



Unit Overview - YCD420DEH*2B2DG8AB*D*HHB000*0N00*000X*******

Unit Function	Tonnage	Estimated Installed Weight	EER @ AHRI	IEER @ AHRI	System Power	Elevation
DX Cooling, natural gas heat	35 Ton	5679.0 lb	10.3 EER	14.7 EER	41.16 kW	0.00 ft

Unit Features

Efficiency/Condenser Coil	Standard efficiency unit
System Control	Multi-speed fan
Airflow Configuration	Downflow supply and upflow return
Filters	2" MERV 8 Throwaway filters
Outside Air Selection	Economizer, ref enth w/ low leak damper



Unit Electrical

Voltage/Phase/Hertz	208/60/3
Unit Mounted Power Connection 2	Fac. Pwrd GFCI conv. outlet w/disc sw
SCCR Rating	5k SCCR

Condenser Motor FLA	4.40 A
Condenser Motor Count	3.00 Each
Compressor 1 RLA	29.30 A
Compressor 2 RLA	42.50 A
Compressor 3 RLA	42.50 A

Supply Fan FLA	25.20 A
Exhaust Fan FLA	4.40 A
Exhaust Fan Count	2.00 Each
CCH FLA	1.00 A

MCA	174.00 A
MOP	200.00 A
DSS	250.00 A

Note: Connect properly sized and protected power supply wiring to the unit (copper wiring only to the unit)

Cooling Section

Refrigerant Type	R-454B	Gross Total Capacity	414.57 MBh
Refrigerant Charge - Circuit 1	31.0 lb	Gross Sensible Capacity	322.62 MBh
Minimum Room Area	501.00 sq ft	Gross Latent Capacity	91.95 MBh
Condenser Coil Type	MCHE	Net Total Capacity	388.91 MBh
Condenser Coil Rows	1	Net Sensible Capacity	296.96 MBh
Evaporator Face Area	31.70 sq ft	Net Sensible Heat Ratio (%)	0.76 %
Evaporator Coil Rows	4	Fan Motor Heat	22.71 MBh
Evaporator Face Velocity	371 ft/min	Leaving Coil Dry Bulb	56.70 F
Design Airflow	13000. cfm	Leaving Coil Wet Bulb	56.62 F
Entering Dry Bulb	80.00 F	Leaving Unit Dry Bulb	58.99 F
Entering Wet Bulb	67.00 F	Leaving Unit Wet Bulb	57.54 F
Ambient Dry Bulb	95.00 F	Compressor Power	30.35 kW

Heating Section

Function	DX Cooling, natural gas heat	Heating EAT	70.00 F
Heat Type & Capacity	High gas heat capacity	Heating LAT	104.77 F
Input Heating Capacity	600.00 MBh	Heating Delta T	34.77 F
Output Heating Capacity	486.00 MBh		



Fan Section

Unit Airflow Design	Downflow supply and upflow return	Exhaust Fan Data	
Supply Fan Data		Exhaust Fan Type	Prop
Supply Fan Type	FC	Exhaust Fan Option	100 % Power exhaust
System Control/SGR	Multi-speed fan	Exhaust Fan Drive	Direct
Design Airflow	13000. cfm	Exhaust Fan Count	2.00 Each
Design ESP	1.000 in H2O	Outdoor Fan Data	
Total Static Pressure	2.167 in H2O	Outdoor Fan Type	Prop
Supply Fan Motor HP	10 Hp	Outdoor Fan Drive	Direct
Total Supply BHP	8.91 bhp	Low Ambient Temp	0 F
Supply Fan Drive	700 RPM	Condenser Fan Count	3.00 Each
Operating Speed (RPM)	714 rpm	Outdoor Fan Motor Power	0.00 kW
Supply Motor Power	6.66 kW		

Acoustics

	63	125	250	500	1K	2K	4K	8K
Supply Duct	87 dB	86 dB	84 dB	86 dB	78 dB	75 dB	71 dB	66 dB
Outdoor Noise	100. dB	96 dB	97 dB	96 dB	93 dB	89 dB	90. dB	83 dB
Return Duct (low)	94 dB	93 dB	84 dB	84 dB	85 dB	84 dB	84 dB	81 dB
Return Duct (medium)	92 dB	91 dB	86 dB	85 dB	86 dB	86 dB	85 dB	84 dB
Return Duct (high)	89 dB	88 dB	87 dB	85 dB	86 dB	87 dB	86 dB	85 dB

Controls

Communications Options	Adv Ctrl & BACnet/Modbus Comm. (BCI)
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Service Options

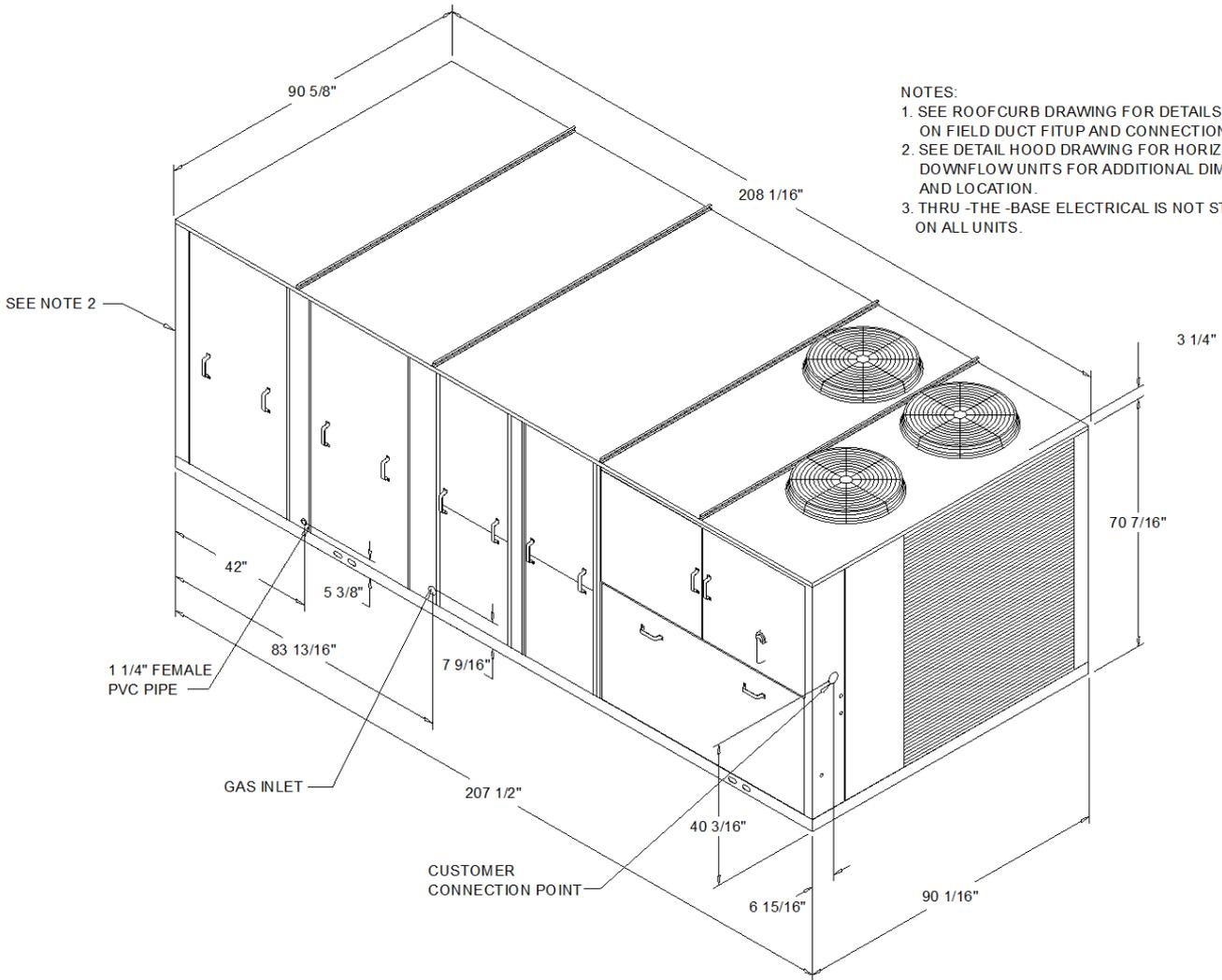
Service Valve	Service valves	Condenser Coil Guards	Louvered condenser coil hail guards
Hinged Service Access	Hinged service access	Through the Base Electrical	Thru-the-base electrical provision

Warranty

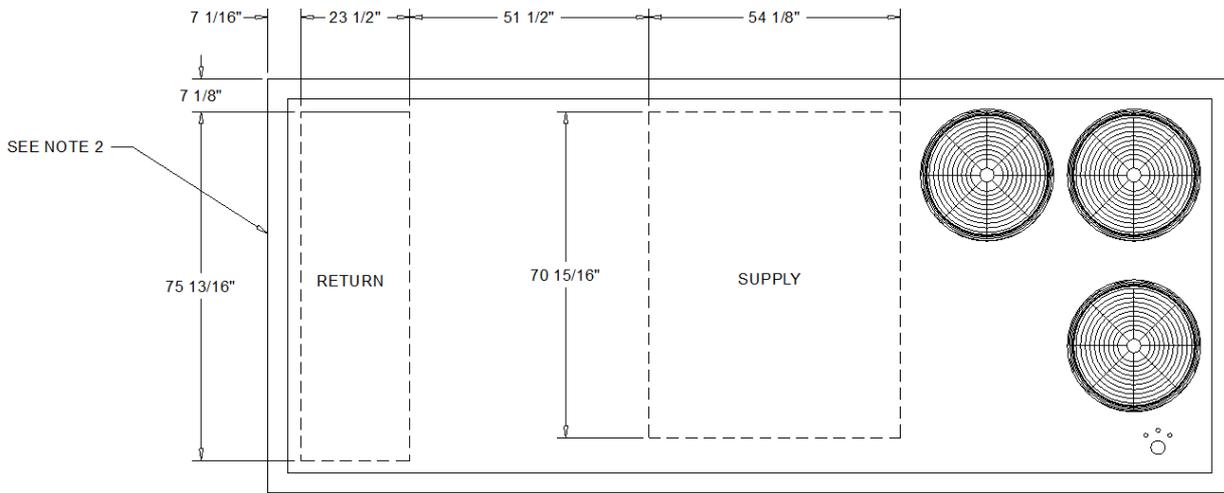
Compressor Warranty	2nd-5th Year Compressor Warranty
Labor Warranty (First Year)	Year 1 Labor Warranty Whole Unit

AHRI Certification

Packaged Rooftop units cooling, heating capacities and efficiencies are rated within the scope of the Air-Conditioning, Heating & Refrigeration Institute (AHRI) Certification Program and display the AHRI Certified® mark as a visual confirmation of conformance to the certification sections of AHRI Standard 340-360 (I-P) and ANSI Z21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces. Certified units may be found in the AHRI directory at www.ahridirectory.org

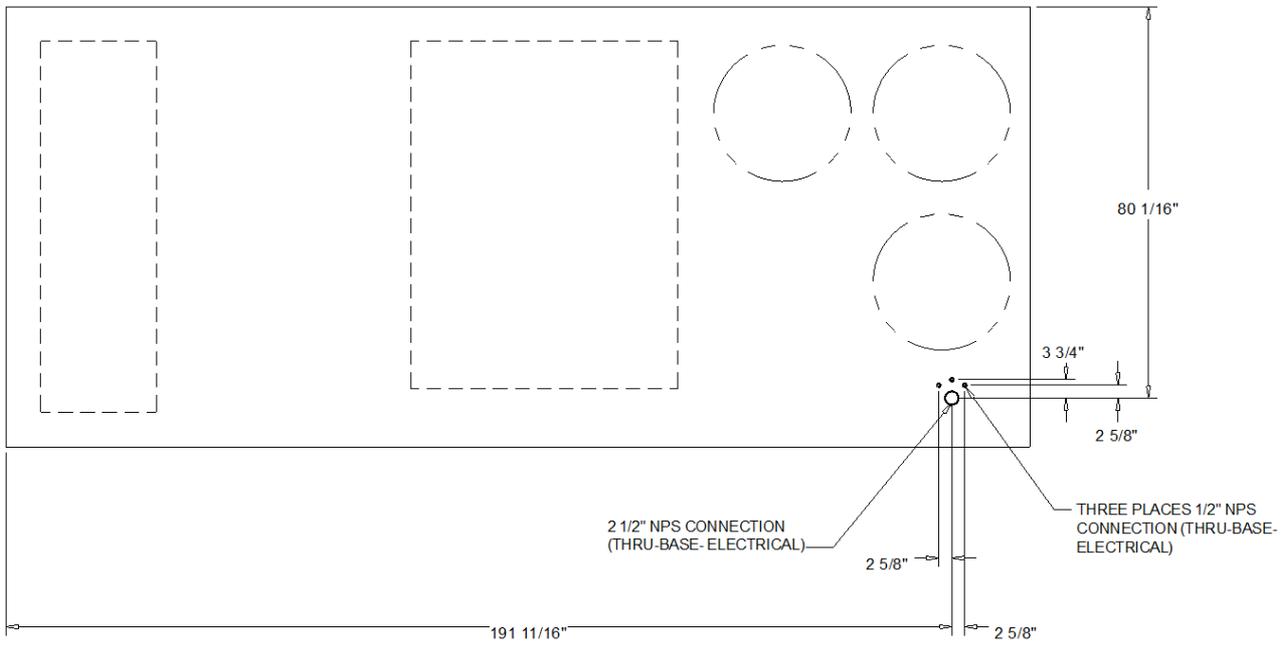


- NOTES:
1. SEE ROOFCURB DRAWING FOR DETAILS ON FIELD DUCT FITUP AND CONNECTIONS
 2. SEE DETAIL HOOD DRAWING FOR HORIZONTAL / DOWNFLOW UNITS FOR ADDITIONAL DIMENSION AND LOCATION.
 3. THRU -THE -BASE ELECTRICAL IS NOT STANDARD ON ALL UNITS.



PLAN VIEW

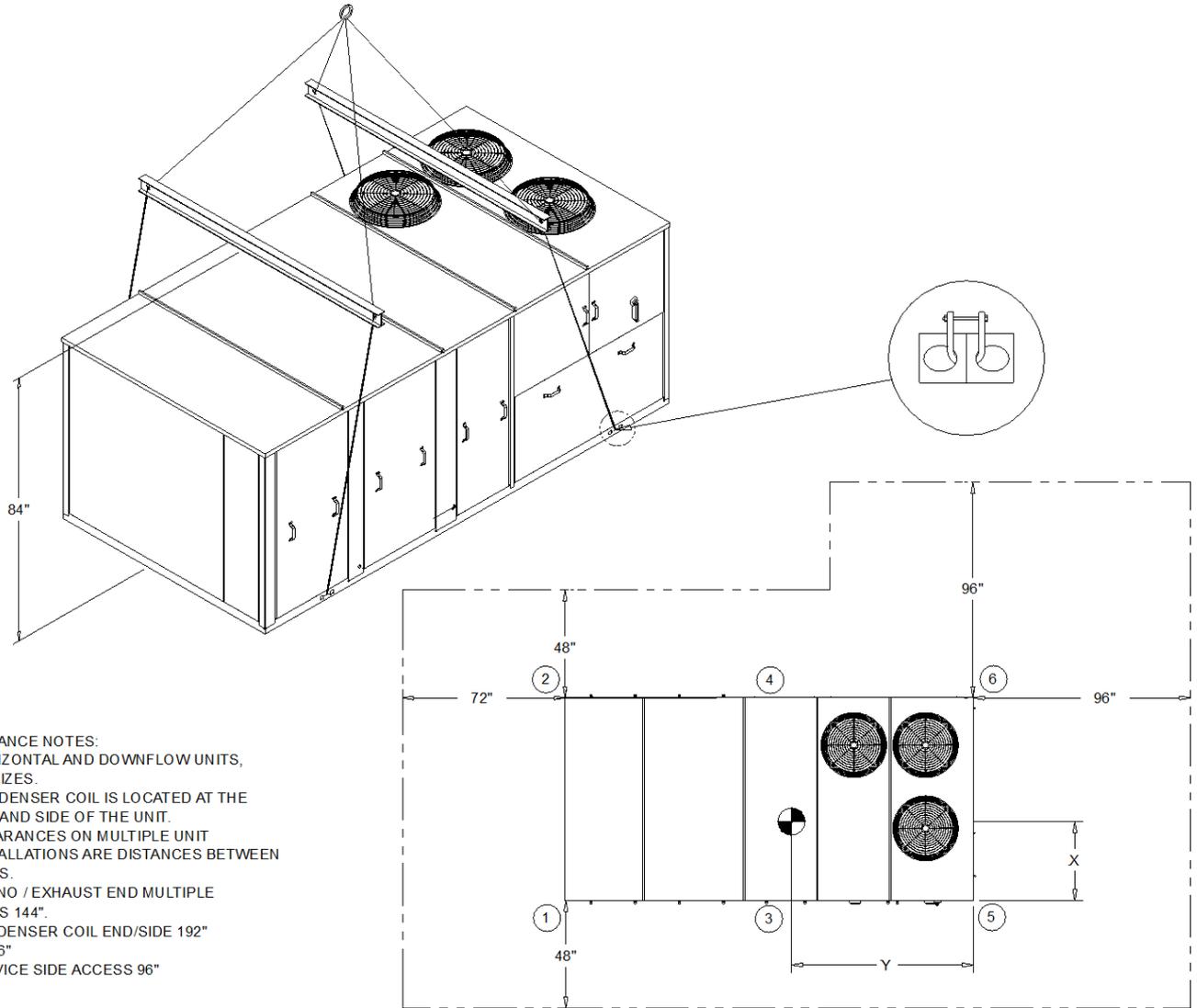
DOWNFLOW SUPPLY AND UPFLOW RETURN CONFIGURATION
 DIMENSIONAL DRAWING



- NOTES:
1. THRU -THE -BASE ELECTRICAL IS NOT STANDARD ON ALL UNITS.
 2. VERIFY ALL DIMENSIONS WITH INSTALLER DOCUMENTS BEFORE INSTALLATION.

THRU -THE -BASE ELECTRICAL PROVISION

PLAN VIEW



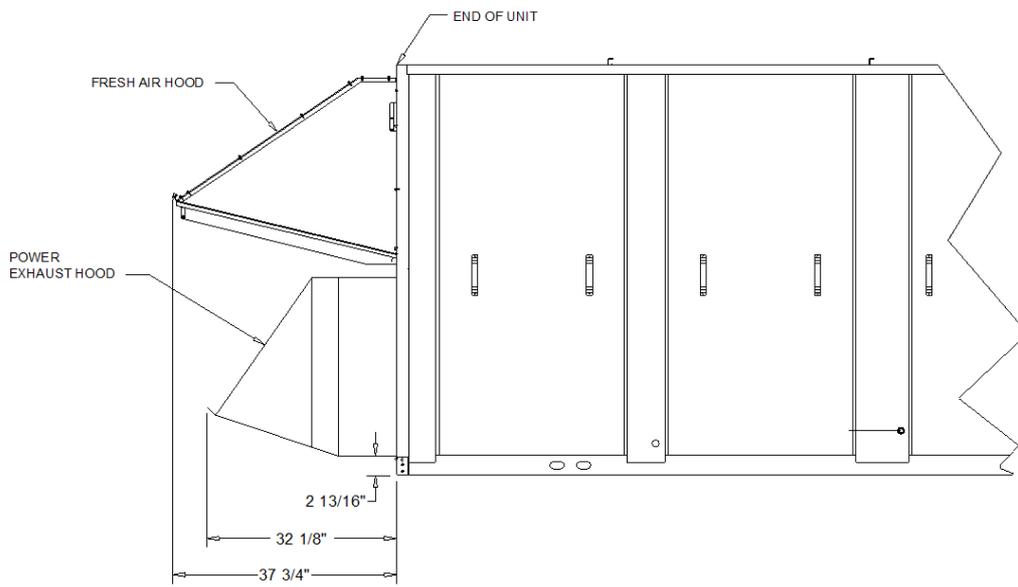
CLEARANCE NOTES:

1. HORIZONTAL AND DOWNFLOW UNITS, ALL SIZES.
2. CONDENSER COIL IS LOCATED AT THE END AND SIDE OF THE UNIT.
3. CLEARANCES ON MULTIPLE UNIT INSTALLATIONS ARE DISTANCES BETWEEN UNITS.
4. ECONO / EXHAUST END MULTIPLE UNITS 144".
5. CONDENSER COIL END/SIDE 192" TO 96"
6. SERVICE SIDE ACCESS 96"

ESTIMATED OPERATING WEIGHT						OPTIONAL COMPONENTS					
OPERATION WEIGHT: 5,679.0 lb											
CENTER OF GRAVITY											
X	42"	Y	86"	POWER EXHAUST	165.0 lb	BARO. RELIEF	N/A	SERVICE VALVES	18.0 lb		
CORNER LOADING PERCENTS						ECONOMIZER	260.0 lb	THRU-BASE ELECTRICAL	6.0 lb	DISC. SWITCH	N/A
①	②	③	④	⑤	⑥	MANUAL DAMPERS	N/A	GFI WITH DISCON. SWITCH	85.0 lb	VFD	N/A
16%	17%	20%	14%	20%	15%	ULTRA LOW LEAK EXH.	N/A	ULTRA LOW LEAK ECON	N/A		
						COIL HAIL GUARD	105.0 lb	MOD. HOT GAS REHEAT	N/A		

WEIGHT NOTES:

1. THE WEIGHT SHOWN REPRESENTS THE TYPICAL UNIT OPERATING WEIGHT FOR THE CONFIGURATION SELECTED. ESTIMATED AT +/- 10% OF THE NAMEPLATE WEIGHT.
2. THE ACTUAL WEIGHT IS STAMPED ON THE UNIT NAMEPLATE.



FRESH AIR AND POWER EXHAUST HOODS FOR DOWNFLOW RETURN
UNIT DETAIL

General R-454B

The units shall be downflow, horizontal, or mixed airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for all units. Cooling performance shall be rated in accordance with AHRI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-454B refrigerant and 100% run tested to check cooling operation, fan and blower rotation and control sequence before leaving the factory. Wiring internal to the unit shall be numbered for simplified identification. Units shall be cULus listed.

Unit shall be furnished with a leak detection system from the factory. The leak detection system shall consist of one or more refrigerant detection sensors. When the system detects a leak, the unit controller shall initiate mitigation actions.

Compressors

The 3-D Scroll shall provide a completely enclosed compressor chamber with optimized scroll profiles which leads to increased efficiency. The 3-D Scroll shall include a direct-drive, 3600 rpm, suction gas cooled hermetic motor. The compressor shall include a centrifugal oil pump, scroll tips seals, internal heat shield that lowers the heat transfer from discharge and suction gas, oil level sight glass and oil charge valve. Some compressor models shall also provide a dip tube that allows for oil draining, in addition to a low leakage internal discharge check valve to help prevent refrigerant migration. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

Hinged Service Access

Filter access panel and supply fan access panel shall be hinged for ease of unit service.

Phase and Voltage Monitor

Standard on all Voyager Commercial units. Shall protect 3-phase equipment from phase loss, phase reversal, and low voltage. Any fault condition shall send the unit into an auto stop condition. cULus approved.

Service Valves

Service valves shall be provided factory installed and include suction and discharge 3-way shutoff valves.

Refrigerant Circuits

Each refrigerant circuit shall have independent thermostatic expansion devices, service pressure ports and refrigerant line filter driers factory-installed as standard. An area shall be provided for replacement suction line driers.

Outdoor Fans

The outdoor fan shall be direct-drive statically and dynamically balanced, draw through in the vertical discharge position. The fan motors shall be permanently lubricated and have built-in thermal overload protection.

Evaporator and Condenser Coils

Condenser coils shall have all Aluminum Microchannel coils. Evaporator coils shall be internally finned Copper tubes mechanically bonded to high performance Aluminum plate fins. All coils shall be leak tested at the factory to ensure pressure integrity. The evaporator coil is pressure tested to 450 psig and the condenser coil at 650 psig. All dual circuit evaporator coils shall be of intermingled configuration. Sloped condensate drain pans are standard.

Louvered Hail Guard

Louvered, hail protection quality coil guards are available for condenser coil protection.



High/Low 2 Stage Gas Heat

The heating section shall have a drum and tube heat exchanger(s) design with primary and secondary surfaces of corrosion resistant aluminized steel or optional stainless steel. A forced combustion blower shall supply premixed fuel to a single burner ignited by a pilotless hot surface ignition system. In order to provide reliable operation, a regulated gas valve shall be used that requires blower operation to initiate gas flow. On an initial call for heat, the combustion blower shall purge the heat exchanger(s) 45 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat. Two stage gas heat units shall be suitable for use with natural gas or propane (field installed kit).

Indoor Fan, 60 Hz Supply Motor

Unit will have belt driven, forward curve, centrifugal fans with fixed motor sheaves. The supply fan motors will be circuit breaker protected. All 60 Hz supply fan motors meet the Energy Independence and Security Act of 2009 (EISA).

100% Power Exhaust Fan

Power exhaust shall be available on all units and shall be factory installed. It shall assist the barometric relief damper in maintaining building pressurization.

2" High Efficiency Filters - MERV 8

2" High Efficiency MERV 8 filters will be standard.

Economizer with Ultra Low Leak Dampers and Reference Enthalpy Control

An economizer will be factory installed. The assembly includes: 0-100% fully modulating low leak dampers, minimum position setting, preset linkage, wiring harness and reference enthalpy control.

Controls

Unit shall be completely factory wired with necessary controls and terminal block for power wiring. Units shall provide an external location for mounting fused disconnect device. The controls shall be provided for all 24 volt control functions. The resident control algorithms shall make all heating, cooling and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point and provides better building comfort. The controls shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.

Unit Interrupt Rating (Standard Short Circuit Current Rating-SCCR)

A 5,000 Amp rating shall be applied to the unit enclosure using a non-fused circuit breaker for disconnect switch purposes. Fan motors, compressors, and electric heat circuits shall be provided with protective devices that will provide the unit rated level of fault protection. The unit shall be marked with approved cULus markings and will adhere to cULus regulations.

Through-The-Base Electrical Provision

An electrical service entrance shall be provided which allows access to route all high and low voltage electrical wiring inside the curb, through the bottom of the outdoor section of the unit and into the control box area.

Non-Fused Disconnect Switch

A factory installed non-fused disconnect switch with external handle shall be provided and shall satisfy NEC requirements for a service disconnect. The non-fused disconnect shall be mounted inside the unit control box.

GFI Convenience Outlet (Factory Powered)

A 15A, 115V Ground Fault Interrupter convenience outlet shall be factory installed. It shall be wired and powered from a factory mounted transformer. Unit mounted non-fused disconnect with external handle shall be furnished with factory powered outlet.

BACnet Communications

The BACnet communications interface shall allow the unit to communicate directly with a generic open protocol BACnet MS/TP Network Building Automation System Controls.



Certified AHRI Performance

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- Ventilation modes
- Heat Recovery

Fan Details

Unit Size

Operating Brake Power 8.91 bhp

Operating Airflow 13,000 cfm

Altitude 0.00 ft

Operating Static Pressure 2.167 in H2O

Design Temp. 56.70 F

Operating RPM 714 rpm

33M - Single 22in FC Fan - 2222FCLAC1FN

