Unit Overview - TEH330B4**0B2DC4*0C*E**HH*0*00**000*0000X**********

Unit Function	Tonnage	Estimated Installed Weight	EER @ AHRI	IEER @ AHRI	System Power	Elevation
DX Cooling, electric heat	27.5 Ton	4194.0 lb	10.3 EER	12.4 EER	35.45 kW	0.00 ft

Unit Features

Efficiency/Condenser Coil	Standard efficiency unit
System Control	VAV (DTC) with VFD w/o bypass
Airflow Configuration	Horizontal supply and horizontal return
Filters	2" MERV 8 Throwaway filters
Outside Air Selection	0-100% Economizer, dry bulb control

Unit Electrical

Voltage/Phase/Hertz	460/60/3
Unit Mounted Power Connection 1	Non-fused disconnect switch
Convenience Outlet	Field Powered GFCI Conv. Outlet
SCCR Rating	5k SCCR

Condenser Motor FLA	3.50 A	**Supply Fan FLA**	12.60 A	**MCA**	72.85 A
Condenser Motor Count	3.00 Each	**Exhaust Fan Count**	0.00 Each	**MOP**	90.00 A
Compressor 1 RLA	21.00 A	**CCH FLA**	1.00 A	**DSS**	77.00 A
Compressor 2 RLA	23.00 A	**Electric Heater FLA**	43.30 A		

Cooling Section

Efficiency/Condenser Coil	Standard efficiency unit	**Gross Total Capacity**	325.23 MBh
Condenser Coil Type	MCHE	**Gross Sensible Capacity**	246.19 MBh
Condenser Coil Rows	1	**Gross Latent Capacity**	79.03 MBh
Evaporator Face Area	31.70 sq ft	**Net Total Capacity**	306.10 MBh
Evaporator Coil Rows	4	**Net Sensible Capacity**	227.07 MBh
Evaporator Face Velocity	315 ft/min	**Net Sensible Heat Ratio (%)**	0.74 %
Design Airflow	10000 cfm	**Leaving Coil Dry Bulb**	57.53 F
Entering Dry Bulb	80.00 F	**Leaving Coil Wet Bulb**	56.57 F
Entering Wet Bulb	67.00 F	**Leaving Unit Dry Bulb**	59.49 F
Ambient Dry Bulb	105.00 F	**Leaving Unit Wet Bulb**	57.35 F
		Compressor Power	26.69 kW

Heating Section

Function	DX Cooling, electric heat	**Heating EAT**	50.00 F
Heat Type & Capacity	36 kW	**Heating LAT**	64.20 F
Input Heating Capacity	122.94 MBh	**Heating Delta T**	14.20 F
Output Heating Capacity	139.81 MBh		

Fan Section

Unit Airflow Design	Horizontal supply and horizontal return
Supply Fan Data	
Supply Fan Type	FC
System Control/SGR	VAV (DTC) with VFD w/o bypass
Design Airflow	10000 cfm
Design ESP	1.500 in H2O
Total Static Pressure	2.050 in H2O
Supply Fan Motor HP	10 Hp
Total Supply BHP	6.64 bhp
Supply Fan Drive	700/583 (60/50 hz)
Operating Speed (RPM)	677 rpm
Supply Motor Power	4.96 kW

Exhaust Fan Data	
Exhaust Fan Type	Prop
Exhaust Fan Drive	Direct
Exhaust Fan Count	0.00 Each
Outdoor Fan Data	
Outdoor Fan Type	Prop
Outdoor Fan Drive	Direct
Low Ambient Temp	0 F
Condenser Fan Count	3.00 Each
Outdoor Fan Motor Power	0.01 kW

Acoustics

	63	125	250	500	1K	2K	4K	8K
Supply Duct	87 dB	84 dB	81 dB	84 dB	75 dB	72 dB	68 dB	64 dB
Return Duct	87 dB	78 dB	69 dB	72 dB	67 dB	61 dB	56 dB	51 dB
Outdoor Noise	100 dB	96 dB	97 dB	96 dB	93 dB	89 dB	90 dB	83 dB

Service Options

Hinged Service Access	Hinged service access	**Condenser Coil Guards**	Louvered condenser coil hail guards

Accessories/Misc.

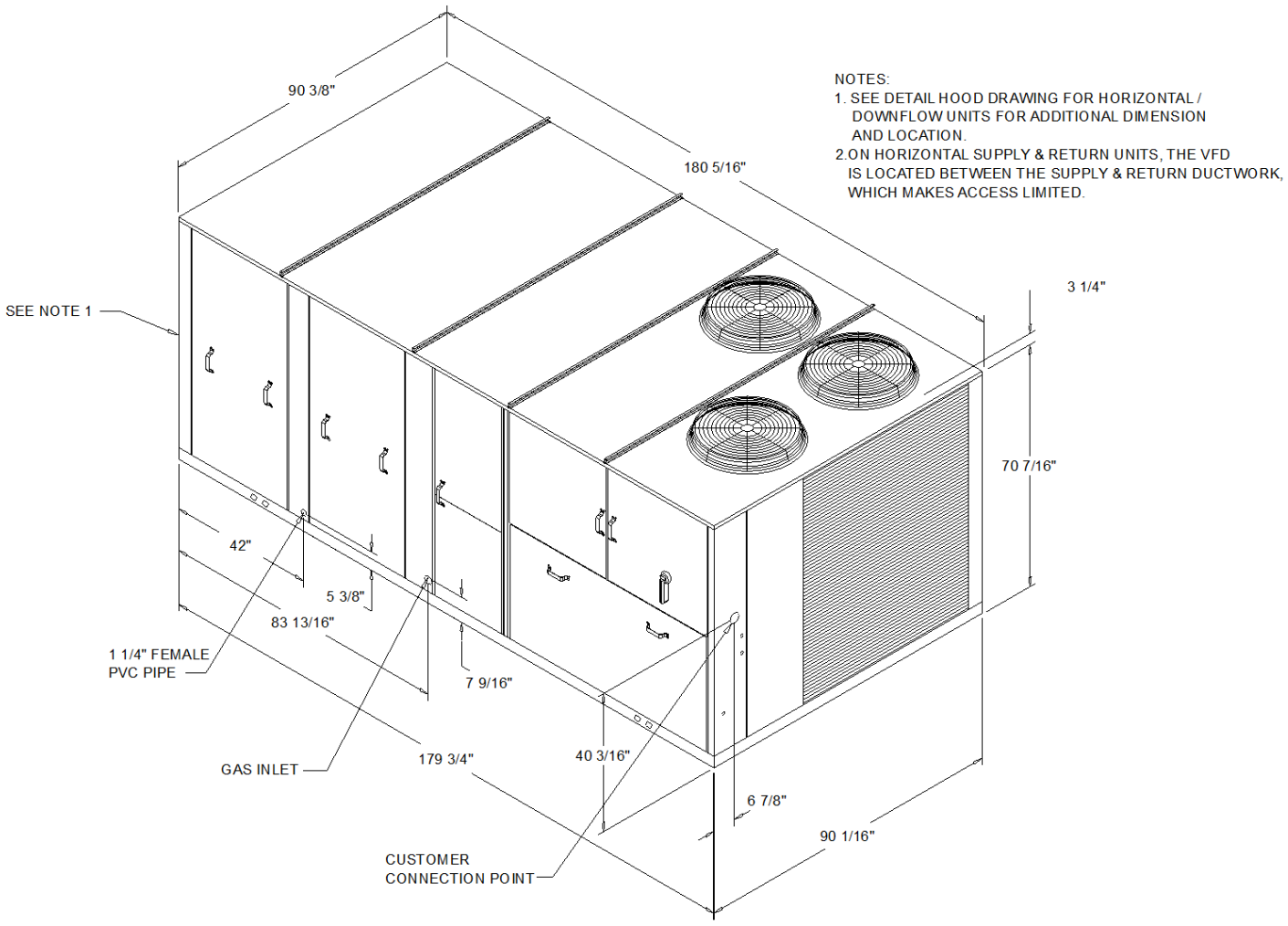
Communication Kit	BACnet communication interface

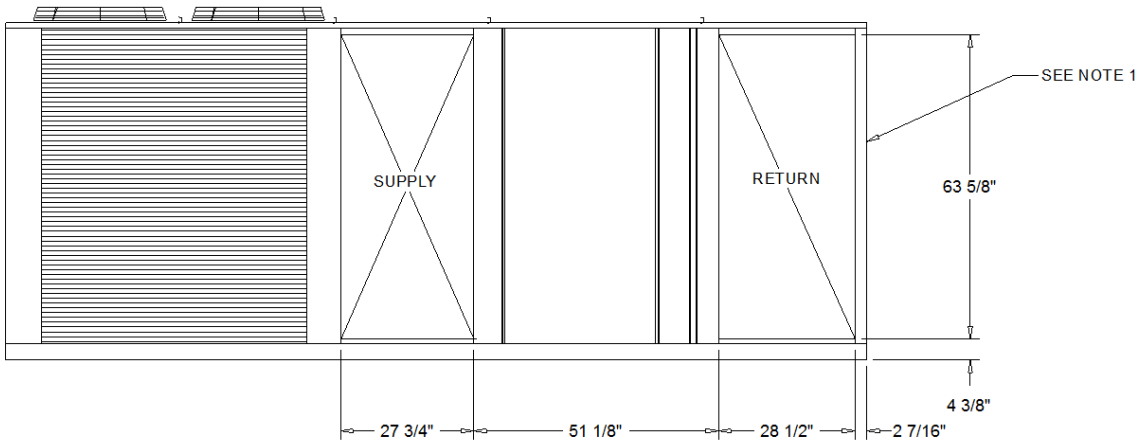
Warranty

Compressor Warranty	2nd-5th Year Compressor Warranty

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 ANSIZ21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces. Certified units may be found in the AHRI directory at www.ahridirectory.org





HORIZONTAL SUPPLY AND HORIZONTAL RETURN CONFIGURATION

DIMENSIONAL DRAWING

ELECTRICAL / GENERAL DATA

UNIT

Model (Tonnage)	TEH330 (27.5)
Operating voltage range:	414 - 506
Primary voltage:	460
Hertz:	60
Phase:	3
EER / IEER:	10.3 EER/12.4 EER

HEATING - PERFORMANCE

Heat:	N/A
Heating Input (Btu/h):	N/A
First Stage (Btu/h):	N/A
Heating Output (Btu/h):	N/A
First Stage (Btu/h):	N/A
No Burners:	N/A
No. Stages / Turn Down Rate:	N/A
Gas Supply Pressure (in w.c.)	
Natural or LP:	N/A
Gas Connection Pipe Size:	N/A

COMPRESSOR

Number	1/1
Tons	12.0/13.0
Compressor Rated Load Amps	21.0/23.0
Locked Rotor Amps	147.0/158.0

ELECTRIC HEATER

Electric Heater kw	36kW
Electric Heater Full Load Amps	43.3

INDOOR MOTOR SUPPLY FAN

Horsepower	10.0
Motor speed (rpm)	1,760
Indoor motor full load amps	12.6

OUTDOOR MOTOR

Number	3
Horsepower	1.1
Phase	1
Outdoor motor full load amps	3.5

EXHAUST MOTOR

Number	N/A
Horsepower	N/A
Phase	N/A
Exhaust motor full load amps	N/A

FILTERS (7)

Type	Throwaway
Furnished	Yes
Number	16
Recommended size	16"x20"x2"

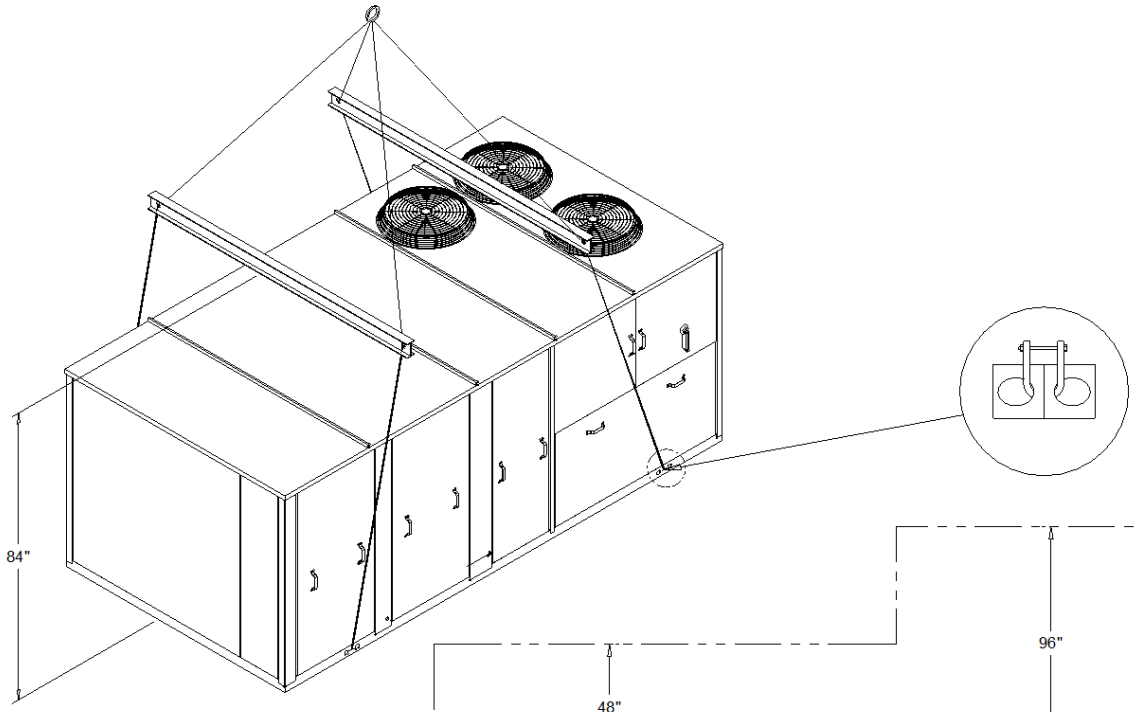
REFRIGERANT TYPE (6)

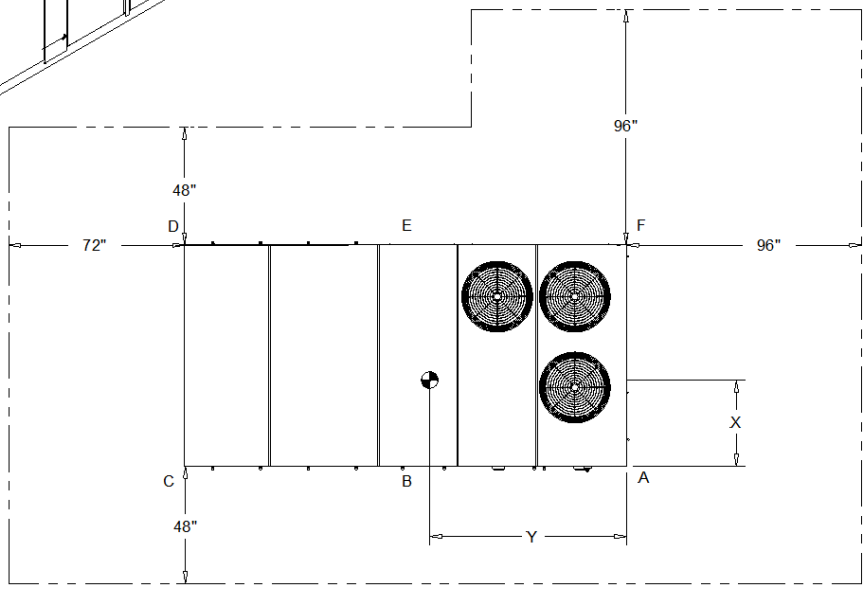
Type	R-410A
Factory Charge (Circuit #1)	24.6 lb
Factory Charge (Circuit #2)	Not Available

Heating MCA = 1.25 x (LOAD 1 + LOAD 2 + LOAD 4) + (1.25 x LOAD 3)

Heating MOP = (2.25 x LOAD 1) + LOAD 2 + LOAD 3 + LOAD 4

Notes:
1. LOAD 1= Current of the largest motor (Compressor or Fan Motor); LOAD 2=Sum of the currents of all remaining motors
   LOAD 3= FLA(Full Load Amps) of the electric heater; LOAD 4= Any other load rated at 1 amp or more.
2. For Electric Heat MCA, MOP, RDE values, calculate for both cooling and heating modes.
3. If selected Max Over Cur is less than the Min Cir Amp, then select the lowest maximum fuse size which is equal to or larger than the Min Cir Amp, provided the selected fuse size does not exceed 800 amps.
4. The use of Liquid Propane (LP) requires unit modification. Contact a Trane salesman for information.
5. Compressor KW at AHRI rating conditions of 80/67 -95
6. Refrigerant charge is an approx. value. For a more precise value, see unit nameplate and service instructions.
7. Filter dimension are actual. Norminal filter size 16"x20"

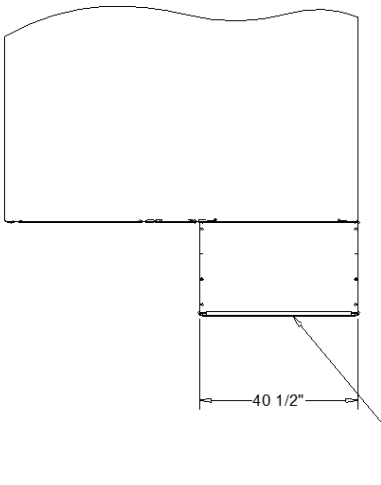




CLEARANCE NOTES:
1. HORIZONTAL AND DOWNFLOW UNITS, ALL SIZES.
2. CONDENSER COIL IS LOCATED AT THE END AND SIDE OF THE UNIT.
3. CLEARANCES ON MULTIPLE UNIT INSTALLATIONS ARE DISTANCES BETWEEN UNITS.
4. ECONO / EXHAUST END MULTIPLE UNITS 144".
5. CONDENSER COIL END/SIDE 192" TO 96"
6. SERVICE SIDE ACCESS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

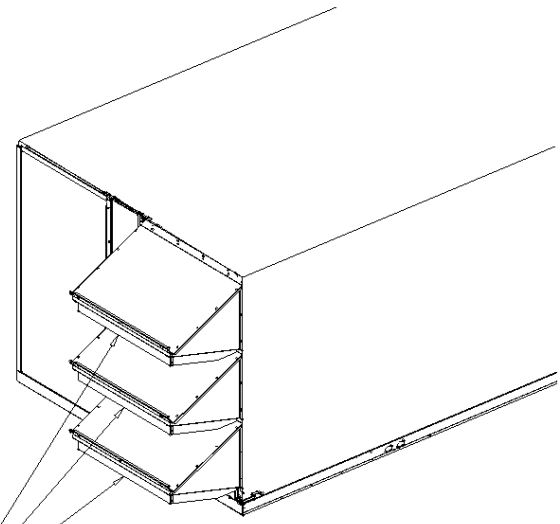
ESTIMATED OPERATING WEIGHT											
OPERATION WEIGHT: 4,194.0 lb											
CENTER OF GRAVITY						OPTIONAL COMPONENTS					
X	42"		Y	76"		POWER EXHAUST	N/A	BARO. RELIEF	N/A	SERVICE VALVES	N/A
CORNER LOADING PERCENTS						ECONOMIZER	285.0 lb	THRU-BASE ELECTRICAL	N/A	DISC. SWITCH	30.0 lb
A	B	C	D	E	F	MANUAL DAMPERS	N/A	GFI WITH DISCON. SWITCH	N/A	VFD	85.0 lb
21	17%	18%	18%	15%	12%	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.



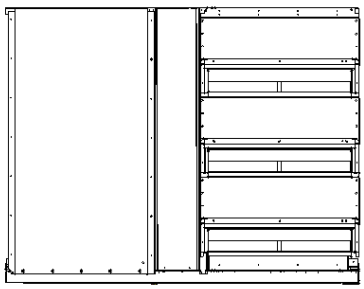
TOP VIEW

DIMENSIONAL DRAWING



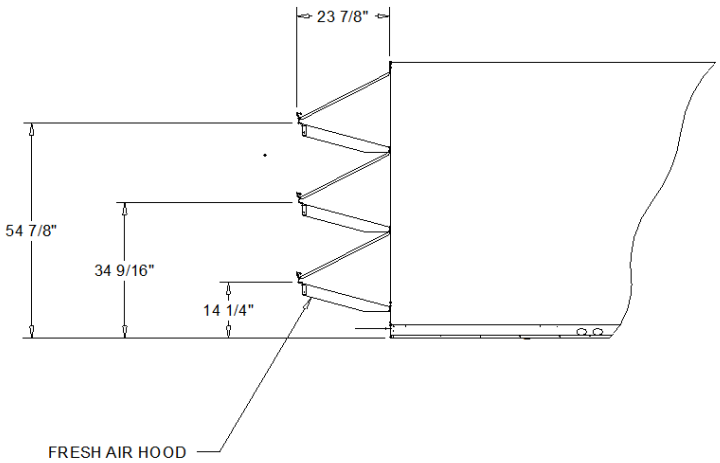
ISOMETRIC VIEW

PARTIAL DRAWING



BACK VIEW

DIMENSIONAL DRAWING

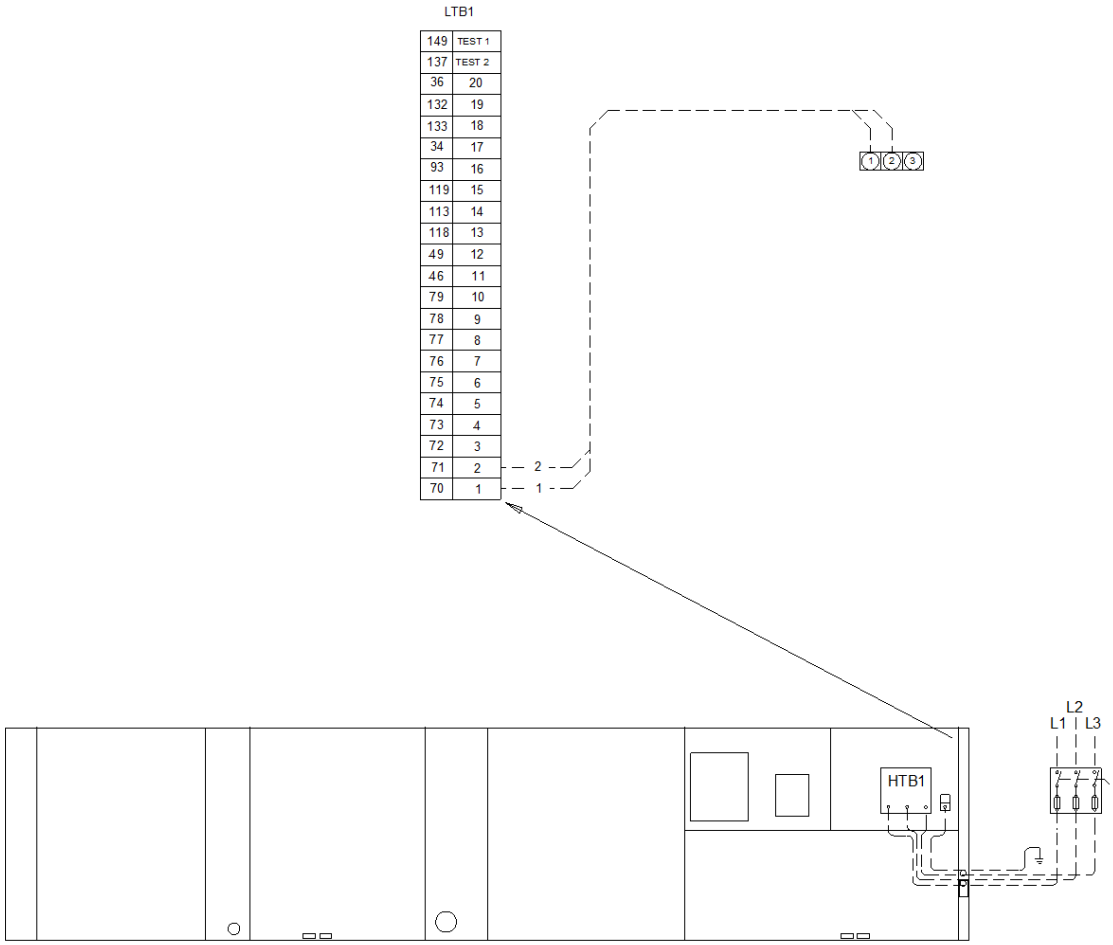


SIDE VIEW

DIMENSIONAL DRAWING

27.5 - 35 TON FRESH AIR HORIZONTAL CONFIGURATION

DIMENSIONAL DRAWING



ZONE SENSOR WIRE TABLE

WIRE SIZE	MAXIMUM WIRE LENGTH in
22 GAUGE	1800"
20 GAUGE	3000"
18 GAUGE	4500"
16 GAUGE	7200"
14 GAUGE	11700"

NOTE:
1. All wiring and devices shown dashed to be supplied and installed by the customer in accordance with national and local electrical codes.
2. Low voltage control wiring must not be run in conduit with power wiring.
3. Cut wire jumper adjacent to the terminal 1 on zone sensor.

General R-410A
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-410A 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.

Compressors R410A
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.

Casing
Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Cabinet surface shall be tested 672 hours in salt spray in compliance with ASTM B117. All components shall be mounted in a weather resistant steel cabinet with a painted exterior. Where top cover seams exist, they shall be double hemmed and gasket sealed to prevent water leakage. Cabinet construction shall allow for all maintenance on one side of the unit. Service panels shall have handles and shall be removable while providing a water and air tight seal. Control box access shall be hinged. The indoor air section shall be completely insulated with fire resistant, permanent, odorless, foil faced glass fiber material. The base of the unit shall have provisions for crane lifting.

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 protects 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.

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 - R410A
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.

Electric Heaters
Electric heat shall be available for factory installation within basic unit. Electric heater elements shall be constructed of heavy-duty nickel chromium elements internally delta connected for 240 volt, wye connected for 480 and 600 volt. Staging shall be achieved through the rooftop refrigeration module (RTRM). Each heater package shall have automatically reset high limit control operating through heating element contactors. All heaters shall be individually fused from factory, where required, and meet all NEC and CEC requirements. Power assemblies shall provide single-point connection. Electric heat shall be cULus listed.

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).

Bypass control
Provides full nominal airflow in the event of drive failure.

Variable Frequency Drive
Unit shall include factory-installed and tested variable frequency drive[s] (VFD) to provide motor speed modulation. The VFD shall receive a 0-10VDC speed signal from the unit controller. The drive will respond to the signal by accelerating or decelerating to maintain the controlling set point (duct static, space pressure, etc). VFD shall also include the following features:

1. Designed, constructed, and tested in accordance with NEMA ICS, NFPA, and IEC standards and housed in a plastic IP20 enclosure.

2. DC link reactors on both the positive and negative rails of the DC bus equal to 3% impedance to minimize power line harmonics.

3. Full rated output current continuously - 110% of rated current for 60 seconds and 160% of rated current for up to 0.5 second while starting.

4. Isolation between the Drive's power circuitry and control circuitry to ensure operator safety and to protect connected electronic control equipment from damage caused by voltage spikes, current surges, and ground loop currents.

5. Audible noise reduction through automatic adjustment of the carrier frequency and frequency avoidance.

6. Rated at 40C with a standard operating range of -10 to 50C (14 to 124F) ambient temperatures and 0 to 95% relative humidity

7. Self-diagnostics and motor protections such as: cULus listed overload, phase loss, and internal thermal overload.

8. Off/Stop and Auto/Start selector switches to start and stop the AC Drive and determine the speed reference.

a. On units with bypass, an AC Drive/Off/Bypass hand selector switch shall be provided in the unit control box

b. In DRIVE mode speed reference shall be provided by a 0-10 VDC analog input

9. A keypad interface which shall be programmable by language and feature multiple lines for easy reading

10. Controlled and/or accessible points such as AC Drive Start/Stop, speed reference, and fault diagnostics.

11. Meter points such as motor power in HP, motor power in kW, motor kW-hr, motor current, motor voltage, hours run, DC link voltage, thermal load on motor, Thermal load on AC Drive and Heatsink temperature.

12. Troubleshooting features such as:
    a. AC Drive memory storage of the last 10 faults and related operational data
    b. Four simultaneous displays: frequency or speed, run time, output amps and output power
    c. Keypad which shall display: Reference Signal Value, Output Frequency in Hz or percent, Output Amps, Motor HP, Motor kW, kW

13. Coated circuit boards for protection against corrosive environments

14. Field readable BACnet points to allow for communication of stauts, setpoints and diagnostics to the BAS.

2" High Efficiency Filters - MERV 8
2" High Efficiency MERV 8 filters will be standard.

Economizer with Dry Bulb Control
An economizer shall be factory installed. The assembly shall include: 0 -100 percent fully modulating dampers, minimum position setting, preset linkage, wiring harness, and fixed dry bulb 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. ReliaTel 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. ReliaTel 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.

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 (Field Powered)
A 15A, 115V Ground Fault Interrupter convenience outlet shall be factory installed and shall be powered by customer provided 115V circuit.

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
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 ANSIZ21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces.The applications in this catalog specifically excluded from the AHRI certification program are:
-Ventilation modes
-Heat Recovery

Fan Details

Unit Size	330A

Operating Airflow	10,000 cfm
Operating Static Pressure	2.050 in H2O
Operating RPM	677 rpm

Operating Brake Power	6.64 bhp
Altitude	0.00 ft
Design Temp.	80.00 F