



Job Name: comm quote DF  
Prepared For:  
Unit Tag: 5T DUAL FUEL  
Quantity: 1

# Trane Precedent Packaged Rooftop

## Unit Overview - DHK060A3SCL\*\*00000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight	EER	IEER/SEER	Elevation
Heat Pump / Hybrid Heat	5 Ton	Airflow	Total Static Pressure	Height	Width	Length	957.0 lb	13.60 Number		0.00 ft
		2000. cfm	0.470 in H2O	4.24 ft	4.44 ft	7.34 ft				

Unit Features	
Unit Efficacy	High Efficiency
Refrigerant	R-454B Refrigerant

Unit Electrical	
Voltage/phase/hertz	208-230/60/3
MCA	31.00 A
MOP	45.00 A
Condenser Fan FLA	1.40 A
Evaporator Fan FLA	8.80 A
Compressor 1 RLA	15.90 A
Compressor 2 RLA	0.00 A
Compressor Power	3.86 kW
System Power	4.69 kW



Controls	
Unit Controls	Symbio 700

Cooling Section	
Entering Dry Bulb	80.00 F
Entering Wet Bulb	67.00 F
Ambient Temp	95.00 F
Leaving Coil Dry Bulb	56.96 F
Leaving Coil Wet Bulb	56.88 F
Leaving Unit Dry Bulb	58.60 F
Leaving Unit Wet Bulb	57.52 F
Saturated Discharge Temperature	115.38 F
Saturated Suction Temperature	50.81 F
Capacity	
Gross Total	61.35 MBh
Gross Latent	12.77 MBh
Gross Sensible	48.58 MBh
Net Total	60.05 MBh
Net Sensible	47.28 MBh
Net Sensible Heat Ratio	78.73 %
Fan Motor Heat	0.48 MBh
Refrig Charge-Circuit 1	13.0 lb

Heating Section	
Heat Type	Low NOx Gas Heat
Heating	Low Gas Heat
Input Heating Capacity	60.00 MBh
Output Heating Capacity	48.00 MBh
Heating EAT	67.00 F
Heating LAT	88.97 F
Heating Temp Rise	21.97 F
Heating Stages	2
Heat Pump	
Heat pump Heating Capacity	53.68 MBh
Heat pump EAT	67.00 F
Heat pump LAT	95.88 F
Heat pump heating ambient temperature	47.00 F
Heat pump heating temperature rise	28.88 F
Heat pump heating ambient relative humid	70.00 %
AHRI COP @ 47 F	3.80 Number
AHRI COP @ 17 F	2.46 Number



## Fan Section

Indoor Fan Data		Indoor Fan Performance	
Airflow Application	Downflow	Airflow	2000. cfm
Design ESP	0.500 in H2O	Supply Motor Horsepower	3.000 hp
Component SP	0.000 in H2O	Total Supply Motor Operating Power	0.334 hp
Heat SP	-0.030 in H2O	Indoor RPM	798 rpm
Total SP	0.470 in H2O	Outdoor Fan Data	
Indoor Fan Drive Type	Direct	Outdoor Fan Drive Type	Direct
Indoor Fan Quantity	1.00 Number	Outdoor Fan Quantity	1
Indoor Fan Type	BC Plenum	Outdoor Fan Type	Propeller
		Filters	
		1st Filter Size and Qty	4 - 20 x 20 x 2

## Field Installed Accessories

Symbio Adv Controls and BACnet Conv Kit None

## Acoustics

Sound Path	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ducted Discharge	78 dB	71 dB	65 dB	61 dB	55 dB	53 dB	51 dB	50. dB
Ducted Inlet	75 dB	64 dB	59 dB	50. dB	45 dB	43 dB	42 dB	40. dB
Outdoor Noise	84 dB	86 dB	86 dB	85 dB	83 dB	78 dB	73 dB	68 dB

Note:Ducted Discharge/Ducted Inlet prediction data conform to AHRI 260

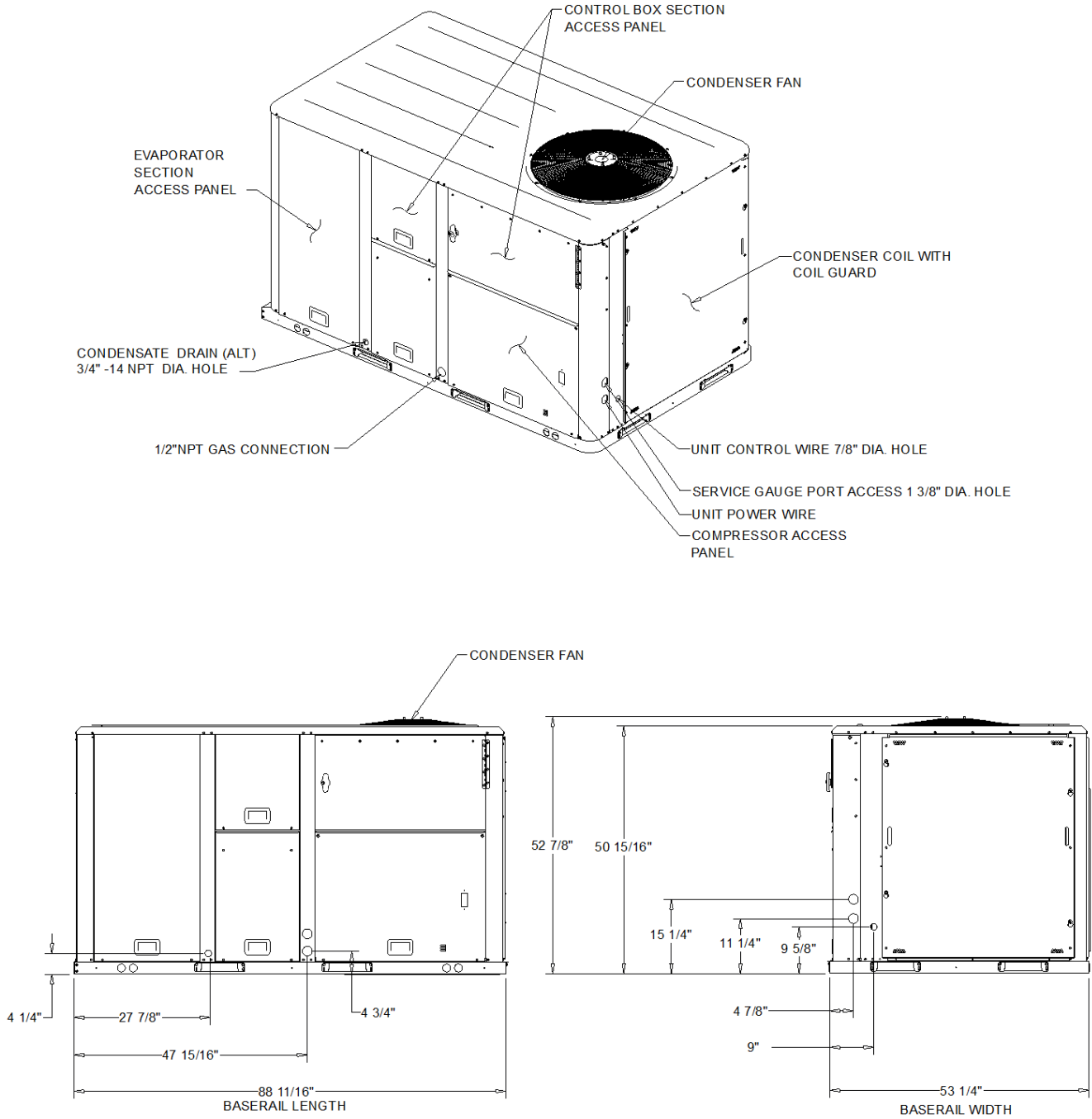


**TRANE®**

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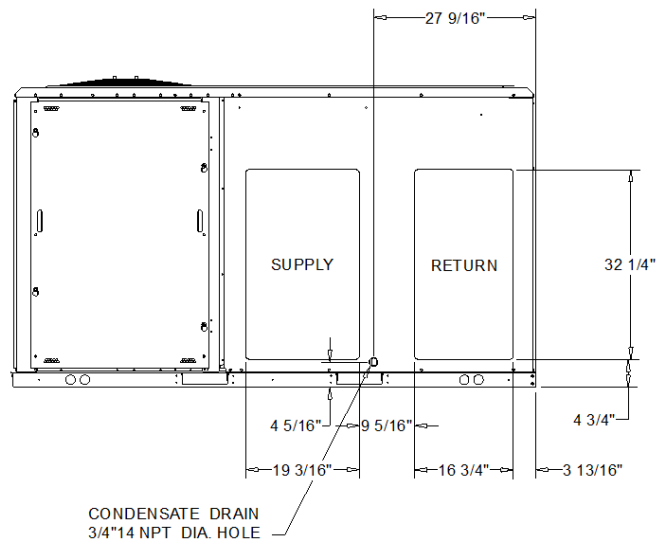
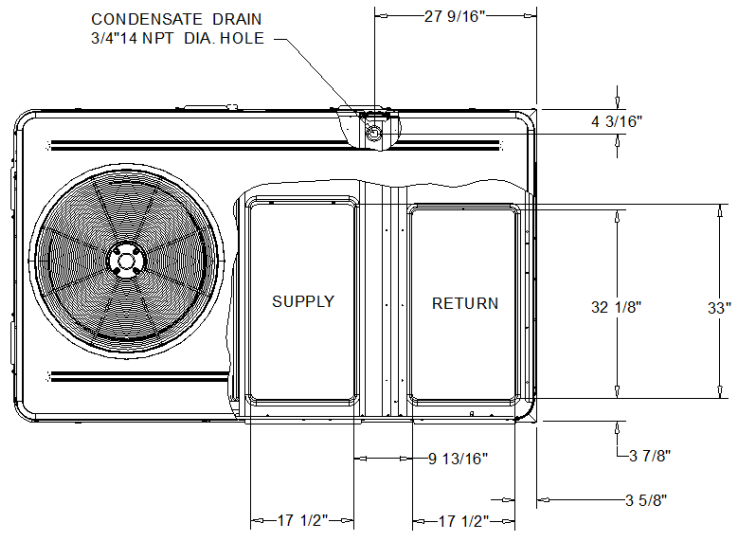
**NOTES:**

1. VERIFY WEIGHTS, CONNECTIONS, AND ALL DIMENSIONS WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



HEAT PUMP / HYBRID HEAT HIGH EFFICIENCY

DIMENSION DRAWING



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NOTES:

1. APPROX. INSTALLED WEIGHT INCLUDES ALL SELECTED OPTIONS AND ACCESSORIES.
2. CORNER WEIGHTS ARE FOR BASE UNIT ONLY AND DO NOT INCLUDE OPTIONS OR ACCESSORIES.
3. WEIGHT INCLUDES BOTH FACTORY AND FIELD INSTALLED ACCESSORY.

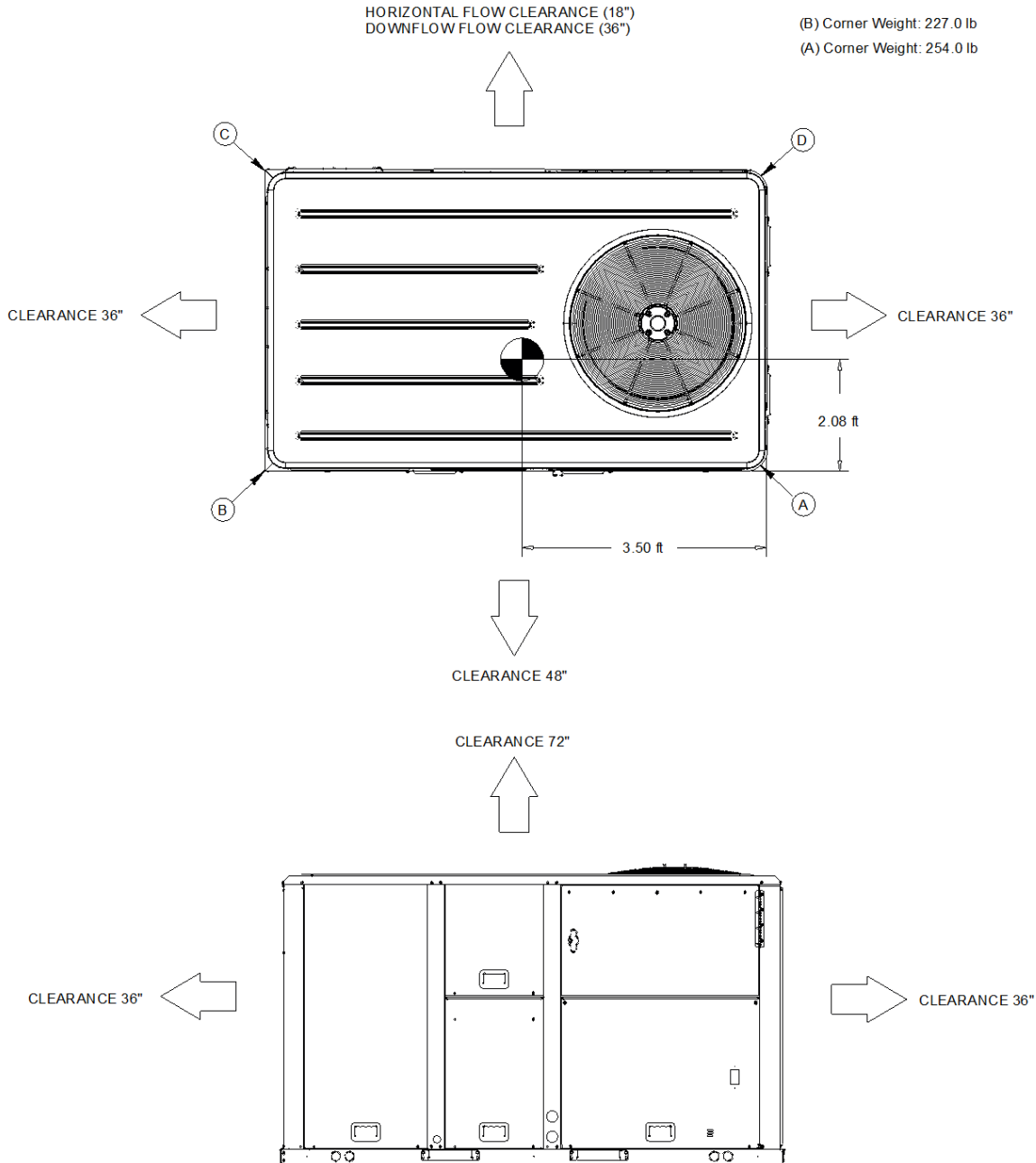
Approximate Installed Weight: 957.0 lb

(B) Corner Weight: 227.0 lb

(C) Corner Weight: 203.0 lb

(A) Corner Weight: 254.0 lb

(D) Corner Weight: 227.0 lb



HEAT PUMP / HYBRID HEAT HIGH EFFICIENCY

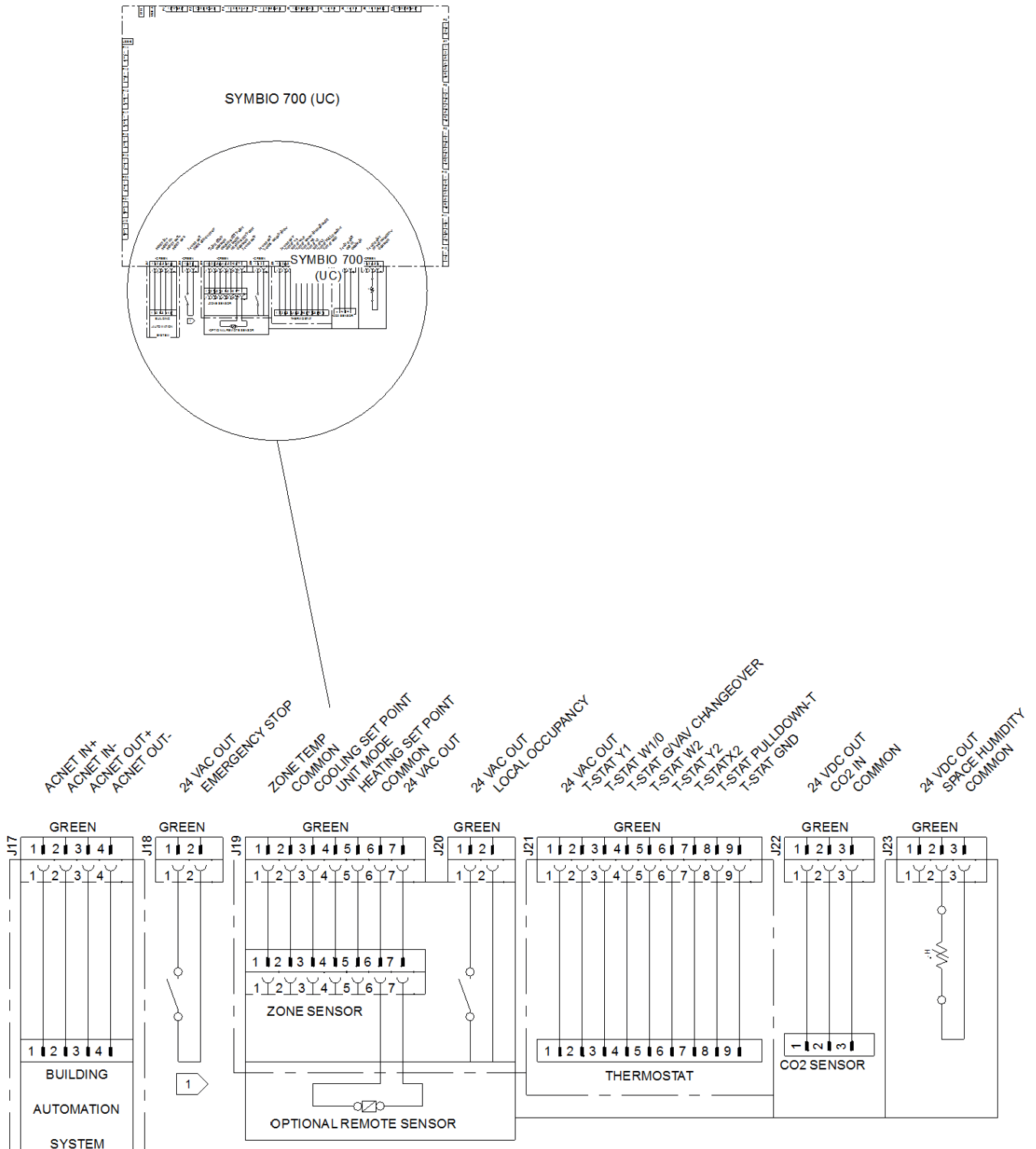
WEIGHTS AND CLEARANCES



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SYMBIO 700 (J17, J18, J19, J20, J21, J22, AND J23)

FIELD WIRING DRAWING



## Heat Exchanger

- Compact cabinet features a tubular heat exchanger in low, medium and high heat capacities.
- Corrosion-resistant aluminized steel tubes and burners are standard on all models.
- Induced draft blower to pull the gas mixture through the burner tubes.
- Direct spark ignition and a flame sensor as a safety device to validate the flame.

## Heatpump / Hybrid Heat - General

- Packaged rooftop units cooling, heating capacities, and efficiencies are AHRI Certified within scope of AHRI Standard 210-240 for 12.5 to 25 Tons and ANSI Z21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces (all gas heating units).
- Convertible airflow.
- Symbio controls operating range between 40.0 F and 125.0 F in cooling mode standard from the factory. Factory or field-installed low ambient kit extended operating range down to 0°F.
- Factory assembled, internally wired, fully charged with R-454B, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory.
- Colored and numbered wiring internal to the unit for simplified identification.
- Units cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.
- 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.

## Heatpump / Hybrid Heat - Casing

- Zinc coated, heavy gauge, galvanized steel.
- Weather resistant pre-painted metal with galvanized substrate.
- Meets ASTM B117, 672 hour salt spray test.
- Removable single side maintenance access panels.
- Lifting handles in maintenance access panels (can be removed and reinstalled by removing fasteners while providing a water and air tight seal).
- Exposed vertical panels and top covers in the indoor air section insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material.
- Base pan shall have no penetrations within the perimeter of the curb other than the raised 1 inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up.
- Base of the unit insulated with 1/8 inch, foil-faced, closed-cell insulation.
- Unit base provisions for forklift and/or crane lifting on three sides of unit.

## Heatpump / Hybrid Heat - Coils

### Evaporator and Condenser

- Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin are standard.
- Coils are leak tested at the factory to ensure integrity.
- Evaporator coil and condenser coil are leak tested to 600 psig.
- Assembled unit is leak tested to 465 psig.
- Condenser coil is patent pending 1+1+1 hybrid coil, designed with slight gaps for cleaning ease.
- Composite, dual-sloped, removable condensate drain pan is standard.

## Heatpump / Hybrid Heat - Compressors

- All units have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps.
- Suction gas-cooled motor with voltage utilization range of plus or minus 10 percent of unit nameplate voltage.
- Internal overloads standard with scroll compressors.
- Crankcase heaters are standard on all compressors.
- All units have dual compressors.
- Three stages of cooling available on 12.5 to 17.5 tons units and four stages of cooling available on 20 and 25 tons units.



### **Heatpump / Hybrid Heat Gas Heating Section**

- The heating section shall have a progressive tubular heat exchanger with corrosion-resistant aluminized steel tubes and burners as standard on all models.
- Stainless steel heat exchanger with 409 stainless steel tubes and 439 stainless steel burners shall be optional.
- Induced draft combustion blower shall be used to pull the combustion products through the firing tubes.
- 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, 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).

### **Heatpump / Hybrid Heat - Indoor Fan**

- Direct drive plenum fan design - 12.5 to 25 tons units.
- Plenum fan design- backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor.
- Supply fan speed adjustments can be made using the Symbio 700 or Mobile App.
- Motors are thermally protected.
- Variable speed direct drive motors are high efficiency - 12.5 to 25 tons.

### **Heatpump / Hybrid Heat - Heat Exchanger**

- Compact cabinet features a tubular heat exchanger in low, medium and high heat capacities.
- Corrosion-resistant aluminized steel tubes and burners are standard on all models.
- Induced draft blower to pull the gas mixture through the burner tubes.
- Direct spark ignition and a flame sensor as a safety device to validate the flame.

### **Heatpump / Hybrid Heat - Filters**

- Standard throwaway filters
- Optional 2 inch MERV 8 and MERV 13 filters

### **Heatpump / Hybrid Heat - Froststat**

- Utilized as a safety device.
- Opens to prevent freezing temperatures on evaporator coil.
- Temperature will need to rise to 50.0 F before closing.
- Utilized in low airflow or high outside air applications (cooling only).

### **Heatpump / Hybrid Heat - Coil Guards**

- Provides condenser coil protection.

### **Ultra Low NOx Gas Furnace (CA Only)**

Gas heat models that provide 14 ng/J NOx furnace emissions to comply with California's South Coast Air Quality Management District (SCAQMD) and San Joaquin Valley Air Pollution Control District (SJVAPCD) requirements.