRAE 90.1, and IECC energy compliant
- New Direct Drive – Ecoblow™ Technology indoor fan system uses Vane Axial fan design and electronically commutated motor. Indoor fan motor also delivers Staged Air Volume (SAV) fan speed control.
- Non-corrosive composite condenser pan in accordance with ASHRAE 62 Standard, sloping design; side or center drain
- TXV refrigerant metering system on all models
- Cooling operating range up to 125° F (52°C), and down to 40° F (4°C). Low Ambient kits allows cooling operation down to 0° F (-18°C) except on 12 size with standard operation down to 0° F (-18°C)
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- New Unit Control Board with intuitive quick fan speed adjustment
- Low pressure, high pressure switch protection

MAINTENANCE FEATURES:

- Access panels with easy grip handles
- Innovative easy starting, no-strip screws on unit access panels
- Two-inch disposable return air filters and Tool-less filter access door
- New slide out - Vane Axial evaporator-fan system has no fan bolts, pulleys, blower shaft and blower bearings

INSTALLATION FEATURES:

- Thru-the-bottom power entry capability
- Single point electric connections
- Full perimeter base rail with built-in rigging adapters and fork slots
- Field convertible from vertical to horizontal airflow. 14 size requires a special supply duct cover kit.

STANDARD WARRANTY:

- 5-year electric heaters
- 5-year compressor
- 3-year SystemVu™
- 1-year parts
- Many optional upgrades also available

OPTIONS INCLUDE BUT ARE NOT LIMITED TO:

- Intelligent SystemVu communicating controls
- Supply and Return Air Smoke Detectors, high static motors
- Loosened condenser coil guards
- Disconnect switch and convenience outlet options
- Corrosion resistant coil coating.
- MERV-13, 4" Return Air Filters
- Hinged access panels
- Integrated economizer system. Low and Ultra Low Leak versions
- Phase monitor and condensate overflow protection
- High SCCR Protection

For a complete list of options and accessories refer to Product Data



Turn to the experts

Light Commercial Rooftop Units

Smoke Detectors

Four Wire Photoelectric Sensing Detector and Control Module

This smoke detector system comprises a four-wire controller and one or two sensors (Return Air and/ or Supply Air). Its primary function is to shut down the rooftop unit in order to prevent smoke from circulating throughout the building. Factory installed smoke detectors require no additional sampling tubes to be field installed.



System Description:

Controller - The controller includes a controller housing, a printed circuit board, and an easily removable clear plastic cover for access to the multiple terminal connections and relay contacts. These can be connected to fire alarm systems, heating, ventilating and air conditioning (HVAC) controls, and other auxiliary functions. A remote test/reset/visual alarm station can be connected to the controller.

Detectors - The detector includes a plastic housing, a printed circuit board, a clear plastic cover, an exhaust tube, and a sampling tube. The exhaust tube and sampling tube are attached during factory installation. The cover forms an airtight chamber around the sensing electronics.

System Specifications:

- Four Wire Controller and Photoelectric Sensing Detector with differential sensing for reliable, stable and drift-free sensitivity
- Operating environment: Temperature -4° to 158°F (-20° to 70° C), Humidity 10% to 93% RH, non-condensing
- Magnet-activated test/reset sensor switches
- Tool-less connection terminal access
- Recessed momentary switch for testing and resetting the detector

Controller Specifications:

- One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel
- Two Form-C aux alarm relays for interface with rooftop unit or other equipment
- One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station
- Capable of direct connection to two individual detector modules (Return and Supply)
- Interconnect up to 15 controllers for multiple fan shut-down

Detector Specifications:

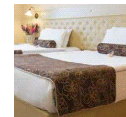
- Sensor: 8.70 x 5.45 x 1.90 in.
- Smoke detection method: Photoelectric
- Air velocity (min. – max.): 100 – 4,000 ft./min.
- Pressure differential (min. – max.): 0.005 – 1.00 in.
- Sensitivity: 0.67 – 2.46% obscuration/ft.
- Wire size: 14 – 22 AGW (high voltage terminals 12 – 22 AGW)
- Reset time: 2 seconds max.
- Power up time: 8 seconds max.
- Alarm test response time: 5 – 7 seconds
- LED indicators: Alarm (red), Trouble (yellow), Dirty (yellow), Power (green)



EDUCATION



HEALTHCARE



HOSPITALITY



MIXED USE



OFFICES



RETAIL



Spec Sheet for RTU 1-5

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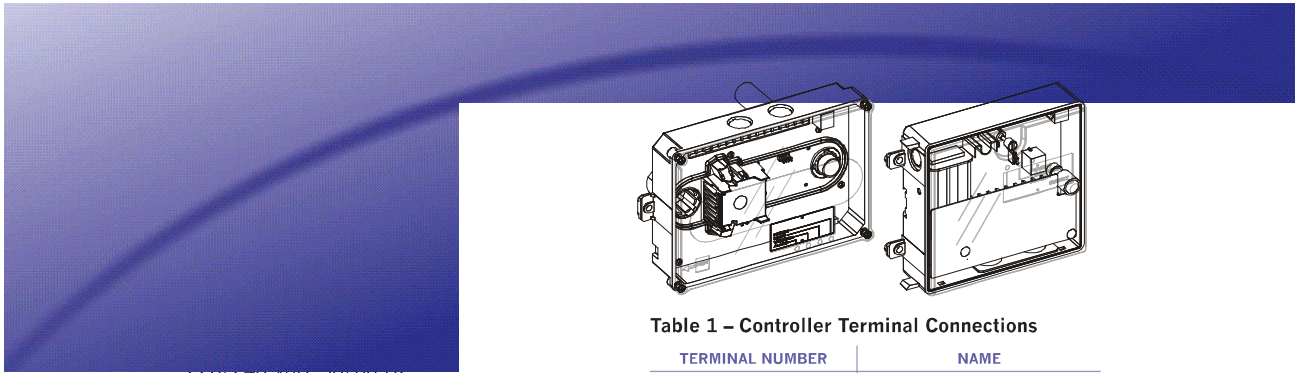


Table 1 – Controller Terminal Connections

TERMINAL NUMBER	NAME
1	AUX (-)
2	Reset
3	SUPV Contact COM
4	Alarm Contact COM
5	Alarm Contact NO
6	AUX 1 Contact COM
7	AUX 2 Contact NO
8	AUX 2 Contact NC
9	24V AC/DC In (+)
10	24V AC/DC In (-)
11	Not used
12	Multi-Shutdown
13	SUPV Contact NO
14	SUPV Contact NC
15	REM Alarm LED Out
16	AUX 1 Contact NC
17	AUX 1 Contact NO
18	AUX 2 Contact COM
19	18 VDC Output (+)
20	18VDC Output (-)
TB3-1	Not Used
TB3-2	Not Used
N	AC Neutral
L	AC Line

Operating Current:

- 20 – 29 VDC: 175 mA
- 24 VAC: 500 mA at 50/60 Hz
- 120 VAC: 100 mA, 50 Hz, 75 mA at 60 Hz
- 220/240 VAC: 53 mA at 50 Hz, 40 mA at 60 Hz

Alarm Initiation Relay:

- Quantity: 1
- Style: Normally open
- Ratings: 2.0 A at 30 VDC (resistive)

Auxiliary Relays:

- Quantity: 2
- Style: Form C
- Ratings: 10 A at 30 VDC, 10 A at 250 VAC

Supervision (Trouble) Relay:

- Quantity: 1
- Style: Form C
- Ratings: 2.0 A at 30 VDC (resistive)

Available on the following Carrier® Packaged Rooftop Units:



48/50 KC(Q)



48/50 TC(Q)



48/50 HC(Q)



48/50 LC



48/50 FC(Q)



48/50 GC(Q)



48/50 JC



Turn to the experts



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