

48FCEM16

**Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report
Unit Feature Sheet**

Unit Report For 48FCEM16

Project: Fords Garage - Florence, KY
 Prepared By: Jeff Gries

11/21/2024
 02:56PM

Unit Parameters

Unit Model:.....**48FCEM16A3A5-0A0A0**
 Unit Size:.....**16 (15 Tons)**
 Volts-Phase-Hertz:.....**208-3-60**
 Heating Type:.....**Gas**
 Heat Control:.....**Medium Heat**
 Duct Cfg:.....**Vertical Supply / Vertical Return**
 DX Options:.....**Single Circuit, Two Stage Cooling**

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

Unit Length:.....**9' 7.875"**
 Unit Width:.....**5' 6.375"**
 Unit Height:.....**4' 9.375"**
Total Operating Weight:.....1522 lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size:.....**3/4**
 Condensate Drain Line Size:.....**3/4**
 Return Air Filter Type:.....**Throwaway**
 Return Air Filter Quantity:.....**6**
 Return Air Filter Size:.....**18 x 24 x 2**

Selection includes construction throwaway filter into the base fan curve.

Unit Configuration

High Static (EcoBlue)
 Al/Cu - Al/Cu
 Base Electromechanical Controls
 Standard Packaging

Warranty Information

1-Year parts(std.)
 5-Year compressor parts(std.)
 10-Year heat exchanger - Aluminized(std.)

No optional warranties were selected.

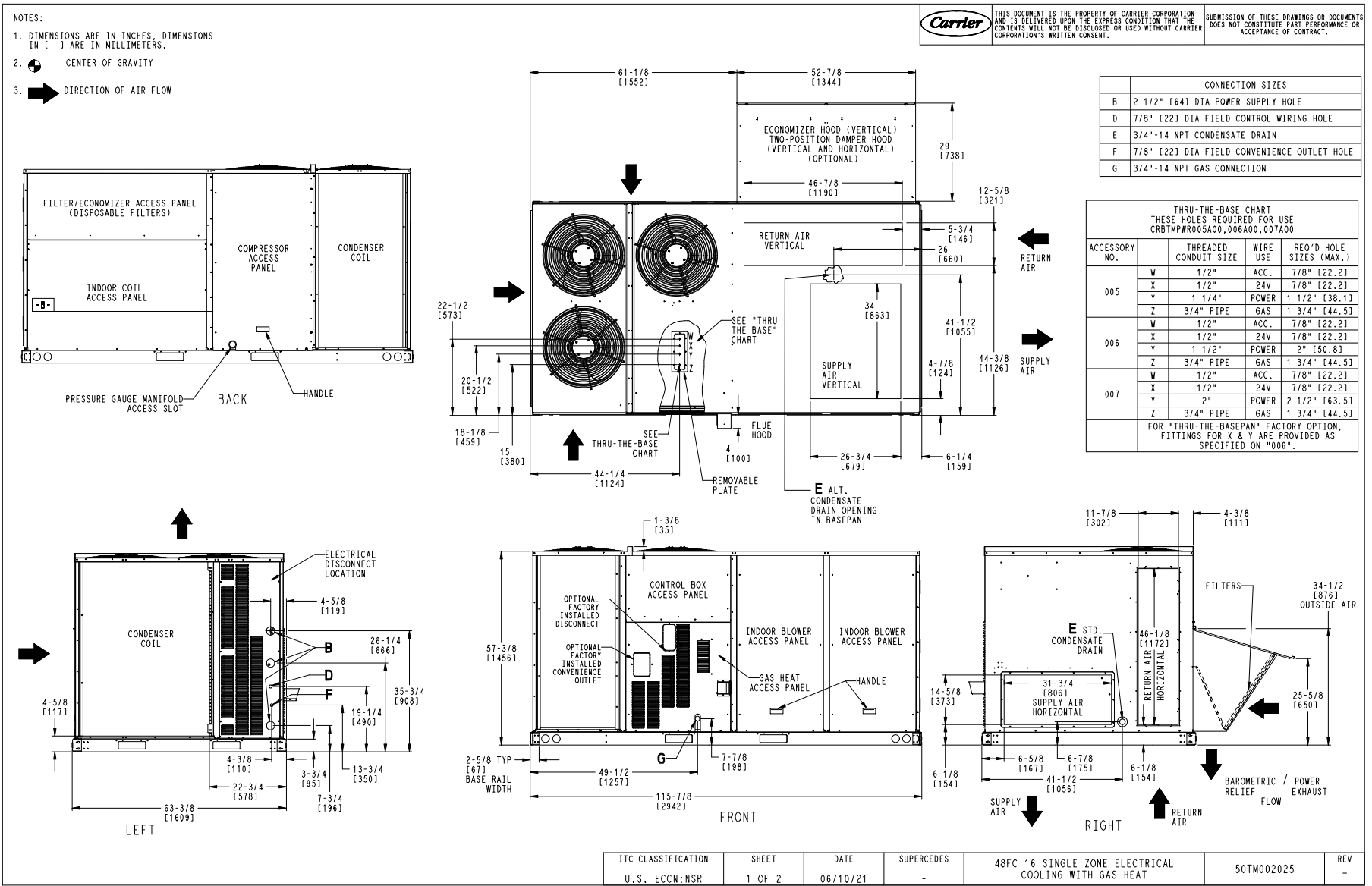
Ordering Information

Part Number	Description	Quantity
48FCEM16A3A5-0A0A0	Rooftop Unit	1
	Base Unit	
	High Static (EcoBlue)	
Field Installed Accessories		
CRECOMZR111A00	Vertical Ultra Low-Leak Economizer w/ Barometric Relief	1
CRLVHLGD032A00	Louvered Condenser Coil Hail Guard	1

Certified Drawing for 48FCEM16

Project: Fords Garage - Florence, KY
Prepared By: Jeff Gries

11/21/2024
02:56PM



ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 1 OF 2	DATE 06/10/21	SUPERCEDES -	48FC 16 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50TM002025	REV -
-------------------------------------	-----------------	------------------	-----------------	--	------------	----------

Certified Drawing for 48FCEM16

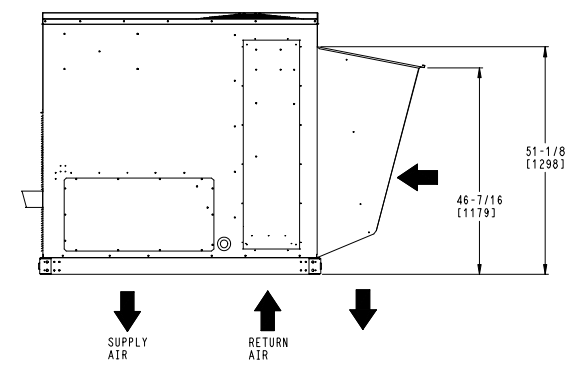
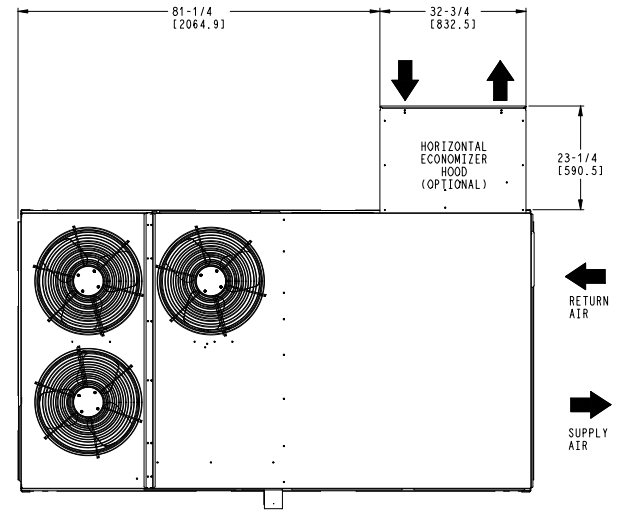
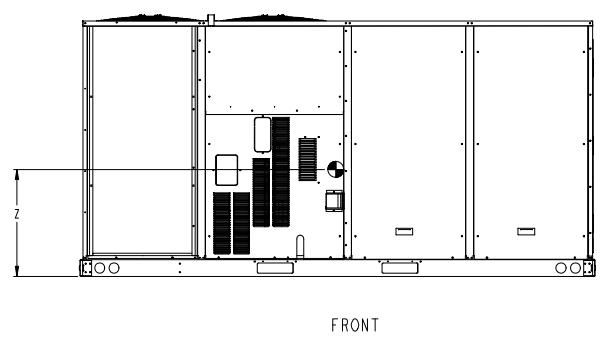
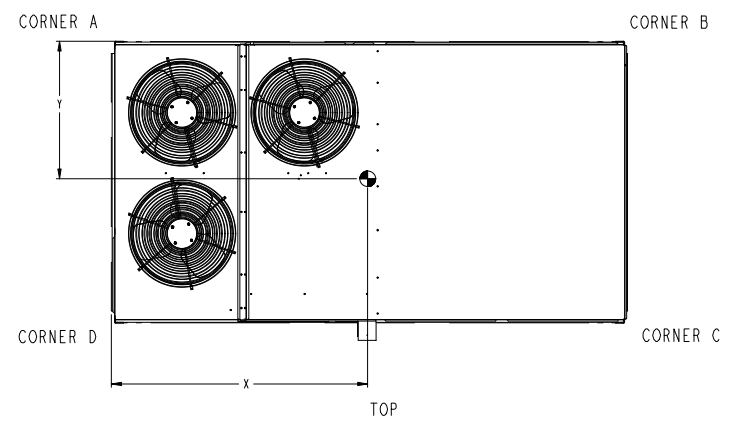
Project: Fords Garage - Florence, KY
 Prepared By: Jeff Gries

11/21/2024
 02:56PM

UNIT	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			
48FC-M16	1480	639	373	169	341	155	332	150	362	164	55 3/8	1407	31 1/4	1794	21 1/8	1537

STANDARD UNIT WEIGHT IS WITH LOW HEAT & WITHOUT PACKAGING.
 FOR OPTIONS & ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.

Carrier THIS DOCUMENT IS THE PROPERTY OF CARRIER CORPORATION AND IS DELIVERED UPON THE EXPRESS CONDITION THAT THE CONTENTS WILL NOT BE DISCLOSED OR USED WITHOUT CARRIER CORPORATION'S WRITTEN CONSENT. SUBMISSION OF THESE DRAWINGS OR DOCUMENTS DOES NOT CONSTITUTE PART PERFORMANCE OR ACCEPTANCE OF CONTRACT.



HORIZONTAL ECONOMIZER

ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 2 OF 2	DATE 06/10/21	SUPERCEDES -	48FC 16 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50TM002025	REV -
-------------------------------------	-----------------	------------------	-----------------	---	------------	----------

Performance Summary For 48FCEM16

Project: Fords Garage - Florence, KY
Prepared By: Jeff Gries

11/21/2024
02:56PM

Part Number:48FCEM16A3A5-0A0A0

ARI EER:.....10.80
IEER:.....14.5

Base Unit Dimensions

Unit Length:.....115.9 in
Unit Width:.....66.4 in
Unit Height:.....57.4 in

Operating Weight

Base Unit Weight:.....1325 lb
Medium Heat:.....18 lb

Accessories

CH 5 Vertical ULL Econ w/ POL224:.....134 lb
Louvered Condenser Coil Hail Guard:.....45 lb

Total Operating Weight:.....1522 lb

Unit

Unit Voltage-Phase-Hertz:.....208-3-60
Air Discharge:.....Vertical
Fan Drive Type:.....Vane Axial
Actual Airflow:.....6000 CFM
Site Altitude:.....0 ft

Cooling Performance

Condenser Entering Air DB:.....95.0 F
Evaporator Entering Air DB:.....80.0 F
Evaporator Entering Air WB:.....67.0 F
Entering Air Enthalpy:.....31.44 BTU/lb
Evaporator Leaving Air DB:.....59.0 F
Evaporator Leaving Air WB:.....57.4 F
Evaporator Leaving Air Enthalpy:.....24.66 BTU/lb
Gross Cooling Capacity:.....183.06 MBH
Gross Sensible Capacity:.....136.09 MBH
Compressor Power Input:.....13.50 kW
Coil Bypass Factor:.....0.093

Heating Performance

Heating Airflow:.....6000 CFM
Entering Air Temp:.....70.0 F
Leaving Air Temp:.....100.1 F
Gas Heating Input Capacity:.....192.0 / 240.0 MBH
Gas Heating Output Capacity:.....156.0 / 195.0 MBH
Temperature Rise:.....30.1 F

Supply Fan

External Static Pressure:.....1.25 in wg
Fan RPM:.....1878
Fan Power:.....3.35 BHP
NOTE:.....Selected IFM RPM Range: 250 - 2200

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:.....28.2
Compressor #1 LRA:.....239
Compressor #2 RLA:.....19.6
Compressor #2 LRA:.....136

Performance Summary For 48FCEM16

Project: Fords Garage - Florence, KY
 Prepared By: Jeff Gries

11/21/2024
 02:56PM

Indoor Fan Motor Type:	HIGH
Indoor Fan Motor FLA (Total):	12.6
Combustion Fan Motor FLA (ea):	0.48
Power Supply MCA:	72
Power Supply MOCP (Fuse or HACR):	80
Disconnect Size FLA:	75
Disconnect Size LRA:	405
Electrical Convenience Outlet:	None
Outdoor Fan [Qty / FLA (ea)]:	3 / 1.5

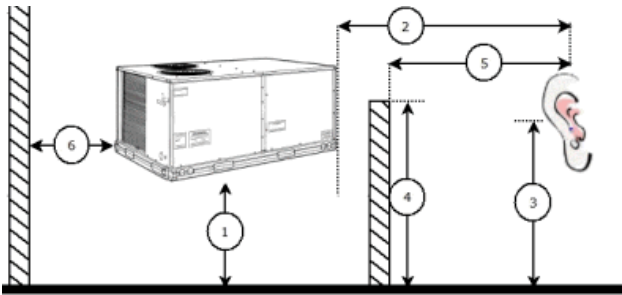
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	88.7	84.2	87.0
125 Hz	85.5	79.2	85.2
250 Hz	82.7	73.8	84.6
500 Hz	81.0	72.6	84.9
1000 Hz	82.0	72.9	82.2
2000 Hz	78.3	67.0	78.4
4000 Hz	73.2	57.3	75.3
8000 Hz	65.1	50.0	72.9
A-Weighted	85.7	76.2	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
- 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	87.0	85.2	84.6	84.9	82.2	78.4	75.3	72.9	92.4 Lw
B	60.8	69.1	76.0	81.7	82.2	79.6	76.3	71.8	87.1 LwA
C	54.6	52.8	52.2	52.5	49.8	46.0	42.9	40.5	60.0 Lp
D	28.4	36.7	43.6	49.3	49.8	47.2	43.9	39.4	54.7 LpA

Performance Summary For 48FCEM16

Project: Fords Garage - Florence, KY
Prepared By: Jeff Gries

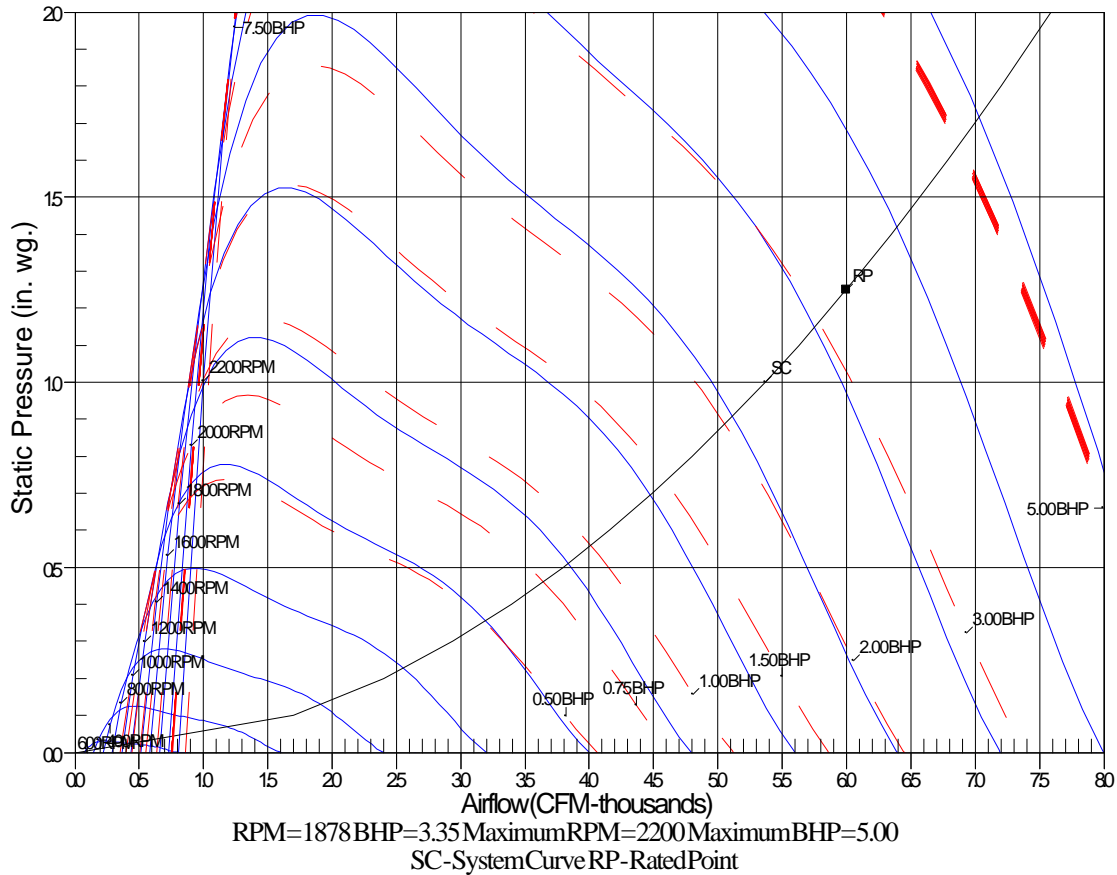
11/21/2024
02:56PM

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.

Fan Curve



Unit Feature Sheet for 48FCEM16

Project: Fords Garage - Florence, KY
Prepared By: Jeff Gries

11/21/2024
02:56PM



PACKAGED ROOFTOP GAS HEATING/ELECTRIC COOLING UNITS – 15.0 IEER 7.5, 8.5, 10, 12.5, 15 TONS



ecoblue technology



WEATHERMAKER® SERIES

48FC units are single packaged gas heating, electric cooling units that are pre-wired and charged with Puron (R-410) refrigerant. The units are factory tested in both heating and cooling modes. All models use two stage cooling capacity control with a full active evaporator coil and new EcoBlue™ 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.ahridirectory.org.

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

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, EER's up to 11.2
- Exceeds current DOE IEER efficiencies while meeting DOE's new stringent 2023 IEER efficiency requirements
- 2023 DOE, ASHRAE 90.1, and IECC - IEER energy compliant
- New Direct Drive – EcoBlue™ 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 condensate pan in accordance with ASHRAE 62 Standard, sloping design; side or center drain
- TXV refrigerant metering system on all models
- Standard cooling operating range up to 125°F (52°C), except 14 size models with 115°F (46°C) and down to 40°F (-4°C), except 14 size models with 0°F (-18°C) Low Ambient controls allows cooling 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
- Exclusive IGC solid-state control for on-board diagnostics with LED
- Induced draft gas heat combustion design
- Redundant gas valves with up to two stages of heating
- Low pressure, high pressure, mixed air temperature 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 belts, pulleys, blower shaft and blower bearings

INSTALLATION FEATURES:

- Thru-the-bottom power entry capability
- Single point gas and electric connections
- Full perimeter base rail with built-in rigging adapters and fork slots
- Field convertible from vertical to horizontal airflow, 16 size requires a special supply duct cover kit.

STANDARD WARRANTY:

- 10-year heat exchanger – 15-year stainless steel option
- 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
- Louvered condenser coil guards
- Disconnect switch and convenience outlet options
- Stainless Steel heat exchanger option
- Corrosion resistant coil coating.
- MERV-13, 4" Return Air Filters
- Patented Humidi-MiZer® adaptive dehumidification system.
- Hinged access panels
- Integrated economizer system. Low and Ultra Low Leak versions
- Phase monitor and condensate overflow protection