



# Tranquility Split (TTS/TAC/TAH) Series

TWO-STAGE  
INDOOR SPLIT EARTHPURE® SYSTEMS  
SIZES 026 - 064 [7.0 - 19.3 kW]

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## Rounding Out the Product Line

Building upon the overwhelming market success of the Tranquility® 27 packaged unit, the split system uses the same components in a more flexible configuration. The Tranquility split system compressor section can be coupled with TAH air handlers and TAC furnace coils to achieve ultra high efficiencies, while still providing the flexibility of an all-electric or dual fuel system and a remote compressor section location. Split systems are often used in areas where it would be difficult to install a packaged unit, such as in an attic or crawl space.

### EarthPure® Refrigerant

EarthPure® is a non-chlorine based (HFC-410A) refrigerant, that with R-407C and R-134A, is seen as the future of all refrigerants used worldwide.

HFC 410A characteristics compared to R-22 are:

- Binary and near azeotropic mixture of 50% R-32 and 50% R-125.
- Higher efficiencies (50-60% higher operating pressures)
- Zero ozone depletion potential and low global warming potential.
- Virtually no glide. Unlike other alternative refrigerants, the two components in HFC-410A have virtually the same leak rates. Therefore, refrigerant can be added if necessary without recovering the charge.

### Copeland Scroll Compressor

Achieve a greater level of comfort. The Copeland Scroll UltraTech™ provides superior comfort than fixed-capacity compressors by incorporating a revolutionary two-step design. With a unique 67% part-load capacity step, systems with UltraTech™ maintain precise temperature levels and lower relative humidity. This eliminates uneven peaks and valleys and allows for steady cooling comfort. Homeowners now have a better, more efficient way to power their heating and cooling system, raising their level of comfort, while lowering energy bills. So when your customers need a new heating and cooling system, make sure it has the best technology inside – the Copeland Scroll UltraTech™ compressor.



Save with superior efficiency. Over 40% of summer utility bills can come from the air conditioner compressor operation. A system with the Copeland Scroll UltraTech™ compressor delivers higher efficiency than any other single compressor system. In fact, systems with UltraTech™ provide up to 50% greater energy efficiency as compared to 13-SEER systems – which can save homeowners hundreds of dollars a year in energy costs.

Take it easy with quieter control. Copeland Scroll UltraTech™ is remarkably quiet at both full- and part-load capacity. In fact, it is up to four times quieter than a reciprocating compressor. Homeowners can enjoy its superior efficiency and comfort without having to hear the operation.

Learn the beauty of the design. With Copeland Scroll UltraTech™,

two internal bypass ports enable the system to run at 67% part-load capacity for better efficiency and humidity control. Based on demand,

67% Capacity



100% Capacity



the modulation ring is activated, sealing the bypass ports and instantly shifting capacity to 100%. Take advantage of "shift on the fly" stage changing (no stopping and starting required like other two-stage compressors).

Choose proven scroll performance. While Copeland Scroll UltraTech™ builds on established scroll technology, it is still a scroll at heart, which means it operates with fewer moving parts, no volumetric efficiency drop-off or compression leakage. The result is unsurpassed reliability and virtually silent operation for indoor applications.

### Other New Features

- Stylish two-tone look with textured black powder coat paint and stainless steel front access panel.
- Liftout handles for front access panel.
- Factory supplied filter drier for trouble free reliability.
- Easy access low profile horizontal control box.
- Double isolated compressor for quiet and vibration free operation.
- Open Service-Friendly Cabinet (i.e., all components in compressor section can be serviced from the front).



## Tranquility® Split (TTS) Design Features

The Tranquility® Split (TTS) Series has abundant features and industry leading efficiency.

### Application Flexibility

- Four Capacities 026, 038, 049, and 064.
- Extended range operation (20-120°F EWT) and flow rates as low as 1.5 gpm per ton.
- Circuit breaker protected loop and hot water generator pumps.
- Field selectable low-temperature protection setting for GWHP or GLHP.
- Open service-friendly cabinet (i.e., all components in compressor section can be serviced from the front).
- Precharged compressor section with back-seating service valves for quick installation.
- AHRI matched and rated with TAC and TAH products.
- Exceeds Federal requirements for 30% tax credit on installation costs.\*
- Exceeds ASHRAE 90.1 and Energy Star 3.0 efficiencies.\*
- Ideal for remote applications like 2nd floor or crawl space areas.
- Can be used as a total electric heat pump or add on heat pump with fossil fuel backup.

\* When installed with a ClimateMaster TAC or TAH product.

### Operating Efficiencies

- EarthPure® HFC-410A zero ozone depletion refrigerant.
- Among the highest efficiencies in AHRI/ISO/ASHRAE/ANSI 13256-1 ratings for heating COP's, cooling EER's with low water flow rates.
- 26/1 EER/4.5 COP.
- Two-stage operation for ultra high efficiencies and unsurpassed comfort.
- Optional hot water generator generates hot water at considerable savings.
- Rugged and highly efficient next generation Copeland UltraTech™ scroll compressors provide the industry's highest efficiencies and full capacity with reduced cycling losses.
- Oversized coaxial tube water-to-refrigerant heat exchangers operate at low liquid pressure drop. Convulsed copper (and optional cupro-nickel) water tube functions efficiently at low-flow rates and provides low-temperature-damage resistance.

### Service & Installation Advantages

- Large removable access panels provide an open service-friendly.
- Control box provides easy access to all internal components.
- Factory installed liquid line filter/drier.
- Brass swivel-type water connections for quick connection and elimination of wrenches or sealants during installation.
- Bi-directional thermal expansion valve.
- CXM control features status lights with memory for easy diagnostics.
- High and low pressure service ports on refrigerant circuit.
- Accurate refrigerant sensing low-temperature protection.
- Exclusive UPS (Unit Performance Sentinel) feature provides early warning of inefficient operating conditions before unit shutdown actually occurs reducing the need for emergency service work,

thus letting you fix problems in the early stages. Fault types are not only indicated at the control, but are stored in memory after a user reset for future service use. Fault types can be displayed at the thermostat if equipped with fault LED or display.

- Brass service valves.

### Factory Quality & Industry Certifications

- All units are built on our Integrated Process Control Assembly System (IPCS). The IPCS is a unique state of the art manufacturing system that is designed to assure quality of the highest standards of any manufacturer in the water-source industry. Our IPCS system:
  - Verifies that the correct components are being assembled.
  - Automatically performs special leak tests on all joints.
  - Conducts pressure tests.
  - Performs highly detailed run test unparalleled in the HVAC industry.
  - Automatically disables packaging for a "failed" unit.
  - Creates computer database for future service analysis and diagnostics from run test results.
- Heavy gauge galvanized steel cabinets are epoxy powder coated for durable and long-lasting finish.
- All refrigerant brazing is done in a nitrogen atmosphere.
- All units are deep evacuated to less than 100 microns prior to refrigerant charging.
- All joints are both helium and halogen leak tested to insure annual leak rate of less than 1/4 ounce.
- Coaxial heat exchanger; refrigerant suction lines and all water lines are fully insulated to eliminate condensation problems in low temperature applications.
- Noise Reduction features include: dual level compressor isolation; insulated compressor compartment; interior cabinet insulation using 1/2" coated glass fiber.
- Safety features include: high pressure and loss of charge to protect the compressor; low temperature protection sensors to safeguard the coaxial heat exchanger; hot water high-limit, and low compressor discharge temperature switch provided to shut down the hot water generator when conditions dictate. Fault lockout enables emergency heat and prevents compressor operation until thermostat or circuit breaker has been reset.
- Standard 10-year limited warranty on all parts with 5-year labor allowance; Optional additional extended 5-year limited labor allowance available.
- AHRI/ASHRAE/ANSI/ISO 13256-1 certified.
- ETL listed.
- US EPA "Energy Star" compliant.
- ISO 9001:2000 Certified.

### Simplified Controls

- CXM solid state control module.
- 'CFM' LED displays airflow.

## Tranquility® Split (TTS) Design Features

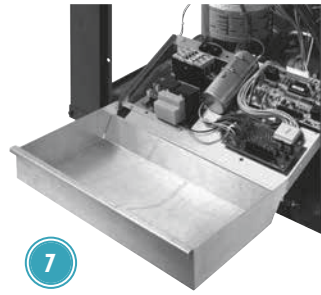
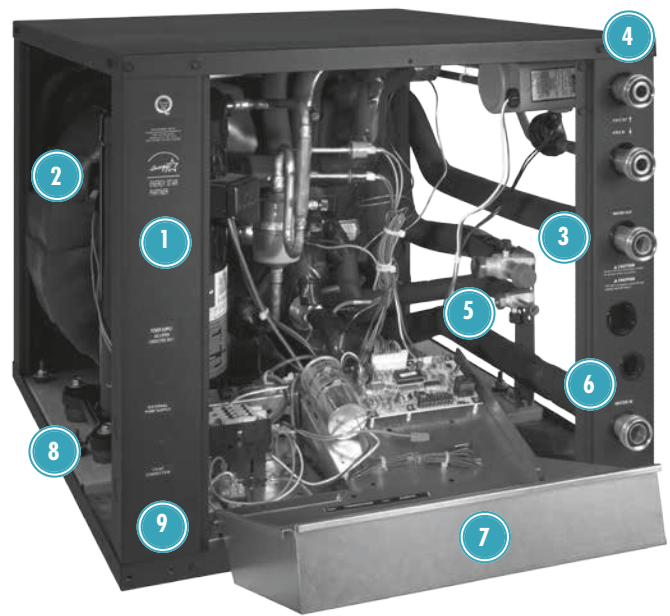
### **Options & Accessories**

- Hot water generator with internally mounted pump.
- Cupro-nickel coaxial heat exchanger.
- Electronic thermostat.
- Closed loop Flow Controller.
- Electronic auto-changeover thermostat with 3-stage heat, 2-stage cool and indicator LEDs.
- Hose kits.
- Additional extended 5-year limited labor allowance.

## Tranquility® (TTS) Indoor Split Design Features

- 1 Copeland™ Ultra-Tech™ Two-Stage Unloading Scroll Compressor
- 2 Oversized Water Coil
- 3 Fully Insulated Water and Refrigerant Lines
- 4 Factory Installed Hot Water Generator with Internal Pump
- 5 Backseating Brass Service Valves with Service Port
- 6 Brass Swivel Water Connections
- 7 Unit Performance Sentinel: Automatic Alert System Lets You Know if the System is Not Running at Peak Performance\*
- 8 Dual Level Compressor Isolation for Ultra Quiet Operation
- 9 Three Easy Lift-out Service Access Panels with Stainless Steel Front Panels

\* When installed with a ClimateMaster Residential Thermostat.



Features EarthPure®  
HFC-410A Zero Ozone  
Depletion Refrigerant

## Tranquility® Split (TAC) Design Features

The Tranquility Split (TAC) Series has abundant features and industry leading efficiency.

### Application Flexibility

- Four Capacities 026, 038, 049, & 064.
- Fully convertible vertical upflow or downflow, and horizontal left or horizontal right airflow.
- Thermoset plastic drain pan.
- AHRI matched and rated with TTS products.
- Easily connects to a new or existing fossil fuel furnaces.
- Large removable access panel provide an open service-friendly cabinet.
- Heavy gauge galvanized steel construction with attractive grey powder coat finish.

### Operating Efficiencies

- EarthPure® HFC-410A zero ozone depletion refrigerant.
- Highest efficiencies in AHRI/ISO/ASHRAE/ANSI 13256-1 ratings for heating COP's, cooling EER's with low water flow rates when matched with TTS models.
- Exceeds federal requirements for 30% tax credit on installation costs.\*
- Exceeds ASHRAE 90.1 and Energy Star 3.0 efficiencies.\*

\*When matched with a ClimateMaster Tranquility split compressor sections.

### Service & Installation Advantages

- Large removable access panels.
- Bi-directional thermal expansion valve.
- Fully convertible.

### Factory Quality & Industry Certifications

- All units are built on our Integrated Process Control Assembly System (IPCS). The IPCS is a unique state of the art manufacturing system that is designed to assure quality of the highest standards of any manufacturer in the water-source industry. Our IPCS system:
  - Verifies that the correct components are being assembled.
  - Automatically performs special leak tests on all joints.
  - Conducts pressure tests.
- All refrigerant brazing is done in a nitrogen atmosphere.
- All joints are both helium and halogen leak tested to insure annual leak rate of less than 1/4 ounce.
- Refrigerant suction lines are fully insulated to eliminate condensation problems in low temperature applications.
- Standard 10-year limited warranty on all parts with 5-year labor allowance; Optional additional extended 5-year limited labor allowance available.
- AHRI/ASHRAE/ANSI/ISO 13256-1 certified.
- NRTL & CSA listed.
- US EPA "Energy Star" compliant.
- ISO 9001:2000 Certified.

### Features

- Fully convertible vertical upflow or downflow, and horizontal left or horizontal right airflow.

- Thermoset plastic drain pan.
- Large easily removable access panel provide an open service-friendly cabinet.
- Heavy gauge galvanized steel construction with attractive grey powder coat finish.

## Tranquility® Split (TAH) Design Features

The Tranquility Split (TAH) Series has abundant features and industry leading efficiency.

### Application Flexibility

- Four Capacities 026, 038, 049, & 064.
- Variable speed ECM fan motor adapts to various duct systems.
- Condensate over-flow protection.
- 230v and 115v field convertible
- Fully field convertible for vertical upflow, downflow, horizontal left and horizontal right airflow.
- Less than 2% air leakage.
- AHRI matched and rated with TTS products.
- Three cabinet foot prints: 026 - 18" wide, 026-049 - 22.5" wide, & 038-064 - 25.5" wide.
- Ideal for remote applications like a 2nd floor, crawl spaces, and attics.
- Air coil temperature sensor factory mounted.
- Dehumidification mode for high latent cooling (when matched with ATP32UO4 thermostat)
- 1 or 2" compatible filterbase.

### Operating Efficiencies

- EarthPure® HFC-410A zero ozone depletion refrigerant.
- Large low RPM blowers with variable speed fan motors provide quiet, efficient air movement with high static capability.
- Exceeds federal requirements for 30% tax credit on installation costs.\*
- Exceeds ASHRAE 90.1 and Energy Star 3.0 efficiencies.\*
- Highest efficiencies in AHRI/ISO/ASHRAE/ANSI 13256-1 ratings for heating COP's, cooling EER's with low water flow rates when matched with TTS models.

\*When matched with a ClimateMaster Tranquility split compressor sections.

### Service & Installation Advantages

- Low profile control box grants easy access to all internal components.
- Bi-directional thermal expansion valve.
- Circuit breaker protected 75VA control transformer.
- ECM control board features thermostat signal diagnostic LED's, airflow display LED (100 CFM per flash), and simplified CFM selection.
- Fan motors have quick attach wiring harness for fast removal.
- Internal dropout blower for easy servicing.
- Accurate refrigerant sensing low-temperature protection.
- Intelligent fault retry -condensate overflow protection.
- Air coil low temperature cut-out using high accuracy thermistor.
- 24vac accessory relays.
- Electronic fan control module (units with ECM fan motor): Independent Heating and Cooling CFM selection, CFM display LED, Input status LEDs, & Dehumidification mode.
- Thermostat fault recognition with ATP32 Series thermostat.
- Large removable access panel provides an open service-friendly cabinet.
- 20 gauge galvanized steel construction with attractive pewter epoxy powder coat paint and stainless steel service access panels.

### Factory Quality & Industry Certifications

- All units are built on our Integrated Process Control Assembly System (IPCS). The IPCS is a unique state of the art manufacturing system that is designed to assure quality of the highest standards of any manufacturer in the water-source industry. Our IPCS system:
  - Verifies that the correct components are being assembled.
  - Automatically performs special leak tests on all joints.
  - Conducts pressure tests.
  - Performs highly detailed run test unparalleled in the HVAC industry.
  - Automatically disables packaging for a "failed" unit.
  - Creates computer database for future service analysis and diagnostics from run test results.
- Heavy gauge galvanized steel cabinets are epoxy powder coated for durable and long-lasting finish.
- All refrigerant brazing is done in a nitrogen atmosphere.
- All joints are both helium and halogen leak tested to insure annual leak rate of less than 1/4 ounce.
- Standard 10-year limited warranty on all parts with 5-year labor allowance; Optional additional extended 5-year limited labor allowance available.
- AHRI/ASHRAE/ANSI/ISO 13256-1 certified.
- ETL listed.
- US EPA "Energy Star" compliant.
- ISO 9001:2000 Certified.

### Options & Accessories

- Electronic thermostat.
- Electronic auto-changeover thermostat with 3-stage heat, 2-stage cool and indicator LED's.
- Additional extended 5-year limited labor allowance.
- Internal Electric Heat for Easy Field Installation.
- Dehumidification mode for high latent cooling (when matched with ATP32UO4 thermostat).



## Tranquility® (TAC) Cased Air Coil Design Features

- 1 Fully convertible vertical upflow or downflow, and horizontal left or horizontal right airflow
- 2 Thermoset plastic drain pan
- 3 Large easily removable access panel provide an open service-friendly cabinet
- 4 Heavy gauge galvanized steel construction with attractive grey powder coat finish



Features EarthPure®  
HFC-410A Zero Ozone  
Depletion Refrigerant



## Tranquility® (TAH) Air Handler Design Features

- 1 State-of-the-Art Variable Speed Blower Motor
- 2 Foil faced insulation
- 3 Two Lift-out Service Access Panels with Stainless Steel Front Panels
- 4 FP2 sensor factory mounted
- 5 20 gauge galvanized steel construction with attractive pewter epoxy powder coat paint and stainless steel service access panels
- 6 Condensate over-flow protection



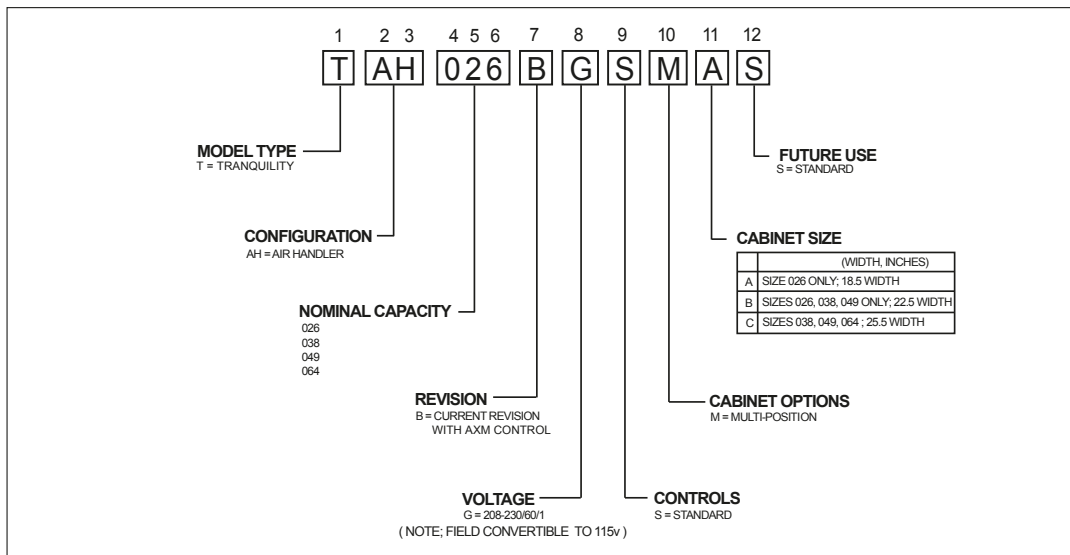
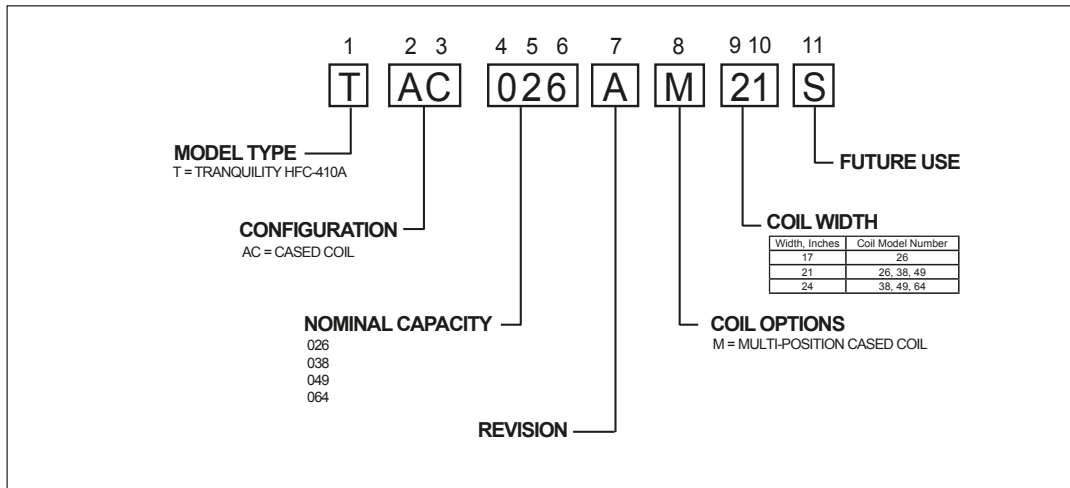
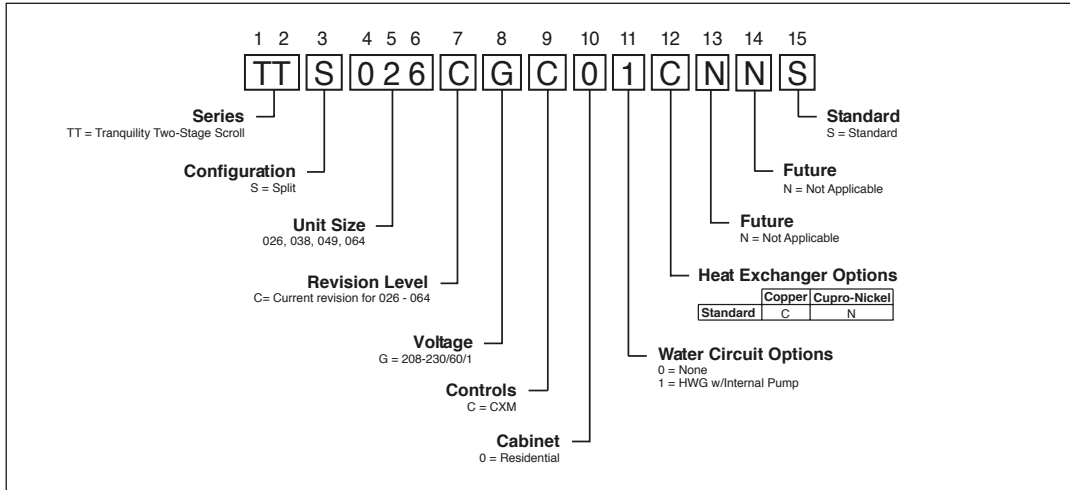
Features EarthPure®  
HFC-410A Zero Ozone  
Depletion Refrigerant



# Tranquility® Split (TTS/TAC/TAH) Series

## Model Key

### Unit Model Key



## Reference Calculations & Legend

Heating	Cooling	
$LWT = EWT - \frac{HE}{GPM \times 500}$	$LWT = EWT + \frac{HR}{GPM \times 500}$	$LC = TC - SC$
$LAT = EAT + \frac{HC}{CFM \times 1.08}$	$LAT (DB) = EAT (DB) - \frac{SC}{CFM \times 1.08}$	$S/T = \frac{SC}{TC}$

Hot Water Generator capacities (HWC) are based on potable water flow rate of 0.4 gpm per nominal equipment ton and 90°F entering potable water temperature.

CFM = airflow, cubic feet/minute	HE = total heat of extraction, Mbtuh
EWT = entering water temperature, °F	HWC = Hot Water Generator (desuperheater) capacity, Mbtuh
GPM = water flow in US gallons/minute	WPD = Water coil pressure drop (psi & ft hd)
EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)	EER = Energy Efficiency Ratio = BTU output/Watt input
HC = air heating capacity, Mbtuh	COP = Coefficient of Performance = BTU output/BTU input
TC = total cooling capacity, Mbtuh	LWT = leaving water temperature, °F
SC = sensible cooling capacity, Mbtuh	LAT = leaving air temperature, °F
KW = total power unit input, KiloWatts	LC = latent cooling capacity, Mbtuh
HR = total heat of rejection, Mbtuh	S/T = sensible to total cooling ratio

## About AHRI/ISO/ASHRAE 13256-1

### About AHRI/ISO/ASHRAE 13256-1

AHRI/ASHRAE/ISO 13256-1 (Air-Conditioning and Refrigeration Institute/American Society of Heating, Refrigerating and Air Conditioning Engineers/International Standards Organization) is a certification standard for water-source heat pumps used in the following applications:

- WLHP (Water Loop Heat Pump – Boiler/Tower)
- GWHP (Ground Water Heat Pump – Open Loop)
- GLHP (Ground Loop Heat Pump – Geothermal)

The directory at <http://www.ahrinet.org/> is constantly being updated and immediately available on the Internet. All ratings are submitted by the manufacturer for certification, and must be approved by AHRI. Therefore, there is a significant difference between AHRI "certified" and AHRI "rated." Thirty percent of a manufacturer's basic models must be tested each year. AHRI selects models at random from stock for testing on the basis of its evaluation of a participant's certification data.

Units that fail one or more certified test (90% of declared performance or lower) may be declared defective. If the initial failure is a performance test, the manufacturer must obsolete all units within the same basic model group or elect to have a second sample tested. If the second unit fails a performance test, it must be obsoleted, together with all units within the same basic model group. ClimateMaster takes certification seriously. We were recently awarded a certificate for consecutive years of no AHRI failures.

Temperatures used in AHRI certification standards are S.I. (Système International – metric) based. For example, typical catalog data for cooling is shown at 80°F DB/67°F WB [26.7°C DB/19.4°C] entering air temperature, but the AHRI standard for cooling is 80.6°F DB/66.2°F WB [27°C DB/19°C], since it is based upon whole numbers in degrees Celsius. Water and air temperatures for the standard are shown below.

### Test Condition Comparison Table

	WLHP	GWHP	GLHP
<b>Cooling</b>			
Entering Air Temperature - DB/WB °F [°C]	80.6/66.2 [27/19]	80.6/66.2 [27/19]	80.6/66.2 [27/19]
Entering Water Temperature - °F [°C]	86 [30]	59 [15]	77 [25]
Fluid Flow Rate	*	*	*
<b>Heating</b>			
Entering Air Temperature - DB/WB °F [°C]	68 [20]	68 [20]	68 [20]
Entering Water Temperature - °F [°C]	68 [20]	50 [10]	32 [0]
Fluid Flow Rate	*	*	*

\*Flow rate is specified by the manufacturer

Data certified by AHRI include heating/cooling capacities, EER (Energy Efficiency Ratio – Btuh per Watt) and COP (Btuh per Btuh) at the various conditions shown above. Pump power correction is calculated to adjust efficiencies for pumping Watts. Within each model, only one water flow rate is specified for all three groups, and pumping Watts are calculated using the formula below. This additional power is added onto the existing power consumption.

- Pump power correction =  $(\text{gpm} \times 0.0631) \times (\text{Press Drop} \times 2990)/300$

Fan power is corrected to zero external static pressure using the equation below. The nominal airflow is rated at a specific external static pressure. This effectively reduces the power consumption of the unit and increases cooling capacity but decreases heating capacity.

- Fan Power Correction =  $(\text{cfm} \times 0.472) \times (\text{esp} \times 249)/300$

Capacities and efficiencies are calculated using the following equations:

- ISO Cooling Capacity = Cooling Capacity (Btuh) + [Fan Power Correction (Watts) × 3.412]
- ISO EER Efficiency (Btuh/W) =  
ISO Cooling Capacity (Btuh)/[Power Input (Watts) – Fan Power Correction (Watts) + Pump Power Correction (Watts)]
- ISO Heating Capacity = Heating Capacity (Btuh) – [Fan Power Correction (Watts) × 3.412]
- ISO COP Efficiency (Btuh/Btuh) =  
ISO Heating Capacity (Btuh) × 3.412/[Power Input (Watts) – Fan Power Correction (Watts) + Pump Power Correction (Watts)]

## AHRI/ISO/ASHRAE/ANSI 13256-1 Performance

ASHRAE/AHRI/ISO 13256-1. TTS with Tranquility® Air Handler

Model	Capacity	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling Full Load 77°F Part Load 68°F		Heating Full Load 32°F Part Load 41°F	
	Modulation	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
TTS026	Full	25,100	16.8	28,200	5.2	28,000	25.1	24,300	4.7	25,600	18.5	18,800	3.9
	Part	19,500	18.8	22,400	6.2	21,900	31.5	18,200	5.1	20,700	25.5	15,800	4.4
TTS038	Full	38,200	17.3	40,500	5.3	42,100	25.2	34,500	4.8	38,800	18.8	27,900	4.1
	Part	27,200	19.0	30,200	6.0	30,300	32.5	25,000	5.1	29,100	26.1	22,200	4.5
TTS049	Full	48,100	16.4	53,200	5.1	52,900	23.9	46,800	4.7	49,200	17.5	37,100	3.9
	Part	36,000	17.9	41,800	5.9	40,200	29.6	34,800	5.1	38,300	23.5	30,300	4.3
TTS064	Full	57,200	15.0	67,500	4.8	63,200	22.1	58,100	4.3	59,200	16.9	46,400	3.7
	Part	43,000	16.6	52,500	5.6	47,800	27.3	43,200	4.7	46,200	22.7	37,600	4.2

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature  
 Heating capacities based upon 68°F DB, 59°F WB entering air temperature  
 Ground Loop Heat Pump ratings based on 15% methanol antifreeze solution  
 All ratings based upon operation at lower voltage of dual voltage rated models  
 and when mated with TAH Air Handler.

ASHRAE/AHRI/ISO 13256-1. TTS with Tranquility® Cased Coil

Model	Capacity	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling Full Load 77°F Part Load 68°F		Heating Full Load 32°F Part Load 41°F	
	Modulation	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
TTS026	Full	25,000	16.2	28,500	5.2	27,900	24.4	24,400	4.7	25,700	18.2	18,600	3.8
	Part	19,200	17.9	22,500	6.0	21,700	29.9	18,400	5.0	20,700	24.5	15,800	4.3
TTS038	Full	37,900	16.9	41,200	5.4	41,800	24.6	35,000	4.6	38,600	18.7	27,500	4.1
	Part	27,200	18.4	30,500	5.9	30,000	30.5	25,400	5.0	28,600	24.9	22,200	4.4
TTS049	Full	48,000	16.1	54,500	5.2	52,700	23.4	47,200	4.7	48,800	17.7	36,700	4.0
	Part	35,600	17.1	42,800	6.0	40,000	28.1	35,300	5.1	38,600	23.5	30,400	4.4
TTS064	Full	56,900	15.0	66,900	4.7	62,200	21.8	57,300	4.3	58,500	16.8	45,600	3.7
	Part	42,600	16.0	52,200	5.5	47,800	26.6	42,800	4.6	45,800	21.9	37,700	4.1

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature  
 Heating capacities based upon 68°F DB, 59°F WB entering air temperature  
 All ratings based upon 208V operation



## Full Load Correction Factors

### Air Flow Correction Table

Airflow % of Nominal	Heating				Cooling			
	Htg Cap	Power	Heat of Extraction	Total Cap	Sens Cap	S/T	Power	Heat of Rejection
60.00	0.946	1.153	0.896	0.925	0.788	0.852	0.913	0.922
68.75	0.959	1.107	0.924	0.946	0.829	0.876	0.926	0.942
75.00	0.969	1.078	0.942	0.960	0.861	0.897	0.937	0.955
81.25	0.977	1.053	0.959	0.972	0.895	0.921	0.950	0.968
87.50	0.985	1.032	0.974	0.983	0.930	0.946	0.965	0.979
93.75	0.993	1.014	0.988	0.992	0.965	0.973	0.982	0.990
100.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106.25	1.006	0.989	1.011	1.007	1.033	1.027	1.020	1.009
112.50	1.012	0.982	1.019	1.012	1.064	1.052	1.042	1.018
118.75	1.018	0.979	1.027	1.016	1.092	1.075	1.066	1.025
125.00	1.022	0.977	1.033	1.018	1.116	1.096	1.091	1.032
130.00	1.026	0.975	1.038	1.019	1.132	1.110	1.112	1.037

### Entering Air Correction Table

Full Load Heating Corrections			
Entering Air DB°F	Heating Capacity	Power	Heat of Extraction
40	1.052	0.779	1.120
45	1.043	0.808	1.102
50	1.035	0.841	1.084
55	1.027	0.877	1.065
60	1.019	0.915	1.045
65	1.010	0.957	1.023
68	1.004	0.982	1.010
70	1.000	1.000	1.000
75	0.989	1.045	0.974
80	0.976	1.093	0.946

\* = Sensible capacity equals total capacity  
 AHRI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1 and Heating - 68°F DB/59°F WB entering air temperature

Cooling													
Entering Air WB°F	Total Capacity	Sensible Cooling Capacity Multiplier - Entering DB °F										Power	Heat of Rejection
		60	65	70	75	80	80.6	85	90	95	100		
45	0.832	1.346	1.461	1.603	*	*	*	*	*	*	*	0.946	0.853
50	0.850	1.004	1.174	1.357	*	*	*	*	*	*	*	0.953	0.870
55	0.880	0.694	0.902	1.115	1.331	*	*	*	*	*	*	0.964	0.896
60	0.922		0.646	0.875	1.103	1.329	1.356	*	*	*	*	0.977	0.932
65	0.975			0.639	0.869	1.096	1.123	1.320	*	*	*	0.993	0.979
66.2	0.990			0.582	0.812	1.039	1.066	1.262	1.482	*	*	0.997	0.991
67	1.000			0.545	0.774	1.000	1.027	1.223	1.444	*	*	1.000	1.000
70	1.040				0.630	0.853	0.880	1.075	1.297	1.517	*	1.011	1.035
75	1.117					0.601	0.627	0.821	1.046	1.275	1.510	1.033	1.101

\* Sensible capacity equals total capacity.

## Part Load Correction Factors

### Air Flow Correction Table

Airflow % of Nominal	Heating				Cooling			
	Htg Cap	Power	Heat of Extraction	Total Cap	Sens Cap	S/T	Power	Heat of Rejection
60.00	0.946	1.153	0.896	0.925	0.788	0.852	0.913	0.922
68.75	0.959	1.107	0.924	0.946	0.829	0.876	0.926	0.942
75.00	0.969	1.078	0.942	0.960	0.861	0.897	0.937	0.955
81.25	0.977	1.053	0.959	0.972	0.895	0.921	0.950	0.968
87.50	0.985	1.032	0.974	0.983	0.930	0.946	0.965	0.979
93.75	0.993	1.014	0.988	0.992	0.965	0.973	0.982	0.990
100.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106.25	1.006	0.989	1.011	1.007	1.033	1.027	1.020	1.009
112.50	1.012	0.982	1.019	1.012	1.064	1.052	1.042	1.018
118.75	1.018	0.979	1.027	1.016	1.092	1.075	1.066	1.025
125.00	1.022	0.977	1.033	1.018	1.116	1.096	1.091	1.032
130.00	1.026	0.975	1.038	1.019	1.132	1.110	1.112	1.037

### Entering Air Correction Table

Full Load Heating Corrections			
Entering Air DB°F	Heating Capacity	Power	Heat of Extraction
40	1.084	0.732	1.161
45	1.073	0.764	1.140
50	1.060	0.802	1.117
55	1.046	0.846	1.090
60	1.031	0.893	1.061
65	1.016	0.945	1.031
68	1.006	0.978	1.013
70	1.000	1.000	1.000
75	0.984	1.058	0.968
80	0.968	1.117	0.936

\* = Sensible capacity equals total capacity  
 AHRI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F  
 DB/66.2°F WB, 1 and Heating - 68°F DB/59°F WB entering air temperature

Cooling													
Entering Air WB°F	Total Capacity	Sensible Cooling Capacity Multiplier - Entering DB °F										Power	Heat of Rejection
		60	65	70	75	80	80.6	85	90	95	100		
45	0.876	1.286	1.302	1.389	*	*	*	*	*	*	*	0.981	0.895
50	0.883	1.002	1.099	1.241	*	*	*	*	*	*	*	0.985	0.901
55	0.903	0.706	0.871	1.060	1.271	*	*	*	*	*	*	0.989	0.918
60	0.935		0.617	0.844	1.079	1.319	1.349	*	*	*	*	0.993	0.945
65	0.979			0.595	0.849	1.096	1.128	1.342	*	*	*	0.998	0.982
66.2	0.991			0.531	0.789	1.040	1.070	1.284	1.522	*	*	0.999	0.993
67	1.000			0.486	0.747	1.000	1.030	1.245	1.481	*	*	1.000	1.000
70	1.035				0.583	0.842	0.873	1.090	1.327	1.552	*	1.003	1.030
75	1.105					0.552	0.584	0.811	1.057	1.290	1.510	1.008	1.086

\* Sensible capacity equals total capacity.

## Performance Data Selection Notes

For operation in the shaded area when water is used in lieu of an anti-freeze solution, the LWT (Leaving Water Temperature) must be calculated. Flow must be maintained to a level such that the LWT is maintained above 40°F [4.4°C] when the JW3 jumper is not clipped (see example below). Otherwise, appropriate levels of a proper anti-freeze should be used in systems with leaving water temperatures of 40°F or below and the JW3 jumper should be clipped. This is due to the potential of the refrigerant temperature being as low as 32°F [0°C] with 40°F [4.4°C] LWT, which may lead to a nuisance cutout due to the activation of the Low Temperature Protection. JW3 should never be clipped for standard range equipment or systems without antifreeze.

### Example:

At 50°F EWT (Entering Water Temperature) and 1.5 gpm/ton, a 3 ton unit has a HE of 22,500 Btuh. To calculate LWT, rearrange the formula for HE as follows:

HE = TD x GPM x 500, where HE = Heat of Extraction (Btuh);  
 TD = temperature difference (EWT - LWT) and GPM = U.S. Gallons per Minute.

$$TD = HE / (GPM \times 500)$$

$$TD = 22,500 / (1.5 \times 500)$$

$$TD = 10^\circ\text{F}$$

$$LWT = EWT - TD$$

$$LWT = 50 - 10 = 40^\circ\text{F}$$

In this example, as long as the EWT does not fall below 50°F, the system will operate as designed. For EWTs below 50°F, higher flow rates will be required (open loop systems, for example, require at least 2 gpm/ton when EWT is below 50°F).

Performance capacities shown in this table are based on a 3-ton unit with a 1.5 gpm/ton flow rate. Performance capacities shown in this table are based on a 3-ton unit with a 1.5 gpm/ton flow rate.

		Heating - EAT 70°F					
TR	HWC	HC	kW	HE	LAT	COP	HW
		39.4	3.90	26.5	93.2	2.96	4.0
		40.0	3.78	27.2	90.0	3.10	3.5
19.3	-	43.5	4.06	30.0	95.6	3.14	4.1
18.6	-	44.1	3.93	30.8	92.1	3.29	3.6
20.5	-	45.3	4.11	31.7	96.6	3.23	4.1
19.8	-	46.0	3.98	32.5	93.0	3.39	3.5
21.4	-	46.2	4.14	32.5	97.2	3.27	4.0
20.6	-	46.9	4.01	33.4	93.5	3.43	3.5
18.5	-	50.1	4.29	35.9	99.5	3.42	4.3
17.9	-	50.8	4.16	36.8	95.4	3.58	3.7
19.8	-	52.2	4.36	37.7	100.7	3.51	4.2
19.1	-	53.0	4.22	38.7	96.5	3.68	3.6
20.4	-	53.4	4.39	38.8	101.4	3.57	4.1
19.6	-	54.2	4.25	39.8	97.1	3.74	3.6
	2.0	57.0	4.53	41.8	103.5	3.69	4.1
	2.1	57.8	4.39	42.9	98.9	3.86	3.6
	1.8	59.5	4.60	44.1	105.0	3.79	4.1
	1.8	60.4	4.46	45.3	100.2	3.97	3.6
		61.0	4.64	45.4	105.9	3.90	4.1
		61.9	4.50	46.6	101.0	4.07	3.6
			4.78	48.1			

### Antifreeze Correction Table

Antifreeze Type	Antifreeze %	Cooling			Heating		WPD Corr. Fct. EWT 30°F
		EWT 90°F			EWT 30°F		
		Total Cap	Sens Cap	Power	Htg Cap	Power	
Water	0	1.000	1.000	1.000	1.000	1.000	1.000
Propylene Glycol	5	0.995	0.995	1.003	0.989	0.997	1.070
	15	0.986	0.986	1.009	0.968	0.990	1.210
Methanol	25	0.978	0.978	1.014	0.947	0.983	1.360
	5	0.997	0.997	1.002	0.989	0.997	1.070
Ethanol	15	0.990	0.990	1.007	0.968	0.990	1.160
	25	0.982	0.982	1.012	0.949	0.984	1.220
Ethylene Glycol	5	0.998	0.998	1.002	0.981	0.994	1.140
	15	0.994	0.994	1.005	0.944	0.983	1.300
	25	0.986	0.986	1.009	0.917	0.974	1.360
	5	0.998	0.998	1.002	0.993	0.998	1.040
	15	0.994	0.994	1.004	0.980	0.994	1.120
	25	0.988	0.988	1.008	0.966	0.990	1.200

# ClimateMaster Geothermal Heat Pump Systems

## Performance Data — TTS026 Part Load With TAH

600 CFM Nominal (Rated) Airflow Heating, 600 CFM Nominal (Rated) Airflow Cooling

Performance capacities shown in thousands of Btuh

EWT °F	GPM	PD		Cooling - EAT 80/67 °F						Heating - EAT 70°F					
		PSI	FT	TC	SC	kW	HR	EER	TTS HWC	HC	kW	HE	LAT	COP	TTS HWC
20	4.50	2.5	5.8	Operation Not Recommended						11.7	1.15	7.8	80.7	3.0	1.2
30	2.30	0.8	1.7	23.9	16.4	0.66	26.1	36.3	0.7	13.3	1.14	9.4	82.4	3.4	1.3
	3.40	1.3	3.1	23.8	16.1	0.62	25.9	38.4	0.7	14.0	1.14	10.1	83.2	3.6	1.4
	4.50	2.0	4.6	23.6	15.8	0.61	25.7	39.0	0.7	14.4	1.14	10.5	83.6	3.7	1.4
40	2.30	0.6	1.3	23.6	16.5	0.73	26.1	32.1	0.8	15.7	1.14	11.8	85.1	4.0	1.5
	3.40	1.0	2.4	23.9	16.5	0.68	26.2	35.3	0.7	16.6	1.15	12.7	86.0	4.2	1.6
	4.50	1.6	3.8	23.9	16.4	0.65	26.1	36.7	0.7	17.1	1.15	13.2	86.5	4.4	1.6
50	2.30	0.5	1.1	22.9	16.4	0.83	25.8	27.5	1.1	18.1	1.15	14.2	87.7	4.6	1.7
	3.40	0.9	2.0	23.4	16.5	0.76	26.0	30.9	0.9	19.1	1.15	15.2	88.8	4.9	1.8
	4.50	1.4	3.2	23.6	16.5	0.72	26.1	32.6	0.8	19.7	1.15	15.8	89.4	5.0	1.8
60	2.30	0.4	1.0	22.0	16.0	0.95	25.2	23.1	1.5	20.5	1.16	16.5	90.3	5.2	1.9
	3.40	0.8	1.8	22.7	16.3	0.86	25.6	26.2	1.2	21.6	1.16	17.7	91.5	5.5	1.9
	4.50	1.3	2.9	23.0	16.4	0.82	25.8	28.0	1.1	22.2	1.17	18.3	92.2	5.6	2.0
70	2.30	0.5	1.1	20.9	15.6	1.09	24.6	19.1	2.0	22.7	1.17	18.7	92.7	5.7	2.0
	3.40	0.8	1.8	21.7	15.9	0.99	25.1	21.8	1.6	23.9	1.17	19.9	94.0	6.0	2.1
	4.50	1.2	2.7	22.1	16.1	0.94	25.3	23.4	1.5	24.5	1.18	20.5	94.7	6.1	2.2
80	2.30	0.5	1.2	19.7	15.1	1.25	24.0	15.7	2.7	24.8	1.18	20.8	94.9	6.2	2.2
	3.40	0.8	1.8	20.5	15.4	1.14	24.4	18.0	2.2	25.9	1.19	21.9	96.2	6.4	2.2
	4.50	1.2	2.7	20.9	15.6	1.09	24.6	19.3	2.0	26.5	1.19	22.4	96.8	6.5	2.2
90	2.30	0.5	1.2	18.5	14.6	1.43	23.4	12.9	3.5	26.6	1.19	22.5	96.9	6.5	2.2
	3.40	0.8	1.9	19.3	14.9	1.31	23.8	14.7	3.0	27.6	1.20	23.5	98.0	6.7	2.2
	4.50	1.2	2.7	19.7	15.1	1.25	24.0	15.8	2.7	28.0	1.21	23.9	98.5	6.8	2.2
100	2.30	0.5	1.3	17.4	14.2	1.64	23.0	10.6	4.5	Operation Not Recommended					
	3.40	0.8	1.9	18.1	14.4	1.50	23.2	12.0	3.8						
	4.50	1.2	2.7	18.5	14.6	1.44	23.4	12.9	3.5						
110	2.30	0.5	1.1	16.5	13.9	1.86	22.8	8.8	5.6						
	3.40	0.8	1.8	17.0	14.0	1.71	22.9	9.9	4.9						
	4.50	1.1	2.6	17.4	14.1	1.64	23.0	10.6	4.5						
120	2.30	0.4	0.8	15.8	13.9	2.11	23.0	7.5	7.0						
	3.40	0.7	1.5	16.2	13.9	1.95	22.8	8.3	6.1						
	4.50	1.0	2.4	16.4	13.9	1.87	22.8	8.8	5.7						

Interpolation is permissible; extrapolation is not.  
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.  
 AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.  
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.  
 All performance is based upon the lower voltage of dual voltage rated units.  
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.  
 See performance correction tables for operating conditions other than those listed above.  
 For operation in the shaded areas, please see the Performance Data Selection Notes.

# Tranquility® Split (TTS/TAC/TAH) Series

## Performance Data — TTS026 Full Load With TAH

750 CFM Nominal (Rated) Airflow Heating, 750 CFM Nominal (Rated) Airflow Cooling

Performance capacities shown in thousands of Btuh

EWT °F	GPM	PD		Cooling - EAT 80/67 °F						Heating - EAT 70°F											
		PSI	FT	TC	SC	kW	HR	EER	TTS HWC	HC	kW	HE	LAT	COP	TTS HWC						
20	6.00	3.7	8.7	Operation Not Recommended						16.1	1.46	11.1	83.7	3.2	1.5						
30	3.00	1.1	2.5	30.5	20.2	1.03	34.0	29.7	0.8	18.4	1.50	13.3	85.9	3.6	1.8						
	4.50	2.0	4.6	30.2	20.1	0.95	33.5	31.7	0.7	19.5	1.51	14.4	87.0	3.8	1.9						
	6.00	3.1	7.1	29.9	20.0	0.92	33.0	32.6	0.7	20.1	1.52	14.9	87.5	3.9	1.9						
40	3.00	0.9	2.0	30.3	20.1	1.14	34.2	26.6	1.1	21.7	1.54	16.4	89.1	4.1	2.1						
	4.50	1.6	3.8	30.5	20.2	1.05	34.1	29.0	0.9	22.9	1.56	17.5	90.2	4.3	2.3						
	6.00	2.6	6.0	30.5	20.2	1.01	34.0	30.1	0.8	23.5	1.57	18.1	90.8	4.4	2.3						
50	3.00	0.7	1.6	29.5	19.9	1.26	33.8	23.5	1.5	24.6	1.59	19.1	91.9	4.5	2.5						
	4.50	1.4	3.2	30.1	20.1	1.16	34.1	25.9	1.2	25.7	1.61	20.2	93.0	4.7	2.6						
	6.00	2.3	5.2	30.4	20.2	1.12	34.2	27.1	1.1	26.3	1.62	20.8	93.6	4.8	2.7						
60	3.00	0.7	1.5	28.4	19.5	1.39	33.1	20.4	1.9	27.1	1.64	21.5	94.3	4.8	2.8						
	4.50	1.3	2.9	29.3	19.8	1.29	33.7	22.7	1.6	28.2	1.66	22.5	95.4	5.0	3.0						
	6.00	2.0	4.7	29.6	19.9	1.24	33.9	23.9	1.4	28.8	1.67	23.1	96.0	5.0	3.1						
70	3.00	0.7	1.5	27.1	19.0	1.55	32.3	17.5	2.5	29.3	1.68	23.5	96.5	5.1	3.2						
	4.50	1.2	2.7	28.1	19.3	1.43	32.9	19.6	2.1	30.4	1.71	24.6	97.5	5.2	3.4						
	6.00	1.9	4.4	28.5	19.5	1.38	33.2	20.7	1.9	30.9	1.72	25.1	98.1	5.3	3.5						
80	3.00	0.7	1.6	25.7	18.4	1.73	31.6	14.9	3.1	31.3	1.73	25.4	98.4	5.3	3.5						
	4.50	1.2	2.7	26.7	18.8	1.60	32.1	16.7	2.6	32.4	1.75	26.4	99.5	5.4	3.7						
	6.00	1.8	4.2	27.2	19.0	1.53	32.4	17.7	2.4	33.0	1.77	26.9	100.1	5.5	4.1						
90	3.00	0.7	1.6	24.3	17.8	1.94	30.9	12.5	3.8	33.2	1.77	27.1	100.3	5.5	3.9						
	4.50	1.2	2.7	25.3	18.2	1.79	31.4	14.1	3.3	34.4	1.80	28.2	101.4	5.6	4.1						
	6.00	1.8	4.1	25.7	18.4	1.72	31.6	15.0	3.0	35.0	1.82	28.8	102.0	5.6	4.2						
100	3.00	0.7	1.6	23.2	17.2	2.19	30.7	10.6	4.6	Operation Not Recommended											
	4.50	1.2	2.7	23.9	17.6	2.01	30.8	11.9	4.0												
	6.00	1.8	4.1	24.4	17.8	1.93	31.0	12.6	3.8												
110	3.00	0.7	1.5	22.4	16.8	2.49	30.9	9.0	5.6												
	4.50	1.1	2.6	22.9	17.1	2.28	30.7	10.0	4.9												
	6.00	1.7	4.0	23.2	17.2	2.18	30.7	10.6	4.6												
120	3.00	0.5	1.2	Operation Not Recommended																	
	4.50	1.0	2.4													22.3	16.7	2.60	31.1	8.6	5.9
	6.00	1.7	3.9													22.4	16.8	2.48	30.9	9.0	5.6

Interpolation is permissible; extrapolation is not.  
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.  
 AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.  
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.  
 All performance is based upon the lower voltage of dual voltage rated units.  
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.  
 See performance correction tables for operating conditions other than those listed above.  
 For operation in the shaded areas, please see the Performance Data Selection Notes.



# ClimateMaster Geothermal Heat Pump Systems

## Performance Data — TTS038 Part Load With TAH

950 CFM Nominal (Rated) Airflow Heating, 950 CFM Nominal (Rated) Airflow Cooling

Performance capacities shown in thousands of Btuh

EWT °F	GPM	PD		Cooling - EAT 80/67 °F						Heating - EAT 70°F					
		PSI	FT	TC	SC	kW	HR	EER	TTS HWC	HC	kW	HE	LAT	COP	TTS HWC
20	6.00	4.9	11.2	Operation Not Recommended						<b>16.3</b>	<b>1.48</b>	<b>11.2</b>	<b>84.7</b>	<b>3.2</b>	<b>1.7</b>
30	3.00	1.5	3.4	31.7	20.6	0.82	34.5	38.8	0.8	18.1	1.49	13.0	86.6	3.6	1.9
	4.50	2.6	6.0	31.7	20.3	0.77	34.4	41.1	0.9	19.0	1.49	13.9	87.5	3.7	2.0
	6.00	3.8	8.9	31.7	20.0	0.76	34.3	41.6	1.0	19.5	1.50	14.4	88.0	3.8	2.0
40	3.00	1.1	2.5	31.3	20.8	0.91	34.4	34.2	1.0	21.0	1.51	15.8	89.5	4.1	2.1
	4.50	2.0	4.7	31.6	20.7	0.84	34.5	37.8	0.9	22.0	1.51	16.9	90.6	4.3	2.3
	6.00	3.1	7.2	31.7	20.6	0.81	34.5	39.3	0.8	22.6	1.51	17.4	91.2	4.4	2.3
50	3.00	0.9	2.0	30.6	20.8	1.05	34.1	29.1	1.3	23.7	1.52	18.5	92.3	4.6	2.4
	4.50	1.7	3.9	31.1	20.8	0.94	34.3	33.0	1.0	24.9	1.53	19.7	93.5	4.8	2.5
	6.00	2.7	6.2	31.4	20.8	0.90	34.4	34.9	0.9	25.5	1.53	20.3	94.2	4.9	2.6
60	3.00	0.8	1.8	29.6	20.5	1.22	33.7	24.2	1.9	26.4	1.54	21.1	95.1	5.0	2.7
	4.50	1.5	3.5	30.3	20.7	1.09	34.0	27.9	1.4	27.7	1.54	22.4	96.4	5.3	2.8
	6.00	2.4	5.6	30.7	20.8	1.03	34.2	29.8	1.3	28.4	1.55	23.1	97.1	5.4	2.9
70	3.00	0.8	1.9	28.3	20.1	1.42	33.2	20.0	2.7	29.0	1.55	23.7	97.7	5.5	2.9
	4.50	1.5	3.4	29.3	20.4	1.27	33.6	23.1	2.1	30.4	1.56	25.1	99.2	5.7	3.1
	6.00	2.3	5.3	29.7	20.6	1.20	33.8	24.8	1.8	31.2	1.56	25.9	100.0	5.9	3.1
80	3.00	0.9	2.0	26.9	19.5	1.64	32.5	16.4	3.7	31.6	1.57	26.2	100.4	5.9	3.1
	4.50	1.5	3.4	28.0	19.9	1.48	33.0	18.9	2.9	33.2	1.58	27.8	102.1	6.2	3.3
	6.00	2.2	5.2	28.5	20.1	1.40	33.2	20.4	2.6	34.1	1.58	28.7	103.0	6.3	3.3
90	3.00	0.9	2.1	25.3	18.8	1.89	31.8	13.4	4.9	34.2	1.58	28.8	103.1	6.3	3.4
	4.50	1.5	3.5	26.5	19.3	1.71	32.3	15.5	4.0	36.1	1.60	30.6	105.0	6.6	3.5
	6.00	2.2	5.2	27.0	19.5	1.62	32.6	16.7	3.6	37.1	1.60	31.6	106.1	6.8	3.6
100	3.00	0.9	2.1	23.6	18.0	2.16	31.0	11.0	6.2	Operation Not Recommended					
	4.50	1.5	3.5	24.8	18.5	1.97	31.6	12.6	5.2						
	6.00	2.2	5.1	25.4	18.8	1.87	31.8	13.6	4.8						
110	3.00	0.8	1.8	21.8	17.1	2.44	30.2	9.0	7.8						
	4.50	1.4	3.2	23.1	17.7	2.24	30.7	10.3	6.7						
	6.00	2.1	4.9	23.7	18.0	2.15	31.0	11.0	6.2						
120	3.00	0.5	1.1	20.0	16.1	2.73	29.3	7.3	9.6						
	4.50	1.1	2.6	21.2	16.8	2.54	29.9	8.4	8.4						
	6.00	1.9	4.4	21.9	17.1	2.44	30.2	9.0	7.8						

Interpolation is permissible; extrapolation is not.  
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.  
 AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.  
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.  
 All performance is based upon the lower voltage of dual voltage rated units.  
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.  
 See performance correction tables for operating conditions other than those listed above.  
 For operation in the shaded areas, please see the Performance Data Selection Notes.

# Tranquility® Split (TTS/TAC/TAH) Series

## Performance Data — TTS038 Full Load With TAH

1150 CFM Nominal (Rated) Airflow Heating, 1150 CFM Nominal (Rated) Airflow Cooling

Performance capacities shown in thousands of Btuh

EWT °F	GPM	PD		Cooling - EAT 80/67 °F						Heating - EAT 70°F					
		PSI	FT	TC	SC	kW	HR	EER	TTS HWC	HC	kW	HE	LAT	COP	TTS HWC
20	9.00	8.3	19.2	Operation Not Recommended						24.5	2.01	17.6	86.9	3.6	2.1
30	4.50	2.6	6.0	44.1	28.5	1.53	49.3	28.8	1.1	26.6	2.04	19.7	88.5	3.8	2.4
	6.75	4.6	10.5	44.0	28.1	1.47	49.0	30.0	0.9	27.7	2.06	20.7	89.3	3.9	2.6
	9.00	6.9	16.0	43.8	27.8	1.44	48.7	30.5	0.8	28.3	2.07	21.2	89.8	4.0	2.6
40	4.50	2.0	4.7	43.7	28.8	1.65	49.4	26.5	1.4	30.2	2.10	23.0	91.2	4.2	2.9
	6.75	3.8	8.7	44.1	28.7	1.56	49.4	28.2	1.1	31.5	2.13	24.2	92.2	4.3	3.1
	9.00	5.9	13.6	44.1	28.5	1.52	49.3	29.0	1.0	32.1	2.14	24.8	92.7	4.4	3.2
50	4.50	1.7	3.9	42.9	28.8	1.79	49.0	23.9	1.9	33.7	2.17	26.3	93.9	4.5	3.4
	6.75	3.2	7.5	43.6	28.8	1.68	49.3	25.9	1.6	35.1	2.20	27.6	95.0	4.7	3.6
	9.00	5.2	11.9	43.8	28.8	1.64	49.4	26.8	1.4	35.8	2.22	28.3	95.6	4.7	3.7
60	4.50	1.5	3.5	41.7	28.5	1.97	48.4	21.2	2.6	37.1	2.24	29.4	96.6	4.8	3.9
	6.75	2.9	6.7	42.6	28.7	1.84	48.9	23.2	2.1	38.6	2.27	30.8	97.7	5.0	4.1
	9.00	4.7	10.8	43.0	28.8	1.78	49.1	24.2	1.9	39.4	2.29	31.6	98.3	5.0	4.2
70	4.50	1.5	3.4	40.2	28.0	2.18	47.7	18.5	3.4	40.3	2.31	32.4	99.0	5.1	4.4
	6.75	2.7	6.3	41.3	28.4	2.03	48.2	20.4	2.8	41.8	2.35	33.8	100.2	5.2	4.6
	9.00	4.4	10.1	41.8	28.5	1.96	48.5	21.4	2.6	42.6	2.37	34.5	100.8	5.3	4.8
80	4.50	1.5	3.4	38.6	27.4	2.42	46.8	15.9	4.4	43.3	2.38	35.1	101.3	5.3	4.9
	6.75	2.7	6.2	39.8	27.8	2.25	47.4	17.7	3.7	44.7	2.42	36.5	102.4	5.4	5.1
	9.00	4.2	9.7	40.3	28.0	2.17	47.7	18.6	3.4	45.5	2.44	37.1	103.0	5.5	5.3
90	4.50	1.5	3.5	36.7	26.7	2.70	46.0	13.6	5.5	45.9	2.45	37.5	103.3	5.5	5.3
	6.75	2.7	6.1	38.0	27.2	2.50	46.5	15.2	4.7	47.2	2.48	38.7	104.3	5.6	5.6
	9.00	4.1	9.5	38.6	27.4	2.41	46.9	16.0	4.3	47.8	2.49	39.3	104.8	5.6	5.7
100	4.50	1.5	3.5	34.9	26.1	3.02	45.2	11.5	6.8	Operation Not Recommended					
	6.75	2.6	6.1	36.1	26.5	2.80	45.7	12.9	5.9						
	9.00	4.1	9.4	36.8	26.8	2.69	46.0	13.6	5.5						
110	4.50	1.4	3.2	33.0	25.4	3.38	44.5	9.8	8.2	Operation Not Recommended					
	6.75	2.5	5.9	34.2	25.9	3.14	44.9	10.9	7.2						
	9.00	4.0	9.2	34.9	26.1	3.02	45.2	11.6	6.7						
120	4.50	1.1	2.6	31.2	24.9	3.79	44.1	8.2	9.8	Operation Not Recommended					
	6.75	2.4	5.5	32.4	25.2	3.52	44.4	9.2	8.7						
	9.00	3.9	8.9	33.0	25.4	3.39	44.5	9.7	8.2						

Interpolation is permissible; extrapolation is not.  
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.  
 AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.  
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.  
 All performance is based upon the lower voltage of dual voltage rated units.  
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.  
 See performance correction tables for operating conditions other than those listed above.  
 For operation in the shaded areas, please see the Performance Data Selection Notes.

# ClimateMaster Geothermal Heat Pump Systems

## Performance Data — TTS049 Part Load With TAH

1250 CFM Nominal (Rated) Airflow Heating, 1250 CFM Nominal (Rated) Airflow Cooling

Performance capacities shown in thousands of Btuh

EWT °F	GPM	PD		Cooling - EAT 80/67 °F						Heating - EAT 70°F					
		PSI	FT	TC	SC	kW	HR	EER	TTS HWC	HC	kW	HE	LAT	COP	TTS HWC
20	9.00	3.2	7.4	Operation Not Recommended						23.5	2.24	15.8	83.5	3.1	2.5
30	4.50	0.6	1.4	41.6	26.2	1.26	45.9	32.9	1.0	25.6	2.24	18.0	84.9	3.4	2.6
	6.80	1.6	3.7	40.7	25.4	1.19	44.7	34.2	1.1	26.6	2.23	19.0	85.6	3.5	2.6
	9.00	2.8	6.4	40.0	25.0	1.16	44.0	34.4	1.1	27.2	2.23	19.6	85.9	3.6	2.6
40	4.50	0.5	1.1	41.9	26.9	1.40	46.7	29.8	1.2	29.4	2.23	21.7	87.4	3.9	2.7
	6.80	1.3	3.1	41.8	26.4	1.30	46.2	32.1	1.0	30.8	2.23	23.1	88.3	4.0	2.7
	9.00	2.4	5.6	41.5	26.1	1.26	45.8	33.0	1.0	31.5	2.23	23.9	88.8	4.1	2.7
50	4.50	0.4	0.9	41.2	27.2	1.58	46.6	26.0	1.5	33.5	2.24	25.8	90.1	4.4	2.8
	6.80	1.2	2.7	41.8	27.0	1.45	46.7	28.7	1.2	35.2	2.24	27.6	91.3	4.6	2.9
	9.00	2.2	5.1	41.9	26.9	1.40	46.7	29.9	1.1	36.2	2.25	28.5	91.9	4.7	2.9
60	4.50	0.4	0.8	39.8	27.1	1.80	46.0	22.1	2.1	37.7	2.25	30.1	92.9	4.9	3.0
	6.80	1.1	2.5	40.9	27.2	1.65	46.5	24.8	1.7	39.8	2.26	32.0	94.2	5.2	3.0
	9.00	2.0	4.7	41.3	27.2	1.58	46.6	26.2	1.5	40.8	2.26	33.1	94.9	5.3	3.1
70	4.50	0.4	0.9	37.9	26.6	2.05	44.9	18.4	2.8	41.9	2.27	34.1	95.6	5.4	3.2
	6.80	1.1	2.4	39.3	27.0	1.88	45.7	20.9	2.3	44.0	2.28	36.2	97.0	5.7	3.3
	9.00	2.0	4.5	39.9	27.1	1.80	46.0	22.2	2.1	45.0	2.29	37.2	97.7	5.8	3.4
80	4.50	0.4	0.9	35.5	25.8	2.34	43.5	15.2	3.8	45.6	2.29	37.8	98.1	5.8	3.4
	6.80	1.1	2.4	37.2	26.4	2.15	44.5	17.3	3.1	47.6	2.30	39.7	99.4	6.1	3.6
	9.00	1.9	4.4	37.9	26.6	2.05	44.9	18.4	2.8	48.5	2.31	40.6	100.0	6.1	3.7
90	4.50	0.4	1.0	32.9	24.6	2.67	42.0	12.3	4.9	48.8	2.31	40.9	100.2	6.2	3.7
	6.80	1.1	2.4	34.6	25.4	2.45	43.0	14.1	4.1	50.2	2.33	42.3	101.1	6.3	3.9
	9.00	1.9	4.4	35.4	25.7	2.35	43.5	15.1	3.8	50.7	2.34	42.7	101.5	6.4	4.0
100	4.50	0.4	1.0	30.1	23.1	3.03	40.4	9.9	6.2	Operation Not Recommended					
	6.80	1.1	2.4	31.8	24.0	2.80	41.4	11.4	5.3						
	9.00	1.9	4.3	32.7	24.5	2.69	41.9	12.2	5.0						
110	4.50	0.4	0.9	27.2	21.3	3.43	38.9	7.9	7.7						
	6.80	1.0	2.4	28.9	22.4	3.18	39.8	9.1	6.8						
	9.00	1.8	4.3	29.7	22.9	3.07	40.2	9.7	6.3						
120	4.50	0.3	0.7	24.3	19.3	3.87	37.5	6.3	9.4						
	6.80	0.9	2.2	25.9	20.5	3.61	38.2	7.2	8.4						
	9.00	1.8	4.1	26.7	21.0	3.49	38.6	7.7	7.9						

Interpolation is permissible; extrapolation is not.  
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.  
 AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.  
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.  
 All performance is based upon the lower voltage of dual voltage rated units.  
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.  
 See performance correction tables for operating conditions other than those listed above.  
 For operation in the shaded areas, please see the Performance Data Selection Notes.

# Tranquility® Split (TTS/TAC/TAH) Series

## Performance Data — TTS049 Full Load With TAH

1500 CFM Nominal (Rated) Airflow Heating, 1500 CFM Nominal (Rated) Airflow Cooling

Performance capacities shown in thousands of Btuh

EWT °F	GPM	PD		Cooling - EAT 80/67 °F						Heating - EAT 70°F					
		PSI	FT	TC	SC	kW	HR	EER	TTS HWC	HC	kW	HE	LAT	COP	TTS HWC
20	12.00	5.3	12.1	Operation Not Recommended						33.7	2.99	23.5	86.9	3.3	3.3
30	6.00	1.2	2.8	54.2	34.5	2.11	61.4	25.7	1.8	36.9	3.03	26.5	88.6	3.6	3.5
	9.00	2.8	6.4	53.5	33.6	2.02	60.4	26.5	1.8	38.5	3.05	28.1	89.5	3.7	3.5
	12.00	4.7	10.8	53.1	33.1	1.98	59.8	26.9	1.9	39.3	3.06	28.9	90.0	3.8	3.6
40	6.00	1.0	2.3	54.3	35.2	2.27	62.1	23.9	2.0	41.9	3.09	31.4	91.5	4.0	3.7
	9.00	2.4	5.6	54.3	34.8	2.16	61.7	25.2	1.8	43.7	3.12	33.1	92.5	4.1	3.8
	12.00	4.2	9.7	54.1	34.5	2.11	61.3	25.7	1.8	44.7	3.13	34.0	93.0	4.2	3.9
50	6.00	0.9	2.0	53.7	35.3	2.46	62.1	21.8	2.3	46.7	3.16	35.9	94.2	4.3	4.0
	9.00	2.2	5.1	54.2	35.3	2.33	62.2	23.3	2.1	48.6	3.19	37.7	95.2	4.5	4.1
	12.00	3.9	9.0	54.3	35.2	2.26	62.1	24.0	2.0	49.7	3.21	38.7	95.8	4.5	4.2
60	6.00	0.8	1.9	52.5	34.9	2.69	61.7	19.5	2.9	51.2	3.24	40.2	96.7	4.6	4.3
	9.00	2.0	4.7	53.4	35.2	2.53	62.0	21.1	2.5	53.2	3.28	42.0	97.8	4.8	4.5
	12.00	3.6	8.4	53.8	35.3	2.46	62.1	21.9	2.3	54.2	3.30	42.9	98.3	4.8	4.6
70	6.00	0.8	1.8	50.7	34.2	2.97	60.9	17.1	3.6	55.3	3.32	43.9	98.9	4.9	4.8
	9.00	2.0	4.5	52.0	34.7	2.78	61.5	18.7	3.1	57.1	3.36	45.7	100.0	5.0	5.0
	12.00	3.5	8.1	52.5	34.9	2.69	61.7	19.6	2.9	58.0	3.38	46.5	100.5	5.0	5.1
80	6.00	0.8	1.8	48.6	33.2	3.29	59.8	14.8	4.6	58.8	3.40	47.2	100.9	5.1	5.2
	9.00	1.9	4.4	50.1	33.9	3.07	60.5	16.3	3.9	60.4	3.44	48.7	101.8	5.1	5.5
	12.00	3.4	7.8	50.8	34.2	2.96	60.9	17.1	3.6	61.2	3.46	49.3	102.2	5.2	5.7
90	6.00	0.8	1.9	46.1	32.0	3.67	58.6	12.6	5.7	61.6	3.47	49.7	102.5	5.2	5.8
	9.00	1.9	4.4	47.8	32.8	3.41	59.4	14.0	4.9	62.8	3.51	50.8	103.2	5.2	6.1
	12.00	3.3	7.7	48.6	33.2	3.29	59.8	14.8	4.6	63.3	3.53	51.3	103.4	5.3	6.3
100	6.00	0.8	1.9	43.3	30.6	4.11	57.3	10.5	7.0	Operation Not Recommended					
	9.00	1.9	4.3	45.1	31.5	3.82	58.1	11.8	6.1						
	12.00	3.3	7.6	46.0	31.9	3.68	58.6	12.5	5.7						
110	6.00	0.8	1.8	40.4	29.3	4.61	56.1	8.7	8.5	Operation Not Recommended					
	9.00	1.8	4.3	42.2	30.1	4.29	56.9	9.9	7.5						
	12.00	3.3	7.5	43.2	30.6	4.13	57.3	10.5	7.0						
120	6.00	0.7	1.6	37.3	27.9	5.20	55.1	7.2	10.2	Operation Not Recommended					
	9.00	1.8	4.1	39.2	28.7	4.83	55.7	8.1	9.1						
	12.00	3.2	7.4	40.2	29.2	4.65	56.0	8.6	8.6						

Interpolation is permissible; extrapolation is not.  
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.  
 AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.  
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.  
 All performance is based upon the lower voltage of dual voltage rated units.  
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.  
 See performance correction tables for operating conditions other than those listed above.  
 For operation in the shaded areas, please see the Performance Data Selection Notes.

# ClimateMaster Geothermal Heat Pump Systems

## Performance Data — TTS064 Part Load With TAH

1600 CFM Nominal (Rated) Airflow Heating, 1600 CFM Nominal (Rated) Airflow Cooling

Performance capacities shown in thousands of Btuh

EWT °F	GPM	PD		Cooling - EAT 80/67 °F						Heating - EAT 70°F					
		PSI	FT	TC	SC	kW	HR	EER	TTS HWC	HC	kW	HE	LAT	COP	TTS HWC
20	12.00	5.2	11.9	Operation Not Recommended						29.5	2.76	20.1	85.0	3.1	3.1
30	6.00	0.9	2.1	53.8	35.5	1.47	58.8	36.7	1.0	32.5	2.79	23.0	86.8	3.4	3.2
	9.00	2.5	5.7	56.3	34.9	1.33	60.8	42.2	1.0	33.8	2.80	24.2	87.5	3.5	3.2
	12.00	4.2	9.6	57.7	34.4	1.26	62.0	45.6	1.0	34.4	2.81	24.9	87.9	3.6	3.2
40	6.00	0.5	1.1	51.0	35.7	1.68	56.7	30.3	1.3	37.2	2.83	27.6	89.5	3.9	3.3
	9.00	1.9	4.4	52.7	35.6	1.54	58.0	34.2	1.1	38.8	2.85	29.1	90.4	4.0	3.4
	12.00	3.4	7.9	53.8	35.5	1.47	58.8	36.6	1.0	39.6	2.85	29.9	90.9	4.1	3.4
50	6.00	0.2	0.6	48.7	35.4	1.92	55.3	25.3	1.7	42.1	2.87	32.3	92.3	4.3	3.5
	9.00	1.5	3.5	50.1	35.6	1.77	56.1	28.3	1.4	44.0	2.89	34.1	93.4	4.5	3.5
	12.00	3.0	6.9	50.8	35.7	1.69	56.6	30.0	1.3	45.0	2.90	35.1	94.0	4.6	3.6
60	6.00	0.2	0.4	46.9	34.8	2.20	54.4	21.4	2.3	47.0	2.91	37.1	95.1	4.7	3.7
	9.00	1.4	3.2	48.0	35.2	2.03	54.9	23.7	1.9	49.1	2.93	39.1	96.4	4.9	3.8
	12.00	2.7	6.3	48.6	35.4	1.94	55.2	25.0	1.7	50.2	2.94	40.2	97.0	5.0	3.9
70	6.00	0.2	0.4	45.3	34.0	2.51	53.8	18.0	3.2	51.8	2.95	41.8	97.9	5.2	3.9
	9.00	1.3	3.0	46.3	34.5	2.32	54.2	20.0	2.7	54.1	2.96	44.0	99.3	5.4	4.1
	12.00	2.6	6.0	46.8	34.7	2.23	54.4	21.0	2.4	55.4	2.97	45.2	100.0	5.5	4.2
80	6.00	0.3	0.6	43.4	33.0	2.88	53.2	15.1	4.2	56.5	2.98	46.3	100.6	5.5	4.3
	9.00	1.3	3.1	44.6	33.6	2.65	53.6	16.8	3.6	58.9	3.00	48.6	102.0	5.7	4.4
	12.00	2.6	5.9	45.1	33.9	2.55	53.8	17.7	3.3	60.1	3.01	49.9	102.7	5.9	4.6
90	6.00	0.3	0.7	41.1	31.8	3.29	52.3	12.5	5.5	60.8	3.02	50.5	103.1	5.9	4.6
	9.00	1.4	3.2	42.5	32.5	3.04	52.9	14.0	4.7	63.2	3.04	52.8	104.5	6.1	4.9
	12.00	2.6	6.0	43.2	32.8	2.92	53.1	14.8	4.4	64.4	3.05	54.0	105.2	6.2	5.0
100	6.00	0.3	0.8	38.0	30.3	3.75	50.8	10.1	6.9	Operation Not Recommended					
	9.00	1.4	3.2	39.9	31.2	3.48	51.7	11.5	6.1						
	12.00	2.6	6.0	40.7	31.6	3.35	52.1	12.2	5.7						
110	6.00	0.3	0.6	34.0	28.5	4.26	48.5	8.0	8.5						
	9.00	1.3	3.1	36.3	29.6	3.97	49.9	9.1	7.6						
	12.00	2.5	5.8	37.4	30.1	3.83	50.5	9.8	7.2						
120	6.00	0.1	0.2	28.8	25.8	4.83	45.3	6.0	10.2						
	9.00	1.1	2.6	31.7	27.3	4.53	47.1	7.0	9.3						
	12.00	2.4	5.4	33.0	28.0	4.37	48.0	7.6	8.8						

Interpolation is permissible; extrapolation is not.  
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.  
 AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.  
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.  
 All performance is based upon the lower voltage of dual voltage rated units.  
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.  
 See performance correction tables for operating conditions other than those listed above.  
 For operation in the shaded areas, please see the Performance Data Selection Notes.



# Tranquility® Split (TTS/TAC/TAH) Series

## Performance Data — TTS064 Full Load With TAH

1900 CFM Nominal (Rated) Airflow Heating, 1900 CFM Nominal (Rated) Airflow Cooling

Performance capacities shown in thousands of Btuh

EWT °F	GPM	PD		Cooling - EAT 80/67 °F						Heating - EAT 70°F											
		PSI	FT	TC	SC	kW	HR	EER	TTS HWC	HC	kW	HE	LAT	COP	TTS HWC						
20	15.00	7.3	16.8	Operation Not Recommended						42.0	3.72	29.3	88.4	3.3	3.8						
30	7.50	1.7	3.9	68.7	43.7	2.57	77.4	26.7	1.9	45.7	3.79	32.7	90.2	3.5	4.0						
	11.30	3.7	8.6	70.0	43.0	2.39	78.1	29.3	1.8	47.6	3.83	34.5	91.1	3.6	4.1						
	15.00	6.1	14.1	70.6	42.5	2.30	78.5	30.7	1.8	48.6	3.86	35.4	91.6	3.7	4.1						
40	7.50	1.2	2.7	66.9	44.2	2.82	76.5	23.8	2.2	51.8	3.93	38.4	93.2	3.9	4.3						
	11.30	3.1	7.1	68.1	43.9	2.64	77.1	25.8	2.0	54.0	3.98	40.4	94.3	4.0	4.4						
	15.00	5.3	12.2	68.7	43.7	2.56	77.4	26.9	1.9	55.1	4.01	41.5	94.8	4.0	4.5						
50	7.50	0.9	2.0	65.1	44.1	3.08	75.6	21.2	2.7	57.8	4.07	43.9	96.1	4.2	4.6						
	11.30	2.6	6.1	66.3	44.2	2.90	76.2	22.9	2.4	60.2	4.13	46.1	97.3	4.3	4.8						
	15.00	4.7	10.8	66.9	44.1	2.81	76.5	23.8	2.2	61.4	4.16	47.2	97.9	4.3	4.9						
60	7.50	0.8	1.7	63.3	43.6	3.37	74.8	18.8	3.4	63.5	4.21	49.1	98.9	4.4	5.0						
	11.30	2.4	5.5	64.6	44.0	3.17	75.4	20.4	2.9	65.9	4.27	51.4	100.1	4.5	5.2						
	15.00	4.3	10.0	65.2	44.1	3.07	75.7	21.2	2.7	67.2	4.30	52.5	100.7	4.6	5.4						
70	7.50	0.7	1.7	61.2	42.8	3.71	73.8	16.5	4.3	68.6	4.34	53.8	101.4	4.6	5.5						
	11.30	2.3	5.3	62.6	43.4	3.48	74.5	18.0	3.7	70.9	4.39	55.9	102.5	4.7	5.8						
	15.00	4.1	9.6	63.3	43.6	3.37	74.8	18.8	3.4	72.0	4.42	56.9	103.0	4.8	5.9						
80	7.50	0.8	1.8	58.7	41.6	4.13	72.8	14.2	5.4	73.0	4.44	57.8	103.5	4.8	6.1						
	11.30	2.3	5.2	60.4	42.4	3.84	73.5	15.7	4.7	74.9	4.48	59.6	104.4	4.9	6.4						
	15.00	4.1	9.4	61.1	42.7	3.72	73.8	16.4	4.3	75.7	4.50	60.3	104.8	4.9	6.6						
90	7.50	0.8	2.0	55.7	40.2	4.63	71.5	12.0	6.7	76.2	4.51	60.8	105.1	5.0	6.7						
	11.30	2.3	5.3	57.7	41.2	4.29	72.4	13.4	5.8	77.4	4.52	61.9	105.6	5.0	7.1						
	15.00	4.0	9.3	58.6	41.6	4.14	72.7	14.2	5.4	77.7	4.52	62.3	105.8	5.0	7.3						
100	7.50	0.9	2.0	52.2	38.5	5.24	70.0	10.0	8.1	Operation Not Recommended											
	11.30	2.3	5.3	54.5	39.6	4.84	71.0	11.3	7.2												
	15.00	4.0	9.3	55.6	40.1	4.66	71.5	11.9	6.7												
110	7.50	0.8	1.8	47.9	36.5	5.97	68.3	8.0	9.8												
	11.30	2.2	5.2	50.7	37.8	5.50	69.4	9.2	8.7												
	15.00	4.0	9.2	51.9	38.4	5.28	69.9	9.8	8.2												
120	7.50	0.6	1.3	Operation Not Recommended																	
	11.30	2.0	4.7													46.0	35.6	6.29	67.5	7.3	10.5
	15.00	3.8	8.8													47.5	36.3	6.04	68.1	7.9	9.9

Interpolation is permissible; extrapolation is not.  
 All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.  
 AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.  
 Table does not reflect fan or pump power corrections for AHRI/ISO conditions.  
 All performance is based upon the lower voltage of dual voltage rated units.  
 Operation below 40°F EWT is based upon a 15% methanol antifreeze solution.  
 See performance correction tables for operating conditions other than those listed above.  
 For operation in the shaded areas, please see the Performance Data Selection Notes.

### Physical Data

	TTS			
Model	026	038	049	064
Compressor [1 Each]	Copeland UltraTech Two-Stage Scroll			
Factory Charge HFC-410A (oz) [kg]	93 [2.64]	120 [3.40]	137 [3.89]	212 [6.01]
<b>Water Connection Size</b>				
(In)	1 (Swivel)			
<b>HWG Connection Size</b>				
(In)	1 (Swivel)			
<b>Line Set Connection Size</b>				
Vapor Line Sweat Connection (in.)	3/4	7/8	7/8	7/8
Liquid Line Sweat Connection (in.)	3/8	3/8	3/8	1/2
Weight - Operating, (lbs) [kg]	203 [92]	221 [100]	250 [113]	265 [120]
Weight - Packaged, (lbs) [kg]	218 [99]	236 [107]	265 [120]	280 [127]
Maximum Working Water Press (psi) [kPa]	300 [2,068]	300 [2,068]	300 [2,068]	300 [2,068]

Units have grommet compressor mountings, TXV expansion devices, and 1/2" [12.2mm] & 3/4" [19.1mm] electrical knockouts.

	TAC						
Model	026-17	026-21	038-21	038-24	049-21	049-24	064-24
<b>Connections - Sweat in. (cm)</b>							
Liquid I.D.	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)
Suction I.D.	3/4 (1.9)	3/4 (1.9)	7/8 (2.22)	7/8 (2.22)	7/8 (2.22)	7/8 (2.22)	7/8 (2.22)
<b>Cased Coil Dimensions in. (cm)</b>							
A - Width	17 1/2 (44.54)	21 (53.34)	21 (53.34)	24 1/2 (62.23)	21 (53.34)	24 1/2 (62.23)	24 1/2 (62.23)
B - Coil Height	14 1/2 (36.82)	17 1/2 (44.45)	25 7/8 (65.72)	25 3/8 (64.45)	25 7/8 (65.72)	25 3/8 (64.45)	30 1/4
C - Height	20 (50.8)	20 (50.8)	28 (71.12)	32 (81.28)	28 (71.12)	32 (81.28)	32 (81.28)
<b>Weight</b>							
Coil Weight lbs. (kg)	46 (21)	54 (24)	76 (34)	89 (40)	76 (34)	89 (40)	108 (49)
Shipping Weight lbs. (kg)	51 (23)	60 (27)	83 (38)	99 (45)	83 (38)	99 (45)	118 (54)

	TAH						
Model	026-A	026-B	038-B	038-C	049-B	049-C	064-C
<b>Emerson ECM Fan Motor &amp; Blower in. [cm]</b>							
Liquid I.D.	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]	3/8 [0.95]
Suction I.D.	3/4 [1.9]	3/4 [1.9]	7/8 [2.22]	7/8 [2.22]	7/8 [2.22]	7/8 [2.22]	7/8 [2.22]
Fan Motor Type/Speeds	ECM Variable						
Fan Motor (hp)	1/2				1		
Blower Wheel Size (Dia x W) in. [mm]	9 x 7 [229 x 178]			12 x 10 [305 x 254]			
Air Coil Dimensions (H x W) in. [mm]	3 - 2 Row 14 x 17 [356 x 432]			3 - 2 Row 24 x 17 [610 x 432]			3 - 3 Row 24x17 [610 x 432]
Filter Standard - 1" [25mm] Throwaway	16 x 20 [406 x 508]	20 x 20 [508 x 508]		20 x 24 [508 x 610]	20 x 20 [508 x 508]	20 x 24 [508 x 610]	
Weight - Operating lbs. [kg]	80 [36]	163 [74]	173 [78]	181 [82]	180 [82]	188 [85]	198 [90]
Weight - Packaged lbs. [kg]	96 [44]	179 [81]	198 [90]	206 [93]	218 [99]	226 [103]	236 [107]

## Electrical Data

### Electrical Data (TTS)

Model	Compressor			HWG Pump FLA	External Pump FLA	Total Unit FLA	Min Circuit Amps	Max Fuse/HACR
	RLA	LRA	Qty					
026	11.7	58.3	1	0.5	4.0	16.2	19.1	30
038	15.3	83.0	1	0.5	4.0	19.8	23.6	35
049	21.2	104.0	1	0.5	4.0	25.7	31.0	50
064	27.1	152.9	1	0.5	4.0	31.6	38.3	60

Rated Voltage of 208/230/60/1  
HACR circuit breaker in USA only

Min/Max Voltage of 197/252  
All fuses Class RK-5

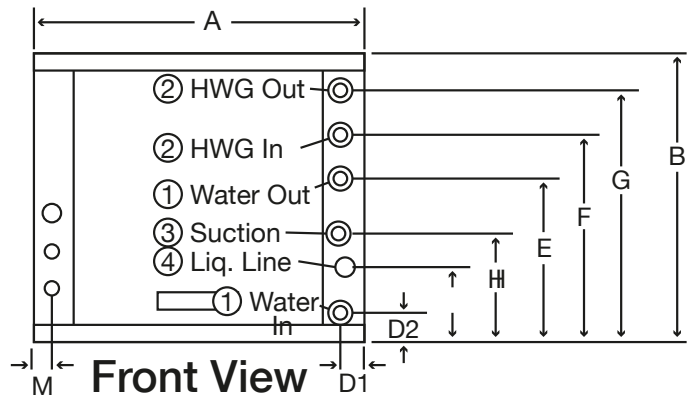
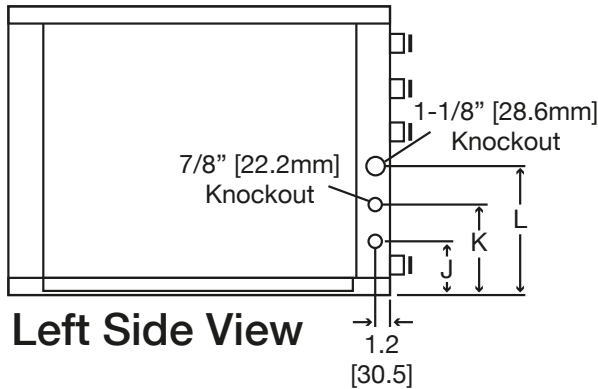
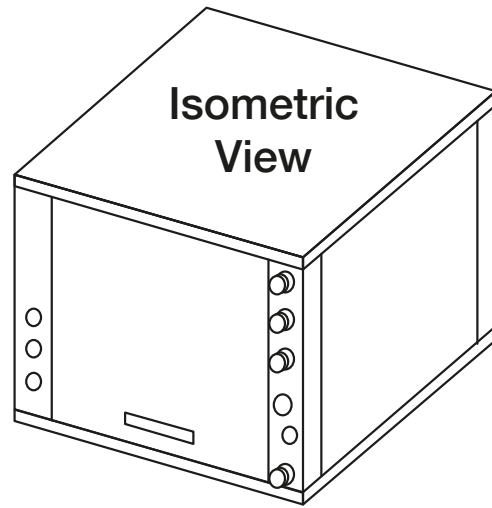
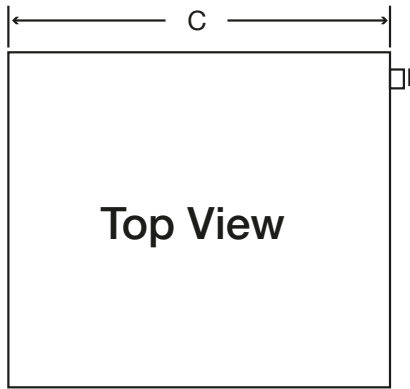
### Electrical Data (TAH)

Model	Fan Motor FLA	Fan Motor HP	Max Fan ESP	Min Circ Amp (120) 208/230	Total Unit FLA	Max Fuse/HACR (120) 208/230
026	(7.7) 4.3	1/2	0.5	(7.8) 4.9	(7.7) 4.3	(15) 15
038	(7.7) 4.3	1/2	0.5	(7.8) 4.9	(7.7) 4.3	(15) 15
049	(12.8) 7	1	1	(14.4) 8.6	(12.8) 7	(25) 15
064	(12.8) 7	1	1	(14.4) 8.6	(12.8) 7	(25) 15

Dual Rated Voltate: (115) 208/230  
Min/Max Voltage: 115: 114/132  
Min/Max Voltage: 208/230: 197/254

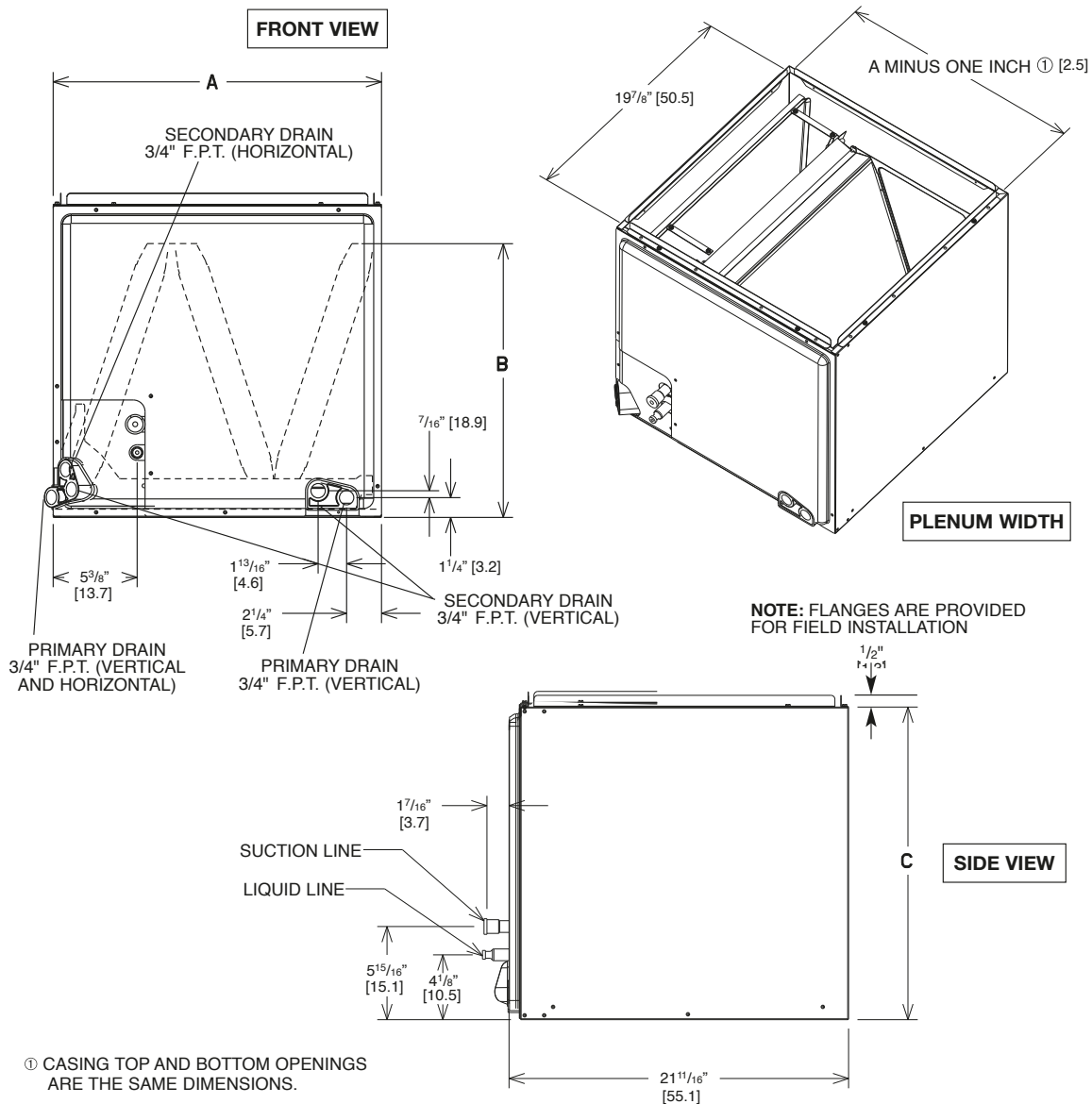
## Tranquility® Indoor (TTS) Dimensional Data

Model	Overall Cabinet			Water Connections					Refrigerant Connection				Electrical Knockouts						
	A Width	B Height	C Depth	1 Water In/Out	2 HWG In/Out	D1 Water In	D2 Water In	E Water Out	F HWG In	G HWG Out	3 Suction	4 Liquid	H	I	J	K	L	M	
				Swivel															
024	in	22.4	19.3	25.6	1"	1"	1.6	2.1	11.0	13.9	16.9	7/8"	3/8"	7.3	5.1	3.6	6.1	8.6	1.4
	cm	56.9	49.0	65.0			4.1	5.3	27.9	35.3	42.9			18.5	13.0	9.1	15.5	21.8	3.6
036	in	25.4	21.3	30.6	1"	1"	1.7	3.4	12.1	15.6	18.9	7/8"	3/8"	8.4	6.1	3.6	6.1	8.6	1.7
	cm	64.5	54.1	77.7			4.3	8.6	30.7	39.6	48.0			21.3	15.5	9.1	15.5	21.8	4.3
048	in	25.4	21.3	30.6	1"	1"	1.7	3.4	12.1	15.6	18.9	7/8"	1/2"	8.4	6.1	3.6	6.1	8.6	1.7
	cm	64.5	54.1	77.7			4.3	8.6	30.7	39.6	48.0			21.3	15.5	9.1	15.5	21.8	4.3
060	in	25.4	21.3	30.6	1"	1"	1.7	3.4	12.1	15.6	18.9	7/8"	1/2"	8.4	6.1	3.6	6.1	8.6	1.7
	cm	64.5	54.1	77.7			4.3	8.6	30.7	39.6	48.0			21.3	15.5	9.1	15.5	21.8	4.3



## Tranquility® Cased Coil (TAC) Dimensional Data

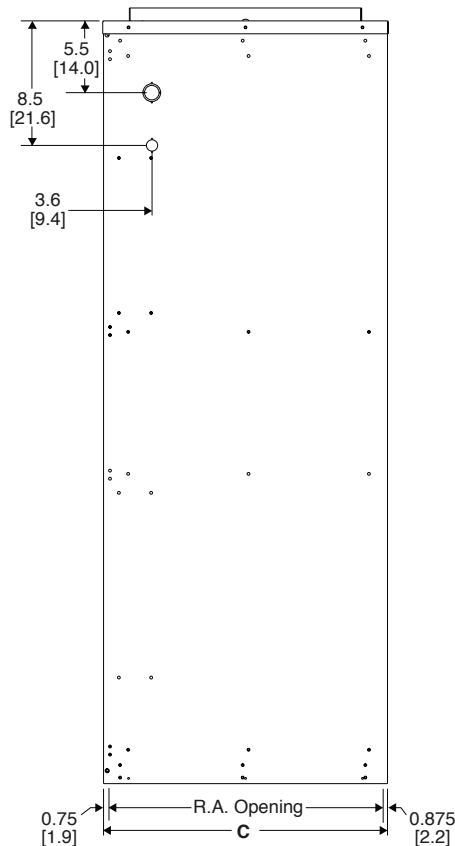
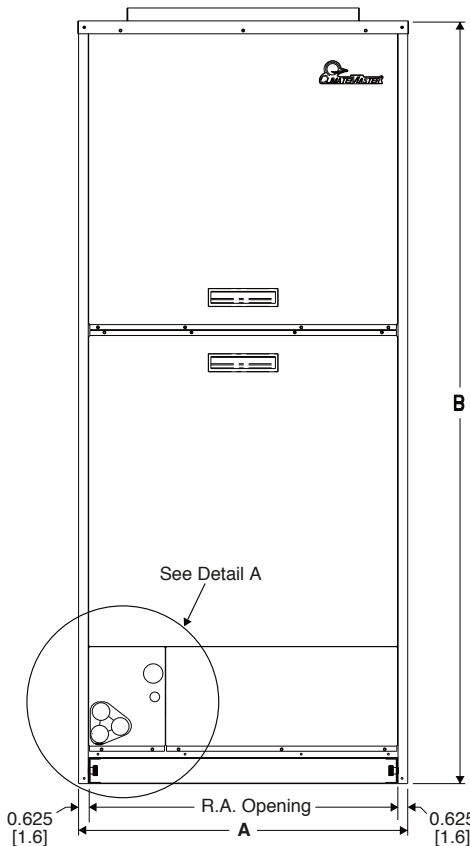
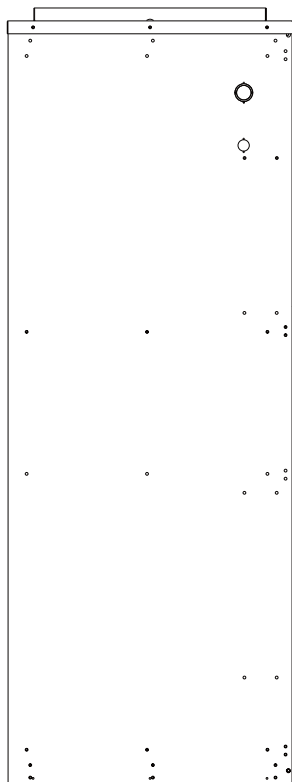
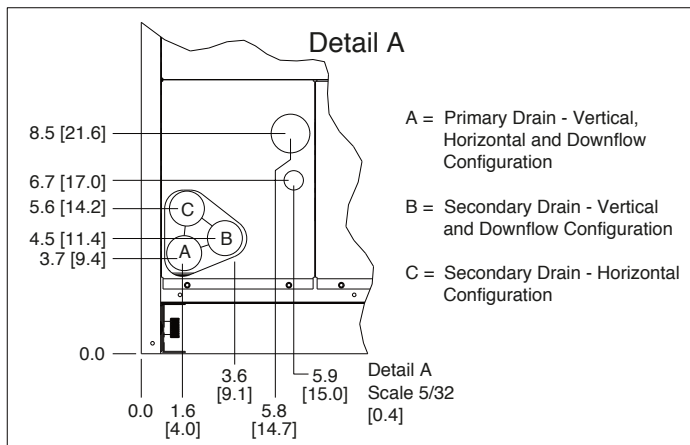
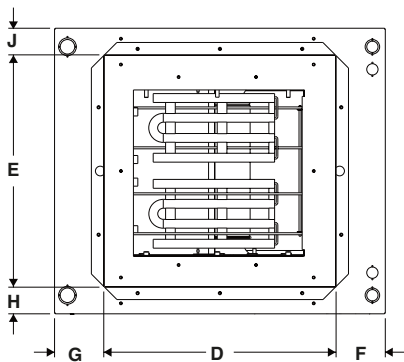
Model	026-17	026-21	038-21	038-24	049-21	049-24	064-24
<b>Connections - Sweat in. (cm)</b>							
Liquid I.D.	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)	3/8 (0.95)
Suction I.D.	3/4 (1.9)	3/4 (1.9)	7/8 (2.22)	7/8 (2.22)	7/8 (2.22)	7/8 (2.22)	7/8 (2.22)
<b>Cased Coil Dimensions in. (cm)</b>							
A - Width	17 1/2 (44.54)	21 (53.34)	21 (53.34)	24 1/2 (62.23)	21 (53.34)	24 1/2 (62.23)	24 1/2 (62.23)
B - Coil Height	14 1/2 (36.82)	17 1/2 (44.45)	25 7/8 (65.72)	25 3/8 (64.45)	25 7/8 (65.72)	25 3/8 (64.45)	30 1/4
C- Height	20 (50.8)	20 (50.8)	28 (71.12)	32 (81.28)	28 (71.12)	32 (81.28)	32 (81.28)
<b>Weight</b>							
Coil Weight lbs. (kg)	46 (21)	54 (24)	76 (34)	89 (40)	76 (34)	89 (40)	108 (49)
Shipping Weight lbs. (kg)	51 (23)	60 (27)	83 (38)	99 (45)	83 (38)	99 (45)	118 (54)





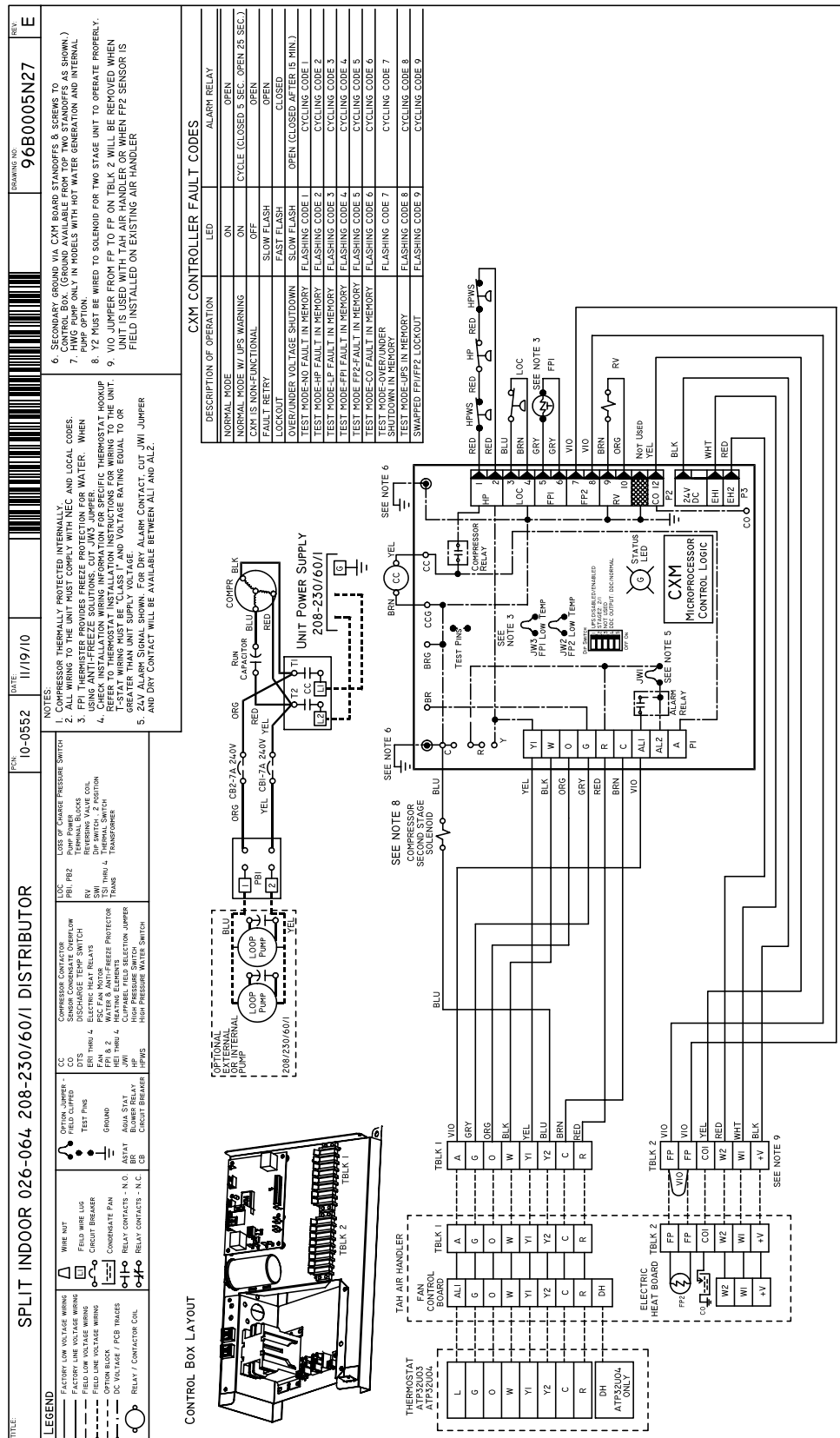
## Tranquility® Air Handler (TAH) Dimensional Data

Cabinet Size		Overall Cabinet			1	2	3	4	5	6
		A Width	B Height	C Depth	D	E	F	G	H	J
A - Cabinet	in.	18.5	44.0	22.0	14.0	14.0	2.3	2.3	4.1	4.1
	cm.	47.0	111.8	55.9	35.6	35.5	5.8	5.8	10.3	10.3
B - Cabinet	in.	22.0	55.0	22.0	18.0	18.0	2.1	2.1	2.1	2.1
	cm.	55.9	139.7	55.9	45.7	45.7	5.2	5.2	5.2	5.2
C - Cabinet	in.	25.5	59.0	22.0	18.0	18.0	3.8	3.8	2.1	2.1
	cm.	64.8	149.9	55.9	45.7	45.7	9.9	9.9	5.2	5.2

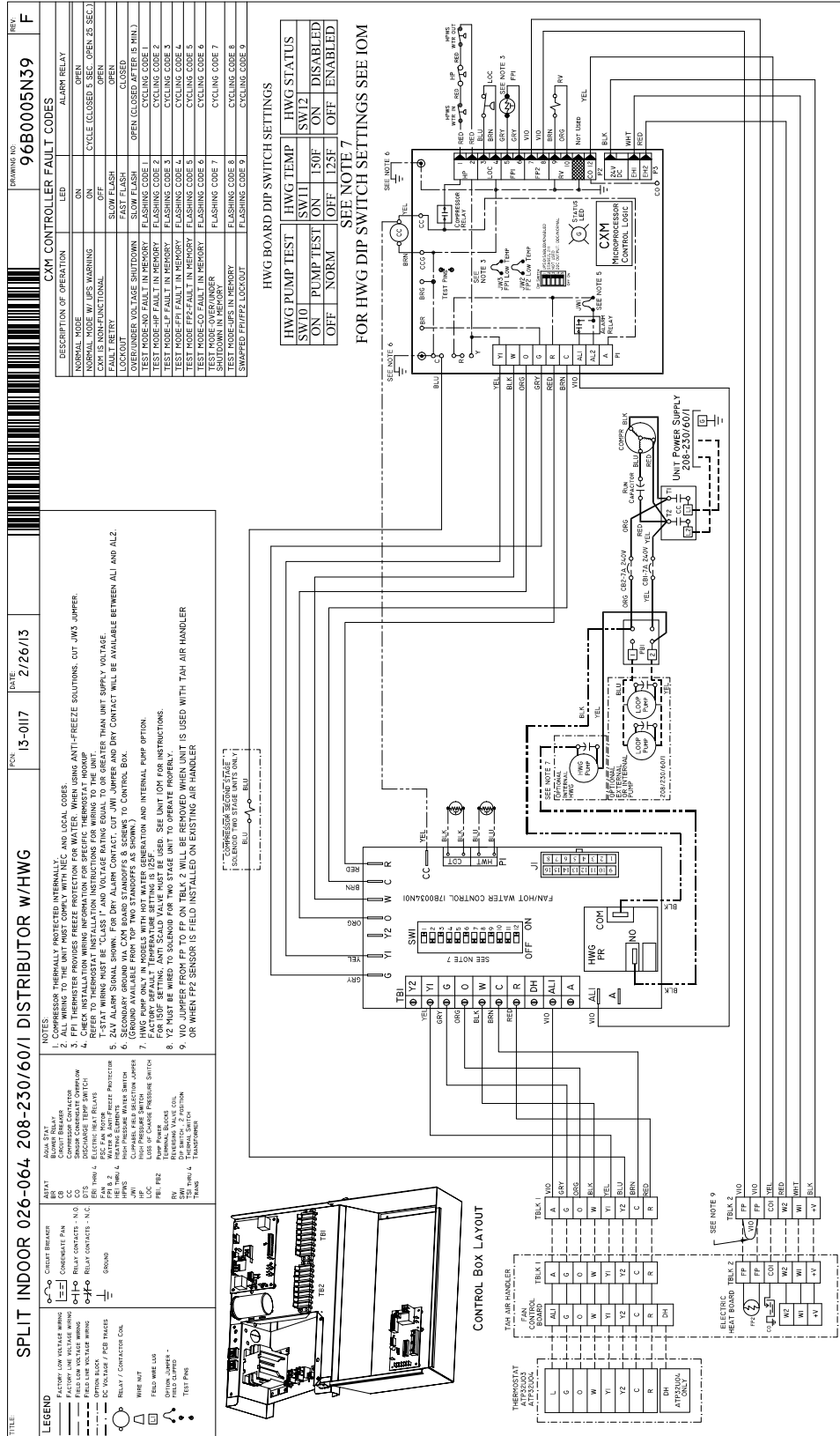


# Tranquility® Split (TTS/TAC/TAH) Series

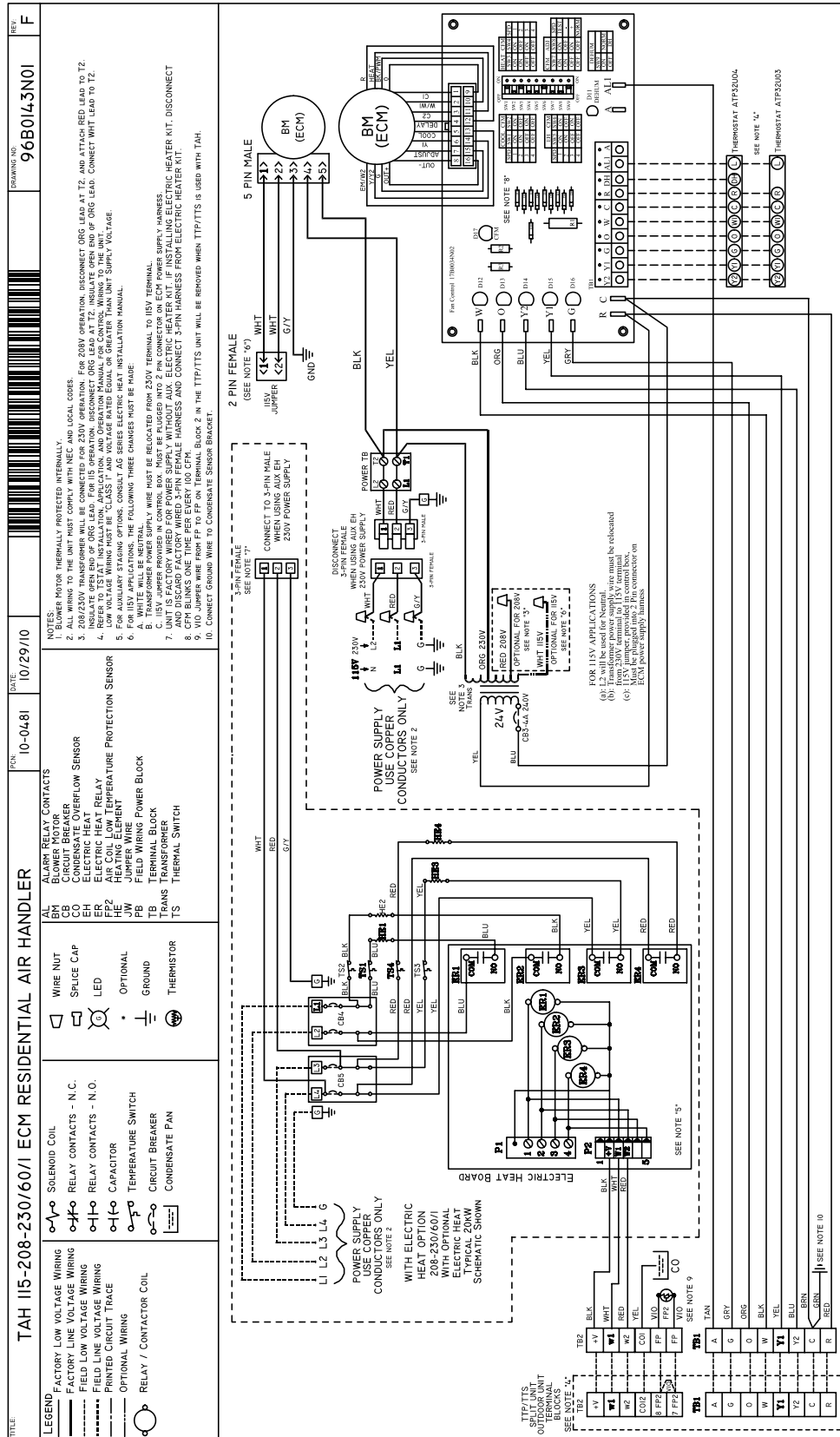
## Tranquility® Indoor Split (TTS) Electrical Wiring Diagram - 96B0005N27



## Tranquility® Indoor Split (TTS) with HWG Electrical Wiring Diagram - 96B0005N39



## Tranquility® Air Handler (TAH) Electrical Wiring Diagram - 96B0143N01



## Engineering Guide Specifications

### General

The liquid source heating/cooling split condensing units shall be AHRI/ISO/ASHRAE 13256-1 (ground-source closed-loop) performance certified and listed by a nationally recognized safety-testing laboratory or agency. Each unit shall be water run-tested at the factory. Each unit shall be pallet mounted and shipped with appropriate protective packaging to help avoid damage in transportation.

Units shall be warranted by the manufacturer against defects in materials and workmanship for a period ten years on parts and a service labor allowance for the first five years parts. An optional extended labor warranty is available which extends the service labor allowance to ten.

The water source units shall be designed to operate with entering fluid temperature between 20°F and 120°F.

### Casing & Cabinet

The cabinet shall be fabricated from heavy-gauge galvanized steel and painted with an epoxy powder coating. The interior shall be insulated with 1/2" thick, multi-density, coated glass fiber. Three service access panels shall be provided and shall be removable with linesets and water piping in place. The internal component layout shall provide for major service with the unit in-place for restricted access installations.

### Refrigerant Circuit

All units shall contain EarthPure® (HFC-410A) sealed refrigerant circuit employing a hermetic motor compressor, bidirectional thermal expansion valve, reversing valve, coaxial tube water-to-refrigerant heat exchanger and service ports. An optional Hot Water Generator (desuperheater) coil shall be provided. Compressors shall be Copeland UltraTech™ Two-Stage scroll type designed for heat pump duty and mounted on vibration isolators. Compressor motors shall be single phase PSC with internal over load protection. A factory provided bidirectional filter drier shall be included in all models. The coaxial water-to-refrigerant heat exchangers shall be designed for close approach temperatures and be constructed of a convoluted copper (optional cupro-nickel) inner tube and a steel outer tube. The thermal expansion valve shall provide proper superheat over the entire fluid temperature range with minimal "hunting". The valve shall operate only in the heating mode with the use of an internal check valve. The water-to-refrigerant heat exchanger, optional desuperheater coil and refrigerant suction lines shall be insulated to prevent condensation at low liquid temperatures.

### Electrical

CXM Control - A microprocessor-based compressor controller shall be provided to monitor and control unit operation. The control shall provide compressor sequencing, high and low pressure monitoring, field selectable low water temperature sensing, over/under voltage monitoring, and unit performance sentinel (UPS). The control shall also provide for water valve connection, a test mode, short cycle protection, random start-up, as well as fault LED, fault memory, and intelligent fault retry.

The control shall employ quick attach harness assemblies for low voltage connections to the control board to aid in troubleshooting or replacement. An integral terminal block with screw terminals shall be provided on the control for field low voltage connections. A circuit breaker protected 75VA transformer shall be employed. Line voltage box lugs shall be provided for unit wiring. Units shall have knockouts for entrance of low and line voltage wiring. The control box shall be harness plug-connected for easy removal. Residential models shall have a dual circuit-breaker protected power block for the connection of external Flow Controller pump module.

### Piping

Supply and return water connections, as well as Hot Water Generator (desuperheater) connections shall be 1" FPT brass swivel fittings which provide a union and eliminate the need for pipe wrenches and sealants when making field connections. A thread by sweat fitting shall be provided for connection to the water heater. All water piping shall be insulated to prevent condensation at low liquid temperatures.

# Tranquility® Split (TTS/TAC/TAH) Series Submittal Data

Models 026 - 064  
60Hz - HFC-410A

Residential



### SUBMITTAL DATA - I-P UNITS

Unit Designation: \_\_\_\_\_

Job Name: \_\_\_\_\_

Architect: \_\_\_\_\_

Engineer: \_\_\_\_\_

Contractor: \_\_\_\_\_

### PERFORMANCE DATA

Cooling Capacity: \_\_\_\_\_ Btuh

EER: \_\_\_\_\_

Heating Capacity: \_\_\_\_\_ Btuh

COP: \_\_\_\_\_

Ambient Air Temp: \_\_\_\_\_ °F

Entering Water Temp (Clg): \_\_\_\_\_ °F

Entering Air Temp (Clg): \_\_\_\_\_ °F

Entering Water Temp (Htg): \_\_\_\_\_ °F

Entering Air Temp (Htg): \_\_\_\_\_ °F

Airflow: \_\_\_\_\_ CFM

Fan Speed or Motor/RPM/Turns: \_\_\_\_\_

Operating Weight: \_\_\_\_\_ (lb)

### ELECTRICAL DATA

Power Supply: 208/230 Volts \_\_\_\_\_ Single Phase \_\_\_\_\_ 60 Hz

Minimum Circuit Ampacity: \_\_\_\_\_

Maximum Overcurrent Protection: \_\_\_\_\_

## Accessories & Options

### Hot Water Generator

An optional heat reclaiming desuperheater coil of vented double-wall copper construction suitable for potable water shall be provided. The coil and hot water circulating pump shall be factory mounted inside the unit. A high limit and low compressor discharge line temperature switch shall be provided to disable the pump when these conditions occur.

### Cupro-Nickel Heat Exchanger

An optional corrosion resistant CuNi coaxial heat exchanger shall be factory installed in lieu of standard copper construction.

### Thermostat (field installed)

A multistage auto-changeover electronic digital thermostat shall be provided. The thermostat shall offer 3 heating and 2 cooling stages with precise temperature control. An OFF-HEAT-AUTO-COOL-EMERG system switch, OFF-AUTO fan switch, and indicating LED's shall be provided. The thermostat shall read out in °F or °C and be calibratable.

### Flow Controller

A self-contained module shall provide all fluid pumping, fill and connection requirements for ground-source closed loop systems up to 20 GPM. The Flow Controller shall provide 1" pump isolation valves and 3-way service valves. Pump heads shall be removable from the volute for easy replacement. The Flow Controller shall be enclosed in a polystyrene case and fully insulated with urethane foam to prevent condensation.

### Hose Kits (field installed)

A rubber hose kit shall provide connections between the unit and Flow Controller. Rubber 1" hose allows flexible connection and absorbs vibration transmission between unit and Flow Controller. Brass elbows with MPT fittings for unit connection, barbed fittings for hose connection and FPT fittings for Pressure/Temperature ports shall be included to allow service and troubleshooting of the unit. Hose clamps shall be used to connect the hose to the brass elbows and Flow Controller.

## Warranty Information

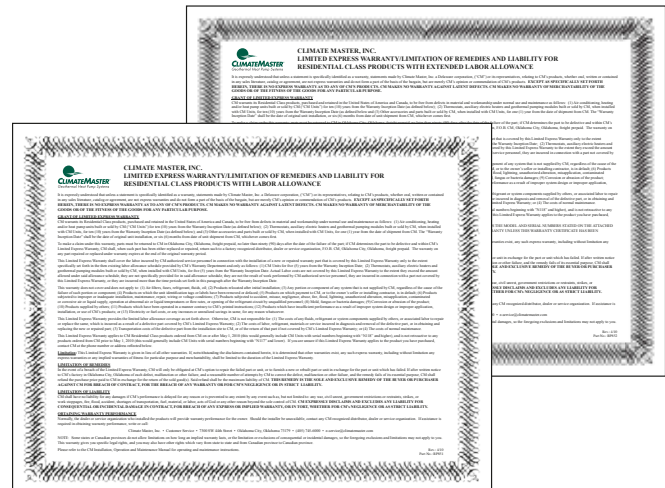
The 2010 standard warranty applies to units ordered on or after May 1, 2010. See ClimateMaster's 2010 Limited Express Residential Warranty Certificate RP851 for specific coverage and limitation.

ClimateMaster residential class heat pumps are backed by a ten-year limited warranty on all unit parts, including the following accessories when installed with ClimateMaster units: Flow Controllers, Thermostats & Electric Heaters.

ClimateMaster goes even further to back up its commitment to quality by including a service labor allowance for the first five years on unit parts and thermostats, auxiliary electric heaters and geothermal pumping modules.

The Optional Extended Factory Service Labor Allowance Warranty offers additional length of term protection to the consumer by offsetting service labor costs for 10 years.

To order this warranty, contact your ClimateMaster distributor. This coverage must be purchased within 90 days of unit installation. See Limited Express Extended Labor Warranty Certificate RP852 for details.





## Revision History

Date	Page #	Description
31 March, 14	13	Updated 026 ISO Data
14 June, 13	All	Removed TTP and Updated TTS to Rev. C
2 May, 12	167	'Return Air Opening' Added to Dimensional Drawing
23 April, 12	172	Submittal Page Added
23 April, 12	147, 162	TAC 026-B Dimensions Corrected
31 Jan., 10	162	Refrigerant Charge Information Updated
29 Sept., 10	163	Electrical Data Updated
26 July, 10	Wire Diagram Pages	Wire Diagram revision: water-side high pressure switches added
15 July, 10	123	Compressor isolation upgrade from Springs to grommets
17 June, 10	All	TAC/TAH Information Added
03 Aug, 09	All	TTP Information Added
05 June, 08	All	Reformatted Document Size
03 Mar, 08	Various	Various Minor Corrections
01 Mar, 07	20	Added New Notes to Electrical Data
01 Oct, 06	All	First Published