



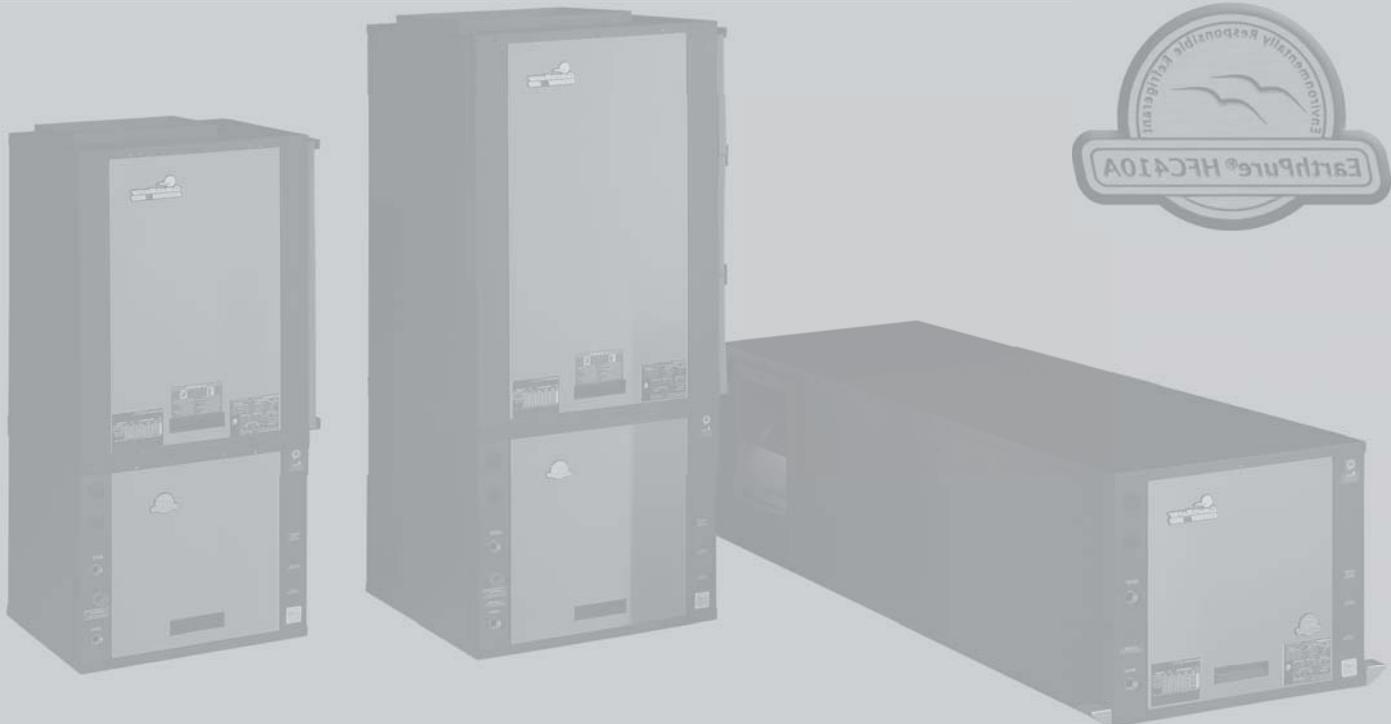
## TRANQUILITY 20™ SINGLE-STAGE (TS) SERIES



SIZE 006 - 070 (1.76kW - 21.1kW)  
HORIZONTAL, VERTICAL & DOWNFLOW  
R410A - 60Hz STANDARD & EXTENDED RANGE



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R410A - 60Hz STANDARD & EXTENDED RANGE  
HORIZONTAL, VERTICAL & DOWNFLOW  
SIZE 018 - 070 (5.3kW - 21.1kW)

### THE TRANQUILITY 20™ SINGLE-STAGE (TS) SERIES

The award winning Tranquility series raises the bar for Water-Source Heat Pump efficiencies, features and application flexibility. Not only does the Tranquility 20™ far exceed ASHRAE 90.1 efficiencies, but it also uses EarthPure® HFC-410A zero ozone depletion refrigerant, making it an extremely environmentally-friendly option. Tranquility 20™ is eligible for additional LEED® (Leadership in Energy and Environmental Design) points because of the "green" technology design.

Available in sizes 1/2 tons (1.76 kW) through 6 tons (21.1 kW) with multiple cabinet options (vertical upflow, vertical downflow and horizontal) the Tranquility 20™ offers a wide range of units for most any installation. The Tranquility 20™ has an extended range refrigerant circuit, capable of ground loop (geothermal) applications as well as water loop (boiler-tower) applications. Standard features are many. Copeland scroll compressors, microprocessor controls, galvanized steel cabinet, polyester powder coat paint, stainless steel drain pan and foil-backed air handler insulation are just some of the features of the Tranquility 20™ series.

ClimateMaster's exclusive double isolation compressor mounting system makes the Tranquility 20™ the quietest unit on the market. Compressors are mounted on vibration isolation springs to a heavy gauge mounting plate, which is then isolated from the cabinet base with rubber grommets for maximized vibration/sound attenuation. The unique low profile slanted control box makes installing and maintaining the unit easier than any other water-source heat pump currently in production.

Options such as ECM variable speed fan motor, e-coated air coil, DDC controls, internal pump and high efficiency MERV 11 two-inch (51mm) air filters allow customized design solutions. Optional high static fan motors help overcome some of the challenges associated with ductwork for retrofit installations.

The Tranquility 20™ (TS) Series Water-Source Heat Pumps are designed to meet the challenges of today's HVAC demands with one of the most innovative products available on the market.

### UNIT FEATURES

- Sizes 006 (1/2 ton, 1.76 kW) through 070 (6 tons, 21.1 kW)
- EarthPure® HFC-410A refrigerant
- Exceeds ASHRAE 90.1 efficiencies
- Galvanized steel construction with attractive black mat polyester powder coat paint and silver accents
- Stainless steel drain pan
- Foil-backed insulation in air handler section
- Unique double isolation compressor mounting with vibration isolation springs for quiet operation
- Insulated divider and separate compressor/air handler compartments
- Copeland scroll compressors
- TXV metering device
- Extended range (20 to 120°F, -6.7 to 48.9°C) operation
- Microprocessor controls standard (optional DXM and/or DDC controls)
- LonWorks, BACnet, Modbus and Johnson N2 compatibility options for DDC controls
- Field convertible discharge air arrangement for horizontal units
- High static blowers available
- ECM variable speed fan motor available
- Low profile slanted control box for easy access
- Internally trapped condensate drain line (vertical units only)
- Flush securely-mounted corner post water connections (no backup wrench required)
- Unit Performance Sentinel performance monitoring system
- Eight Safeties Standard
- Wide variety of options including ClimaDry modulating reheat, e-coated air coils and internal pumps

**Selection Procedure****Reference Calculations**

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

$LC = TC - SC$

$S/T = \frac{SC}{TC}$

**Legend and Glossary of Abbreviations**

BTUH = BTU( British Thermal Unit) per hour

CFM = airflow, cubic feet/minute

COP = coefficient of performance = BTUH output/BTUH input

DB = dry bulb temperature (°F)

EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)

EER = energy efficiency ratio = BTUH output/Watt input

EPT = external pipe thread

ESP = external static pressure (inches w.g.)

EWT = entering water temperature

GPM = water flow in U.S. gallons/minute

HE = total heat of extraction, BTUH

HC = air heating capacity, BTUH

HR = total heat of rejection, BTUH

HWC = hot water generator (desuperheater) capacity, Mbtuh

IPT = internal pipe thread

KW = total power unit input, kilowatts

LAT = leaving air temperature, °F

LC = latent cooling capacity, BTUH

LWT = leaving water temperature, °F

MBTUH = 1000 BTU per hour

S/T = sensible to total cooling ratio

SC = sensible cooling capacity, BTUH

TC = total cooling capacity, BTUH

WB = wet bulb temperature (°F)

WPD = waterside pressure drop (psi &amp; ft. of hd.)

**Conversion Table - to convert inch-pound (English) to SI (Metric)**

Air Flow	Water Flow	Ext Static Pressure	Water Pressure Drop
Airflow (L/s) = CFM x 0.472	Water Flow (L/s) = gpm x 0.0631	ESP (Pa) = ESP (in of wg) x 249	PD (kPa) = PD (ft of hd) x 2.99

**Selection Procedure**

- Step 1** Determine the actual heating and cooling loads at the desired dry bulb and wet bulb conditions.
- Step 2** Obtain the following design parameters: Entering water temperature, water flow rate in GPM, air flow in CFM, water flow pressure drop and design wet and dry bulb temperatures. Air flow CFM should be between 300 and 450 CFM per ton. Unit water pressure drop should be kept as close as possible to each other to make water balancing easier. Go to the appropriate tables and find the proper indicated water flow and water temperature.
- Step 3** Select a unit based on total and sensible cooling conditions. Select a unit which is closest to, but no larger than, the actual cooling load.
- Step 4** Enter tables at the design water flow and water temperature. Read the total and sensible cooling capacities (Note: interpolation is permissible, extrapolation is not).
- Step 5** Read the heating capacity. If it exceeds the design criteria it is acceptable. It is quite normal for water source heat pumps to be selected on cooling capacity only since the heating output is usually greater than the cooling capacity.
- Step 6** Determine the correction factors associated with the variable factors of dry bulb and wet bulb (page 14).
- Corrected Total Cooling = tabulated total cooling x wet bulb correction.  
 Corrected Sensible Cooling = tabulated sensible cooling x wet/dry bulb correction.
- Step 7** Compare the corrected capacities to the load requirements. Normally if the capacities are within 10% of the loads, the equipment is acceptable. It is better to undersize than oversize, as undersizing improves humidity control, reduces sound levels and extends the life of the equipment.
- Step 8** When completed, calculate water temperature rise and assess the selection. If the units selected are not within 10% of the load calculations, then review what effect changing the GPM, water temperature and/or air flow and air temperature would have on the corrected capacities. If the desired capacity cannot be achieved, select the next larger or smaller unit and repeat the procedure. Remember, when in doubt, undersize slightly for best performance.

**Example Equipment Selection For Cooling****Step 1 Load Determination:**

Assume we have determined that the appropriate cooling load at the desired dry bulb 80°F and wet bulb 65°F conditions is as follows:

Total Cooling .....	23,000 BTUH
Sensible Cooling .....	17,000 BTUH
Entering Air Temp....	80°F Dry Bulb / 65°F Wet Bulb

**Step 2 Design Conditions:**

Similarly, we have also obtained the following design parameters:

Entering Water Temp .....	90°F
Water Flow (Based upon 10°F rise in temp.)	6.0 GPM
Air Flow .....	690 CFM

**Step 3, 4 & 5 HP Selection:**

After making our preliminary selection (TS024), we enter the tables at design water flow and water temperature and read Total Cooling, Sens. Cooling and Heat of Rej. capacities:

Total Cooling .....	25,200 BTUH
Sensible Cooling .....	18,400 BTUH
Heat of Rejection .....	31,100 BTUH

**Step 6 & 7 Entering Air and Airflow Corrections:**

Next, we determine our correction factors.

Table	Ent Air	Air Flow	Corrected
Corrected Total Cooling =	25,200	x 0.9705	x 0.9724 = 23,782
Corrected Sens Cooling =	18,400	x 1.0809	x 0.8733 = 17,368
Corrected Heat of Reject =	31,100	x 0.9757	x 0.9728 = 29,519

**Step 8 Water Temperature Rise Calculation & Assessment:**

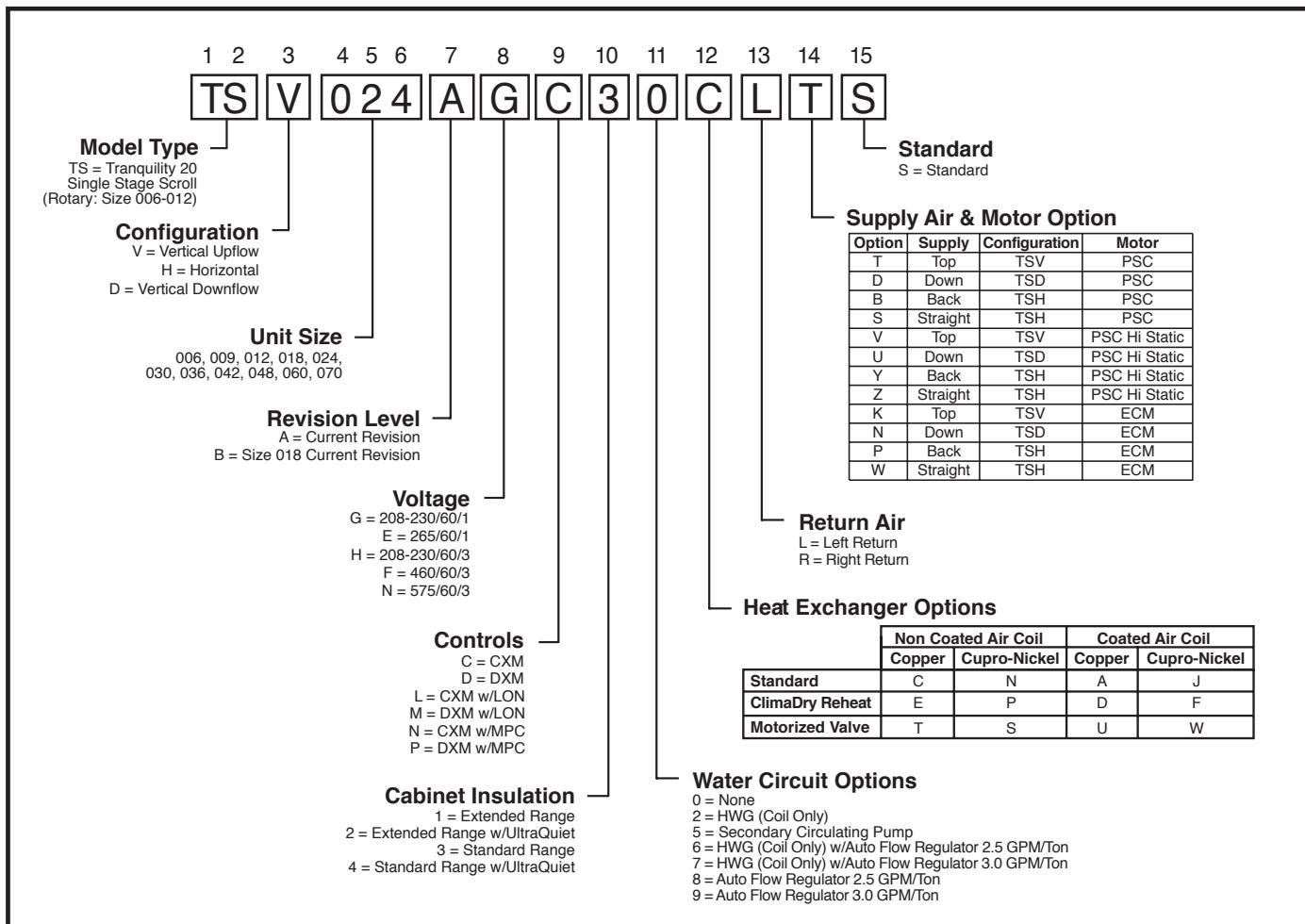
Actual Temperature Rise	9.8°F
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When we compare the Corrected Total Cooling and Corrected Sensible Cooling figures with our load requirements stated in Step 1, we discover that our selection is within +10% of our sensible load requirement. Furthermore, we see that our Corrected Total Cooling figure is within 1,000 Btuh of the actual indicated load.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

## TS Series Nomenclature



Rev.: 04 Sep, 2007D

**Performance Data  
ARI/ASHRAE/ISO 13256-1**

ASHRAE/ARI/ISO 13256-1. English (IP) Units

Model	Fan Motor	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 77°F		Heating 32°F	
		Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
TSH/V006	PSC	6,300	15.7	8,000	5.4	7,400	25.5	6,300	4.4	6,700	18.5	4,800	3.4
TSH/V009	PSC	9,300	15.3	11,100	4.8	11,100	25.2	9,400	4.3	10,000	18.1	7,100	3.4
TSH/V012	PSC	11,700	15.4	13,800	4.5	13,300	24.6	11,800	4.0	12,300	18.1	9,500	3.5
TSH/V/D 018	PSC	18,600	15.0	23,000	5.2	21,300	24.8	18,800	4.5	19,500	18.4	14,500	3.6
	ECM	19,200	16.5	23,300	5.9	22,100	26.3	18,900	4.9	20,200	19.4	14,500	3.9
TSH/V/D 024*	PSC	25,100	16.2	29,600	4.9	28,600	25.7	25,000	4.3	26,300	19.1	19,000	3.7
	ECM	25,000	17.0	30,000	5.3	28,100	27.4	25,100	4.6	26,000	20.0	19,400	3.8
TSH/V/D 030	PSC	28,200	15.3	34,900	5.0	31,700	22.9	29,400	4.4	29,400	17.6	23,600	3.8
	ECM	28,600	15.6	35,200	5.3	32,200	23.9	29,400	4.6	29,800	18.0	23,700	3.9
TSH/V/D 036	PSC	33,000	16.6	39,800	5.5	37,300	25.1	32,900	4.8	34,500	19.2	25,700	3.9
	ECM	33,100	17.6	39,500	5.8	37,300	26.5	32,900	5.1	34,600	20.2	25,800	4.2
TSH/V/D 042	PSC	37,400	16.0	49,400	5.4	42,900	24.3	40,100	4.6	39,300	19.4	31,600	3.8
	ECM	37,800	17.1	48,600	5.7	44,200	27.1	39,300	4.9	40,000	20.0	30,400	4.0
TSH/V/D 048	PSC	47,000	15.3	60,000	5.0	53,900	23.3	49,000	4.4	49,900	17.6	39,000	3.7
	ECM	47,600	15.9	59,700	5.2	54,100	24.6	48,700	4.5	50,100	18.5	38,400	3.8
TSH/V/D 060	PSC	61,000	15.9	70,400	5.0	67,000	23.2	58,700	4.5	63,300	18.2	46,500	3.7
	ECM	61,000	16.4	70,800	5.2	67,200	24.3	59,100	4.6	64,000	19.0	46,700	3.8
TSH/V/D 070	PSC	67,500	14.4	85,800	5.0	77,100	21.6	69,400	4.3	70,800	16.6	54,000	3.6
	ECM	67,000	15.2	84,900	5.0	77,000	23.5	69,000	4.4	70,000	17.8	53,900	3.6

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 operation at lower voltage of dual voltage rated models

\* Consult Factory for 265/60/1 ratings

ASHRAE/ARI/ISO 13256-1. Metric (SI) Units

Model	Fan Motor	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
		Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Cooling 25°C		Heating 0°C	
		Capacity Watts	EER W/W	Capacity Watts	COP	Capacity Watts	EER Watts	Capacity Watts	COP	Capacity Watts	EER W/W	Capacity Watts	COP
TSH/V006	PSC	1,853	4.6	2,353	5.4	2,176	7.5	1,853	4.4	1,970	5.4	1,412	3.4
TSH/V009	PSC	2,735	4.5	3,264	4.8	3,264	7.4	2,764	4.3	2,941	5.3	2,088	3.4
TSH/V012	PSC	3,441	4.5	4,058	4.5	3,911	7.2	3,470	4.0	3,617	5.3	2,794	3.5
TSH/V/D 018	PSC	5,470	4.4	6,764	5.2	6,264	7.3	5,529	4.5	5,735	5.4	4,264	3.6
	ECM	5,647	4.8	6,852	5.9	6,500	7.7	5,558	4.9	5,941	5.7	4,426	3.9
TSH/V/D 024*	PSC	7,356	4.7	8,675	4.9	8,382	7.5	7,327	4.3	7,708	5.6	5,569	3.7
	ECM	7,327	5.0	8,792	5.3	8,236	8.0	7,356	4.6	7,620	5.9	5,686	3.8
TSH/V/D 030	PSC	8,265	4.5	10,229	5.0	9,291	6.7	8,617	4.4	8,617	5.2	6,917	3.8
	ECM	8,382	4.6	10,317	5.3	9,437	7.0	8,617	4.6	8,734	5.3	6,946	3.9
TSH/V/D 036	PSC	9,672	4.9	11,665	5.5	10,932	7.4	9,642	4.8	10,111	5.6	7,532	3.9
	ECM	9,701	5.2	11,577	5.8	10,932	7.8	9,642	5.1	10,141	5.9	7,562	4.2
TSH/V/D 042	PSC	10,961	4.7	14,478	5.4	12,573	7.1	11,753	4.6	11,518	5.4	9,261	3.8
	ECM	11,079	5.0	14,244	5.7	12,954	7.9	11,518	4.9	11,723	5.9	8,910	4.0
TSH/V/D 048	PSC	13,775	4.5	17,585	5.0	15,797	6.8	14,361	4.4	14,625	5.2	11,430	3.7
	ECM	13,951	4.7	17,497	5.2	15,856	7.2	14,273	4.5	14,683	5.4	11,254	3.8
TSH/V/D 060	PSC	17,878	4.7	20,633	5.0	19,637	6.8	17,204	4.5	18,552	5.3	13,628	3.7
	ECM	17,878	4.8	20,750	5.2	19,695	7.1	17,321	4.6	18,757	5.6	13,687	3.8
TSH/V/D 070	PSC	19,783	4.2	25,147	5.0	22,597	6.3	20,340	4.3	20,750	4.9	15,826	3.6
	ECM	19,637	4.5	24,883	5.0	22,567	6.9	20,223	4.4	20,516	5.2	15,797	3.6

Cooling capacities based upon 27°C DB, 19°C WB entering air temperature

Heating capacities based upon 20°C DB, 15°C WB entering air temperature

All ratings based upon operation at lower voltage of dual voltage rated models

\* Consult Factory for 265/60/1 ratings

## 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). 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:

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

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

$$TD = 22,500 / (4.5 \times 500)$$

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

$$LWT = EWT - TD$$

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

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).

Heating - EAT 70°F						
EWT	Airflow CFM	HC	kW	HE	LAT	COP
25.5	450	11.5	1.31	7.3	94	2.57
	600	11.8	1.20	7.8	88	2.89
26.9	450	12.8	1.34	8.5	96	2.80
27.1	600	13.1	1.23	9.0	90	3.14
28.1	450	13.2	1.35	8.9	97	2.87
28.3	600	13.6	1.23	9.4	91	3.23
28.8	450	13.5	1.35	9.1	98	2.92
29.0	600	13.8	1.24	9.7	91	3.27
29.5	450	14.7	1.38	10.2	100	3.14
29.7	600	15.1	1.26	10.9	93	3.52
30.8	450	15.3	1.39	10.8	101	3.23
32.0	600	15.7	1.27	11.4	94	3.63
32.6	450	15.6	1.39	11.0	102	3.29
32.8	600	16.0	1.27	11.7	95	3.69
32.9	450	16.8	1.41	12.1	105	3.49
32.4	600	17.2	1.29	12.9	97	3.92
34.1	450	17.5	1.42	12.8	106	3.61
34.3	600	18.0	1.30	13.5	98	4.05
34.5	450	17.9	1.43	13.1	107	3.67
	600	18.3	1.30	13.9	98	4.12
35.0	450	18.9	1.44	14.1	109	3.8
	600	19.4	1.32	14.9	100	
35.7	450	19.7	1.45	14.8	111	
	600	20.2	1.32	15.7		

**Performance Data**  
**TS H/V 006A (PSC Blower)**

240 CFM Nominal (Rated) Airflow Cooling, 240 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F							Heating - EAT 70°F					
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	2.0	3.2	7.4	Operation not recommended							180	3.8	0.48	2.3	89.6	2.3
30	2.0	3.2	7.4	240	4.6	0.50	3.0	93.4	2.7	240	3.9	0.44	2.4	85.1	2.6	
	1.0	0.3	0.7	180	6.7	3.9	0.6	0.26	7.6	25.6	180	4.6	0.50	3.0	93.4	2.7
	1.0	0.3	0.7	240	7.0	4.7	0.7	0.27	7.9	25.8	240	4.7	0.45	3.1	88.0	3.0
	1.5	1.6	3.7	180	6.9	3.9	0.6	0.26	7.8	26.9	180	4.8	0.50	3.2	94.5	2.8
	1.5	1.6	3.7	240	7.2	4.7	0.7	0.26	8.1	27.1	240	4.9	0.46	3.3	88.9	3.1
	2.0	3.0	6.9	180	7.0	4.0	0.6	0.25	7.9	27.7	180	4.9	0.50	3.3	95.0	2.8
40	2.0	3.0	6.9	240	7.3	4.8	0.7	0.26	8.2	27.9	240	5.0	0.46	3.5	89.3	3.2
	1.0	0.3	0.7	180	7.0	4.2	0.6	0.28	7.9	24.8	180	5.4	0.51	3.7	97.8	3.1
	1.0	0.3	0.7	240	7.3	5.0	0.7	0.29	8.2	25.0	240	5.6	0.47	4.0	91.4	3.5
	1.5	1.5	3.5	180	7.0	4.2	0.6	0.27	8.0	25.9	180	5.6	0.51	3.9	98.9	3.2
	1.5	1.5	3.5	240	7.3	5.0	0.7	0.28	8.3	26.1	240	5.8	0.47	4.2	92.3	3.6
	2.0	2.8	6.5	180	7.1	4.2	0.6	0.27	8.0	26.7	180	5.7	0.51	4.1	99.5	3.3
50	2.0	2.8	6.5	240	7.4	5.0	0.7	0.27	8.3	26.9	240	5.9	0.47	4.3	92.7	3.7
	1.0	0.3	0.7	180	6.9	4.4	0.6	0.31	8.0	22.2	180	6.1	0.52	4.4	101.6	3.5
	1.0	0.3	0.7	240	7.2	5.2	0.7	0.32	8.3	22.4	240	6.3	0.48	4.7	94.3	3.9
	1.5	1.4	3.2	180	7.0	4.4	0.6	0.29	8.0	23.9	180	6.4	0.52	4.6	102.7	3.6
	1.5	1.4	3.2	240	7.3	5.2	0.7	0.30	8.4	24.0	240	6.5	0.48	4.9	95.2	4.0
	2.0	2.6	6.0	180	7.1	4.4	0.6	0.29	8.1	24.7	180	6.5	0.52	4.7	103.3	3.6
60	2.0	2.6	6.0	240	7.4	5.2	0.7	0.30	8.4	24.9	240	6.7	0.48	5.0	95.7	4.1
	1.0	0.2	0.5	180	6.7	4.4	0.7	0.35	7.9	19.4	180	6.8	0.53	5.0	105.0	3.8
	1.0	0.2	0.5	240	7.0	5.3	0.8	0.36	8.2	19.6	240	7.0	0.48	5.3	96.9	4.2
	1.5	1.3	3.0	180	6.9	4.5	0.6	0.33	8.0	21.1	180	7.0	0.53	5.3	106.2	3.9
	1.5	1.3	3.0	240	7.2	5.3	0.7	0.34	8.3	21.3	240	7.2	0.48	5.6	97.9	4.4
	2.0	2.4	5.5	180	6.9	4.5	0.6	0.32	8.0	21.9	180	7.2	0.53	5.4	106.9	4.0
70	2.0	2.4	5.5	240	7.2	5.3	0.7	0.33	8.3	22.1	240	7.4	0.48	5.7	98.4	4.5
	1.0	0.2	0.5	180	6.4	4.4	0.7	0.39	7.7	16.5	180	7.4	0.53	5.6	108.3	4.1
	1.0	0.2	0.5	240	6.6	5.2	0.8	0.40	8.0	16.6	240	7.6	0.49	6.0	99.5	4.6
	1.5	1.2	2.8	180	6.6	4.4	0.7	0.36	7.8	18.0	180	7.7	0.53	5.9	109.8	4.2
	1.5	1.2	2.8	240	6.8	5.3	0.8	0.38	8.1	18.2	240	7.9	0.49	6.3	100.6	4.8
	2.0	2.2	5.1	180	6.7	4.4	0.7	0.35	7.9	18.9	180	7.9	0.53	6.1	110.6	4.3
80	2.0	2.2	5.1	240	6.9	5.3	0.8	0.37	8.2	19.0	240	8.1	0.49	6.4	101.2	4.9
	1.0	0.2	0.5	180	5.9	4.2	0.7	0.43	7.4	13.7	180	8.1	0.54	6.3	111.8	4.4
	1.0	0.2	0.5	240	6.2	5.0	0.8	0.45	7.7	13.8	240	8.4	0.49	6.7	102.2	5.0
	1.5	1.1	2.5	180	6.1	4.3	0.7	0.41	7.5	15.1	180	8.5	0.54	6.6	113.7	4.6
	1.5	1.1	2.5	240	6.4	5.1	0.8	0.42	7.8	15.2	240	8.7	0.49	7.0	103.6	5.2
	2.0	2.0	4.6	180	6.3	4.3	0.7	0.40	7.6	15.8	180	8.7	0.54	6.8	114.7	4.7
85	2.0	2.0	4.6	240	6.5	5.2	0.8	0.41	7.9	16.0	240	8.9	0.49	7.2	104.4	5.3
	1.0	0.2	0.5	180	5.7	4.1	0.7	0.46	7.2	12.5	180	8.5	0.54	6.7	113.8	4.6
	1.0	0.2	0.5	240	5.9	4.9	0.8	0.47	7.5	12.6	240	8.7	0.49	7.1	103.8	5.2
	1.5	1.05	2.4	180	5.9	4.2	0.7	0.43	7.4	13.8	180	8.9	0.54	7.0	115.9	4.8
	1.5	1.05	2.4	240	6.2	5.0	0.8	0.45	7.7	13.9	240	9.2	0.49	7.5	105.4	5.4
	2.0	1.9	4.4	180	6.0	4.2	0.7	0.42	7.5	14.5	180	9.2	0.54	7.3	117.2	5.0
90	2.0	1.9	4.4	240	6.3	5.1	0.8	0.43	7.8	14.6	240	9.4	0.50	7.7	106.3	5.6
	1.0	0.2	0.5	180	5.4	4.0	0.7	0.48	7.1	11.3	180	8.9	0.54	7.0	115.8	4.8
	1.0	0.2	0.5	240	5.6	4.8	0.8	0.50	7.3	11.4	240	9.1	0.49	7.5	105.3	5.4
	1.5	1.0	2.3	180	5.7	4.1	0.7	0.46	7.2	12.4	180	9.4	0.54	7.5	118.2	5.1
	1.5	1.0	2.3	240	5.9	4.9	0.8	0.47	7.5	12.5	240	9.6	0.50	7.9	107.1	5.7
	2.0	1.8	4.2	180	5.8	4.2	0.7	0.44	7.3	13.1	180	9.7	0.55	7.7	119.6	5.2
100	2.0	1.8	4.2	240	6.0	5.0	0.8	0.46	7.6	13.2	240	9.9	0.50	8.2	108.2	5.8
	1.0	0.1	0.2	180	4.9	3.7	0.8	0.53	6.7	9.2						
	1.0	0.1	0.2	240	5.1	4.5	0.9	0.55	7.0	9.3						
	1.5	0.8	1.8	180	5.2	3.9	0.8	0.51	6.9	10.2						
	1.5	0.8	1.8	240	5.4	4.6	0.9	0.52	7.2	10.2						
	2.0	1.6	3.7	180	5.3	3.9	0.7	0.49	7.0	10.7						
110	2.0	1.6	3.7	240	5.5	4.7	0.9	0.51	7.3	10.8						
	1.0	0.1	0.2	180	4.4	3.5	0.8	0.59	6.4	7.5						
	1.0	0.1	0.2	240	4.6	4.1	0.9	0.61	6.7	7.6						
	1.5	0.7	1.6	180	4.6	3.6	0.8	0.56	6.6	8.2						
	1.5	0.7	1.6	240	4.8	4.3	0.9	0.58	6.8	8.3						
	2.0	1.4	3.2	180	4.8	3.7	0.8	0.55	6.6	8.6						
120	1.0	0.1	0.2	180	3.9	3.2	0.8	0.65	6.1	6.1						
	1.0	0.1	0.2	240	4.1	3.8	0.9	0.67	6.4	6.1						
	1.5	0.6	1.4	180	4.1	3.3	0.8	0.62	6.3	6.7						
	1.5	0.6	1.4	240	4.3	3.9	0.9	0.64	6.5	6.7						
	2.0	1.2	2.8	180	4.2	3.4	0.8	0.61	6.3	7.0						
	2.0	1.2	2.8	240	4.4	4.0	0.9	0.63	6.6	7.0						

Operation not recommended

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.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68.6°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 40°F EWT is based upon a 15% antifreeze solution.

Operation below 60°F EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

See Performance Data Selection Notes for operation in the shaded areas.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Performance Data****TS H/V 009B (PSC Blower)**

300 CFM Nominal (Rated) Airflow Cooling, 300 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	2.8	2.8	6.5	Operation not recommended						225	5.7	0.69	3.5	93.3	2.4	
30	2.8	2.8	6.5							300	5.8	0.63	3.7	88.0	2.7	
	1.4	0.8	1.8	225	11.6	6.5	0.6	0.37	12.9	31.4	225	6.6	0.71	4.3	97.0	2.7
	1.4	0.8	1.8	300	12.1	7.8	0.6	0.38	13.4	31.6	300	6.7	0.65	4.6	90.8	3.0
	2.1	1.5	3.5	225	11.9	6.6	0.6	0.34	13.0	34.9	225	6.9	0.72	4.5	98.2	2.8
	2.1	1.5	3.5	300	12.4	7.9	0.6	0.35	13.5	35.2	300	7.0	0.66	4.8	91.7	3.1
	2.8	2.7	6.2	225	12.0	6.7	0.6	0.32	13.1	36.9	225	7.0	0.72	4.7	98.8	2.8
40	2.8	2.7	6.2	300	12.5	8.0	0.6	0.33	13.6	37.2	300	7.2	0.66	5.0	92.2	3.2
	1.4	0.8	1.7	225	11.3	6.3	0.6	0.42	12.7	26.7	225	7.7	0.74	5.3	101.9	3.1
	1.4	0.8	1.7	300	11.7	7.6	0.6	0.44	13.2	26.9	300	8.0	0.67	5.7	94.5	3.5
	2.1	1.5	3.4	225	11.5	6.4	0.6	0.39	12.8	29.6	225	8.1	0.74	5.6	103.2	3.2
	2.1	1.5	3.4	300	12.0	7.7	0.6	0.40	13.3	29.8	300	8.3	0.68	6.0	95.6	3.6
	2.8	2.6	5.9	225	11.6	6.5	0.6	0.37	12.9	31.2	225	8.3	0.75	5.8	104.0	3.2
50	2.8	2.6	5.9	300	12.1	7.8	0.6	0.39	13.4	31.5	300	8.5	0.68	6.2	96.2	3.6
	1.4	0.7	1.6	225	10.8	6.2	0.6	0.48	12.4	22.7	225	8.9	0.76	6.4	106.4	3.4
	1.4	0.7	1.6	300	11.3	7.4	0.7	0.49	12.9	22.9	300	9.1	0.69	6.7	98.0	3.8
	2.1	1.4	3.2	225	11.1	6.3	0.6	0.44	12.6	25.1	225	9.2	0.76	6.7	107.9	3.5
	2.1	1.4	3.2	300	11.6	7.5	0.6	0.46	13.1	25.3	300	9.5	0.70	7.1	99.2	4.0
	2.8	2.4	5.6	225	11.2	6.3	0.6	0.42	12.7	26.5	225	9.4	0.77	6.9	108.8	3.6
60	2.8	2.4	5.6	300	11.7	7.6	0.6	0.44	13.2	26.7	300	9.7	0.70	7.3	99.8	4.0
	1.4	0.7	1.5	225	10.3	6.0	0.6	0.53	12.1	19.3	225	9.9	0.77	7.3	110.7	3.8
	1.4	0.7	1.5	300	10.7	7.2	0.7	0.55	12.6	19.5	300	10.2	0.71	7.8	101.4	4.2
	2.1	1.3	3.0	225	10.6	6.1	0.6	0.50	12.3	21.3	225	10.3	0.78	7.7	112.4	3.9
	2.1	1.3	3.0	300	11.1	7.3	0.7	0.51	12.8	21.5	300	10.6	0.71	8.2	102.7	4.4
	2.8	2.3	5.3	225	10.8	6.1	0.6	0.48	12.4	22.5	225	10.5	0.78	7.9	113.3	3.9
70	2.8	2.3	5.3	300	11.2	7.4	0.7	0.50	12.9	22.6	300	10.8	0.71	8.4	103.3	4.4
	1.4	0.6	1.5	225	9.7	5.8	0.6	0.59	11.8	16.4	225	10.9	0.79	8.2	114.9	4.1
	1.4	0.6	1.5	300	10.1	6.9	0.7	0.61	12.2	16.5	300	11.2	0.72	8.7	104.5	4.6
	2.1	1.2	2.8	225	10.1	5.9	0.6	0.56	12.0	18.1	225	11.3	0.79	8.6	116.7	4.2
	2.1	1.2	2.8	300	10.5	7.1	0.7	0.58	12.5	18.2	300	11.6	0.72	9.2	105.9	4.7
	2.8	2.2	5.0	225	10.3	6.0	0.6	0.54	12.1	19.0	225	11.6	0.80	8.9	117.6	4.3
80	2.8	2.2	5.0	300	10.7	7.1	0.7	0.56	12.6	19.2	300	11.9	0.73	9.4	106.7	4.8
	1.4	0.6	1.4	225	9.1	5.6	0.6	0.66	11.4	13.9	225	11.9	0.80	9.1	118.9	4.3
	1.4	0.6	1.4	300	9.5	6.7	0.7	0.68	11.8	14.0	300	12.2	0.73	9.7	107.6	4.9
	2.1	1.1	2.6	225	9.5	5.7	0.6	0.62	11.6	15.3	225	12.3	0.81	9.6	120.8	4.5
	2.1	1.1	2.6	300	9.9	6.8	0.7	0.64	12.1	15.4	300	12.7	0.74	10.2	109.1	5.0
	2.8	2.0	4.7	225	9.7	5.8	0.6	0.60	11.7	16.1	225	12.6	0.81	9.8	121.9	4.5
85	2.8	2.0	4.7	300	10.1	6.9	0.7	0.62	12.2	16.2	300	12.9	0.74	10.4	109.9	5.1
	1.4	0.6	1.3	225	8.8	5.5	0.6	0.69	11.1	12.8	225	12.3	0.81	9.6	120.8	4.5
	1.4	0.6	1.3	300	9.1	6.6	0.7	0.71	11.6	12.9	300	12.7	0.74	10.2	109.1	5.0
	2.1	1.1	2.5	225	9.2	5.6	0.6	0.65	11.4	14.1	225	12.8	0.82	10.0	122.8	4.6
	2.1	1.1	2.5	300	9.5	6.7	0.7	0.67	11.8	14.2	300	13.2	0.75	10.6	110.7	5.2
	2.8	1.9	4.5	225	9.3	5.7	0.6	0.63	11.5	14.8	225	13.1	0.82	10.3	123.9	4.7
90	2.8	1.9	4.5	300	9.7	6.8	0.7	0.65	12.0	14.9	300	13.5	0.75	10.9	111.5	5.2
	1.4	0.6	1.3	225	8.4	5.4	0.6	0.72	10.9	11.7	225	12.8	0.82	10.0	122.8	4.6
	1.4	0.6	1.3	300	8.8	6.4	0.7	0.75	11.3	11.8	300	13.2	0.75	10.6	110.6	5.2
	2.1	1.1	2.5	225	9.2	5.6	0.6	0.65	11.4	14.1	225	13.3	0.83	10.5	124.9	4.7
	2.1	1.1	2.5	300	9.5	6.7	0.7	0.67	11.8	14.2	300	13.7	0.76	11.1	112.3	5.3
	2.8	1.9	4.3	225	9.0	5.6	0.6	0.67	11.3	13.5	225	13.6	0.83	10.7	126.0	4.8
100	2.8	1.9	4.3	300	9.4	6.7	0.7	0.69	11.7	13.6	300	14.0	0.76	11.4	113.1	5.4
	1.4	0.5	1.2	225	7.7	5.1	0.7	0.79	10.4	9.7	225	12.8	0.82	10.0	122.8	4.6
	1.4	0.5	1.2	300	8.0	6.2	0.8	0.82	10.8	9.8	300	13.2	0.75	10.6	110.6	5.2
	2.1	1.0	2.3	225	8.1	5.3	0.7	0.75	10.7	10.8	225	13.3	0.83	10.5	124.9	4.7
	2.1	1.0	2.3	300	8.4	6.3	0.7	0.78	11.1	10.8	300	13.7	0.76	11.1	112.3	5.3
	2.8	1.7	4.0	225	8.3	5.3	0.6	0.74	10.8	11.3	225	13.6	0.83	10.7	126.0	4.8
110	2.8	1.7	4.0	300	8.7	6.4	0.7	0.76	11.2	11.4	300	14.0	0.76	11.4	113.1	5.4
	1.4	0.5	1.1	225	6.9	4.9	0.7	0.86	9.9	8.0	225	12.8	0.82	10.0	122.8	4.6
	1.4	0.5	1.1	300	7.2	5.8	0.8	0.89	10.3	8.1	300	13.2	0.75	10.6	110.6	5.2
	2.1	0.9	2.1	225	7.3	5.0	0.7	0.83	10.2	8.9	225	13.3	0.83	10.5	124.9	4.7
	2.1	0.9	2.1	300	7.6	6.0	0.8	0.85	10.6	8.9	300	13.7	0.76	11.1	112.3	5.3
	2.8	1.6	3.7	225	7.5	5.1	0.7	0.81	10.3	9.3	225	13.6	0.83	10.7	126.0	4.8
120	2.8	1.6	3.7	300	7.9	6.1	0.8	0.84	10.7	9.4	225	14.0	0.76	11.4	113.1	5.4
	1.4	0.4	1.0	225	6.1	4.5	0.7	0.94	9.3	6.5	225	12.8	0.82	10.0	122.8	4.6
	1.4	0.4	1.0	300	6.4	5.4	0.9	0.97	9.7	6.6	300	13.2	0.75	10.6	110.6	5.2
	2.1	0.8	1.9	225	6.5	4.7	0.7	0.90	9.6	7.2	225	13.3	0.83	10.5	124.9	4.7
	2.1	0.8	1.9	300	6.8	5.6	0.8	0.93	10.0	7.3	300	13.7	0.76	11.1	112.3	5.3
	2.8	1.5	3.4	225	6.7	4.8	0.7	0.88	9.7	7.6	225	13.6	0.83	10.7	126.0	4.8
	2.8	1.5	3.4	300	7.0	5.7	0.8	0.91	10.1	7.7	300	14.0	0.76	11.4	113.1	5.4

Operation not recommended

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.

ARI/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 ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

**Performance Data  
TS H/V 012A (PSC Blower)**

350 CFM Nominal (Rated) Airflow Cooling, 350 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
Operation not recommended																
20	3.5	4.0	9.2								265	7.7	0.89	4.9	97.1	2.5
30	3.5	4.0	9.2								350	8.0	0.82	5.2	91.0	2.8
	1.8	0.6	1.4	265	12.1	6.5	0.5	0.50	13.8	24.4	265	8.9	0.92	5.9	101.0	2.8
	1.8	0.6	1.4	350	12.6	7.8	0.6	0.51	14.4	24.6	350	9.1	0.85	6.3	94.1	3.2
	2.6	2.1	4.8	265	12.3	6.6	0.5	0.48	13.9	25.9	265	9.3	0.94	6.2	102.4	2.9
	2.6	2.1	4.8	350	12.8	7.9	0.6	0.49	14.5	26.1	350	9.5	0.86	6.6	95.1	3.3
	3.5	3.8	8.8	265	12.7	6.8	0.5	0.47	14.3	27.3	265	9.5	0.94	6.4	103.1	2.9
40	3.5	3.8	8.8	350	13.3	8.1	0.6	0.48	14.9	27.5	350	9.7	0.86	6.8	95.7	3.3
	1.8	0.6	1.3	265	12.7	6.9	0.5	0.55	14.6	23.3	265	10.3	0.97	7.2	106.0	3.1
	1.8	0.6	1.3	350	13.2	8.2	0.6	0.56	15.2	23.5	350	10.6	0.88	7.6	98.0	3.5
	2.6	2.0	4.6	265	12.8	6.9	0.5	0.52	14.6	24.8	265	10.7	0.98	7.5	107.4	3.2
	2.6	2.0	4.6	350	13.3	8.3	0.6	0.53	15.2	25.0	350	11.0	0.89	8.0	99.1	3.6
	3.5	3.6	8.3	265	12.9	6.9	0.5	0.50	14.6	25.6	265	10.9	0.98	7.7	108.1	3.2
50	3.5	3.6	8.3	350	13.5	8.3	0.6	0.52	15.2	25.8	350	11.2	0.90	8.1	99.6	3.6
	1.8	0.5	1.1	265	12.7	6.9	0.5	0.61	14.8	21.0	265	11.5	1.00	8.2	110.2	3.4
	1.8	0.5	1.1	350	13.2	8.3	0.6	0.63	15.4	21.2	350	11.8	0.92	8.7	101.2	3.8
	2.6	1.9	4.3	265	12.9	7.0	0.5	0.57	14.8	22.6	265	11.9	1.01	8.5	111.5	3.4
	2.6	1.9	4.3	350	13.4	8.3	0.6	0.59	15.4	22.7	350	12.2	0.93	9.0	102.2	3.9
	3.5	3.4	7.9	265	12.9	7.0	0.5	0.55	14.8	23.4	265	12.0	1.02	8.7	112.1	3.5
60	3.5	3.4	7.9	350	13.5	8.4	0.6	0.57	15.4	23.5	350	12.4	0.93	9.2	102.7	3.9
	1.8	0.4	1.0	265	12.5	6.9	0.5	0.67	14.8	18.6	265	12.5	1.03	9.0	113.6	3.5
	1.8	0.4	1.0	350	13.0	8.2	0.6	0.69	15.4	18.8	350	12.8	0.94	9.6	103.9	4.0
	2.6	1.8	4.1	265	12.7	6.9	0.5	0.63	14.9	20.2	265	12.8	1.04	9.3	114.6	3.6
	2.6	1.8	4.1	350	13.3	8.3	0.6	0.65	15.5	20.3	350	13.1	0.95	9.9	104.7	4.0
	3.5	3.2	7.4	265	12.8	7.0	0.5	0.61	14.9	20.9	265	12.9	1.05	9.4	115.1	3.6
70	3.5	3.2	7.4	350	13.4	8.4	0.6	0.63	15.5	21.1	350	13.3	0.96	10.0	105.1	4.1
	1.8	0.4	0.9	265	12.0	6.7	0.6	0.75	14.5	16.1	265	13.2	1.06	9.7	116.1	3.7
	1.8	0.4	0.9	350	12.5	8.0	0.6	0.77	15.1	16.2	350	13.5	0.97	10.3	105.8	4.1
	2.6	1.6	3.8	265	12.3	6.8	0.6	0.70	14.7	17.5	265	13.4	1.06	9.9	116.9	3.7
	2.6	1.6	3.8	350	12.8	8.1	0.6	0.73	15.3	17.7	350	13.8	0.97	10.5	106.4	4.1
	3.5	3.0	6.9	265	12.5	6.9	0.5	0.68	14.8	18.3	265	13.5	1.07	9.9	117.2	3.7
80	3.5	3.0	6.9	350	13.0	8.2	0.6	0.70	15.4	18.4	350	13.9	0.98	10.6	106.7	4.2
	1.8	0.3	0.7	265	11.3	6.5	0.6	0.83	14.1	13.6	265	13.7	1.07	10.1	117.8	3.7
	1.8	0.3	0.7	350	11.7	7.8	0.7	0.85	14.7	13.7	350	14.0	0.98	10.7	107.1	4.2
	2.6	1.5	3.5	265	11.7	6.6	0.6	0.78	14.3	15.0	265	13.8	1.08	10.2	118.2	3.8
	2.6	1.5	3.5	350	12.2	7.9	0.6	0.81	14.9	15.1	350	14.2	0.98	10.8	107.4	4.2
	3.5	2.8	6.5	265	11.9	6.7	0.6	0.76	14.5	15.7	265	13.8	1.08	10.2	118.3	3.8
85	3.5	2.8	6.5	350	12.4	8.0	0.6	0.78	15.0	15.8	350	14.2	0.98	10.9	107.6	4.2
	1.8	0.3	0.7	265	10.9	6.4	0.6	0.87	13.8	12.5	265	13.8	1.08	10.2	118.1	3.8
	1.8	0.3	0.7	350	11.3	7.6	0.7	0.90	14.4	12.6	350	14.1	0.98	10.8	107.4	4.2
	2.6	1.5	3.4	265	11.3	6.5	0.6	0.82	14.1	13.8	265	13.8	1.08	10.2	118.4	3.8
	2.6	1.5	3.4	350	11.8	7.8	0.7	0.85	14.7	13.9	350	14.2	0.98	10.9	107.6	4.2
	3.5	2.7	6.3	265	11.5	6.5	0.6	0.80	14.2	14.5	265	13.9	1.08	10.3	118.5	3.8
90	3.5	2.7	6.3	350	12.0	7.8	0.7	0.83	14.8	14.6	350	14.2	0.98	10.9	107.7	4.2
	1.8	0.3	0.6	265	10.4	6.2	0.6	0.91	13.5	11.4	265	13.9	1.08	10.3	118.5	3.8
	1.8	0.3	0.6	350	10.9	7.5	0.7	0.94	14.1	11.5	350	14.3	0.99	10.9	107.7	4.2
	2.6	1.4	3.3	265	10.9	6.4	0.6	0.87	13.9	12.6	265	13.9	1.08	10.3	118.6	3.8
	2.6	1.4	3.3	350	11.4	7.6	0.7	0.89	14.4	12.7	350	14.3	0.98	10.9	107.7	4.3
	3.5	2.6	6.0	265	11.1	6.4	0.6	0.84	14.0	13.2	265	13.9	1.07	10.3	118.6	3.8
100	3.5	2.6	6.0	350	11.6	7.7	0.7	0.87	14.6	13.3	350	14.3	0.98	10.9	107.8	4.3
	1.8	0.2	0.5	265	9.5	6.0	0.6	1.00	12.9	9.5						
	1.8	0.2	0.5	350	9.9	7.2	0.7	1.04	13.4	9.5						
	2.6	1.3	3.0	265	10.0	6.1	0.6	0.96	13.3	10.5						
	2.6	1.3	3.0	350	10.4	7.3	0.7	0.99	13.8	10.5						
	3.5	2.4	5.6	265	10.2	6.2	0.6	0.93	13.4	11.0						
110	3.5	2.4	5.6	350	10.7	7.4	0.7	0.96	14.0	11.1						
	1.8	0.1	0.3	265	8.5	5.7	0.7	1.10	12.3	7.7						
	1.8	0.1	0.3	350	8.9	6.9	0.8	1.14	12.8	7.8						
	2.6	1.2	2.7	265	9.0	5.9	0.7	1.05	12.6	8.6						
	2.6	1.2	2.7	350	9.4	7.0	0.7	1.09	13.1	8.6						
	3.5	2.2	5.1	265	9.3	5.9	0.6	1.03	12.8	9.0						
120	3.5	2.2	5.1	350	9.6	7.1	0.7	1.06	13.3	9.1						
	1.8	0.1	0.2	265	7.5	5.5	0.7	1.20	11.6	6.2						
	1.8	0.1	0.2	350	7.8	6.6	0.8	1.24	12.0	6.3						
	2.6	1.1	2.5	265	8.0	5.6	0.7	1.15	11.9	6.9						
	2.6	1.1	2.5	350	8.3	6.7	0.8	1.19	12.4	7.0						
	3.5	2.0	4.6	265	8.2	5.7	0.7	1.13	12.1	7.3						
120	3.5	2.0	4.6	350	8.6	6.8	0.8	1.16	12.5	7.3						

Operation not recommended

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.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68.6°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 60°F EWT is based upon a 15% antifreeze solution.

Operation below 60°F EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

See Performance Data Selection Notes for operation in the shaded areas.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

## Performance Data

### TS H/V/D 018B (PSC Blower)

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

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
Operation not recommended																
20	5.5	3.9	9.0								450	12.2	1.36	7.8	95.0	2.6
	5.5	3.9	9.0								600	12.5	1.24	8.3	89.3	2.9
30	2.8	0.7	1.6	450	20.7	16.8	0.81	0.78	23.3	26.6	450	13.7	1.40	9.2	98.1	2.9
	2.8	0.7	1.6	600	21.5	14.0	0.65	0.80	24.3	26.8	600	14.0	1.28	9.7	91.7	3.2
	4.1	2.1	4.9	450	21.0	16.8	0.80	0.74	23.5	28.4	450	14.2	1.41	9.6	99.3	2.9
	4.1	2.1	4.9	600	21.8	14.1	0.64	0.76	24.4	28.6	600	14.6	1.29	10.2	92.5	3.3
	5.5	3.5	8.1	450	21.2	16.8	0.80	0.72	23.6	29.3	450	14.5	1.42	9.9	99.9	3.0
	5.5	3.5	8.1	600	22.0	14.1	0.64	0.75	24.6	29.6	600	14.9	1.30	10.5	93.0	3.4
40	2.8	0.6	1.4	450	20.8	17.2	0.83	0.85	23.7	24.5	450	15.8	1.44	11.1	102.6	3.2
	2.8	0.6	1.4	600	21.7	14.4	0.66	0.88	24.6	24.7	600	16.3	1.32	11.8	95.1	3.6
	4.1	2.0	4.6	450	21.0	17.2	0.82	0.81	23.7	26.0	450	16.5	1.45	11.7	103.9	3.3
	4.1	2.0	4.6	600	21.8	14.4	0.66	0.83	24.7	26.2	600	16.9	1.33	12.4	96.1	3.7
	5.5	3.2	7.4	450	21.2	17.3	0.82	0.79	23.9	26.9	450	16.8	1.46	12.0	104.7	3.4
	5.5	3.2	7.4	600	22.1	14.5	0.66	0.81	24.8	27.1	600	17.3	1.33	12.8	96.7	3.8
50	2.8	0.5	1.2	450	20.6	17.3	0.84	0.95	23.9	21.8	450	18.0	1.47	13.1	107.0	3.6
	2.8	0.5	1.2	600	21.5	14.5	0.67	0.98	24.8	22.0	600	18.5	1.35	13.9	98.5	4.0
	4.1	1.7	3.9	450	21.0	17.5	0.83	0.89	24.0	23.5	450	18.7	1.48	13.8	108.6	3.7
	4.1	1.7	3.9	600	21.8	14.6	0.67	0.92	25.0	23.7	600	19.2	1.35	14.6	99.7	4.2
	5.5	2.8	6.5	450	21.1	17.5	0.83	0.86	24.0	24.4	450	19.2	1.49	14.2	109.4	3.8
	5.5	2.8	6.5	600	21.9	14.6	0.67	0.89	25.0	24.6	600	19.7	1.36	15.1	100.4	4.2
60	2.8	0.3	0.7	450	19.9	16.8	0.85	1.05	23.5	18.9	450	20.1	1.50	15.1	111.4	3.9
	2.8	0.3	0.7	600	20.7	14.1	0.68	1.09	24.4	19.1	600	20.7	1.37	16.0	101.9	4.4
	4.1	1.5	3.5	450	20.4	17.2	0.84	0.99	23.7	20.6	450	21.0	1.51	15.9	113.3	4.1
	4.1	1.5	3.5	600	21.2	14.3	0.68	1.02	24.7	20.8	600	21.6	1.38	16.9	103.3	4.6
	5.5	2.6	6.0	450	20.6	17.3	0.84	0.96	23.8	21.5	450	21.5	1.52	16.4	114.3	4.1
	5.5	2.6	6.0	600	21.4	14.4	0.67	0.99	24.8	21.7	600	22.1	1.39	17.4	104.1	4.7
70	2.8	0.3	0.7	450	18.9	16.2	0.86	1.17	22.9	16.1	450	22.3	1.54	17.1	115.9	4.3
	2.8	0.3	0.7	600	19.7	13.5	0.69	1.21	23.8	16.2	600	22.9	1.40	18.1	105.4	4.8
	4.1	1.4	3.2	450	19.5	16.6	0.85	1.10	23.2	17.7	450	23.4	1.56	18.0	118.1	4.4
	4.1	1.4	3.2	600	20.3	13.8	0.68	1.14	24.2	17.9	600	24.0	1.43	19.1	107.0	4.9
	5.5	2.4	5.5	450	19.8	16.8	0.85	1.07	23.4	18.6	450	23.9	1.57	18.5	119.3	4.5
	5.5	2.4	5.5	600	20.6	14.0	0.68	1.10	24.3	18.7	600	24.6	1.44	19.7	107.9	5.0
80	2.8	0.2	0.5	450	17.7	15.4	0.87	1.31	22.2	13.6	450	24.6	1.59	19.1	120.6	4.5
	2.8	0.2	0.5	600	18.5	12.9	0.70	1.35	23.1	13.7	600	25.2	1.46	20.3	108.9	5.1
	4.1	1.2	2.8	450	18.4	15.9	0.86	1.23	22.6	15.0	450	25.8	1.63	20.2	123.1	4.6
	4.1	1.2	2.8	600	19.2	13.2	0.69	1.27	23.5	15.1	600	26.5	1.49	21.4	110.9	5.2
	5.5	2.2	5.1	450	18.7	16.1	0.86	1.19	22.8	15.7	450	26.5	1.66	20.7	124.5	4.7
	5.5	2.2	5.1	600	19.5	13.4	0.69	1.23	23.7	15.9	600	27.2	1.52	22.0	111.9	5.3
85	2.8	0.2	0.5	450	17.1	15.0	0.88	1.39	21.9	12.4	450	25.8	1.63	20.1	123.0	4.6
	2.8	0.2	0.5	600	17.8	12.6	0.70	1.43	22.7	12.5	600	26.4	1.49	21.3	110.8	5.2
	4.1	1.15	2.7	450	17.8	15.5	0.87	1.30	22.2	13.7	450	27.1	1.69	21.2	125.7	4.7
	4.1	1.15	2.7	600	18.5	12.9	0.70	1.35	23.1	13.8	600	27.8	1.54	22.5	112.9	5.3
	5.5	2.1	4.9	450	18.1	15.7	0.86	1.26	22.4	14.4	450	27.8	1.72	21.8	127.2	4.7
	5.5	2.1	4.9	600	18.9	13.1	0.69	1.30	23.3	14.6	600	28.6	1.58	23.2	114.1	5.3
90	2.8	0.2	0.5	450	16.5	14.7	0.89	1.46	21.5	11.3	450	26.9	1.68	21.1	125.4	4.7
	2.8	0.2	0.5	600	17.2	12.3	0.71	1.51	22.4	11.4	600	27.7	1.53	22.4	112.7	5.3
	4.1	1.1	2.5	450	17.2	15.1	0.88	1.38	21.9	12.5	450	28.4	1.74	22.3	128.3	4.8
	4.1	1.1	2.5	600	17.9	12.6	0.70	1.42	22.8	12.6	600	29.1	1.60	23.6	114.9	5.3
	5.5	2.0	4.6	450	17.5	15.3	0.87	1.33	22.1	13.1	450	29.1	1.79	22.9	130.0	4.8
	5.5	2.0	4.6	600	18.3	12.8	0.70	1.38	23.0	13.2	600	29.9	1.63	24.3	116.2	5.4
100	2.8	0.2	0.5	450	15.2	14.0	0.92	1.64	20.8	9.3						
	2.8	0.2	0.5	600	15.9	11.7	0.74	1.69	21.7	9.4						
	4.1	1.1	2.5	450	15.9	14.3	0.90	1.54	21.2	10.3						
	4.1	1.1	2.5	600	16.6	12.0	0.72	1.59	22.0	10.4						
	5.5	1.9	4.4	450	16.3	14.5	0.89	1.50	21.4	10.9						
	5.5	1.9	4.4	600	16.9	12.1	0.72	1.55	22.2	10.9						
110	2.8	0.1	0.2	450	14.0	13.4	0.96	1.84	20.3	7.6						
	2.8	0.1	0.2	600	14.6	11.2	0.77	1.90	21.1	7.7						
	4.1	0.9	2.1	450	14.6	13.7	0.94	1.73	20.5	8.4						
	4.1	0.9	2.1	600	15.2	11.4	0.75	1.79	21.4	8.5						
	5.5	1.7	3.9	450	15.0	13.8	0.93	1.68	20.7	8.9						
	5.5	1.7	3.9	600	15.6	11.6	0.74	1.74	21.5	9.0						
120	2.8	0.1	0.2	450	12.9	13.1	1.02	2.06	19.9	6.2						
	2.8	0.1	0.2	600	13.4	10.9	0.82	2.13	20.7	6.3						
	4.1	0.8	1.8	450	13.4	13.2	0.99	1.94	20.1	6.9						
	4.1	0.8	1.8	600	14.0	11.0	0.79	2.01	20.8	7.0						
	5.5	1.6	3.7	450	13.7	13.3	0.97	1.89	20.2	7.3						
	5.5	1.6	3.7	600	14.3	11.1	0.78	1.95	21.0	7.3						

Operation not recommended

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.

ARI/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 ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 40°F EWT is based upon a 15% antifreeze solution.

Operation below 60°F EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

## Performance Data TS H/V/D 018B (ECM Blower)

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

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	5.5 5.5	3.9 3.9	9.0 9.0	Operation not recommended						450 600	12.2 12.5	1.36 1.24	7.8 8.3	95.0 89.3	2.6 2.9	
30	2.8	0.7	1.6	450 600	20.7 21.5	16.8 14.0	0.81 0.65	0.78 0.80	23.3 24.3	26.6 26.8	450 600	13.7 14.0	1.40 1.28	9.2 9.7	98.1 91.7	2.9 3.2
	2.8	0.7	1.6	450 600	21.0 21.8	16.8 14.1	0.80 0.64	0.74 0.76	23.5 24.4	28.4 28.6	450 600	14.2 14.6	1.41 1.29	9.6 10.2	99.3 92.5	2.9 3.3
	4.1	2.1	4.9	450 600	21.0 21.8	16.8 14.1	0.80 0.64	0.74 0.76	23.5 24.4	28.4 28.6	450 600	14.2 14.6	1.41 1.29	9.6 10.2	99.3 92.5	2.9 3.3
	4.1	2.1	4.9	450 600	21.0 21.8	16.8 14.1	0.80 0.64	0.74 0.76	23.5 24.4	28.4 28.6	450 600	14.2 14.6	1.41 1.29	9.6 10.2	99.3 92.5	2.9 3.3
	5.5	3.5	8.1	450 600	21.2 22.0	16.8 14.1	0.80 0.64	0.72 0.75	23.6 24.6	29.3 29.6	450 600	14.5 14.9	1.42 1.30	9.9 10.5	99.9 93.0	3.0 3.4
	5.5	3.5	8.1	450 600	21.2 22.0	16.8 14.1	0.80 0.64	0.72 0.75	23.6 24.6	29.3 29.6	450 600	14.5 14.9	1.42 1.30	9.9 10.5	99.9 93.0	3.0 3.4
40	2.8	0.6	1.4	450 600	20.8 21.7	17.2 14.4	0.83 0.66	0.85 0.88	23.7 24.6	24.5 24.7	450 600	15.8 16.3	1.44 1.32	11.1 11.8	102.6 95.1	3.2 3.6
	2.8	0.6	1.4	450 600	21.0 21.8	17.2 14.4	0.82 0.66	0.81 0.83	23.7 24.7	26.0 26.2	450 600	16.5 16.9	1.45 1.33	11.7 12.4	103.9 96.1	3.3 3.7
	4.1	2.0	4.6	450 600	21.0 21.8	17.2 14.4	0.82 0.66	0.81 0.83	23.7 24.7	26.0 26.2	450 600	16.5 16.8	1.45 1.46	11.7 12.0	104.7 104.7	3.3 3.4
	4.1	2.0	4.6	450 600	21.0 21.8	17.2 14.4	0.82 0.66	0.81 0.83	23.7 24.7	26.0 26.2	450 600	16.5 16.8	1.45 1.46	11.7 12.0	103.9 96.7	3.3 3.8
	5.5	3.2	7.4	450 600	21.2 22.1	17.3 14.5	0.82 0.66	0.79 0.81	23.9 24.8	26.9 27.1	450 600	17.3 17.3	1.46 1.33	12.8 12.8	104.4 96.7	3.4 3.8
	5.5	3.2	7.4	450 600	21.2 22.1	17.3 14.5	0.82 0.66	0.79 0.81	23.9 24.8	26.9 27.1	450 600	17.3 17.3	1.46 1.33	12.8 12.8	104.4 96.7	3.4 3.8
50	2.8	0.5	1.2	450 600	20.6 21.5	17.3 14.5	0.84 0.67	0.95 0.98	23.9 24.8	21.8 22.0	450 600	18.0 18.5	1.47 1.35	13.1 13.9	107.0 98.5	3.6 4.0
	2.8	0.5	1.2	450 600	21.0 21.8	17.5 14.6	0.83 0.67	0.89 0.92	24.0 25.0	23.5 23.7	450 600	18.7 19.2	1.48 1.35	13.8 14.6	108.6 99.7	3.7 4.2
	4.1	1.7	3.9	450 600	21.0 21.8	17.5 14.6	0.83 0.67	0.89 0.92	24.0 25.0	23.5 23.7	450 600	19.2 19.7	1.49 1.36	14.2 15.1	109.4 100.4	3.8 4.2
	4.1	1.7	3.9	450 600	21.0 21.8	17.5 14.6	0.83 0.67	0.89 0.92	24.0 25.0	23.5 23.7	450 600	19.2 19.7	1.49 1.36	14.2 15.1	109.4 100.4	3.8 4.2
	5.5	2.8	6.5	450 600	21.1 21.9	17.5 14.6	0.83 0.67	0.86 0.89	24.0 25.0	24.4 24.6	450 600	19.2 19.7	1.49 1.36	14.2 15.1	109.4 100.4	3.8 4.2
	5.5	2.8	6.5	450 600	21.1 21.9	17.5 14.6	0.83 0.67	0.86 0.89	24.0 25.0	24.4 24.6	450 600	19.2 19.7	1.49 1.36	14.2 15.1	109.4 100.4	3.8 4.2
60	2.8	0.3	0.7	450 600	19.9 20.7	16.8 14.1	0.85 0.68	1.05 1.09	23.5 24.4	18.9 19.1	450 600	20.1 20.7	1.50 1.37	15.1 16.0	111.4 101.9	3.9 4.4
	2.8	0.3	0.7	450 600	20.4 21.2	17.2 14.3	0.84 0.68	0.99 1.02	23.7 24.7	20.6 20.8	450 600	21.0 21.6	1.51 1.38	15.9 16.9	113.3 103.3	4.1 4.6
	4.1	1.5	3.5	450 600	20.4 21.2	17.2 14.3	0.84 0.68	0.99 1.02	23.7 24.7	20.6 20.8	450 600	21.5 21.6	1.52 1.38	16.4 16.9	114.3 103.3	4.1 4.6
	4.1	1.5	3.5	450 600	20.4 21.2	17.2 14.3	0.84 0.68	0.99 1.02	23.7 24.7	20.6 20.8	450 600	21.5 21.6	1.52 1.38	16.4 16.9	114.3 103.3	4.1 4.6
	5.5	2.6	6.0	450 600	20.6 21.4	17.3 14.4	0.84 0.67	0.96 0.99	23.8 24.8	21.5 21.7	450 600	21.5 22.1	1.52 1.39	16.4 17.4	114.3 104.1	4.1 4.7
	5.5	2.6	6.0	450 600	20.6 21.4	17.3 14.4	0.84 0.67	0.96 0.99	23.8 24.8	21.5 21.7	450 600	21.5 22.1	1.52 1.39	16.4 17.4	114.3 104.1	4.1 4.7
70	2.8	0.3	0.7	450 600	18.9 19.7	16.2 13.5	0.86 0.69	1.17 1.21	22.9 23.8	16.1 16.2	450 600	22.3 22.9	1.54 1.40	17.1 18.1	115.9 105.4	4.3 4.8
	2.8	0.3	0.7	450 600	19.5 20.3	16.6 13.8	0.85 0.68	1.10 1.14	23.2 24.2	17.7 17.9	450 600	23.4 24.0	1.56 1.43	18.0 19.1	118.1 107.0	4.4 4.9
	4.1	1.4	3.2	450 600	19.5 20.3	16.6 13.8	0.85 0.68	1.10 1.14	23.2 24.2	17.7 17.9	450 600	23.4 24.0	1.56 1.43	18.0 19.1	118.1 107.0	4.4 4.9
	4.1	1.4	3.2	450 600	19.5 20.3	16.6 13.8	0.85 0.68	1.10 1.14	23.2 24.2	17.7 17.9	450 600	23.4 24.0	1.56 1.43	18.0 19.1	118.1 107.0	4.4 4.9
	5.5	2.4	5.5	450 600	19.8 20.6	16.8 14.0	0.85 0.68	1.07 1.08	23.4 24.3	18.6 19.7	450 600	23.9 24.6	1.57 1.44	18.5 19.7	119.3 107.9	4.5 5.0
	5.5	2.4	5.5	450 600	19.8 20.6	16.8 14.0	0.85 0.68	1.07 1.08	23.4 24.3	18.6 19.7	450 600	23.9 24.6	1.57 1.44	18.5 19.7	119.3 107.9	4.5 5.0
80	2.8	0.2	0.5	450 600	17.7 18.5	15.4 12.9	0.87 0.70	1.31 1.35	22.2 23.1	13.6 13.7	450 600	24.6 25.2	1.59 1.46	19.1 20.2	120.6 123.1	4.5 5.1
	2.8	0.2	0.5	450 600	18.4 19.2	15.9 13.2	0.86 0.69	1.23 1.27	22.6 23.5	15.0 15.1	450 600	25.8 26.5	1.63 1.49	20.2 21.4	123.1 110.9	4.6 5.2
	4.1	1.2	2.8	450 600	18.4 19.2	15.9 13.2	0.86 0.69	1.23 1.27	22.6 23.5	15.0 15.1	450 600	25.8 26.5	1.63 1.49	20.2 21.4	123.1 110.9	4.6 5.2
	4.1	1.2	2.8	450 600	18.4 19.2	15.9 13.2	0.86 0.69	1.23 1.27	22.6 23.5	15.0 15.1	450 600	25.8 26.5	1.63 1.49	20.2 21.4	123.1 110.9	4.6 5.2
	5.5	2.2	5.1	450 600	18.7 19.5	16.1 13.4	0.86 0.69	1.19 1.23	22.8 23.7	15.7 15.9	450 600	26.5 27.2	1.66 1.52	20.7 22.0	124.5 111.9	4.7 5.3
	5.5	2.2	5.1	450 600	18.7 19.5	16.1 13.4	0.86 0.69	1.19 1.23	22.8 23.7	15.7 15.9	450 600	26.5 27.2	1.66 1.52	20.7 22.0	124.5 111.9	4.7 5.3
85	2.8	0.2	0.5	450 600	17.1 17.8	15.0 12.6	0.88 0.70	1.39 1.43	21.9 22.7	12.4 12.5	450 600	25.8 26.4	1.63 1.49	21.1 21.3	123.0 110.8	4.6 5.2
	2.8	0.2	0.5	450 600	17.8 18.5	15.5 12.9	0.87 0.70	1.30 1.35	22.2 23.1	13.7 13.8	450 600	27.1 27.8	1.69 1.54	21.2 22.5	125.7 112.9	4.7 5.3
	4.1	1.15	2.7	450 600	17.8 18.5	15.5 12.9	0.87 0.70	1.30 1.35	22.2 23.1	13.7 13.8	450 600	27.1 27.8	1.69 1.54	21.2 22.5	125.7 112.9	4.7 5.3
	4.1	1.15	2.7	450 600	17.8 18.5	15.5 12.9	0.87 0.70	1.30 1.35	22.2 23.1	13.7 13.8	450 600	27.1 27.8	1.69 1.54	21.2 22.5	125.7 112.9	4.7 5.3
	5.5	2.1	4.9	450 600	18.1 18.9	15.7 13.1	0.86 0.69	1.26 1.30	22.4 23.3	14.4 14.6	450 600	27.8 28.6	1.72 1.58	21.8 23.2	127.2 114.1	4.7 5.3
	5.5	2.1	4.9	450 600	18.1 18.9	15.7 13.1	0.86 0.69	1.26 1.30	22.4 23.3	14.4 14.6	450 600	27.8 28.6	1.72 1.58	21.8 23.2	127.2 114.1	4.7 5.3
90	2.8	0.2	0.5	450 600	16.5 17.2	14.7 12.3	0.89 0.71	1.46 1.51	21.5 22.4	11.3 11.4	450 600	26.9 27.7	1.68 1.53	21.1 22.4	125.4 112.7	4.7 5.3
	2.8	0.2	0.5	450 600	17.2 17.9	15.1 12.6	0.88 0.70	1.38 1.42	21.9 22.8	12.5 12.6	450 600	28.4 29.1	1.74 1.60	22.3 23.6	128.3 114.9	4.8 5.3
	4.1	1.1	2.5	450 600	17.2 17.9	15.1 12.6	0.88 0.70	1.38 1.42	21.9 22.8	12.5 12.6	450 600	28.4 29.1				

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Performance Data\*****TS H/V/D 024 (PSC Blower)**

850 CFM Nominal (Rated) Airflow Cooling, 850 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
Operation not recommended																
20	8.0	5.6	12.9								640	16.3	1.80	10.6	94	2.66
	8.0	5.6	12.9								850	16.8	1.65	11.2	88	2.99
30	4.0	1.5	3.5	640	27.9	15.6	0.56	0.94	31.1	29.8	640	18.5	1.83	12.5	97	2.95
	4.0	1.5	3.5	850	29.1	18.7	0.64	0.97	32.4	30.0	850	19.0	1.68	13.3	91	3.32
	6.0	3.1	7.2	640	28.0	15.6	0.56	0.90	31.1	31.1	640	19.2	1.84	13.2	98	3.05
	6.0	3.1	7.2	850	29.2	18.7	0.64	0.93	32.4	31.3	850	19.7	1.68	14.0	91	3.42
	8.0	5.1	11.8	640	28.1	15.7	0.56	0.88	31.1	31.8	640	19.5	1.85	13.5	98	3.10
	8.0	5.1	11.8	850	29.3	18.8	0.64	0.91	32.4	32.1	850	20.0	1.69	14.3	92	3.48
40	4.0	1.3	3.0	640	27.8	15.8	0.57	1.04	31.3	26.9	640	21.4	1.87	15.2	101	3.34
	4.0	1.3	3.0	850	29.0	18.9	0.65	1.07	32.6	27.1	850	22.0	1.71	16.1	94	3.75
	6.0	2.8	6.5	640	28.0	15.8	0.56	0.99	31.4	28.5	640	22.2	1.89	16.0	102	3.45
	6.0	2.8	6.5	850	29.2	18.9	0.65	1.02	32.6	28.7	850	22.8	1.72	17.0	95	3.87
	8.0	4.5	10.4	640	28.2	15.8	0.56	0.96	31.4	29.3	640	22.6	1.89	16.4	103	3.51
	8.0	4.5	10.4	850	29.3	18.9	0.65	0.99	32.7	29.5	850	23.3	1.73	17.4	95	3.94
50	4.0	1.3	3.0	640	27.6	15.9	0.58	1.15	31.5	24.1	640	24.2	1.92	17.8	105	3.71
	4.0	1.3	3.0	850	28.7	19.0	0.66	1.18	32.7	24.3	850	24.9	1.75	18.9	97	4.16
	6.0	2.6	6.0	640	27.8	15.9	0.57	1.08	31.5	25.7	640	25.2	1.93	18.7	106	3.82
	6.0	2.6	6.0	850	29.0	19.1	0.66	1.12	32.8	25.9	850	25.9	1.76	19.9	98	4.29
	8.0	4.3	9.9	640	27.9	15.9	0.57	1.06	31.5	26.5	640	25.7	1.94	19.2	107	3.89
	8.0	4.3	9.9	850	29.1	19.1	0.66	1.09	32.8	26.7	850	26.4	1.77	20.3	99	4.36
60	4.0	1.2	2.8	640	26.9	15.9	0.59	1.27	31.2	21.1	640	27.0	1.96	20.4	109	4.05
	4.0	1.2	2.8	850	28.0	19.1	0.68	1.32	32.5	21.3	850	27.7	1.79	21.7	100	4.54
	6.0	2.5	5.8	640	27.3	15.9	0.58	1.20	31.4	22.7	640	28.1	1.97	21.4	111	4.17
	6.0	2.5	5.8	850	28.4	19.1	0.67	1.24	32.6	22.9	850	28.8	1.80	22.7	101	4.68
	8.0	4.0	9.2	640	27.5	15.9	0.58	1.17	31.4	23.5	640	28.6	1.98	21.9	111	4.23
	8.0	4.0	9.2	850	28.6	19.1	0.67	1.21	32.7	23.7	850	29.4	1.81	23.2	102	4.75
70	4.0	1.1	2.5	640	26.0	15.8	0.61	1.42	30.8	18.2	640	29.7	2.00	22.9	113	4.36
	4.0	1.1	2.5	850	27.0	18.9	0.70	1.47	32.0	18.4	850	30.5	1.83	24.3	103	4.89
	6.0	2.3	5.3	640	26.5	15.9	0.60	1.34	31.1	19.8	640	30.8	2.02	23.9	115	4.48
	6.0	2.3	5.3	850	27.6	19.0	0.69	1.39	32.3	19.9	850	31.7	1.84	25.4	104	5.04
	8.0	3.8	8.8	640	26.7	15.9	0.60	1.30	31.2	20.5	640	31.4	2.02	24.5	115	4.55
	8.0	3.8	8.8	850	27.8	19.0	0.68	1.35	32.4	20.7	850	32.3	1.85	25.9	105	5.11
80	4.0	1.0	2.3	640	24.8	15.6	0.63	1.59	30.2	15.6	640	32.3	2.04	25.3	117	4.65
	4.0	1.0	2.3	850	25.8	18.6	0.72	1.65	31.5	15.7	850	33.2	1.86	26.8	106	5.22
	6.0	2.2	5.1	640	25.4	15.7	0.62	1.50	30.6	16.9	640	33.5	2.06	26.3	118	4.77
	6.0	2.2	5.1	850	26.5	18.8	0.71	1.55	31.8	17.1	850	34.4	1.88	27.9	107	5.36
	8.0	3.5	8.1	640	25.7	15.8	0.61	1.46	30.7	17.7	640	34.1	2.07	26.9	119	4.83
	8.0	3.5	8.1	850	26.8	18.9	0.70	1.51	31.9	17.8	850	35.0	1.89	28.5	108	5.43
85	4.0	1.0	2.3	640	24.1	15.4	0.64	1.69	29.9	14.3	640	33.5	2.06	26.4	119	4.78
	4.0	1.0	2.3	850	25.1	18.4	0.73	1.75	31.1	14.4	850	34.4	1.88	28.0	108	5.36
	6.0	2.2	5.0	640	24.8	15.5	0.63	1.59	30.2	15.6	640	34.7	2.08	27.5	120	4.90
	6.0	2.2	5.0	850	25.8	18.6	0.72	1.65	31.5	15.7	850	35.7	1.90	29.2	109	5.50
	8.0	3.5	8.0	640	25.1	15.6	0.62	1.55	30.4	16.2	640	35.4	2.09	28.0	121	4.96
	8.0	3.5	8.0	850	26.2	18.7	0.71	1.60	31.6	16.4	850	36.3	1.91	29.8	110	5.57
90	4.0	1.0	2.3	640	23.5	15.2	0.65	1.79	29.6	13.1	640	34.8	2.08	27.5	120	4.90
	4.0	1.0	2.3	850	24.4	18.2	0.74	1.85	30.8	13.2	850	35.7	1.90	29.2	109	5.51
	6.0	2.1	4.9	640	24.2	15.4	0.64	1.69	29.9	14.3	640	36.0	2.10	28.6	122	5.03
	6.0	2.1	4.9	850	25.2	18.4	0.73	1.74	31.1	14.4	850	37.0	1.92	30.4	110	5.64
	8.0	3.4	7.9	640	24.5	15.5	0.63	1.64	30.1	15.0	640	36.6	2.11	29.2	123	5.09
	8.0	3.4	7.9	850	25.5	18.5	0.73	1.69	31.3	15.1	850	37.6	1.93	31.0	111	5.71
100	4.0	1.0	2.3	640	21.9	14.7	0.67	2.02	28.8	10.9						
	4.0	1.0	2.3	850	22.8	17.6	0.77	2.08	30.0	11.0						
	6.0	2.0	4.6	640	22.7	14.9	0.66	1.90	29.2	12.0						
	6.0	2.0	4.6	850	23.7	17.9	0.76	1.96	30.4	12.0						
	8.0	3.2	7.4	640	23.1	15.1	0.65	1.84	29.4	12.5						
	8.0	3.2	7.4	850	24.1	18.1	0.75	1.91	30.6	12.6						
110	4.0	0.9	2.1	640	20.2	14.0	0.69	2.27	28.0	8.9						
	4.0	0.9	2.1	850	21.1	16.8	0.80	2.34	29.1	9.0						
	6.0	1.9	4.4	640	21.1	14.4	0.68	2.14	28.4	9.8						
	6.0	1.9	4.4	850	22.0	17.2	0.78	2.21	29.5	9.9						
	8.0	3.1	7.2	640	21.5	14.5	0.67	2.08	28.6	10.3						
	8.0	3.1	7.2	850	22.4	17.4	0.78	2.15	29.7	10.4						
120	4.0	0.9	2.1	640	18.4	13.2	0.72	2.55	27.1	7.2						
	4.0	0.9	2.1	850	19.2	15.8	0.82	2.64	28.2	7.3						
	6.0	1.8	4.2	640	19.3	13.6	0.70	2.41	27.5	8.0						
	6.0	1.8	4.2	850	20.1	16.3	0.81	2.49	28.6	8.1						
	8.0	3.0	6.9	640	19.7	13.8	0.70	2.35	27.8	8.4						
	8.0	3.0	6.9	850	20.6	16.5	0.80	2.42	28.9	8.5						

Operation not recommended

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.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68.6°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units. \* Performance Data is for 208-230/60/1, 208-230/60/3 and 460/60/3. Consult factory for 265/60/1 performance.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 40°F EWT is based upon a 15% antifreeze solution.

Operation below 60°F EWT requires optional insulated water/refrigerant circuit.

**Performance Data\***  
**TS H/V/D 024 (ECM Blower)**

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

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	8.0	5.6	12.9								690	16.0	1.70	10.6	92	2.76
	8.0	5.6	12.9	Operation not recommended							950	16.5	1.57	11.2	86	3.08
30	4.0	1.5	3.5	610	28.1	16.1	0.57	0.78	30.6	35.9	690	18.1	1.73	12.5	94	3.07
	4.0	1.5	3.5	850	29.2	18.7	0.64	0.83	31.9	35.3	950	18.7	1.60	13.3	88	3.43
	6.0	3.1	7.2	610	28.1	16.1	0.57	0.76	30.6	37.1	690	18.8	1.74	13.2	95	3.17
	6.0	3.1	7.2	850	29.3	18.7	0.64	0.80	31.9	36.5	950	19.4	1.61	14.0	89	3.54
	8.0	5.1	11.8	610	28.2	16.1	0.57	0.74	30.7	38.1	690	19.2	1.74	13.5	96	3.23
	8.0	5.1	11.8	850	29.3	18.8	0.64	0.78	32.0	37.5	950	19.8	1.61	14.3	89	3.60
40	4.0	1.3	3.0	610	28.4	16.6	0.58	0.89	31.3	31.9	690	21.0	1.77	15.2	98	3.48
	4.0	1.3	3.0	850	29.5	19.3	0.65	0.94	32.7	31.3	950	21.7	1.64	16.1	91	3.89
	6.0	2.8	6.5	610	28.6	16.6	0.58	0.84	31.4	34.1	690	21.9	1.78	16.0	99	3.60
	6.0	2.8	6.5	850	29.7	19.3	0.65	0.89	32.7	33.5	950	22.5	1.65	17.0	92	4.01
	8.0	4.5	10.4	610	28.7	16.6	0.58	0.82	31.4	35.2	690	22.3	1.79	16.4	100	3.65
	8.0	4.5	10.4	850	29.9	19.3	0.65	0.86	32.8	34.6	950	23.0	1.65	17.4	92	4.08
50	4.0	1.3	3.0	610	28.2	16.7	0.59	1.00	31.5	28.1	690	23.9	1.81	17.8	102	3.86
	4.0	1.3	3.0	850	29.3	19.4	0.66	1.06	32.9	27.7	950	24.6	1.67	18.9	94	4.31
	6.0	2.6	6.0	610	28.5	16.8	0.59	0.94	31.6	30.4	690	24.8	1.83	18.7	103	3.99
	6.0	2.6	6.0	850	29.7	19.5	0.66	0.99	33.0	29.8	950	25.6	1.69	19.9	95	4.45
	8.0	4.3	9.9	610	28.6	16.8	0.59	0.91	31.7	31.5	690	25.3	1.83	19.1	104	4.05
	8.0	4.3	9.9	850	29.8	19.5	0.66	0.96	33.0	30.9	950	26.1	1.69	20.3	95	4.52
60	4.0	1.2	2.8	610	27.3	16.4	0.60	1.13	31.1	24.1	690	26.7	1.85	20.4	106	4.22
	4.0	1.2	2.8	850	28.4	19.1	0.67	1.20	32.5	23.7	950	27.5	1.71	21.7	97	4.71
	6.0	2.5	5.8	610	27.8	16.6	0.60	1.06	31.4	26.3	690	27.7	1.87	21.3	107	4.35
	6.0	2.5	5.8	850	28.9	19.3	0.67	1.12	32.7	25.8	950	28.6	1.73	22.7	98	4.85
	8.0	4.0	9.2	610	28.1	16.7	0.59	1.02	31.5	27.4	690	28.3	1.88	21.8	108	4.41
	8.0	4.0	9.2	850	29.2	19.4	0.67	1.08	32.8	26.9	950	29.1	1.73	23.2	98	4.92
70	4.0	1.1	2.5	610	26.1	16.0	0.61	1.28	30.5	20.4	690	29.4	1.89	22.8	109	4.54
	4.0	1.1	2.5	850	27.2	18.7	0.69	1.36	31.8	20.0	950	30.3	1.75	24.3	99	5.07
	6.0	2.3	5.3	610	26.8	16.3	0.61	1.20	30.8	22.3	690	30.5	1.91	23.9	111	4.67
	6.0	2.3	5.3	850	27.9	18.9	0.68	1.27	32.2	22.0	950	31.4	1.77	25.4	101	5.21
	8.0	3.8	8.8	610	27.1	16.4	0.60	1.16	31.0	23.4	690	31.1	1.92	24.4	112	4.74
	8.0	3.8	8.8	850	28.2	19.1	0.68	1.23	32.3	23.0	950	32.0	1.77	25.9	101	5.29
80	4.0	1.0	2.3	610	24.8	15.6	0.63	1.45	29.7	17.1	690	31.9	1.93	25.2	113	4.84
	4.0	1.0	2.3	850	25.8	18.1	0.70	1.54	31.0	16.8	950	32.9	1.79	26.8	102	5.40
	6.0	2.2	5.1	610	25.5	15.8	0.62	1.36	30.1	18.7	690	33.1	1.95	26.3	114	4.97
	6.0	2.2	5.1	850	26.5	18.4	0.69	1.44	31.4	18.4	950	34.1	1.80	27.9	103	5.54
	8.0	3.5	8.1	610	25.9	15.9	0.62	1.32	30.3	19.6	690	33.7	1.96	26.9	115	5.04
	8.0	3.5	8.1	850	26.9	18.6	0.69	1.39	31.6	19.3	950	34.8	1.81	28.5	104	5.62
85	4.0	1.0	2.3	610	24.0	15.3	0.64	1.55	29.3	15.5	690	33.2	1.95	26.3	114	4.98
	4.0	1.0	2.3	850	25.0	17.8	0.71	1.64	30.6	15.2	950	34.2	1.80	28.0	103	5.55
	6.0	2.2	5.0	610	24.8	15.6	0.63	1.45	29.7	17.0	690	34.3	1.97	27.4	116	5.10
	6.0	2.2	5.0	850	25.8	18.1	0.70	1.54	31.0	16.8	950	35.4	1.82	29.2	105	5.69
	8.0	3.5	8.0	610	25.1	15.7	0.62	1.41	29.9	17.9	690	35.0	1.98	28.0	117	5.17
	8.0	3.5	8.0	850	26.1	18.3	0.70	1.49	31.2	17.6	950	36.0	1.83	29.8	105	5.77
90	4.0	1.0	2.3	610	23.3	15.0	0.65	1.65	28.9	14.1	690	34.4	1.97	27.5	116	5.11
	4.0	1.0	2.3	850	24.2	17.5	0.72	1.74	30.2	13.9	950	35.5	1.82	29.2	105	5.70
	6.0	2.1	4.9	610	24.0	15.3	0.64	1.55	29.3	15.6	690	35.6	1.99	28.6	118	5.23
	6.0	2.1	4.9	850	25.0	17.8	0.71	1.63	30.6	15.3	950	36.7	1.84	30.4	106	5.84
	8.0	3.4	7.9	610	24.4	15.4	0.63	1.50	29.5	16.3	690	36.2	2.00	29.1	119	5.30
	8.0	3.4	7.9	850	25.4	18.0	0.71	1.58	30.8	16.0	950	37.3	1.85	31.0	106	5.91
100	4.0	1.0	2.3	610	21.8	14.5	0.67	1.86	28.2	11.7						
	4.0	1.0	2.3	850	22.6	16.9	0.75	1.97	29.4	11.5						
	6.0	2.0	4.6	610	22.5	14.8	0.66	1.75	28.5	12.8						
	6.0	2.0	4.6	850	23.4	17.2	0.73	1.86	29.7	12.6						
	8.0	3.2	7.4	610	22.9	14.9	0.65	1.70	28.7	13.5						
	8.0	3.2	7.4	850	23.8	17.3	0.73	1.80	29.9	13.2						
110	4.0	0.9	2.1	610	20.3	14.1	0.69	2.11	27.5	9.6						
	4.0	0.9	2.1	850	21.1	16.4	0.78	2.23	28.7	9.4						
	6.0	1.9	4.4	610	21.0	14.3	0.68	1.99	27.8	10.5						
	6.0	1.9	4.4	850	21.8	16.6	0.76	2.10	29.0	10.4						
	8.0	3.1	7.2	610	21.3	14.4	0.67	1.93	28.0	11.1						
	8.0	3.1	7.2	850	22.2	16.7	0.75	2.04	29.2	10.9						
120	4.0	0.9	2.1	610	18.9	13.7	0.73	2.39	27.1	7.9						
	4.0	0.9	2.1	850	19.7	16.0	0.81	2.52	28.3	7.8						
	6.0	1.8	4.2	610	19.5	13.9	0.71	2.25	27.3	8.7						
	6.0	1.8	4.2	850	20.3	16.2	0.80	2.38	28.5	8.5						
	8.0	3.0	6.9	610	19.9	14.0	0.70	2.19	27.4	9.1						
	8.0	3.0	6.9	850	20.6	16.3	0.79	2.31	28.6	8.9						

Operation not recommended

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.

ARI/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 ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units. \* Performance Data is for 208-230/60/1, 208-230/60/3 and 460/60/3. Consult factory for 265/60/1 performance.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 40°F EWT is based upon a 15% antifreeze solution.

Operation below 60°F EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

See Performance Data Selection Notes for operation in the shaded areas.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Performance Data****TS H/V/D 030 (PSC Blower)**

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

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	8.0	5.6	12.9	Operation not recommended						715	19.9	2.10	13.1	96	2.78	
	8.0	5.6	12.9							950	20.4	1.92	13.9	90	3.12	
30	4.0	1.5	3.5	715	28.8	16.3	0.57	1.18	32.8	24.4	715	21.7	2.13	14.8	98	2.99
	4.0	1.5	3.5	950	30.0	19.5	0.65	1.22	34.1	24.6	950	22.3	1.95	15.7	92	3.36
	6.0	3.1	7.2	715	28.9	16.3	0.57	1.14	32.8	25.3	715	22.5	2.14	15.6	99	3.08
	6.0	3.1	7.2	950	30.1	19.6	0.65	1.18	34.1	25.5	950	23.1	1.96	16.5	93	3.46
	8.0	5.1	11.8	715	29.0	16.4	0.56	1.11	32.8	26.0	715	23.0	2.15	16.0	100	3.13
	8.0	5.1	11.8	950	30.2	19.6	0.65	1.15	34.1	26.2	950	23.6	1.97	16.9	93	3.52
40	4.0	1.3	3.0	715	31.0	17.8	0.57	1.30	35.5	23.9	715	24.7	2.18	17.5	102	3.32
	4.0	1.3	3.0	950	32.3	21.3	0.66	1.34	36.9	24.1	950	25.3	1.99	18.6	95	3.72
	6.0	2.8	6.5	715	31.2	17.8	0.57	1.25	35.5	24.9	715	25.6	2.20	18.4	103	3.42
	6.0	2.8	6.5	950	32.5	21.3	0.66	1.30	36.9	25.1	950	26.3	2.01	19.5	96	3.84
	8.0	4.5	10.4	715	31.4	17.8	0.57	1.22	35.5	25.7	715	26.2	2.21	18.9	104	3.47
	8.0	4.5	10.4	950	32.7	21.4	0.65	1.26	36.9	25.9	950	26.9	2.02	20.0	96	3.90
50	4.0	1.3	3.0	715	31.9	18.5	0.58	1.44	36.8	22.2	715	27.7	2.24	20.2	106	3.62
	4.0	1.3	3.0	950	33.2	22.2	0.67	1.49	38.3	22.4	950	28.4	2.05	21.4	98	4.07
	6.0	2.6	6.0	715	32.2	18.5	0.58	1.37	36.8	23.4	715	28.8	2.26	21.2	107	3.74
	6.0	2.6	6.0	950	33.5	22.2	0.66	1.42	38.3	23.6	950	29.6	2.07	22.5	99	4.19
	8.0	4.3	9.9	715	32.3	18.5	0.57	1.34	36.9	24.2	715	29.4	2.27	21.8	108	3.79
	8.0	4.3	9.9	950	33.7	22.2	0.66	1.38	38.3	24.4	950	30.2	2.08	23.1	99	4.26
60	4.0	1.2	2.8	715	31.0	18.2	0.59	1.60	36.4	19.4	715	30.6	2.30	22.9	110	3.91
	4.0	1.2	2.8	950	32.3	21.8	0.68	1.65	37.9	19.6	950	31.5	2.10	24.3	101	4.39
	6.0	2.5	5.8	715	31.7	18.5	0.58	1.51	36.8	21.1	715	31.9	2.32	24.1	111	4.03
	6.0	2.5	5.8	950	33.0	22.1	0.67	1.56	38.3	21.2	950	32.8	2.12	25.6	102	4.53
	8.0	4.0	9.2	715	32.0	18.5	0.58	1.46	36.9	21.9	715	32.6	2.34	24.7	112	4.09
	8.0	4.0	9.2	950	33.3	22.2	0.67	1.51	38.4	22.0	950	33.5	2.14	26.2	103	4.60
70	4.0	1.1	2.5	715	29.5	17.6	0.60	1.76	35.5	16.8	715	33.6	2.36	25.6	114	4.18
	4.0	1.1	2.5	950	30.7	21.1	0.69	1.81	36.9	16.9	950	34.5	2.16	27.2	104	4.69
	6.0	2.3	5.3	715	30.5	18.0	0.59	1.65	36.1	18.4	715	35.1	2.39	26.9	115	4.30
	6.0	2.3	5.3	950	31.7	21.6	0.68	1.71	37.5	18.5	950	36.0	2.18	28.5	105	4.83
	8.0	3.8	8.8	715	30.9	18.2	0.59	1.61	36.4	19.2	715	35.8	2.40	27.6	116	4.36
	8.0	3.8	8.8	950	32.2	21.8	0.68	1.66	37.8	19.4	950	36.8	2.20	29.3	106	4.90
80	4.0	1.0	2.3	715	27.7	16.8	0.61	1.94	34.3	14.3	715	36.6	2.42	28.3	117	4.43
	4.0	1.0	2.3	950	28.8	20.2	0.70	2.00	35.6	14.4	950	37.5	2.21	30.0	107	4.97
	6.0	2.2	5.1	715	28.8	17.3	0.60	1.83	35.0	15.8	715	38.1	2.46	29.6	119	4.55
	6.0	2.2	5.1	950	30.0	20.7	0.69	1.89	36.4	15.9	950	39.1	2.25	31.4	108	5.11
	8.0	3.5	8.1	715	29.3	17.5	0.60	1.77	35.4	16.6	715	38.9	2.47	30.4	120	4.61
	8.0	3.5	8.1	950	30.5	21.0	0.69	1.83	36.8	16.7	950	40.0	2.26	32.2	109	5.18
85	4.0	1.0	2.3	715	26.7	16.4	0.62	2.04	33.7	13.1	715	38.0	2.45	29.5	119	4.54
	4.0	1.0	2.3	950	27.8	19.7	0.71	2.11	35.0	13.2	950	39.0	2.24	31.4	108	5.10
	6.0	2.2	5.0	715	27.8	16.9	0.61	1.92	34.4	14.5	715	39.6	2.49	31.0	121	4.66
	6.0	2.2	5.0	950	29.0	20.2	0.70	1.99	35.8	14.6	950	40.6	2.28	32.8	110	5.23
	8.0	3.5	8.0	715	28.4	17.1	0.60	1.87	34.7	15.2	715	40.4	2.51	31.7	122	4.72
	8.0	3.5	8.0	950	29.6	20.5	0.69	1.93	36.1	15.3	950	41.5	2.30	33.6	110	5.30
90	4.0	1.0	2.3	715	25.7	16.0	0.62	2.15	33.1	12.0	715	39.4	2.49	30.8	121	4.65
	4.0	1.0	2.3	950	26.8	19.2	0.72	2.22	34.4	12.1	950	40.5	2.27	32.7	109	5.22
	6.0	2.1	4.9	715	26.9	16.5	0.61	2.02	33.8	13.3	715	41.1	2.53	32.3	123	4.77
	6.0	2.1	4.9	950	28.0	19.7	0.71	2.09	35.1	13.4	950	42.2	2.31	34.3	111	5.35
	8.0	3.4	7.9	715	27.4	16.7	0.61	1.96	34.1	14.0	715	41.9	2.55	33.0	124	4.82
	8.0	3.4	7.9	950	28.6	20.0	0.70	2.03	35.5	14.1	950	43.0	2.33	35.1	112	5.42
100	4.0	1.0	2.3	715	23.9	15.3	0.64	2.39	32.1	10.0	Operation not recommended					
	4.0	1.0	2.3	950	24.9	18.3	0.73	2.47	33.4	10.1	Operation not recommended					
	6.0	2.0	4.6	715	24.9	15.7	0.63	2.25	32.6	11.1	Operation not recommended					
	6.0	2.0	4.6	950	26.0	18.8	0.72	2.32	33.9	11.2	Operation not recommended					
	8.0	3.2	7.4	715	25.5	15.9	0.62	2.18	32.9	11.7	Operation not recommended					
	8.0	3.2	7.4	950	26.5	19.0	0.72	2.25	34.2	11.8	Operation not recommended					
110	4.0	0.9	2.1	715	22.4	14.7	0.66	2.68	31.5	8.4	Operation not recommended					
	4.0	0.9	2.1	950	23.3	17.6	0.76	2.77	32.8	8.4	Operation not recommended					
	6.0	1.9	4.4	715	23.2	15.0	0.65	2.51	31.7	9.2	Operation not recommended					
	6.0	1.9	4.4	950	24.1	17.9	0.74	2.60	33.0	9.3	Operation not recommended					
	8.0	3.1	7.2	715	23.6	15.2	0.64	2.44	31.9	9.7	Operation not recommended					
	8.0	3.1	7.2	950	24.6	18.1	0.74	2.52	33.2	9.8	Operation not recommended					
120	4.0	0.9	2.1	715	21.3	14.6	0.68	3.02	31.6	7.1	Operation not recommended					
	4.0	0.9	2.1	950	22.2	17.4	0.79	3.12	32.9	7.1	Operation not recommended					
	6.0	1.8	4.2	715	21.8	14.6	0.67	2.82	31.5	7.7	Operation not recommended					
	6.0	1.8	4.2	950	22.7	17.5	0.77	2.92	32.7	7.8	Operation not recommended					
	8.0	3.0	6.9	715	22.1	14.7	0.66	2.74	31.5	8.1	Operation not recommended					
	8.0	3.0	6.9	95												

**Performance Data  
TS H/V/D 030 (ECM Blower)**

1,000 CFM Nominal (Rated) Airflow Cooling, 1,100 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	8.0	5.6	12.9	Operation not recommended						820	19.8	2.03	13.3	92	2.86	
30	8.0	5.6	12.9							1100	20.4	1.88	14.1	87	3.19	
	4.0	1.5	3.5	730	29.1	17.0	0.58	1.13	32.9	25.8	820	21.8	2.05	15.1	95	3.12
	4.0	1.5	3.5	1000	30.2	19.8	0.65	1.19	34.3	25.3	1100	22.5	1.89	16.1	89	3.48
	6.0	3.1	7.2	730	29.3	17.0	0.58	1.07	32.9	27.3	820	22.7	2.06	16.0	96	3.23
	6.0	3.1	7.2	1000	30.5	19.8	0.65	1.14	34.3	26.8	1100	23.4	1.90	17.0	90	3.60
	8.0	5.1	11.8	730	29.6	17.2	0.58	1.05	33.1	28.3	820	23.2	2.07	16.4	96	3.29
40	8.0	5.1	11.8	1000	30.7	20.0	0.65	1.11	34.5	27.8	1100	23.9	1.91	17.4	90	3.67
	4.0	1.3	3.0	730	32.2	19.1	0.59	1.26	36.4	25.6	820	24.9	2.09	18.0	98	3.49
	4.0	1.3	3.0	1000	33.5	22.2	0.66	1.33	38.0	25.1	1100	25.6	1.93	19.1	92	3.90
	6.0	2.8	6.5	730	32.6	19.2	0.59	1.19	36.6	27.5	820	25.9	2.10	18.9	99	3.61
	6.0	2.8	6.5	1000	33.9	22.3	0.66	1.26	38.2	27.0	1100	26.7	1.94	20.1	92	4.03
	8.0	4.5	10.4	730	33.1	19.4	0.59	1.16	37.0	28.7	820	26.4	2.11	19.4	100	3.67
50	8.0	4.5	10.4	1000	34.4	22.6	0.66	1.22	38.6	28.2	1100	27.2	1.95	20.6	93	4.10
	4.0	1.3	3.0	730	32.3	19.3	0.60	1.39	36.9	23.2	820	27.8	2.13	20.7	101	3.83
	4.0	1.3	3.0	1000	33.5	22.4	0.67	1.47	38.5	22.8	1100	28.7	1.97	22.0	94	4.27
	6.0	2.6	6.0	730	32.7	19.4	0.59	1.31	37.1	25.0	820	29.0	2.15	21.8	103	3.96
	6.0	2.6	6.0	1000	34.0	22.6	0.67	1.38	38.7	24.6	1100	29.9	1.99	23.1	95	4.41
	8.0	4.3	9.9	730	33.1	19.6	0.59	1.27	37.4	26.1	820	29.6	2.16	22.3	103	4.02
60	8.0	4.3	9.9	1000	34.5	22.9	0.66	1.34	39.0	25.7	1100	30.5	2.00	23.7	96	4.49
	4.0	1.2	2.8	730	31.9	19.5	0.61	1.53	37.1	20.8	820	30.8	2.18	23.4	105	4.14
	4.0	1.2	2.8	1000	33.1	22.7	0.68	1.62	38.7	20.4	1100	31.8	2.01	24.9	97	4.62
	6.0	2.5	5.8	730	32.6	19.7	0.60	1.44	37.5	22.7	820	32.1	2.20	24.6	106	4.27
	6.0	2.5	5.8	1000	33.9	22.9	0.68	1.52	39.1	22.3	1100	33.1	2.04	26.2	98	4.77
	8.0	4.0	9.2	730	32.9	19.8	0.60	1.40	37.6	23.6	820	32.8	2.22	25.3	107	4.34
70	8.0	4.0	9.2	1000	34.2	23.0	0.67	1.48	39.2	23.2	1100	33.8	2.05	26.8	98	4.84
	4.0	1.1	2.5	730	30.3	18.9	0.62	1.69	36.0	17.9	820	33.8	2.23	26.1	108	4.43
	4.0	1.1	2.5	1000	31.5	22.0	0.70	1.79	37.6	17.6	1100	34.8	2.06	27.8	99	4.94
	6.0	2.3	5.3	730	31.3	19.3	0.62	1.59	36.7	19.7	820	35.2	2.26	27.5	110	4.57
	6.0	2.3	5.3	1000	32.6	22.4	0.69	1.68	38.3	19.4	1100	36.3	2.09	29.2	101	5.10
	8.0	3.8	8.8	730	31.8	19.5	0.61	1.54	37.0	20.7	820	36.0	2.28	28.2	111	4.64
80	8.0	3.8	8.8	1000	33.1	22.6	0.68	1.63	38.6	20.3	1100	37.1	2.10	30.0	101	5.18
	4.0	1.0	2.3	730	28.4	18.1	0.64	1.87	34.8	15.2	820	36.8	2.29	28.9	112	4.71
	4.0	1.0	2.3	1000	29.6	21.1	0.71	1.98	36.3	15.0	1100	37.9	2.12	30.7	102	5.25
	6.0	2.2	5.1	730	29.6	18.6	0.63	1.76	35.6	16.9	820	38.4	2.32	30.4	113	4.85
	6.0	2.2	5.1	1000	30.8	21.7	0.70	1.86	37.1	16.6	1100	39.6	2.14	32.3	103	5.41
	8.0	3.5	8.1	730	30.2	18.8	0.62	1.70	36.0	17.7	820	39.3	2.34	31.2	114	4.93
85	8.0	3.5	8.1	1000	31.4	21.9	0.70	1.80	37.5	17.4	1100	40.5	2.16	33.1	104	5.50
	4.0	1.0	2.3	730	27.5	17.8	0.65	1.97	34.2	13.9	820	38.3	2.32	30.3	113	4.84
	4.0	1.0	2.3	1000	28.6	20.7	0.72	2.08	35.7	13.7	1100	39.5	2.14	32.1	103	5.40
	6.0	2.2	5.0	730	28.6	18.2	0.64	1.85	34.9	15.4	820	40.1	2.35	31.9	115	5.00
	6.0	2.2	5.0	1000	29.8	21.2	0.71	1.96	36.4	15.2	1100	41.3	2.17	33.9	105	5.58
	8.0	3.5	8.0	730	29.2	18.5	0.63	1.80	35.3	16.3	820	41.0	2.37	32.7	116	5.08
90	8.0	3.5	8.0	1000	30.4	21.5	0.71	1.90	36.8	16.0	1100	42.3	2.19	34.8	106	5.67
	4.0	1.0	2.3	730	26.5	17.4	0.66	2.07	33.6	12.8	820	39.8	2.35	31.6	115	4.98
	4.0	1.0	2.3	1000	27.5	20.2	0.73	2.19	35.0	12.6	1100	41.1	2.17	33.6	105	5.55
	6.0	2.1	4.9	730	27.6	17.8	0.65	1.95	34.3	14.2	820	41.7	2.38	33.4	117	5.14
	6.0	2.1	4.9	1000	28.7	20.7	0.72	2.06	35.8	13.9	1100	43.0	2.20	35.5	106	5.73
	8.0	3.4	7.9	730	28.2	18.1	0.64	1.89	34.7	14.9	820	42.7	2.40	34.3	118	5.23
100	8.0	3.4	7.9	1000	29.4	21.0	0.72	2.00	36.2	14.7	1100	44.1	2.21	36.5	107	5.83
	4.0	1.0	2.3	730	24.7	16.7	0.68	2.31	32.6	10.7	Operation not recommended					
	4.0	1.0	2.3	1000	25.7	19.5	0.76	2.44	34.0	10.5						
	6.0	2.0	4.6	730	25.7	17.1	0.67	2.17	33.1	11.8						
	6.0	2.0	4.6	1000	26.7	19.9	0.74	2.30	34.6	11.6						
	8.0	3.2	7.4	730	26.2	17.3	0.66	2.10	33.4	12.5						
110	8.0	3.2	7.4	1000	27.3	20.1	0.74	2.23	34.9	12.3						
	4.0	0.9	2.1	730	23.2	16.4	0.70	2.59	32.1	9.0						
	4.0	0.9	2.1	1000	24.1	19.0	0.79	2.74	33.5	8.8						
	6.0	1.9	4.4	730	24.0	16.5	0.69	2.43	32.3	9.9						
	6.0	1.9	4.4	1000	24.9	19.2	0.77	2.57	33.7	9.7						
	8.0	3.1	7.2	730	24.4	16.6	0.68	2.35	32.5	10.4						
120	8.0	3.1	7.2	1000	25.4	19.4	0.76	2.49	33.9	10.2						
	4.0	0.9	2.1	730	22.0	16.1	0.73	2.87	31.9	7.7						
	4.0	0.9	2.1	1000	22.8	18.7	0.82	3.04	33.2	7.5						
	6.0	1.8	4.2	730	22.5	16.1	0.72	2.74	31.9	8.2						
	6.0	1.8	4.2	1000	23.4	18.8	0.80	2.90	33.3	8.1						
	8.0	3.0	6.9	730	22.7	16.2	0.71	2.67	31.9	8.5						
	8.0	3.0</td														

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Performance Data****TS H/V/D 036 (PSC Blower)**

1,250 CFM Nominal (Rated) Airflow Cooling, 1,250 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	9.0	5.9	13.6								940	21.7	2.41	14.0	91	2.64
	9.0	5.9	13.6	Operation not recommended							1250	22.3	2.21	14.9	87	2.96
30	4.5	1.7	3.9	940	32.8	18.6	0.57	1.49	37.9	22.0	940	24.0	2.44	16.1	94	2.88
	4.5	1.7	3.9	1250	34.1	22.3	0.65	1.54	39.4	22.2	1250	24.6	2.23	17.1	88	3.23
	6.8	3.3	7.6	940	33.1	18.6	0.56	1.43	38.0	23.2	940	24.9	2.45	16.9	94	2.97
	6.8	3.3	7.6	1250	34.5	22.3	0.65	1.48	39.5	23.4	1250	25.5	2.24	18.0	89	3.34
	9.0	5.7	13.2	940	33.3	18.7	0.56	1.40	38.1	23.8	940	25.4	2.46	17.4	95	3.02
	9.0	5.7	13.2	1250	34.7	22.4	0.65	1.45	39.6	24.0	1250	26.0	2.25	18.4	89	3.40
40	4.5	1.5	3.5	940	35.5	21.0	0.59	1.57	40.8	22.6	940	27.3	2.48	19.2	97	3.23
	4.5	1.5	3.5	1250	36.9	25.1	0.68	1.62	42.4	22.8	1250	28.1	2.27	20.4	91	3.62
	6.8	3.2	7.4	940	35.6	21.0	0.59	1.54	40.9	23.1	940	28.4	2.50	20.2	98	3.33
	6.8	3.2	7.4	1250	37.1	25.2	0.68	1.60	42.5	23.3	1250	29.2	2.29	21.5	92	3.74
	9.0	5.4	12.5	940	35.9	21.3	0.59	1.51	41.1	23.8	940	29.0	2.51	20.8	99	3.39
	9.0	5.4	12.5	1250	37.4	25.5	0.68	1.56	42.7	24.0	1250	29.8	2.29	22.0	92	3.81
50	4.5	1.3	3.0	940	35.9	21.7	0.60	1.75	41.8	20.5	940	30.8	2.53	22.4	100	3.56
	4.5	1.3	3.0	1250	37.3	26.0	0.70	1.81	43.5	20.6	1250	31.6	2.32	23.7	93	4.00
	6.8	3.1	7.2	940	36.2	21.8	0.60	1.67	41.9	21.7	940	32.1	2.56	23.6	102	3.68
	6.8	3.1	7.2	1250	37.7	26.1	0.69	1.72	43.5	21.9	1250	33.0	2.34	25.0	94	4.13
	9.0	5.2	12.0	940	36.9	22.1	0.60	1.63	42.5	22.7	940	32.8	2.57	24.2	102	3.75
	9.0	5.2	12.0	1250	38.5	26.4	0.69	1.68	44.2	22.8	1250	33.7	2.35	25.7	95	4.21
60	4.5	1.2	2.8	940	34.6	21.6	0.63	1.90	41.1	18.2	940	34.3	2.59	25.6	104	3.88
	4.5	1.2	2.8	1250	36.0	25.9	0.72	1.96	42.7	18.4	1250	35.2	2.37	27.2	96	4.36
	6.8	2.9	6.7	940	35.5	21.9	0.62	1.80	41.6	19.7	940	35.8	2.62	27.0	105	4.01
	6.8	2.9	6.7	1250	37.0	26.2	0.71	1.86	43.3	19.8	1250	36.8	2.39	28.6	97	4.51
	9.0	5.0	11.6	940	35.8	21.9	0.61	1.76	41.8	20.4	940	36.7	2.63	27.8	106	4.09
	9.0	5.0	11.6	1250	37.3	26.3	0.70	1.82	43.5	20.5	1250	37.6	2.40	29.5	98	4.59
70	4.5	1.1	2.5	940	32.8	21.0	0.64	2.06	39.9	15.9	940	37.9	2.65	28.9	107	4.19
	4.5	1.1	2.5	1250	34.2	25.1	0.73	2.13	41.4	16.0	1250	38.9	2.42	30.6	99	4.70
	6.8	2.9	6.7	940	34.0	21.4	0.63	1.96	40.7	17.4	940	39.7	2.68	30.5	109	4.33
	6.8	2.9	6.7	1250	35.4	25.6	0.72	2.02	42.3	17.5	1250	40.7	2.45	32.3	100	4.87
	9.0	4.8	11.1	940	34.5	21.6	0.63	1.91	41.0	18.1	940	40.6	2.70	31.4	110	4.41
	9.0	4.8	11.1	1250	35.9	25.9	0.72	1.97	42.7	18.2	1250	41.7	2.47	33.3	101	4.95
80	4.5	1.0	2.3	940	30.8	20.2	0.65	2.25	38.5	13.7	940	41.6	2.72	32.2	111	4.48
	4.5	1.0	2.3	1250	32.1	24.1	0.75	2.32	40.0	13.8	1250	42.7	2.48	34.2	102	5.04
	6.8	2.8	6.5	940	32.0	20.6	0.64	2.13	39.3	15.0	940	43.6	2.75	34.1	113	4.64
	6.8	2.8	6.5	1250	33.4	24.7	0.74	2.21	40.9	15.1	1250	44.8	2.52	36.1	103	5.21
	9.0	4.5	10.4	940	32.6	20.9	0.64	2.08	39.7	15.7	940	44.7	2.77	35.1	114	4.72
	9.0	4.5	10.4	1250	34.0	25.0	0.74	2.15	41.3	15.8	1250	45.9	2.54	37.2	104	5.30
85	4.5	1.0	2.2	940	29.8	19.8	0.66	2.36	37.9	12.7	940	43.4	2.75	33.9	113	4.63
	4.5	1.0	2.2	1250	31.1	23.7	0.76	2.44	39.4	12.8	1250	44.6	2.52	36.0	103	5.20
	6.8	2.7	6.2	940	31.0	20.2	0.65	2.24	38.6	13.9	940	45.6	2.79	35.9	115	4.79
	6.8	2.7	6.2	1250	32.3	24.2	0.75	2.31	40.2	14.0	1250	46.8	2.55	38.1	105	5.38
	9.0	4.5	10.3	940	31.6	20.5	0.65	2.18	39.0	14.5	940	46.8	2.82	37.0	116	4.87
	9.0	4.5	10.3	1250	32.9	24.5	0.74	2.25	40.6	14.6	1250	48.1	2.57	39.2	106	5.47
90	4.5	0.9	2.1	940	28.9	19.4	0.67	2.47	37.3	11.7	940	45.3	2.79	35.6	115	4.77
	4.5	0.9	2.1	1250	30.1	23.3	0.77	2.55	38.8	11.8	1250	46.5	2.55	37.8	104	5.35
	6.8	2.6	6.0	940	30.0	19.8	0.66	2.34	38.0	12.8	940	47.6	2.83	37.7	117	4.93
	6.8	2.6	6.0	1250	31.2	23.7	0.76	2.42	39.5	12.9	1250	48.9	2.59	40.0	106	5.54
	9.0	4.4	10.2	940	30.6	20.1	0.66	2.27	38.3	13.4	940	48.9	2.86	38.9	118	5.02
	9.0	4.4	10.2	1250	31.8	24.0	0.75	2.35	39.9	13.5	1250	50.2	2.61	41.3	107	5.64
100	4.5	0.8	1.8	940	27.3	19.0	0.70	2.72	36.6	10.0						
	4.5	0.8	1.8	1250	28.5	22.8	0.80	2.81	38.1	10.1						
	6.8	2.6	6.0	940	28.1	19.2	0.68	2.57	36.9	10.9						
	6.8	2.6	6.0	1250	29.3	23.0	0.78	2.66	38.4	11.0						
	9.0	4.2	9.7	940	28.6	19.3	0.68	2.50	37.2	11.4						
	9.0	4.2	9.7	1250	29.8	23.2	0.78	2.59	38.6	11.5						
110	4.5	0.8	1.8	940	26.4	18.9	0.71	2.99	36.6	8.8						
	4.5	0.8	1.8	1250	27.5	22.6	0.82	3.09	38.1	8.9						
	6.8	2.5	5.8	940	26.9	19.0	0.71	2.85	36.6	9.4						
	6.8	2.5	5.8	1250	28.0	22.8	0.81	2.95	38.1	9.5						
	9.0	4.0	9.2	940	27.2	19.1	0.70	2.77	36.7	9.8						
	9.0	4.0	9.2	1250	28.3	22.8	0.81	2.86	38.1	9.9						
120	4.5	0.7	1.6	940	25.8	19.3	0.75	3.33	37.2	7.7						
	4.5	0.7	1.6	1250	26.9	23.1	0.86	3.44	38.7	7.8						
	6.8	2.5	5.8	940	26.4	19.6	0.74	3.18	37.2	8.3						
	6.8	2.5	5.8	1250	27.5	23.5	0.86	3.29	38.7	8.4						
	9.0	3.8	8.8	940	26.9	19.7	0.73	3.09	37.4	8.7						
	9.0	3.8	8.8	1250	28.0	23.6	0.84	3.19	38.9	8.8						

Operation not recommended

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.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68.6°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 40°F EWT is based upon a 15% antifreeze solution.

Operation below 60°F EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

See Performance Data Selection Notes for operation in the shaded areas.

## Performance Data TS H/V/D 036 (ECM Blower)

1,250 CFM Nominal (Rated) Airflow Cooling, 1,250 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	9.0	5.9	13.6								900	21.5	2.06	14.8	92	3.06
	9.0	5.9	13.6								1250	22.1	1.90	15.7	86	3.42
Operation not recommended																
30	4.5	1.7	3.9	900	33.0	19.5	0.59	1.16	36.9	28.5	900	23.7	2.09	16.9	94	3.33
	4.5	1.7	3.9	1250	34.3	22.7	0.66	1.22	38.4	28.0	1250	24.5	1.93	17.9	88	3.72
	6.8	3.3	7.6	900	33.1	19.5	0.59	1.13	36.9	29.4	900	24.7	2.10	17.8	95	3.45
	6.8	3.3	7.6	1250	34.4	22.7	0.66	1.19	38.4	28.9	1250	25.5	1.94	18.9	89	3.84
	9.0	5.7	13.2	900	33.3	19.6	0.59	1.10	36.9	30.3	900	25.3	2.11	18.3	96	3.51
	9.0	5.7	13.2	1250	34.6	22.8	0.66	1.16	38.5	29.8	1250	26.1	1.95	19.4	89	3.91
40	4.5	1.5	3.5	900	36.1	22.4	0.62	1.29	40.4	28.1	900	27.3	2.14	20.1	98	3.73
	4.5	1.5	3.5	1250	37.5	26.1	0.69	1.36	42.2	27.6	1250	28.1	1.98	21.4	91	4.17
	6.8	3.2	7.4	900	36.3	22.4	0.62	1.24	40.5	29.2	900	28.5	2.16	21.3	99	3.87
	6.8	3.2	7.4	1250	37.7	26.1	0.69	1.32	42.2	28.7	1250	29.4	2.00	22.6	92	4.32
	9.0	5.4	12.5	900	36.7	22.5	0.61	1.21	40.7	30.3	900	29.2	2.17	21.9	100	3.94
	9.0	5.4	12.5	1250	38.1	26.2	0.69	1.28	42.4	29.8	1250	30.1	2.01	23.3	92	4.40
50	4.5	1.3	3.0	900	37.1	23.9	0.64	1.42	41.9	26.1	900	30.9	2.20	23.5	102	4.12
	4.5	1.3	3.0	1250	38.6	27.9	0.72	1.51	43.7	25.6	1250	31.9	2.03	25.0	94	4.60
	6.8	3.1	7.2	900	37.4	23.8	0.64	1.37	42.0	27.3	900	32.4	2.22	24.8	103	4.27
	6.8	3.1	7.2	1250	38.9	27.7	0.71	1.45	43.8	26.9	1250	33.4	2.05	26.4	95	4.77
	9.0	5.2	12.0	900	37.6	23.8	0.63	1.33	42.1	28.3	900	33.2	2.23	25.6	104	4.35
	9.0	5.2	12.0	1250	39.1	27.6	0.71	1.41	43.9	27.8	1250	34.2	2.06	27.2	95	4.85
60	4.5	1.2	2.8	900	36.3	23.8	0.66	1.60	41.7	22.7	900	34.6	2.26	26.9	106	4.49
	4.5	1.2	2.8	1250	37.8	27.7	0.73	1.69	43.5	22.4	1250	35.7	2.09	28.6	96	5.01
	6.8	2.9	6.7	900	37.1	24.1	0.65	1.50	42.1	24.7	900	36.3	2.29	28.4	107	4.65
	6.8	2.9	6.7	1250	38.5	28.0	0.73	1.59	43.9	24.2	1250	37.4	2.11	30.2	98	5.19
	9.0	5.0	11.6	900	37.3	24.1	0.65	1.46	42.2	25.6	900	37.2	2.30	29.3	108	4.74
	9.0	5.0	11.6	1250	38.8	28.0	0.72	1.54	44.0	25.1	1250	38.4	2.13	31.1	98	5.29
70	4.5	1.1	2.5	900	34.6	23.1	0.67	1.76	40.6	19.7	900	38.3	2.32	30.3	109	4.84
	4.5	1.1	2.5	1250	36.0	26.9	0.75	1.86	42.3	19.4	1250	39.5	2.15	32.2	99	5.40
	6.8	2.9	6.7	900	35.8	23.6	0.66	1.65	41.4	21.6	900	40.2	2.35	32.0	111	5.01
	6.8	2.9	6.7	1250	37.2	27.5	0.74	1.75	43.1	21.3	1250	41.5	2.18	34.0	101	5.58
	9.0	4.8	11.1	900	36.3	23.8	0.66	1.60	41.7	22.6	900	41.2	2.37	32.9	112	5.09
	9.0	4.8	11.1	1250	37.7	27.7	0.73	1.70	43.5	22.2	1250	42.5	2.19	35.0	101	5.68
80	4.5	1.0	2.3	900	32.5	22.1	0.68	1.94	39.1	16.8	900	42.0	2.39	33.6	113	5.16
	4.5	1.0	2.3	1250	33.8	25.7	0.76	2.05	40.8	16.5	1250	43.3	2.21	35.8	102	5.75
	6.8	2.8	6.5	900	33.9	22.7	0.67	1.82	40.0	18.6	900	44.1	2.43	35.5	115	5.33
	6.8	2.8	6.5	1250	35.2	26.4	0.75	1.93	41.8	18.2	1250	45.5	2.24	37.8	104	5.94
	9.0	4.5	10.4	900	34.5	23.0	0.67	1.77	40.5	19.5	900	45.2	2.45	36.5	117	5.41
	9.0	4.5	10.4	1250	35.9	26.8	0.75	1.87	42.2	19.2	1250	46.6	2.26	38.8	105	6.04
85	4.5	1.0	2.2	900	31.4	21.5	0.69	2.04	38.4	15.4	900	43.9	2.42	35.3	115	5.30
	4.5	1.0	2.2	1250	32.7	25.1	0.77	2.16	40.0	15.1	1250	45.2	2.24	37.5	103	5.92
	6.8	2.7	6.2	900	32.7	22.2	0.68	1.92	39.3	17.0	900	46.0	2.47	37.3	117	5.47
	6.8	2.7	6.2	1250	34.0	25.8	0.76	2.03	41.0	16.7	1250	47.4	2.28	39.6	105	6.10
	9.0	4.5	10.3	900	33.4	22.5	0.67	1.86	39.7	17.9	900	47.2	2.49	38.3	119	5.55
	9.0	4.5	10.3	1250	34.7	26.2	0.75	1.97	41.4	17.6	1250	48.6	2.30	40.7	106	6.20
90	4.5	0.9	2.1	900	30.3	21.0	0.69	2.14	37.6	14.1	900	45.7	2.46	37.0	117	5.45
	4.5	0.9	2.1	1250	31.5	24.4	0.78	2.27	39.2	13.9	1250	47.1	2.27	39.3	105	6.08
	6.8	2.6	6.0	900	31.6	21.6	0.68	2.02	38.5	15.7	900	47.9	2.50	39.0	119	5.61
	6.8	2.6	6.0	1250	32.9	25.2	0.77	2.14	40.2	15.4	1250	49.4	2.31	41.4	107	6.26
	9.0	4.4	10.2	900	32.3	22.0	0.68	1.96	39.0	16.5	900	49.1	2.53	40.1	121	5.69
	9.0	4.4	10.2	1250	33.6	25.5	0.76	2.07	40.7	16.2	1250	50.6	2.34	42.6	108	6.35
100	4.5	0.8	1.8	900	28.2	20.1	0.71	2.38	36.3	11.8	Operation not recommended					
	4.5	0.8	1.8	1250	29.3	23.4	0.80	2.52	37.9	11.6	Operation not recommended					
	6.8	2.6	6.0	900	29.3	20.6	0.70	2.24	37.0	13.1	Operation not recommended					
	6.8	2.6	6.0	1250	30.5	23.9	0.78	2.37	38.6	12.9	Operation not recommended					
	9.0	4.2	9.7	900	30.0	20.9	0.70	2.18	37.4	13.8	Operation not recommended					
	9.0	4.2	9.7	1250	31.2	24.3	0.78	2.30	39.0	13.5	Operation not recommended					
110	4.5	0.8	1.8	900	26.4	19.6	0.74	2.66	35.5	9.9	Operation not recommended					
	4.5	0.8	1.8	1250	27.4	22.8	0.83	2.82	37.1	9.7	Operation not recommended					
	6.8	2.5	5.8	900	27.3	19.8	0.72	2.50	35.9	10.9	Operation not recommended					
	6.8	2.5	5.8	1250	28.4	23.0	0.81	2.65	37.4	10.7	Operation not recommended					
	9.0	4.0	9.2	900	27.8	20.0	0.72	2.43	36.1	11.5	Operation not recommended					
	9.0	4.0	9.2	1250	28.9	23.2	0.80	2.57	37.7	11.3	Operation not recommended					
120	4.5	0.7	1.6	900	25.1	19.3	0.77	2.98	35.3	8.4	Operation not recommended					
	4.5	0.7	1.6	1250	26.1	22.5	0.86	3.15	36.8	8.3	Operation not recommended					
	6.8	2.5	5.8	900	25.8	19.5	0.76	2.81	35.4	9.2	Operation not recommended					
	6.8	2.5	5.8	1250	26.8	22.7	0.85	2.97	36.9	9.0	Operation not recommended					
	9.0	3.8	8.8													

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Performance Data****TS H/V/D 042 (PSC Blower)**

1,400 CFM Nominal (Rated) Airflow Cooling, 1,400 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	11.0	4.0	9.2	Operation not recommended						1050	27.1	2.94	17.7	94	2.70	
30	11.0	4.0	9.2							1400	27.8	2.69	18.8	88	3.03	
	5.5	1.1	2.5	1050	38.8	23.0	0.59	1.53	44.0	25.4	1050	29.6	2.96	20.0	96	2.93
	5.5	1.1	2.5	1400	40.4	27.6	0.68	1.58	45.7	25.6	1400	30.4	2.71	21.2	90	3.28
	8.3	2.2	5.1	1050	39.4	23.0	0.58	1.51	44.5	26.1	1050	30.7	2.97	21.0	97	3.02
	8.3	2.2	5.1	1400	41.0	27.6	0.67	1.56	46.3	26.3	1400	31.5	2.72	22.3	91	3.40
	11.0	3.9	9.0	1050	39.8	23.1	0.58	1.46	44.8	27.4	1050	31.3	2.98	21.6	98	3.08
40	11.0	3.9	9.0	1400	41.5	27.6	0.67	1.50	46.6	27.6	1400	32.1	2.73	22.9	91	3.46
	5.5	1.0	2.3	1050	42.0	25.7	0.61	1.77	48.1	23.8	1050	33.8	3.01	23.9	100	3.29
	5.5	1.0	2.3	1400	43.8	30.8	0.70	1.83	50.0	24.0	1400	34.7	2.75	25.4	93	3.69
	8.3	2.1	4.9	1050	42.5	25.7	0.60	1.70	48.3	25.0	1050	35.2	3.03	25.3	101	3.41
	8.3	2.1	4.9	1400	44.3	30.7	0.69	1.76	50.3	25.2	1400	36.2	2.77	26.8	94	3.83
	11.0	3.7	8.5	1050	43.3	25.9	0.60	1.66	48.9	26.1	1050	36.0	3.04	26.0	102	3.48
50	11.0	3.7	8.5	1400	45.1	31.0	0.69	1.72	50.9	26.3	1400	37.0	2.78	27.6	94	3.90
	5.5	0.9	2.1	1050	42.5	26.6	0.63	1.99	49.3	21.3	1050	38.3	3.07	28.1	104	3.66
	5.5	0.9	2.1	1400	44.3	31.9	0.72	2.06	51.2	21.5	1400	39.3	2.81	29.8	96	4.10
	8.3	2.1	4.9	1050	43.1	26.6	0.62	1.88	49.5	22.9	1050	40.1	3.10	29.7	105	3.79
	8.3	2.1	4.9	1400	44.8	31.9	0.71	1.94	51.4	23.1	1400	41.2	2.83	31.5	97	4.26
	11.0	3.6	8.3	1050	43.6	26.7	0.61	1.83	49.8	23.8	1050	41.1	3.11	30.6	106	3.87
60	11.0	3.6	8.3	1400	45.4	32.0	0.71	1.89	51.8	24.0	1400	42.2	2.85	32.5	98	4.34
	5.5	0.9	2.1	1050	40.6	26.0	0.64	2.17	48.0	18.7	1050	43.0	3.15	32.3	108	4.00
	5.5	0.9	2.1	1400	42.3	31.1	0.73	2.24	49.9	18.9	1400	44.1	2.88	34.3	99	4.49
	8.3	2.0	4.6	1050	41.9	26.4	0.63	2.06	48.9	20.3	1050	45.1	3.19	34.2	110	4.14
	8.3	2.0	4.6	1400	43.6	31.7	0.73	2.13	50.9	20.5	1400	46.3	2.91	36.3	101	4.65
	11.0	3.5	8.1	1050	42.5	26.6	0.63	1.99	49.3	21.4	1050	45.7	3.20	34.8	110	4.18
70	11.0	3.5	8.1	1400	44.3	31.9	0.72	2.05	51.3	21.6	1400	46.9	2.93	36.9	101	4.70
	5.5	0.8	1.8	1050	38.0	24.8	0.65	2.37	46.1	16.1	1050	47.6	3.24	36.6	112	4.31
	5.5	0.8	1.8	1400	39.6	29.7	0.75	2.45	48.0	16.2	1400	48.9	2.96	38.8	102	4.84
	8.3	2.0	4.6	1050	39.6	25.5	0.64	2.25	47.3	17.6	1050	49.9	3.29	38.6	114	4.44
	8.3	2.0	4.6	1400	41.3	30.6	0.74	2.33	49.2	17.8	1400	51.2	3.01	41.0	104	4.99
	11.0	3.2	7.4	1050	40.4	25.9	0.64	2.19	47.9	18.4	1050	51.1	3.33	39.7	115	4.51
80	11.0	3.2	7.4	1400	42.1	31.0	0.74	2.26	49.8	18.6	1400	52.5	3.04	42.1	105	5.06
	5.5	0.7	1.6	1050	35.1	23.4	0.67	2.59	44.0	13.6	1050	52.1	3.35	40.5	116	4.56
	5.5	0.7	1.6	1400	36.6	28.0	0.77	2.68	45.7	13.7	1400	53.5	3.07	43.0	105	5.12
	8.3	1.9	4.4	1050	36.8	24.2	0.66	2.46	45.2	14.9	1050	54.5	3.42	42.6	118	4.66
	8.3	1.9	4.4	1400	38.3	29.0	0.76	2.54	47.0	15.1	1400	55.9	3.13	45.2	107	5.24
	11.0	3.2	7.4	1050	37.6	24.6	0.65	2.40	45.8	15.7	1050	55.7	3.46	43.7	119	4.71
85	11.0	3.2	7.4	1400	39.2	29.5	0.75	2.48	47.6	15.8	1400	57.2	3.17	46.3	108	5.29
	5.5	0.7	1.6	1050	33.7	22.7	0.67	2.70	42.9	12.5	1050	54.2	3.42	42.4	118	4.65
	5.5	0.7	1.6	1400	35.1	27.2	0.77	2.79	44.7	12.6	1400	55.6	3.12	44.9	107	5.22
	8.3	1.9	4.3	1050	35.3	23.5	0.66	2.57	44.1	13.8	1050	56.5	3.50	44.3	120	4.73
	8.3	1.9	4.3	1400	36.8	28.1	0.76	2.65	45.8	13.9	1400	58.0	3.20	47.0	108	5.32
	11.0	3.2	7.3	1050	36.1	23.9	0.66	2.50	44.7	14.5	1050	57.6	3.54	45.3	121	4.77
90	11.0	3.2	7.3	1400	37.6	28.6	0.76	2.58	46.4	14.6	1400	59.2	3.24	48.1	109	5.35
	5.5	0.7	1.6	1050	32.3	22.0	0.68	2.81	41.9	11.5	1050	56.3	3.48	44.2	120	4.73
	5.5	0.7	1.6	1400	33.6	26.4	0.78	2.91	43.6	11.6	1400	57.8	3.18	46.9	108	5.32
	8.3	1.8	4.2	1050	33.8	22.7	0.67	2.67	42.9	12.7	1050	58.5	3.57	46.0	122	4.80
	8.3	1.8	4.2	1400	35.2	27.2	0.77	2.76	44.6	12.8	1400	60.0	3.26	48.9	110	5.39
	11.0	3.1	7.2	1050	34.6	23.1	0.67	2.60	43.5	13.3	1050	59.6	3.62	46.9	123	4.82
100	11.0	3.1	7.2	1400	36.0	27.7	0.77	2.69	45.2	13.4	1400	61.1	3.31	49.8	110	5.41
	5.5	0.6	1.4	1050	29.9	21.0	0.70	3.05	40.3	9.8	Operation not recommended					
	5.5	0.6	1.4	1400	31.1	25.1	0.81	3.15	41.9	9.9	Operation not recommended					
	8.3	1.8	4.2	1050	31.0	21.5	0.69	2.90	40.9	10.7	Operation not recommended					
	8.3	1.8	4.2	1400	32.3	25.7	0.80	3.00	42.6	10.8	Operation not recommended					
	11.0	2.9	6.7	1050	31.7	21.8	0.69	2.81	41.3	11.3	Operation not recommended					
110	11.0	2.9	6.7	1400	33.0	26.1	0.79	2.90	43.0	11.4	Operation not recommended					
	5.5	0.6	1.4	1050	28.4	20.6	0.73	3.21	39.4	8.8	Operation not recommended					
	5.5	0.6	1.4	1400	29.6	24.7	0.84	3.32	40.9	8.9	Operation not recommended					
	8.3	1.7	3.9	1050	29.0	20.7	0.71	3.12	39.6	9.3	Operation not recommended					
	8.3	1.7	3.9	1400	30.2	24.8	0.82	3.22	41.2	9.4	Operation not recommended					
	11.0	2.9	6.7	1050	29.4	20.8	0.71	3.06	39.9	9.6	Operation not recommended					
120	11.0	2.9	6.7	1400	30.6	24.9	0.81	3.16	41.5	9.7	Operation not recommended					
	5.5	0.6	1.4	1050	28.0	20.9	0.75	3.33	39.4	8.4	Operation not recommended					
	5.5	0.6	1.4	1400	29.1	25.0	0.86	3.44	40.9	8.5	Operation not recommended					
	8.3	1.6	3.7	1050	28.2	20.9	0.74	3.27	39.3	8.6	Operation not recommended					
	8.3	1.6	3.7	1400	29.3	25.0	0.85	3.38	40.9	8.7	Operation not recommended					
	11.0	2.7	6.2													

## Performance Data TS H/V/D 042 (ECM Blower)

1,400 CFM Nominal (Rated) Airflow Cooling, 1,400 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	11.0	4.0	9.2	Operation not recommended						1050	25.8	2.53	17.6	93	2.98	
30	11.0	4.0	9.2							1400	26.6	2.34	18.7	88	3.33	
	5.5	1.1	2.5	1050	42.9	27.1	0.63	1.40	47.6	30.6	1050	28.0	2.57	19.6	95	3.19
	5.5	1.1	2.5	1400	44.6	31.5	0.71	1.48	49.6	30.1	1400	28.8	2.38	20.8	89	3.55
	8.3	2.2	5.1	1050	43.2	27.1	0.63	1.33	47.6	32.4	1050	29.0	2.59	20.5	96	3.28
	8.3	2.2	5.1	1400	44.9	31.6	0.70	1.41	49.7	31.8	1400	29.9	2.39	21.8	90	3.66
	11.0	3.9	9.0	1050	43.7	27.2	0.62	1.30	48.0	33.6	1050	29.6	2.60	21.0	96	3.33
40	11.0	3.9	9.0	1400	45.4	31.6	0.70	1.38	50.1	33.0	1400	30.5	2.40	22.3	90	3.72
	5.5	1.0	2.3	1050	44.0	28.9	0.66	1.51	49.0	29.1	1050	32.1	2.64	23.3	98	3.56
	5.5	1.0	2.3	1400	45.7	33.6	0.73	1.60	51.1	28.6	1400	33.1	2.44	24.8	92	3.97
	8.3	2.1	4.9	1050	44.3	29.0	0.65	1.46	49.2	30.4	1050	33.5	2.66	24.7	100	3.69
	8.3	2.1	4.9	1400	46.1	33.8	0.73	1.54	51.3	29.9	1400	34.6	2.46	26.2	93	4.12
	11.0	3.7	8.5	1050	44.6	29.1	0.65	1.42	49.3	31.4	1050	34.4	2.68	25.4	100	3.76
50	11.0	3.7	8.5	1400	46.3	33.9	0.73	1.50	51.4	30.9	1400	35.4	2.47	27.0	93	4.20
	5.5	0.9	2.1	1050	43.3	29.5	0.68	1.69	49.0	25.7	1050	36.8	2.71	27.7	102	3.97
	5.5	0.9	2.1	1400	45.1	34.3	0.76	1.78	51.1	25.2	1400	37.9	2.51	29.4	95	4.43
	8.3	2.1	4.9	1050	44.0	29.6	0.67	1.59	49.4	27.6	1050	38.7	2.74	29.4	104	4.13
	8.3	2.1	4.9	1400	45.8	34.4	0.75	1.69	51.5	27.2	1400	39.9	2.53	31.2	96	4.61
	11.0	3.6	8.3	1050	44.3	29.6	0.67	1.55	49.4	28.6	1050	39.7	2.76	30.4	105	4.22
60	11.0	3.6	8.3	1400	46.0	34.5	0.75	1.64	51.5	28.1	1400	41.0	2.55	32.3	97	4.71
	5.5	0.9	2.1	1050	41.6	28.7	0.69	1.86	47.9	22.4	1050	41.8	2.79	32.2	107	4.39
	5.5	0.9	2.1	1400	43.3	33.4	0.77	1.96	49.9	22.0	1400	43.1	2.58	34.3	98	4.89
	8.3	2.0	4.6	1050	42.7	29.2	0.68	1.75	48.6	24.4	1050	44.0	2.83	34.3	109	4.56
	8.3	2.0	4.6	1400	44.4	34.0	0.77	1.85	50.7	24.0	1400	45.4	2.62	36.5	100	5.09
	11.0	3.5	8.1	1050	43.2	29.4	0.68	1.70	48.9	25.4	1050	45.3	2.85	35.4	110	4.65
70	11.0	3.5	8.1	1400	44.9	34.2	0.76	1.80	51.0	25.0	1400	46.7	2.63	37.7	101	5.19
	5.5	0.8	1.8	1050	39.4	27.6	0.70	2.05	46.3	19.2	1050	46.8	2.88	36.8	111	4.77
	5.5	0.8	1.8	1400	40.9	32.1	0.78	2.17	48.3	18.9	1400	48.3	2.66	39.2	102	5.32
	8.3	2.0	4.6	1050	40.7	28.3	0.69	1.93	47.3	21.1	1050	49.3	2.93	39.1	113	4.94
	8.3	2.0	4.6	1400	42.4	32.9	0.78	2.04	49.3	20.7	1400	50.8	2.70	41.6	104	5.51
	11.0	3.2	7.4	1050	41.4	28.6	0.69	1.87	47.7	22.1	1050	50.6	2.95	40.3	115	5.02
80	11.0	3.2	7.4	1400	43.0	33.3	0.77	1.98	49.8	21.7	1400	52.2	2.73	42.8	105	5.60
	5.5	0.7	1.6	1050	36.9	26.3	0.71	2.27	44.7	16.2	1050	51.6	2.97	41.2	115	5.08
	5.5	0.7	1.6	1400	38.4	30.6	0.80	2.40	46.6	16.0	1400	53.2	2.75	43.8	105	5.67
	8.3	1.9	4.4	1050	38.3	27.0	0.70	2.14	45.6	17.9	1050	54.1	3.03	43.4	118	5.23
	8.3	1.9	4.4	1400	39.9	31.5	0.79	2.26	47.6	17.6	1400	55.8	2.80	46.1	107	5.83
	11.0	3.2	7.4	1050	39.1	27.4	0.70	2.08	46.1	18.8	1050	55.3	3.07	44.5	119	5.29
85	11.0	3.2	7.4	1400	40.6	31.9	0.79	2.20	48.1	18.5	1400	57.0	2.83	47.3	108	5.90
	5.5	0.7	1.6	1050	35.7	25.7	0.72	2.40	43.9	14.8	1050	53.7	3.03	43.1	117	5.20
	5.5	0.7	1.6	1400	37.1	29.9	0.81	2.54	45.8	14.6	1400	55.4	2.80	45.8	107	5.80
	8.3	1.9	4.3	1050	37.1	26.4	0.71	2.26	44.8	16.4	1050	56.0	3.09	45.1	119	5.31
	8.3	1.9	4.3	1400	38.5	30.7	0.80	2.39	46.7	16.1	1400	57.8	2.86	47.9	108	5.93
	11.0	3.2	7.3	1050	37.8	26.8	0.71	2.20	45.2	17.2	1050	57.1	3.13	46.1	120	5.35
90	11.0	3.2	7.3	1400	39.3	31.1	0.79	2.32	47.2	16.9	1400	58.9	2.89	49.0	109	5.97
	5.5	0.7	1.6	1050	34.4	25.1	0.73	2.53	43.1	13.6	1050	55.8	3.08	45.0	119	5.31
	5.5	0.7	1.6	1400	35.8	29.2	0.82	2.68	45.0	13.4	1400	57.6	2.85	47.8	108	5.93
	8.3	1.8	4.2	1050	35.8	25.7	0.72	2.39	43.9	15.0	1050	58.0	3.15	46.8	121	5.39
	8.3	1.8	4.2	1400	37.2	30.0	0.81	2.52	45.8	14.7	1400	59.8	2.91	49.8	110	6.02
	11.0	3.1	7.2	1050	36.5	26.1	0.71	2.31	44.4	15.8	1050	58.9	3.19	47.6	122	5.42
100	11.0	3.1	7.2	1400	38.0	30.4	0.80	2.45	46.3	15.5	1400	60.8	2.95	50.6	110	6.04
	5.5	0.6	1.4	1050	32.2	24.2	0.75	2.84	41.9	11.3						
	5.5	0.6	1.4	1400	33.4	28.2	0.84	3.01	43.7	11.1						
	8.3	1.8	4.2	1050	33.3	24.6	0.74	2.67	42.5	12.5						
	8.3	1.8	4.2	1400	34.6	28.7	0.83	2.83	44.3	12.3						
	11.0	2.9	6.7	1050	34.0	24.9	0.73	2.59	42.8	13.1						
110	11.0	2.9	6.7	1400	35.3	29.0	0.82	2.74	44.7	12.9						
	5.5	0.6	1.4	1050	30.3	23.9	0.79	3.20	41.4	9.5						
	5.5	0.6	1.4	1400	31.5	27.8	0.88	3.39	43.1	9.3						
	8.3	1.7	3.9	1050	31.2	24.0	0.77	3.01	41.5	10.4						
	8.3	1.7	3.9	1400	32.4	27.9	0.86	3.18	43.3	10.2						
	11.0	2.9	6.7	1050	31.7	24.1	0.76	2.91	41.7	10.9						
120	11.0	2.9	6.7	1400	33.0	28.0	0.85	3.08	43.5	10.7						
	5.5	0.6	1.4	1050	28.9	23.5	0.81	3.62	41.4	8.0						
	5.5	0.6	1.4	1400	30.1	27.4	0.91	3.83	43.2	7.9						
	8.3	1.6	3.7	1050	29.7	23.9	0.80	3.40	41.4	8.7						
	8.3	1.6	3.7	1400	30.9	27.8	0.90	3.60	43.2	8.6						
	11.0	2.7	6.2	1050	30.1	24.0	0.80	3.30	41.5	9.1						
	11.0	2.7	6.2	1400	31.3	28.0	0.89	3.4								

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Performance Data****TS H/V/D 048 (PSC Blower)**

1,600 CFM Nominal (Rated) Airflow Cooling, 1,600 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
Operation not recommended																
20	12.0	4.8	11.1	1200	52.0	29.3	0.56	2.14	59.3	24.3	1200	34.4	3.80	22.2	97	2.65
	12.0	4.8	11.1								1600	35.3	3.47	23.6	90	2.98
30	6.0	1.3	3.0	1200	52.0	29.3	0.56	2.22	61.7	24.4	1200	37.1	3.84	24.7	99	2.83
	6.0	1.3	3.0	1600	54.2	35.1	0.65	2.22	61.7	24.4	1600	38.0	3.51	26.2	92	3.18
	9.0	2.6	6.0	1200	52.3	29.3	0.56	2.06	59.4	25.4	1200	38.5	3.86	26.0	100	2.92
	9.0	2.6	6.0	1600	54.5	35.1	0.64	2.13	61.7	25.6	1600	39.5	3.53	27.6	93	3.28
	12.0	4.5	10.4	1200	52.5	29.4	0.56	2.03	59.4	25.9	1200	39.3	3.87	26.8	100	2.98
	12.0	4.5	10.4	1600	54.7	35.2	0.64	2.09	61.8	26.1	1600	40.4	3.54	28.4	93	3.34
40	6.0	1.2	2.8	1200	53.2	30.3	0.57	2.32	61.1	22.9	1200	41.9	3.92	29.1	102	3.14
	6.0	1.2	2.8	1600	55.4	36.3	0.66	2.40	63.5	23.1	1600	43.0	3.58	30.9	95	3.52
	9.0	2.6	6.0	1200	53.4	30.4	0.57	2.24	61.1	23.9	1200	43.8	3.95	30.9	104	3.25
	9.0	2.6	6.0	1600	55.7	36.4	0.65	2.31	63.5	24.1	1600	45.0	3.61	32.8	96	3.65
	12.0	4.4	10.2	1200	53.7	30.4	0.57	2.18	61.1	24.6	1200	44.9	3.97	31.8	105	3.31
	12.0	4.4	10.2	1600	55.9	36.4	0.65	2.26	63.6	24.8	1600	46.1	3.63	33.8	97	3.72
50	6.0	1.1	2.5	1200	52.6	30.7	0.58	2.60	61.5	20.2	1200	47.2	4.01	33.9	106	3.45
	6.0	1.1	2.5	1600	54.8	36.8	0.67	2.69	63.9	20.4	1600	48.5	3.67	36.0	98	3.87
	9.0	2.5	5.8	1200	53.5	30.9	0.58	2.44	61.8	21.9	1200	49.6	4.06	36.1	108	3.58
	9.0	2.5	5.8	1600	55.7	37.0	0.66	2.52	64.3	22.1	1600	50.9	3.71	38.3	99	4.02
	12.0	4.2	9.7	1200	53.8	30.9	0.57	2.37	61.9	22.7	1200	50.9	4.08	37.3	109	3.65
	12.0	4.2	9.7	1600	56.0	37.0	0.66	2.45	64.3	22.9	1600	52.2	3.73	39.6	100	4.10
60	6.0	1.0	2.3	1200	50.7	30.2	0.60	2.85	60.4	17.8	1200	52.8	4.12	39.0	111	3.75
	6.0	1.0	2.3	1600	52.8	36.2	0.68	2.94	62.8	17.9	1600	54.2	3.77	41.4	101	4.22
	9.0	2.4	5.5	1200	52.1	30.6	0.59	2.67	61.2	19.5	1200	55.6	4.18	41.6	113	3.90
	9.0	2.4	5.5	1600	54.3	36.6	0.68	2.76	63.7	19.7	1600	57.1	3.82	44.1	103	4.38
	12.0	4.0	9.2	1200	52.7	30.7	0.58	2.59	61.5	20.4	1200	57.2	4.21	43.0	114	3.98
	12.0	4.0	9.2	1600	54.9	36.8	0.67	2.67	64.0	20.5	1600	58.8	3.85	45.6	104	4.47
70	6.0	1.0	2.3	1200	48.3	29.5	0.61	3.13	59.0	15.4	1200	58.6	4.24	44.2	115	4.05
	6.0	1.0	2.3	1600	50.3	35.3	0.70	3.24	61.3	15.5	1600	60.2	3.88	46.9	105	4.54
	9.0	2.3	5.3	1200	50.0	30.0	0.60	2.93	60.0	17.0	1200	61.9	4.32	47.2	118	4.20
	9.0	2.3	5.3	1600	52.1	35.9	0.69	3.03	62.4	17.2	1600	63.6	3.95	50.1	107	4.72
	12.0	3.8	8.8	1200	50.8	30.2	0.59	2.84	60.5	17.9	1200	63.8	4.36	48.9	119	4.29
	12.0	3.8	8.8	1600	52.9	36.2	0.68	2.93	62.9	18.0	1600	65.5	3.99	51.9	108	4.81
80	6.0	0.9	2.1	1200	45.7	28.7	0.63	3.45	57.5	13.2	1200	64.6	4.38	49.6	120	4.32
	6.0	0.9	2.1	1600	47.6	34.4	0.72	3.57	59.8	13.3	1600	66.3	4.01	52.6	108	4.85
	9.0	2.3	5.3	1200	47.5	29.2	0.62	3.23	58.5	14.7	1200	68.4	4.47	53.0	123	4.48
	9.0	2.3	5.3	1600	49.4	35.0	0.71	3.34	60.8	14.8	1600	70.2	4.09	56.2	111	5.03
	12.0	3.6	8.3	1200	48.3	29.5	0.61	3.13	59.0	15.5	1200	70.5	4.53	54.9	124	4.56
	12.0	3.6	8.3	1600	50.3	35.3	0.70	3.23	61.4	15.6	1600	72.4	4.14	58.3	112	5.12
85	6.0	0.9	2.1	1200	44.4	28.4	0.64	3.64	56.8	12.2	1200	67.6	4.46	52.3	122	4.45
	6.0	0.9	2.1	1600	46.2	34.0	0.74	3.76	59.1	12.3	1600	69.4	4.07	55.5	110	4.99
	9.0	2.3	5.2	1200	46.1	28.8	0.63	3.40	57.7	13.5	1200	71.7	4.56	55.9	125	4.60
	9.0	2.3	5.2	1600	48.0	34.5	0.72	3.52	60.0	13.6	1600	73.6	4.17	59.3	113	5.17
	12.0	3.6	8.2	1200	47.0	29.1	0.62	3.29	58.2	14.3	1200	73.9	4.62	57.9	127	4.69
	12.0	3.6	8.2	1600	48.9	34.8	0.71	3.40	60.6	14.4	1600	75.9	4.23	61.4	114	5.26
90	6.0	0.9	2.1	1200	43.1	28.1	0.65	3.82	56.1	11.3	1200	70.6	4.53	55.0	125	4.57
	6.0	0.9	2.1	1600	44.9	33.6	0.75	3.95	58.4	11.4	1600	72.5	4.14	58.4	112	5.13
	9.0	2.2	5.1	1200	44.8	28.4	0.64	3.57	57.0	12.5	1200	74.9	4.65	58.8	128	4.72
	9.0	2.2	5.1	1600	46.6	34.1	0.73	3.69	59.2	12.6	1600	76.9	4.25	62.4	115	5.30
	12.0	3.5	8.1	1200	45.6	28.7	0.63	3.46	57.4	13.2	1200	77.3	4.72	60.9	130	4.80
	12.0	3.5	8.1	1600	47.5	34.3	0.72	3.57	59.7	13.3	1600	79.3	4.31	64.6	116	5.39
100	6.0	0.8	1.8	1200	40.8	27.8	0.68	4.24	55.3	9.6	Operation not recommended					
	6.0	0.8	1.8	1600	42.5	33.3	0.78	4.39	57.5	9.7	Operation not recommended					
	9.0	2.1	4.9	1200	42.2	27.9	0.66	3.97	55.8	10.6	Operation not recommended					
	9.0	2.1	4.9	1600	44.0	33.4	0.76	4.10	58.0	10.7	Operation not recommended					
	12.0	3.3	7.6	1200	43.0	28.1	0.65	3.83	56.1	11.2	Operation not recommended					
	12.0	3.3	7.6	1600	44.8	33.6	0.75	3.96	58.3	11.3	Operation not recommended					
110	6.0	0.8	1.8	1200	39.2	27.8	0.71	4.68	55.2	8.4	Operation not recommended					
	6.0	0.8	1.8	1600	40.8	33.3	0.82	4.84	57.4	8.4	Operation not recommended					
	9.0	2.0	4.6	1200	40.1	27.9	0.69	4.42	55.2	9.1	Operation not recommended					
	9.0	2.0	4.6	1600	41.8	33.4	0.80	4.57	57.4	9.2	Operation not recommended					
	12.0	3.2	7.4	1200	40.7	27.9	0.69	4.27	55.3	9.5	Operation not recommended					
	12.0	3.2	7.4	1600	42.4	33.5	0.79	4.41	57.5	9.6	Operation not recommended					
120	6.0	0.7	1.6	1200	38.1	28.7	0.75	5.25	56.1	7.3	Operation not recommended					
	6.0	0.7	1.6	1600	39.7	34.4	0.87	5.42	58.3	7.3	Operation not recommended					
	9.0	1.9	4.4	1200	39.2	28.8	0.74	4.97	56.2	7.9	Operation not recommended					

## Performance Data TS H/V/D 048 (ECM Blower)

1,550 CFM Nominal (Rated) Airflow Cooling, 1,650 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	12.0	4.8	11.1	Operation not recommended						1200	32.9	3.41	21.9	95	2.82	
30	12.0	4.8	11.1	1120	53.5	31.9	0.60	1.91	59.9	28.0	1650	33.9	3.15	23.2	89	3.15
	6.0	1.3	3.0	1120	55.6	37.1	0.67	2.02	62.5	27.5	1650	36.5	3.21	25.7	91	3.34
	9.0	2.6	6.0	1120	54.1	31.9	0.59	1.81	60.1	29.9	1200	36.8	3.51	25.4	98	3.08
	9.0	2.6	6.0	1550	56.2	37.1	0.66	1.91	62.7	29.4	1650	38.0	3.24	27.0	91	3.44
	12.0	4.5	10.4	1120	54.8	32.1	0.59	1.76	60.6	31.1	1200	37.6	3.52	26.2	99	3.13
	12.0	4.5	10.4	1550	56.9	37.4	0.66	1.86	63.2	30.5	1650	38.8	3.26	27.8	92	3.49
40	6.0	1.2	2.8	1120	54.3	32.8	0.60	2.09	61.3	26.0	1200	40.3	3.58	28.6	101	3.30
	6.0	1.2	2.8	1550	56.5	38.2	0.68	2.21	64.0	25.6	1650	41.6	3.31	30.4	93	3.68
	9.0	2.6	6.0	1120	54.8	32.8	0.60	1.97	61.4	27.9	1200	42.2	3.62	30.3	103	3.42
	9.0	2.6	6.0	1550	57.0	38.2	0.67	2.08	64.1	27.4	1650	43.6	3.34	32.2	94	3.82
	12.0	4.4	10.2	1120	55.1	32.8	0.60	1.91	61.4	28.8	1200	43.3	3.64	31.3	103	3.49
	12.0	4.4	10.2	1550	57.3	38.2	0.67	2.02	64.1	28.3	1650	44.7	3.36	33.3	95	3.89
50	6.0	1.1	2.5	1120	53.5	32.9	0.62	2.31	61.3	23.2	1200	45.8	3.69	33.5	105	3.64
	6.0	1.1	2.5	1550	55.6	38.3	0.69	2.44	63.9	22.8	1650	47.2	3.41	35.6	96	4.06
	9.0	2.5	5.8	1120	54.4	33.1	0.61	2.16	61.6	25.2	1200	48.2	3.74	35.7	107	3.78
	9.0	2.5	5.8	1550	56.5	38.5	0.68	2.28	64.3	24.8	1650	49.7	3.45	37.9	98	4.22
	12.0	4.2	9.7	1120	54.7	33.1	0.61	2.09	61.7	26.2	1200	49.5	3.76	36.9	108	3.86
	12.0	4.2	9.7	1550	56.8	38.5	0.68	2.21	64.3	25.7	1650	51.1	3.48	39.3	99	4.30
60	6.0	1.0	2.3	1120	51.7	32.4	0.63	2.55	60.3	20.2	1200	51.5	3.80	38.7	110	3.97
	6.0	1.0	2.3	1550	53.7	37.7	0.70	2.70	62.9	19.9	1650	53.1	3.52	41.1	100	4.43
	9.0	2.4	5.5	1120	53.0	32.8	0.62	2.38	61.0	22.3	1200	54.4	3.86	41.3	112	4.13
	9.0	2.4	5.5	1550	55.1	38.2	0.69	2.52	63.7	21.9	1650	56.1	3.57	43.9	101	4.60
	12.0	4.0	9.2	1120	53.6	32.9	0.61	2.30	61.3	23.3	1200	56.0	3.89	42.8	113	4.21
	12.0	4.0	9.2	1550	55.7	38.3	0.69	2.43	64.0	22.9	1650	57.7	3.60	45.4	102	4.70
70	6.0	1.0	2.3	1120	49.3	31.6	0.64	2.83	58.9	17.4	1200	57.3	3.92	44.0	114	4.28
	6.0	1.0	2.3	1550	51.3	36.7	0.72	3.00	61.5	17.1	1650	59.1	3.63	46.7	103	4.78
	9.0	2.3	5.3	1120	51.0	32.2	0.63	2.64	59.9	19.3	1200	60.6	3.99	46.9	117	4.45
	9.0	2.3	5.3	1550	53.0	37.4	0.71	2.79	62.5	19.0	1650	62.4	3.69	49.8	105	4.96
	12.0	3.8	8.8	1120	51.8	32.4	0.63	2.54	60.4	20.3	1200	62.3	4.03	48.5	118	4.53
	12.0	3.8	8.8	1550	53.8	37.7	0.70	2.69	63.0	20.0	1650	64.2	3.73	51.5	106	5.05
80	6.0	0.9	2.1	1120	46.6	30.6	0.66	3.15	57.3	14.8	1200	63.0	4.05	49.1	119	4.56
	6.0	0.9	2.1	1550	48.4	35.6	0.73	3.33	59.8	14.5	1650	65.0	3.74	52.2	106	5.09
	9.0	2.3	5.3	1120	48.4	31.3	0.65	2.93	58.4	16.5	1200	66.4	4.13	52.2	121	4.71
	9.0	2.3	5.3	1550	50.4	36.4	0.72	3.10	60.9	16.2	1650	68.5	3.82	55.4	108	5.26
	12.0	3.6	8.3	1120	49.3	31.6	0.64	2.83	58.9	17.4	1200	68.2	4.18	53.7	123	4.79
	12.0	3.6	8.3	1550	51.3	36.8	0.72	2.99	61.5	17.1	1650	70.3	3.86	57.1	109	5.34
85	6.0	0.9	2.1	1120	45.1	30.1	0.67	3.33	56.5	13.5	1200	65.7	4.12	51.5	121	4.68
	6.0	0.9	2.1	1550	46.9	35.0	0.75	3.52	59.0	13.3	1650	67.8	3.80	54.7	108	5.22
	9.0	2.3	5.2	1120	47.0	30.7	0.65	3.10	57.6	15.2	1200	69.1	4.20	54.5	123	4.81
	9.0	2.3	5.2	1550	48.9	35.8	0.73	3.28	60.1	14.9	1650	71.2	3.89	57.9	110	5.37
	12.0	3.6	8.2	1120	48.0	31.1	0.65	2.99	58.1	16.0	1200	70.8	4.25	56.0	125	4.88
	12.0	3.6	8.2	1550	49.8	36.2	0.73	3.17	60.6	15.7	1650	73.0	3.93	59.5	111	5.44
90	6.0	0.9	2.1	1120	43.7	29.5	0.68	3.51	55.7	12.4	1200	68.4	4.18	53.9	123	4.79
	6.0	0.9	2.1	1550	45.4	34.4	0.76	3.72	58.1	12.2	1650	70.5	3.86	57.3	110	5.35
	9.0	2.2	5.1	1120	45.6	30.2	0.66	3.27	56.8	13.9	1200	71.7	4.28	56.8	125	4.91
	9.0	2.2	5.1	1550	47.4	35.2	0.74	3.46	59.2	13.7	1650	73.9	3.95	60.4	111	5.48
	12.0	3.5	8.1	1120	46.6	30.6	0.66	3.16	57.3	14.8	1200	73.3	4.33	58.2	127	4.96
	12.0	3.5	8.1	1550	48.4	35.6	0.74	3.34	59.8	14.5	1650	75.6	4.00	61.9	112	5.54
100	6.0	0.8	1.8	1120	40.8	28.5	0.70	3.92	54.3	10.4	Operation not recommended					
	6.0	0.8	1.8	1550	42.4	33.2	0.78	4.15	56.6	10.2	Operation not recommended					
	9.0	2.1	4.9	1120	42.6	29.2	0.68	3.66	55.2	11.7	Operation not recommended					
	9.0	2.1	4.9	1550	44.3	33.9	0.77	3.87	57.5	11.5	Operation not recommended					
	12.0	3.3	7.6	1120	43.6	29.5	0.68	3.53	55.7	12.3	Operation not recommended					
	12.0	3.3	7.6	1550	45.3	34.3	0.76	3.73	58.1	12.1	Operation not recommended					
110	6.0	0.8	1.8	1120	38.0	27.7	0.73	4.39	53.1	8.6	Operation not recommended					
	6.0	0.8	1.8	1550	39.5	32.2	0.82	4.65	55.4	8.5	Operation not recommended					
	9.0	2.0	4.6	1120	39.7	28.2	0.71	4.10	53.8	9.7	Operation not recommended					
	9.0	2.0	4.6	1550	41.3	32.8	0.80	4.33	56.1	9.5	Operation not recommended					
	12.0	3.2	7.4	1120	40.6	28.5	0.70	3.95	54.2	10.3	Operation not recommended					
	12.0	3.2	7.4	1550	42.2	33.1	0.79	4.18	56.5	10.1	Operation not recommended					
120	6.0	0.7	1.6	1120	35.5	27.1	0.76	4.93	52.5	7.2	Operation not recommended					
	6.0	0.7	1.6	1550	36.9	31.6	0.85	5.21	54.8	7.1	Operation not recommended					
	9.0	1.9	4.4	1120	37.0	27.4	0.74	4.59	52.8	8.0	Operation not recommended					
	9.0	1.9	4.4	1550	38.4	31.9	0.83	4.86	55.1	7.9	Operation not recommended					
	12.0	3.0	6.9	1120	37.8	27.6	0.73	4.44	53.0	8.5	Operation not recommended					
	12.0	3.0</														

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Performance Data****TS H/V/D 060 (PSC Blower)**

1,950 CFM Nominal (Rated) Airflow Cooling, 1,950 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
Operation not recommended																
20	15.0	5.0	11.6	1465	61.8	36.2	0.59	2.64	70.8	23.4	1465	40.8	4.43	26.6	96	2.70
	15.0	5.0	11.6	1950	64.3	43.4	0.67	2.73	73.6	23.6	1950	41.9	4.05	28.2	90	3.03
30	7.5	0.6	1.4	1465	63.0	36.5	0.58	2.63	72.0	23.9	1465	45.8	4.53	31.1	99	2.96
	7.5	0.6	1.4	1950	65.6	43.7	0.67	2.72	74.9	24.1	1950	47.0	4.14	33.0	92	3.33
	11.3	2.3	5.3	1465	64.9	37.4	0.58	2.60	73.8	24.9	1465	46.7	4.55	32.0	100	3.01
	11.3	2.3	5.3	1950	67.6	44.8	0.66	2.69	76.7	25.1	1950	48.0	4.16	33.9	93	3.38
	15.0	4.8	11.1	1465	66.0	38.8	0.59	2.72	75.3	24.3	1465	53.3	4.67	37.9	104	3.34
40	7.5	0.5	1.2	1465	64.9	38.6	0.59	2.86	74.6	22.7	1465	50.0	4.61	34.9	102	3.18
	7.5	0.5	1.2	1950	67.5	46.2	0.68	2.96	77.6	22.9	1950	51.3	4.22	37.0	94	3.57
	11.3	2.2	5.1	1465	65.4	38.7	0.59	2.76	74.9	23.7	1465	52.1	4.65	36.8	103	3.28
	11.3	2.2	5.1	1950	68.2	46.3	0.68	2.85	77.8	23.9	1950	53.5	4.25	39.1	95	3.69
	15.0	4.5	10.4	1465	66.0	38.8	0.59	2.72	75.3	24.3	1465	53.3	4.67	37.9	104	3.34
50	7.5	0.4	0.9	1465	65.4	39.8	0.61	3.15	76.2	20.8	1465	56.1	4.73	40.5	105	3.48
	7.5	0.4	0.9	1950	68.1	47.6	0.70	3.26	79.2	20.9	1950	57.6	4.32	43.0	97	3.91
	11.3	2.1	4.9	1465	66.1	39.8	0.60	2.97	76.2	22.2	1465	58.7	4.77	42.9	107	3.60
	11.3	2.1	4.9	1950	68.8	47.6	0.69	3.07	79.2	22.4	1950	60.3	4.37	45.5	99	4.05
	15.0	4.3	9.9	1465	66.4	39.8	0.60	2.91	76.3	22.9	1465	60.1	4.80	44.1	108	3.67
60	7.5	0.3	0.7	1465	64.0	39.9	0.62	3.50	76.0	18.3	1465	62.5	4.84	46.3	109	3.78
	7.5	0.3	0.7	1950	66.7	47.8	0.72	3.62	79.0	18.4	1950	64.2	4.43	49.1	100	4.24
	11.3	2.1	4.9	1465	65.3	40.1	0.61	3.26	76.4	20.0	1465	65.5	4.90	49.0	111	3.92
	11.3	2.1	4.9	1950	68.0	48.0	0.71	3.37	79.4	20.2	1950	67.2	4.48	52.0	102	4.40
	15.0	4.1	9.5	1465	65.7	40.1	0.61	3.17	76.5	20.7	1465	67.1	4.93	50.5	112	3.99
70	7.5	0.3	0.7	1465	61.6	39.2	0.64	3.84	74.7	16.0	1465	68.9	4.97	52.0	114	4.06
	7.5	0.3	0.7	1950	64.2	46.9	0.73	3.97	77.7	16.2	1950	70.7	4.54	55.2	104	4.56
	11.3	2.0	4.6	1465	63.4	39.7	0.63	3.61	75.7	17.6	1465	72.2	5.03	55.0	116	4.20
	11.3	2.0	4.6	1950	66.0	47.6	0.72	3.73	78.7	17.7	1950	74.1	4.60	58.4	105	4.72
	15.0	3.9	9.0	1465	64.1	39.9	0.62	3.49	76.1	18.4	1465	73.9	5.07	56.6	117	4.28
80	7.5	0.2	0.5	1465	58.6	38.1	0.65	4.23	73.1	13.9	1465	75.1	5.09	57.7	117	4.32
	7.5	0.2	0.5	1950	61.1	45.6	0.75	4.37	76.0	14.0	1950	77.1	4.65	61.2	107	4.85
	11.3	1.9	4.4	1465	60.7	38.9	0.64	3.96	74.2	15.3	1465	78.6	5.16	60.8	120	4.46
	11.3	1.9	4.4	1950	63.2	46.6	0.74	4.09	77.2	15.4	1950	80.7	4.72	64.5	108	5.01
	15.0	3.6	8.3	1465	61.7	39.2	0.64	3.83	74.8	16.1	1465	80.4	5.21	62.5	121	4.53
85	7.5	0.2	0.5	1465	56.9	37.4	0.66	4.44	72.1	12.8	1465	78.1	5.15	60.4	119	4.44
	7.5	0.2	0.5	1950	59.3	44.8	0.76	4.59	75.0	12.9	1950	80.1	4.71	64.0	108	4.98
	11.3	1.9	4.3	1465	59.1	38.3	0.65	4.16	73.3	14.2	1465	81.6	5.23	63.5	122	4.57
	11.3	1.9	4.3	1950	61.6	45.8	0.74	4.30	76.3	14.3	1950	83.7	4.79	67.4	110	5.13
	15.0	3.6	8.2	1465	60.2	38.7	0.64	4.03	73.9	14.9	1465	83.4	5.28	65.1	123	4.63
90	7.5	0.2	0.5	1465	55.2	36.8	0.67	4.66	71.2	11.9	1465	85.6	4.83	69.1	111	5.20
	7.5	0.2	0.5	1950	57.5	44.0	0.77	4.82	74.0	11.9	1950	83.2	4.77	66.9	109	5.11
	11.3	1.8	4.2	1465	57.5	37.7	0.66	4.37	72.4	13.2	1465	84.5	5.30	66.2	123	4.67
	11.3	1.8	4.2	1950	59.9	45.1	0.75	4.51	75.3	13.3	1950	86.8	4.85	70.2	111	5.25
	15.0	3.5	8.1	1465	58.6	38.1	0.65	4.23	73.1	13.9	1465	86.3	5.35	67.7	125	4.73
100	7.5	0.1	0.2	1465	51.7	35.3	0.68	5.15	69.3	10.0	1465	88.6	4.89	71.9	112	5.31
	7.5	0.1	0.2	1950	53.9	42.3	0.78	5.32	72.1	10.1	1950	80.1	4.71	64.0	108	4.98
	11.3	1.8	4.2	1465	54.0	36.3	0.67	4.83	70.5	11.2	1465	84.5	5.30	66.2	123	4.67
	11.3	1.8	4.2	1950	56.2	43.4	0.77	4.99	73.3	11.3	1950	86.8	4.85	70.2	111	5.25
	15.0	3.3	7.6	1465	55.2	36.7	0.67	4.67	71.1	11.8	1465	86.3	5.35	67.7	125	4.73
110	7.5	0.1	0.2	1465	48.2	33.8	0.70	5.70	67.7	8.5	1465	85.6	4.83	69.1	111	5.20
	7.5	0.1	0.2	1950	50.2	40.5	0.81	5.89	70.4	8.5	1950	83.2	4.77	66.9	109	5.11
	11.3	1.7	3.9	1465	50.4	34.8	0.69	5.35	68.7	9.4	1465	84.5	5.30	66.2	123	4.67
	11.3	1.7	3.9	1950	52.5	41.6	0.79	5.53	71.4	9.5	1950	86.8	4.85	70.2	111	5.25
	15.0	3.1	7.2	1465	51.5	35.2	0.68	5.18	69.2	10.0	1465	86.3	5.35	67.7	125	4.73
120	7.5	0.0	0.0	1465	45.0	32.5	0.72	6.32	66.6	7.1	1465	88.6	4.89	71.9	112	5.31
	7.5	0.0	0.0	1950	46.9	39.0	0.83	6.53	69.2	7.2	1950	80.1	4.71	64.0	108	4.98
	11.3	1.7	3.9	1465	46.9	33.3	0.71	5.93	67.2	7.9	1465	84.5	5.30	66.2	123	4.67
	11.3	1.7	3.9	1950	48.9	39.9	0.82	6.13	69.9	8.0	1950	86.8	4.85	70.2	111	5.25
	15.0	2.9	6.7	1465	48.0	33.7	0.70	5.74	67.6	8.4	1465	86.3	5.35	67.7	125	4.73

Operation not recommended

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.

ARI/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 ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

Operation below 40°F EWT is based upon a 15% antifreeze solution.

Operation below 60°F EWT requires optional insulated water/refrigerant circuit.

See performance correction tables for operating conditions other than those listed above.

See Performance Data Selection Notes for operation in the shaded areas.

## Performance Data TS H/V/D 060 (ECM Blower)

1,825 CFM Nominal (Rated) Airflow Cooling, 2,050 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	15.0	5.0	11.6	Operation not recommended						1470	39.6	4.02	26.6	95	2.89	
	15.0	5.0	11.6	1320	62.0	37.7	0.61	2.30	69.7	26.9	2050	40.9	3.72	28.3	88	3.22
30	7.5	0.6	1.4	1825	64.4	43.9	0.68	2.44	72.7	26.5	1470	42.9	4.09	29.5	97	3.07
	7.5	0.6	1.4	1320	63.4	38.5	0.61	2.32	71.2	27.4	2050	44.2	3.78	31.4	90	3.42
	11.3	2.3	5.3	1825	65.9	44.8	0.68	2.45	74.2	26.9	1470	44.5	4.13	31.0	98	3.16
	11.3	2.3	5.3	1320	65.6	39.8	0.61	2.27	73.2	28.9	2050	45.9	3.82	33.0	91	3.52
	15.0	4.8	11.1	1825	68.2	46.3	0.68	2.40	76.4	28.4	1470	45.4	4.15	31.8	99	3.21
	15.0	4.8	11.1	1320	65.6	39.8	0.61	2.27	73.2	28.9	2050	46.8	3.83	33.8	91	3.58
40	7.5	0.5	1.2	1320	65.6	40.3	0.61	2.57	74.2	25.5	1470	48.6	4.21	34.7	101	3.38
	7.5	0.5	1.2	1825	68.2	46.9	0.69	2.72	77.4	25.1	2050	50.1	3.89	36.9	93	3.77
	11.3	2.2	5.1	1320	66.3	40.5	0.61	2.49	74.7	26.6	1470	50.7	4.25	36.6	102	3.49
	11.3	2.2	5.1	1825	69.0	47.1	0.68	2.64	77.9	26.1	2050	52.2	3.93	38.9	94	3.90
	15.0	4.5	10.4	1320	67.1	40.9	0.61	2.45	75.3	27.4	1470	51.8	4.27	37.7	103	3.55
	15.0	4.5	10.4	1825	69.8	47.6	0.68	2.59	78.6	26.9	2050	53.4	3.95	40.0	94	3.96
50	7.5	0.4	0.9	1320	66.5	41.3	0.62	2.84	76.0	23.4	1470	54.7	4.33	40.3	104	3.70
	7.5	0.4	0.9	1825	69.1	48.1	0.70	3.00	79.3	23.0	2050	56.4	4.00	42.8	95	4.13
	11.3	2.1	4.9	1320	67.2	41.4	0.62	2.69	76.2	25.0	1470	57.2	4.38	42.6	106	3.83
	11.3	2.1	4.9	1825	69.9	48.2	0.69	2.85	79.5	24.5	2050	59.0	4.04	45.3	97	4.28
	15.0	4.3	9.9	1320	68.1	41.9	0.61	2.62	76.9	26.0	1470	58.7	4.40	43.9	107	3.90
	15.0	4.3	9.9	1825	70.8	48.7	0.69	2.77	80.2	25.5	2050	60.5	4.07	46.6	97	4.36
60	7.5	0.3	0.7	1320	65.3	41.3	0.63	3.11	75.8	21.0	1470	61.0	4.45	46.0	108	4.02
	7.5	0.3	0.7	1825	67.9	48.0	0.71	3.29	79.1	20.6	2050	62.9	4.11	48.9	98	4.49
	11.3	2.1	4.9	1320	67.2	41.4	0.62	2.93	76.4	22.7	1470	64.0	4.50	48.7	110	4.16
	11.3	2.1	4.9	1825	69.1	48.4	0.70	3.09	79.7	22.3	2050	66.0	4.16	51.8	100	4.65
	15.0	4.1	9.5	1320	66.9	41.6	0.62	2.84	76.5	23.6	1470	65.6	4.54	50.2	111	4.24
	15.0	4.1	9.5	1825	69.6	48.4	0.70	3.00	79.8	23.2	2050	67.6	4.19	53.3	101	4.73
70	7.5	0.3	0.7	1320	63.4	40.7	0.64	3.35	74.7	18.9	1470	66.1	4.55	50.7	112	4.26
	7.5	0.3	0.7	1825	65.9	47.4	0.72	3.54	77.9	18.6	2050	68.2	4.20	53.8	101	4.76
	11.3	2.0	4.6	1320	64.6	41.1	0.64	3.20	75.4	20.2	1470	70.7	4.64	54.8	115	4.47
	11.3	2.0	4.6	1825	67.2	47.8	0.71	3.38	78.7	19.9	2050	72.9	4.28	58.2	103	4.98
	15.0	3.9	9.0	1320	65.4	41.3	0.63	3.10	75.9	21.1	1470	72.4	4.67	56.4	116	4.54
	15.0	3.9	9.0	1825	68.0	48.1	0.71	3.28	79.1	20.8	2050	74.7	4.32	59.9	104	5.07
80	7.5	0.2	0.5	1320	59.7	39.5	0.66	3.76	72.5	15.9	1470	73.6	4.70	57.4	116	4.59
	7.5	0.2	0.5	1825	62.1	46.0	0.74	3.98	75.6	15.6	2050	75.9	4.34	61.0	104	5.12
	11.3	1.9	4.4	1320	61.9	40.2	0.65	3.52	73.8	17.6	1470	77.0	4.77	60.5	119	4.73
	11.3	1.9	4.4	1825	64.3	46.8	0.73	3.72	77.0	17.3	2050	79.4	4.41	64.3	106	5.28
	15.0	3.6	8.3	1320	62.9	40.6	0.64	3.40	74.4	18.5	1470	78.8	4.81	62.1	120	4.80
	15.0	3.6	8.3	1825	65.4	47.2	0.72	3.60	77.6	18.2	2050	81.3	4.45	66.0	107	5.36
85	7.5	0.2	0.5	1320	57.9	38.9	0.67	3.96	71.4	14.6	1470	76.5	4.76	60.1	118	4.71
	7.5	0.2	0.5	1825	60.2	45.3	0.75	4.19	74.5	14.4	2050	78.9	4.40	63.8	106	5.25
	11.3	1.9	4.3	1320	60.2	39.7	0.66	3.70	72.8	16.3	1470	79.9	4.84	63.1	120	4.84
	11.3	1.9	4.3	1825	62.6	46.2	0.74	3.92	75.9	16.0	2050	82.4	4.47	67.1	107	5.40
	15.0	3.6	8.2	1320	61.3	40.0	0.65	3.58	73.5	17.1	1470	81.7	4.89	64.7	121	4.90
	15.0	3.6	8.2	1825	63.7	46.6	0.73	3.79	76.6	16.8	2050	84.2	4.51	68.7	108	5.47
90	7.5	0.2	0.5	1320	56.2	38.3	0.68	4.17	70.4	13.5	1470	79.4	4.83	62.7	120	4.82
	7.5	0.2	0.5	1825	58.4	44.5	0.76	4.41	73.4	13.2	2050	81.9	4.46	66.6	107	5.38
	11.3	1.8	4.2	1320	58.5	39.1	0.67	3.89	71.8	15.0	1470	82.8	4.91	65.7	122	4.94
	11.3	1.8	4.2	1825	60.8	45.5	0.75	4.12	74.9	14.8	2050	85.4	4.54	69.8	109	5.51
	15.0	3.5	8.1	1320	59.7	39.5	0.66	3.76	72.5	15.9	1470	84.5	4.96	67.2	123	5.00
	15.0	3.5	8.1	1825	62.1	46.0	0.74	3.98	75.6	15.6	2050	87.1	4.58	71.4	109	5.57
100	7.5	0.1	0.2	1320	52.4	37.0	0.71	4.64	68.3	11.3	Operation not recommended					
	7.5	0.1	0.2	1825	54.5	43.1	0.79	4.91	71.3	11.1	Operation not recommended					
	11.3	1.8	4.2	1320	54.8	37.8	0.69	4.33	69.6	12.7	Operation not recommended					
	11.3	1.8	4.2	1825	57.0	44.0	0.77	4.58	72.6	12.4	Operation not recommended					
	15.0	3.3	7.6	1320	56.0	38.2	0.68	4.18	70.3	13.4	Operation not recommended					
	15.0	3.3	7.6	1825	58.3	44.5	0.76	4.42	73.4	13.2	Operation not recommended					
110	7.5	0.1	0.2	1320	48.6	35.8	0.74	5.20	66.5	9.3	Operation not recommended					
	7.5	0.1	0.2	1825	50.5	41.6	0.82	5.50	69.4	9.2	Operation not recommended					
	11.3	1.7	3.9	1320	50.9	36.5	0.72	4.85	67.6	10.5	Operation not recommended					
	11.3	1.7	3.9	1825	53.0	42.5	0.80	5.13	70.5	10.3	Operation not recommended					
	15.0	3.1	7.2	1320	52.2	36.9	0.71	4.68	68.2	11.2	Operation not recommended					
	15.0	3.1	7.2	1825	54.2	43.0	0.79	4.95	71.1	11.0	Operation not recommended					
120	7.5	0.0	0.0	1320	45.1	34.8	0.77	5.85	65.3	7.7	Operation not recommended					
	7.5	0.0	0.0	1825	46.9	40.5	0.86	6.19	68.1	7.6	Operation not recommended					
	11.3	1.7	3.9	1320	47.2	35.4	0.75	5.45	65.9	8.7	Operation not recommended					
	11.3	1.7	3.9	1825	49.1	41.1	0.84	5.76	68.8	8.5	Operation not recommended					

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Performance Data****TS H/V/D 070 (PSC Blower)**

2,100 CFM Nominal (Rated) Airflow Cooling, 2,100 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	16.5	9.1	21.0	Operation not recommended						1575	47.0	5.12	30.6	98	2.69	
30	16.5	9.1	21.0							2100	48.3	4.68	32.5	91	3.02	
	8.3	2.4	5.5	1575	70.1	40.6	0.58	3.14	80.8	22.3	1575	50.7	5.21	33.9	100	2.85
	8.3	2.4	5.5	2100	73.0	48.7	0.67	3.24	84.0	22.5	2100	52.1	4.77	36.0	93	3.20
	12.4	5.2	12.0	1575	71.0	40.9	0.58	3.01	81.2	23.6	1575	52.8	5.26	35.8	101	2.94
	12.4	5.2	12.0	2100	73.9	49.0	0.66	3.11	84.5	23.7	2100	54.2	4.81	37.9	94	3.30
	16.5	8.0	18.5	1575	71.5	41.1	0.57	2.96	81.6	24.2	1575	53.9	5.28	36.8	102	2.99
40	16.5	8.0	18.5	2100	74.5	49.2	0.66	3.05	84.9	24.4	2100	55.4	4.83	39.0	94	3.36
	8.3	2.2	5.1	1575	75.2	44.0	0.59	3.37	86.7	22.3	1575	57.6	5.36	40.1	104	3.15
	8.3	2.2	5.1	2100	78.3	52.7	0.67	3.48	90.2	22.5	2100	59.2	4.91	42.6	96	3.53
	12.4	4.9	11.3	1575	75.7	44.1	0.58	3.23	86.7	23.5	1575	60.4	5.42	42.6	105	3.26
	12.4	4.9	11.3	2100	78.9	52.9	0.67	3.33	90.2	23.7	2100	62.0	4.96	45.2	97	3.66
	16.5	7.5	17.3	1575	76.0	44.2	0.58	3.15	86.7	24.1	1575	61.9	5.46	44.0	106	3.33
50	16.5	7.5	17.3	2100	79.2	52.9	0.67	3.26	90.2	24.3	2100	63.6	4.99	46.7	98	3.74
	8.3	2.0	4.6	1575	76.2	45.4	0.60	3.72	88.9	20.5	1575	65.2	5.52	47.0	108	3.46
	8.3	2.0	4.6	2100	79.4	54.4	0.68	3.85	92.5	20.6	2100	67.0	5.05	49.9	100	3.89
	12.4	4.5	10.4	1575	77.0	45.4	0.59	3.50	89.0	22.0	1575	68.7	5.60	50.1	110	3.60
	12.4	4.5	10.4	2100	80.2	54.4	0.68	3.62	92.5	22.2	2100	70.5	5.12	53.2	101	4.04
	16.5	7.0	16.2	1575	77.4	45.5	0.59	3.40	89.0	22.8	1575	70.6	5.64	51.8	112	3.67
60	16.5	7.0	16.2	2100	80.6	54.5	0.68	3.51	92.5	22.9	2100	72.5	5.15	55.0	102	4.12
	8.3	1.7	3.9	1575	73.6	44.9	0.61	4.09	87.5	18.0	1575	73.3	5.69	54.2	113	3.77
	8.3	1.7	3.9	2100	76.6	53.8	0.70	4.22	91.0	18.1	2100	75.2	5.21	57.5	103	4.24
	12.4	4.0	9.2	1575	75.7	45.5	0.60	3.82	88.7	19.8	1575	77.4	5.78	57.9	115	3.92
	12.4	4.0	9.2	2100	78.8	54.5	0.69	3.95	92.2	20.0	2100	79.4	5.29	61.5	105	4.40
	16.5	6.4	14.8	1575	76.4	45.7	0.60	3.70	89.1	20.7	1575	79.7	5.83	60.0	117	4.00
70	16.5	6.4	14.8	2100	79.6	54.7	0.69	3.82	92.6	20.8	2100	81.8	5.33	63.6	106	4.50
	8.3	1.7	3.9	1575	69.9	43.6	0.62	4.50	85.3	15.5	1575	81.5	5.87	61.6	118	4.07
	8.3	1.7	3.9	2100	72.8	52.3	0.72	4.65	88.7	15.7	2100	83.6	5.37	65.3	107	4.57
	12.4	4.0	9.2	1575	72.6	44.6	0.61	4.19	87.0	17.3	1575	86.1	5.98	65.8	121	4.22
	12.4	4.0	9.2	2100	75.7	53.4	0.71	4.34	90.4	17.5	2100	88.4	5.47	69.8	109	4.74
	16.5	6.3	14.6	1575	73.9	45.0	0.61	4.05	87.7	18.2	1575	88.7	6.04	68.0	122	4.30
80	16.5	6.3	14.6	2100	76.9	53.9	0.70	4.19	91.2	18.4	2100	91.0	5.52	72.2	110	4.83
	8.3	1.6	3.7	1575	65.7	42.0	0.64	4.97	82.7	13.2	1575	89.6	6.06	68.9	123	4.33
	8.3	1.6	3.7	2100	68.4	50.3	0.73	5.14	86.0	13.3	2100	92.0	5.54	73.1	111	4.87
	12.4	3.8	8.8	1575	68.7	43.2	0.63	4.63	84.5	14.8	1575	94.6	6.19	73.3	126	4.48
	12.4	3.8	8.8	2100	71.6	51.7	0.72	4.79	87.9	15.0	2100	97.2	5.66	77.8	113	5.03
	16.5	6.1	14.1	1575	70.2	43.7	0.62	4.47	85.4	15.7	1575	97.3	6.26	75.7	127	4.56
85	16.5	6.1	14.1	2100	73.1	52.4	0.72	4.62	88.8	15.8	2100	99.9	5.72	80.3	114	5.12
	8.3	1.6	3.7	1575	63.5	41.1	0.65	5.24	81.4	12.1	1575	93.5	6.16	72.3	125	4.45
	8.3	1.6	3.7	2100	66.2	49.2	0.74	5.42	84.7	12.2	2100	96.0	5.63	76.8	112	4.99
	12.4	3.8	8.7	1575	66.5	42.3	0.64	4.88	83.2	13.6	1575	98.6	6.30	76.8	128	4.59
	12.4	3.8	8.7	2100	69.3	50.6	0.73	5.05	86.5	13.7	2100	101.2	5.76	81.5	115	5.15
	16.5	6.0	13.9	1575	68.0	42.9	0.63	4.71	84.1	14.4	1575	101.3	6.38	79.2	130	4.65
90	16.5	6.0	13.9	2100	70.9	51.4	0.72	4.87	87.5	14.5	2100	104.0	5.83	84.0	116	5.22
	8.3	1.6	3.7	1575	61.3	40.2	0.65	5.52	80.2	11.1	1575	97.4	6.26	75.8	127	4.56
	8.3	1.6	3.7	2100	63.9	48.1	0.75	5.70	83.4	11.2	2100	100.0	5.73	80.4	114	5.12
	12.4	3.7	8.5	1575	64.3	41.4	0.64	5.14	81.9	12.5	1575	102.6	6.42	80.3	130	4.69
	12.4	3.7	8.5	2100	67.0	49.6	0.74	5.31	85.1	12.6	2100	105.3	5.87	85.2	116	5.26
	16.5	5.9	13.6	1575	65.9	42.0	0.64	4.95	82.8	13.3	1575	105.2	6.50	82.6	132	4.74
100	16.5	5.9	13.6	2100	68.6	50.3	0.73	5.12	86.1	13.4	2100	108.0	5.94	87.7	118	5.33
	8.3	1.5	3.5	1575	57.1	38.4	0.67	6.15	78.1	9.3	Operation not recommended					
	8.3	1.5	3.5	2100	59.5	46.0	0.77	6.36	81.3	9.4	Operation not recommended					
	12.4	3.5	8.1	1575	59.9	39.5	0.66	5.72	79.4	10.5	Operation not recommended					
	12.4	3.5	8.1	2100	62.3	47.4	0.76	5.91	82.6	10.5	Operation not recommended					
	16.5	5.6	12.9	1575	61.3	40.2	0.65	5.52	80.2	11.1	Operation not recommended					
110	16.5	5.6	12.9	2100	63.9	48.1	0.75	5.70	83.4	11.2	Operation not recommended					
	8.3	1.4	3.2	1575	53.5	37.1	0.69	6.89	77.1	7.8	Operation not recommended					
	8.3	1.4	3.2	2100	55.8	44.4	0.80	7.12	80.2	7.8	Operation not recommended					
	12.4	3.3	7.6	1575	55.8	37.9	0.68	6.40	77.6	8.7	Operation not recommended					
	12.4	3.3	7.6	2100	58.1	45.4	0.78	6.61	80.7	8.8	Operation not recommended					
	16.5	5.3	12.2	1575	57.0	38.4	0.67	6.17	78.1	9.2	Operation not recommended					
120	16.5	5.3	12.2	2100	59.4	46.0	0.77	6.38	81.2	9.3	Operation not recommended					
	8.3	1.3	3.0	1575	51.1	36.5	0.71	7.75	77.6	6.6	Operation not recommended					
	8.3	1.3	3.0	2100	53.2	43.7	0.82	8.01	80.7	6.6	Operation not recommended					
	12.4	3.2	7.4	1575	52.5	36.7	0.70	7.18	77.0	7.3	Operation not recommended					
	12.4	3.2	7.4	2100	54.7	44.0	0.80	7.42	80.1	7.4	Operation not recommended					

## Performance Data TS H/V/D 070 (ECM Blower)

1,950 CFM Nominal (Rated) Airflow Cooling, 2,100 CFM Nominal (Rated) Airflow Heating

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F						
		PSI	FT	Airflow CFM	TC	SC	Sens/Tot Ratio	kW	HR	EER	Airflow CFM	HC	kW	HE	LAT	COP
20	16.5	9.1	21.0	Operation not recommended						1520	46.2	4.80	30.7	98	2.82	
30	16.5	9.1	21.0							2100	47.6	4.44	32.6	91	3.14	
	8.3	2.4	5.5	1450	73.1	42.8	0.59	2.74	82.3	26.7	1520	49.9	4.89	34.0	100	2.99
	8.3	2.4	5.5	1950	76.0	49.8	0.66	2.90	85.8	26.2	2100	51.4	4.52	36.1	93	3.33
	12.4	5.2	12.0	1450	73.5	42.9	0.58	2.65	82.3	27.7	1520	52.0	4.94	35.9	102	3.08
	12.4	5.2	12.0	1950	76.4	49.9	0.65	2.80	85.9	27.2	2100	53.6	4.57	38.1	94	3.44
	16.5	8.0	18.5	1450	73.8	43.0	0.58	2.59	82.4	28.5	1520	53.1	4.97	36.9	102	3.13
40	16.5	8.0	18.5	1950	76.7	50.0	0.65	2.74	86.0	28.0	2100	54.8	4.59	39.2	94	3.50
	8.3	2.2	5.1	1450	77.1	45.3	0.59	2.94	87.0	26.3	1520	56.8	5.05	40.2	105	3.30
	8.3	2.2	5.1	1950	80.2	52.7	0.66	3.11	90.7	25.8	2100	58.6	4.67	42.8	96	3.68
	12.4	4.9	11.3	1450	77.4	45.3	0.59	2.87	87.0	27.0	1520	59.6	5.11	42.7	106	3.42
	12.4	4.9	11.3	1950	80.5	52.7	0.65	3.03	90.7	26.5	2100	61.4	4.72	45.4	97	3.81
	16.5	7.5	17.3	1450	77.6	45.3	0.58	2.80	87.0	27.7	1520	61.1	5.14	44.1	107	3.48
50	16.5	7.5	17.3	1950	80.7	52.7	0.65	2.97	90.7	27.2	2100	63.0	4.75	46.9	98	3.89
	8.3	2.0	4.6	1450	77.2	45.8	0.59	3.37	88.5	22.9	1520	64.4	5.21	47.1	109	3.62
	8.3	2.0	4.6	1950	80.2	53.3	0.66	3.56	92.3	22.5	2100	66.4	4.82	50.0	99	4.04
	12.4	4.5	10.4	1450	78.2	45.9	0.59	3.14	88.7	24.9	1520	67.8	5.29	50.2	111	3.76
	12.4	4.5	10.4	1950	81.3	53.5	0.66	3.32	92.5	24.5	2100	69.9	4.88	53.3	101	4.20
	16.5	7.0	16.2	1450	78.6	46.1	0.59	3.04	88.8	25.8	1520	69.8	5.33	51.9	112	3.84
60	16.5	7.0	16.2	1950	81.7	53.6	0.66	3.22	92.6	25.4	2100	71.9	4.92	55.2	102	4.28
	8.3	1.7	3.9	1450	74.4	45.1	0.61	3.71	86.9	20.1	1520	72.4	5.38	54.3	114	3.94
	8.3	1.7	3.9	1950	77.3	52.5	0.68	3.92	90.7	19.7	2100	74.6	4.97	57.7	103	4.40
	12.4	4.0	9.2	1450	76.6	45.7	0.60	3.45	88.2	22.2	1520	76.4	5.47	57.9	117	4.09
	12.4	4.0	9.2	1950	79.6	53.1	0.67	3.65	92.0	21.8	2100	78.8	5.06	61.6	105	4.57
	16.5	6.4	14.8	1450	77.4	45.9	0.59	3.33	88.6	23.2	1520	78.7	5.52	60.0	118	4.18
70	16.5	6.4	14.8	1950	80.5	53.4	0.66	3.52	92.4	22.8	2100	81.1	5.10	63.7	106	4.66
	8.3	1.7	3.9	1450	70.7	44.0	0.62	4.10	84.7	17.2	1520	80.4	5.56	61.5	119	4.24
	8.3	1.7	3.9	1950	73.5	51.2	0.70	4.34	88.3	16.9	2100	82.9	5.14	65.4	107	4.73
	12.4	4.0	9.2	1450	73.5	44.8	0.61	3.81	86.4	19.3	1520	85.0	5.67	65.7	122	4.39
	12.4	4.0	9.2	1950	76.4	52.1	0.68	4.03	90.1	18.9	2100	87.7	5.24	69.8	109	4.90
	16.5	6.3	14.6	1450	74.7	45.2	0.60	3.68	87.1	20.3	1520	87.5	5.73	67.9	123	4.47
80	16.5	6.3	14.6	1950	77.7	52.6	0.68	3.89	90.9	20.0	2100	90.2	5.30	72.1	110	4.99
	8.3	1.6	3.7	1450	66.6	42.5	0.64	4.56	82.1	14.6	1520	88.4	5.76	68.7	124	4.50
	8.3	1.6	3.7	1950	69.2	49.5	0.71	4.82	85.7	14.3	2100	91.2	5.32	73.0	110	5.02
	12.4	3.8	8.8	1450	69.5	43.6	0.63	4.23	83.9	16.4	1520	93.3	5.89	73.0	127	4.65
	12.4	3.8	8.8	1950	72.3	50.7	0.70	4.48	87.5	16.1	2100	96.2	5.44	77.6	112	5.18
	16.5	6.1	14.1	1450	71.0	44.0	0.62	4.08	84.8	17.4	1520	96.0	5.97	75.3	128	4.71
85	16.5	6.1	14.1	1950	73.8	51.2	0.69	4.31	88.5	17.1	2100	98.9	5.51	80.1	114	5.26
	8.3	1.6	3.7	1450	64.4	41.7	0.65	4.82	80.9	13.4	1520	92.3	5.86	72.1	126	4.61
	8.3	1.6	3.7	1950	67.0	48.5	0.72	5.10	84.4	13.1	2100	95.1	5.42	76.6	112	5.15
	12.4	3.8	8.7	1450	67.4	42.8	0.63	4.48	82.6	15.0	1520	97.2	6.01	76.4	129	4.74
	12.4	3.8	8.7	1950	70.0	49.8	0.71	4.74	86.2	14.8	2100	100.2	5.55	81.2	114	5.29
	16.5	6.0	13.9	1450	68.8	43.3	0.63	4.31	83.5	16.0	1520	99.8	6.09	78.6	131	4.80
90	16.5	6.0	13.9	1950	71.6	50.4	0.70	4.56	87.1	15.7	2100	102.9	5.63	83.6	115	5.35
	8.3	1.6	3.7	1450	62.3	40.8	0.65	5.09	79.7	12.2	1520	96.1	5.97	75.5	129	4.72
	8.3	1.6	3.7	1950	64.8	47.5	0.73	5.38	83.2	12.0	2100	99.1	5.52	80.2	114	5.26
	12.4	3.7	8.5	1450	65.2	42.0	0.64	4.72	81.3	13.8	1520	101.1	6.13	79.8	132	4.83
	12.4	3.7	8.5	1950	67.8	48.8	0.72	4.99	84.8	13.6	2100	104.2	5.66	84.8	116	5.39
	16.5	5.9	13.6	1450	66.7	42.5	0.64	4.55	82.2	14.7	1520	103.6	6.22	82.0	133	4.88
100	16.5	5.9	13.6	1950	69.3	49.5	0.71	4.81	85.8	14.4	2100	106.8	5.75	87.1	117	5.45
	8.3	1.5	3.5	1450	58.3	39.0	0.67	5.70	77.9	10.2						
	8.3	1.5	3.5	1950	60.6	45.4	0.75	6.03	81.2	10.0						
	12.4	3.5	8.1	1450	60.9	40.2	0.66	5.29	79.0	11.5						
	12.4	3.5	8.1	1950	63.3	46.8	0.74	5.59	82.4	11.3						
	16.5	5.6	12.9	1450	62.3	40.8	0.65	5.09	79.7	12.2						
110	16.5	5.6	12.9	1950	64.8	47.5	0.73	5.38	83.2	12.0						
	8.3	1.4	3.2	1450	54.9	37.4	0.68	6.42	77.0	8.6						
	8.3	1.4	3.2	1950	57.1	43.5	0.76	6.79	80.4	8.4						
	12.4	3.3	7.6	1450	57.0	38.4	0.67	5.94	77.4	9.6						
	12.4	3.3	7.6	1950	59.2	44.7	0.75	6.29	80.8	9.4						
	16.5	5.3	12.2	1450	58.2	39.0	0.67	5.72	77.8	10.2						
120	16.5	5.3	12.2	1950	60.5	45.4	0.75	6.05	81.2	10.0						
	8.3	1.3	3.0	1450	52.8	36.2	0.69	7.02	77.0	7.5						
	8.3	1.3	3.0	1950	54.9	42.1	0.77	7.42	80.3	7.4						
	12.4	3.2	7.4	1450	54.0	36.9	0.68	6.71	77.1	8.0						
	12.4	3.2	7.4	1950	56.1	42.9	0.77	7.09	80.4	7.9						
	16.5	5.1	11.8	1450	54.8	37.3	0.68	6.49	77.2	8.5						
120	16.5	5.1	11.8	1950	57.0	43.5	0.76	6.86	80.5	8.3						
	8.3	1.3	3.0	1450	52.8	36.2	0.69	7.02	77.0	7.5						
	8.3	1.3	3.0	1950	54.9	42.1	0.77	7.42	80.3	7.4						
	12.4	3.2	7.4	1450	54.0	36.9	0.68	6.71	77.1	8.0						
	12.4	3.2	7.4	1950	56.1</td											

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Air Flow Correction Table**

PSC Fan Motor

Airflow	Cooling					Heating		
	% of Rated	Total Capacity	Sensible Capacity	S/T	Power	Heat of Rejection	Heating Capacity	Power
68.75%	0.9465	0.8019	0.8472	0.9614	0.9496			
75%	0.9602	0.8350	0.8696	0.9675	0.9617	0.9740	1.0936	0.9425
81.25%	0.9724	0.8733	0.8981	0.9744	0.9728	0.9810	1.0635	0.9592
87.50%	0.9831	0.9149	0.9306	0.9821	0.9829	0.9876	1.0379	0.9744
93.75%	0.9923	0.9578	0.9653	0.9906	0.9920	0.9940	1.0167	0.9880
100%	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
106.25%	1.0062	1.0392	1.0328	1.0102	1.0070	1.0057	0.9878	1.0105
112.50%	1.0109	1.0733	1.0617	1.0211	1.0130	1.0112	0.9800	1.0194
118.75%	1.0141	1.1001	1.0848	1.0329	1.0180	1.0163	0.9705	1.0284
125%	1.0159	1.1174	1.0999	1.0455	1.0220	1.0211	0.9614	1.0368
130%	1.0161	1.1229	1.1050	1.0562	1.0244	1.0247	0.9554	1.0430

Black area denotes where operation is not recommended.

ECM Fan Motor

Airflow	Cooling					Heating		
	% of Rated	Total Capacity	Sensible Capacity	S/T	Power	Heat of Rejection	Heating Capacity	Power
68.75%	0.9470	0.8265	0.8727	0.9363	0.9449			
75%	0.9619	0.8593	0.8933	0.9455	0.9587	0.9700	1.0822	0.9410
81.25%	0.9747	0.8943	0.9175	0.9564	0.9711	0.9775	1.0536	0.9579
87.50%	0.9853	0.9302	0.9441	0.9691	0.9821	0.9851	1.0304	0.9733
93.75%	0.9938	0.9659	0.9719	0.9837	0.9918	0.9925	1.0125	0.9874
100%	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
106.25%	1.0041	1.0313	1.0271	1.0181	1.0069	1.0074	0.9928	1.0112
112.50%	1.0060	1.0584	1.0522	1.0381	1.0123	1.0148	0.9909	1.0210
118.75%	1.0070	1.0815	1.0740	1.0598	1.0174	1.0222	0.9622	1.0377
125%	1.0076	1.0998	1.0916	1.0834	1.0225	1.0295	0.8681	1.0712
130%	1.0083	1.1110	1.1018	1.1035	1.0271	1.0354	0.8456	1.0844

Black area denotes where operation is not recommended.

**Entering Air Correction Table**

Heating			
Entering Air DB°F	Heating Capacity	Power	Heat of Extraction
45	1.0514	0.7749	1.1240
50	1.0426	0.8113	1.1032
55	1.0329	0.8525	1.0802
60	1.0224	0.8980	1.0551
65	1.0114	0.9473	1.0282
68	1.0046	0.9786	1.0115
70	1.0000	1.0000	1.0000
75	0.9883	1.0556	0.9706
80	0.9764	1.1135	0.9404

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		
50	0.7432	0.9111	*	*	*	*	*	*	*	*	0.9866	0.7901
55	0.8202	0.7709	0.8820	1.0192	*	*	*	*	*	*	0.9887	0.8527
60	0.8960	0.6702	0.8540	1.0473	*	*	*	*	*	*	0.9924	0.9146
65	0.9705		0.6491	0.8657	1.0809	1.1066	*	*	*	*	0.9975	0.9757
66.2	0.9882		0.5939	0.8152	1.0333	1.0592	1.2481	*	*	*	0.9990	0.9903
67	1.0000		0.5559	0.7801	1.0000	1.0261	1.2158	*	*	*	1.0000	1.0000
70	1.0438		0.6377	0.8645	0.8913	1.0847	1.2983	*	*	1.0042	1.0362	
75	1.1159				0.6008	0.6289	0.8323	1.0578	1.2773	1.0123	1.0959	

\* = Sensible capacity equals total capacity  
ARI/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

## Antifreeze & Motorized Water Valve Correction Tables

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	
	25	0.978	0.978	1.014	0.947	0.983	1.360	
Methanol	5	0.997	0.997	1.002	0.989	0.997	1.070	
	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	
Ethanol	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	
Ethylene Glycol	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	

### Motorized Water Valve Corrections

Model	Cv	MOPD	WPD Adders		
			GPM	PSI	FT
006	4.9	150	1.0	0.04	0.10
	4.9	150	1.5	0.09	0.22
	4.9	150	2.0	0.17	0.38
009	4.9	150	1.4	0.08	0.19
	4.9	150	2.1	0.18	0.42
	4.9	150	2.8	0.33	0.75
012	4.9	150	1.8	0.13	0.31
	4.9	150	2.6	0.28	0.65
	4.9	150	3.5	0.51	1.18
018	10.3	125	2.8	0.07	0.16
	10.3	125	4.1	0.16	0.37
	10.3	125	5.5	0.29	0.66
024	10.3	125	4.0	0.15	0.35
	10.3	125	6.0	0.34	0.78
	10.3	125	8.0	0.60	1.39
030	10.3	125	4.0	0.15	0.35
	10.3	125	6.0	0.34	0.78
	10.3	125	8.0	0.60	1.39
036	10.3	125	4.5	0.19	0.44
	10.3	125	6.8	0.43	0.99
	10.3	125	9.0	0.76	1.76
042	10.3	125	5.5	0.29	0.66
	10.3	125	8.3	0.64	1.48
	10.3	125	11.0	1.14	2.63
048	10.3	125	6.0	0.34	0.78
	10.3	125	9.0	0.76	1.76
	10.3	125	12.0	1.36	3.14
060	8.9	125	7.5	0.71	1.64
	8.9	125	11.3	1.60	3.69
	8.9	125	15.0	2.84	6.56
070	8.9	125	8.3	0.86	1.98
	8.9	125	12.4	1.93	4.47
	8.9	125	16.5	3.44	7.94

**Blower Performance Data  
Standard Unit - No Reheat (PSC Motor)**

Airflow in CFM with wet coil and clean air filter

Model	Fan Speed	Rated Airflow	Min CFM	Airflow (cfm) at External Static Pressure (in. wg)															
				0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70			
TS/H/V 006	HI	240	150	317	310	305	295	285	279	271	261	250	241	230	203	168			
	MED	240	150	260	253	245	238	230	222	214	202	190	180	167					
	LO	240	150	216	206	201	196	189	177	156									
TS/H/V 009	HI	300	225	393	386	378	371	364	355	346	337	325	283	253					
	MED	300	225	366	360	353	347	341	334	326	318	310	262	230					
	LO	300	225	326	321	316	309	303	297	290	283	274	236						
TS/H/V 012	HI	350	300	520	510	500	488	479	466	453	441	403	375	347	312				
	MED	350	300	459	453	447	437	428	420	411	400	368	344	317					
	LO	350	300	371	370	368	363	358	353	345	340	315							
TS/H/V/D 018	HI	600	450	704	708	711	702	693	692	690	683	675	658	640	598	515			
	MED	600	450	602	601	599	590	581	583	585	579	573	560	547	492				
	LO	600	450	531	529	527	522	517	512	506	501	495	479	462					
TS/H/V/D 018	HS HI	600	450	894	886	877	859	841	827	812	786	760	744	728	659				
	HS MED	600	450	765	760	755	747	738	725	711	690	668	654	640	602				
	HS LO	600	450	683	672	661	649	636	616	596	584	571	560	549					
TS/H/V/D 024	HI	850	600	965	960	954	943	931	923	914	898	882	862	842	794	725	635		
	MED	850	600	841	833	825	817	809	800	790	777	763	747	731	686	623			
	LO	850	600	723	715	707	703	698	689	680	668	656	642	627					
TS/H/V/D 024	HS HI	850	600	1271	1250	1229	1207	1185	1164	1143	1118	1093	1061	1029	953	875	753		
	HS MED	850	600	1048	1037	1025	1016	1007	994	981	962	943	915	886	822	731	626		
	HS LO	850	600	890	887	884	879	874	865	855	842	829	809	789	726	660			
TS/H/V/D 030	HI	950	750	1271	1250	1229	1207	1185	1164	1143	1118	1093	1061	1029	953	875	753		
	MED	950	750	1048	1037	1025	1016	1007	994	981	962	943	915	886	822				
	LO	950	750	890	887	884	879	874	865	855	842	829	809	789					
TS/H/V/D 030	HS HI	950	750	1439	1411	1383	1355	1327	1297	1266	1232	1198	1160	1122	1041	943	830		
	HS MED	950	750	1186	1174	1162	1151	1140	1126	1112	1089	1065	1039	1013	946	870	762		
	HS LO	950	750	1039	1038	1036	1028	1020	1009	997	983	968	946	923	866	798			
TS/H/V/D 036	HI	1250	900	1411	1407	1402	1390	1378	1370	1361	1326	1290	1248	1205	1083	942			
	MED	1250	900	1171	1164	1156	1145	1133	1113	1092	1064	1035	997	958					
	LO	1250	900	983	967	950	943	936	936										
TS/H/V/D 036	HS HI	1250	900	1648	1633	1617	1597	1576	1557	1537	1493	1448	1397	1345	1207	1051	957		
	HS MED	1250	900	1344	1335	1325	1312	1299	1276	1253	1220	1186	1143	1099	1007	903			
	HS LO	1250	900	1141	1128	1115	1106	1097	1077	1057	1031	1005	966	926					
TS/H/V/D 042	HI	1400	1050	1634	1626	1618	1606	1594	1583	1571	1539	1507	1464	1420	1265	1078			
	MED	1400	1050	1332	1323	1314	1298	1282	1263	1243	1206	1169	1115	1060					
	LO	1400	1050	1130	1109	1088	1086	1084	1066	1048	1025	1055							
TS/H/V/D 042	HS HI	1400	1050	1798	1781	1764	1738	1711	1688	1665	1630	1595	1555	1514	1420	1239			
	HS MED	1400	1050	1384	1382	1379	1375	1371	1356	1341	1318	1294	1261	1227					
	HS LO	1400	1050	1091	1088	1084	1081	1078	1069	1060									
TS/H/V/D 048	HI	1600	1200	1798	1781	1764	1738	1711	1688	1665	1630	1595	1555	1514	1420	1239			
	MED	1600	1200	1384	1382	1379	1375	1371	1356	1341	1318	1294	1261	1227					
	LO	1600	1200																
TS/H/V/D 048	HS HI	1600	1200	2011	1977	1942	1923	1903	1841	1778	1755	1732	1689	1645	1520	1431	1307	1211	
	HS MED	1600	1200	1881	1858	1834	1807	1780	1746	1711	1676	1640	1604	1567	1469	1378	1286		
	HS LO	1600	1200	1738	1716	1694	1673	1651	1634	1617	1584	1551	1508	1465	1390	1321	1228		
TS/H/V/D 060	HI	1950	1500	2311	2306	2300	2290	2279	2268	2257	2233	2209	2175	2140	2088	1990	1901	1856	1752
	MED	1950	1500	2058	2049	2039	2028	2016	2000	1983	1966	1949	1935	1920	1874	1807	1750	1670	1582
	LO	1950	1500	1868	1863	1858	1858	1848	1838	1822	1806	1799	1792	1749	1699	1636	1570		
TS/H/V/D 060	HS HI	1950	1500	2510	2498	2486	2471	2455	2440	2424	2401	2377	2348	2318	2247	2161	2078	1986	1855
	HS MED	1950	1500	2171	2167	2162	2162	2158	2153	2135	2117	2101	2085	2024	1971	1891	1823	1691	
	HS LO	1950	1500	2010	2008	2006	2006	2006	2006	2006	1992	1977	1962	1947	1892	1851	1782	1705	1600
TS/H/V/D 070	HI	2100	1800	2510	2498	2486	2471	2455	2440	2424	2401	2377	2348	2318	2247	2161	2078	1986	1855
	MED	2100	1800	2171	2167	2162	2162	2158	2153	2135	2117	2101	2085	2024	1971	1891	1823		
	LO	2100	1800	2010	2008	2006	2006	2006	2006	2006	1992	1977	1962	1947	1892	1851			

Black areas denote ESP where operation is not recommended.

Units factory shipped on medium speed. Other speeds require field selection.

All airflow is rated and shown above at the lower voltage if unit is dual voltage rated, e.g. 208V for 208-230V units.

Only two speed fan (H &amp; M) available on 575V units.

Performance stated is at the rated power supply, performance may vary as the power supply varies from the rated.

## Blower Performance Data Units With ClimaDry (PSC Motor)

Coil Face Velocity FPM	TSH/V/D with Reheat ESP Loss				
	TSH/V/D 018 In. of Water	TSH/V/D 024, 030 In. of Water	TSH/V/D 036 In. of Water	TSH/V/D 042, 048 In. of Water	TSH/V/D 060, 070 In. of Water
200	0.037	0.033	0.031	0.028	0.026
250	0.052	0.046	0.042	0.038	0.034
300	0.077	0.066	0.059	0.051	0.044
350	0.113	0.096	0.085	0.073	0.061
400	0.181	0.160	0.145	0.131	0.117
450	0.242	0.226	0.215	0.205	0.194
500	0.360	0.345	0.335	0.326	0.316

For TS units with ClimaDry Reheat coil applications, calculate face velocity of the entering air. From the table above, find ESP for Reheat application. The loss includes wet coil loss.

### Example:

Reheat coil loss can be determined from the above table. Coil velocity (FPM) = Airflow (CFM) / Face Area (sq. ft.)

- 1) TSH036 has a face area of 4.86 sq. ft. (see physical data table).
- 2) At 1,100 cfm, coil velocity (FPM) =  $1,100 / 4.86 = 226$  FPM
- 3) From above table, it will be necessary to subtract 0.037 from the blower performance ESP.
- 4) On medium speed, the TSH036 (without reheat - see blower table) can deliver 1,100 CFM at 0.28 in. wg. with the standard PSC motor; with the reheat coil, it now delivers 1,085 CFM at 0.28 in. wg. or 1,100 CFM at 0.24 in. wg.
- 5) If the decrease in airflow is acceptable, no changes are necessary. Otherwise, high speed fan should be used to overcome the pressure drop of the reheat coil.

**ECM Control**

The ECM fan is controlled by an interface board that converts thermostat inputs and field selectable CFM settings to signals used by the ECM motor controller. Units manufactured before July 2005 have version I (P/N 69243707). Units manufactured after July 2005 have version II (P/N 17B0019N01). Fan speeds are selected with jumpers for version I or via a nine position DIP switch for version II. To take full advantage of the ECM motor features, a multi-stage thermostat should be used (2-stage heat/2-stage cool or 3-stage heat/2-stage cool).

**Note:** Power must be off to the unit for at least three seconds before the ECM motor will recognize a speed change. The motor will recognize a change in the CFM Adjust or dehumidification mode settings while the unit is powered.

There are four different airflow settings from lowest airflow rate (speed tap 1) to the highest airflow rate (speed tap 4). The charts below indicate settings for both versions of the ECM interface board, followed by detailed information for each setting.

Cooling settings: TT, TS, GS units\*

Tap Setting	Version I 69243707		Version II 17B0019N01	
	HP CFM Jumper		DIP Switch	
	SW1	SW2	SW3	SW4
1	1	ON	ON	
2	2	ON	OFF	
3	3	OFF	ON	
4	4	OFF	OFF	

\*GS units use the same settings for both cooling (normal) CFM and heating CFM.

Heating settings: TT, TS units\*

Tap Setting	Version I 69243707		Version II 17B0019N01	
	DELAY Jumper		DIP Switch	
	SW1	SW2	SW3	SW4
1	1	ON	ON	
2	2	ON	OFF	
3	3	OFF	ON	
4	4	OFF	OFF	

\*This table not used for GS units.

Aux/Emerg Heat settings: TT, TS, GS units\*

Tap Setting	Version I 69243707		Version II 17B0019N01	
	AUX CFM Jumper		DIP Switch	
	SW5	SW6	SW5	SW6
1	1	ON	ON	
2	2	ON	OFF	
3	3	OFF	ON	
4	4	OFF	OFF	

\*Residential units

CFM Adjust settings: TT, TS, GS units

Tap Setting	Version I 69243707		Version II 17B0019N01	
	CFM Adj Jumper		DIP Switch	
	SW7	SW8	SW7	SW8
TEST	1	ON	ON	
-	2	ON	OFF	
+	3	OFF	ON	
NORM	4	OFF	OFF	

Dehum Mode settings: TT, TS, GS units

Tap Setting	Version I 69243707		Version II 17B0019N01	
	Dehumid Jumper		DIP Switch	
	NORM	Dehumid	SW9	
	pins 1,2		ON	
	pins 2,3		OFF	

**WARNING!** When the disconnect switch is closed, high voltage is present in some areas of the electrical panel. Exercise caution when working with energized equipment.

**Cooling settings:** The cooling setting determines the cooling (normal) CFM for all units with ECM motor. Cooling (normal) setting is used when the unit is not in dehumidification mode. This setting also determines the heating CFM for Genesis (GS) units. Tap 1 is the lowest CFM setting, while tap 4 is the highest CFM setting. To avoid air coil freeze-up, tap 1 may not be used if the dehumidification mode is selected. Consult submittal data or specifications catalog for the specific unit series and model to correlate speed tap setting to airflow in CFM.

**Heating settings:** The heating setting determines the heating CFM for Tranquility 27™ (TT) and Tranquility 20™ (TS) units. This setting is not used for Genesis (GS) units. Tap 1 is the lowest CFM setting, while tap 4 is the highest CFM setting. Consult submittal data or specifications catalog for the specific unit series and model to correlate speed tap setting to airflow in CFM.

**Auxiliary/Emergency Heat settings:** The auxiliary/emergency heat setting determines the CFM when the unit is in auxiliary heat or emergency heat mode. This setting is used for residential units with internal electric heat. When auxiliary electric heat is energized (i.e. compressor and electric heat), the greater of the auxiliary/emergency or heating setting will be used. A "G" (fan) signal must be present from the thermostat for electric heat to operate. Consult the submittal data or specifications catalog for the specific unit series and model to correlate speed tap setting to airflow in CFM.

**CFM Adjust settings:** The CFM adjust setting allows four selections. The NORM setting is the factory default position. The + or - settings adjust the airflow by +/- 15%. The +/- settings are used to "fine tune" airflow adjustments. The TEST setting runs the ECM motor at 70% torque, which causes the motor to operate like a standard PSC motor, and disables the CFM counter.

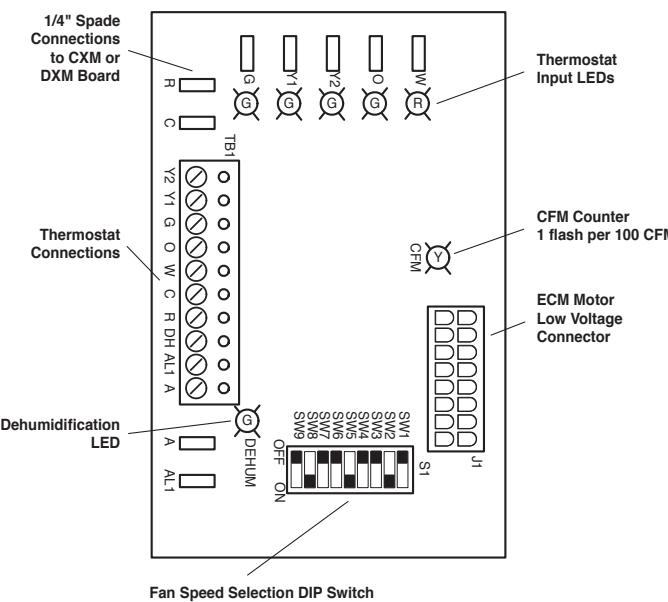
## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

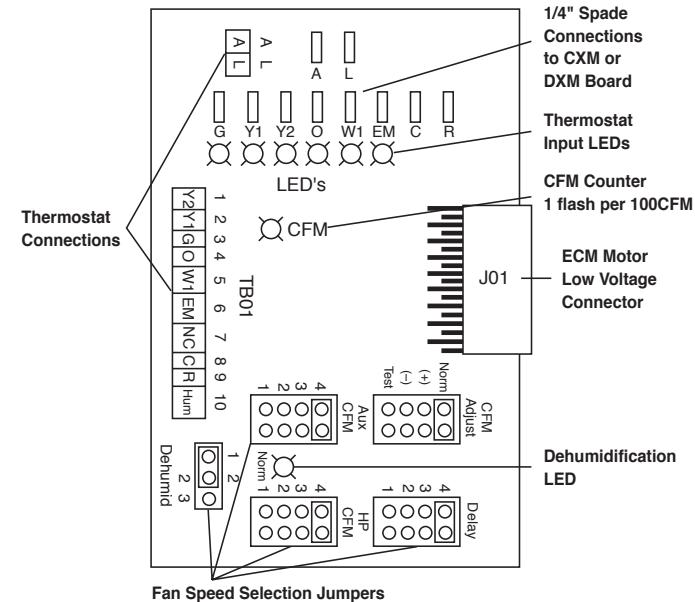
## ECM Control

**Dehumidification Mode settings:** The dehumidification mode setting provides field selection of humidity control. When operating in the normal mode, the cooling airflow settings are determined by the cooling tap setting above. When dehumidification is enabled there is a reduction in airflow in cooling to increase the moisture removal of the heat pump. Consult submittal data or specifications catalog for the specific unit series and model to correlate speed tap to airflow in CFM. The dehumidification mode can be enabled in two ways.

- Constant Dehumidification Mode:** When the dehumidification mode is selected (via DIP switch or jumper setting), the ECM motor will operate with a multiplier applied to the cooling CFM settings (approx. 20-25% lower airflow). Any time the unit is running in the cooling mode, it will operate at the lower airflow to improve latent capacity. The "DEHUM" LED will be illuminated at all times. Heating airflow is not affected. NOTE: Do not select dehumidification mode if cooling setting is tap 1.
- Automatic (Humidistat-controlled) Dehumidification Mode:** When the dehumidification mode is selected (via DIP switch or jumper setting) AND a humidistat is connected to terminal DH (version II) or HUM (version I), the cooling airflow will only be reduced when the humidistat senses that additional dehumidification is required. The DH (or HUM) terminal is reverse logic. Therefore, a humidistat (not dehumidistat) is required. The "DEHUM" LED will be illuminated only when the humidistat is calling for dehumidification mode. Heating airflow is not affected. NOTE: Do not select dehumidification mode if cooling setting is tap 1.



ECM Interface Board version II  
(P/N 17B0019N01)



ECM Interface Board version I  
(P/N 69243707)

### Blower Performance Data (ECM Motor) - Standard Unit - No Reheat

Airflow in CFM with wet coil and clean air filter

Model	Max ESP (in. wg)	Fan Motor (hp)	Tap Setting	Cooling Mode			Dehumid Mode			Heating Mode			AUX CFM	Aux/ Emerg Mode	Residential Units Only
				Stg 1	Stg 2	Fan	Stg 1	Stg 2	Fan	Stg 1	Stg 2	Fan			
TS/H/V/D 018	0.50	1/2	4	640	800	400	500	620	400	640	700	400	4	800	
			3	600	750	375	470	590	375	600	750	375	3	750	
			2	525	650	330	400	500	330	525	650	330	2	650	
			1	450	550	280				450	550	280	1	650	
TS/H/V/D 024	0.50	1/2	4	780	950	470	610	740	470	870	1060	470	4	1060	
			3	700	850	420	540	660	420	780	950	420	3	950	
			2	630	770	360	490	600	360	670	820	390	2	820	
			1	550	670	300				570	690	340	1	690	
TS/H/V/D 030	0.50	1/2	4	920	1130	560	720	880	560	1000	1230	560	4	1230	
			3	820	1000	500	640	780	500	900	1100	500	3	1100	
			2	740	900	450	580	700	450	800	980	450	2	980	
			1	660	800	400				700	850	400	1	850	
TS/H/V/D 036	0.50	1/2	4	1150	1400	700	900	1090	700	1150	1400	700	4	1400	
			3	1020	1250	630	800	980	630	1020	1250	630	3	1350	
			2	890	1080	540	690	840	540	890	1080	540	2	1350	
			1	740	900	450				750	920	450	1	1350	
TS/H/V/D 042	0.50	1/2	4	1290	1580	790	1010	1230	790	1290	1580	790	4	1580	
			3	1150	1400	700	900	1090	700	1150	1400	700	3	1400	
			2	1050	1280	640	820	1000	640	1020	1240	640	2	1350	
			1	920	1120	560				900	1080	560	1	1350	
TS/H/V/D 048	0.75	1	4	1420	1730	870	1110	1350	870	1520	1850	865	4	1850	
			3	1270	1550	780	990	1210	780	1350	1650	775	3	1650	
			2	1180	1440	720	920	1120	720	1190	1450	720	2	1450	
			1	1050	1280	640				1020	1250	640	1	1350	
TS/H/V/D 060	0.75	1	4	1680	2050	1030	1310	1600	1030	1870	2280	1030	4	2280	
			3	1500	1830	910	1170	1420	910	1680	2050	910	3	2050	
			2	1400	1700	850	1090	1330	850	1480	1800	850	2	1800	
			1	1300	1580	790				1270	1550	790	1	1550	
TS/H/V/D 070	0.75	1	4	1830	2230	1100	1420	1740	1100	1830	2230	1100	4	2230	
			3	1600	1950	980	1250	1520	980	1720	2100	980	3	2100	
			2	1440	1750	880	1120	1360	880	1670	1950	880	2	1950	
			1	1200	1580	790				1460	1780	790	1	1780	

See ECM control section for details on setting taps.

Bold numbers indicate factory settings.

During Auxiliary operation the CFM will run at the higher of the Heating (Delay jumper) or AUX settings.

Airflow is controlled within 5% up to the Max ESP shown with wet coil.

Do not select Dehumidification mode if HP CFM is on setting 1.

All units ARI/ISO/ASHRAE 13256-1 rated HP CFM Setting 3.

### Tranquility 20™ (TS) Series with ClimaDry Reheat Option (ECM Motor)

All Tranquility 20™ (TS) units with optional ECM fan motor automatically adjusts for the reheat coil. The small additional pressure drop of the reheat coil causes the ECM motor to slightly increase RPM to overcome the added pressure drop, and maintain selected CFM up to the maximum ESP.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Physical Data**

Model	006	009	012	018	024	030	036	042	048	060	070
Compressor (1 Each)		Rotary					Scroll				
Factory Charge R410A (oz) [kg]	24 [0.68]	32 [0.91]	34 [0.96]	50 [1.13]	56 [1.59]	58 [1.64]	70 [1.98]	80 [2.27]	80 [2.27]	136 [3.86]	144 [4.08]
<b>ECM Fan Motor &amp; Blower</b>											
Fan Motor (hp) [W]	N/A	N/A	N/A	1/2 [373]	1/2 [373]	1/2 [373]	1/2 [373]	1/2 [373]	1 [746]	1 [746]	1 [746]
Blower Wheel Size (dia x w) - (in) [mm]	N/A	N/A	N/A	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	11 x 10 [279 x 254]				
<b>PSC Fan Motor &amp; Blower (3 Speeds)</b>											
Fan Motor (hp) [W]	1/25 [30]	1/20 [37]	1/8 [93]	1/6 [124]	1/5 [149]	1/3 [249]	1/2 [373]	1/2 [373]	3/4 [560]	1 [746]	1 [746]
High Static Fan Motor (hp) [W]	N/A	N/A	N/A	1/5 [149]	1/3 [249]	1/2 [373]	1/2 [373]	3/4 [560]	3/4 [560]	1 [746]	Not Available
Blower Wheel Size (dia x w) - (in) [mm]	6 X 5 [152 X 127]	6 X 5 [152 X 127]	6 X 5 [152 X 127]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	10 x 10 [254 x 254]	10 x 10 [254 x 254]	10 x 10 [254 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]
<b>Water Connection Size</b>											
IPT (in)	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1"
<b>HWG Connection Size</b>											
IPT (in)	N/A	N/A	N/A	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
<b>Coax Volume</b>											
Volume (US Gallons) [liters]	0.17 [0.64]	0.29 [1.10]	0.45 [1.70]	0.56 [2.12]	0.76 [2.88]	0.76 [2.88]	0.92 [3.48]	1.24 [4.69]	1.24 [4.69]	1.56 [5.91]	1.56 [5.91]
<b>Vertical Upflow/Downflow</b>											
Air Coil Dimensions (h x w) - (in) [mm]	16 x 16 [406 x 406] Upflow Only	16 x 16 [406 x 406] Upflow Only	16 x 16 [406 x 406] Upflow Only	24 x 20 [610 x 508]	28 x 20 [711 x 508]	28 x 20 [711 x 508]	28 x 25 [711 x 635]	32 x 25 [813 x 635]	32 x 25 [813 x 635]	36 x 25 [914 x 635]	36 x 25 [914 x 635]
Standard Filter - 1" [25.4mm] Throwaway, qty (in) [mm]	16 x 20 [406 x 508]	16 x 20 [406 x 508]	16 x 20 [406 x 508]	24 x 24 [610 x 610]	28 x 24 [711 x 610]	28 x 24 [711 x 610]	28 x 30 [711 x 762]	2 - 16 x 30 [2 - 406 x 762]	2 - 16 x 30 [2 - 406 x 762]	1 - 16 x 30; 1 - 20 x 30 [1 - 406 x 762; 1 - 508 x 762]	1 - 16 x 30; 1 - 20 x 30 [1 - 406 x 762; 1 - 508 x 762]
Weight - Operating, (lbs) [kg]	126 [57]	146 [66]	150 [68]	252 [114]	266 [121]	268 [122]	327 [148]	414 [188]	416 [189]	441 [200]	443 [201]
Weight - Packaged, (lbs) [kg]	136 [62]	156 [71]	160 [73]	262 [119]	276 [125]	278 [126]	337 [153]	424 [192]	426 [193]	451 [205]	453 [206]
<b>Horizontal</b>											
Air Coil Dimensions (h x w) - (in) [mm]	16 x 16 [406 x 406]	16 x 16 [406 x 406]	16 x 16 [406 x 406]	18 x 27 [457 x 686]	18 x 31 [457 x 787]	18 x 31 [457 x 787]	20 x 35 [508 x 889]	20 x 40 [508 x 1016]	20 x 40 [508 x 1016]	20 x 45 [508 x 1143]	20 x 45 [508 x 1143]
Standard Filter - 1" [25.4mm] Throwaway, qty (in) [mm]	16 x 20 [406 x 508]	16 x 20 [406 x 508]	16 x 20 [406 x 508]	2 - 18 x 18 [2 - 457 x 457]	2 - 18 x 18 [2 - 457 x 457]	2 - 18 x 18 [2 - 457 x 457]	1 - 12 x 20; 1 - 20 x 25 [1 - 305 x 508; 1 - 508 x 635]	1 - 18 x 20; 1 - 20 x 24 [1 - 457 x 508; 1 - 508 x 610]	1 - 18 x 20; 1 - 20 x 24 [1 - 457 x 508; 1 - 508 x 610]	1 - 18 x 20; 1 - 20 x 24 [1 - 457 x 508; 1 - 508 x 610]	1 - 18 x 20; 1 - 20 x 30 [1 - 406 x 762; 1 - 508 x 762]
Weight - Operating, (lbs) [kg]	136 [62]	156 [71]	160 [73]	257 [117]	266 [121]	268 [122]	327 [148]	414 [188]	416 [189]	441 [200]	443 [201]
Weight - Packaged, (lbs) [kg]	146 [66]	166 [72]	170 [77]	267 [121]	276 [125]	278 [126]	337 [153]	424 [192]	426 [193]	451 [205]	453 [206]

All units have spring compressor mountings, TXV expansion devices, and 1/2" [12.2mm] &amp; 3/4" [19.1mm] electrical knockouts.

**TS - Horizontal  
Dimensional Data**

Horizontal Model		Overall Cabinet		
		A Width	B Length	C Height
006 - 012	in cm	22.4 56.8	43.1 107.8	17.3 43.1
018	in cm	22.4 56.8	62.2 158.0	19.3 48.9
024 - 030	in cm	22.4 56.8	62.2 158.0	19.3 48.9
036	in cm	25.4 64.5	71.2 180.8	21.3 54.0
042 - 048	in cm	25.4 64.5	76.2 193.5	21.3 54.0
060 - 070	in cm	25.4 64.5	81.2 206.2	21.3 54.0

Horizontal Model		Water Connections							Water Connections - Units with ClimaDry	
		1	2	3	4	5	H	Water Loop IPT	HWG IPT	
		Loop In D	Loop Out E	HWG In F	HWG Out G					
006 - 012	in cm	3.7 9.3	9.7 24.2	N/A	N/A	0.8 2.0	1/2"	N/A	N/A	N/A
018	in cm	2.1 5.2	10.0 25.4	13.9 35.2	16.9 42.9	0.6 1.5	3/4"	1/2"	2.1 5.2	10.0 25.4
024 - 030	in cm	2.1 5.2	10.0 25.4	13.9 35.2	16.9 42.9	0.6 1.5	3/4"	1/2"	5.96 15.14	13.13 33.35
036	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	0.6 1.5	3/4"	1/2"	5.96 15.14	13.13 33.35
042 - 048	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	0.6 1.5	1"	1/2"	5.96 15.14	13.13 33.35
060 - 070	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	0.6 1.5	1"	1/2"	5.96 15.14	13.13 33.35

Horizontal Model		Electrical Knockouts		
		J 1/2"	K 1/2"	L 3/4"
		Low Voltage	External Pump	Power Supply
006 - 012	in cm	3.8 9.4	6.3 15.6	8.8 21.9
018	in cm	3.6 9.2	6.1 15.6	8.6 21.9
024 - 030	in cm	3.6 9.2	6.1 15.6	8.6 21.9
036	in cm	3.6 9.2	6.1 15.6	8.6 21.9
042 - 048	in cm	3.6 9.2	6.1 15.6	8.6 21.9
060 - 070	in cm	3.6 9.2	6.1 15.6	8.6 21.9

## Notes:

1. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
2. Horizontal units shipped with filter bracket only. This bracket should be removed for return duct connection
3. Discharge flange and hanger brackets are factory installed.
4. Condensate is 3/4" IPT.
5. Blower service panel requires 2' service access.
6. Blower service access is through back panel on straight discharge units or through panel opposite air coil on back discharge units.

## Legend:

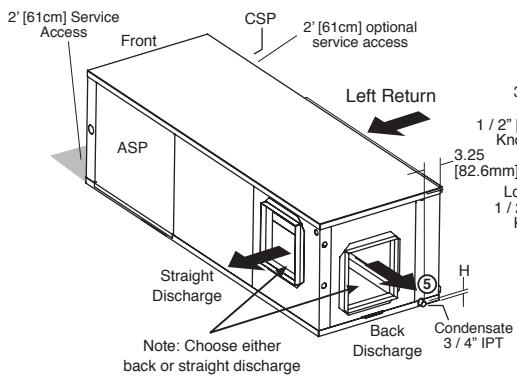
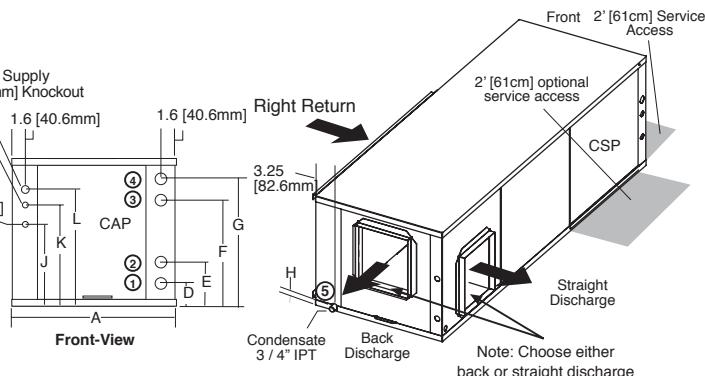
CAP = Control Access Panel  
BSP = Blower Service Panel  
CSP = Compressor Access Panel  
ASP = Alternative Service Panel

## Tranquility 20™ Single-Stage (TS) Series

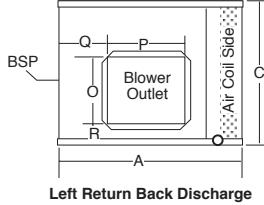
Rev.: 09/12/07D

**TS - Horizontal  
Dimensional Data**

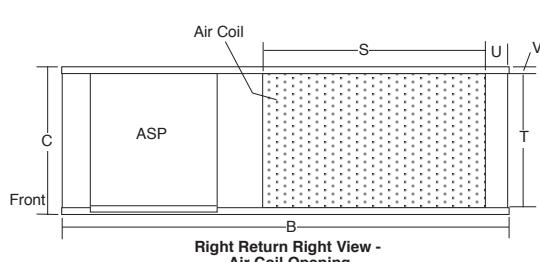
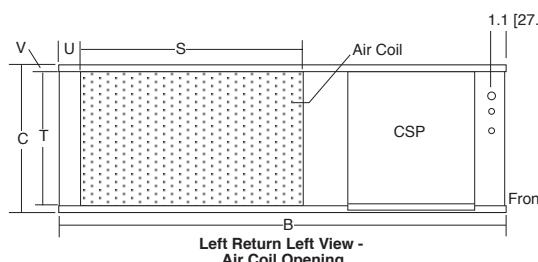
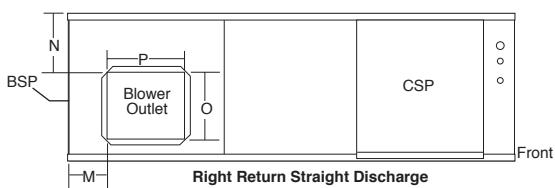
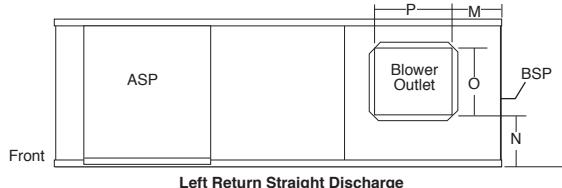
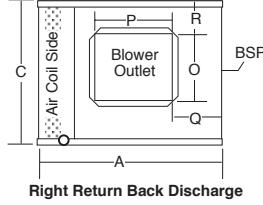
Horizontal Model		Discharge Connection Duct Flange Installed (+/- 0.10 in, +/- 2.5mm)						Return Connection Using Return Air Opening			
		M	N	O Supply Height	P Supply Width	Q	R	S Return Width	T Return Height	U	V
006 - 012	in cm	5.3 13.4	4.1 10.3	9.0 22.5	9.0 22.5	5.3 13.4	4.1 10.3	17.1 42.8	15.3 38.1	2.1 5.3	1.0 2.5
018	in cm	3.6 9.3	2.0 5.1	15.5 39.4	12.5 31.8	3.6 9.2	2.0 5.2	28.1 71.4	16.2 41.0	2.3 5.8	1.5 3.9
024 - 030	in cm	3.6 9.3	2.0 5.1	15.5 39.4	12.5 31.8	3.6 9.2	2.0 5.2	33.8 85.8	16.2 41.0	2.3 5.8	1.5 3.9
036	in cm	3.1 8.0	1.2 3.1	19.0 48.3	17.5 44.5	3.1 8.0	1.0 2.6	39.8 101.0	18.2 46.1	3.1 7.8	1.5 3.9
042 - 048	in cm	3.1 8.0	1.2 3.1	19.0 48.3	17.5 44.5	3.1 8.0	1.0 2.6	39.8 101.0	18.2 46.1	3.1 7.8	1.5 3.9
060 - 070	in cm	3.1 8.0	1.2 3.1	19.0 48.3	17.5 44.5	3.1 8.0	1.0 2.6	44.8 113.7	18.2 46.1	3.1 7.8	1.5 3.9

**LEFT RETURN****RIGHT RETURN****Unit Hanger Detail**

Model	X			Y			Z		
	in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.
006-012	43.1	109.5	24.5	62.2	20.3	51.5			
018-030	62.1	157.7	24.5	62.2	20.3	51.5			
036	71.1	180.6	27.5	69.9	23.3	59.1			
042-048	76.1	193.3	27.5	69.9	23.3	59.1			
060-070	81.1	206.0	27.5	69.9	23.3	59.1			



Model	X			Y			Z		
	in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.
006-012	43.1	109.5	24.5	62.2	20.3	51.5			
018-030	62.1	157.7	24.5	62.2	20.3	51.5			
036	71.1	180.6	27.5	69.9	23.3	59.1			
042-048	76.1	193.3	27.5	69.9	23.3	59.1			
060-070	81.1	206.0	27.5	69.9	23.3	59.1			



**TS - Vertical Upflow  
Dimensional Data**

Vertical Upflow Model		Overall Cabinet		
		A Width	B Depth	C Height
006 - 012	in cm	22.4 56.8	21.6 54.9	34.5 87.6
018	in cm	22.4 56.8	25.6 65.1	44.6 113.3
024 - 030	in cm	22.4 56.8	25.6 65.1	48.5 123.2
036	in cm	25.4 64.5	30.6 77.8	50.5 128.3
042 - 048	in cm	25.4 64.5	30.6 77.8	54.5 138.4
060 - 070	in cm	25.4 64.5	30.6 77.8	58.5 148.6

Vertical Upflow Model		Water Connections						Water Connections - Units with ClimaDry	
		1	2	3	4	5	H		
		Loop In D	Loop Out E	HWG In F	HWG Out G		Water Loop IPT	HWG IPT	
006 - 012	in cm	3.7 9.4	9.7 24.6	N/A	N/A	7.4 18.7	1/2"	N/A	N/A
018	in cm	2.1 5.2	10.0 25.4	13.9 35.2	16.9 42.9	7.8 19.8	3/4"	1/2"	2.1 5.2
024 - 030	in cm	2.1 5.2	10.0 25.4	13.9 35.2	16.9 42.9	7.8 19.8	3/4"	1/2"	5.96 15.14
036	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	7.8 19.8	3/4"	1/2"	5.96 15.14
042 - 048	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	7.8 19.8	1"	1/2"	5.96 15.14
060 - 070	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	7.8 19.8	1"	1/2"	5.96 15.14

Vertical Upflow Model		Electrical Knockouts		
		J 1/2"	K 1/2"	L 3/4"
		Low Voltage	External Pump	Power Supply
006 - 012	in cm	3.8 9.5	6.3 15.9	8.8 22.2
018	in cm	3.6 9.2	6.1 15.6	8.6 21.9
024 - 030	in cm	3.6 9.2	6.1 15.6	8.6 21.9
036	in cm	3.6 9.2	6.1 15.6	8.6 21.9
042 - 048	in cm	3.6 9.2	6.1 15.6	8.6 21.9
060 - 070	in cm	3.6 9.2	6.1 15.6	8.6 21.9

**Notes:**

1. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
2. Front & Side access is preferred for service access. However, all components may be serviced from the front access panel if side access is not available.
3. Discharge flange is field installed.
4. Condensate is 3/4" IPT PVC and is switchable from front to side.

**Legend:**

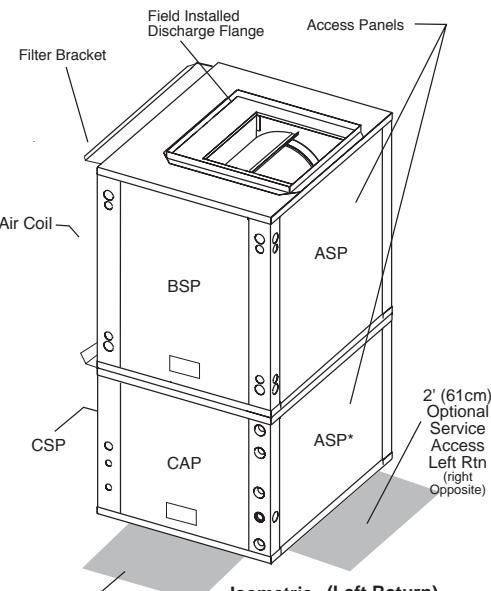
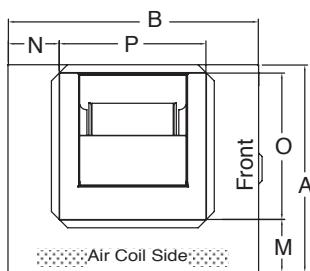
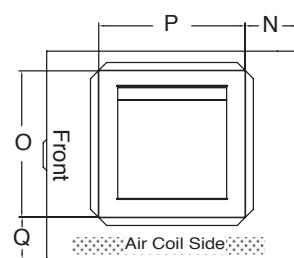
CAP = Control Access Panel  
 BSP = Blower Service Panel  
 CSP = Compressor Access Panel  
 ASP = Alternative Service Panel

## Tranquility 20™ Single-Stage (TS) Series

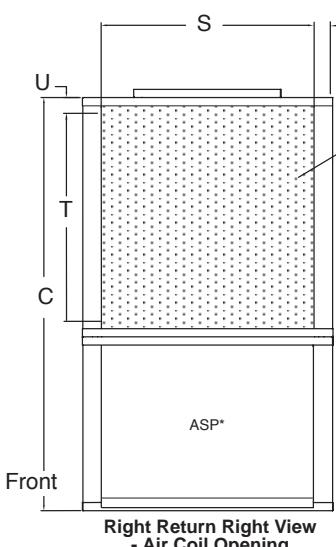
Rev.: 09/12/07D

**TS - Vertical Upflow**  
**Dimensional Data**

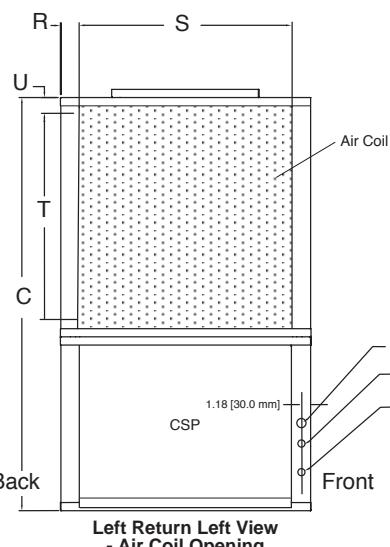
Vertical Upflow Model		Discharge Connection Duct Flange Installed (+/- 0.10 in, +/- 2.5mm)					Return Connection Using Return Air Opening			
		M	N	O Supply Width	P Supply Depth	Q	R	S Return Depth	T Return Height	U
006 - 012	in cm	6.7 17.0	6.3 16.0	9.0 22.9	9.0 22.9	6.7 17.0	2.3 5.7	17.1 43.3	15.3 38.7	1.0 2.5
018	in cm	7.2 18.3	5.8 14.8	14.0 35.6	14.0 35.6	4.9 12.4	2.2 5.6	21.1 53.6	23.2 58.9	1.0 2.5
024 - 030	in cm	7.2 18.3	5.8 14.8	14.0 35.6	14.0 35.6	4.9 12.4	2.2 5.6	21.1 53.6	27.2 69.1	1.0 2.5
036	in cm	6.4 16.1	6.3 16.0	18.0 45.7	18.0 45.7	5.3 13.5	2.2 5.6	26.1 66.3	27.2 69.1	1.0 2.5
042 - 048	in cm	6.4 16.1	6.3 16.0	18.0 45.7	18.0 45.7	5.3 13.5	2.2 5.6	26.1 66.3	31.2 79.2	1.0 2.5
060 - 070	in cm	6.4 16.1	6.3 16.0	18.0 45.7	18.0 45.7	5.3 13.5	2.2 5.6	26.1 66.3	35.2 89.4	1.0 2.5



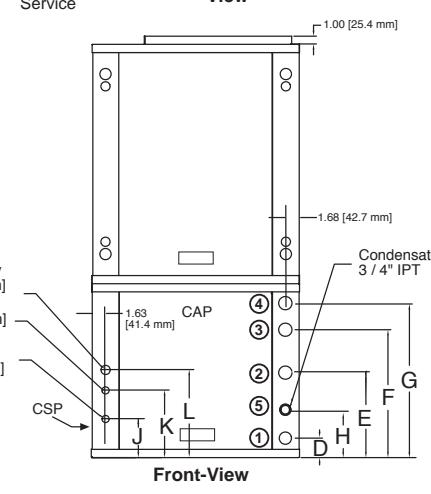
Top View-Right Return



Top View-Left Return



Isometric (Left Return) View



\* ASP service access is recommended with some factory options.

**TS - Vertical Downflow Dimensional Data**

Vertical Downflow Model		Overall Cabinet		
		A Width	B Depth	C Height
006 - 012	in cm	N/A	N/A	N/A
018	in cm	22.4 56.8	25.6 65.1	48.4 122.9
024 - 030	in cm	22.4 56.8	25.6 65.1	52.5 133.4
036	in cm	25.4 64.5	30.6 77.8	54.5 138.4
042 - 048	in cm	25.4 64.5	30.6 77.8	58.5 148.6
060 - 070	in cm	25.4 64.5	30.6 77.8	62.5 158.8

Vertical Downflow Model		Water Connections							Water Connections - Units with ClimaDry		
		1	2	3	4	5	H	Water Loop IPT	HWG IPT	1	2
		Loop In D	Loop Out E	HWG In F	HWG Out G					Loop In D	Loop Out E
006 - 012	in cm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
018	in cm	2.1 5.2	10.0 25.4	13.9 35.2	16.9 42.9	3.6 9.2	3/4"	1/2"	2.1 5.2	10.0 25.4	
024 - 030	in cm	2.1 5.2	10.0 25.4	13.9 35.2	16.9 42.9	3.6 9.2	3/4"	1/2"	5.96 15.14	13.13 33.35	
036	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	3.6 9.2	3/4"	1/2"	5.96 15.14	13.13 33.35	
042 - 048	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	3.6 9.2	1"	1/2"	5.96 15.14	13.13 33.35	
060 - 070	in cm	3.4 8.6	10.8 27.5	15.6 39.7	18.9 47.9	3.6 9.2	1"	1/2"	5.96 15.14	13.13 33.35	

Vertical Downflow Model		Electrical Knockouts		
		J 1/2"	K 1/2"	L 3/4"
		Low Voltage	External Pump	Power Supply
006 - 012	in cm	N/A	N/A	N/A
018	in cm	3.6 9.2	6.1 15.6	8.6 21.9
024 - 030	in cm	3.6 9.2	6.1 15.6	8.6 21.9
036	in cm	3.6 9.2	6.1 15.6	8.6 21.9
042 - 048	in cm	3.6 9.2	6.1 15.6	8.6 21.9
060 - 070	in cm	3.6 9.2	6.1 15.6	8.6 21.9

**Notes:**

- While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
- Front & Side access is preferred for service access. However, all components may be serviced from the front access panel if side access is not available.
- Condensate is 3/4" IPT PVC and is switchable from front to side.

**Legend:**

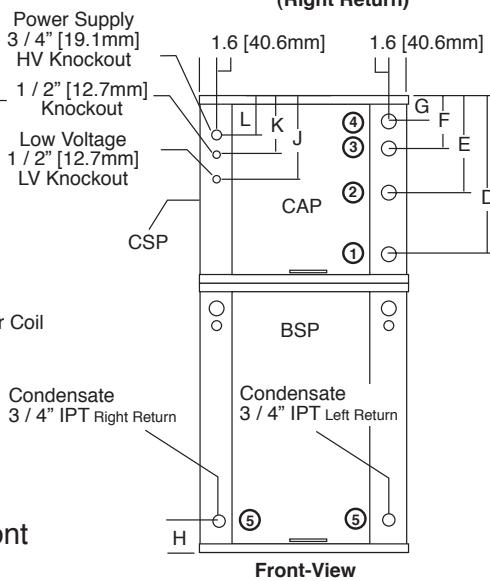
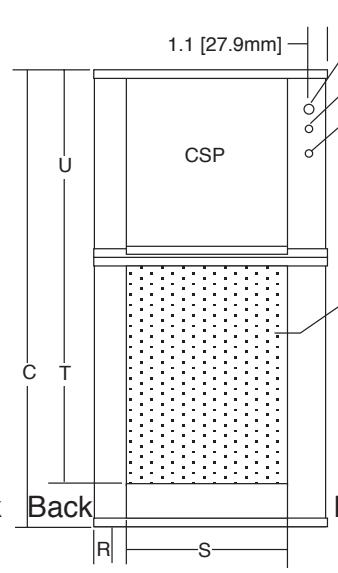
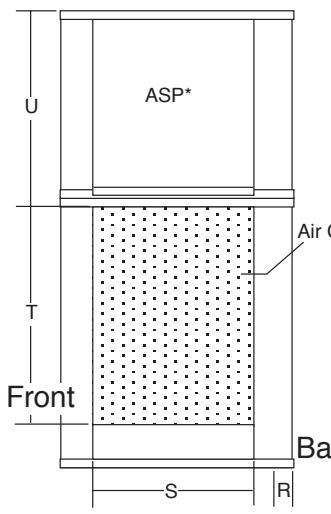
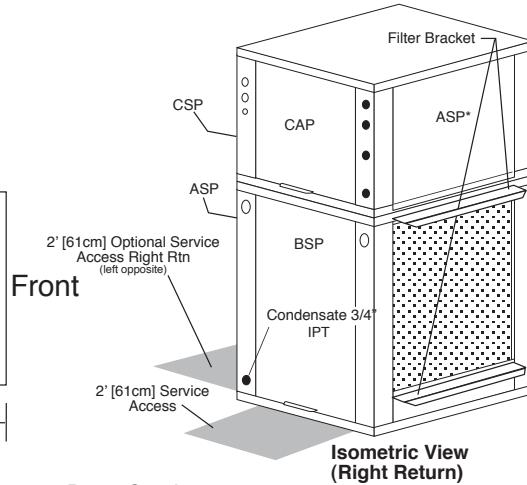
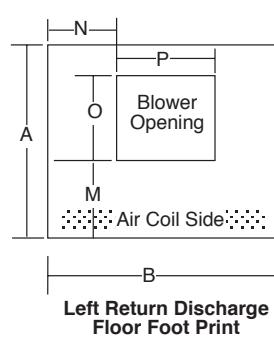
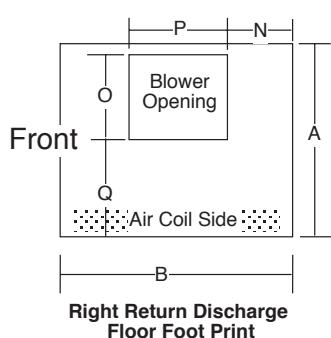
CAP = Control Access Panel  
 BSP = Blower Service Panel  
 CSP = Compressor Access Panel  
 ASP = Alternative Service Panel

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

## TS - Vertical Downflow Dimensional Data

Vertical Downflow Model		Discharge Connection Duct Flange Installed (+/- 0.10 in, +/- 2.5mm)					Return Connection Using Return Air Opening			
		M	N	O Supply Width	P Supply Depth	Q	R	S Return Depth	T Return Height	U
006 - 012	in cm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
018	in cm	6.7 17.1	8.4 21.4	10.1 25.7	9.1 23.0	10.8 27.4	2.2 5.6	21.1 53.6	23.2 58.9	1.0 2.5
024 - 030	in cm	6.7 17.1	8.4 21.4	10.1 25.7	9.1 23.0	10.8 27.4	2.2 5.6	21.1 53.6	27.2 69.1	1.0 2.5
036	in cm	7.2 18.3	9.0 22.9	13.4 34.0	12.9 32.7	10.4 26.5	2.2 5.6	26.1 66.3	27.2 69.1	1.0 2.5
042 - 048	in cm	7.2 18.3	9.0 22.9	13.4 34.0	12.9 32.7	10.4 26.5	2.2 5.6	26.1 66.3	31.2 79.2	1.0 2.5
060 - 070	in cm	7.2 18.3	9.0 22.9	13.4 34.0	12.9 32.7	10.4 26.5	2.2 5.6	26.1 66.3	35.2 89.4	1.0 2.5



\* ASP service access is recommended with some factory options.

**Corner Weights for  
TSH Series Units**

Model		Total	Left-Front*	Right-Front*	Left-Back*	Right-Back*
006	Lbs	136	45	30	33	28
	kg	62	20.4	13.6	15.0	12.7
009	Lbs	156	55	33	36	32
	kg	71	24.9	15.0	16.3	14.5
0120	Lbs	160	56	34	37	33
	kg	73	25.4	15.4	16.8	15.0
018	Lbs	257	78.1	64.6	66.2	47.5
	kg	117	35.4	29.3	30.0	21.6
024	Lbs	266	78.8	67.2	69.9	50.2
	kg	122	35.7	30.5	31.7	22.7
030	Lbs	268	79.4	67.7	70.4	50.5
	kg	122	36.0	30.7	31.9	22.9
036	Lbs	327	104.4	74.9	83.7	64.0
	kg	148	47.4	34.0	38.0	29.0
042	Lbs	414	144.3	92.1	97.7	79.9
	kg	188	65.4	41.8	44.3	36.2
048	Lbs	416	145.0	92.6	98.1	80.3
	kg	189	65.8	42.0	44.5	36.4
060	Lbs	441	182.3	72.5	78.4	107.8
	kg	200	82.7	32.9	35.6	48.9
070	Lbs	443	183.1	72.8	78.8	108.3
	kg	201	83.1	33.0	35.7	49.1

\*Front is control box end.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

## Electrical Data

(PSC Motor & ClimaDry)

All TS Units with Standard PSC Motor							TS Units (PSC)			TS Units with PSC Fan Motor and ClimaDry				
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	Reheat Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR
				QTY	RLA	LRA								
TSH/V/D 018	G	208-230/60/1	197/254	1	9.0	48.0	1.0	10.0	12.3	20	0.8	10.8	13.1	20
	E	265/60/1	239/292	1	8.4	40.0	0.9	9.3	11.4	15	0.7	10.0	12.1	20
TSH/V/D 024	G	208-230/60/1	197/254	1	12.8	60.0	1.1	13.9	17.1	25	0.8	14.7	17.9	30
	H	208-230/60/3	197/254	1	8.0	55.0	1.1	9.1	11.1	15	0.8	9.9	11.9	15
TSH/V/D 030	F*	460/60/3	414/506	1	4.0	22.4	0.6	4.6	5.6	15	0.7	5.3	6.3	15
	G	208-230/60/1	197/254	1	13.5	61.0	1.4	14.9	18.3	30	0.8	15.7	19.1	30
TSH/V/D 036	E	265/60/1	239/292	1	10.9	58.0	1.6	12.5	15.2	25	0.7	13.2	15.9	25
	H	208-230/60/3	197/254	1	8.3	63.0	1.4	9.7	11.8	20	0.8	10.5	12.6	20
TSH/V/D 036	F*	460/60/3	414/506	1	4.5	27.0	0.9	5.4	6.5	15	0.7	6.1	7.2	15
	G	208-230/60/1	197/254	1	14.7	72.5	2.1	16.8	20.5	35	0.8	17.6	21.3	35
TSH/V/D 042	E	265/60/1	239/292	1	12.5	61.0	2.2	14.7	17.8	30	0.7	15.4	18.5	30
	H	208-230/60/3	197/254	1	10.4	63.0	2.1	12.5	15.1	25	0.8	13.3	15.9	25
TSH/V/D 042	F*	460/60/3	414/506	1	4.5	32.0	1.3	5.8	6.9	15	0.7	6.5	7.6	15
	G	208-230/60/1	197/254	1	15.4	83.0	2.1	17.5	21.4	35	0.8	18.3	22.2	35
TSH/V/D 048	H	208-230/60/3	197/254	1	11.5	77.0	2.1	13.6	16.5	25	0.8	14.4	17.3	25
	F*	460/60/3	414/506	1	5.1	35.0	1.0	6.1	7.4	15	0.7	6.8	8.1	15
TSH/V/D 048	N	575/60/3	518/633	1	4.3	31.0	0.8	5.1	6.2	15	N/A	N/A	N/A	N/A
	G	208-230/60/1	197/254	1	20.5	109.0	3.0	23.5	28.6	45	1.07	24.6	29.7	50
TSH/V/D 060	H	208-230/60/3	197/254	1	14.6	91.0	3.0	17.6	21.3	35	1.07	18.7	22.3	35
	F*	460/60/3	414/506	1	7.1	46.0	1.7	8.8	10.6	15	1.07	9.9	11.6	15
TSH/V/D 060	N	575/60/3	518/633	1	5.1	34.1	1.4	6.5	7.8	15	N/A	N/A	N/A	N/A
	G	208-230/60/1	197/254	1	26.9	145.0	4.9	31.8	38.5	60	1.07	32.9	39.6	60
TSH/V/D 070	H	208-230/60/3	197/254	1	17.6	123.0	4.9	22.5	26.9	40	1.07	23.6	28.0	45
	F*	460/60/3	414/506	1	9.6	64.0	2.5	12.1	14.5	20	1.07	13.2	15.6	25
TSH/V/D 070	N	575/60/3	518/633	1	6.1	40.0	1.9	8.0	9.5	15	N/A	N/A	N/A	N/A
	G	208-230/60/1	197/254	1	30.1	158.0	5.8	35.9	43.4	70	1.07	37.0	44.5	70
TSH/V/D 070	H	208-230/60/3	197/254	1	20.5	155.0	5.8	26.3	31.4	50	1.07	27.4	32.5	50
	F*	460/60/3	414/506	1	9.6	75.0	2.6	12.2	14.6	20	1.07	13.3	15.7	25
TSH/V/D 070	N	575/60/3	518/633	1	7.6	54.0	2.3	9.9	11.8	15	N/A	N/A	N/A	N/A

\*460V with Reheat pump requires a neutral wire. Pump is rated 265V and is wired between hot leg and neutral.

### Electrical Data (High Static PSC Motor & ClimaDry)

All TS Units with High Static PSC Fan Motor							TS (H.S. PSC) Units			TS Units with H.S. PSC Fan Motor and ClimaDry				
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor		Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	Reheat Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	
				QTY	RLA									
TSH/V/D 018	G	208-230/60/1	197/254	1	9.0	48.0	1.1	10.1	12.4	20	0.8	10.9	13.2	20
	E	265/60/1	239/292	1	8.4	40.0	0.9	9.3	11.4	15	0.7	10.0	12.1	20
TSH/V/D 024	G	208-230/60/1	197/254	1	12.8	60.0	1.4	14.2	17.4	30	0.8	15.0	18.2	30
	H	208-230/60/3	197/254	1	8.0	55.0	1.4	9.4	11.4	15	0.8	10.2	12.2	20
	F*	460/60/3	414/506	1	4.0	22.4	0.9	4.9	5.9	15	0.7	5.6	6.6	15
TSH/V/D 030	G	208-230/60/1	197/254	1	13.5	61.0	1.8	15.3	18.7	30	0.8	16.1	19.5	30
	E	265/60/1	239/292	1	10.9	58.0	2.0	12.9	15.6	25	0.7	13.6	16.3	25
	H	208-230/60/3	197/254	1	8.3	63.0	1.8	10.1	12.2	20	0.8	10.9	13.0	20
	F*	460/60/3	414/506	1	4.5	27.0	1.24	5.7	6.9	15	0.7	6.4	7.6	15
TSH/V/D 036	G	208-230/60/1	197/254	1	14.7	72.5	2.0	16.7	20.4	35	0.8	17.5	21.2	35
	E	265/60/1	239/292	1	12.5	61.0	1.66	14.2	17.3	25	0.7	14.9	18.0	30
	H	208-230/60/3	197/254	1	10.4	63.0	2.0	12.4	15.0	25	0.8	13.2	15.8	25
	F*	460/60/3	414/506	1	4.5	32.0	1.0	5.5	6.6	15	0.7	6.2	7.3	15
TSH/V/D 042	G	208-230/60/1	197/254	1	15.4	83.0	3.0	18.4	22.3	35	0.8	19.2	23.1	35
	H	208-230/60/3	197/254	1	11.5	77.0	3.0	14.5	17.4	25	0.8	15.3	18.2	25
	F*	460/60/3	414/506	1	5.1	35.0	1.7	6.8	8.1	15	0.7	7.5	8.8	15
	N	575/60/3	518/633	1	4.3	31.0	1.4	5.7	6.8	15	N/A	N/A	N/A	N/A
TSH/V/D 048	G	208-230/60/1	197/254	1	20.5	109.0	3.4	23.9	29.0	45	1.07	25.0	30.1	50
	H	208-230/60/3	197/254	1	14.6	91.0	3.4	18.0	21.7	35	1.07	19.1	22.7	35
	F*	460/60/3	414/506	1	7.1	46.0	1.8	8.9	10.7	15	1.07	10.0	11.7	15
	N	575/60/3	518/633	1	5.1	34.1	1.4	6.5	7.8	15	N/A	N/A	N/A	N/A
TSH/V/D 060	G	208-230/60/1	197/254	1	26.9	145.0	5.8	32.7	39.4	60	1.07	33.8	40.5	60
	H	208-230/60/3	197/254	1	17.6	123.0	5.8	23.4	27.8	45	1.07	24.5	28.9	45
	F*	460/60/3	414/506	1	9.6	64.0	2.6	12.2	14.6	20	1.07	13.3	15.7	25
	N	575/60/3	518/633	1	6.1	40.0	2.3	8.4	9.9	15	N/A	N/A	N/A	N/A

\*460V with Reheat pump requires a neutral wire. Pump is rated 265V and is wired between hot leg and neutral.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

## Electrical Data (ECM Motor & ClimaDry)

All TS Units with ECM Fan Motor							TS Units (ECM)			TS Units with ECM Fan Motor and ClimaDry				
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor		Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	Reheat Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	
				QTY	RLA									
TSH/V/D 018	G	208-230/60/1	197/254	1	9.0	48.0	4.3	13.3	15.6	20	0.8	14.1	16.4	25
	E	265/60/1	239/292	1	8.4	40.0	4.1	12.5	14.6	20	0.7	13.2	15.3	20
TSH/V/D 024	G	208-230/60/1	197/254	1	12.8	60.0	4.3	17.1	20.3	30	0.8	17.9	21.1	30
	H	208-230/60/3	197/254	1	8.0	55.0	4.3	12.3	14.3	20	0.8	13.1	15.1	20
	F*	460/60/3	414/506	1	4.0	22.4	4.1	8.1	9.1	15	0.7	8.8	9.8	15
TSH/V/D 030	G	208-230/60/1	197/254	1	13.5	61.0	4.3	17.8	21.2	30	0.8	18.6	22.0	35
	E	265/60/1	239/292	1	10.9	58.0	4.1	15.0	17.7	25	0.7	15.7	18.4	25
	H	208-230/60/3	197/254	1	8.3	63.0	4.3	12.6	14.7	20	0.8	13.4	15.5	20
	F*	460/60/3	414/506	1	4.5	27.0	4.1	8.6	9.7	15	0.7	9.3	10.4	15
TSH/V/D 036	G	208-230/60/1	197/254	1	14.7	72.5	4.3	19.0	22.7	35	0.8	19.8	23.5	35
	E	265/60/1	239/292	1	12.5	61.0	4.1	16.6	19.7	30	0.7	17.3	20.4	30
	H	208-230/60/3	197/254	1	10.4	63.0	4.3	14.7	17.3	25	0.8	15.5	18.1	25
	F*	460/60/3	414/506	1	4.5	32.0	4.1	8.6	9.7	15	0.7	9.3	10.4	15
TSH/V/D 042	G	208-230/60/1	197/254	1	15.4	83.0	4.3	19.7	23.6	35	0.8	20.5	24.4	35
	H	208-230/60/3	197/254	1	11.5	77.0	4.3	15.8	18.7	30	0.8	16.6	19.5	30
	F*	460/60/3	414/506	1	5.1	35.0	4.1	9.2	10.5	15	0.7	9.9	11.2	15
TSH/V/D 048	G	208-230/60/1	197/254	1	20.5	109.0	7.0	27.5	32.6	50	1.07	28.6	33.7	50
	H	208-230/60/3	197/254	1	14.6	91.0	7.0	21.6	25.3	35	1.07	22.7	26.3	40
	F*	460/60/3	414/506	1	7.1	46.0	6.9	14.0	15.8	20	1.07	15.1	16.8	20
TSH/V/D 060	G	208-230/60/1	197/254	1	26.9	145.0	7.0	33.9	40.6	60	1.07	35.0	41.7	60
	H	208-230/60/3	197/254	1	17.6	123.0	7.0	24.6	29.0	45	1.07	25.7	30.1	45
	F*	460/60/3	414/506	1	9.6	64.0	6.9	16.5	18.9	25	1.07	17.6	20.0	25
TSH/V/D 070	G	208-230/60/1	197/254	1	30.1	158.0	7.0	37.1	44.6	70	1.07	38.2	45.7	70
	H	208-230/60/3	197/254	1	20.5	155.0	7.0	27.5	32.6	50	1.07	28.6	33.7	50
	F*	460/60/3	414/506	1	9.6	75.0	6.9	16.5	18.9	25	1.07	17.6	20.0	25

\*460V units with Reheat pump and/or ECM motor require a neutral wire. Pump and/or ECM motor are rated 265V and is wired between hot leg and neutral.

### Electrical Data (PSC Motor & Secondary Pump)

All TS Units with Standard PSC Motor							TS Units (PSC)			TS Units with PSC Fan Motor and Secondary Pump				
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR
				QTY	RLA	LRA								
TSH/V 006	G	208-230/60/1	197/254	1	3.1	17.7	0.4	3.5	4.3	15	0.43	3.9	4.7	15
TSH/V 009	G	208-230/60/1	197/254	1	3.9	21.0	0.4	4.3	5.3	15	0.43	4.8	5.7	15
TSH/V 012	G	208-230/60/1	197/254	1	5.0	25.0	0.7	5.7	7.0	15	0.43	6.1	7.4	15
TSH/V/D 018	G	208-230/60/1	197/254	1	9.0	48.0	1.0	10.0	12.3	20	0.43	10.4	12.7	20
	E	265/60/1	239/292	1	8.4	40.0	0.9	9.3	11.4	15	N/A	N/A	N/A	N/A
TSH/V/D 024	G	208-230/60/1	197/254	1	12.8	60.0	1.1	13.9	17.1	25	0.43	14.3	17.5	30
	H	208-230/60/3	197/254	1	8.0	55.0	1.1	9.1	11.1	15	0.43	9.5	11.5	15
	F*	460/60/3	414/506	1	4.0	22.4	0.6	4.6	5.6	15	N/A	N/A	N/A	N/A
TSH/V/D 030	G	208-230/60/1	197/254	1	13.5	61.0	1.4	14.9	18.3	30	0.8	15.7	19.1	30
	E	265/60/1	239/292	1	10.9	58.0	1.6	12.5	15.2	25	0.7	13.2	15.9	25
	H	208-230/60/3	197/254	1	8.3	63.0	1.4	9.7	11.8	20	0.8	10.5	12.6	20
	F*	460/60/3	414/506	1	4.5	27.0	0.9	5.4	6.5	15	0.7	6.1	7.2	15
TSH/V/D 036	G	208-230/60/1	197/254	1	14.7	72.5	2.1	16.8	20.5	35	0.8	17.6	21.3	35
	E	265/60/1	239/292	1	12.5	61.0	2.2	14.7	17.8	30	0.7	15.4	18.5	30
	H	208-230/60/3	197/254	1	10.4	63.0	2.1	12.5	15.1	25	0.8	13.3	15.9	25
	F*	460/60/3	414/506	1	4.5	32.0	1.3	5.8	6.9	15	0.7	6.5	7.6	15
TSH/V/D 042	G	208-230/60/1	197/254	1	15.4	83.0	2.1	17.5	21.4	35	0.8	18.3	22.2	35
	H	208-230/60/3	197/254	1	11.5	77.0	2.1	13.6	16.5	25	0.8	14.4	17.3	25
	F*	460/60/3	414/506	1	5.1	35.0	1.0	6.1	7.4	15	0.7	6.8	8.1	15
	N	575/60/3	518/633	1	4.3	31.0	0.8	5.1	6.2	15	N/A	N/A	N/A	N/A
TSH/V/D 048	G	208-230/60/1	197/254	1	20.5	109.0	3.0	23.5	28.6	45	0.8	24.3	29.4	45
	H	208-230/60/3	197/254	1	14.6	91.0	3.0	17.6	21.3	35	0.8	18.4	22.1	35
	F*	460/60/3	414/506	1	7.1	46.0	1.7	8.8	10.6	15	0.7	9.5	11.3	15
	N	575/60/3	518/633	1	5.1	34.1	1.4	6.5	7.8	15	N/A	N/A	N/A	N/A
TSH/V/D 060	G	208-230/60/1	197/254	1	26.9	145.0	4.9	31.8	38.5	60	1.07	32.9	39.6	60
	H	208-230/60/3	197/254	1	17.6	123.0	4.9	22.5	26.9	40	1.07	23.6	28.0	45
	F*	460/60/3	414/506	1	9.6	64.0	2.5	12.1	14.5	20	1.07	13.2	15.6	25
	N	575/60/3	518/633	1	6.1	40.0	1.9	8.0	9.5	15	N/A	N/A	N/A	N/A
TSH/V/D 070	G	208-230/60/1	197/254	1	30.1	158.0	5.8	35.9	43.4	70	1.07	37.0	44.5	70
	H	208-230/60/3	197/254	1	20.5	155.0	5.8	26.3	31.4	50	1.07	27.4	32.5	50
	F*	460/60/3	414/506	1	9.6	75.0	2.6	12.2	14.6	20	1.07	13.3	15.7	25
	N	575/60/3	518/633	1	7.6	54.0	2.3	9.9	11.8	15	N/A	N/A	N/A	N/A

\*460V with secondary loop pump requires a neutral wire. Pump is rated 265V and is wired between hot leg and neutral.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

## Electrical Data

### (High Static PSC Motor & Secondary Pump)

All TS Units with High Static PSC Fan Motor							TS (H.S. PSC) Units			TS Units with H.S. PSC Fan Motor and Secondary Pump				
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor		Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	
				QTY	RLA									
TSH/V/D 018	G	208-230/60/1	197/254	1	9.0	48.0	1.1	10.1	12.4	20	0.43	10.5	12.8	20
	E	265/60/1	239/292	1	8.4	40.0	0.9	9.3	11.4	15	N/A	N/A	N/A	N/A
TSH/V/D 024	G	208-230/60/1	197/254	1	12.8	60.0	1.4	14.2	17.4	30	0.43	14.6	17.8	30
	H	208-230/60/3	197/254	1	8.0	55.0	1.4	9.4	11.4	15	0.43	9.8	11.8	15
	F*	460/60/3	414/506	1	4.0	22.4	0.9	4.9	5.9	15	N/A	N/A	N/A	N/A
TSH/V/D 030	G	208-230/60/1	197/254	1	13.5	61.0	1.8	15.3	18.7	30	0.8	16.1	19.5	30
	E	265/60/1	239/292	1	10.9	58.0	2.0	12.9	15.6	25	0.7	13.6	16.3	25
	H	208-230/60/3	197/254	1	8.3	63.0	1.8	10.1	12.2	20	0.8	10.9	13.0	20
	F*	460/60/3	414/506	1	4.5	27.0	1.24	5.7	6.9	15	0.7	6.4	7.6	15
TSH/V/D 036	G	208-230/60/1	197/254	1	14.7	72.5	2.0	16.7	20.4	35	0.8	17.5	21.2	35
	E	265/60/1	239/292	1	12.5	61.0	1.66	14.2	17.3	25	0.7	14.9	18.0	30
	H	208-230/60/3	197/254	1	10.4	63.0	2.0	12.4	15.0	25	0.8	13.2	15.8	25
	F*	460/60/3	414/506	1	4.5	32.0	1.0	5.5	6.6	15	0.7	6.2	7.3	15
TSH/V/D 042	G	208-230/60/1	197/254	1	15.4	83.0	3.0	18.4	22.3	35	0.8	19.2	23.1	35
	H	208-230/60/3	197/254	1	11.5	77.0	3.0	14.5	17.4	25	0.8	15.3	18.2	25
	F*	460/60/3	414/506	1	5.1	35.0	1.7	6.8	8.1	15	0.7	7.5	8.8	15
	N	575/60/3	518/633	1	4.3	31.0	1.4	5.7	6.8	15	N/A	N/A	N/A	N/A
TSH/V/D 048	G	208-230/60/1	197/254	1	20.5	109.0	3.4	23.9	29.0	45	0.8	24.7	29.8	50
	H	208-230/60/3	197/254	1	14.6	91.0	3.4	18.0	21.7	35	0.8	18.8	22.5	35
	F*	460/60/3	414/506	1	7.1	46.0	1.8	8.9	10.7	15	0.7	9.6	11.4	15
	N	575/60/3	518/633	1	5.1	34.1	1.4	6.5	7.8	15	N/A	N/A	N/A	N/A
TSH/V/D 060	G	208-230/60/1	197/254	1	26.9	145.0	5.8	32.7	39.4	60	1.07	33.8	40.5	60
	H	208-230/60/3	197/254	1	17.6	123.0	5.8	23.4	27.8	45	1.07	24.5	28.9	45
	F*	460/60/3	414/506	1	9.6	64.0	2.6	12.2	14.6	20	1.07	13.3	15.7	25
	N	575/60/3	518/633	1	6.1	40.0	2.3	8.4	9.9	15	N/A	N/A	N/A	N/A

\*460V with secondary loop pump requires a neutral wire. Pump is rated 265V and is wired between hot leg and neutral.

## Electrical Data (ECM Motor & Secondary Pump)

All TS Units with ECM Fan Motor							TS Units (ECM)			TS Units with ECM Fan Motor and Secondary Pump				
Model	Voltage Code	Rated Voltage	Voltage Min/Max	Compressor		Fan Motor FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	Pump FLA	Total Unit FLA	Min Circuit Amp	Max Fuse/HACR	
				QTY	RLA									
TSH/V/D 018	G	208-230/60/1	197/254	1	9.0	48.0	4.3	13.3	15.6	20	0.43	13.7	16.0	25
	E	265/60/1	239/292	1	8.4	40.0	4.1	12.5	14.6	20	N/A	N/A	N/A	N/A
TSH/V/D 024	G	208-230/60/1	197/254	1	12.8	60.0	4.3	17.1	20.3	30	0.43	17.5	20.7	30
	H	208-230/60/3	197/254	1	8.0	55.0	4.3	12.3	14.3	20	0.43	12.7	14.7	20
	F	460/60/3	414/506	1	4.0	22.4	4.1	8.1	9.1	15	N/A	N/A	N/A	N/A
TSH/V/D 030	G	208-230/60/1	197/254	1	13.5	61.0	4.3	17.8	21.2	30	0.8	18.6	22.0	35
	E	265/60/1	239/292	1	10.9	58.0	4.1	15.0	17.7	25	0.7	15.7	18.4	25
	H	208-230/60/3	197/254	1	8.3	63.0	4.3	12.6	14.7	20	0.8	13.4	15.5	20
	F*	460/60/3	414/506	1	4.5	27.0	4.1	8.6	9.7	15	0.7	9.3	10.4	15
TSH/V/D 036	G	208-230/60/1	197/254	1	14.7	72.5	4.3	19.0	22.7	35	0.8	19.8	23.5	35
	E	265/60/1	239/292	1	12.5	61.0	4.1	16.6	19.7	30	0.7	17.3	20.4	30
	H	208-230/60/3	197/254	1	10.4	63.0	4.3	14.7	17.3	25	0.8	15.5	18.1	25
	F*	460/60/3	414/506	1	4.5	32.0	4.1	8.6	9.7	15	0.7	9.3	10.4	15
TSH/V/D 042	G	208-230/60/1	197/254	1	15.4	83.0	4.3	19.7	23.6	35	0.8	20.5	24.4	35
	H	208-230/60/3	197/254	1	11.5	77.0	4.3	15.8	18.7	30	0.8	16.6	19.5	30
	F*	460/60/3	414/506	1	5.1	35.0	4.1	9.2	10.5	15	0.7	9.9	11.2	15
TSH/V/D 048	G	208-230/60/1	197/254	1	20.5	109.0	7.0	27.5	32.6	50	0.8	28.3	33.4	50
	H	208-230/60/3	197/254	1	14.6	91.0	7.0	21.6	25.3	35	0.8	22.4	26.1	40
	F*	460/60/3	414/506	1	7.1	46.0	6.9	14.0	15.8	20	0.7	14.7	16.5	20
TSH/V/D 060	G	208-230/60/1	197/254	1	26.9	145.0	7.0	33.9	40.6	60	1.07	35.0	41.7	60
	H	208-230/60/3	197/254	1	17.6	123.0	7.0	24.6	29.0	45	1.07	25.7	30.1	45
	F*	460/60/3	414/506	1	9.6	64.0	6.9	16.5	18.9	25	1.07	17.6	20.0	25
TSH/V/D 070	G	208-230/60/1	197/254	1	30.1	158.0	7.0	37.1	44.6	70	1.07	38.2	45.7	70
	H	208-230/60/3	197/254	1	20.5	155.0	7.0	27.5	32.6	50	1.07	28.6	33.7	50
	F*	460/60/3	414/506	1	9.6	75.0	6.9	16.5	18.9	25	1.07	17.6	20.0	25

\*460V units with Reheat pump and/or ECM motor require a neutral wire. Pump and/or ECM motor are rated 265V and is wired between hot leg and neutral.

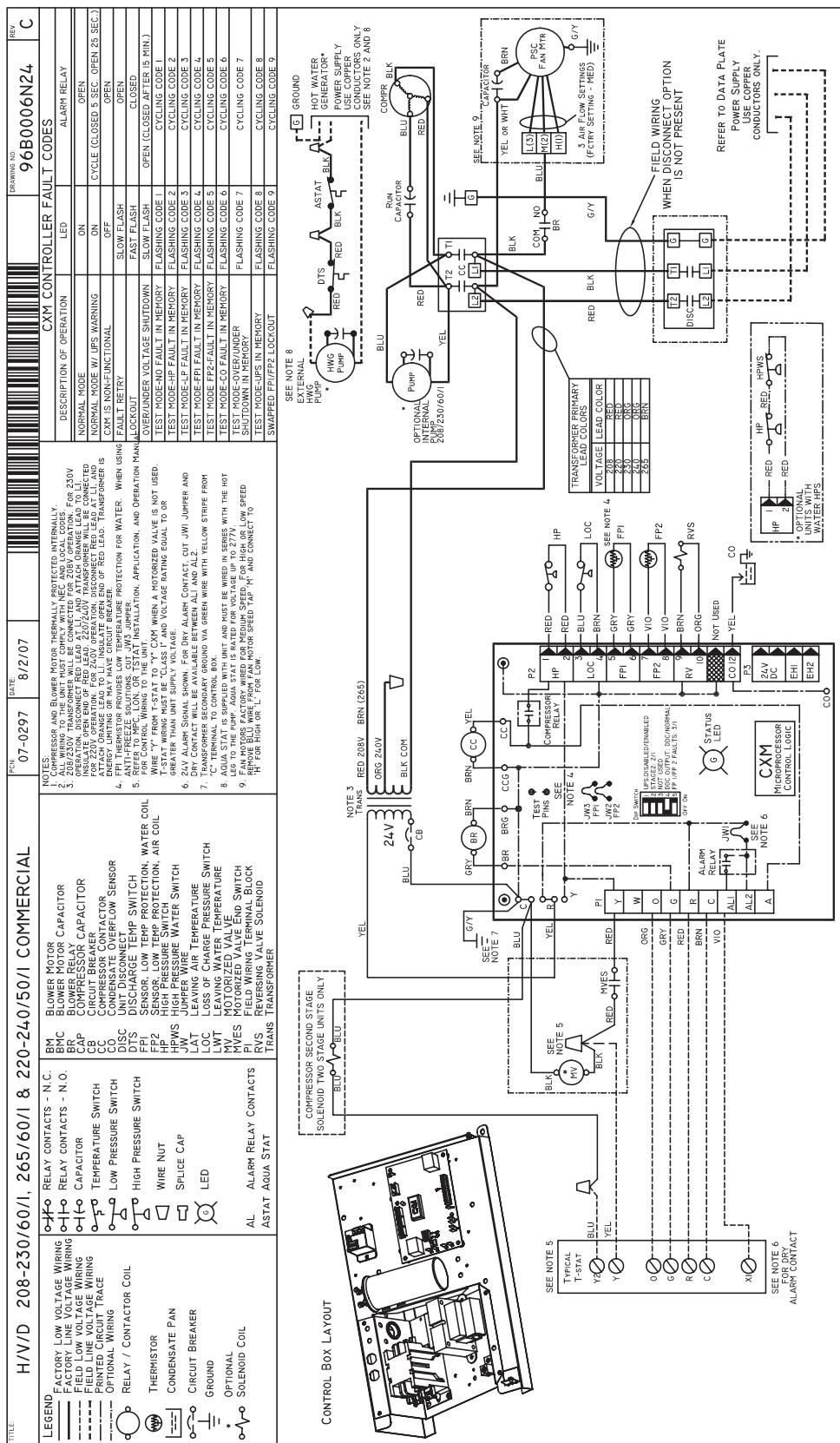
**TS Series Wiring Diagram Matrix**

Only CXM and DXM diagrams, with a representative diagram of LON and MPC Options are presented in this submittal. Other diagrams can be located online at [www.climatemaster.com](http://www.climatemaster.com) using the part numbers presented below.

Model	Refrigerant	Wiring Diagram Part Number	Electrical	Control	DDC	Fan Motor
TS Series Single Phase	EarthPure® HFCR410A	96B0006N18	208-230/60/1, 265/60/1	CXM	-	ECM
		96B0006N16			LON	
		96B0006N14			MPC	
		96B0006N24			-	PSC
		96B0006N22			LON	
		96B0006N20			MPC	
		96B0006N19		DXM	-	ECM
		96B0006N17			LON	
		96B0006N15			MPC	
		96B0038N66			ClimaDry®	
		96B0006N25			-	PSC
		96B0006N23			LON	
		96B0006N21			MPC	
		96B0006N33			ClimaDry®	
TS Series Three Phase (230 Style)	EarthPure® HFCR410A	96B0007N18	208-230/60/3	CXM	-	ECM
		96B0007N16			LON	
		96B0007N14			MPC	
		96B0007N24			-	PSC
		96B0007N22			LON	
		96B0007N20			MPC	
		96B0007N19		DXM	-	ECM
		96B0007N17			LON	
		96B0007N15			MPC	
		96B0007N29			ClimaDry®	
		96B0007N25			-	PSC
		96B0007N23			LON	
		96B0007N21			MPC	
		96B0007N30			ClimaDry®	
TS Series Three Phase (460 Style)	EarthPure® HFCR410A	96B0008N18	460/60/3	CXM	-	ECM
		96B0008N16			LON	
		96B0008N14			MPC	
		96B0008N24			-	PSC
		96B0008N22			LON	
		96B0008N20			MPC	
		96B0008N19		DXM	-	ECM
		96B0008N17			LON	
		96B0008N15			MPC	
		96B0008N25			-	PSC
		96B0008N23			LON	
		96B0008N21			MPC	

All wiring diagrams available at [www.climatemaster.com](http://www.climatemaster.com).

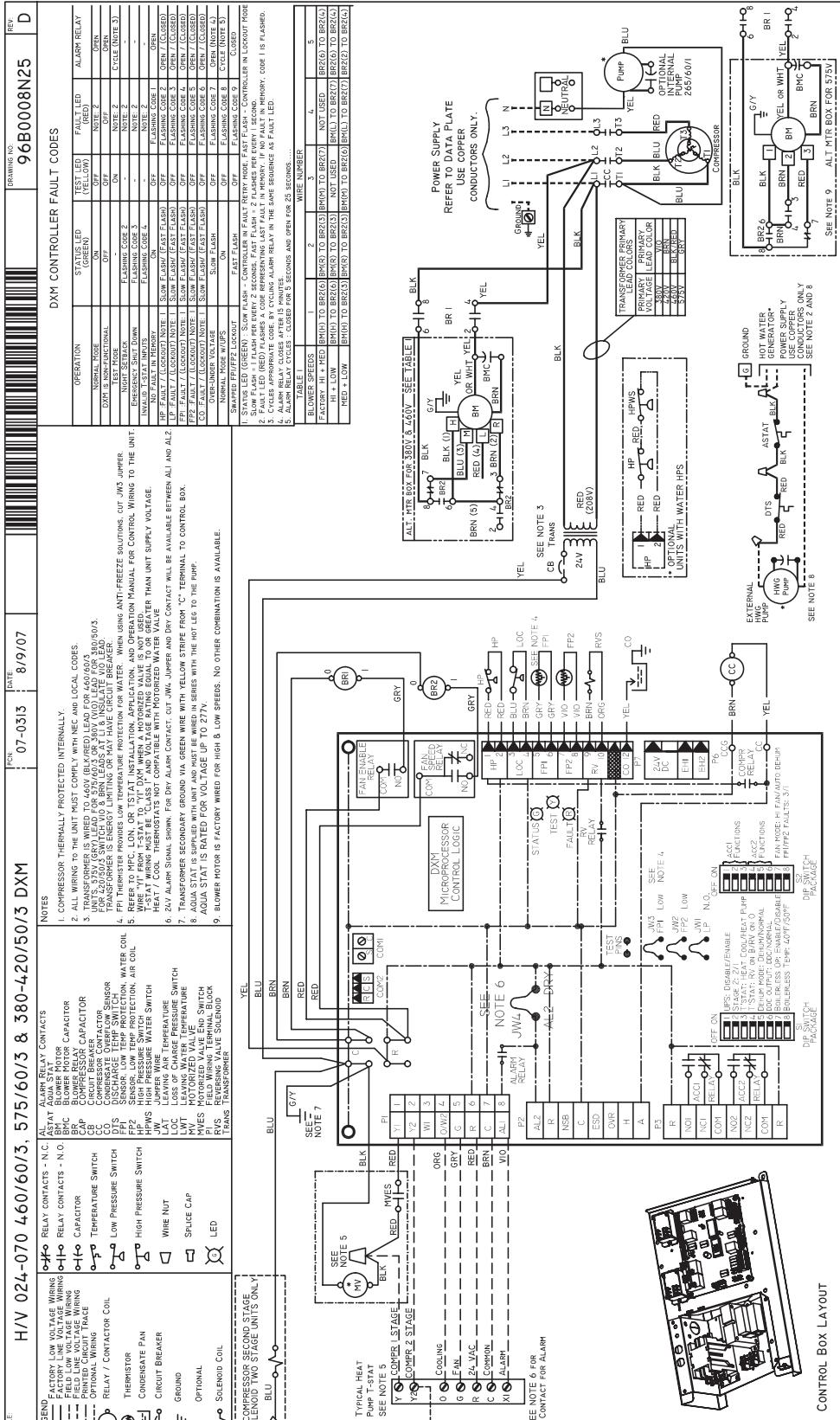
# Typical Wiring Diagram Single Phase TS Units With CXM Controller



# CLIMATEMASTER WATER-SOURCE HEAT PUMPS

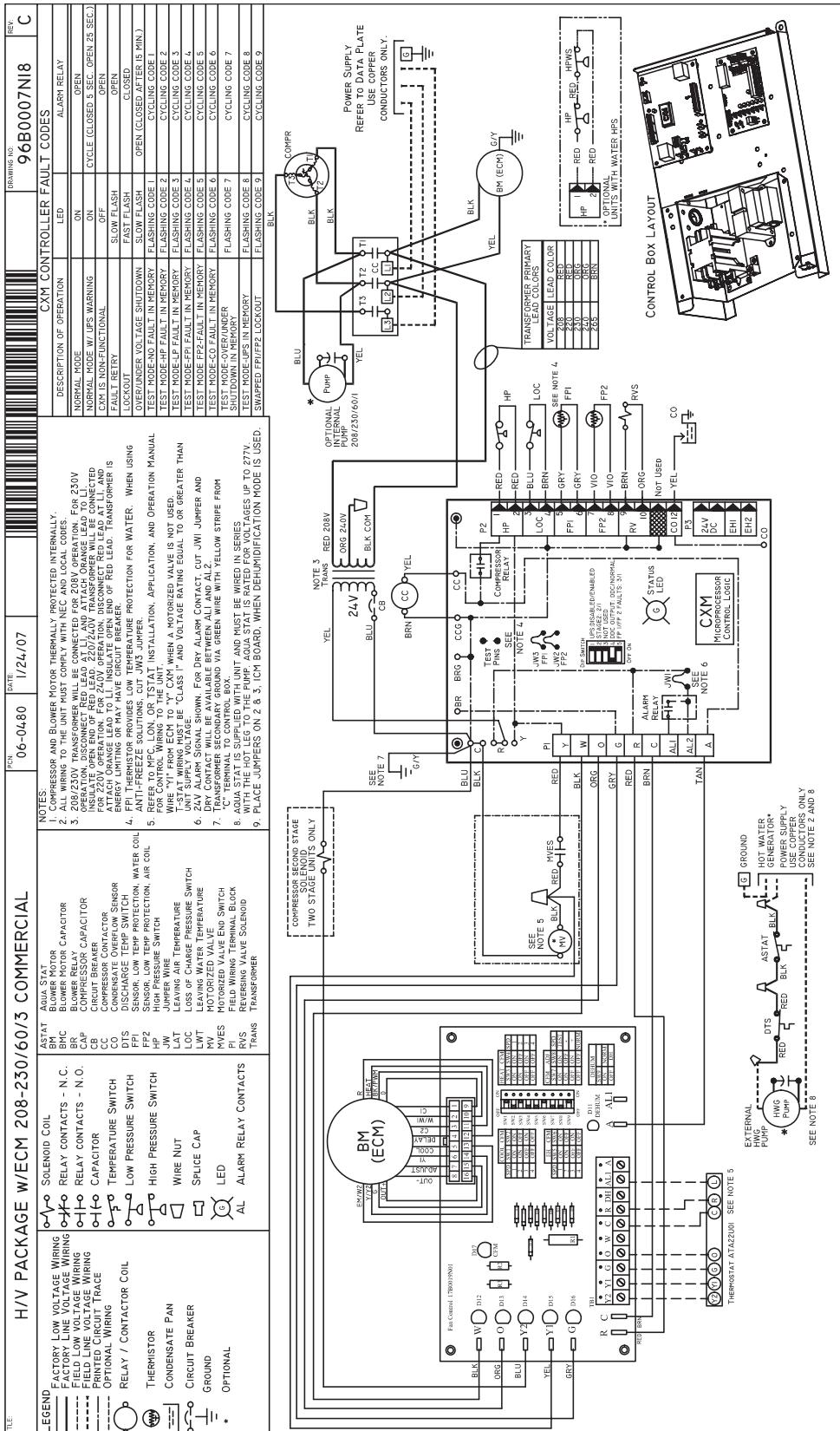
Tranquility 20™ Single-Stage (TS) Series  
Rev.: 09/12/07D

## Typical Wiring Diagram Three Phase TS Units With DXM Controller



## Typical Wiring Diagram Three Phase TS Units Controller and ECM Blower

**Note: 460V Units With  
ECM Motor Require  
A Neutral Wire.**

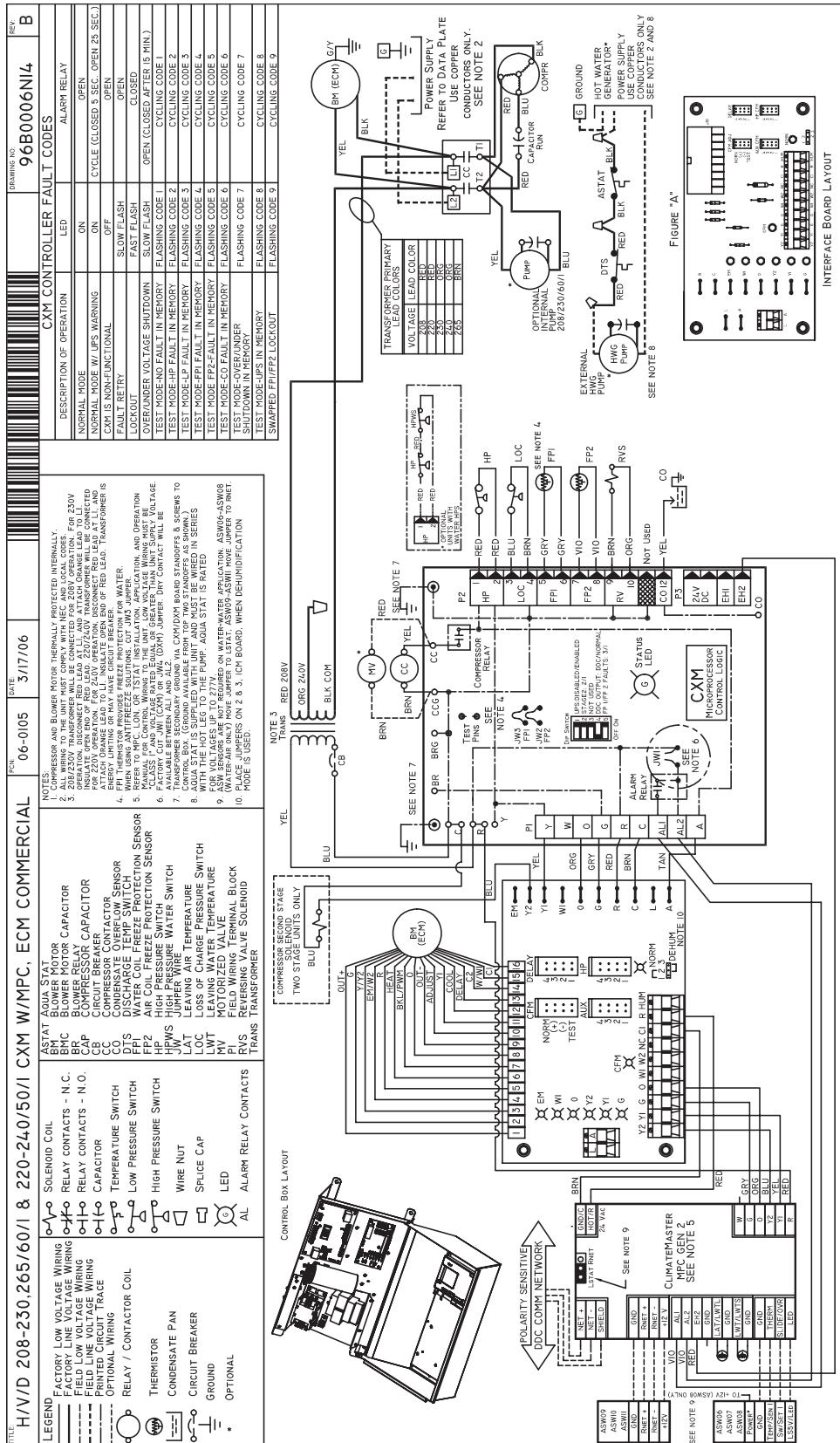


Tranquility 20™ Single-Stage (TS) Series  
Rev.: 09/12/07D

## Typical Wiring Diagram

### Single Phase TS Units

#### With CXM, MPC, and ECM Controller



## Tranquility 20™ (TS) Series 60Hz Engineering Specifications Rev.: 07/05/06

**General:**

Furnish and install ClimateMaster "Tranquility 20TM" Water Source Heat Pumps, as indicated on the plans. Equipment shall be completely assembled, piped and internally wired. Capacities and characteristics as listed in the schedule and the specifications that follow.

**Horizontal / Vertical Water Source Heat Pumps:**

Units shall be supplied completely factory built for an entering water temperature range from 20° to 120°F (-6.7° to 43.3°C) as standard. Equivalent units from other manufacturers can be proposed provided approval to bid is given 10 days prior to bid closing. All equipment listed in this section must be rated and certified in accordance with American Refrigeration Institute / International Standards Organization (ARI / ISO) and Environmental Testing Laboratories for United States and Canada (ETL-US-C). The units shall have ARI / ISO and ETL-US-C labels. All units shall be fully quality tested by factory run testing under normal operating conditions and water flow rates as described herein. Quality control system shall automatically perform via computer: triple leak check, pressure tests, evacuate and accurately charge system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail data base. Detailed report card will ship with each unit displaying all test performance data. Note: If unit fails on any cross check, system shall not be allowed unit to ship. Serial numbers will be recorded by factory and furnished to contractor on report card for ease of unit warranty status. **Units tested without water flow are not acceptable.**

**Basic Construction:**

Horizontal Units shall have one of the following air flow arrangements: Left Inlet/Straight (Right) Discharge; Right Inlet/Straight (Left) Discharge; Left Inlet/Back Discharge; or Right Inlet/Back Discharge as shown on the plans. Units must have the ability to be field convertible from straight to back or back to straight discharge with no additional parts or unit structure modification. Horizontal units will have factory installed hanger brackets with rubber isolation grommets packaged separately.

Vertical Units shall have one of the following air flow arrangements: Left Return/Top Discharge, Right Return/Top Discharge, Left Return/Bottom Discharge, Right Return/Bottom Discharge as shown on the plans.

**If units with these arrangements are not used, the contractor is responsible for any extra costs incurred by other trades.** All units (horizontal and vertical) must have a minimum of three access panels for serviceability of compressor compartment. **Units having only one access panel to compressor/heat exchangers/expansion device/refrigerant piping shall not be acceptable.**

Compressor section interior surfaces shall be lined with 1/2 inch (12.7mm) thick, dual density, 1-3/4 lb/ft<sup>3</sup> (28 kg/m<sup>3</sup>) acoustic type glass fiber insulation. Air handling section interior surfaces shall be lined with 1/2 in (12.7mm) think, single density, 1-3/4 lb/ft<sup>3</sup> (28 kg/m<sup>3</sup>) foil backed fiber insulation for ease of cleaning. Insulation placement shall be designed in a manner that will eliminate any exposed edges to prevent the introduction of glass fibers into the air stream. **Units without foil backed insulation in the air handling section will not be accepted.**

The heat pumps shall be fabricated from heavy gauge galvanized steel with powder coat paint finish. Both sides of the steel shall be painted for added protection.

Standard cabinet panel insulation must meet NFPA 90A requirements, air erosion and mold growth limits of UL-181, stringent fungal resistance test per ASTM-C1071 and ASTM G21, and shall meet zero level bacteria growth per ASTM G22. **Unit insulation must meet these stringent requirements or unit(s) will not be accepted.**

All horizontal units to have factory installed 1" (25.4mm) discharge air duct collars, 1" (25.4mm) filter rails with 1" (25.4mm) filters factory installed, and factory installed unit-mounting brackets. Vertical units to have field installed discharge air duct collar, shipped loose and 1" (25.4mm) filter rails with 1" (25.4mm) filters factory installed. **If units with these factory installed provisions are not used, the contractor is responsible for any extra costs to field install these provisions, and/or the extra costs for his sub-contractor to install these provisions.**

All units must have an insulated panel separating the fan compartment from the compressor compartment. **Units with the compressor in the air stream are not acceptable.** Units shall have a factory installed 1 inch (25.4mm) wide filter bracket for filter removal from either side. Units shall have a 1 inch (25.4mm) thick throwaway type glass fiber filter. The contractor shall purchase one spare set of filters and replace factory shipped filters on completion of start-up. Filters shall be standard sizes. If units utilize non-standard filter sizes then the contractor shall provide 12 spare filters for each unit.

Cabinets shall have separate holes and knockouts for entrance of line voltage and low voltage control wiring. All factory-installed wiring passing through factory knockouts and openings shall be protected from sheet metal edges at openings by plastic ferrules. Supply and return water connections shall be copper IPT fittings, and shall be securely mounted flush to the cabinet corner post

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

allowing for connection to a flexible hose without the use of a back-up wrench. **Water connections that protrude through the cabinet or require the use of a backup wrench shall not be allowed.** All water connections and electrical knockouts must be in the compressor compartment corner post as to not interfere with the serviceability of unit. **Contractor shall be responsible for any extra costs involved in the installation of units that do not have this feature.** Contractor must ensure that units can be easily removed for servicing and coordinate locations of electrical conduit and lights with the electrical contractor.

**Option:** Contractor shall install 2-inch (50.8mm) filter racks with removable access door and 2 inch (50.8mm) MERV11 pleated throwaway filters on all units.

**Option:** UltraQuiet package shall consist of high technology sound attenuating material that is strategically applied to the compressor and air handling compartment casings and fan scroll in addition to the standard ClimaQuiet system design, to further dampen and attenuate sound transmissions.

**Option:** The unit will be supplied with cupro nickel coaxial water to refrigerant heat exchanger.

**Option:** The unit will be supplied with internally factory mounted two-way water valve for variable speed pumping requirements. A factory-mounted or field-installed high pressure switch shall be installed in the water piping to disable compressor operation in the event water pressures build due to water freezing in the piping system.

**Option:** The unit will be supplied with internally factory mounted automatic water flow regulators.

**Option:** The unit will be supplied with internally mounted secondary pump for primary/secondary applications, specifically one-pipe systems.

**Option:** The unit shall be supplied with extended range Insulation option, which adds closed cell insulation to internal water lines, and provides insulation on suction side refrigeration tubing including refrigerant to water heat exchanger.

**Option:** The unit shall be supplied with a hot water generator (desuperheater).

**Option:** The refrigerant to air heat exchanger shall be "electro-coated" with a low cure cathodic epoxy material a minimum of 0.4 mils thick (0.4 – 1.5 mils range) on all surfaces. The black colored coating shall provide a minimum of 1000 hours salt spray protection per ASTM B117-97 on all galvanized end plates and copper tubing, and a minimum of 2000 hours of salt spray on all aluminum fins. The material shall be formulated without the inclusion of any heavy metals and shall exhibit a pencil hardness of 2H (ASTM D3363-92A), crosshatch adhesion of 4B-5B (ASTM D3359-95), and impact resistance of 160 in-lbs (184 kg-cm) direct (ASTM D2794-93).

**Option:** Unit shall include ClimaDry reheat option. Only modulating reheat that will adjust capacity based upon supply air temperature to provide "neutral" (72°F, 22.2°C) constant air temperature will be accepted. "Neutral" supply air temperature shall be provided regardless of entering loop water temperatures (above 55°F, 12.8°C) or refrigerant condensing pressures. Control of reheat must be accomplished via a humidistat or dehumidistat contact closure. Refrigerant circuit must be ARI certified. Approved equal manufacturers may provide pre-engineered integrated modulating hot gas reheat within the unit cabinet, or the installing contractor in conjunction with the "approved equal" unit manufacturer can provide for approval (during the submittal phase) an engineered system consisting of: a duct mounted hot water coil, small circulating pump, modulating control valve, and associated piping using the discharge condenser water off of the unit as the heating medium. All design costs and costs of field installed items including additional power wiring to pump, and control wiring to and from pump and control valve to unit shall be borne by mechanical contractor. **Refrigerant circuits that are not ARI certified when the reheat option is applied will not be accepted.**

**Fan and Motor Assembly:**

Blower shall have inlet rings to allow removal of wheel and motor from one side without removing housing. Units shall have a direct-drive centrifugal fan. The fan motor shall be 3-speed (2-speed for 575V), permanently lubricated, PSC type, with internal thermal overload protection. Units supplied without permanently lubricated motors must provide external oilers for easy service. The fan motor on small and medium size units (018-048) shall be isolated from the fan housing by a torsionally flexible motor mounting system with rubber type grommets to inhibit vibration induced high noise levels associated with "hard wire belly band" motor mounting. The fan motor on larger units (060 & 070) shall be isolated with flexible rubber type isolation grommets only. The fan and motor assembly must be capable of overcoming the external static pressures as shown on the schedule. Airflow / Static pressure rating of the unit shall be based on a dry coil and a clean filter in place. **Ratings without filter, or on an ESP less than 0.25 in w.g. (6.35 mm w.g.) shall NOT be acceptable.**

**Option:** The fan motor shall be an ECM2 variable speed ball bearing type motor. The ECM2 fan motor shall provide soft starting, maintain constant CFM over its static operating range and provide airflow adjustment on its control board. The fan motor shall be isolated from the housing by rubber grommets. The motor shall be permanently lubricated and have thermal

overload protection. A special dehumidification mode shall be provided to allow lower airflows in cooling for better dehumidification. The dehumidification mode shall be selectable via a jumper on the control board or may be controlled externally from a humidistat.

#### **Refrigerant Circuit:**

All units shall contain an EarthPure® (HFC 410A) sealed refrigerant circuit including a high efficiency scroll or rotary compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, an enhanced corrugated aluminum lanced fin and rifled copper tube refrigerant to air heat exchanger, reversing valve, coaxial (tube in tube) refrigerant to water heat exchanger, and safety controls including a high pressure switch, low pressure switch (loss of charge), water coil low temperature sensor, and air coil low temperature sensor. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service. Activation of any safety device shall prevent compressor operation via a microprocessor lockout circuit. The lockout circuit shall be reset at the thermostat or at the contractor supplied disconnect switch. **Units that cannot be reset at the thermostat shall not be acceptable.**

Hermetic compressors shall be internally sprung. The compressor shall have a dual level vibration isolation system. The compressor will be mounted on computer selected vibration isolation springs to a large heavy gauge compressor mounting tray plate, which is then isolated from the cabinet base with rubber grommets for maximized vibration attenuation. All units (except units with rotary compressors) shall include a discharge muffler to further enhance sound attenuation. Compressor shall have thermal overload protection. Compressor shall be located in an insulated compartment away from air stream to minimize sound transmission.

Refrigerant to air heat exchangers shall utilize enhanced corrugated lanced aluminum fins and rifled copper tube construction rated to withstand 625 PSIG (3101 kPa) refrigerant working pressure. Refrigerant to water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 625 PSIG (3101 kPa) working refrigerant pressure and 500 PSIG (3101 kPa) working water pressure. The refrigerant to water heat exchanger shall be "electro-coated" with a low cure cathodic epoxy material a minimum of 0.4 mils thick (0.4 – 1.5 mils range) on all surfaces. The black colored coating shall provide a minimum of 1000 hours salt spray protection per ASTM B117-97 on all external steel and copper tubing. The material shall be formulated without the inclusion of any heavy metals and shall exhibit a pencil hardness of 2H (ASTM D3363-92A), crosshatch adhesion of 4B-5B (ASTM D3359-95), and impact resistance of 160 in-lbs (184 kg-cm) direct (ASTM D2794-93).

Refrigerant metering shall be accomplished by thermostatic expansion valve only. Expansion valves shall be dual port balanced types with external equalizer for optimum refrigerant metering. Units shall be designed and tested for operating ranges of entering water temperatures from 20° to 120°F (-6.7° to 43.3°C). Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function. If the reversing valve solenoid defaults to cooling mode, an additional low temperature thermostat must be provided to prevent over-cooling an already cold room.

#### **Drain Pan:**

The drain pan shall be constructed of 304 Stainless Steel to inhibit corrosion. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. If plastic type material is used, it must be HDPE (High Density Polyethylene) to avoid thermal cycling shock stress failure over the lifetime of the unit. Drain pan shall be fully insulated. Drain outlet shall be located at pan as to allow complete and unobstructed drainage of condensate. Drain outlet for horizontal units shall be connected from pan directly to IPT fitting. **No hidden internal tubing extensions from pan outlet extending to unit casing (that can create drainage problems) will be accepted.** The unit as standard will be supplied with solid-state electronic condensate overflow protection. **Mechanical float switches will NOT be accepted.**

Vertical units shall be furnished with a PVC slip condensate drain connection and an internal factory installed condensate trap. **If units without an internal trap are used, the contractor is responsible for any extra costs to field install these provisions, and/or the extra costs for his sub-contractor to install these provisions.**

#### **Electrical:**

A control box shall be located within the unit compressor compartment and shall contain a 50VA transformer, 24 volt activated, 2 or 3 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation. Reversing valve and fan motor wiring shall be routed through this electronic controller. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 Volt and provide heating or cooling as required by the remote thermostat / sensor.

#### **Solid State Control System (CXM):**

Units shall have a solid-state control system. **Units utilizing electro-mechanical control shall not be acceptable.** The control system microprocessor board shall be specifically designed to protect against building electrical system noise contamination, EMI, and RFI interference. The control system shall interface with a heat pump type thermostat. The control system shall have the following features:

- a. Anti-short cycle time delay on compressor operation.
- b. Random start on power up mode.
- c. Low voltage protection.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

- d. High voltage protection.
- e. Unit shutdown on high or low refrigerant pressures.
- f. Unit shutdown on low water temperature.
- g. Condensate overflow electronic protection.
- h. Option to reset unit at thermostat or disconnect.
- i. Automatic intelligent reset. Unit shall automatically reset the unit 5 minutes after trip if the fault has cleared. If a fault occurs 3 times sequentially without thermostat meeting temperature, then lockout requiring manual reset will occur.
- j. Ability to defeat time delays for servicing.
- k. Light emitting diode (LED) on circuit board to indicate high pressure, low pressure, low voltage, high voltage, low water/air temperature cut-out, condensate overflow, and control voltage status.
- l. The low-pressure switch shall not be monitored for the first 120 seconds after a compressor start command to prevent nuisance safety trips.
- m. 24V output to cycle a motorized water valve or other device with compressor contactor.
- n. Unit Performance Sentinel (UPS). The UPS warns when the heat pump is running inefficiently.
- o. Water coil low temperature sensing (selectable for water or anti-freeze).
- p. Air coil low temperature sensing.

**NOTE: Units not providing the 8 safety protections of anti-short cycle, low voltage, high voltage, high refrigerant pressure, low pressure (loss of charge), air coil low temperature cut-out, water coil low temperature cut-out, and condensate overflow protections will not be accepted.**

**Solid State ECM2 Fan Control Board (Units with ECM Fan Option Only):**

Airflow selection shall be accomplished via 3 jumper switches on the ECM2 control board. Actual airflow shall be indicated by the CFM LED with each 100 CFM being represented by one flash of the LED. Airflow shall be automatically maintained ( $\pm 5\%$ ) by the ECM2 motor regardless of external static pressure up to its maximum output capacity. A jumper shall allow selection of a special dehumidification mode, which reduces airflow in cooling by 25% to increase the latent capacity of the unit. A terminal shall be provided on the control board to allow an external humidistat to activate dehumidification mode.

Note: To achieve full benefit of the two-stage compressor and ECM2 fan, a 2 Heat / 2 Cool thermostat (or a 3 Heat / 2 Cool thermostat when electric backup heat is required) should be employed.

**Option: Enhanced solid state control system (DXM)**

This control system features two stage control of cooling and two stage control of heating modes for exacting temperature and dehumidification purposes.

This control system coupled with a multi-stage thermostat will better dehumidify room air by automatically running the heat pump's fan at lower speed on the first stage of cooling thereby implementing low sensible heat ratio cooling. On the need for higher cooling performance the system will activate the second stage of cooling and automatically switch the fan to the higher fan speed setting. This system may be further enhanced with a humidistat. **Units not having automatic low sensible heat ratio cooling will not be accepted;** as an alternate a hot gas reheat coil may be provided with control system for automatic activation.

Control shall have all of the above mentioned features of the CXM control system along with the following expanded features:

- a. Removable thermostat connector.
- b. Night setback control.
- c. Random start on return from night setback.
- d. Minimized reversing valve operation (Unit control logic shall only switch the reversing valve when cooling is demanded for the first time. The reversing valve shall be held in this position until the first call for heating, ensuring quiet operation and increased valve life.).
- e. Override temperature control with 2-hour (adjustable) timer for room occupant to override setback temperature at the thermostat.
- f. Dry contact night setback output for digital night setback thermostats.
- g. Ability to work with heat pump or heat/cool (Y, W) type thermostats.
- h. Ability to work with heat pump thermostats using O or B reversing valve control.
- i. Emergency shutdown contacts.
- j. Boilerless system heat control at low loop water temperature.
- k. Ability to allow up to 3 units to be controlled by one thermostat.
- l. Relay to operate an external damper.
- m. Ability to automatically change fan speed from multistage thermostat.
- n. Relay to start system pump.
- o. 75 VA control transformer. Control transformer shall have load side short circuit and overload protection via a built in circuit breaker.

**Remote Service Sentinel (CXM/DXM):**

Solid state control system shall communicate with thermostat to display (at the thermostat) the unit status, fault status, and specific fault condition, as well as retrieve previously stored fault that caused unit shutdown. The Remote Service Sentinel allows building maintenance personnel or service personnel to diagnose unit from the wall thermostat. The control board shall provide a signal to the thermostat fault light, indicating a lockout. Upon cycling the G (fan) input 3 times within a 60 second time period, the fault light shall display the specific code as indicated by a sequence of flashes. A detailed flashing code shall be provided at the thermostat LED to display unit status and specific fault status such as over/under voltage fault, high pressure fault, low pressure fault, low water temperature fault, condensate overflow fault, etc. **Units that do not provide this remote service sentinel shall not be acceptable.**

**Option: Lonworks interface system**

Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a LONWORKS interface board, which is LONMark certified. This will permit all units to be daisy chained via a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

- a. Space temperature
- b. Leaving water temperature
- c. Discharge air temperature
- d. Command of space temperature setpoint
- e. Cooling status
- f. Heating status
- g. Low temperature sensor alarm
- h. Low pressure sensor alarm
- i. High pressure switch alarm
- j. Condensate sensor alarm
- k. Hi/low voltage alarm
- l. Fan "ON/AUTO" position of space thermostat as specified above
- m. Unoccupied / occupied command
- n. Cooling command
- o. Heating command
- p. Fan "ON / AUTO" command
- q. Fault reset command
- r. Itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

**Option: MPC (Multiple Protocol Control) interface system**

Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a Multiple Protocol interface board. Available protocols are BACnet MS/TP, Modbus, or Johnson Controls N2. The choice of protocol shall be field selectable/changeable via the use of a simple selector switch. Protocol selection shall not require any additional programming or special external hardware or software tools. This will permit all units to be daisy chain connected by a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

- a. Space temperature
- b. Leaving water temperature
- c. Discharge air temperature
- d. Command of space temperature setpoint
- e. Cooling status
- f. Heating status
- g. Low temperature sensor alarm
- h. Low pressure sensor alarm
- i. High pressure switch alarm
- j. Condensate overflow alarm
- k. Hi/low voltage alarm
- l. Fan "ON/AUTO" position of space thermostat as specified above
- m. Unoccupied / occupied command
- n. Cooling command
- o. Heating command
- p. Fan "ON / AUTO" command
- q. Fault reset command
- r. Itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D

**Warranty:**

Climate Master shall warranty equipment for a period of 12 months from start up or 18 months from shipping (which ever occurs first).

*Option: Extended 4-year compressor warranty covers compressor for a total of 5 years.*

*Option: Extended 4-year refrigeration circuit warranty covers coils, reversing valve, expansion valve and compressor for a total of 5 years.*

*Option: Extended 4-year control board warranty covers the CXM/DXM control board for a total of 5 years.*

**FIELD INSTALLED OPTIONS****Hose Kits:**

All units 120000 BTUH (35 kW) and below shall be connected with hoses. The hoses shall be 2 feet (61cm) long, braided stainless steel; fire rated hoses complete with adapters. Only fire rated hoses will be accepted.

**Valves:**

The following valves are available and will be shipped loose:

- a. Ball valve; bronze material, standard port full flow design, IPT connections.
- b. Ball valve with memory stop and PT Port; standard port full flow design, IPT connections.
- c. "Y" strainer with cap; bronze material, IPT connections.
- d. "Y" strainer with blowdown valve; bronze material, IPT connections.
- e. Motorized water valve; slow acting, 24v, IPT connections.

**Hose Kit Assemblies:**

The following assemblies ship with the valves already assembled to the hose described:

- a. Supply and return hoses having ball valve with PT port.
- b. Supply hose having ball valve with PT port; return hose having automatic flow regulator valve (Measureflo) with PT ports, and ball valve.
- c. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having automatic flow regulator (Measureflo) with PT ports, and ball valve.

**Thermostats:**

The thermostat shall be a ClimateMaster mechanical or electronic type thermostat as selected below with the described features:

- a. Single Stage Standard Manual Changeover (ATM11C01)

Thermostat shall be a single-stage, vertical mount, manual changeover with HEAT-OFF-COOL system switch and fan ON-AUTO switch. Thermostat shall have a mechanical temperature indicator and set point indication. Thermostat shall only require 4 wires for connection. Mercury bulb thermostats are not acceptable.

- b. Single Stage Digital Manual Changeover with Two-Speed Fan Control (ATM11C03) – DXM and PSC Fan required  
Thermostat shall be a single-stage, digital, manual changeover with HEAT-OFF-COOL system switch, fan ON-AUTO switch, and fan LO-HI switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. The Thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall come standard with remote temperature sensor, but may be operated with internal sensor if desired via installation of a jumper.

- c. Single Stage Digital Auto or Manual Changeover (ATA11U01)

Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch and fan ON-AUTO switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. The Thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall provide temperature display offset for custom applications.

- d. Single Stage Digital Automatic Changeover with Two-Speed Fan Control (ATA11C04) – DXM and PSC Fan required  
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch, fan ON-AUTO switch, and fan LO-HI switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. The Thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall come standard with remote temperature sensor, but may be operated with internal sensor if desired via installation of a jumper.

- e. Multistage Digital Automatic Changeover (ATA22U01)

Thermostat shall be multi-stage (2H/2C), manual or automatic changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to indicate specific fault condition(s). Thermostat shall provide temperature display offset for custom applications. Thermostat shall allow unit to provide better dehumidification with optional DXM

controller by automatically using lower fan speed on stage 1 cooling (higher latent cooling) as main cooling mode, and automatically shifting to high speed fan on stage 2 cooling.

f. Single Stage Manual Changeover Programmable 5/2 Day (ATP11N01)

Thermostat shall be 5 day/2 day programmable (with up to 4 set points per day), single stage (1H/1C), manual changeover with HEAT-OFF-COOL system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. Thermostat shall provide convenient override feature to temporarily change set point.

g. Multistage Automatic or Manual Changeover Programmable 5/2 Day (ATP21U01)

Thermostat shall be 5 day/2 day programmable (with up to 4 set points per day), multi-stage (2H/1C), automatic or manual changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. Thermostat shall provide convenient override feature to temporarily change set point.

h. Multistage Automatic or Manual Changeover Programmable 7 Day (ATP32U01)

Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Thermostat shall have a blue backlit dot matrix LCD display with temperature, set-points, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM or DXM controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of set-points without batteries. Thermostat shall provide heating set-point range limit, cooling set-point range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.

i. Multistage Automatic or Manual Changeover Programmable 7 Day with Humidity Control (ATP32U02)

Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Separate dehumidification and humidification set points shall be configurable for discreet outputs to a dehumidification option and/or an external humidifier. Installer configuration mode shall allow thermostat dehumidification mode to operate with ClimaDry reheat or with ECM fan dehumidification mode via settings changes. Thermostat shall have a blue backlit dot matrix LCD display with temperature, relative humidity, set-points, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM or DXM controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of set-points without batteries. Thermostat shall provide heating set-point range limit, cooling set-point range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.

**DDC Sensors:**

ClimateMaster wall mounted DDC sensor to monitor room temperature and interfaces with optional interface system described above. Several types as described below:

- a. Sensor only with no display (LON and MPC).
- b. Sensor with override (LON only).
- c. Sensor with setpoint and adjustment override (MPC only).
- d. Sensor with setpoint and adjustment override, LCD display, status/fault indication (LON and MPC).

## Section Change Log

Date:	Item:	Action:
09/12/07	All	Updated for Sizes 006, 009, 012
05/23/07	All	Updated for Size 018 revision B
01/01/07	Dimensional Data	Updated Dimensional Data
01/01/07	Specifications	Updated thermostat offering
01/01/07	Wiring Diagrams	Added pressure switch for motorized valve option
01/01/07	Electrical Data	Added secondary pump data, updated ClimaDry data, various formatting changes
01/01/07	ECM Blower Performance	Updated CFM data
01/01/07	Performance Data	Added low temperature selection notes
01/01/07	Motorized Valves	Added Cv, MOPD, and WPD data
01/01/06	First Published	

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Tranquility 20™ Single-Stage (TS) Series  
Rev.: 09/12/07D

**Notes:**

# CLIMATEMASTER WATER-SOURCE HEAT PUMPS

## Tranquility 20™ Single-Stage (TS) Series

Rev.: 09/12/07D