



Job Name: 10-ton gas pack 208-3
Prepared By:
Unit Tag: Y4C-1
Quantity: 1

Trane Precedent Gas/Electric Packaged Rooftop

Unit Overview - YSC120H3EMA**000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Weight		EER	IEER/SEER
DX cooling, gas heat	10 Ton	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	11.2 EER	12.70
		4000 cfm	0.500 in H2O	3.91 ft	4.44 ft	7.39 ft	1058.0 lb	1384.0 lb		

Unit Features

Unit Electrical

Voltage/phase/hertz	208-230/60/3
MCA	49.00 A
MOP	60.00 A



Controls

Unit Controls Electro mechanical controls 3ph

Cooling Section

Entering Dry Bulb	80.00 F	Capacity	
Entering Wet Bulb	67.00 F	Gross Total	116.26 MBh
Ambient Temp	95.00 F	Gross Sensible	96.80 MBh
Leaving Coil Dry Bulb	57.59 F	Net Total	112.51 MBh
Leaving Coil Wet Bulb	57.59 F	Net Sensible	93.05 MBh
Leaving Unit Dry Bulb	58.84 F	Fan Motor Heat	3.75 MBh
Leaving Unit Wet Bulb	58.07 F	Refrig Charge-circuit 1	5.6 lb
Refrigeration System Options		Refrig Charge-circuit 2	4.4 lb
Leaving Dew Point	57.69 F		

Heating Section

Heat Type	Gas Heat
Heating Stages	2
Output Heating Capacity	160.00 MBh
Output Heating Capacity with Fan	163.75 MBh
Heating EAT	70.00 F
Heating LAT	107.30 F
Heating Temp Rise	37.30 F

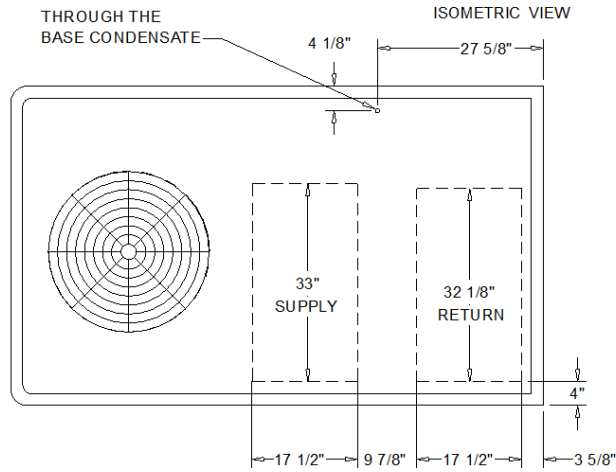
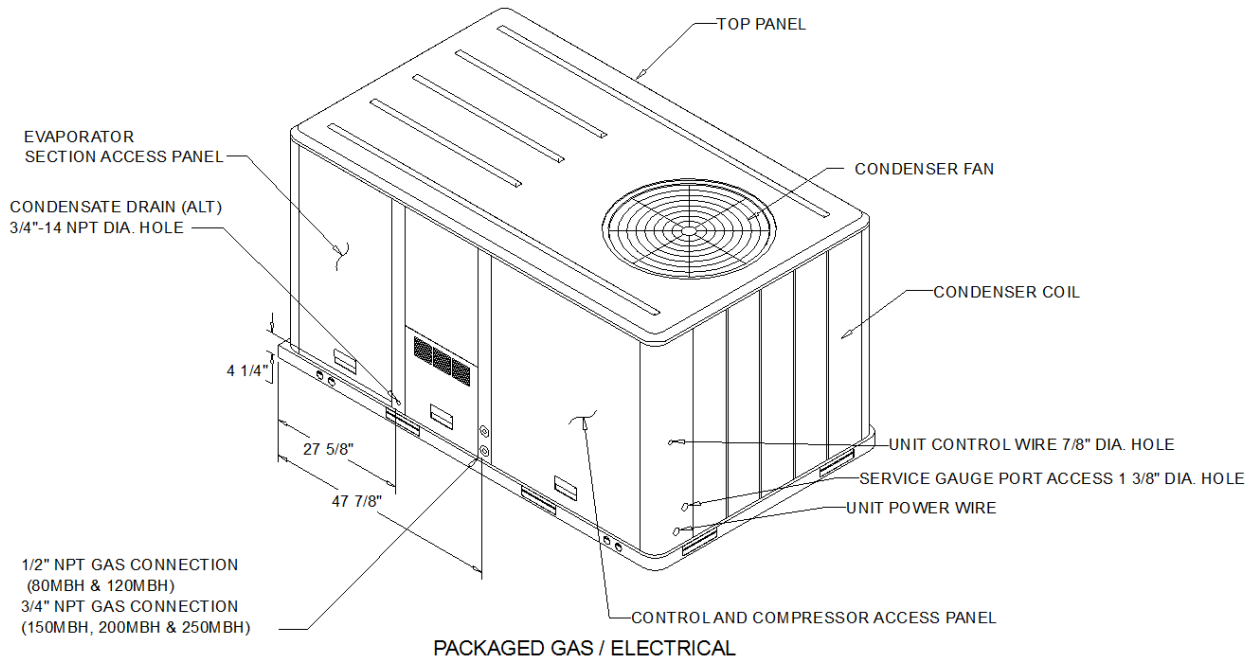
Fan Section

Indoor Fan Data	Outdoor Fan Data
Drive Type Variable Direct	Type Propeller
Indoor Fan Performance	Fan Quantity 1
Airflow 4000 cfm	Drive Type Direct
Design ESP 0.500 in H2O	Outdoor Fan Performance
Component SP 0.000 in H2O	Outdoor Motor Power 0.65 kW
Total SP 0.500 in H2O	Condenser Fan FLA 3.30 A
Indoor Motor Operating Power 1.29 bhp	Exhaust Fan Performance
Indoor Motor Power 0.96 kW	Exhaust Fan FLA 7.30 A
Indoor RPM 1289 rpm	
Indoor Fan FLA 3.30 A	



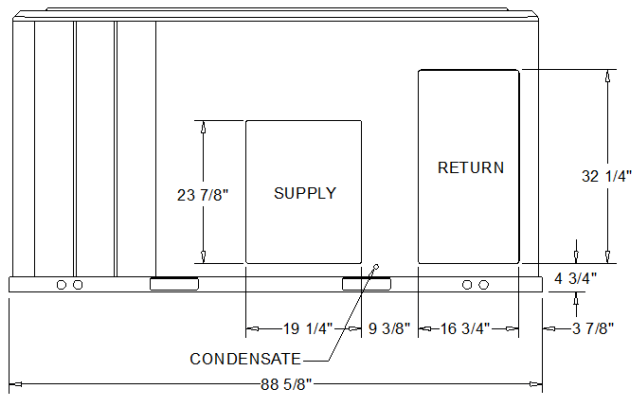
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Compressor Section			Accessories	
	Power	8.55 kW	Roof curb	yes
	Circuit 1 RLA	19.60 A	Fresh air selection	Manual outside air damper 0-50%
	Circuit 2 RLA	13.10 A		

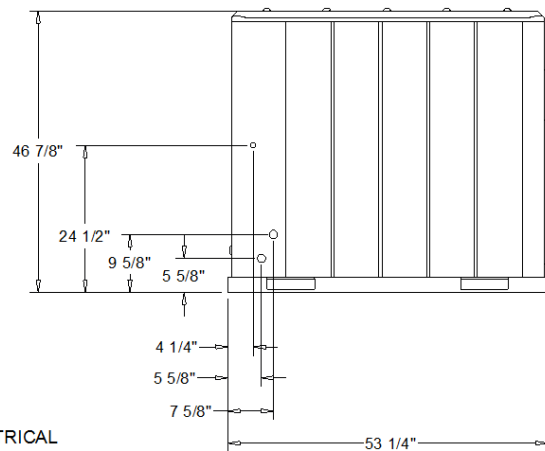


- NOTES:
1. THRU -THE -BASE ELECTRICAL IS NOT STANDARD ON ALL UNITS.
 2. VERIFY ALL DIMENSIONS WITH INSTALLER DOCUMENTS BEFORE INSTALLATION.

PLAN VIEW UNIT
 DIMENSION DRAWING



PACKAGED GAS / ELECTRICAL
 DIMENSION DRAWING



→
 HORIZONTAL
 AIR FLOW



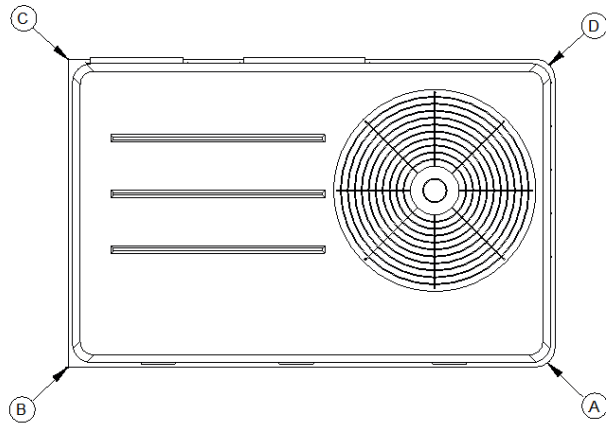
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ELECTRICAL / GENERAL DATA

GENERAL (2)(4)(6)			HEATING PERFORMANCE		
Model: YSC120H Oversized Motor			HEATING - GENERAL DATA		
Unit Operating Voltage: 187-253 MCA: N/A			Heating Model: Medium		
Unit Primary Voltage: 208 MFS: N/A			Heating Input (BTU): 200,000/140,000		
Unit Secondary Voltage: 230 MCB: N/A			Heating Output (BTU): 160,000/112,000		
Unit Hertz: 60			No. Burners: 4		
Unit Phase: 3			No. Stages: 2		
EER 11.3					
Standard Motor			Field Installed Oversized Motor		
MCA: 49.0 MCA: N/A			Gas Inlet Pressure		
MFS: 60.0 MFS: N/A			Natural Gas (Min/Mix): 4.5/14		
MCB: 60.0 MCB: N/A			LP (Min/Max) 11.0/14.0		
			Gas Pipe Connection Size: 3/4"		
INDOOR MOTOR					
Standard Motor		Oversized Motor		Field Installed Oversized Motor	
Number: 1		Number: N/A		Number: N/A	
Horsepower: 2.75		Horsepower: N/A		Horsepower: N/A	
Motor Speed (RPM): —		Motor Speed (RPM): N/A		Motor Speed (RPM): N/A	
Phase: 3		Phase: N/A		Phase: N/A	
Full Load Amps: 7.3		Full Load Amps: N/A		Full Load Amps: N/A	
Locked Rotor Amps: -		Locked Rotor Amps: N/A		Locked Rotor Amps: N/A	
COMPRESSOR Circuit 1/2			OUTDOOR MOTOR		
Number: 2			Number: 1		
Horsepower: 4.8/3.7			Horsepower: 0.75		
Phase: 3			Motor Speed (RPM): 1100		
Rated Load Amps: 19.6/13.1			Phase: 1		
Locked Rotor Amps: 136.0/83.1			Full Load Amps: 3.3		
			Locked Rotor Amps: 12.3		
POWER EXHAUST ACCESSORY (3)		FILTERS		REFRIGERANT (2)	
(Field Installed Power Exhaust)				Type	
Phase: N/A		Type: Throwaway		Factory Charge	
Horsepower: N/A		Furnished: Yes		Circuit #1 5.6 lb	
Motor Speed (RPM): N/A		Number: 4		Circuit #2 4.4 lb	
Full Load Amps: N/A		Recommended 20"x25"x2"			
Locked Rotor Amps: N/A					

NOTES:

1. Maximum (HACR) Circuit Breaker sizing is for installations in the United States only.
2. Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
3. Value does not include Power Exhaust Accessory.
4. Value includes oversized motor.
5. Value does not include Power Exhaust Accessory.
6. EER is rated at AHRI conditions and in accordance with DOE test procedures.



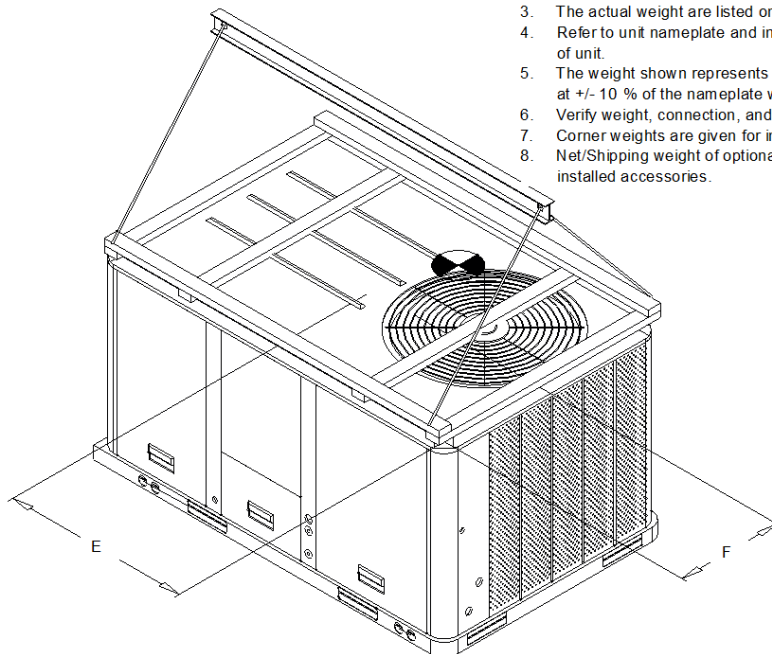
PACKAGED GAS / ELECTRICAL
 CORNER WEIGHT

INSTALLED ACCESSORIES NET WEIGHT DATA

ACCESSORY		WEIGHTS					
ECONOMIZER							
MOTORIZED OUTSIDE AIR DAMPER							
MANUAL OUTSIDE AIR DAMPER							
BAROMETRIC RELIEF							
OVERSIZED MOTOR							
BELT DRIVE MOTOR							
POWER EXHAUST							
THROUGHT THE BASE ELECTRICAL/GAS (FIOPS)							
UNIT MOUNTED CIRCUIT BREAKER (FIOPS)							
UNIT MOUNTED DISCONNECT (FIOPS)							
POWERED CONVENIENCE OUTLET (FIOPS)							
HINGED DOORS (FIOPS)							
HAIL GUARD							
SMOKE DETECTOR, SUPPLY / RETURN							
NOVAR CONTROL							
STAINLESS STEEL HEAT EXCHANGER							
REHEAT							
ROOF CURB		78.0 lb					
BASIC UNIT WEIGHTS		CORNER WEIGHTS		CENTER OF GRAVITY			
SHIPPING	NET	(A)	345.0 lb	(C)	258.0 lb	(E) LENGHT	(F) WIDTH
1156.0 lb	1058.0 lb	(B)	242.0 lb	(D)	213.0 lb	41"	23"

NOTE:

1. All weights are approximate.
2. Weights for options that are not list refer to Installation guide.
3. The actual weight are listed on the unit nameplate.
4. Refer to unit nameplate and installation guide for weights before scheduling transportation and installation of unit.
5. The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10 % of the nameplate weight.
6. Verify weight, connection, and all dimension with installer documents before installation.
7. Corner weights are given for information only.
8. Net/Shipping weight of optional accessories should be added to unit weight when ordering factory or field installed accessories.



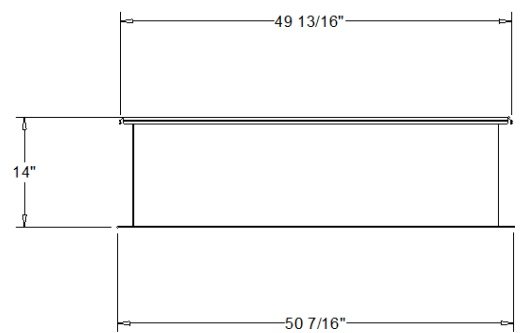
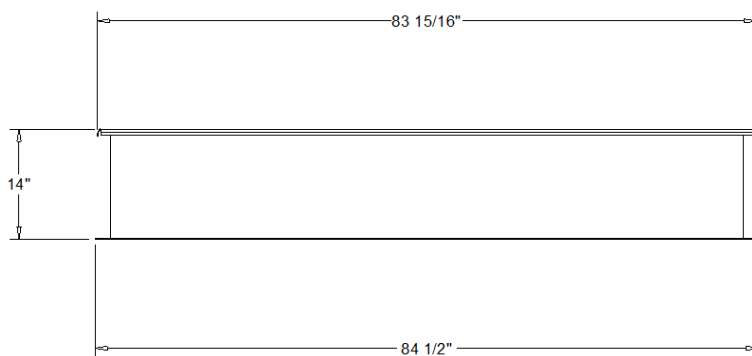
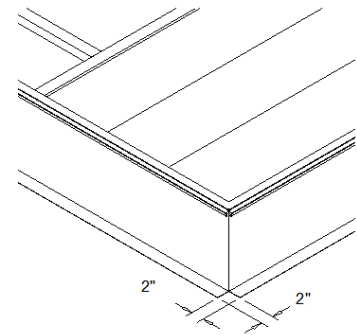
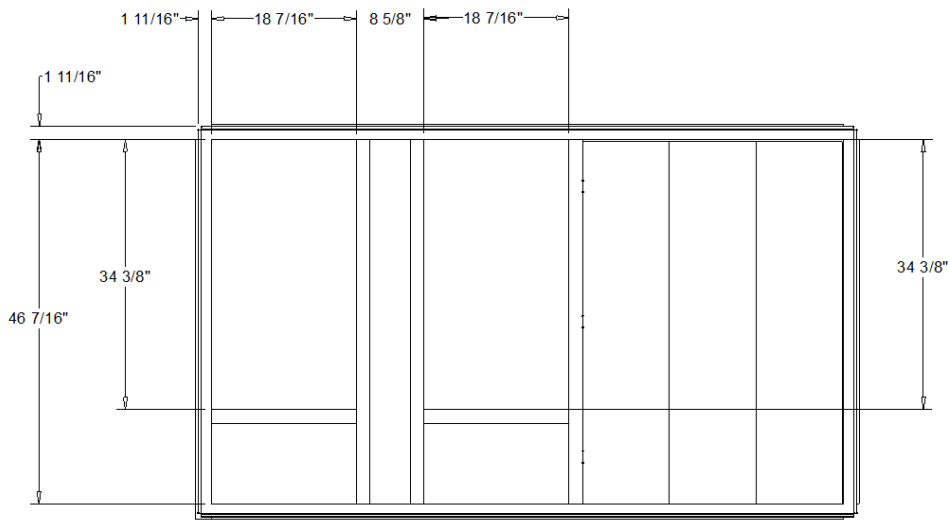
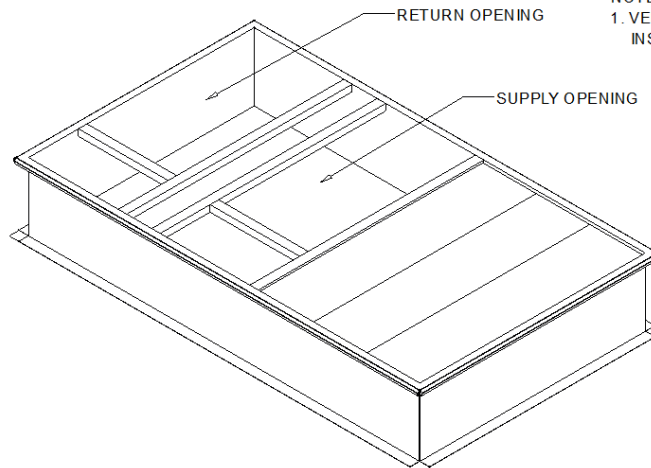
PACKAGED GAS / ELECTRICAL
 RIGGING AND CENTER OF GRAVITY



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NOTES:

1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH
INSTALLER DOCUMENTS BEFORE INSTALLATION



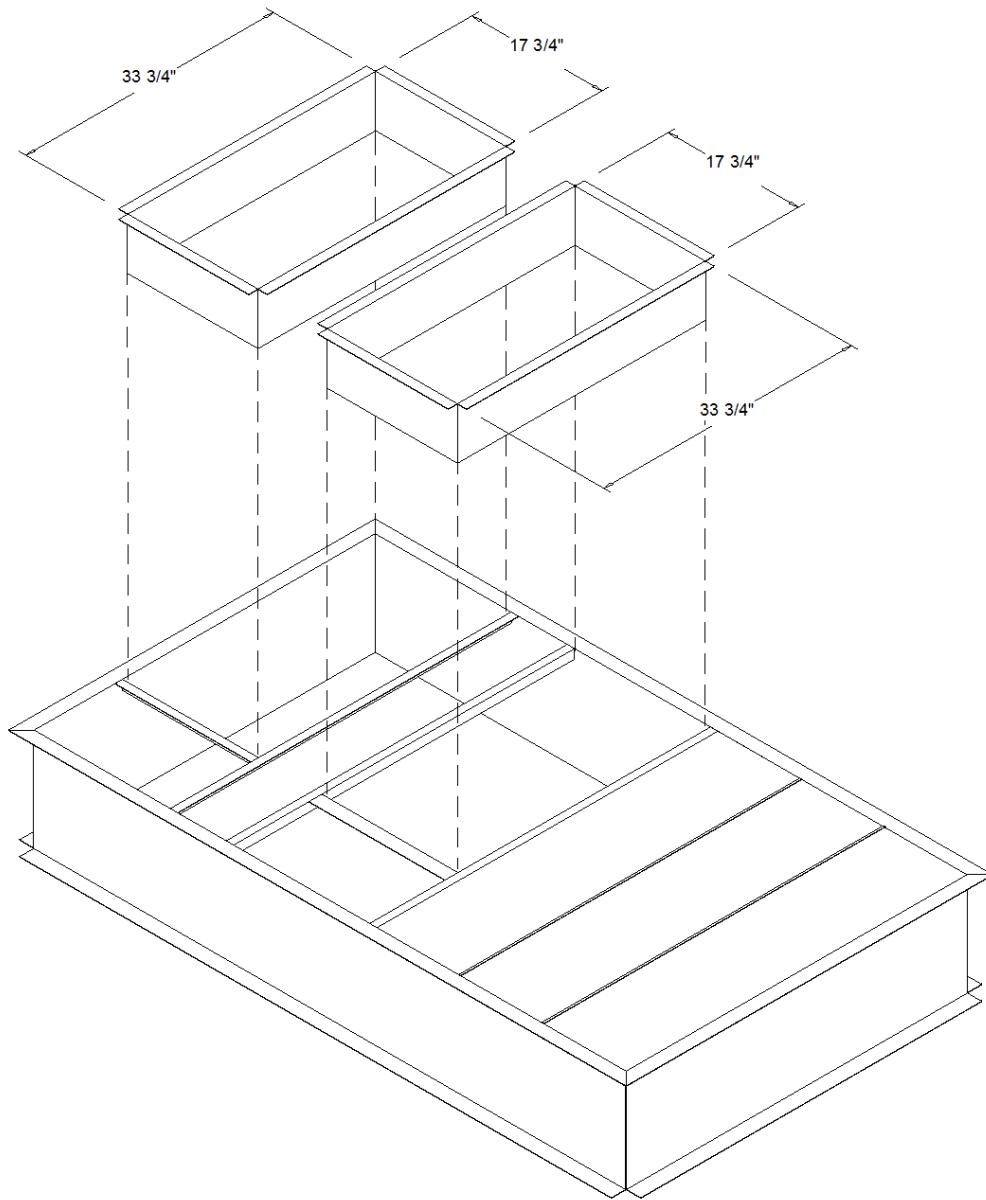
ROOF TOP CURB (BAYCURB043)

ACCESSORY



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Downflow Duct Connections - Field Fabricated
All Flanges - 1 1/4"

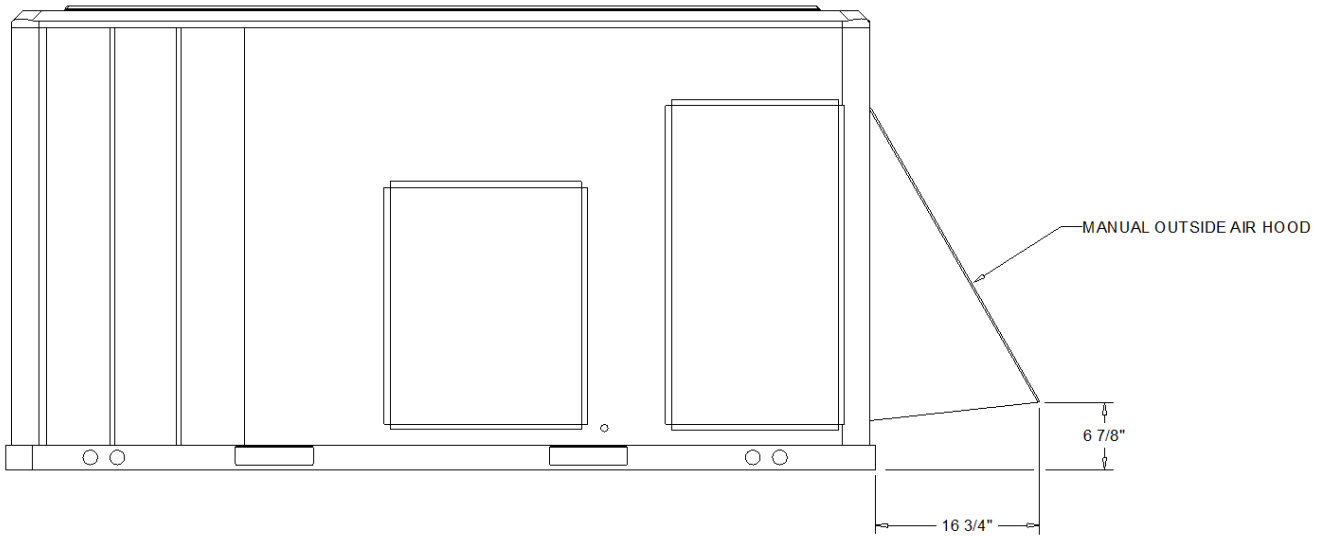
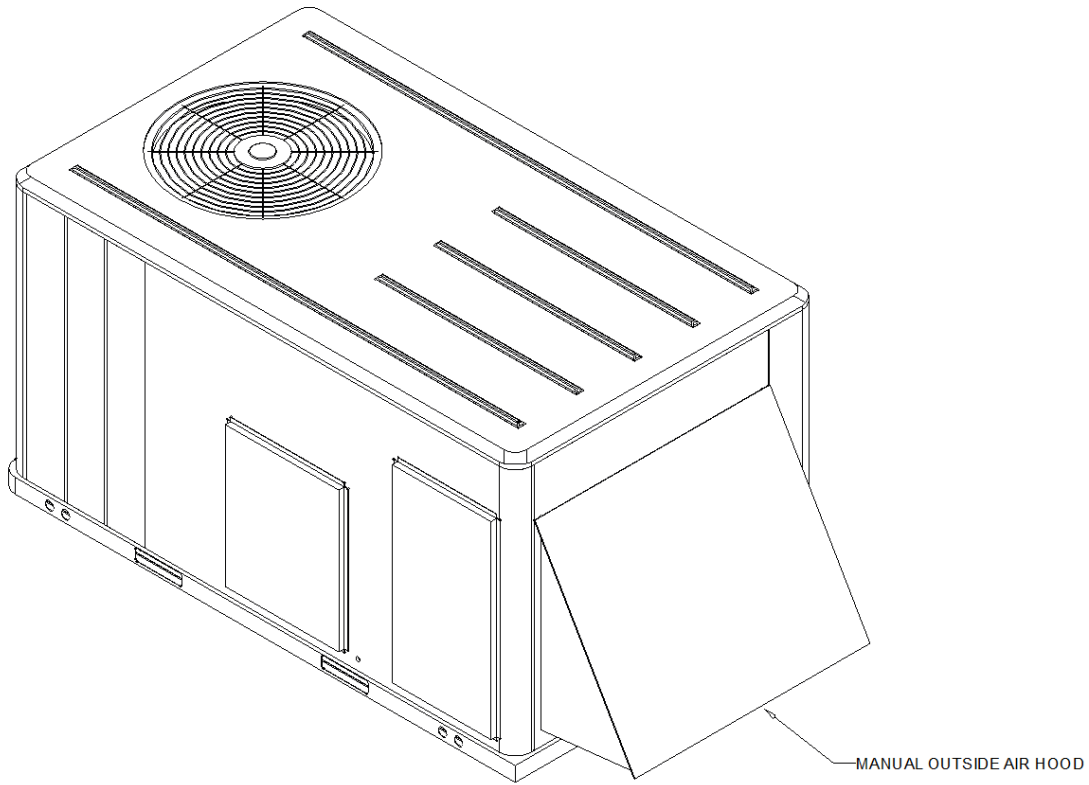


ACCESSORY - DUCT CONNECTIONS



TRANE

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ACCESSORY - MANUAL OUTSIDE AIR HOOD



General

The units shall be convertible airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for units with microprocessor controls. Operating range for units with electromechanical controls shall be between 115°F and 40°F. Cooling performance shall be rated in accordance with ARI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.

Casing

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. Service panels shall have lifting handles and be removed and reinstalled by removing two fasteners while providing a water and air tight seal. All exposed vertical panels and top covers in the indoor air section shall be insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material. The base of the unit shall be insulated with 1/8 inch, foil-faced, closed-cell insulation. All insulation edges shall be either captured or sealed. The unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8 inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting, with forklift capabilities on three sides of the unit.

Unit Top

The top cover shall be one piece construction or, where seams exist, it shall be double-hemmed and gasket-sealed. The ribbed top adds extra strength and enhances water removal from unit top.

Filters

Throwaway filters shall be standard on all units. Optional 2-inch MERV 8 and MERV 13 filters shall also be available.

Compressors

All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.

Dual compressors are outstanding for humidity control, light load cooling conditions and system back-up applications. Dual compressors are available on 7½-10 ton models and allow for efficient cooling utilizing 3-stages of compressor operation for all high efficiency models.

Indoor Fan

The following units shall be equipped with a direct drive plenum fan design (T/YSC120F, T/YHC074F, T/YHC092F, T/YHC102F, 120F). Plenum fan design shall include a backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor. All plenum fan designs will have a variable speed adjustment potentiometer located in the control box.

3 to 5 ton units (high efficiency 3-phase with optional motor) are belt driven, FC centrifugal fans with adjustable motor sheaves. 3 to 5 ton units (standard and high efficiency 3-phase) have multispeed, direct drive motors. All 6 to 8½ ton units (standard efficiency) shall have belt drive motors with an adjustable idler-arm assembly for quick-adjustment to fan belts and motor sheaves. All motors shall be thermally protected. All 10 tons, 6 ton (074), 7½ to 8½ (high efficiency) units have variable speed direct drive motors. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).



Outdoor Fans

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

Evaporator and Condenser Coils

Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Evaporator coils are standard for all 3 to 10 ton standard efficiency models. Microchannel condenser coils are standard for all 3 to 10 ton standard efficiency models and 4, 5, 6, 7.5, 8.5 ton high efficiency models. The microchannel type condenser coil is not offered on the 4 and 5 ton dehumidification model. Due to flat streamlined tubes with small ports, and metallurgical tube-to-fin bond, microchannel coil has better heat transfer performance. Microchannel condenser coil can reduce system refrigerant charge by up to 50% because of smaller internal volume, which leads to better compressor reliability. Compact all-aluminum microchannel coils also help to reduce the unit weight. These all aluminum coils are recyclable. Galvanic corrosion is also minimized due to all aluminum construction. Strong aluminum brazed structure provides better fin protection. In addition, flat streamlined tubes also make microchannel coils more dust resistant and easier to clean. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 600 psig. The assembled unit shall be leak tested to 465 psig. The condenser coil shall have a patent pending 1+1+1 hybrid coil designed with slight gaps for ease of cleaning. A plastic, dual-sloped, removable and reversible condensate drain pan with through-the-base condensate drain is standard.

Controls

Unit shall be completely factory-wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device. A choice of microprocessor or electromechanical controls shall be available. Microprocessor controls provide for all 24V 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. A centralized microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection. 24-volt electromechanical control circuit shall include control transformer and contactor

High Pressure Control

All units include High Pressure Cutout as standard.

Phase monitor

Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitor is equipped with an LED that provides an ON or FAULT indicator. There are no field adjustments. The module will automatically reset from a fault condition.

Refrigerant Circuits

Each refrigerant circuit offer thermal expansion valve as standard. Service pressure ports, and refrigerant line filter driers are factory-installed as standard. An area shall be provided for replacement suction line driers.



Gas Heating Section

The heating section shall have a progressive tubular heat exchanger design using stainless steel burners and corrosion resistant steel throughout. An induced draft combustion blower shall be used to pull the combustion products through the firing tubes. The heater shall use a direct spark ignition (DSI) system. On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat/zone sensor. Units shall be suitable for use with natural gas or propane (field-installed kit) and also comply with the California requirement for low NOx emissions (Gas/Electric Only).

Accessory - Manual Outside Air Damper

This rain hood and screen shall provide up to 50 percent outside air.

Accessory - Roof Curb

The roof curb shall be designed to mate with the unit's downflow supply and return and provide support and a water tight installation when installed properly. The roof curb design shall allow field fabricated rectangular supply/return ductwork to be connected directly to the curb. Curb design shall comply with NRCA requirements. Curb shall be shipped knocked down for field assembly and shall include wood nailer strips.