Tranquility® 20 High Efficiency (TS) Series

Submittal Data

Models TSD/H/V 006 - 070 60Hz - HFC-410A

LC377

Rev.: September 20, 2017

CLIMATEMASTER®
Water-Source Heat Pump Systems

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TS High Efficiency Series

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 specially engineered sound tested EPDM grommets 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, 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 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
- 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, coated air coils and internal pumps

Reference Calculations

Heating

$$LWT = EWT - \frac{HE}{GPM \times 500}$$

$$LAT = EAT + \frac{HC}{CFM \times 1.08}$$

Cooling

$$LWT = EWT + \frac{HR}{GPM \times 500}$$

$$LAT\ (DB) = EAT\ (DB) - \frac{SC}{CFM \times 1.08}$$

$$LC = TC - SC$$

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

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
MPT = male 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
FPT = female 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 & ft. of hd.)

Conversion Table - to convert inch-pound (English) to S-I (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

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.

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

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.

TS Series Nomenclature

1 2	3	4 5 6	7	8	9	10	11	12	13	14	15
TS	V	024	C	G	C	3	0	C	L	T	S

Model Type
TS = Tranquility® 20
Single Stage Scroll
(Rotary: Size 006-012)

Configuration
V = Vertical Upflow
H = Horizonta
D = Vertical Downflow

Unit Size
006 - E,G
009 - E,G
012 - E,G
018 - E,G
024 - E,F,G,H
030 - E,F,G,H
036 - E,F,G,H
042 - E,F,G,H,N
048 - E,F,G,H,N
060 - E,F,G,H,N
070 - F,G,H,N

AVAILABLE VOLTAGES

Revision Level
A = Current Revision Sizes 006-012
B = Current Revision Sizes 018
C = Current Revision Sizes 024-070

Voltage
G = 208/230/60/1
E = 265/60/1
H = 208/230/60/3
F = 460/60/3
N = 575/60/3

Controls

Control	w/o Disconnect	w/ Disconnect
CXM	C	A
DXM	D	B
CXM w/LON	L	E
DXM w/LON	M	K
CXM w/MPC	N	R
DXM w/MPC	P	S

Cabinet

OPTION	RANGE	ULTRA QUIET	1" FILTER RAIL	2" FILTER RAIL	1" FILTER FRAME	2" FILTER FRAME
1	EXTENDED RANGE	NO	YES	NO		
A			NO			YES
J			NO	YES	NO	
K			NO		YES	NO
2		YES	YES	NO		
C			NO			YES
L			NO	YES	NO	
M			NO		YES	NO
3	STANDARD RANGE	NO	YES	NO		
E			NO			YES
N			NO	YES	NO	
P			NO		YES	NO
4		YES	YES	NO		
G			NO			YES
R			NO	YES	NO	
S			NO		YES	NO

Water Circuit Options
0 = None
2 = HWG (Coil Only)
5 = Secondary Circulating Pump
6 = HWG (Coil Only) w/Auto Flow Regulator 2.5 GPM/Ton
7 = HWG (Coil Only) w/Auto Flow Regulator 3.0 GPM/Ton
8 = Auto Flow Regulator 2.5 GPM/Ton
9 = Auto Flow Regulator 3.0 GPM/Ton

Heat Exchanger Options

	Non Coated Air Coil		Tin Plated Air Coil / Microchannel Air Coil*	
	Copper	Cupro-Nickel	Copper	Cupro-Nickel
Standard	C	N	A	J
ClimaDry® Reheat	E	P	D	F
Motorized Valve	T	S	U	W

ClimaDry® reheat coil not coated
*Microchannel On Sizes 024-048

Return Air
L = Left Return
R = Right Return

Supply Air & Motor Option

Option	Supply	Configuration	Motor
T	Top	TSV	PSC
D	Down	TSD	PSC
B	Back	TSH	PSC
S	Straight	TSH	PSC
*V	Top	TSV	PSC Hi Static
*U	Down	TSD	PSC Hi Static
*Y	Back	TSH	PSC Hi Static
*Z	Straight	TSH	PSC Hi Static
*K	Top	TSV	ECM
*N	Down	TSD	ECM
*P	Back	TSH	ECM
*W	Straight	TSH	ECM

* N/A for Sizes 006-012

Standard
S = Standard

ClimaDry® II Option Notes:

1. Unit must have DXM control option. 460 volt unit units require a four wire power supply with neutral.
2. ClimaDry® II may not be combined with motorized water valve, internal secondary circulating pump, or automatic flow regulator options.
3. Unit minimum entering air temperature while in the dehumidification, cooling, or continuous fan modes is **65ºF DB/55ºF WB**. Operation below this minimum may result in nuisance faults.
4. A thermostat with dehumidification mode or thermostat and separate humidistat/dehumidistat is required for activation and control of ClimaDry® II.
5. Downflow and 575 volt units are not eligible for ClimaDry® II

ASHRAE/AHRI/ISO 13256-1. English (I-P) 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	18,600	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	23,800	16.9	30,800	5.9	26,500	26.4	24,100	5.0	25,300	18.9	19,200	4.0
	ECM	23,900	17.9	30,400	6.1	26,900	28.5	23,800	5.2	25,500	20.9	19,100	4.2
TSH/V/D 030	PSC	28,000	16.3	35,500	5.5	31,000	24.9	28,400	4.7	29,200	18.5	22,200	3.9
	ECM	28,000	17.3	35,100	5.8	30,800	26.7	28,000	4.9	29,200	19.4	22,000	4.1
TSH/V/D 036	PSC	33,400	17.0	40,400	5.6	35,400	23.2	33,200	4.7	34,300	19.2	25,900	4.1
	ECM	33,500	18.1	39,900	5.9	35,400	24.9	32,600	4.9	34,600	20.4	25,600	4.3
TSH/V/D 042	PSC	38,500	17.2	46,300	5.6	43,700	25.4	36,200	4.7	40,100	19.4	28,700	3.8
	ECM	39,400	19.6	45,100	6.0	44,400	29.5	35,200	5.2	40,700	21.9	27,400	4.1
TSH/V/D 048	PSC	47,100	14.8	58,000	4.7	53,600	21.3	47,500	4.0	49,600	16.8	36,600	3.4
	ECM	48,900	17.2	57,700	5.2	53,700	23.9	45,700	4.4	50,600	18.8	36,100	3.7
TSH/V/D 060	PSC	62,400	15.9	73,900	5.0	68,500	23.1	58,200	4.2	63,900	17.2	46,900	3.7
	ECM	63,200	17.2	73,200	5.4	68,900	24.9	58,200	4.6	64,400	18.4	46,400	3.9
TSH/V/D 070	PSC	71,000	14.6	82,100	4.6	78,000	21.1	66,100	4.0	72,900	16.2	53,800	3.4
	ECM	71,100	15.7	82,000	4.8	78,100	23.0	65,200	4.1	73,000	17.2	53,000	3.6

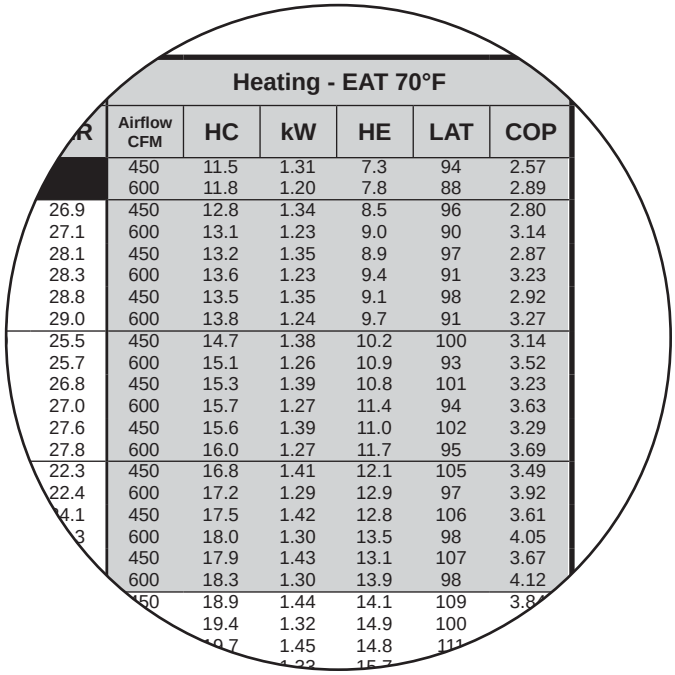
Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature
Heating capacities based upon 68°F DB, 59°F WB entering air temperature
All ratings based upon operation at lower voltage of dual voltage rated models

ASHRAE/AHRI/ISO 13256-1. Metric (S-I) 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 kW	EER W/W	Capacity kW	COP	Capacity kW	EER Watts	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP
TSH/V006	PSC	1.85	4.6	2.34	5.4	2.17	7.5	1.85	4.4	1.96	5.4	1.41	3.4
TSH/V009	PSC	2.74	4.5	3.26	4.8	3.26	7.4	2.76	4.3	2.94	5.3	2.09	3.4
TSH/V012	PSC	3.43	4.5	4.05	4.5	3.90	7.2	3.46	4.0	3.60	5.3	2.78	3.5
TSH/V/D 018	PSC	5.47	4.4	6.76	5.2	6.26	7.3	5.45	4.5	5.74	5.4	4.27	3.6
	ECM	5.65	4.8	6.85	5.9	6.50	7.7	5.56	4.9	5.94	5.7	4.43	3.9
TSH/V/D 024	PSC	6.98	4.9	9.03	5.9	7.77	7.7	7.06	5.0	7.42	5.5	5.63	4.0
	ECM	7.00	5.2	8.91	6.1	7.88	8.4	6.98	5.2	7.47	6.1	5.60	4.2
TSH/V/D 030	PSC	8.21	4.8	10.40	5.5	9.09	7.3	8.32	4.7	8.56	5.4	6.51	3.9
	ECM	8.21	5.1	10.29	5.8	9.03	7.8	8.21	4.9	8.56	5.7	6.45	4.1
TSH/V/D 036	PSC	9.79	5.0	11.84	5.6	10.38	6.8	9.73	4.7	10.05	5.6	7.59	4.1
	ECM	9.82	5.3	11.69	5.9	10.38	7.3	9.55	4.9	10.14	6.0	7.50	4.3
TSH/V/D 042	PSC	11.28	5.0	13.57	5.6	12.81	7.4	10.61	4.7	11.75	5.7	8.41	3.8
	ECM	11.55	5.7	13.22	6.0	13.01	8.6	10.32	5.2	11.93	6.4	8.03	4.1
TSH/V/D 048	PSC	13.80	4.3	17.00	4.7	15.71	6.2	13.92	4.0	14.54	4.9	10.73	3.4
	ECM	14.33	5.1	16.91	5.2	15.74	7.0	13.39	4.4	14.83	5.5	10.58	3.7
TSH/V/D 060	PSC	18.29	4.7	21.66	5.0	20.08	6.8	17.06	4.2	18.73	5.0	13.75	3.7
	ECM	18.52	5.0	21.45	5.4	20.19	7.3	17.06	4.6	18.87	5.4	13.60	3.9
TSH/V/D 070	PSC	20.81	4.3	24.06	4.6	22.86	6.2	19.37	4.0	21.37	4.8	15.77	3.4
	ECM	20.84	4.6	24.03	4.8	22.89	6.7	19.10	4.1	21.40	5.0	15.53	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

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



Heating - EAT 70°F

R	Airflow CFM	HC	kW	HE	LAT	COP
	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
25.5	450	14.7	1.38	10.2	100	3.14
25.7	600	15.1	1.26	10.9	93	3.52
26.8	450	15.3	1.39	10.8	101	3.23
27.0	600	15.7	1.27	11.4	94	3.63
27.6	450	15.6	1.39	11.0	102	3.29
27.8	600	16.0	1.27	11.7	95	3.69
22.3	450	16.8	1.41	12.1	105	3.49
22.4	600	17.2	1.29	12.9	97	3.92
4.1	450	17.5	1.42	12.8	106	3.61
3	600	18.0	1.30	13.5	98	4.05
	450	17.9	1.43	13.1	107	3.67
	600	18.3	1.30	13.9	98	4.12
	450	18.9	1.44	14.1	109	3.8
		19.4	1.32	14.9	100	
		19.7	1.45	14.8	111	

Example:

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

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

TD = HE / (GPM x 500)

TD = 22,500 / (4.5 x 500)

TD = 10°F

LWT = EWT - TD

LWT = 50 - 10 = 40°F

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

Performance 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
	2.0	3.2	7.4								240	3.9	0.44	2.4	85.1	2.6
30	1.0	0.3	0.7	180	6.7	3.9	0.6	0.3	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	0.3	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	0.3	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	0.3	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	0.3	7.9	27.7	180	4.9	0.50	3.3	95.0	2.8
	2.0	3.0	6.9	240	7.3	4.8	0.7	0.3	8.2	27.9	240	5.0	0.46	3.5	89.3	3.2
40	1.0	0.3	0.7	180	7.0	4.2	0.6	0.3	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	0.3	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	0.3	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	0.3	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	0.3	8.0	26.7	180	5.7	0.51	4.1	99.5	3.3
	2.0	2.8	6.5	240	7.4	5.0	0.7	0.3	8.3	26.9	240	5.9	0.47	4.3	92.7	3.7
50	1.0	0.3	0.7	180	6.9	4.4	0.6	0.3	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	0.3	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	0.3	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	0.3	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	0.3	8.1	24.7	180	6.5	0.52	4.7	103.3	3.6
	2.0	2.6	6.0	240	7.4	5.2	0.7	0.3	8.4	24.9	240	6.7	0.48	5.0	95.7	4.1
60	1.0	0.2	0.5	180	6.7	4.4	0.7	0.4	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	0.4	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	0.3	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	0.3	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	0.3	8.0	21.9	180	7.2	0.53	5.4	106.9	4.0
	2.0	2.4	5.5	240	7.2	5.3	0.7	0.3	8.3	22.1	240	7.4	0.48	5.7	98.4	4.5
70	1.0	0.2	0.5	180	6.4	4.4	0.7	0.4	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	0.4	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	0.4	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	0.4	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	0.4	7.9	18.9	180	7.9	0.53	6.1	110.6	4.3
	2.0	2.2	5.1	240	6.9	5.3	0.8	0.4	8.2	19.0	240	8.1	0.49	6.4	101.2	4.9
80	1.0	0.2	0.5	180	5.9	4.2	0.7	0.4	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	0.5	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	0.4	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	0.4	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	0.4	7.6	15.8	180	8.7	0.54	6.8	114.7	4.7
	2.0	2.0	4.6	240	6.5	5.2	0.8	0.4	7.9	16.0	240	8.9	0.49	7.2	104.4	5.3
85	1.0	0.2	0.5	180	5.7	4.1	0.7	0.5	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	0.5	7.5	12.6	240	8.7	0.49	7.1	103.8	5.2
	1.5	1.1	2.4	180	5.9	4.2	0.7	0.4	7.4	13.8	180	8.9	0.54	7.0	115.9	4.8
	1.5	1.1	2.4	240	6.2	5.0	0.8	0.5	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	0.4	7.5	14.5	180	9.2	0.54	7.3	117.2	5.0
	2.0	1.9	4.4	240	6.3	5.1	0.8	0.4	7.8	14.6	240	9.4	0.50	7.7	106.3	5.6
90	1.0	0.2	0.5	180	5.4	4.0	0.7	0.5	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	0.5	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	0.5	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	0.5	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	0.4	7.3	13.1	180	9.7	0.55	7.7	119.6	5.2
	2.0	1.8	4.2	240	6.0	5.0	0.8	0.5	7.6	13.2	240	9.9	0.50	8.2	108.2	5.8
100	1.0	0.1	0.2	180	4.9	3.7	0.8	0.5	6.7	9.2	Operation not recommended					
	1.0	0.1	0.2	240	5.1	4.5	0.9	0.6	7.0	9.3						
	1.5	0.8	1.8	180	5.2	3.9	0.8	0.5	6.9	10.2						
	1.5	0.8	1.8	240	5.4	4.6	0.9	0.5	7.2	10.2						
	2.0	1.6	3.7	180	5.3	3.9	0.7	0.5	7.0	10.7						
	2.0	1.6	3.7	240	5.5	4.7	0.9	0.5	7.3	10.8						
110	1.0	0.1	0.2	180	4.4	3.5	0.8	0.6	6.4	7.5						
	1.0	0.1	0.2	240	4.6	4.1	0.9	0.6	6.7	7.6						
	1.5	0.7	1.6	180	4.6	3.6	0.8	0.6	6.6	8.2						
	1.5	0.7	1.6	240	4.8	4.3	0.9	0.6	6.8	8.3						
	2.0	1.4	3.2	180	4.8	3.7	0.8	0.6	6.6	8.6						
	2.0	1.4	3.2	240	5.0	4.4	0.9	0.6	6.9	8.7						
120	1.0	0.1	0.2	180	3.9	3.2	0.8	0.7	6.1	6.1						
	1.0	0.1	0.2	240	4.1	3.8	0.9	0.7	6.4	6.1						
	1.5	0.6	1.4	180	4.1	3.3	0.8	0.6	6.3	6.7						
	1.5	0.6	1.4	240	4.3	3.9	0.9	0.6	6.5	6.7						
	2.0	1.2	2.8	180	4.2	3.4	0.8	0.6	6.3	7.0						
	2.0	1.2	2.8	240	4.4	4.0	0.9	0.6	6.6	7.0						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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°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
	2.8	2.8	6.5								300	5.8	0.63	3.7	88.0	2.7
30	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
	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
40	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	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
	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
50	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
	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
60	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
	2.8	2.3	5.3	300	11.2	7.4	0.7	0.5	12.9	22.6	300	10.8	0.71	8.4	103.3	4.4
70	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
	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
80	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
	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
85	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
	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
90	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	8.8	5.5	0.6	0.69	11.2	12.9	225	13.3	0.83	10.5	124.9	4.7
	2.1	1.1	2.5	300	9.2	6.6	0.7	0.71	11.6	13	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
	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
100	1.4	0.5	1.2	225	7.7	5.1	0.7	0.79	10.4	9.7	Operation not recommended					
	1.4	0.5	1.2	300	8.0	6.2	0.8	0.82	10.8	9.8						
	2.1	1.0	2.3	225	8.1	5.3	0.7	0.75	10.7	10.8						
	2.1	1.0	2.3	300	8.4	6.3	0.7	0.78	11.1	10.8						
	2.8	1.7	4.0	225	8.3	5.3	0.6	0.74	10.8	11.3						
	2.8	1.7	4.0	300	8.7	6.4	0.7	0.76	11.2	11.4						
110	1.4	0.5	1.1	225	6.9	4.9	0.7	0.86	9.9	8						
	1.4	0.5	1.1	300	7.2	5.8	0.8	0.89	10.3	8.1						
	2.1	0.9	2.1	225	7.3	5.0	0.7	0.83	10.2	8.9						
	2.1	0.9	2.1	300	7.6	6.0	0.8	0.85	10.6	8.9						
	2.8	1.6	3.7	225	7.5	5.1	0.7	0.81	10.3	9.3						
	2.8	1.6	3.7	300	7.9	6.1	0.8	0.84	10.7	9.4						
120	1.4	0.4	1.0	225	6.1	4.5	0.7	0.94	9.3	6.5						
	1.4	0.4	1.0	300	6.4	5.4	0.9	0.97	9.7	6.6						
	2.1	0.8	1.9	225	6.5	4.7	0.7	0.90	9.6	7.2						
	2.1	0.8	1.9	300	6.8	5.6	0.8	0.93	10.0	7.3						
	2.8	1.5	3.4	225	6.7	4.8	0.7	0.88	9.7	7.6						
	2.8	1.5	3.4	300	7.0	5.7	0.8	0.91	10.1	7.7						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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
20	3.5	4.0	9.2	Operation not recommended							265	7.7	0.89	4.9	97.1	2.5
	3.5	4.0	9.2								350	8.0	0.82	5.2	91.0	2.8
30	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
	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
40	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
	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
50	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
	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
60	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
	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
70	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
	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
80	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
	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
85	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
	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
90	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
	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
100	1.8	0.2	0.5	265	9.5	6.0	0.6	1.00	12.9	9.5	Operation not recommended					
	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						
	3.5	2.4	5.6	350	10.7	7.4	0.7	0.96	14.0	11.1						
110	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						
	3.5	2.2	5.1	350	9.6	7.1	0.7	1.06	13.3	9.1						
120	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						
	3.5	2.0	4.6	350	8.6	6.8	0.8	1.16	12.5	7.3						

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	5.5	3.9	9.0	Operation not recommended								450	12.2	1.36	7.8	95.0	2.6	1.4
	5.5	3.9	9.0									600	12.5	1.24	8.3	89.3	2.9	1.5
30	2.8	0.7	1.6	450	20.7	16.8	0.81	0.78	23.3	26.6	0.6	450	13.7	1.40	9.2	98.1	2.9	1.7
	2.8	0.7	1.6	600	21.5	14.0	0.65	0.80	24.3	26.8	0.6	600	14.0	1.28	9.7	91.7	3.2	1.7
	4.1	2.1	4.9	450	21.0	16.8	0.80	0.74	23.5	28.4	0.5	450	14.2	1.41	9.6	99.3	2.9	1.8
	4.1	2.1	4.9	600	21.8	14.1	0.64	0.76	24.4	28.6	0.6	600	14.6	1.29	10.2	92.5	3.3	1.8
	5.5	3.5	8.1	450	21.2	16.8	0.80	0.72	23.6	29.3	0.5	450	14.5	1.42	9.9	99.9	3.0	1.8
	5.5	3.5	8.1	600	22.0	14.1	0.64	0.75	24.6	29.6	0.5	600	14.9	1.30	10.5	93.0	3.4	1.9
40	2.8	0.6	1.4	450	20.8	17.2	0.83	0.85	23.7	24.5	0.9	450	15.8	1.44	11.1	102.6	3.2	1.9
	2.8	0.6	1.4	600	21.7	14.4	0.66	0.88	24.6	24.7	1.0	600	16.3	1.32	11.8	95.1	3.6	2.0
	4.1	2.0	4.6	450	21.0	17.2	0.82	0.81	23.7	26.0	0.9	450	16.5	1.45	11.7	103.9	3.3	2.0
	4.1	2.0	4.6	600	21.8	14.4	0.66	0.83	24.7	26.2	0.9	600	16.9	1.33	12.4	96.1	3.7	2.1
	5.5	3.2	7.4	450	21.2	17.3	0.82	0.79	23.9	26.9	0.8	450	16.8	1.46	12.0	104.7	3.4	2.1
	5.5	3.2	7.4	600	22.1	14.5	0.66	0.81	24.8	27.1	0.8	600	17.3	1.33	12.8	96.7	3.8	2.1
50	2.8	0.5	1.2	450	20.6	17.3	0.84	0.95	23.9	21.8	1.5	450	18.0	1.47	13.1	107.0	3.6	2.2
	2.8	0.5	1.2	600	21.5	14.5	0.67	0.98	24.8	22.0	1.5	600	18.5	1.35	13.9	98.5	4.0	2.3
	4.1	1.7	3.9	450	21.0	17.5	0.83	0.89	24.0	23.5	1.3	450	18.7	1.48	13.8	108.6	3.7	2.3
	4.1	1.7	3.9	600	21.8	14.6	0.67	0.92	25.0	23.7	1.4	600	19.2	1.35	14.6	99.7	4.2	2.4
	5.5	2.8	6.5	450	21.1	17.5	0.83	0.86	24.0	24.4	1.2	450	19.2	1.49	14.2	109.4	3.8	2.4
	5.5	2.8	6.5	600	21.9	14.6	0.67	0.89	25.0	24.6	1.3	600	19.7	1.36	15.1	100.4	4.2	2.4
60	2.8	0.3	0.7	450	19.9	16.8	0.85	1.05	23.5	18.9	2.0	450	20.1	1.50	15.1	111.4	3.9	2.5
	2.8	0.3	0.7	600	20.7	14.1	0.68	1.09	24.4	19.1	2.1	600	20.7	1.37	16.0	101.9	4.4	2.6
	4.1	1.5	3.5	450	20.4	17.2	0.84	0.99	23.7	20.6	1.8	450	21.0	1.51	15.9	113.3	4.1	2.6
	4.1	1.5	3.5	600	21.2	14.3	0.68	1.02	24.7	20.8	1.9	600	21.6	1.38	16.9	103.3	4.6	2.6
	5.5	2.6	6.0	450	20.6	17.3	0.84	0.96	23.8	21.5	1.6	450	21.5	1.52	16.4	114.3	4.1	2.7
	5.5	2.6	6.0	600	21.4	14.4	0.67	0.99	24.8	21.7	1.7	600	22.1	1.39	17.4	104.1	4.7	2.7
70	2.8	0.3	0.7	450	18.9	16.2	0.86	1.17	22.9	16.1	2.7	450	22.3	1.54	17.1	115.9	4.3	2.8
	2.8	0.3	0.7	600	19.7	13.5	0.69	1.21	23.8	16.2	2.8	600	22.9	1.40	18.1	105.4	4.8	2.8
	4.1	1.4	3.2	450	19.5	16.6	0.85	1.10	23.2	17.7	2.4	450	23.4	1.56	18.0	118.1	4.4	2.9
	4.1	1.4	3.2	600	20.3	13.8	0.68	1.14	24.2	17.9	2.5	600	24.0	1.43	19.1	107.0	4.9	2.9
	5.5	2.4	5.5	450	19.8	16.8	0.85	1.07	23.4	18.6	2.1	450	23.9	1.57	18.5	119.3	4.5	3.0
	5.5	2.4	5.5	600	20.6	14.0	0.68	1.10	24.3	18.7	2.2	600	24.6	1.44	19.7	107.9	5.0	3.1
80	2.8	0.2	0.5	450	17.7	15.4	0.87	1.31	22.2	13.6	3.2	450	24.6	1.59	19.1	120.6	4.5	3.0
	2.8	0.2	0.5	600	18.5	12.9	0.70	1.35	23.1	13.7	3.3	600	25.2	1.46	20.3	108.9	5.1	3.1
	4.1	1.2	2.8	450	18.4	15.9	0.86	1.23	22.6	15.0	3.0	450	25.8	1.63	20.2	123.1	4.6	3.1
	4.1	1.2	2.8	600	19.2	13.2	0.69	1.27	23.5	15.1	3.1	600	26.5	1.49	21.4	110.9	5.2	3.2
	5.5	2.2	5.1	450	18.7	16.1	0.86	1.19	22.8	15.7	2.7	450	26.5	1.66	20.7	124.5	4.7	3.2
	5.5	2.2	5.1	600	19.5	13.4	0.69	1.23	23.7	15.9	2.9	600	27.2	1.52	22.0	111.9	5.3	3.3
85	2.8	0.2	0.5	450	17.1	15.0	0.88	1.39	21.9	12.4	3.6	450	25.8	1.63	20.1	123.0	4.6	3.1
	2.8	0.2	0.5	600	17.8	12.6	0.70	1.43	22.7	12.5	3.7	600	26.4	1.49	21.3	110.8	5.2	3.2
	4.1	1.2	2.7	450	17.8	15.5	0.87	1.30	22.2	13.7	3.3	450	27.1	1.69	21.2	125.7	4.7	3.3
	4.1	1.2	2.7	600	18.5	12.9	0.70	1.35	23.1	13.8	3.5	600	27.8	1.54	22.5	112.9	5.3	3.3
	5.5	2.1	4.9	450	18.1	15.7	0.86	1.26	22.4	14.4	3.1	450	27.8	1.72	21.8	127.2	4.7	3.4
	5.5	2.1	4.9	600	18.9	13.1	0.69	1.30	23.3	14.6	3.2	600	28.6	1.58	23.2	114.1	5.3	3.5
90	2.8	0.2	0.5	450	16.5	14.7	0.89	1.46	21.5	11.3	4.1	450	26.9	1.68	21.1	125.4	4.7	3.3
	2.8	0.2	0.5	600	17.2	12.3	0.71	1.51	22.4	11.4	4.3	600	27.7	1.53	22.4	112.7	5.3	3.4
	4.1	1.1	2.5	450	17.2	15.1	0.88	1.38	21.9	12.5	3.8	450	28.4	1.74	22.3	128.3	4.8	3.4
	4.1	1.1	2.5	600	17.9	12.6	0.70	1.42	22.8	12.6	3.9	600	29.1	1.60	23.6	114.9	5.3	3.5
	5.5	2.0	4.6	450	17.5	15.3	0.87	1.33	22.1	13.1	3.5	450	29.1	1.79	22.9	130.0	4.8	3.5
	5.5	2.0	4.6	600	18.3	12.8	0.70	1.38	23.0	13.2	3.6	600	29.9	1.63	24.3	116.2	5.4	3.6
100	2.8	0.2	0.5	450	15.2	14.0	0.92	1.64	20.8	9.3	4.5	Operation not recommended						
	2.8	0.2	0.5	600	15.9	11.7	0.74	1.69	21.7	9.4	4.6							
	4.1	1.1	2.5	450	15.9	14.3	0.90	1.54	21.2	10.3	4.3							
	4.1	1.1	2.5	600	16.6	12.0	0.72	1.59	22.0	10.4	4.4							
	5.5	1.9	4.4	450	16.3	14.5	0.89	1.50	21.4	10.9	4.2							
	5.5	1.9	4.4	600	16.9	12.1	0.72	1.55	22.2	10.9	4.3							
110	2.8	0.1	0.2	450	14.0	13.4	0.96	1.84	20.3	7.6	5.3							
	2.8	0.1	0.2	600	14.6	11.2	0.77	1.90	21.1	7.7	5.4							
	4.1	0.9	2.1	450	14.6	13.7	0.94	1.73	20.5	8.4	5.2							
	4.1	0.9	2.1	600	15.2	11.4	0.75	1.79	21.4	8.5	5.3							
	5.5	1.7	3.9	450	15.0	13.8	0.93	1.68	20.7	8.9	5.0							
	5.5	1.7	3.9	600	15.6	11.6	0.74	1.74	21.5	9.0	5.1							
120	2.8	0.1	0.2	450	12.9	13.1	1.02	2.06	19.9	6.2	6.3							
	2.8	0.1	0.2	600	13.4	10.9	0.82	2.13	20.7	6.3	6.4							
	4.1	0.8	1.8	450	13.4	13.2	0.99	1.94	20.1	6.9	6.1							
	4.1	0.8	1.8	600	14.0	11.0	0.79	2.01	20.8	7.0	6.2							
	5.5	1.6	3.7	450	13.7	13.3	0.97	1.89	20.2	7.3	5.9							
	5.5	1.6	3.7	600	14.3	11.1	0.78	1.95	21.0	7.3	6.0							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 018B (ECM Blower)

750 CFM Nominal (Rated) Airflow Cooling, 750 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	5.5	3.9	9.0	Operation not recommended								550	11.9	1.25	7.9	90.0	2.8	1.4
	5.5	3.9	9.0									750	12.3	1.16	8.4	85.1	3.1	1.5
30	2.8	0.7	1.6	550	20.3	12.4	0.61	0.75	22.8	27.3	0.6	550	13.2	1.29	9.0	92.3	3.0	1.7
	2.8	0.7	1.6	750	21.1	14.5	0.68	0.79	23.8	26.8	0.6	750	13.6	1.20	9.6	86.8	3.3	1.7
	4.1	2.1	4.9	550	20.7	12.6	0.61	0.71	23.1	29.1	0.5	550	13.7	1.31	9.5	93.1	3.1	1.8
	4.1	2.1	4.9	750	21.5	14.7	0.68	0.75	24.1	28.6	0.6	750	14.1	1.21	10.1	87.5	3.4	1.8
	5.5	3.5	8.1	550	21.3	12.9	0.61	0.70	23.6	30.5	0.5	550	14.0	1.31	9.7	93.6	3.1	1.8
	5.5	3.5	8.1	750	22.1	15.0	0.68	0.74	24.6	30.0	0.5	750	14.4	1.21	10.3	87.8	3.5	1.9
40	2.8	0.6	1.4	550	20.8	12.9	0.62	0.81	23.5	25.5	0.9	550	15.3	1.33	10.9	95.8	3.4	1.9
	2.8	0.6	1.4	750	21.6	15.0	0.70	0.86	24.5	25.1	1.0	750	15.8	1.23	11.6	89.5	3.8	2.0
	4.1	2	4.6	550	21.3	13.1	0.61	0.77	23.9	27.6	0.9	550	16.0	1.34	11.5	96.9	3.5	2.0
	4.1	2	4.6	750	22.1	15.2	0.69	0.81	24.9	27.2	0.9	750	16.5	1.24	12.3	90.3	3.9	2.1
	5.5	3.2	7.4	550	21.5	13.2	0.61	0.75	24.0	28.6	0.8	550	16.3	1.34	11.9	97.5	3.6	2.1
	5.5	3.2	7.4	750	22.4	15.3	0.69	0.79	25.1	28.1	0.8	750	16.8	1.24	12.6	90.8	4.0	2.1
50	2.8	0.5	1.2	550	21.3	13.5	0.63	0.90	24.3	23.7	1.5	550	17.5	1.35	13.0	99.5	3.8	2.2
	2.8	0.5	1.2	750	22.1	15.7	0.71	0.95	25.3	23.3	1.5	750	18.1	1.25	13.8	92.3	4.2	2.3
	4.1	1.7	3.9	550	21.5	13.5	0.63	0.84	24.3	25.5	1.3	550	18.4	1.36	13.8	100.9	4.0	2.3
	4.1	1.7	3.9	750	22.3	15.7	0.70	0.89	25.4	25.1	1.4	750	18.9	1.26	14.6	93.4	4.4	2.4
	5.5	2.8	6.5	550	21.6	13.5	0.62	0.82	24.4	26.4	1.2	550	18.8	1.36	14.2	101.7	4.0	2.4
	5.5	2.8	6.5	750	22.5	15.7	0.70	0.87	25.4	26.0	1.3	750	19.4	1.26	15.1	93.9	4.5	2.4
60	2.8	0.3	0.7	550	20.6	13.6	0.66	0.99	24.0	20.8	2.0	550	19.8	1.37	15.2	103.4	4.2	2.5
	2.8	0.3	0.7	750	21.5	15.8	0.74	1.05	25.0	20.4	2.1	750	20.4	1.27	16.1	95.2	4.7	2.6
	4.1	1.5	3.5	550	21.1	13.6	0.65	0.93	24.3	22.7	1.8	550	20.8	1.38	16.1	105.0	4.4	2.6
	4.1	1.5	3.5	750	22.0	15.9	0.72	0.99	25.3	22.3	1.9	750	21.4	1.28	17.1	96.5	4.9	2.6
	5.5	2.6	6.0	550	21.3	13.6	0.64	0.90	24.4	23.6	1.6	550	21.3	1.39	16.6	105.9	4.5	2.7
	5.5	2.6	6.0	750	22.2	15.9	0.72	0.96	25.4	23.2	1.7	750	22.0	1.28	17.6	97.1	5.0	2.7
70	2.8	0.3	0.7	550	19.6	13.4	0.68	1.11	23.4	17.7	2.7	550	22.1	1.40	17.3	107.2	4.6	2.8
	2.8	0.3	0.7	750	20.4	15.6	0.76	1.17	24.4	17.4	2.8	750	22.8	1.29	18.4	98.2	5.2	2.8
	4.1	1.4	3.2	550	20.3	13.5	0.67	1.04	23.8	19.5	2.4	550	23.2	1.42	18.3	109.0	4.8	2.9
	4.1	1.4	3.2	750	21.1	15.7	0.75	1.10	24.8	19.2	2.5	750	23.9	1.31	19.4	99.5	5.3	2.9
	5.5	2.4	5.5	550	20.6	13.6	0.66	1.00	24.0	20.5	2.1	550	23.8	1.43	18.8	110.0	4.9	3.0
	5.5	2.4	5.5	750	21.4	15.8	0.74	1.06	25.0	20.1	2.2	750	24.5	1.32	20.0	100.2	5.4	3.1
80	2.8	0.2	0.5	550	18.4	13.1	0.71	1.24	22.7	14.8	3.2	550	24.3	1.45	19.3	111.0	4.9	3.0
	2.8	0.2	0.5	750	19.2	15.2	0.79	1.31	23.6	14.6	3.3	750	25.1	1.34	20.5	101.0	5.5	3.1
	4.1	1.2	2.8	550	19.1	13.3	0.69	1.16	23.1	16.5	3.0	550	25.5	1.49	20.3	112.9	5.0	3.1
	4.1	1.2	2.8	750	19.9	15.4	0.78	1.23	24.1	16.2	3.1	750	26.3	1.38	21.5	102.4	5.6	3.2
	5.5	2.2	5.1	550	19.5	13.4	0.69	1.12	23.3	17.3	2.7	550	26.0	1.52	20.7	113.8	5.0	3.2
	5.5	2.2	5.1	750	20.3	15.5	0.77	1.19	24.3	17.0	2.9	750	26.8	1.40	22.0	103.1	5.6	3.3
85	2.8	0.2	0.5	550	17.8	12.9	0.72	1.32	22.3	13.5	3.6	550	25.4	1.49	20.2	112.7	5.0	3.1
	2.8	0.2	0.5	750	18.5	15.0	0.81	1.40	23.3	13.3	3.7	750	26.2	1.38	21.4	102.3	5.6	3.2
	4.1	1.15	2.7	550	18.5	13.1	0.71	1.24	22.7	15.1	3.3	550	26.5	1.55	21.1	114.6	5.0	3.3
	4.1	1.15	2.7	750	19.2	15.2	0.79	1.31	23.7	14.8	3.5	750	27.3	1.43	22.4	103.7	5.6	3.3
	5.5	2.1	4.9	550	18.9	13.2	0.70	1.20	22.9	15.9	3.1	550	27.0	1.59	21.5	115.5	5.0	3.4
	5.5	2.1	4.9	750	19.6	15.3	0.78	1.26	23.9	15.6	3.2	750	27.9	1.47	22.8	104.4	5.6	3.5
90	2.8	0.2	0.5	550	17.2	12.7	0.74	1.40	21.9	12.3	4.1	550	26.4	1.54	21.0	114.5	5.0	3.3
	2.8	0.2	0.5	750	17.8	14.8	0.83	1.48	22.9	12.1	4.3	750	27.2	1.42	22.4	103.6	5.6	3.4
	4.1	1.1	2.5	550	17.9	12.9	0.72	1.31	22.3	13.7	3.8	550	27.5	1.61	21.9	116.3	5.0	3.4
	4.1	1.1	2.5	750	18.6	15.0	0.81	1.38	23.3	13.4	3.9	750	28.4	1.49	23.2	105.0	5.6	3.5
	5.5	2	4.6	550	18.2	13.0	0.71	1.27	22.6	14.4	3.5	550	28.0	1.66	22.3	117.2	5.0	3.5
	5.5	2	4.6	750	19.0	15.2	0.80	1.34	23.5	14.2	3.6	750	28.9	1.53	23.6	105.7	5.5	3.6
100	2.8	0.2	0.5	550	15.9	12.3	0.77	1.58	21.3	10.1	4.5	Operation not recommended						
	2.8	0.2	0.5	750	16.5	14.3	0.87	1.67	22.2	9.9	4.6							
	4.1	1.1	2.5	550	16.6	12.5	0.76	1.48	21.6	11.2	4.3							
	4.1	1.1	2.5	750	17.2	14.6	0.85	1.56	22.6	11.0	4.4							
	5.5	1.9	4.4	550	16.9	12.6	0.75	1.43	21.8	11.8	4.2							
	5.5	1.9	4.4	750	17.6	14.7	0.84	1.51	22.8	11.6	4.3							
110	2.8	0.1	0.2	550	14.7	12.0	0.81	1.79	20.9	8.3	5.3							
	2.8	0.1	0.2	750	15.3	13.9	0.91	1.89	21.8	8.1	5.4							
	4.1	0.9	2.1	550	15.3	12.1	0.79	1.67	21.1	9.2	5.2							
	4.1	0.9	2.1	750	15.9	14.1	0.89	1.77	22.0	9.0	5.3							
	5.5	1.7	3.9	550	15.6	12.2	0.78	1.62	21.2	9.7	5.0							
	5.5	1.7	3.9	750	16.3	14.2	0.88	1.71	22.1	9.5	5.1							
120	2.8	0.1	0.2	550	13.8	11.5	0.83	2.03	20.8	6.8	6.3							
	2.8	0.1	0.2	750	14.4	13.4	0.93	2.14	21.7	6.7	6.4							
	4.1	0.8	1.8	550	14.3	11.8	0.83	1.90	20.8	7.5	6.1							
	4.1	0.8	1.8	750	14.8	13.7	0.92	2.01	21.7	7.4	6.2							
	5.5	1.6	3.7	550	14.5	11.9	0.82	1.83	20.8	7.9	5.9							
	5.5	1.6	3.7	750	15.1	13.9	0.92	1.94	21.7	7.8	6.0							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 024 (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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	6.0	1.9	4.4	Operation not recommended								680	15.7	1.69	10.7	91.4	2.7	1.7
	6.0	1.9	4.4									950	16.4	1.50	11.3	86.0	3.2	1.5
30	3.0	0.9	2.1	680	28.1	16.5	0.59	0.89	32.0	31.5	0.8	680	17.4	1.69	12.3	93.7	3.0	2.0
	3.0	0.9	2.1	950	30.4	19.4	0.64	0.94	33.6	32.4	0.8	950	18.2	1.50	13.1	87.8	3.6	1.8
	4.5	1.2	2.7	680	27.5	15.6	0.57	0.83	31.0	33.2	0.7	680	18.3	1.70	13.2	94.9	3.2	2.1
	4.5	1.2	2.7	950	29.7	18.3	0.62	0.87	32.7	34.1	0.7	950	19.1	1.51	14.0	88.6	3.7	1.9
	6.0	1.7	4.0	680	26.9	14.9	0.56	0.80	30.3	33.7	0.6	680	18.8	1.70	13.6	95.6	3.2	2.1
	6.0	1.7	4.0	950	29.1	17.6	0.60	0.84	31.9	34.6	0.6	950	19.6	1.51	14.5	89.1	3.8	1.9
40	3.0	0.7	1.5	680	28.1	17.1	0.61	1.00	32.3	28.2	1.0	680	20.2	1.71	15.0	97.5	3.5	2.4
	3.0	0.7	1.5	950	30.4	20.2	0.66	1.05	34.0	29.0	1.1	950	21.1	1.52	15.9	90.6	4.1	2.1
	4.5	1.0	2.4	680	28.2	16.7	0.59	0.92	32.1	30.6	0.9	680	21.2	1.71	16.0	98.9	3.6	2.6
	4.5	1.0	2.4	950	30.5	19.7	0.65	0.97	33.8	31.5	0.9	950	22.2	1.52	17.0	91.6	4.3	2.3
	6.0	1.6	3.6	680	28.1	16.4	0.58	0.88	31.9	31.7	0.8	680	21.8	1.71	16.6	99.7	3.7	2.6
	6.0	1.6	3.6	950	30.4	19.3	0.64	0.93	33.5	32.6	0.8	950	22.8	1.52	17.6	92.2	4.4	2.3
50	3.0	0.5	1.2	680	27.4	17.2	0.63	1.10	31.9	24.8	1.4	680	22.9	1.72	17.7	101.2	3.9	2.8
	3.0	0.5	1.2	950	29.6	20.2	0.68	1.16	33.6	25.5	1.5	950	24.0	1.53	18.8	93.4	4.6	2.5
	4.5	0.9	2.1	680	28.0	17.2	0.61	1.02	32.3	27.5	1.1	680	24.2	1.73	18.9	102.9	4.1	2.9
	4.5	0.9	2.1	950	30.3	20.2	0.67	1.07	34.0	28.3	1.2	950	25.3	1.54	20.0	94.6	4.8	2.6
	6.0	1.5	3.3	680	28.2	17.1	0.61	0.98	32.3	28.8	1.0	680	24.9	1.73	19.5	103.9	4.2	3.0
	6.0	1.5	3.3	950	30.5	20.1	0.66	1.03	34.0	29.6	1.1	950	26.0	1.54	20.7	95.3	4.9	2.7
60	3.0	0.4	0.9	680	26.2	16.8	0.64	1.23	31.0	21.3	1.8	680	25.7	1.74	20.4	105.0	4.3	3.1
	3.0	0.4	0.9	950	28.3	19.7	0.70	1.29	32.7	21.9	1.9	950	26.9	1.55	21.6	96.2	5.1	2.8
	4.5	0.8	1.8	680	27.1	17.1	0.63	1.13	31.7	24.0	1.5	680	27.2	1.75	21.7	107.0	4.5	3.4
	4.5	0.8	1.8	950	29.3	20.1	0.69	1.19	33.4	24.6	1.6	950	28.4	1.56	23.1	97.7	5.3	3.0
	6.0	1.4	3.1	680	27.5	17.2	0.62	1.09	32.0	25.2	1.3	680	28.0	1.75	22.5	108.1	4.7	3.5
	6.0	1.4	3.1	950	29.8	20.2	0.68	1.15	33.7	25.9	1.4	950	29.2	1.56	23.9	98.5	5.5	3.1
70	3.0	0.3	0.6	680	24.6	16.1	0.66	1.36	29.9	18.1	2.3	680	28.6	1.76	23.1	108.9	4.7	3.6
	3.0	0.3	0.6	950	26.6	19.0	0.71	1.43	31.5	18.6	2.4	950	29.8	1.57	24.5	99.1	5.6	3.2
	4.5	0.7	1.7	680	25.7	16.6	0.65	1.26	30.7	20.4	1.9	680	30.2	1.79	24.7	111.2	5.0	3.8
	4.5	0.7	1.7	950	27.8	19.5	0.70	1.33	32.4	20.9	2.0	950	31.6	1.59	26.2	100.8	5.8	3.4
	6.0	1.3	2.9	680	26.3	16.8	0.64	1.22	31.1	21.6	1.8	680	31.2	1.80	25.5	112.4	5.1	3.9
	6.0	1.3	2.9	950	28.4	19.8	0.70	1.28	32.8	22.2	1.9	950	32.6	1.60	27.1	101.7	6.0	3.5
80	3.0	0.2	0.5	680	22.8	15.3	0.67	1.51	28.6	15.1	2.9	680	31.4	1.80	25.8	112.8	5.1	3.9
	3.0	0.2	0.5	950	24.7	18.1	0.73	1.59	30.1	15.5	3.0	950	32.9	1.60	27.4	102.0	6.0	3.5
	4.5	0.7	1.5	680	24.0	15.9	0.66	1.41	29.5	17.1	2.5	680	33.4	1.83	27.6	115.5	5.3	4.2
	4.5	0.7	1.5	950	26.0	18.7	0.72	1.48	31.0	17.6	2.6	950	34.9	1.63	29.3	104.0	6.3	3.7
	6.0	1.2	2.7	680	24.7	16.2	0.66	1.36	30.0	18.1	2.3	680	34.5	1.85	28.6	116.9	5.4	4.3
	6.0	1.2	2.7	950	26.7	19.0	0.71	1.43	31.5	18.6	2.4	950	36.0	1.65	30.4	105.1	6.4	3.8
85	3.0	0.2	0.4	680	21.9	14.9	0.68	1.6	27.9	13.8	3.2	680	32.9	1.83	27.2	114.9	5.3	4.1
	3.0	0.2	0.4	950	23.7	17.6	0.74	1.68	29.4	14.2	3.4	950	34.4	1.6	28.9	103.5	6.2	3.7
	4.5	0.6	1.5	680	23.1	15.5	0.67	1.49	28.8	15.6	2.8	680	35.0	1.9	29.1	117.7	5.5	4.3
	4.5	0.6	1.5	950	25.0	18.2	0.73	1.57	30.3	16.0	2.9	950	36.6	1.7	30.9	105.7	6.5	3.9
	6.0	1.1	2.6	680	23.7	15.8	0.66	1.44	29.3	16.6	2.6	680	36.2	1.9	30.2	119.3	5.6	4.4
	6.0	1.1	2.6	950	25.7	18.5	0.72	1.51	30.8	17.1	2.7	950	37.8	1.7	32.1	106.9	6.6	4.0
90	3.0	0.1	0.3	680	21.0	14.5	0.69	1.68	27.3	12.4	3.5	680	34.4	1.85	28.6	116.9	5.4	4.3
	3.0	0.1	0.3	950	22.7	17.1	0.75	1.77	28.7	12.8	3.7	950	36.0	1.65	30.4	105.1	6.4	3.8
	4.5	0.6	1.4	680	22.2	15.1	0.68	1.57	28.1	14.1	3.0	680	36.6	1.90	30.6	119.9	5.7	4.5
	4.5	0.6	1.4	950	24.0	17.7	0.74	1.65	29.6	14.5	3.2	950	38.3	1.69	32.5	107.3	6.6	4.0
	6.0	1.1	2.5	680	22.8	15.4	0.67	1.51	28.6	15.1	2.9	680	37.9	1.92	31.8	121.6	5.8	4.6
	6.0	1.1	2.5	950	24.7	18.1	0.73	1.59	30.1	15.5	3.0	950	39.6	1.71	33.8	108.6	6.8	4.1
100	3.0	0.1	0.2	680	19.1	13.8	0.72	1.88	26.1	10.2	4.2	Operation not recommended						
	3.0	0.1	0.2	950	20.7	16.2	0.78	1.98	27.4	10.5	4.4							
	4.5	0.5	1.2	680	20.3	14.2	0.70	1.76	26.8	11.5	3.7							
	4.5	0.5	1.2	950	21.9	16.7	0.76	1.85	28.2	11.8	3.9							
	6.0	1.0	2.2	680	20.9	14.5	0.69	1.69	27.2	12.3	3.5							
	6.0	1.0	2.2	950	22.6	17.1	0.76	1.78	28.6	12.7	3.7							
110	3.0	0.0	0.1	680	17.5	13.2	0.75	2.10	25.1	8.3	5.0							
	3.0	0.0	0.1	950	18.9	15.5	0.82	2.21	26.5	8.6	5.3							
	4.5	0.5	1.0	680	18.5	13.5	0.73	1.97	25.7	9.4	4.6							
	4.5	0.5	1.0	950	20.0	15.9	0.80	2.07	27.0	9.6	4.8							
	6.0	0.8	1.9	680	19.0	13.7	0.72	1.90	26.0	10.0	4.3							
	6.0	0.8	1.9	950	20.5	16.1	0.78	2.00	27.3	10.3	4.5							
120	3.0	0.0	0.0	680	16.2	12.9	0.79	2.36	24.7	6.9	6.0							
	3.0	0.0	0.0	950	17.5	15.1	0.86	2.48	26.0	7.1	6.3							
	4.5	0.3	0.8	680	16.9	13.0	0.77	2.21	24.9	7.7	5.4							
	4.5	0.3	0.8	950	18.3	15.3	0.84	2.32	26.2	7.9	5.7							
	6.0	0.6	1.5	680	17.3	13.1	0.76	2.13	25.1	8.1	5.1							
	6.0	0.6	1.5	950	18.7	15.4	0.82	2.24	26.4	8.4	5.4							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 024 (ECM 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	6.0	1.9	4.4	Operation not recommended								680	15.4	1.64	10.4	90.9	2.7	1.7
	6.0	1.9	4.4									950	16.1	1.46	11.1	85.7	3.2	1.5
30	3.0	0.9	2.1	680	28.1	16.5	0.59	0.87	31.8	32.5	0.8	680	17.1	1.65	12.1	93.3	3.0	2.0
	3.0	0.9	2.1	950	30.4	19.4	0.64	0.91	33.5	33.4	0.8	950	17.8	1.47	12.8	87.4	3.6	1.8
	4.5	1.2	2.7	680	27.5	15.6	0.57	0.80	30.9	34.4	0.7	680	17.9	1.65	12.9	94.4	3.2	2.1
	4.5	1.2	2.7	950	29.7	18.3	0.62	0.84	32.5	35.3	0.7	950	18.7	1.47	13.7	88.2	3.7	1.9
	6.0	1.7	4.0	680	26.9	14.9	0.56	0.77	30.2	34.9	0.6	680	18.4	1.65	13.3	95.0	3.3	2.1
	6.0	1.7	4.0	950	29.1	17.6	0.60	0.81	31.8	35.9	0.6	950	19.2	1.47	14.2	88.7	3.8	1.9
40	3.0	0.7	1.5	680	28.1	17.1	0.61	0.96	32.2	29.3	1.0	680	19.8	1.66	14.7	96.9	3.5	2.4
	3.0	0.7	1.5	950	30.4	20.2	0.66	1.01	33.9	30.1	1.1	950	20.7	1.48	15.6	90.1	4.1	2.1
	4.5	1.0	2.4	680	28.2	16.7	0.59	0.88	32.0	31.9	0.9	680	20.8	1.66	15.7	98.3	3.7	2.6
	4.5	1.0	2.4	950	30.5	19.7	0.65	0.93	33.7	32.8	0.9	950	21.7	1.48	16.7	91.2	4.3	2.3
	6.0	1.6	3.6	680	28.1	16.4	0.58	0.86	31.7	32.8	0.8	680	21.3	1.67	16.2	99.0	3.7	2.6
	6.0	1.6	3.6	950	30.4	19.3	0.64	0.90	33.4	33.7	0.8	950	22.3	1.49	17.2	91.7	4.4	2.3
50	3.0	0.5	1.2	680	27.4	17.2	0.63	1.07	31.8	25.5	1.4	680	22.5	1.67	17.3	100.6	3.9	2.8
	3.0	0.5	1.2	950	29.6	20.2	0.68	1.13	33.5	26.2	1.5	950	23.5	1.49	18.4	92.9	4.6	2.5
	4.5	0.9	2.1	680	28.0	17.2	0.61	0.99	32.2	28.3	1.1	680	23.7	1.69	18.5	102.2	4.1	2.9
	4.5	0.9	2.1	950	30.3	20.2	0.67	1.04	33.8	29.1	1.2	950	24.7	1.50	19.6	94.1	4.8	2.6
	6.0	1.5	3.3	680	28.2	17.1	0.61	0.95	32.2	29.6	1.0	680	24.3	1.69	19.1	103.1	4.2	3.0
	6.0	1.5	3.3	950	30.5	20.1	0.66	1.00	33.9	30.5	1.1	950	25.4	1.50	20.3	94.8	5.0	2.7
60	3.0	0.4	0.9	680	26.2	16.8	0.64	1.20	30.9	21.8	1.8	680	25.2	1.70	20.0	104.3	4.4	3.1
	3.0	0.4	0.9	950	28.3	19.7	0.70	1.26	32.6	22.5	1.9	950	26.4	1.51	21.2	95.7	5.1	2.8
	4.5	0.8	1.8	680	27.1	17.1	0.63	1.10	31.6	24.6	1.5	680	26.6	1.71	21.3	106.2	4.6	3.4
	4.5	0.8	1.8	950	29.3	20.1	0.69	1.16	33.3	25.3	1.6	950	27.8	1.52	22.6	97.1	5.4	3.0
	6.0	1.4	3.1	680	27.5	17.2	0.62	1.06	31.9	26.1	1.3	680	27.4	1.72	22.0	107.3	4.7	3.5
	6.0	1.4	3.1	950	29.8	20.2	0.68	1.11	33.6	26.8	1.4	950	28.6	1.53	23.4	97.9	5.5	3.1
70	3.0	0.3	0.6	680	24.6	16.1	0.66	1.33	29.8	18.5	2.3	680	28.0	1.72	22.6	108.1	4.8	3.6
	3.0	0.3	0.6	950	26.6	19.0	0.71	1.40	31.4	19.0	2.4	950	29.3	1.53	24.0	98.5	5.6	3.2
	4.5	0.7	1.7	680	25.8	16.6	0.65	1.23	30.6	21.0	1.9	680	29.6	1.74	24.2	110.3	5.0	3.8
	4.5	0.7	1.7	950	27.8	19.5	0.70	1.29	32.3	21.6	2.0	950	31.0	1.55	25.7	100.2	5.9	3.4
	6.0	1.3	2.9	680	26.3	16.8	0.64	1.18	31.0	22.3	1.8	680	30.5	1.75	25.0	111.6	5.1	3.9
	6.0	1.3	2.9	950	28.4	19.8	0.70	1.24	32.7	22.9	1.9	950	31.9	1.56	26.6	101.1	6.0	3.5
80	3.0	0.2	0.5	680	22.8	15.4	0.67	1.48	28.5	15.4	2.9	680	30.9	1.76	25.3	112.0	5.1	3.9
	3.0	0.2	0.5	950	24.7	18.1	0.73	1.56	30.0	15.8	3.0	950	32.2	1.57	26.9	101.4	6.0	3.5
	4.5	0.7	1.5	680	24.1	15.9	0.66	1.38	29.4	17.4	2.5	680	32.7	1.80	27.1	114.6	5.3	4.2
	4.5	0.7	1.5	950	26.0	18.7	0.72	1.45	30.9	17.9	2.6	950	34.2	1.60	28.8	103.3	6.3	3.7
	6.0	1.2	2.7	680	24.7	16.2	0.66	1.32	29.8	18.7	2.3	680	33.8	1.81	28.1	116.0	5.5	4.3
	6.0	1.2	2.7	950	26.7	19.0	0.71	1.39	31.4	19.2	2.4	950	35.3	1.61	29.8	104.4	6.4	3.8
85	3.0	0.2	0.4	680	21.9	14.9	0.68	1.6	27.8	14.0	3.2	680	32.3	1.79	26.7	114.0	5.3	4.1
	3.0	0.2	0.4	950	23.7	17.6	0.74	1.65	29.3	14.4	3.4	950	33.8	1.6	28.4	102.9	6.2	3.7
	4.5	0.6	1.5	680	23.1	15.5	0.67	1.46	28.7	15.9	2.8	680	34.4	1.8	28.6	116.8	5.5	4.3
	4.5	0.6	1.5	950	25.0	18.2	0.73	1.54	30.2	16.4	2.9	950	35.9	1.6	30.4	105.0	6.5	3.9
	6.0	1.1	2.6	680	23.7	15.8	0.66	1.40	29.2	17.0	2.6	680	35.5	1.8	29.6	118.3	5.6	4.4
	6.0	1.1	2.6	950	25.7	18.5	0.72	1.48	30.7	17.5	2.7	950	37.1	1.6	31.5	106.1	6.6	4.0
90	3.0	0.1	0.3	680	21.0	14.5	0.69	1.65	27.2	12.7	3.5	680	33.8	1.81	28.1	116.0	5.5	4.3
	3.0	0.1	0.3	950	22.7	17.1	0.75	1.74	28.6	13.0	3.7	950	35.3	1.61	29.8	104.4	6.4	3.8
	4.5	0.6	1.4	680	22.2	15.1	0.68	1.54	28.0	14.4	3.0	680	36.0	1.85	30.1	119.0	5.7	4.5
	4.5	0.6	1.4	950	24.0	17.7	0.74	1.62	29.5	14.8	3.2	950	37.6	1.65	31.9	106.6	6.7	4.0
	6.0	1.1	2.5	680	22.8	15.4	0.67	1.48	28.5	15.4	2.9	680	37.2	1.89	31.2	120.7	5.8	4.6
	6.0	1.1	2.5	950	24.7	18.1	0.73	1.56	30.0	15.8	3.0	950	38.9	1.68	33.1	107.9	6.8	4.1
100	3.0	0.1	0.2	680	19.2	13.8	0.72	1.84	26.0	10.4	4.2	Operation not recommended						
	3.0	0.1	0.2	950	20.7	16.2	0.78	1.94	27.3	10.7	4.4							
	4.5	0.5	1.2	680	20.3	14.2	0.70	1.72	26.7	11.8	3.7							
	4.5	0.5	1.2	950	21.9	16.7	0.76	1.81	28.1	12.1	3.9							
	6.0	1.0	2.2	680	20.9	14.5	0.69	1.66	27.1	12.5	3.5							
	6.0	1.0	2.2	950	22.6	17.1	0.76	1.75	28.5	12.9	3.7							
110	3.0	0.0	0.1	680	17.5	13.2	0.75	2.07	25.0	8.5	5.0							
	3.0	0.0	0.1	950	18.9	15.5	0.82	2.18	26.4	8.7	5.3							
	4.5	0.5	1.0	680	18.5	13.5	0.73	1.93	25.6	9.6	4.6							
	4.5	0.5	1.0	950	20.0	15.9	0.80	2.03	26.9	9.8	4.8							
	6.0	0.8	1.9	680	19.0	13.7	0.72	1.86	25.9	10.2	4.3							
	6.0	0.8	1.9	950	20.5	16.1	0.78	1.96	27.2	10.5	4.5							
120	3.0	0.0	0.0	680	16.2	12.9	0.79	2.32	24.6	7.0	6.0							
	3.0	0.0	0.0	950	17.5	15.1	0.86	2.44	25.8	7.2	6.3							
	4.5	0.3	0.8	680	16.9	13.0	0.77	2.17	24.8	7.8	5.4							
	4.5	0.3	0.8	950	18.3	15.3	0.84	2.28	26.1	8.0	5.7							
	6.0	0.6	1.5	680	17.3	13.1	0.76	2.10	25.0	8.2	5.1							
	6.0	0.6	1.5	950	18.7	15.4	0.82	2.21	26.3	8.5	5.4							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 030 (PSC Blower)

1000 CFM Nominal (Rated) Airflow Cooling,1000 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	7.5	2.7	6.2	Operation not recommended								720	18.6	2.06	12.4	93.9	2.6	1.7
	7.5	2.7	6.2									1000	19.4	1.83	13.2	88.0	3.1	1.5
30	3.8	0.9	2.0	720	31.8	18.2	0.57	1.14	36.6	27.9	0.8	720	20.7	2.10	14.3	96.6	2.9	1.9
	3.8	0.9	2.0	1000	34.4	21.4	0.62	1.20	38.5	28.7	0.8	1000	21.6	1.87	15.2	90.0	3.4	1.7
	5.6	1.6	3.6	720	30.9	17.3	0.56	1.07	35.4	28.7	0.7	720	21.6	2.11	15.2	97.8	3.0	2.0
	5.6	1.6	3.6	1000	33.4	20.4	0.61	1.13	37.2	29.5	0.7	1000	22.6	1.88	16.2	90.9	3.5	1.8
	7.5	2.5	5.7	720	30.2	16.7	0.55	1.05	34.6	28.9	0.6	720	22.1	2.12	15.7	98.4	3.1	2.1
	7.5	2.5	5.7	1000	32.6	19.7	0.60	1.10	36.4	29.7	0.6	1000	23.1	1.89	16.7	91.4	3.6	1.9
40	3.8	0.8	1.8	720	32.1	18.8	0.58	1.26	37.3	25.6	1.0	720	23.9	2.15	17.4	100.8	3.3	2.2
	3.8	0.8	1.8	1000	34.7	22.1	0.64	1.32	39.2	26.3	1.1	1000	25.0	1.91	18.5	93.1	3.8	2.0
	5.6	1.5	3.4	720	32.0	18.4	0.58	1.18	36.9	27.2	0.9	720	25.1	2.16	18.5	102.2	3.4	2.5
	5.6	1.5	3.4	1000	34.6	21.7	0.63	1.24	38.9	27.9	0.9	1000	26.2	1.92	19.6	94.2	4.0	2.2
	7.5	2.3	5.3	720	31.8	18.1	0.57	1.14	36.5	27.9	0.8	720	25.7	2.17	19.1	103.0	3.5	2.6
	7.5	2.3	5.3	1000	34.4	21.3	0.62	1.20	38.5	28.6	0.8	1000	26.8	1.93	20.3	94.9	4.1	2.3
50	3.8	0.8	1.8	720	31.5	18.8	0.60	1.39	37.1	22.7	1.3	720	27.2	2.18	20.5	105.0	3.7	2.7
	3.8	0.8	1.8	1000	34.0	22.1	0.65	1.46	39.0	23.3	1.4	1000	28.4	1.94	21.8	96.3	4.3	2.4
	5.6	1.4	3.2	720	32.0	18.8	0.59	1.29	37.3	24.7	1.1	720	28.5	2.20	21.8	106.7	3.8	2.9
	5.6	1.4	3.2	1000	34.6	22.2	0.64	1.36	39.3	25.4	1.2	1000	29.8	1.96	23.1	97.6	4.5	2.6
	7.5	2.2	5.0	720	32.1	18.8	0.58	1.26	37.3	25.6	1.0	720	29.3	2.20	22.5	107.6	3.9	3.0
	7.5	2.2	5.0	1000	34.7	22.1	0.64	1.32	39.2	26.3	1.0	1000	30.6	1.96	23.9	98.3	4.6	2.7
60	3.8	0.7	1.7	720	30.2	18.4	0.61	1.52	36.2	19.8	1.7	720	30.4	2.21	23.6	109.1	4.0	3.0
	3.8	0.7	1.7	1000	32.6	21.6	0.66	1.60	38.1	20.4	1.8	1000	31.8	1.97	25.1	99.5	4.7	2.7
	5.6	1.3	3.1	720	31.1	18.7	0.60	1.43	36.8	21.8	1.4	720	32.0	2.24	25.1	111.1	4.2	3.3
	5.6	1.3	3.1	1000	33.7	22.0	0.65	1.50	38.8	22.4	1.5	1000	33.4	1.99	26.6	100.9	4.9	2.9
	7.5	2.1	4.8	720	31.5	18.8	0.60	1.38	37.1	22.9	1.3	720	32.8	2.25	25.9	112.2	4.3	3.4
	7.5	2.1	4.8	1000	34.1	22.1	0.65	1.45	39.0	23.5	1.4	1000	34.3	2.00	27.5	101.8	5.0	3.0
70	3.8	0.7	1.7	720	28.5	17.7	0.62	1.68	35.0	16.9	2.2	720	33.7	2.26	26.7	113.3	4.4	3.4
	3.8	0.7	1.7	1000	30.8	20.9	0.68	1.77	36.8	17.4	2.3	1000	35.2	2.01	28.4	102.6	5.1	3.0
	5.6	1.3	3.0	720	29.7	18.2	0.61	1.58	35.9	18.8	1.9	720	35.4	2.28	28.3	115.5	4.5	3.7
	5.6	1.3	3.0	1000	32.1	21.4	0.67	1.66	37.7	19.3	2.0	1000	37.0	2.03	30.1	104.3	5.3	3.3
	7.5	2.0	4.7	720	30.2	18.4	0.61	1.52	36.2	19.9	1.7	720	36.4	2.29	29.2	116.8	4.6	3.8
	7.5	2.0	4.7	1000	32.7	21.7	0.66	1.60	38.1	20.4	1.8	1000	38.0	2.04	31.0	105.2	5.5	3.4
80	3.8	0.7	1.7	720	26.5	16.9	0.64	1.86	33.6	14.2	2.8	720	36.9	2.30	29.8	117.5	4.7	3.8
	3.8	0.7	1.7	1000	28.7	19.9	0.69	1.96	35.4	14.6	2.9	1000	38.6	2.05	31.6	105.7	5.5	3.4
	5.6	1.3	3.0	720	27.8	17.5	0.63	1.74	34.5	16.0	2.4	720	38.8	2.34	31.5	119.9	4.9	4.0
	5.6	1.3	3.0	1000	30.1	20.5	0.68	1.83	36.3	16.4	2.5	1000	40.6	2.08	33.5	107.6	5.7	3.6
	7.5	2.0	4.6	720	28.5	17.7	0.62	1.68	35.0	16.9	2.2	720	39.9	2.36	32.5	121.3	4.9	4.2
	7.5	2.0	4.6	1000	30.8	20.9	0.68	1.77	36.8	17.4	2.3	1000	41.7	2.10	34.5	108.6	5.8	3.7
85	3.8	0.7	1.7	720	25.5	16.5	0.65	2.0	32.9	13.1	3.1	720	38.5	2.33	31.2	119.5	4.8	4.0
	3.8	0.7	1.7	1000	27.6	19.4	0.70	2.07	34.6	13.4	3.3	1000	40.2	2.1	33.2	107.3	5.7	3.6
	5.6	1.3	2.9	720	26.8	17.0	0.64	1.84	33.8	14.7	2.7	720	40.5	2.4	33.1	122.1	5.0	4.2
	5.6	1.3	2.9	1000	29.0	20.0	0.69	1.93	35.6	15.1	2.9	1000	42.3	2.1	35.1	109.2	5.9	3.8
	7.5	2.0	4.6	720	27.4	17.3	0.63	1.78	34.3	15.5	2.5	720	41.6	2.4	34.1	123.5	5.1	4.4
	7.5	2.0	4.6	1000	29.7	20.4	0.69	1.87	36.1	15.9	2.7	1000	43.5	2.1	36.2	110.2	6.0	3.9
90	3.8	0.7	1.7	720	24.5	16.1	0.66	2.06	32.2	11.9	3.4	720	40.1	2.36	32.7	121.6	5.0	4.2
	3.8	0.7	1.7	1000	26.5	18.9	0.71	2.17	33.9	12.2	3.6	1000	41.9	2.10	34.7	108.8	5.9	3.7
	5.6	1.3	2.9	720	25.8	16.6	0.64	1.93	33.1	13.3	3.0	720	42.2	2.42	34.6	124.3	5.1	4.4
	5.6	1.3	2.9	1000	27.9	19.5	0.70	2.03	34.8	13.7	3.2	1000	44.1	2.15	36.8	110.8	6.0	3.9
	7.5	2.0	4.5	720	26.4	16.9	0.64	1.87	33.5	14.1	2.9	720	43.3	2.45	35.6	125.7	5.2	4.6
	7.5	2.0	4.5	1000	28.6	19.9	0.70	1.97	35.3	14.5	3.0	1000	45.3	2.18	37.8	111.9	6.1	4.1
100	3.8	0.7	1.7	720	22.5	15.3	0.68	2.28	30.9	9.9	4.1	Operation not recommended						
	3.8	0.7	1.7	1000	24.3	18.0	0.74	2.40	32.5	10.1	4.3							
	5.6	1.3	2.9	720	23.7	15.8	0.67	2.15	31.6	11.0	3.7							
	5.6	1.3	2.9	1000	25.6	18.5	0.72	2.26	33.3	11.3	3.9							
	7.5	1.9	4.5	720	24.3	16.0	0.66	2.08	32.0	11.7	3.5							
	7.5	1.9	4.5	1000	26.3	18.8	0.72	2.19	33.7	12.0	3.7							
110	3.8	0.7	1.7	720	20.7	14.7	0.71	2.55	29.9	8.1	4.9							
	3.8	0.7	1.7	1000	22.4	17.3	0.77	2.68	31.5	8.4	5.2							
	5.6	1.2	2.8	720	21.7	15.0	0.69	2.40	30.4	9.1	4.5							
	5.6	1.2	2.8	1000	23.5	17.7	0.75	2.52	32.0	9.3	4.7							
	7.5	1.9	4.4	720	22.2	15.2	0.68	2.32	30.7	9.6	4.3							
	7.5	1.9	4.4	1000	24.0	17.9	0.74	2.44	32.4	9.9	4.5							
120	3.8	0.7	1.6	720	19.3	14.4	0.75	2.84	29.5	6.8	5.9							
	3.8	0.7	1.6	1000	20.9	17.0	0.81	2.99	31.1	7.0	6.2							
	5.6	1.2	2.8	720	20.0	14.5	0.73	2.67	29.7	7.5	5.3							
	5.6	1.2	2.8	1000	21.7	17.1	0.79	2.81	31.2	7.7	5.6							
	7.5	1.9	4.3	720	20.5	14.6	0.72	2.60	29.8	7.9	5.1							
	7.5	1.9	4.3	1000	22.1	17.2	0.78	2.73	31.4	8.1	5.4							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	7.5	2.7	6.2	Operation not recommended								790	18.8	2.09	12.6	92.1	2.6	1.7
	7.5	2.7	6.2									1100	19.7	1.86	13.3	86.6	3.1	1.5
30	3.8	0.9	2.0	720	31.8	18.2	0.57	1.10	36.4	28.8	0.8	790	20.9	2.12	14.5	94.5	2.9	1.9
	3.8	0.9	2.0	1000	34.4	21.4	0.62	1.16	38.4	29.6	0.8	1100	21.9	1.89	15.4	88.4	3.4	1.7
	5.6	1.6	3.6	720	30.9	17.3	0.56	1.04	35.2	29.8	0.7	790	21.9	2.15	15.4	95.7	3.0	2.0
	5.6	1.6	3.6	1000	33.4	20.3	0.61	1.09	37.1	30.6	0.7	1100	22.9	1.91	16.4	89.3	3.5	1.8
	7.5	2.5	5.7	720	30.2	16.7	0.55	1.01	34.4	29.9	0.6	790	22.4	2.15	15.9	96.3	3.1	2.1
	7.5	2.5	5.7	1000	32.6	19.7	0.60	1.06	36.2	30.8	0.6	1100	23.4	1.91	16.9	89.7	3.6	1.9
40	3.8	0.8	1.8	720	32.1	18.8	0.58	1.22	37.2	26.4	1.0	790	24.2	2.18	17.6	98.4	3.3	2.2
	3.8	0.8	1.8	1000	34.7	22.1	0.64	1.28	39.1	27.1	1.1	1100	25.3	1.94	18.7	91.3	3.8	2.0
	5.6	1.5	3.4	720	32.0	18.4	0.58	1.14	36.8	28.1	0.9	790	25.4	2.19	18.7	99.7	3.4	2.5
	5.6	1.5	3.4	1000	34.6	21.7	0.63	1.20	38.7	28.9	0.9	1100	26.5	1.95	19.9	92.3	4.0	2.2
	7.5	2.3	5.3	720	31.8	18.1	0.57	1.10	36.4	28.8	0.8	790	26.0	2.20	19.3	100.5	3.5	2.6
	7.5	2.3	5.3	1000	34.4	21.3	0.62	1.16	38.3	29.6	0.8	1100	27.2	1.96	20.5	92.9	4.1	2.3
50	3.8	0.8	1.8	720	31.5	18.8	0.60	1.35	36.9	23.3	1.3	790	27.5	2.21	20.7	102.2	3.6	2.7
	3.8	0.8	1.8	1000	34.0	22.1	0.65	1.42	38.9	24.0	1.4	1100	28.7	1.97	22.0	94.2	4.3	2.4
	5.6	1.4	3.2	720	32.0	18.8	0.59	1.26	37.2	25.5	1.1	790	28.9	2.23	22.1	103.8	3.8	2.9
	5.6	1.4	3.2	1000	34.6	22.2	0.64	1.32	39.1	26.2	1.2	1100	30.2	1.98	23.4	95.4	4.5	2.6
	7.5	2.2	5.0	720	32.1	18.8	0.58	1.22	37.1	26.4	1.0	790	29.6	2.24	22.8	104.7	3.9	3.0
	7.5	2.2	5.0	1000	34.7	22.1	0.64	1.28	39.1	27.1	1.0	1100	31.0	1.99	24.2	96.1	4.6	2.7
60	3.8	0.7	1.7	720	30.2	18.4	0.61	1.48	36.1	20.4	1.7	790	30.8	2.25	23.9	106.1	4.0	3.0
	3.8	0.7	1.7	1000	32.7	21.6	0.66	1.56	38.0	20.9	1.8	1100	32.2	2.00	25.4	97.1	4.7	2.7
	5.6	1.3	3.1	720	31.1	18.7	0.60	1.39	36.7	22.4	1.4	790	32.4	2.27	25.4	107.9	4.2	3.3
	5.6	1.3	3.1	1000	33.7	22.0	0.65	1.46	38.7	23.1	1.5	1100	33.8	2.02	26.9	98.5	4.9	2.9
	7.5	2.1	4.8	720	31.5	18.8	0.60	1.34	36.9	23.5	1.3	790	33.2	2.27	26.2	108.9	4.3	3.4
	7.5	2.1	4.8	1000	34.1	22.1	0.65	1.41	38.9	24.2	1.4	1100	34.7	2.02	27.8	99.2	5.0	3.0
70	3.8	0.7	1.7	720	28.5	17.7	0.62	1.65	34.9	17.3	2.2	790	34.1	2.28	27.0	109.9	4.4	3.4
	3.8	0.7	1.7	1000	30.8	20.9	0.68	1.73	36.7	17.8	2.3	1100	35.6	2.03	28.7	100.0	5.1	3.0
	5.6	1.3	3.0	720	29.7	18.2	0.61	1.54	35.7	19.3	1.9	790	35.8	2.30	28.7	112.0	4.6	3.7
	5.6	1.3	3.0	1000	32.1	21.4	0.67	1.62	37.6	19.8	2.0	1100	37.4	2.05	30.4	101.5	5.4	3.3
	7.5	2.0	4.7	720	30.2	18.4	0.61	1.48	36.1	20.4	1.7	790	36.8	2.33	29.6	113.1	4.6	3.8
	7.5	2.0	4.7	1000	32.7	21.7	0.66	1.56	38.0	21.0	1.8	1100	38.5	2.07	31.4	102.4	5.4	3.4
80	3.8	0.7	1.7	720	26.6	16.9	0.64	1.82	33.5	14.6	2.8	790	37.3	2.33	30.1	113.8	4.7	3.8
	3.8	0.7	1.7	1000	28.7	19.9	0.69	1.91	35.2	15.0	2.9	1100	39.0	2.07	31.9	102.8	5.5	3.4
	5.6	1.3	3.0	720	27.8	17.5	0.63	1.70	34.4	16.4	2.4	790	39.3	2.37	31.9	116.0	4.9	4.0
	5.6	1.3	3.0	1000	30.1	20.6	0.68	1.79	36.2	16.8	2.5	1100	41.0	2.11	33.9	104.5	5.7	3.6
	7.5	2.0	4.6	720	28.5	17.7	0.62	1.65	34.9	17.3	2.2	790	40.3	2.39	32.9	117.3	4.9	4.2
	7.5	2.0	4.6	1000	30.8	20.9	0.68	1.73	36.7	17.8	2.3	1100	42.1	2.13	34.9	105.5	5.8	3.7
85	3.8	0.7	1.7	720	25.5	16.5	0.65	1.9	32.8	13.4	3.1	790	38.9	2.36	31.6	115.6	4.8	4.0
	3.8	0.7	1.7	1000	27.6	19.4	0.70	2.02	34.5	13.8	3.3	1100	40.7	2.1	33.5	104.3	5.7	3.6
	5.6	1.3	2.9	720	26.8	17.0	0.64	1.80	33.7	15.0	2.7	790	41.0	2.4	33.4	118.0	5.0	4.2
	5.6	1.3	2.9	1000	29.0	20.1	0.69	1.89	35.4	15.4	2.9	1100	42.8	2.1	35.5	106.0	5.9	3.8
	7.5	2.0	4.6	720	27.5	17.3	0.63	1.74	34.1	15.9	2.5	790	42.1	2.4	34.5	119.3	5.1	4.4
	7.5	2.0	4.6	1000	29.7	20.4	0.69	1.83	35.9	16.3	2.7	1100	44.0	2.2	36.6	107.0	5.9	3.9
90	3.8	0.7	1.7	720	24.5	16.1	0.66	2.02	32.1	12.2	3.4	790	40.6	2.39	33.1	117.5	5.0	4.2
	3.8	0.7	1.7	1000	26.5	18.9	0.71	2.12	33.8	12.5	3.6	1100	42.4	2.13	35.1	105.7	5.8	3.7
	5.6	1.3	2.9	720	25.8	16.6	0.64	1.89	32.9	13.6	3.0	790	42.7	2.45	35.0	120.0	5.1	4.4
	5.6	1.3	2.9	1000	27.9	19.6	0.70	1.99	34.7	14.0	3.2	1100	44.6	2.18	37.2	107.5	6.0	3.9
	7.5	2.0	4.5	720	26.4	16.9	0.64	1.84	33.4	14.4	2.9	790	43.8	2.48	36.0	121.3	5.2	4.6
	7.5	2.0	4.5	1000	28.6	19.9	0.70	1.93	35.2	14.8	3.0	1100	45.8	2.21	38.2	108.5	6.1	4.1
100	3.8	0.7	1.7	720	22.5	15.3	0.68	2.24	30.8	10.0	4.1	Operation not recommended						
	3.8	0.7	1.7	1000	24.3	18.0	0.74	2.36	32.4	10.3	4.3							
	5.6	1.3	2.9	720	23.7	15.8	0.67	2.11	31.5	11.2	3.7							
	5.6	1.3	2.9	1000	25.6	18.5	0.72	2.22	33.2	11.5	3.9							
	7.5	1.9	4.5	720	24.3	16.0	0.66	2.04	31.9	11.9	3.5							
	7.5	1.9	4.5	1000	26.3	18.8	0.72	2.15	33.6	12.2	3.7							
110	3.8	0.7	1.7	720	20.7	14.7	0.71	2.51	29.8	8.3	4.9							
	3.8	0.7	1.7	1000	22.4	17.3	0.77	2.64	31.4	8.5	5.2							
	5.6	1.2	2.8	720	21.7	15.0	0.69	2.36	30.3	9.2	4.5							
	5.6	1.2	2.8	1000	23.5	17.7	0.75	2.48	31.9	9.5	4.7							
	7.5	1.9	4.4	720	22.2	15.2	0.68	2.28	30.6	9.7	4.3							
	7.5	1.9	4.4	1000	24.1	17.9	0.74	2.40	32.2	10.0	4.5							
120	3.8	0.7	1.6	720	19.3	14.4	0.75	2.81	29.4	6.9	5.9							
	3.8	0.7	1.6	1000	20.9	17.0	0.81	2.95	31.0	7.1	6.2							
	5.6	1.2	2.8	720	20.0	14.5	0.72	2.63	29.6	7.6	5.3							
	5.6	1.2	2.8	1000	21.7	17.1	0.79	2.77	31.1	7.8	5.6							
	7.5	1.9	4.3	720	20.5	14.6	0.71	2.55	29.7	8.0	5.1							
	7.5	1.9	4.3	1000	22.1	17.2	0.78	2.68	31.3	8.3	5.4							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 (PSC Blower)

1,200 CFM Nominal (Rated) Airflow Cooling, 1,200 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	9.0	4.3	9.9	Operation not recommended								860	22.3	2.37	15.2	94.0	2.8	2.4
	9.0	4.3	9.9									1200	23.3	2.11	16.1	88.0	3.2	2.1
30	4.5	1.2	2.8	860	33.1	18.6	0.56	1.31	38.5	25.2	1.0	860	24.4	2.38	17.2	96.2	3.0	2.7
	4.5	1.2	2.8	1200	35.8	21.9	0.61	1.38	40.5	25.9	1.0	1200	25.5	2.12	18.2	89.7	3.5	2.4
	6.8	2.4	5.5	860	31.2	17.2	0.55	1.26	36.3	24.8	0.8	860	25.3	2.39	18.1	97.3	3.1	2.9
	6.8	2.4	5.5	1200	33.7	20.2	0.60	1.32	38.2	25.5	0.8	1200	26.5	2.13	19.2	90.4	3.6	2.6
	9.0	3.8	8.8	860	30.0	16.5	0.55	1.23	35.0	24.5	0.8	860	25.9	2.41	18.6	97.9	3.2	3.0
	9.0	3.8	8.8	1200	32.5	19.4	0.60	1.29	36.9	25.2	0.8	1200	27.1	2.14	19.8	90.9	3.7	2.7
40	4.5	1.0	2.3	860	34.9	20.3	0.58	1.44	40.8	24.3	1.2	860	27.9	2.43	20.5	100.1	3.4	3.3
	4.5	1.0	2.3	1200	37.8	23.9	0.63	1.51	42.9	25.0	1.3	1200	29.2	2.16	21.8	92.5	4.0	2.9
	6.8	2.1	4.8	860	34.0	19.4	0.57	1.36	39.6	25.0	1.0	860	29.2	2.45	21.8	101.5	3.5	3.5
	6.8	2.1	4.8	1200	36.8	22.8	0.62	1.43	41.6	25.7	1.1	1200	30.5	2.18	23.1	93.6	4.1	3.1
	9.0	3.4	7.9	860	33.3	18.8	0.56	1.32	38.8	25.2	1.0	860	29.9	2.46	22.4	102.2	3.6	3.6
	9.0	3.4	7.9	1200	36.0	22.1	0.61	1.39	40.8	25.9	1.0	1200	31.3	2.19	23.8	94.1	4.2	3.2
50	4.5	0.9	2.0	860	35.4	21.3	0.60	1.59	41.8	22.3	1.7	860	31.8	2.48	24.1	104.2	3.7	3.8
	4.5	0.9	2.0	1200	38.3	25.0	0.65	1.67	44.0	22.9	1.8	1200	33.2	2.21	25.6	95.6	4.4	3.4
	6.8	1.9	4.4	860	35.2	20.7	0.59	1.49	41.3	23.6	1.4	860	33.3	2.52	25.6	105.9	3.9	4.0
	6.8	1.9	4.4	1200	38.1	24.4	0.64	1.57	43.4	24.3	1.5	1200	34.8	2.24	27.2	96.9	4.6	3.6
	9.0	3.2	7.3	860	35.0	20.4	0.58	1.45	40.9	24.2	1.2	860	34.2	2.53	26.5	106.8	4.0	4.2
	9.0	3.2	7.3	1200	37.8	24.0	0.63	1.52	43.0	24.9	1.3	1200	35.8	2.25	28.1	97.6	4.7	3.7
60	4.5	0.8	1.8	860	34.8	21.6	0.62	1.76	41.8	19.8	2.4	860	35.7	2.55	27.8	108.5	4.1	4.4
	4.5	0.8	1.8	1200	37.7	25.4	0.68	1.85	44.0	20.4	2.5	1200	37.3	2.27	29.6	98.8	4.8	3.9
	6.8	1.8	4.1	860	35.3	21.5	0.61	1.65	41.8	21.5	1.9	860	37.6	2.59	29.6	110.4	4.3	4.6
	6.8	1.8	4.1	1200	38.2	25.2	0.66	1.73	44.1	22.1	2.0	1200	39.2	2.30	31.4	100.3	5.0	4.1
	9.0	3.0	6.9	860	35.4	21.3	0.60	1.59	41.8	22.3	1.7	860	38.6	2.61	30.5	111.5	4.3	4.7
	9.0	3.0	6.9	1200	38.3	25.0	0.65	1.67	44.0	22.9	1.8	1200	40.3	2.32	32.4	101.1	5.1	4.2
70	4.5	0.8	1.8	860	33.6	21.5	0.64	1.94	41.1	17.3	3.1	860	39.6	2.63	31.5	112.7	4.4	4.9
	4.5	0.8	1.8	1200	36.3	25.3	0.70	2.04	43.3	17.8	3.3	1200	41.4	2.34	33.5	102.0	5.2	4.4
	6.8	1.7	3.9	860	34.5	21.6	0.63	1.82	41.6	19.0	2.6	860	41.6	2.66	33.4	114.8	4.6	5.2
	6.8	1.7	3.9	1200	37.3	25.5	0.68	1.91	43.8	19.5	2.7	1200	43.5	2.37	35.4	103.6	5.4	4.6
	9.0	2.9	6.6	860	34.8	21.6	0.62	1.76	41.8	19.8	2.4	860	42.7	2.69	34.4	116.0	4.7	5.3
	9.0	2.9	6.6	1200	37.6	25.4	0.68	1.85	44.0	20.3	2.5	1200	44.6	2.39	36.5	104.4	5.5	4.7
80	4.5	0.8	1.8	860	31.9	21.0	0.66	2.15	40.1	14.8	4.0	860	43.4	2.70	35.0	116.7	4.7	5.4
	4.5	0.8	1.8	1200	34.5	24.7	0.72	2.26	42.2	15.3	4.2	1200	45.3	2.40	37.1	105.0	5.5	4.8
	6.8	1.7	3.8	860	33.0	21.4	0.65	2.02	40.8	16.4	3.4	860	45.4	2.74	36.9	118.9	4.9	5.7
	6.8	1.7	3.8	1200	35.7	25.1	0.70	2.12	42.9	16.8	3.6	1200	47.5	2.44	39.1	106.6	5.7	5.1
	9.0	2.8	6.4	860	33.5	21.5	0.64	1.95	41.1	17.2	3.1	860	46.4	2.77	37.8	120.0	4.9	5.8
	9.0	2.8	6.4	1200	36.3	25.3	0.70	2.05	43.3	17.7	3.3	1200	48.5	2.46	40.1	107.4	5.8	5.2
85	4.5	0.8	1.8	860	30.9	20.6	0.67	2.3	39.4	13.7	4.5	860	45.1	2.74	36.6	118.5	4.8	5.7
	4.5	0.8	1.8	1200	33.4	24.2	0.73	2.38	41.5	14.1	4.7	1200	47.1	2.4	38.8	106.4	5.7	5.1
	6.8	1.6	3.8	860	32.1	21.0	0.66	2.13	40.2	15.2	3.9	860	47.0	2.8	38.4	120.6	5.0	6.0
	6.8	1.6	3.8	1200	34.7	24.8	0.71	2.24	42.3	15.6	4.1	1200	49.1	2.5	40.7	107.9	5.8	5.3
	9.0	2.8	6.4	860	32.6	21.2	0.65	2.06	40.5	15.9	3.6	860	48.0	2.8	39.2	121.7	5.0	6.1
	9.0	2.8	6.4	1200	35.3	25.0	0.71	2.17	42.7	16.4	3.8	1200	50.1	2.5	41.6	108.7	5.9	5.5
90	4.5	0.8	1.8	860	29.9	20.2	0.68	2.38	38.8	12.6	4.9	860	46.8	2.78	38.1	120.4	4.9	6.0
	4.5	0.8	1.8	1200	32.3	23.8	0.74	2.50	40.8	12.9	5.2	1200	48.9	2.47	40.5	107.7	5.8	5.3
	6.8	1.6	3.8	860	31.1	20.7	0.67	2.23	39.6	13.9	4.4	860	48.6	2.81	39.8	122.4	5.1	6.2
	6.8	1.6	3.8	1200	33.7	24.4	0.72	2.35	41.7	14.3	4.6	1200	50.8	2.50	42.3	109.2	6.0	5.5
	9.0	2.7	6.3	860	31.8	21.0	0.66	2.17	40.0	14.6	4.0	860	49.5	2.83	40.7	123.3	5.1	6.4
	9.0	2.7	6.3	1200	34.3	24.7	0.72	2.28	42.1	15.1	4.2	1200	51.8	2.52	43.2	109.9	6.0	5.7
100	4.5	0.8	1.8	860	27.7	19.2	0.69	2.62	37.4	10.6	6.1	Operation not recommended						
	4.5	0.8	1.8	1200	30.0	22.6	0.75	2.76	39.4	10.9	6.4							
	6.8	1.6	3.7	860	29.0	19.8	0.68	2.47	38.2	11.7	5.4							
	6.8	1.6	3.7	1200	31.4	23.3	0.74	2.60	40.2	12.1	5.7							
	9.0	2.7	6.2	860	29.7	20.1	0.68	2.40	38.6	12.4	5.0							
	9.0	2.7	6.2	1200	32.1	23.7	0.74	2.52	40.7	12.7	5.3							
110	4.5	0.7	1.7	860	25.6	18.0	0.71	2.90	36.2	8.8	7.3							
	4.5	0.7	1.7	1200	27.6	21.2	0.77	3.05	38.1	9.1	7.7							
	6.8	1.6	3.6	860	26.8	18.7	0.70	2.74	36.9	9.8	6.7							
	6.8	1.6	3.6	1200	29.0	22.0	0.76	2.88	38.8	10.1	7.0							
	9.0	2.6	6.1	860	27.4	19.0	0.69	2.66	37.2	10.3	6.3							
	9.0	2.6	6.1	1200	29.7	22.4	0.76	2.80	39.2	10.6	6.6							
120	4.5	0.6	1.5	860	23.6	16.9	0.72	3.20	35.2	7.4	8.7							
	4.5	0.6	1.5	1200	25.5	19.9	0.78	3.37	37.0	7.6	9.2							
	6.8	1.5	3.3	860	24.7	17.5	0.71	3.03	35.7	8.1	8.0							
	6.8	1.5	3.3	1200	26.6	20.6	0.77	3.19	37.5	8.4	8.4							
	9.0	2.5	5.8	860	25.2	17.9	0.71	2.95	36.0	8.6	7.6							
	9.0	2.5	5.8	1200	27.3	21.0	0.77	3.10	37.9	8.8	8.0							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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)

1,200 CFM Nominal (Rated) Airflow Cooling, 1,200 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	9.0	4.3	9.9	Operation not recommended								860	21.7	2.08	15.4	93.4	3.1	2.4
	9.0	4.3	9.9									1200	22.7	1.85	16.3	87.5	3.6	2.1
30	4.5	1.2	2.8	860	34.1	19.3	0.57	1.08	38.7	31.5	1.0	860	23.7	2.10	17.4	95.6	3.3	2.7
	4.5	1.2	2.8	1200	36.9	22.7	0.62	1.14	40.8	32.4	1.0	1200	24.8	1.87	18.4	89.1	3.9	2.4
	6.8	2.4	5.5	860	32.2	17.5	0.54	1.01	36.5	31.9	0.8	860	24.7	2.11	18.3	96.6	3.4	2.9
	6.8	2.4	5.5	1200	34.8	20.6	0.59	1.06	38.4	32.8	0.8	1200	25.8	1.88	19.4	89.9	4.0	2.6
	9.0	3.8	8.8	860	31.0	16.5	0.53	0.98	35.2	31.7	0.8	860	25.3	2.12	18.8	97.2	3.5	3.0
	9.0	3.8	8.8	1200	33.5	19.5	0.58	1.03	37.0	32.5	0.8	1200	26.4	1.89	20.0	90.4	4.1	2.7
40	4.5	1.0	2.3	860	36.0	21.5	0.60	1.22	41.1	29.6	1.2	860	27.3	2.15	20.7	99.4	3.7	3.3
	4.5	1.0	2.3	1200	39.0	25.3	0.65	1.28	43.3	30.4	1.3	1200	28.5	1.91	22.0	92.0	4.4	2.9
	6.8	2.1	4.8	860	35.1	20.3	0.58	1.13	39.9	31.0	1.0	860	28.6	2.16	21.9	100.8	3.9	3.5
	6.8	2.1	4.8	1200	37.9	23.9	0.63	1.19	41.9	31.8	1.1	1200	29.9	1.92	23.3	93.0	4.6	3.1
	9.0	3.4	7.9	860	34.4	19.6	0.57	1.09	39.0	31.4	1.0	860	29.3	2.17	22.6	101.5	4.0	3.6
	9.0	3.4	7.9	1200	37.2	23.0	0.62	1.15	41.1	32.3	1.0	1200	30.6	1.93	24.0	93.6	4.6	3.2
50	4.5	0.9	2.0	860	36.5	22.7	0.62	1.37	42.1	26.6	1.7	860	31.1	2.20	24.3	103.5	4.1	3.8
	4.5	0.9	2.0	1200	39.4	26.7	0.68	1.44	44.3	27.4	1.8	1200	32.5	1.96	25.8	95.1	4.9	3.4
	6.8	1.9	4.4	860	36.3	22.0	0.61	1.26	41.6	28.7	1.4	860	32.7	2.23	25.8	105.2	4.3	4.0
	6.8	1.9	4.4	1200	39.3	25.9	0.66	1.33	43.8	29.5	1.5	1200	34.1	1.98	27.4	96.3	5.1	3.6
	9.0	3.2	7.3	860	36.1	21.6	0.60	1.22	41.2	29.6	1.2	860	33.5	2.24	26.6	106.1	4.4	4.2
	9.0	3.2	7.3	1200	39.0	25.4	0.65	1.28	43.4	30.5	1.3	1200	35.0	1.99	28.2	97.0	5.2	3.7
60	4.5	0.8	1.8	860	35.9	23.1	0.64	1.53	42.1	23.5	2.4	860	35.0	2.26	28.0	107.7	4.5	4.4
	4.5	0.8	1.8	1200	38.9	27.2	0.70	1.61	44.3	24.1	2.5	1200	36.6	2.01	29.7	98.2	5.3	3.9
	6.8	1.8	4.1	860	36.4	22.9	0.63	1.42	42.2	25.7	1.9	860	36.8	2.29	29.7	109.6	4.7	4.6
	6.8	1.8	4.1	1200	39.3	27.0	0.69	1.49	44.4	26.4	2.0	1200	38.5	2.04	31.5	99.7	5.5	4.1
	9.0	3.0	6.9	860	36.5	22.7	0.62	1.37	42.1	26.6	1.7	860	37.8	2.32	30.6	110.7	4.8	4.7
	9.0	3.0	6.9	1200	39.4	26.7	0.68	1.44	44.4	27.4	1.8	1200	39.5	2.06	32.5	100.5	5.6	4.2
70	4.5	0.8	1.8	860	34.7	22.9	0.66	1.72	41.5	20.1	3.1	860	38.9	2.33	31.6	111.9	4.9	4.9
	4.5	0.8	1.8	1200	37.5	27.0	0.72	1.81	43.6	20.7	3.3	1200	40.6	2.07	33.5	101.3	5.8	4.4
	6.8	1.7	3.9	860	35.6	23.1	0.65	1.60	42.0	22.3	2.6	860	40.9	2.37	33.5	114.0	5.0	5.2
	6.8	1.7	3.9	1200	38.5	27.2	0.71	1.68	44.2	22.9	2.7	1200	42.7	2.11	35.5	102.9	5.9	4.6
	9.0	2.9	6.6	860	35.9	23.1	0.64	1.53	42.1	23.5	2.4	860	41.9	2.38	34.4	115.1	5.2	5.3
	9.0	2.9	6.6	1200	38.8	27.2	0.70	1.61	44.3	24.1	2.5	1200	43.8	2.12	36.6	103.8	6.1	4.7
80	4.5	0.8	1.8	860	32.9	22.3	0.68	1.92	40.3	17.1	4.0	860	42.6	2.41	35.1	115.9	5.2	5.4
	4.5	0.8	1.8	1200	35.6	26.3	0.74	2.02	42.5	17.6	4.2	1200	44.5	2.14	37.2	104.3	6.1	4.8
	6.8	1.7	3.8	860	34.1	22.8	0.67	1.79	41.1	19.1	3.4	860	44.6	2.44	37.0	118.1	5.4	5.7
	6.8	1.7	3.8	1200	36.8	26.8	0.73	1.88	43.3	19.6	3.6	1200	46.6	2.17	39.2	106.0	6.3	5.1
	9.0	2.8	6.4	860	34.6	22.9	0.66	1.72	41.4	20.1	3.1	860	45.7	2.46	37.9	119.2	5.4	5.8
	9.0	2.8	6.4	1200	37.4	27.0	0.72	1.81	43.6	20.7	3.3	1200	47.7	2.19	40.3	106.8	6.4	5.2
85	4.5	0.8	1.8	860	31.9	21.9	0.69	2.0	39.7	15.7	4.5	860	44.3	2.43	36.7	117.7	5.3	5.7
	4.5	0.8	1.8	1200	34.4	25.7	0.75	2.14	41.7	16.2	4.7	1200	46.3	2.2	38.9	105.7	6.3	5.1
	6.8	1.6	3.8	860	33.1	22.4	0.68	1.90	40.5	17.5	3.9	860	46.3	2.5	38.5	119.8	5.5	6.0
	6.8	1.6	3.8	1200	35.8	26.3	0.74	2.00	42.6	18.0	4.1	1200	48.4	2.2	40.9	107.3	6.4	5.3
	9.0	2.8	6.4	860	33.7	22.6	0.67	1.83	40.8	18.5	3.6	860	47.3	2.5	39.4	120.9	5.6	6.1
	9.0	2.8	6.4	1200	36.4	26.6	0.73	1.92	43.0	19.1	3.8	1200	49.4	2.2	41.8	108.1	6.5	5.5
90	4.5	0.8	1.8	860	30.8	21.4	0.70	2.15	39.0	14.3	4.9	860	46.0	2.46	38.2	119.5	5.5	6.0
	4.5	0.8	1.8	1200	33.3	25.2	0.76	2.26	41.0	14.7	5.2	1200	48.1	2.19	40.6	107.1	6.4	5.3
	6.8	1.6	3.8	860	32.1	22.0	0.68	2.01	39.8	16.0	4.4	860	47.9	2.51	40.0	121.6	5.6	6.2
	6.8	1.6	3.8	1200	34.7	25.9	0.75	2.11	41.9	16.5	4.6	1200	50.1	2.23	42.5	108.6	6.6	5.5
	9.0	2.7	6.3	860	32.8	22.3	0.68	1.93	40.3	17.0	4.0	860	48.9	2.53	40.9	122.6	5.7	6.4
	9.0	2.7	6.3	1200	35.4	26.2	0.74	2.03	42.4	17.5	4.2	1200	51.0	2.25	43.4	109.4	6.6	5.7
100	4.5	0.8	1.8	860	28.6	20.4	0.71	2.40	37.5	11.9	6.1	Operation not recommended						
	4.5	0.8	1.8	1200	30.9	24.0	0.78	2.52	39.5	12.3	6.4							
	6.8	1.6	3.7	860	29.9	21.0	0.70	2.24	38.4	13.3	5.4							
	6.8	1.6	3.7	1200	32.4	24.7	0.76	2.36	40.4	13.7	5.7							
	9.0	2.7	6.2	860	30.6	21.3	0.70	2.17	38.8	14.1	5.0							
	9.0	2.7	6.2	1200	33.1	25.1	0.76	2.28	40.9	14.5	5.3							
110	4.5	0.7	1.7	860	26.3	19.2	0.73	2.67	36.1	9.8	7.3							
	4.5	0.7	1.7	1200	28.4	22.6	0.80	2.81	38.0	10.1	7.7							
	6.8	1.6	3.6	860	27.6	19.9	0.72	2.51	36.9	11.0	6.7							
	6.8	1.6	3.6	1200	29.8	23.4	0.78	2.64	38.8	11.3	7.0							
	9.0	2.6	6.1	860	28.3	20.2	0.72	2.43	37.3	11.7	6.3							
	9.0	2.6	6.1	1200	30.6	23.8	0.78	2.55	39.3	12.0	6.6							
120	4.5	0.6	1.5	860	24.1	18.2	0.75	2.98	34.9	8.1	8.7							
	4.5	0.6	1.5	1200	26.1	21.4	0.82	3.13	36.8	8.3	9.2							
	6.8	1.5	3.3	860	25.3	18.8	0.74	2.81	35.5	9.0	8.0							
	6.8	1.5	3.3	1200	27.3	22.1	0.81	2.95	37.4	9.3	8.4							
	9.0	2.5	5.8	860	25.9	19.1	0.74	2.72	35.9	9.5	7.6							
	9.0	2.5	5.8	1200	28.0	22.4	0.80	2.86	37.8	9.8	8.0							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	10.5	3.7	8.5	Operation not recommended								1000	26.1	2.77	17.7	94.1	2.8	3.7
	10.5	3.7	8.5									1400	27.2	2.46	18.8	88.0	3.2	3.3
30	5.3	1.0	2.3	1000	39.5	23.0	0.58	1.35	45.2	29.3	1.7	1000	28.7	2.75	20.4	96.6	3.1	3.9
	5.3	1.0	2.3	1400	42.7	27.1	0.63	1.42	47.6	30.1	1.8	1400	30.0	2.45	21.6	89.8	3.6	3.5
	7.9	2.0	4.6	1000	36.4	20.1	0.55	1.26	41.7	28.8	1.8	1000	29.9	2.74	21.6	97.7	3.2	4.0
	7.9	2.0	4.6	1400	39.4	23.7	0.60	1.33	43.9	29.6	1.9	1400	31.3	2.44	23.0	90.7	3.8	3.6
	10.5	3.4	7.9	1000	34.6	18.6	0.54	1.24	39.7	28.0	1.8	1000	30.6	2.74	22.3	98.4	3.3	4.0
	10.5	3.4	7.9	1400	37.4	21.8	0.58	1.30	41.8	28.7	1.9	1400	32.0	2.44	23.7	91.2	3.8	3.6
40	5.3	0.9	2.0	1000	42.3	26.1	0.62	1.50	48.6	28.1	1.8	1000	33.0	2.74	24.7	100.6	3.5	4.3
	5.3	0.9	2.0	1400	45.7	30.7	0.67	1.58	51.1	28.9	1.9	1400	34.5	2.44	26.2	92.8	4.1	3.8
	7.9	1.9	4.3	1000	40.9	24.5	0.60	1.41	46.8	29.1	1.7	1000	34.6	2.74	26.2	102.0	3.7	4.3
	7.9	1.9	4.3	1400	44.2	28.8	0.65	1.48	49.3	29.9	1.8	1400	36.1	2.44	27.8	93.9	4.3	3.8
	10.5	3.2	7.5	1000	39.9	23.4	0.59	1.36	45.6	29.3	1.7	1000	35.5	2.74	27.1	102.8	3.8	4.4
	10.5	3.2	7.5	1400	43.1	27.5	0.64	1.43	48.0	30.2	1.8	1400	37.1	2.44	28.7	94.5	4.5	3.9
50	5.3	0.8	1.8	1000	42.7	27.2	0.64	1.66	49.6	25.7	2.2	1000	37.5	2.75	29.1	104.7	4.0	4.6
	5.3	0.8	1.8	1400	46.2	32.0	0.69	1.75	52.2	26.4	2.3	1400	39.2	2.45	30.9	95.9	4.7	4.1
	7.9	1.7	4.0	1000	42.7	26.7	0.63	1.56	49.1	27.3	1.9	1000	39.4	2.77	30.9	106.5	4.2	4.7
	7.9	1.7	4.0	1400	46.1	31.4	0.68	1.64	51.7	28.1	2.0	1400	41.2	2.46	32.8	97.3	4.9	4.2
	10.5	3.1	7.1	1000	42.3	26.1	0.62	1.50	48.6	28.2	1.9	1000	40.5	2.77	31.9	107.5	4.3	4.7
	10.5	3.1	7.1	1400	45.8	30.8	0.67	1.58	51.2	29.0	2.0	1400	42.3	2.46	33.9	98.0	5.0	4.2
60	5.3	0.8	1.8	1000	41.7	27.1	0.65	1.84	49.1	22.7	2.7	1000	42.2	2.79	33.5	109.0	4.4	4.9
	5.3	0.8	1.8	1400	45.1	31.9	0.71	1.93	51.7	23.4	2.8	1400	44.1	2.48	35.6	99.1	5.2	4.4
	7.9	1.7	3.9	1000	42.5	27.3	0.64	1.72	49.5	24.7	2.4	1000	44.4	2.81	35.7	111.1	4.6	5.2
	7.9	1.7	3.9	1400	46.0	32.1	0.70	1.81	52.1	25.4	2.5	1400	46.4	2.50	37.9	100.7	5.4	4.6
	10.5	3.0	6.9	1000	42.7	27.2	0.64	1.66	49.6	25.7	2.2	1000	45.7	2.83	36.9	112.3	4.7	5.3
	10.5	3.0	6.9	1400	46.2	32.0	0.69	1.75	52.2	26.4	2.3	1400	47.7	2.52	39.2	101.6	5.6	4.7
70	5.3	0.8	1.7	1000	39.8	26.2	0.66	2.04	47.8	19.6	3.3	1000	46.9	2.84	38.0	113.4	4.8	5.4
	5.3	0.8	1.7	1400	43.0	30.8	0.72	2.14	50.3	20.1	3.5	1400	49.0	2.53	40.4	102.4	5.7	4.8
	7.9	1.6	3.8	1000	41.1	26.8	0.65	1.90	48.7	21.6	2.9	1000	49.5	2.89	40.5	115.9	5.0	5.6
	7.9	1.6	3.8	1400	44.5	31.6	0.71	2.00	51.3	22.2	3.1	1400	51.8	2.57	43.0	104.2	5.9	5.0
	10.5	2.9	6.7	1000	41.7	27.1	0.65	1.84	49.1	22.6	2.7	1000	51.0	2.92	41.8	117.2	5.1	5.7
	10.5	2.9	6.7	1400	45.1	31.9	0.71	1.94	51.7	23.2	2.8	1400	53.3	2.60	44.4	105.2	6.0	5.1
80	5.3	0.8	1.8	1000	37.3	24.8	0.66	2.25	46.0	16.6	4.2	1000	51.7	2.93	42.5	117.9	5.2	6.0
	5.3	0.8	1.8	1400	40.4	29.2	0.72	2.37	48.5	17.0	4.4	1400	54.0	2.61	45.1	105.7	6.1	5.3
	7.9	1.6	3.7	1000	38.9	25.7	0.66	2.11	47.2	18.4	3.6	1000	54.7	3.01	45.2	120.6	5.3	6.2
	7.9	1.6	3.7	1400	42.1	30.2	0.72	2.22	49.7	19.0	3.8	1400	57.1	2.68	48.0	107.8	6.2	5.5
	10.5	2.9	6.7	1000	39.7	26.1	0.66	2.04	47.7	19.4	3.4	1000	56.3	3.06	46.7	122.1	5.4	6.4
	10.5	2.9	6.7	1400	42.9	30.7	0.72	2.15	50.3	20.0	3.6	1400	58.8	2.72	49.6	108.9	6.3	5.7
85	5.3	0.8	1.8	1000	36.0	24.0	0.67	2.4	45.1	15.2	4.7	1000	54.1	3.00	44.7	120.1	5.3	6.2
	5.3	0.8	1.8	1400	38.9	28.3	0.73	2.51	47.5	15.6	4.9	1400	56.6	2.7	47.5	107.4	6.2	5.6
	7.9	1.6	3.7	1000	37.6	25.0	0.66	2.23	46.2	16.9	4.1	1000	57.2	3.1	47.5	123.0	5.4	6.5
	7.9	1.6	3.7	1400	40.7	29.4	0.72	2.35	48.7	17.4	4.3	1400	59.8	2.7	50.5	109.6	6.4	5.8
	10.5	2.9	6.6	1000	38.4	25.4	0.66	2.16	46.8	17.9	3.8	1000	58.9	3.1	49.1	124.6	5.5	6.7
	10.5	2.9	6.6	1400	41.5	29.9	0.72	2.27	49.3	18.4	4.1	1400	61.6	2.8	52.1	110.7	6.5	6.0
90	5.3	0.8	1.8	1000	34.6	23.3	0.67	2.51	44.1	13.8	5.1	1000	56.6	3.06	46.9	122.4	5.4	6.5
	5.3	0.8	1.8	1400	37.5	27.4	0.73	2.64	46.5	14.2	5.4	1400	59.1	2.72	49.8	109.1	6.4	5.8
	7.9	1.6	3.7	1000	36.3	24.2	0.67	2.35	45.3	15.4	4.6	1000	59.8	3.16	49.8	125.4	5.6	6.9
	7.9	1.6	3.7	1400	39.2	28.5	0.73	2.47	47.7	15.9	4.8	1400	62.5	2.81	52.9	111.3	6.5	6.1
	10.5	2.9	6.6	1000	37.1	24.7	0.66	2.27	45.9	16.3	4.3	1000	61.6	3.23	51.4	127.0	5.6	7.1
	10.5	2.9	6.6	1400	40.1	29.0	0.72	2.39	48.3	16.8	4.5	1400	64.4	2.87	54.6	112.6	6.6	6.3
100	5.3	0.8	1.8	1000	32.0	21.9	0.68	2.80	42.4	11.5	6.4	Operation not recommended						
	5.3	0.8	1.8	1400	34.6	25.8	0.74	2.94	44.6	11.8	6.7							
	7.9	1.6	3.6	1000	33.5	22.7	0.68	2.62	43.4	12.8	5.6							
	7.9	1.6	3.6	1400	36.2	26.7	0.74	2.76	45.7	13.1	5.9							
	10.5	2.8	6.5	1000	34.3	23.1	0.67	2.54	43.9	13.5	5.3							
	10.5	2.8	6.5	1400	37.1	27.2	0.73	2.67	46.2	13.9	5.6							
110	5.3	0.8	1.7	1000	29.8	20.9	0.70	3.13	41.2	9.5	7.7							
	5.3	0.8	1.7	1400	32.2	24.6	0.76	3.29	43.4	9.8	8.1							
	7.9	1.6	3.6	1000	31.0	21.4	0.69	2.94	41.8	10.5	6.9							
	7.9	1.6	3.6	1400	33.5	25.2	0.75	3.09	44.0	10.8	7.3							
	10.5	2.8	6.4	1000	31.6	21.7	0.69	2.84	42.2	11.1	6.6							
	10.5	2.8	6.4	1400	34.2	25.5	0.75	2.99	44.4	11.4	6.9							
120	5.3	0.7	1.6	1000	28.2	20.6	0.73	3.52	41.0	8.0	9.3							
	5.3	0.7	1.6	1400	30.5	24.3	0.80	3.70	43.1	8.2	9.8							
	7.9	1.5	3.5	1000	28.9	20.7	0.71	3.30	41.0	8.8	8.4							
	7.9	1.5	3.5	1400	31.3	24.3	0.78	3.47	43.1	9.0	8.8							
	10.5	2.7	6.3	1000	29.4	20.8	0.71	3.20	41.1	9.2	8.0							
	10.5	2.7	6.3	1400	31.8	24.4	0.77	3.36	43.2	9.5	8.4							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	10.5	3.7	8.5	Operation not recommended								1000	24.5	2.59	16.7	92.6	2.8	3.7
	10.5	3.7	8.5									1400	25.6	2.30	17.7	86.9	3.3	3.3
30	5.3	1.0	2.3	1000	39.4	22.9	0.58	1.20	44.6	32.9	1.7	1000	27.0	2.57	19.3	95.0	3.1	3.9
	5.3	1.0	2.3	1400	42.6	27.0	0.63	1.26	47.0	33.8	1.8	1400	28.3	2.29	20.5	88.7	3.6	3.5
	7.9	2.0	4.6	1000	36.3	20.1	0.55	1.12	41.1	32.4	1.8	1000	28.1	2.56	20.4	96.1	3.2	4.0
	7.9	2.0	4.6	1400	39.3	23.6	0.60	1.18	43.3	33.3	1.9	1400	29.4	2.28	21.6	89.4	3.8	3.6
	10.5	3.4	7.9	1000	34.5	18.5	0.54	1.08	39.1	31.8	1.8	1000	28.7	2.56	21.0	96.6	3.3	4.0
	10.5	3.4	7.9	1400	37.3	21.8	0.58	1.14	41.2	32.7	1.9	1400	30.0	2.28	22.3	89.9	3.9	3.6
40	5.3	0.9	2.0	1000	42.3	26.1	0.62	1.35	48.0	31.3	1.8	1000	31.1	2.56	23.3	98.8	3.6	4.3
	5.3	0.9	2.0	1400	45.7	30.7	0.67	1.42	50.5	32.2	1.9	1400	32.5	2.28	24.8	91.5	4.2	3.8
	7.9	1.9	4.3	1000	40.9	24.4	0.60	1.26	46.3	32.6	1.7	1000	32.5	2.56	24.7	100.1	3.7	4.3
	7.9	1.9	4.3	1400	44.2	28.7	0.65	1.32	48.7	33.5	1.8	1400	34.0	2.28	26.2	92.5	4.4	3.8
	10.5	3.2	7.5	1000	39.9	23.4	0.59	1.22	45.1	32.7	1.7	1000	33.3	2.56	25.5	100.8	3.8	4.4
	10.5	3.2	7.5	1400	43.1	27.5	0.64	1.28	47.5	33.7	1.8	1400	34.8	2.28	27.0	93.0	4.5	3.9
50	5.3	0.8	1.8	1000	42.7	27.2	0.64	1.51	49.1	28.3	2.2	1000	35.4	2.57	27.5	102.8	4.0	4.6
	5.3	0.8	1.8	1400	46.2	32.0	0.69	1.59	51.6	29.1	2.3	1400	37.0	2.29	29.2	94.5	4.7	4.1
	7.9	1.7	4.0	1000	42.6	26.6	0.62	1.41	48.6	30.3	1.9	1000	37.1	2.59	29.2	104.4	4.2	4.7
	7.9	1.7	4.0	1400	46.1	31.4	0.68	1.48	51.2	31.1	2.0	1400	38.8	2.30	31.0	95.7	4.9	4.2
	10.5	3.1	7.1	1000	42.3	26.1	0.62	1.36	48.1	31.1	1.9	1000	38.1	2.60	30.1	105.3	4.3	4.7
	10.5	3.1	7.1	1400	45.7	30.7	0.67	1.43	50.6	32.0	2.0	1400	39.8	2.31	31.9	96.3	5.0	4.2
60	5.3	0.8	1.8	1000	41.7	27.1	0.65	1.69	48.6	24.7	2.7	1000	39.8	2.61	31.7	106.9	4.5	4.9
	5.3	0.8	1.8	1400	45.1	31.9	0.71	1.78	51.2	25.4	2.8	1400	41.6	2.32	33.7	97.5	5.3	4.4
	7.9	1.7	3.9	1000	42.5	27.3	0.64	1.57	49.0	27.1	2.4	1000	41.9	2.63	33.7	108.8	4.7	5.2
	7.9	1.7	3.9	1400	46.0	32.1	0.70	1.65	51.6	27.9	2.5	1400	43.8	2.34	35.8	98.9	5.5	4.6
	10.5	3.0	6.9	1000	42.7	27.2	0.64	1.52	49.1	28.1	2.2	1000	43.0	2.65	34.8	109.8	4.8	5.3
	10.5	3.0	6.9	1400	46.2	32.0	0.69	1.60	51.6	28.9	2.3	1400	45.0	2.36	36.9	99.7	5.6	4.7
70	5.3	0.8	1.7	1000	39.8	26.2	0.66	1.88	47.3	21.2	3.3	1000	44.4	2.68	36.1	111.1	4.9	5.4
	5.3	0.8	1.7	1400	43.1	30.8	0.72	1.98	49.8	21.8	3.5	1400	46.4	2.38	38.3	100.7	5.7	4.8
	7.9	1.6	3.8	1000	41.2	26.8	0.65	1.76	48.3	23.4	2.9	1000	46.8	2.72	38.3	113.3	5.0	5.6
	7.9	1.6	3.8	1400	44.5	31.6	0.71	1.85	50.8	24.0	3.1	1400	48.9	2.42	40.6	102.3	5.9	5.0
	10.5	2.9	6.7	1000	41.7	27.1	0.65	1.69	48.6	24.6	2.7	1000	48.1	2.74	39.5	114.5	5.1	5.7
	10.5	2.9	6.7	1400	45.1	31.9	0.71	1.78	51.2	25.3	2.8	1400	50.3	2.44	41.9	103.2	6.0	5.1
80	5.3	0.8	1.8	1000	37.4	24.8	0.66	2.11	45.6	17.7	4.2	1000	49.0	2.77	40.4	115.4	5.2	6.0
	5.3	0.8	1.8	1400	40.4	29.2	0.72	2.22	48.0	18.2	4.4	1400	51.3	2.46	42.8	103.9	6.1	5.3
	7.9	1.6	3.7	1000	39.0	25.7	0.66	1.97	46.7	19.8	3.6	1000	51.8	2.83	42.8	117.9	5.4	6.2
	7.9	1.6	3.7	1400	42.1	30.2	0.72	2.07	49.2	20.3	3.8	1400	54.1	2.52	45.5	105.8	6.3	5.5
	10.5	2.9	6.7	1000	39.7	26.1	0.66	1.90	47.3	20.9	3.4	1000	53.3	2.88	44.2	119.3	5.4	6.4
	10.5	2.9	6.7	1400	42.9	30.7	0.72	2.00	49.7	21.5	3.6	1400	55.7	2.56	46.9	106.8	6.4	5.7
85	5.3	0.8	1.8	1000	36.0	24.1	0.67	2.2	44.6	16.2	4.7	1000	51.4	2.83	42.5	117.6	5.3	6.2
	5.3	0.8	1.8	1400	39.0	28.3	0.73	2.35	47.0	16.7	4.9	1400	53.7	2.5	45.1	105.5	6.2	5.6
	7.9	1.6	3.7	1000	37.6	25.0	0.66	2.09	45.8	18.1	4.1	1000	54.3	2.9	45.1	120.3	5.5	6.5
	7.9	1.6	3.7	1400	40.7	29.4	0.72	2.20	48.2	18.6	4.3	1400	56.7	2.6	47.9	107.5	6.4	5.8
	10.5	2.9	6.6	1000	38.4	25.4	0.66	2.02	46.3	19.2	3.8	1000	55.9	3.0	46.5	121.7	5.5	6.7
	10.5	2.9	6.6	1400	41.6	29.9	0.72	2.12	48.8	19.7	4.1	1400	58.4	2.6	49.4	108.6	6.5	6.0
90	5.3	0.8	1.8	1000	34.7	23.3	0.67	2.36	43.7	14.7	5.1	1000	53.8	2.90	44.6	119.8	5.4	6.5
	5.3	0.8	1.8	1400	37.5	27.4	0.73	2.48	46.0	15.1	5.4	1400	56.2	2.58	47.4	107.2	6.4	5.8
	7.9	1.6	3.7	1000	36.3	24.2	0.67	2.21	44.8	16.5	4.6	1000	56.8	2.99	47.4	122.6	5.6	6.9
	7.9	1.6	3.7	1400	39.3	28.5	0.73	2.32	47.2	16.9	4.8	1400	59.4	2.66	50.3	109.3	6.5	6.1
	10.5	2.9	6.6	1000	37.1	24.7	0.66	2.13	45.4	17.4	4.3	1000	58.5	3.06	48.8	124.1	5.6	7.1
	10.5	2.9	6.6	1400	40.2	29.1	0.72	2.24	47.8	17.9	4.5	1400	61.1	2.72	51.8	110.4	6.6	6.3
100	5.3	0.8	1.8	1000	32.1	21.9	0.68	2.64	41.9	12.1	6.3	Operation not recommended						
	5.3	0.8	1.8	1400	34.7	25.8	0.74	2.78	44.2	12.5	6.6							
	7.9	1.6	3.6	1000	33.6	22.7	0.68	2.47	42.9	13.6	5.6							
	7.9	1.6	3.6	1400	36.3	26.7	0.74	2.60	45.2	14.0	5.9							
	10.5	2.8	6.5	1000	34.4	23.1	0.67	2.40	43.4	14.3	5.3							
	10.5	2.8	6.5	1400	37.1	27.2	0.73	2.52	45.7	14.7	5.6							
110	5.3	0.8	1.7	1000	29.8	20.9	0.70	2.98	40.7	10.0	7.7							
	5.3	0.8	1.7	1400	32.2	24.6	0.76	3.13	42.9	10.3	8.1							
	7.9	1.6	3.6	1000	31.0	21.4	0.69	2.79	41.3	11.1	6.9							
	7.9	1.6	3.6	1400	33.5	25.2	0.75	2.93	43.5	11.4	7.3							
	10.5	2.8	6.4	1000	31.7	21.7	0.69	2.69	41.7	11.8	6.6							
	10.5	2.8	6.4	1400	34.2	25.6	0.75	2.83	43.9	12.1	6.9							
120	5.3	0.7	1.6	1000	28.2	20.6	0.73	3.37	40.5	8.4	9.3							
	5.3	0.7	1.6	1400	30.5	24.2	0.79	3.54	42.6	8.6	9.8							
	7.9	1.5	3.5	1000	29.0	20.7	0.71	3.15	40.5	9.2	8.4							
	7.9	1.5	3.5	1400	31.3	24.3	0.78	3.31	42.6	9.5	8.8							
	10.5	2.7	6.3	1000	29.4	20.8	0.71	3.04	40.6	9.7	8.0							
	10.5	2.7	6.3	1400	31.8	24.5	0.77	3.20	42.7	9.9	8.4							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	12.0	4.2	9.6	Operation not recommended								1150	34.6	3.78	23.2	97.8	2.7	3.7
	12.0	4.2	9.6									1600	36.1	3.36	24.6	90.9	3.2	3.3
30	6.0	1.1	2.6	1150	47.8	26.4	0.55	2.01	56.0	23.8	1.7	1150	37.3	3.78	26.0	100.1	2.9	3.9
	6.0	1.1	2.6	1600	51.7	31.0	0.60	2.11	58.9	24.5	1.8	1600	39.0	3.36	27.6	92.6	3.4	3.5
	9.0	2.3	5.3	1150	44.4	23.5	0.53	1.85	52.0	24.0	1.8	1150	38.9	3.79	27.5	101.3	3.0	3.9
	9.0	2.3	5.3	1600	48.0	27.7	0.58	1.95	54.7	24.6	1.9	1600	40.7	3.37	29.2	93.5	3.5	3.5
	12.0	3.8	8.7	1150	42.4	22.0	0.52	1.79	49.7	23.7	1.8	1150	39.8	3.80	28.3	102.1	3.1	4.0
	12.0	3.8	8.7	1600	45.9	25.9	0.56	1.88	52.3	24.4	1.9	1600	41.6	3.38	30.1	94.1	3.6	3.6
40	6.0	0.9	2.1	1150	50.7	29.3	0.58	2.23	59.7	22.7	1.9	1150	42.3	3.82	30.8	104.1	3.2	4.2
	6.0	0.9	2.1	1600	54.8	34.5	0.63	2.35	62.8	23.3	2.0	1600	44.2	3.40	32.7	95.6	3.8	3.7
	9.0	2.1	4.8	1150	49.1	27.6	0.56	2.08	57.5	23.6	1.7	1150	44.3	3.84	32.6	105.7	3.4	4.3
	9.0	2.1	4.8	1600	53.1	32.4	0.61	2.19	60.5	24.2	1.8	1600	46.3	3.42	34.7	96.8	4.0	3.8
	12.0	3.5	8.0	1150	47.9	26.5	0.55	2.01	56.0	23.9	1.7	1150	45.4	3.86	33.7	106.6	3.5	4.4
	12.0	3.5	8.0	1600	51.8	31.1	0.60	2.11	59.0	24.5	1.8	1600	47.5	3.43	35.8	97.5	4.1	3.9
50	6.0	0.8	1.9	1150	51.3	30.6	0.60	2.46	61.1	20.8	2.3	1150	47.6	3.89	35.7	108.3	3.6	4.5
	6.0	0.8	1.9	1600	55.4	36.0	0.65	2.59	64.3	21.4	2.4	1600	49.7	3.46	37.9	98.8	4.2	4.0
	9.0	1.9	4.4	1150	51.0	29.8	0.58	2.30	60.3	22.2	2.0	1150	50.0	3.93	37.9	110.2	3.7	4.6
	9.0	1.9	4.4	1600	55.2	35.1	0.64	2.42	63.5	22.8	2.1	1600	52.2	3.50	40.3	100.2	4.4	4.1
	12.0	3.3	7.6	1150	50.6	29.2	0.58	2.23	59.6	22.7	1.9	1150	51.3	3.96	39.2	111.3	3.8	4.7
	12.0	3.3	7.6	1600	54.7	34.4	0.63	2.34	62.7	23.4	2.0	1600	53.6	3.52	41.6	101.0	4.5	4.2
60	6.0	0.8	1.8	1150	50.3	30.8	0.61	2.71	60.9	18.6	2.8	1150	52.9	3.99	40.7	112.6	3.9	4.8
	6.0	0.8	1.8	1600	54.4	36.3	0.67	2.85	64.1	19.1	2.9	1600	55.3	3.55	43.2	102.0	4.6	4.3
	9.0	1.8	4.2	1150	51.1	30.8	0.60	2.54	61.1	20.1	2.4	1150	55.7	4.05	43.3	114.9	4.0	5.1
	9.0	1.8	4.2	1600	55.3	36.2	0.66	2.67	64.4	20.7	2.5	1600	58.2	3.60	45.9	103.7	4.7	4.5
	12.0	3.1	7.3	1150	51.3	30.6	0.60	2.45	61.0	20.9	2.2	1150	57.2	4.08	44.7	116.1	4.1	5.2
	12.0	3.1	7.3	1600	55.4	36.0	0.65	2.58	64.2	21.5	2.3	1600	59.8	3.63	47.4	104.6	4.8	4.6
70	6.0	0.8	1.7	1150	48.4	30.2	0.63	2.98	59.8	16.2	3.5	1150	58.4	4.11	45.7	117.0	4.2	5.3
	6.0	0.8	1.7	1600	52.3	35.6	0.68	3.13	63.0	16.7	3.7	1600	61.0	3.66	48.5	105.3	4.9	4.7
	9.0	1.8	4.1	1150	49.8	30.7	0.62	2.79	60.7	17.9	2.9	1150	61.5	4.18	48.5	119.5	4.3	5.6
	9.0	1.8	4.1	1600	53.9	36.1	0.67	2.93	63.9	18.4	3.1	1600	64.2	3.72	51.5	107.2	5.1	5.0
	12.0	3.1	7.1	1150	50.4	30.8	0.61	2.69	61.0	18.7	2.8	1150	63.2	4.23	50.1	120.9	4.4	5.7
	12.0	3.1	7.1	1600	54.5	36.3	0.67	2.83	64.2	19.3	2.9	1600	66.0	3.76	53.2	108.2	5.1	5.1
80	6.0	0.8	1.7	1150	45.7	29.2	0.64	3.27	58.1	14.0	4.4	1150	63.8	4.24	50.6	121.3	4.4	5.8
	6.0	0.8	1.7	1600	49.4	34.3	0.69	3.44	61.2	14.4	4.6	1600	66.6	3.77	53.8	108.6	5.2	5.2
	9.0	1.7	4.0	1150	47.6	29.9	0.63	3.06	59.4	15.5	3.7	1150	67.1	4.33	53.7	124.0	4.5	6.2
	9.0	1.7	4.0	1600	51.5	35.2	0.68	3.22	62.5	16.0	3.9	1600	70.1	3.85	57.0	110.6	5.3	5.5
	12.0	3.0	7.0	1150	48.5	30.3	0.62	2.97	59.9	16.3	3.4	1150	68.9	4.37	55.4	125.5	4.6	6.3
	12.0	3.0	7.0	1600	52.4	35.6	0.68	3.12	63.0	16.8	3.6	1600	72.0	3.89	58.8	111.7	5.4	5.6
85	6.0	0.8	1.7	1150	44.2	28.5	0.64	3.4	57.1	12.9	4.9	1150	66.4	4.30	53.0	123.5	4.5	6.1
	6.0	0.8	1.7	1600	47.8	33.5	0.70	3.62	60.2	13.3	5.2	1600	69.4	3.8	56.3	110.2	5.3	5.5
	9.0	1.7	4.0	1150	46.2	29.3	0.64	3.22	58.4	14.4	4.2	1150	69.8	4.4	56.2	126.2	4.7	6.5
	9.0	1.7	4.0	1600	49.9	34.5	0.69	3.39	61.5	14.8	4.4	1600	73.0	3.9	59.6	112.2	5.5	5.8
	12.0	3.0	6.9	1150	47.1	29.7	0.63	3.11	59.0	15.2	3.9	1150	71.7	4.4	57.9	127.7	4.7	6.6
	12.0	3.0	6.9	1600	51.0	35.0	0.69	3.28	62.1	15.6	4.1	1600	74.9	4.0	61.4	113.3	5.6	5.9
90	6.0	0.8	1.8	1150	42.7	27.8	0.65	3.60	56.2	11.9	5.4	1150	69.0	4.37	55.5	125.6	4.6	6.4
	6.0	0.8	1.8	1600	46.2	32.7	0.71	3.79	59.1	12.2	5.7	1600	72.1	3.89	58.9	111.7	5.4	5.7
	9.0	1.7	4.0	1150	44.8	28.7	0.64	3.38	57.5	13.3	4.7	1150	72.6	4.46	58.7	128.4	4.8	6.7
	9.0	1.7	4.0	1600	48.4	33.8	0.70	3.55	60.5	13.6	4.9	1600	75.8	3.97	62.3	113.9	5.6	6.0
	12.0	3.0	6.9	1150	45.8	29.2	0.64	3.26	58.2	14.0	4.4	1150	74.4	4.51	60.4	129.9	4.8	7.0
	12.0	3.0	6.9	1600	49.5	34.3	0.69	3.43	61.2	14.4	4.6	1600	77.8	4.01	64.1	115.0	5.7	6.2
100	6.0	0.8	1.8	1150	39.6	26.3	0.67	3.98	54.2	10.0	6.6	Operation not recommended						
	6.0	0.8	1.8	1600	42.8	31.0	0.72	4.18	57.1	10.2	6.9							
	9.0	1.7	4.0	1150	41.6	27.3	0.66	3.73	55.5	11.2	5.8							
	9.0	1.7	4.0	1600	45.0	32.1	0.71	3.92	58.4	11.5	6.1							
	12.0	3.0	6.8	1150	42.7	27.8	0.65	3.60	56.1	11.8	5.4							
	12.0	3.0	6.8	1600	46.1	32.7	0.71	3.79	59.1	12.2	5.7							
110	6.0	0.7	1.7	1150	36.6	25.0	0.68	4.40	52.5	8.3	8.0							
	6.0	0.7	1.7	1600	39.5	29.4	0.74	4.63	55.3	8.5	8.4							
	9.0	1.7	3.9	1150	38.4	25.8	0.67	4.13	53.5	9.3	7.1							
	9.0	1.7	3.9	1600	41.5	30.4	0.73	4.34	56.3	9.6	7.5							
	12.0	2.9	6.7	1150	39.4	26.3	0.67	3.99	54.1	9.9	6.7							
	12.0	2.9	6.7	1600	42.6	30.9	0.72	4.20	57.0	10.1	7.0							
120	6.0	0.7	1.5	1150	33.9	24.0	0.71	4.90	51.5	6.9	9.5							
	6.0	0.7	1.5	1600	36.6	28.2	0.77	5.15	54.2	7.1	10.0							
	9.0	1.6	3.7	1150	35.4	24.5	0.69	4.58	52.0	7.7	8.6							
	9.0	1.6	3.7	1600	38.3	28.9	0.75	4.82	54.8	8.0	9.0							
	12.0	2.8	6.5	1150	36.3	24.9	0.69	4.44	52.4	8.2	8.1							
	12.0	2.8	6.5	1600	39.3	29.3	0.75	4.67	55.2	8.4	8.5							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	12.0	4.2	9.6	Operation not recommended								1200	31.7	3.45	21.3	94.5	2.7	3.7
	12.0	4.2	9.6									1650	33.1	3.07	22.7	88.6	3.2	3.3
30	6.0	1.1	2.6	1100	47.7	26.3	0.55	1.71	54.8	27.9	1.7	1200	34.4	3.45	24.0	96.6	2.9	3.9
	6.0	1.1	2.6	1550	51.5	30.9	0.60	1.80	57.7	28.6	1.8	1650	36.0	3.07	25.5	90.2	3.4	3.5
	9.0	2.3	5.3	1100	44.3	23.4	0.53	1.57	50.8	28.2	1.8	1200	35.8	3.46	25.4	97.6	3.0	3.9
	9.0	2.3	5.3	1550	47.9	27.6	0.58	1.65	53.5	29.0	1.9	1650	37.4	3.08	26.9	91.0	3.6	3.5
	12.0	3.8	8.7	1100	42.3	21.9	0.52	1.50	48.6	28.2	1.8	1200	36.6	3.46	26.1	98.2	3.1	4.0
	12.0	3.8	8.7	1550	45.7	25.8	0.56	1.58	51.1	28.9	1.9	1650	38.2	3.08	27.7	91.4	3.6	3.6
40	6.0	0.9	2.1	1100	50.6	29.2	0.58	1.95	58.6	26.0	1.9	1200	39.1	3.50	28.5	100.2	3.3	4.2
	6.0	0.9	2.1	1550	54.7	34.4	0.63	2.05	61.7	26.7	2.0	1650	40.9	3.11	30.3	92.9	3.9	3.7
	9.0	2.1	4.8	1100	49.0	27.5	0.56	1.80	56.5	27.3	1.7	1200	40.8	3.52	30.2	101.5	3.4	4.3
	9.0	2.1	4.8	1550	53.0	32.3	0.61	1.89	59.4	28.0	1.8	1650	42.7	3.13	32.0	94.0	4.0	3.8
	12.0	3.5	8.0	1100	47.8	26.4	0.55	1.72	55.0	27.8	1.7	1200	41.8	3.53	31.1	102.3	3.5	4.4
	12.0	3.5	8.0	1550	51.7	31.0	0.60	1.81	57.9	28.6	1.8	1650	43.7	3.14	33.0	94.5	4.1	3.9
50	6.0	0.8	1.9	1100	51.3	30.6	0.60	2.18	60.1	23.5	2.3	1200	44.1	3.56	33.2	104.0	3.6	4.5
	6.0	0.8	1.9	1550	55.4	36.0	0.65	2.29	63.2	24.2	2.4	1650	46.0	3.17	35.2	95.8	4.3	4.0
	9.0	1.9	4.4	1100	51.0	29.8	0.58	2.02	59.3	25.3	2.0	1200	46.2	3.61	35.1	105.6	3.7	4.6
	9.0	1.9	4.4	1550	55.2	35.1	0.64	2.12	62.4	26.0	2.1	1650	48.2	3.21	37.3	97.1	4.4	4.1
	12.0	3.3	7.6	1100	50.6	29.2	0.58	1.94	58.6	26.1	1.9	1200	47.3	3.63	36.2	106.5	3.8	4.7
	12.0	3.3	7.6	1550	54.7	34.3	0.63	2.04	61.6	26.8	2.0	1650	49.4	3.23	38.4	97.7	4.5	4.2
60	6.0	0.8	1.8	1100	50.4	30.8	0.61	2.43	60.0	20.8	2.8	1200	49.2	3.68	37.9	107.9	3.9	4.8
	6.0	0.8	1.8	1550	54.5	36.3	0.67	2.55	63.2	21.4	2.9	1650	51.4	3.27	40.2	98.8	4.6	4.3
	9.0	1.8	4.2	1100	51.1	30.8	0.60	2.25	60.2	22.7	2.4	1200	51.6	3.73	40.1	109.8	4.1	5.1
	9.0	1.8	4.2	1550	55.3	36.2	0.65	2.37	63.4	23.3	2.5	1650	53.9	3.32	42.6	100.3	4.8	4.5
	12.0	3.1	7.3	1100	51.3	30.6	0.60	2.17	60.0	23.6	2.2	1200	52.9	3.77	41.4	110.9	4.1	5.2
	12.0	3.1	7.3	1550	55.4	36.0	0.65	2.28	63.2	24.3	2.3	1650	55.3	3.35	43.9	101.0	4.8	4.6
70	6.0	0.8	1.7	1100	48.4	30.3	0.62	2.69	58.9	18.0	3.5	1200	54.3	3.80	42.6	111.9	4.2	5.3
	6.0	0.8	1.7	1550	52.4	35.6	0.68	2.83	62.0	18.5	3.7	1650	56.8	3.38	45.3	101.9	4.9	4.7
	9.0	1.8	4.1	1100	49.9	30.7	0.62	2.50	59.8	19.9	2.9	1200	57.1	3.87	45.1	114.1	4.3	5.6
	9.0	1.8	4.1	1550	53.9	36.1	0.67	2.63	62.9	20.5	3.1	1650	59.7	3.44	47.9	103.5	5.1	5.0
	12.0	3.1	7.1	1100	50.4	30.8	0.61	2.41	60.0	21.0	2.8	1200	58.6	3.90	46.5	115.2	4.4	5.7
	12.0	3.1	7.1	1550	54.5	36.3	0.67	2.53	63.2	21.6	2.9	1650	61.2	3.47	49.4	104.4	5.2	5.1
80	6.0	0.8	1.7	1100	45.8	29.2	0.64	2.98	57.2	15.4	4.4	1200	59.5	3.92	47.3	115.9	4.4	5.8
	6.0	0.8	1.7	1550	49.6	34.3	0.69	3.13	60.2	15.8	4.6	1650	62.2	3.49	50.2	104.9	5.2	5.2
	9.0	1.7	4.0	1100	47.7	30.0	0.63	2.78	58.4	17.2	3.7	1200	62.5	4.00	50.1	118.2	4.6	6.2
	9.0	1.7	4.0	1550	51.5	35.3	0.68	2.92	61.5	17.7	3.9	1650	65.3	3.56	53.1	106.6	5.4	5.5
	12.0	3.0	7.0	1100	48.5	30.3	0.62	2.68	59.0	18.1	3.4	1200	64.1	4.05	51.5	119.5	4.6	6.3
	12.0	3.0	7.0	1550	52.5	35.6	0.68	2.82	62.1	18.6	3.6	1650	67.0	3.60	54.7	107.6	5.5	5.6
85	6.0	0.8	1.7	1100	44.3	28.5	0.64	3.1	56.3	14.2	4.9	1200	62.0	3.99	49.6	117.9	4.6	6.1
	6.0	0.8	1.7	1550	47.9	33.5	0.70	3.31	59.2	14.6	5.2	1650	64.8	3.6	52.7	106.4	5.3	5.5
	9.0	1.7	4.0	1100	46.3	29.4	0.63	2.93	57.5	15.8	4.2	1200	65.1	4.1	52.4	120.2	4.7	6.5
	9.0	1.7	4.0	1550	50.0	34.5	0.69	3.09	60.5	16.3	4.4	1650	68.0	3.6	55.6	108.2	5.5	5.8
	12.0	3.0	6.9	1100	47.2	29.7	0.63	2.83	58.1	16.7	3.9	1200	66.7	4.1	53.9	121.5	4.8	6.6
	12.0	3.0	6.9	1550	51.0	35.0	0.69	2.98	61.2	17.2	4.1	1650	69.7	3.7	57.2	109.1	5.6	5.9
90	6.0	0.8	1.8	1100	42.8	27.8	0.65	3.31	55.3	12.9	5.4	1200	64.5	4.06	51.9	119.8	4.7	6.4
	6.0	0.8	1.8	1550	46.3	32.8	0.71	3.48	58.2	13.3	5.7	1650	67.4	3.61	55.1	107.8	5.5	5.7
	9.0	1.7	4.0	1100	44.9	28.8	0.64	3.09	56.6	14.5	4.7	1200	67.7	4.15	54.8	122.2	4.8	6.7
	9.0	1.7	4.0	1550	48.5	33.8	0.70	3.25	59.6	14.9	4.9	1650	70.7	3.69	58.2	109.7	5.6	6.0
	12.0	3.0	6.9	1100	45.8	29.2	0.64	2.98	57.2	15.4	4.4	1200	69.3	4.18	56.3	123.5	4.9	7.0
	12.0	3.0	6.9	1550	49.6	34.4	0.69	3.13	60.3	15.8	4.6	1650	72.5	3.72	59.8	110.7	5.7	6.2
100	6.0	0.8	1.8	1100	39.7	26.4	0.66	3.68	53.3	10.8	6.6	Operation not recommended						
	6.0	0.8	1.8	1550	42.9	31.0	0.72	3.87	56.1	11.1	6.9							
	9.0	1.7	4.0	1100	41.7	27.3	0.65	3.43	54.5	12.1	5.8							
	9.0	1.7	4.0	1550	45.1	32.1	0.71	3.61	57.4	12.5	6.1							
	12.0	3.0	6.8	1100	42.7	27.8	0.65	3.32	55.2	12.9	5.4							
	12.0	3.0	6.8	1550	46.2	32.7	0.71	3.49	58.1	13.2	5.7							
110	6.0	0.7	1.7	1100	36.6	25.0	0.68	4.11	51.6	8.9	8.0							
	6.0	0.7	1.7	1550	39.6	29.4	0.74	4.32	54.4	9.2	8.4							
	9.0	1.7	3.9	1100	38.5	25.8	0.67	3.83	52.6	10.0	7.1							
	9.0	1.7	3.9	1550	41.6	30.4	0.73	4.03	55.4	10.3	7.5							
	12.0	2.9	6.7	1100	39.5	26.3	0.67	3.71	53.2	10.6	6.7							
	12.0	2.9	6.7	1550	42.7	30.9	0.72	3.90	56.0	10.9	7.0							
120	6.0	0.7	1.5	1100	34.0	24.0	0.71	4.60	50.6	7.4	9.5							
	6.0	0.7	1.5	1550	36.7	28.2	0.77	4.84	53.2	7.6	10.0							
	9.0	1.6	3.7	1100	35.5	24.6	0.69	4.30	51.1	8.3	8.6							
	9.0	1.6	3.7	1550	38.4	28.9	0.75	4.52	53.8	8.5	9.0							
	12.0	2.8	6.5	1100	36.4	24.9	0.69	4.15	51.5	8.8	8.1							
	12.0	2.8	6.5	1550	39.3	29.3	0.75	4.36	54.2	9.0	8.5							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 (PSC Blower)

1,950 CFM Nominal (Rated) Airflow Cooling, 1,950 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	15.0	7.2	16.6	Operation not recommended								1400	39.4	4.45	26.1	96.1	2.6	4.3
	15.0	7.2	16.6									1950	41.2	3.96	27.7	89.6	3.0	3.8
30	7.5	1.3	3.0	1400	68.4	43.6	0.64	2.41	78.5	28.4	1.9	1400	43.0	4.55	29.3	98.4	2.8	4.5
	7.5	1.3	3.0	1950	74.0	51.3	0.69	2.53	82.6	29.2	2.0	1950	44.9	4.05	31.1	91.3	3.3	4.0
	11.3	3.5	8.1	1400	66.0	41.7	0.63	2.26	75.5	29.2	1.7	1400	44.8	4.60	30.9	99.6	2.9	4.6
	11.3	3.5	8.1	1950	71.4	49.0	0.69	2.38	79.5	30.0	1.8	1950	46.8	4.09	32.8	92.2	3.4	4.1
	15.0	6.1	14.1	1400	64.2	40.4	0.63	2.20	73.5	29.2	1.7	1400	45.8	4.62	31.8	100.3	2.9	4.6
	15.0	6.1	14.1	1950	69.5	47.6	0.69	2.31	77.4	30.1	1.8	1950	47.8	4.11	33.8	92.7	3.4	4.1
40	7.5	0.9	2.0	1400	69.5	44.8	0.65	2.63	80.3	26.4	2.2	1400	49.3	4.71	35.1	102.6	3.1	4.8
	7.5	0.9	2.0	1950	75.1	52.8	0.70	2.77	84.6	27.1	2.3	1950	51.5	4.19	37.3	94.5	3.6	4.3
	11.3	2.9	6.7	1400	68.9	44.0	0.64	2.46	79.2	28.0	1.9	1400	51.7	4.75	37.3	104.2	3.2	4.9
	11.3	2.9	6.7	1950	74.5	51.8	0.70	2.59	83.4	28.8	2.0	1950	54.0	4.23	39.6	95.6	3.7	4.4
	15.0	5.3	12.2	1400	68.2	43.4	0.64	2.39	78.2	28.6	1.8	1400	53.0	4.79	38.5	105.0	3.2	5.1
	15.0	5.3	12.2	1950	73.7	51.0	0.69	2.51	82.3	29.4	1.9	1950	55.4	4.26	40.9	96.3	3.8	4.5
50	7.5	0.6	1.4	1400	68.6	45.0	0.66	2.89	80.3	23.7	2.8	1400	56.2	4.84	41.4	107.1	3.4	5.2
	7.5	0.6	1.4	1950	74.1	52.9	0.71	3.04	84.5	24.4	2.9	1950	58.7	4.31	44.0	97.9	4.0	4.6
	11.3	2.5	5.7	1400	69.4	45.0	0.65	2.69	80.5	25.8	2.3	1400	59.1	4.91	44.2	109.1	3.5	5.4
	11.3	2.5	5.7	1950	75.0	52.9	0.71	2.83	84.7	26.5	2.4	1950	61.8	4.37	46.9	99.3	4.1	4.8
	15.0	4.7	10.9	1400	69.5	44.8	0.64	2.61	80.2	26.7	2.2	1400	60.8	4.93	45.7	110.2	3.6	5.5
	15.0	4.7	10.9	1950	75.1	52.7	0.70	2.74	84.4	27.4	2.3	1950	63.5	4.39	48.5	100.2	4.2	4.9
60	7.5	0.5	1.1	1400	66.3	44.3	0.67	3.18	78.9	20.9	3.4	1400	63.3	4.99	48.1	111.9	3.7	5.6
	7.5	0.5	1.1	1950	71.7	52.2	0.73	3.34	83.1	21.5	3.6	1950	66.2	4.44	51.0	101.4	4.4	5.0
	11.3	2.2	5.1	1400	68.1	44.9	0.66	2.96	80.0	23.0	2.9	1400	66.9	5.06	51.4	114.2	3.9	5.8
	11.3	2.2	5.1	1950	73.6	52.8	0.72	3.11	84.2	23.7	3.1	1950	69.9	4.50	54.5	103.2	4.6	5.2
	15.0	4.3	10.0	1400	68.8	45.0	0.65	2.85	80.3	24.1	2.7	1400	68.8	5.10	53.2	115.5	4.0	6.0
	15.0	4.3	10.0	1950	74.3	53.0	0.71	3.00	84.6	24.8	2.8	1950	71.9	4.54	56.4	104.2	4.6	5.3
70	7.5	0.5	1.1	1400	63.2	43.2	0.68	3.52	76.9	18.0	4.3	1400	70.7	5.14	54.9	116.7	4.0	6.1
	7.5	0.5	1.1	1950	68.3	50.8	0.74	3.70	80.9	18.5	4.5	1950	73.8	4.57	58.2	105.1	4.7	5.4
	11.3	2.1	4.8	1400	65.5	44.1	0.67	3.26	78.4	20.1	3.6	1400	74.7	5.23	58.6	119.4	4.2	6.4
	11.3	2.1	4.8	1950	70.9	51.9	0.73	3.43	82.6	20.7	3.8	1950	78.1	4.65	62.2	107.1	4.9	5.7
	15.0	4.1	9.5	1400	66.6	44.4	0.67	3.15	79.1	21.2	3.3	1400	76.9	5.27	60.7	120.9	4.3	6.6
	15.0	4.1	9.5	1950	72.0	52.3	0.73	3.31	83.3	21.8	3.5	1950	80.4	4.69	64.4	108.2	5.0	5.9
80	7.5	0.5	1.1	1400	59.5	41.8	0.70	3.90	74.4	15.3	5.3	1400	78.0	5.31	61.6	121.6	4.3	6.6
	7.5	0.5	1.1	1950	64.4	49.1	0.76	4.10	78.3	15.7	5.6	1950	81.5	4.72	65.4	108.7	5.1	5.9
	11.3	2.0	4.6	1400	62.2	42.8	0.69	3.62	76.2	17.2	4.6	1400	82.4	5.41	65.7	124.5	4.5	7.1
	11.3	2.0	4.6	1950	67.2	50.4	0.75	3.81	80.2	17.6	4.8	1950	86.1	4.81	69.7	110.9	5.2	6.3
	15.0	4.0	9.2	1400	63.5	43.3	0.68	3.49	77.1	18.2	4.2	1400	84.8	5.47	67.9	126.1	4.5	7.3
	15.0	4.0	9.2	1950	68.6	51.0	0.74	3.67	81.1	18.7	4.4	1950	88.7	4.87	72.0	112.1	5.3	6.5
85	7.5	0.5	1.1	1400	57.6	41.0	0.71	4.1	73.2	14.1	5.9	1400	81.5	5.40	64.9	123.9	4.4	7.0
	7.5	0.5	1.1	1950	62.3	48.2	0.77	4.33	77.1	14.4	6.2	1950	85.2	4.8	68.8	110.5	5.2	6.2
	11.3	2.0	4.6	1400	60.3	42.0	0.70	3.83	74.9	15.8	5.1	1400	86.1	5.5	69.0	127.0	4.6	7.4
	11.3	2.0	4.6	1950	65.1	49.5	0.76	4.03	78.9	16.3	5.4	1950	90.0	4.9	73.2	112.7	5.4	6.6
	15.0	4.0	9.1	1400	61.6	42.6	0.69	3.69	75.8	16.8	4.7	1400	88.6	5.6	71.2	128.6	4.6	7.6
	15.0	4.0	9.1	1950	66.6	50.1	0.75	3.88	79.8	17.3	5.0	1950	92.5	5.0	75.6	113.9	5.5	6.8
90	7.5	0.5	1.2	1400	55.7	40.2	0.72	4.34	72.0	12.8	6.5	1400	85.1	5.49	68.1	126.3	4.5	7.3
	7.5	0.5	1.2	1950	60.2	47.3	0.79	4.56	75.8	13.2	6.8	1950	88.9	4.88	72.3	112.2	5.3	6.5
	11.3	2.0	4.5	1400	58.3	41.3	0.71	4.03	73.7	14.5	5.7	1400	89.8	5.62	72.3	129.4	4.7	7.8
	11.3	2.0	4.5	1950	63.1	48.6	0.77	4.24	77.5	14.9	6.0	1950	93.8	5.00	76.8	114.6	5.5	6.9
	15.0	3.9	9.1	1400	59.7	41.8	0.70	3.88	74.5	15.4	5.2	1400	92.3	5.71	74.5	131.0	4.7	8.0
	15.0	3.9	9.1	1950	64.5	49.2	0.76	4.08	78.5	15.8	5.5	1950	96.4	5.08	79.1	115.8	5.6	7.1
100	7.5	0.5	1.1	1400	51.9	38.7	0.75	4.85	69.9	10.7	7.9	Operation not recommended						
	7.5	0.5	1.1	1950	56.1	45.5	0.81	5.10	73.5	11.0	8.3							
	11.3	1.9	4.5	1400	54.4	39.7	0.73	4.51	71.2	12.1	6.9							
	11.3	1.9	4.5	1950	58.8	46.7	0.79	4.74	75.0	12.4	7.3							
	15.0	3.9	9.0	1400	55.7	40.2	0.72	4.34	72.0	12.8	6.5							
	15.0	3.9	9.0	1950	60.2	47.3	0.79	4.56	75.8	13.2	6.8							
110	7.5	0.4	0.8	1400	48.6	37.6	0.77	5.45	68.5	8.9	9.4							
	7.5	0.4	0.8	1950	52.5	44.2	0.84	5.73	72.1	9.2	9.9							
	11.3	1.8	4.2	1400	50.7	38.3	0.76	5.05	69.3	10.0	8.4							
	11.3	1.8	4.2	1950	54.8	45.0	0.82	5.31	72.9	10.3	8.8							
	15.0	3.8	8.8	1400	51.8	38.7	0.75	4.86	69.8	10.7	7.9							
	15.0	3.8	8.8	1950	56.1	45.5	0.81	5.11	73.5	11.0	8.3							
120	7.5	0.1	0.3	1400	46.1	37.2	0.81	6.15	68.3	7.5	11.3							
	7.5	0.1	0.3	1950	49.8	43.7	0.88	6.47	71.9	7.7	11.9							
	11.3	1.6	3.8	1400	47.6	37.3	0.78	5.69	68.2	8.4	10.1							
	11.3	1.6	3.8	1950	51.4	43.9	0.85	5.98	71.8	8.6	10.6							
	15.0	3.7	8.5	1400	48.5	37.6	0.77	5.48	68.4	8.8	9.5							
	15.0	3.7	8.5	1950	52.4	44.2	0.84	5.76	72.0	9.1	10.0							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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)

1,950 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	15.0	7.2	16.6	Operation not recommended								1475	38.5	4.07	26.2	94.2	2.8	4.3
	15.0	7.2	16.6									2050	40.2	3.62	27.8	88.2	3.3	3.8
30	7.5	1.3	3.0	1400	68.4	43.6	0.64	2.41	78.5	28.4	1.9	1475	42.0	4.14	29.5	96.3	3.0	4.5
	7.5	1.3	3.0	1950	74.0	51.3	0.69	2.53	82.6	29.2	2.0	2050	43.9	3.68	31.3	89.8	3.5	4.0
	11.3	3.5	8.1	1400	66.0	41.7	0.63	2.26	75.5	29.2	1.7	1475	43.7	4.17	31.1	97.5	3.1	4.6
	11.3	3.5	8.1	1950	71.4	49.0	0.69	2.38	79.5	30.0	1.8	2050	45.7	3.71	33.0	90.6	3.6	4.1
	15.0	6.1	14.1	1400	64.2	40.4	0.63	2.20	73.5	29.2	1.7	1475	44.7	4.19	32.0	98.1	3.1	4.6
	15.0	6.1	14.1	1950	69.5	47.6	0.69	2.31	77.4	30.1	1.8	2050	46.7	3.73	34.0	91.1	3.7	4.1
40	7.5	0.9	2.0	1400	69.5	44.8	0.65	2.63	80.3	26.4	2.2	1475	48.2	4.25	35.3	100.3	3.3	4.8
	7.5	0.9	2.0	1950	75.1	52.8	0.70	2.77	84.6	27.1	2.3	2050	50.4	3.78	37.5	92.8	3.9	4.3
	11.3	2.9	6.7	1400	68.9	44.0	0.64	2.46	79.2	28.0	1.9	1475	50.6	4.29	37.5	101.8	3.5	4.9
	11.3	2.9	6.7	1950	74.5	51.8	0.70	2.59	83.4	28.8	2.0	2050	52.9	3.82	39.8	93.9	4.1	4.4
	15.0	5.3	12.2	1400	68.2	43.4	0.64	2.39	78.2	28.6	1.8	1475	51.9	4.33	38.7	102.6	3.5	5.1
	15.0	5.3	12.2	1950	73.7	51.0	0.69	2.51	82.3	29.4	1.9	2050	54.2	3.85	41.1	94.5	4.1	4.5
50	7.5	0.6	1.4	1400	68.6	45.0	0.66	2.89	80.3	23.7	2.8	1475	55.1	4.38	41.7	104.6	3.7	5.2
	7.5	0.6	1.4	1950	74.1	52.9	0.71	3.04	84.5	24.4	2.9	2050	57.5	3.90	44.2	96.0	4.3	4.6
	11.3	2.5	5.7	1400	69.4	45.0	0.65	2.69	80.5	25.8	2.3	1475	58.0	4.44	44.4	106.4	3.8	5.4
	11.3	2.5	5.7	1950	75.0	52.9	0.71	2.83	84.7	26.5	2.4	2050	60.6	3.95	47.2	97.4	4.5	4.8
	15.0	4.7	10.9	1400	69.5	44.8	0.64	2.61	80.2	26.7	2.2	1475	59.7	4.47	46.0	107.5	3.9	5.5
	15.0	4.7	10.9	1950	75.1	52.7	0.70	2.74	84.4	27.4	2.3	2050	62.4	3.98	48.8	98.2	4.6	4.9
60	7.5	0.5	1.1	1400	66.3	44.3	0.67	3.18	78.9	20.9	3.4	1475	62.2	4.52	48.3	109.1	4.0	5.6
	7.5	0.5	1.1	1950	71.7	52.2	0.73	3.34	83.1	21.5	3.6	2050	65.0	4.02	51.3	99.4	4.7	5.0
	11.3	2.2	5.1	1400	68.1	44.9	0.66	2.96	80.0	23.0	2.9	1475	65.8	4.60	51.6	111.3	4.2	5.8
	11.3	2.2	5.1	1950	73.6	52.8	0.72	3.11	84.2	23.7	3.1	2050	68.7	4.09	54.8	101.1	4.9	5.2
	15.0	4.3	10.0	1400	68.8	45.0	0.65	2.85	80.3	24.1	2.7	1475	67.8	4.63	53.4	112.5	4.3	6.0
	15.0	4.3	10.0	1950	74.3	53.0	0.71	3.00	84.6	24.8	2.8	2050	70.8	4.12	56.7	102.0	5.0	5.3
70	7.5	0.5	1.1	1400	63.2	43.2	0.68	3.52	76.9	18.0	4.3	1475	69.5	4.68	55.1	113.7	4.4	6.1
	7.5	0.5	1.1	1950	68.3	50.8	0.74	3.70	80.9	18.5	4.5	2050	72.7	4.16	58.5	102.8	5.1	5.4
	11.3	2.1	4.8	1400	65.5	44.1	0.67	3.26	78.4	20.1	3.6	1475	73.6	4.77	58.8	116.2	4.5	6.4
	11.3	2.1	4.8	1950	70.9	51.9	0.73	3.43	82.6	20.7	3.8	2050	76.9	4.24	62.4	104.7	5.3	5.7
	15.0	4.1	9.5	1400	66.6	44.4	0.67	3.15	79.1	21.2	3.3	1475	75.8	4.81	60.8	117.6	4.6	6.6
	15.0	4.1	9.5	1950	72.0	52.3	0.73	3.31	83.3	21.8	3.5	2050	79.2	4.28	64.6	105.8	5.4	5.9
80	7.5	0.5	1.1	1400	59.5	41.8	0.70	3.90	74.4	15.3	5.3	1475	76.8	4.83	61.7	118.2	4.7	6.6
	7.5	0.5	1.1	1950	64.4	49.1	0.76	4.10	78.3	15.7	5.6	2050	80.2	4.30	65.5	106.2	5.5	5.9
	11.3	2.0	4.6	1400	62.2	42.8	0.69	3.62	76.2	17.2	4.6	1475	81.1	4.95	65.7	120.9	4.8	7.1
	11.3	2.0	4.6	1950	67.2	50.4	0.75	3.81	80.2	17.6	4.8	2050	84.7	4.40	69.7	108.3	5.6	6.3
	15.0	4.0	9.2	1400	63.5	43.3	0.68	3.49	77.1	18.2	4.2	1475	83.4	5.01	67.8	122.4	4.9	7.3
	15.0	4.0	9.2	1950	68.6	51.0	0.74	3.67	81.1	18.7	4.4	2050	87.2	4.46	72.0	109.4	5.7	6.5
85	7.5	0.5	1.1	1400	57.6	41.0	0.71	4.1	73.2	14.1	5.9	1475	80.2	4.92	64.9	120.4	4.8	7.0
	7.5	0.5	1.1	1950	62.3	48.2	0.77	4.33	77.1	14.4	6.2	2050	83.8	4.4	68.9	107.9	5.6	6.2
	11.3	2.0	4.6	1400	60.3	42.0	0.70	3.83	74.9	15.8	5.1	1475	84.6	5.0	68.8	123.1	4.9	7.4
	11.3	2.0	4.6	1950	65.1	49.5	0.76	4.03	78.9	16.3	5.4	2050	88.4	4.5	73.1	109.9	5.8	6.6
	15.0	4.0	9.1	1400	61.6	42.6	0.69	3.69	75.8	16.8	4.7	1475	86.9	5.1	70.9	124.5	5.0	7.6
	15.0	4.0	9.1	1950	66.6	50.1	0.75	3.88	79.8	17.3	5.0	2050	90.8	4.6	75.3	111.0	5.8	6.8
90	7.5	0.5	1.2	1400	55.7	40.2	0.72	4.34	72.0	12.8	6.5	1475	83.7	5.01	68.0	122.5	4.9	7.3
	7.5	0.5	1.2	1950	60.2	47.3	0.79	4.56	75.8	13.2	6.8	2050	87.4	4.46	72.2	109.5	5.7	6.5
	11.3	2.0	4.5	1400	58.3	41.3	0.71	4.03	73.7	14.5	5.7	1475	88.1	5.15	72.0	125.3	5.0	7.8
	11.3	2.0	4.5	1950	63.1	48.6	0.77	4.24	77.5	14.9	6.0	2050	92.1	4.58	76.4	111.6	5.9	6.9
	15.0	3.9	9.1	1400	59.7	41.8	0.70	3.88	74.5	15.4	5.2	1475	90.4	5.22	74.0	126.7	5.1	8.0
	15.0	3.9	9.1	1950	64.5	49.2	0.76	4.08	78.5	15.8	5.5	2050	94.4	4.64	78.6	112.6	6.0	7.1
100	7.5	0.5	1.1	1400	51.9	38.7	0.75	4.85	69.9	10.7	7.9	Operation not recommended						
	7.5	0.5	1.1	1950	56.1	45.5	0.81	5.10	73.5	11.0	8.3							
	11.3	1.9	4.5	1400	54.4	39.7	0.73	4.51	71.2	12.1	6.9							
	11.3	1.9	4.5	1950	58.8	46.7	0.79	4.74	75.0	12.4	7.3							
	15.0	3.9	9.0	1400	55.7	40.2	0.72	4.34	72.0	12.8	6.5							
	15.0	3.9	9.0	1950	60.2	47.3	0.79	4.56	75.8	13.2	6.8							
110	7.5	0.4	0.8	1400	48.6	37.6	0.77	5.45	68.5	8.9	9.4							
	7.5	0.4	0.8	1950	52.5	44.2	0.84	5.73	72.1	9.2	9.9							
	11.3	1.8	4.2	1400	50.7	38.3	0.76	5.05	69.3	10.0	8.4							
	11.3	1.8	4.2	1950	54.8	45.0	0.82	5.31	72.9	10.3	8.8							
	15.0	3.8	8.8	1400	51.8	38.7	0.75	4.86	69.8	10.7	7.9							
	15.0	3.8	8.8	1950	56.1	45.5	0.81	5.11	73.5	11.0	8.3							
120	7.5	0.1	0.3	1400	46.1	37.2	0.81	6.15	68.3	7.5	11.3							
	7.5	0.1	0.3	1950	49.8	43.7	0.88	6.47	71.9	7.7	11.9							
	11.3	1.6	3.8	1400	47.6	37.3	0.78	5.69	68.2	8.4	10.1							
	11.3	1.6	3.8	1950	51.4	43.9	0.85	5.98	71.8	8.6	10.6							
	15.0	3.7	8.5	1400	48.5	37.6	0.77	5.48	68.4	8.8	9.5							
	15.0	3.7	8.5	1950	52.4	44.2	0.84	5.76	72.0	9.1	10.0							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	18.0	9.5	22.0	Operation not recommended								1500	45.8	5.35	29.8	98.3	2.5	5.6
	18.0	9.5	22.0									2100	47.9	4.76	31.6	91.1	2.9	5.0
30	9.0	2.7	6.3	1500	76.3	43.4	0.57	3.27	89.5	23.3	3.5	1500	49.9	5.44	33.5	100.8	2.7	6.0
	9.0	2.7	6.3	2100	82.5	51.0	0.62	3.44	94.2	24.0	3.7	2100	52.1	4.84	35.6	93.0	3.2	5.3
	13.5	5.2	12.0	1500	74.8	41.4	0.55	3.10	87.4	24.1	3.5	1500	51.7	5.47	35.2	101.9	2.8	6.1
	13.5	5.2	12.0	2100	80.9	48.7	0.60	3.26	92.0	24.8	3.7	2100	54.0	4.87	37.4	93.8	3.3	5.4
	18.0	8.1	18.8	1500	73.7	40.2	0.55	3.02	86.0	24.4	3.5	1500	52.7	5.50	36.2	102.5	2.8	6.2
	18.0	8.1	18.8	2100	79.6	47.3	0.59	3.18	90.5	25.0	3.7	2100	55.1	4.89	38.4	94.3	3.3	5.5
40	9.0	2.1	4.9	1500	76.8	45.0	0.59	3.56	90.9	21.6	3.7	1500	56.7	5.59	39.9	105.0	3.0	6.5
	9.0	2.1	4.9	2100	83.0	52.9	0.64	3.74	95.7	22.2	3.9	2100	59.3	4.97	42.3	96.1	3.5	5.8
	13.5	4.4	10.1	1500	76.6	44.0	0.57	3.36	90.1	22.8	3.5	1500	59.2	5.64	42.1	106.5	3.1	6.7
	13.5	4.4	10.1	2100	82.8	51.8	0.62	3.53	94.9	23.5	3.7	2100	61.8	5.02	44.7	97.3	3.6	6.0
	18.0	7.1	16.4	1500	76.2	43.3	0.57	3.26	89.4	23.4	3.5	1500	60.5	5.68	43.3	107.3	3.1	6.9
	18.0	7.1	16.4	2100	82.4	50.9	0.62	3.43	94.1	24.0	3.7	2100	63.2	5.05	46.0	97.9	3.7	6.1
50	9.0	1.7	4.0	1500	75.6	45.4	0.60	3.87	90.8	19.5	4.3	1500	64.2	5.77	46.7	109.6	3.3	7.2
	9.0	1.7	4.0	2100	81.7	53.4	0.65	4.07	95.6	20.1	4.5	2100	67.1	5.13	49.6	99.6	3.8	6.4
	13.5	3.8	8.8	1500	76.6	45.2	0.59	3.64	91.0	21.0	3.9	1500	67.2	5.83	49.4	111.5	3.4	7.5
	13.5	3.8	8.8	2100	82.8	53.2	0.64	3.83	95.8	21.6	4.1	2100	70.2	5.19	52.4	100.9	4.0	6.7
	18.0	6.4	14.8	1500	76.8	44.9	0.59	3.54	90.9	21.7	3.7	1500	68.8	5.88	50.9	112.5	3.4	7.6
	18.0	6.4	14.8	2100	83.0	52.8	0.64	3.72	95.7	22.3	3.9	2100	71.9	5.23	54.0	101.7	4.0	6.8
60	9.0	1.6	3.6	1500	73.3	45.0	0.61	4.22	89.7	17.4	5.2	1500	71.9	5.96	53.7	114.4	3.5	8.0
	9.0	1.6	3.6	2100	79.2	52.9	0.67	4.44	94.4	17.8	5.5	2100	75.1	5.30	57.0	103.1	4.2	7.1
	13.5	3.5	8.1	1500	75.0	45.4	0.60	3.97	90.6	18.9	4.6	1500	75.3	6.06	56.8	116.5	3.6	8.4
	13.5	3.5	8.1	2100	81.1	53.4	0.66	4.17	95.3	19.5	4.8	2100	78.7	5.39	60.3	104.7	4.3	7.5
	18.0	5.9	13.7	1500	75.7	45.4	0.60	3.85	90.9	19.7	4.3	1500	77.2	6.10	58.5	117.6	3.7	8.7
	18.0	5.9	13.7	2100	81.9	53.4	0.65	4.05	95.7	20.2	4.5	2100	80.6	5.43	62.1	105.5	4.4	7.7
70	9.0	1.5	3.5	1500	70.1	43.9	0.63	4.63	87.8	15.1	6.4	1500	79.5	6.17	60.6	119.1	3.8	9.0
	9.0	1.5	3.5	2100	75.8	51.7	0.68	4.87	92.4	15.6	6.7	2100	83.1	5.49	64.3	106.6	4.4	8.0
	13.5	3.3	7.6	1500	72.4	44.7	0.62	4.35	89.1	16.7	5.5	1500	83.2	6.28	64.0	121.4	3.9	9.6
	13.5	3.3	7.6	2100	78.3	52.6	0.67	4.57	93.8	17.1	5.8	2100	87.0	5.59	67.9	108.4	4.6	8.5
	18.0	5.7	13.1	1500	73.4	45.0	0.61	4.20	89.7	17.5	5.1	1500	85.2	6.34	65.8	122.6	3.9	9.8
	18.0	5.7	13.1	2100	79.4	52.9	0.67	4.42	94.5	18.0	5.4	2100	89.0	5.64	69.8	109.3	4.6	8.7
80	9.0	1.5	3.5	1500	66.4	42.5	0.64	5.09	85.5	13.0	7.9	1500	86.8	6.38	67.2	123.6	4.0	10.1
	9.0	1.5	3.5	2100	71.7	50.0	0.70	5.35	90.0	13.4	8.3	2100	90.7	5.68	71.3	110.0	4.7	9.0
	13.5	3.2	7.5	1500	69.0	43.5	0.63	4.77	87.1	14.4	6.8	1500	90.6	6.51	70.6	125.9	4.1	10.8
	13.5	3.2	7.5	2100	74.6	51.2	0.69	5.02	91.7	14.9	7.2	2100	94.7	5.79	74.9	111.7	4.8	9.6
	18.0	5.5	12.8	1500	70.2	43.9	0.63	4.62	87.8	15.2	6.4	1500	92.6	6.56	72.3	127.1	4.1	11.1
	18.0	5.5	12.8	2100	75.9	51.7	0.68	4.86	92.5	15.6	6.7	2100	96.7	5.84	76.8	112.6	4.9	9.9
85	9.0	1.5	3.6	1500	64.3	41.7	0.65	5.3	84.3	12.1	8.8	1500	90.1	6.49	70.2	125.6	4.1	10.7
	9.0	1.5	3.6	2100	69.5	49.0	0.71	5.62	88.7	12.4	9.3	2100	94.2	5.8	74.5	111.5	4.8	9.6
	13.5	3.2	7.5	1500	67.0	42.7	0.64	5.01	85.9	13.4	7.6	1500	93.8	6.6	73.4	127.9	4.2	11.5
	13.5	3.2	7.5	2100	72.4	50.3	0.69	5.27	90.4	13.8	8.1	2100	98.0	5.9	78.0	113.2	4.9	10.2
	18.0	5.5	12.7	1500	68.3	43.2	0.63	4.85	86.7	14.1	7.1	1500	95.6	6.7	75.0	129.0	4.2	11.9
	18.0	5.5	12.7	2100	73.8	50.8	0.69	5.11	91.2	14.5	7.5	2100	99.9	5.9	79.7	114.1	4.9	10.6
90	9.0	1.6	3.6	1500	62.3	40.9	0.66	5.60	83.1	11.1	9.7	1500	93.5	6.60	73.1	127.7	4.2	11.4
	9.0	1.6	3.6	2100	67.3	48.1	0.71	5.89	87.4	11.4	10.2	2100	97.7	5.87	77.7	113.1	4.9	10.1
	13.5	3.2	7.4	1500	65.0	41.9	0.65	5.25	84.7	12.4	8.5	1500	97.0	6.72	76.3	129.9	4.2	12.1
	13.5	3.2	7.4	2100	70.3	49.4	0.70	5.52	89.1	12.7	8.9	2100	101.4	5.98	81.0	114.7	5.0	10.8
	18.0	5.5	12.6	1500	66.4	42.5	0.64	5.09	85.5	13.0	7.9	1500	98.7	6.79	77.8	130.9	4.3	12.7
	18.0	5.5	12.6	2100	71.7	50.0	0.70	5.35	90.0	13.4	8.3	2100	103.1	6.04	82.6	115.5	5.0	11.3
100	9.0	1.6	3.6	1500	58.1	39.3	0.68	6.18	80.8	9.4	11.8	Operation not recommended						
	9.0	1.6	3.6	2100	62.8	46.2	0.74	6.50	85.0	9.7	12.4							
	13.5	3.2	7.4	1500	60.8	40.3	0.66	5.80	82.2	10.5	10.4							
	13.5	3.2	7.4	2100	65.7	47.4	0.72	6.10	86.5	10.8	10.9							
	18.0	5.4	12.5	1500	62.2	40.8	0.66	5.62	83.0	11.1	9.7							
	18.0	5.4	12.5	2100	67.2	48.0	0.71	5.91	87.4	11.4	10.2							
110	9.0	1.4	3.3	1500	54.1	37.8	0.70	6.85	78.9	7.9	14.2							
	9.0	1.4	3.3	2100	58.5	44.5	0.76	7.20	83.0	8.1	14.9							
	13.5	3.1	7.1	1500	56.6	38.7	0.68	6.43	80.0	8.8	12.6							
	13.5	3.1	7.1	2100	61.2	45.5	0.74	6.76	84.2	9.0	13.3							
	18.0	5.3	12.3	1500	57.9	39.2	0.68	6.22	80.6	9.3	11.9							
	18.0	5.3	12.3	2100	62.6	46.1	0.74	6.54	84.9	9.6	12.5							
120	9.0	1.2	2.7	1500	50.4	36.8	0.73	7.60	77.7	6.6	16.9							
	9.0	1.2	2.7	2100	54.5	43.3	0.79	7.99	81.8	6.8	17.8							
	13.5	2.9	6.6	1500	52.6	37.4	0.71	7.13	78.3	7.4	15.2							
	13.5	2.9	6.6	2100	56.8	44.0	0.77	7.50	82.4	7.6	16.0							
	18.0	5.2	11.9	1500	53.8	37.7	0.70	6.90	78.7	7.8	14.3							
	18.0	5.2	11.9	2100	58.1	44.4	0.76	7.26	82.9	8.0	15.1							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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 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	HWC	Airflow CFM	HC	kW	HE	LAT	COP	HWC
20	18.0	9.5	22.0	Operation not recommended								1475	44.7	4.97	29.8	98.1	2.6	5.6
	18.0	9.5	22.0									2050	46.7	4.42	31.6	91.1	3.1	5.0
30	9.0	2.7	6.3	1400	77.0	44.8	0.58	2.86	88.8	26.9	3.5	1475	48.7	5.06	33.4	100.5	2.8	6.0
	9.0	2.7	6.3	1950	83.2	52.7	0.63	3.01	93.5	27.7	3.7	2050	50.9	4.50	35.5	93.0	3.3	5.3
	13.5	5.2	12.0	1400	75.9	43.6	0.57	2.67	87.1	28.4	3.5	1475	50.5	5.10	35.1	101.7	2.9	6.1
	13.5	5.2	12.0	1950	82.1	51.3	0.63	2.81	91.6	29.2	3.7	2050	52.7	4.54	37.3	93.8	3.4	5.4
	18.0	8.1	18.8	1400	75.0	42.8	0.57	2.58	85.8	29.1	3.5	1475	51.5	5.13	36.0	102.3	2.9	6.2
	18.0	8.1	18.8	1950	81.1	50.3	0.62	2.71	90.4	29.9	3.7	2050	53.8	4.56	38.2	94.3	3.5	5.5
40	9.0	2.1	4.9	1400	77.1	45.6	0.59	3.16	90.0	24.4	3.7	1475	55.5	5.23	39.7	104.8	3.1	6.5
	9.0	2.1	4.9	1950	83.4	53.6	0.64	3.32	94.7	25.1	3.9	2050	58.0	4.65	42.2	96.2	3.7	5.8
	13.5	4.4	10.1	1400	77.2	45.2	0.59	2.95	89.3	26.2	3.5	1475	57.9	5.28	41.9	106.4	3.2	6.7
	13.5	4.4	10.1	1950	83.5	53.1	0.64	3.10	94.0	26.9	3.7	2050	60.5	4.70	44.5	97.3	3.8	6.0
	18.0	7.1	16.4	1400	77.0	44.8	0.58	2.85	88.8	27.0	3.5	1475	59.2	5.32	43.1	107.2	3.3	6.9
	18.0	7.1	16.4	1950	83.2	52.7	0.63	3.00	93.4	27.7	3.7	2050	61.9	4.73	45.8	98.0	3.8	6.1
50	9.0	1.7	4.0	1400	75.8	45.4	0.60	3.47	89.7	21.8	4.3	1475	62.9	5.41	46.5	109.5	3.4	7.2
	9.0	1.7	4.0	1950	82.0	53.5	0.65	3.65	94.5	22.5	4.5	2050	65.8	4.81	49.4	99.7	4.0	6.4
	13.5	3.8	8.8	1400	76.9	45.6	0.59	3.25	90.0	23.6	3.9	1475	65.9	5.49	49.2	111.4	3.5	7.5
	13.5	3.8	8.8	1950	83.1	53.7	0.65	3.42	94.8	24.3	4.1	2050	68.9	4.88	52.2	101.1	4.1	6.7
	18.0	6.4	14.8	1400	77.1	45.6	0.59	3.15	89.9	24.5	3.7	1475	67.5	5.52	50.7	112.4	3.6	7.6
	18.0	6.4	14.8	1950	83.4	53.6	0.64	3.31	94.7	25.2	3.9	2050	70.6	4.91	53.8	101.9	4.2	6.8
60	9.0	1.6	3.6	1400	73.5	44.6	0.61	3.82	88.6	19.2	5.2	1475	70.6	5.61	53.5	114.3	3.7	8.0
	9.0	1.6	3.6	1950	79.5	52.5	0.66	4.02	93.2	19.8	5.5	2050	73.8	4.99	56.8	103.3	4.3	7.1
	13.5	3.5	8.1	1400	75.2	45.2	0.60	3.58	89.5	21.0	4.6	1475	74.1	5.70	56.6	116.5	3.8	8.4
	13.5	3.5	8.1	1950	81.3	53.2	0.65	3.76	94.2	21.6	4.8	2050	77.4	5.07	60.1	105.0	4.5	7.5
	18.0	5.9	13.7	1400	75.9	45.5	0.60	3.46	89.8	21.9	4.3	1475	75.9	5.75	58.3	117.7	3.9	8.7
	18.0	5.9	13.7	1950	82.1	53.5	0.65	3.64	94.5	22.6	4.5	2050	79.3	5.12	61.9	105.8	4.5	7.7
70	9.0	1.5	3.5	1400	70.5	43.4	0.62	4.21	86.7	16.7	6.4	1475	78.3	5.82	60.4	119.2	3.9	9.0
	9.0	1.5	3.5	1950	76.2	51.0	0.67	4.43	91.3	17.2	6.7	2050	81.8	5.18	64.1	107.0	4.6	8.0
	13.5	3.3	7.6	1400	72.6	44.3	0.61	3.94	88.0	18.5	5.5	1475	82.0	5.93	63.8	121.5	4.1	9.6
	13.5	3.3	7.6	1950	78.5	52.1	0.66	4.14	92.7	19.0	5.8	2050	85.7	5.28	67.7	108.7	4.8	8.5
	18.0	5.7	13.1	1400	73.6	44.7	0.61	3.81	88.6	19.3	5.1	1475	84.0	6.00	65.6	122.7	4.1	9.8
	18.0	5.7	13.1	1950	79.6	52.5	0.66	4.01	93.3	19.9	5.4	2050	87.8	5.34	69.6	109.7	4.8	8.7
80	9.0	1.5	3.5	1400	66.9	41.8	0.63	4.66	84.5	14.3	7.9	1475	85.6	6.06	67.0	123.8	4.1	10.1
	9.0	1.5	3.5	1950	72.3	49.2	0.68	4.90	89.0	14.8	8.3	2050	89.5	5.39	71.1	110.4	4.9	9.0
	13.5	3.2	7.5	1400	69.3	42.9	0.62	4.36	86.0	15.9	6.8	1475	89.5	6.18	70.4	126.2	4.2	10.8
	13.5	3.2	7.5	1950	74.9	50.4	0.67	4.58	90.6	16.4	7.2	2050	93.5	5.50	74.7	112.2	5.0	9.6
	18.0	5.5	12.8	1400	70.5	43.4	0.62	4.21	86.8	16.7	6.4	1475	91.4	6.26	72.1	127.4	4.3	11.1
	18.0	5.5	12.8	1950	76.2	51.0	0.67	4.43	91.3	17.2	6.7	2050	95.5	5.57	76.5	113.1	5.0	9.9
85	9.0	1.5	3.6	1400	64.9	41.0	0.63	4.9	83.4	13.3	8.8	1475	89.0	6.18	69.9	125.9	4.2	10.7
	9.0	1.5	3.6	1950	70.1	48.2	0.69	5.17	87.8	13.6	9.3	2050	93.0	5.5	74.3	112.0	5.0	9.6
	13.5	3.2	7.5	1400	67.4	42.1	0.62	4.59	84.9	14.7	7.6	1475	92.7	6.3	73.2	128.2	4.3	11.5
	13.5	3.2	7.5	1950	72.9	49.5	0.68	4.83	89.4	15.2	8.1	2050	96.8	5.6	77.7	113.7	5.1	10.2
	18.0	5.5	12.7	1400	68.7	42.6	0.62	4.44	85.6	15.5	7.1	1475	94.5	6.4	74.7	129.3	4.3	11.9
	18.0	5.5	12.7	1950	74.2	50.1	0.68	4.67	90.1	16.0	7.5	2050	98.7	5.7	79.3	114.6	5.1	10.6
90	9.0	1.6	3.6	1400	62.9	40.2	0.64	5.17	82.2	12.2	9.7	1475	92.3	6.29	72.9	128.0	4.3	11.4
	9.0	1.6	3.6	1950	68.0	47.3	0.69	5.44	86.6	12.5	10.2	2050	96.5	5.60	77.4	113.6	5.1	10.1
	13.5	3.2	7.4	1400	65.5	41.3	0.63	4.83	83.7	13.6	8.5	1475	95.9	6.45	75.9	130.2	4.4	12.1
	13.5	3.2	7.4	1950	70.8	48.5	0.69	5.08	88.2	13.9	8.9	2050	100.2	5.74	80.6	115.3	5.1	10.8
	18.0	5.5	12.6	1400	66.8	41.8	0.63	4.67	84.5	14.3	7.9	1475	97.6	6.53	77.4	131.3	4.4	12.7
	18.0	5.5	12.6	1950	72.2	49.2	0.68	4.91	89.0	14.7	8.3	2050	102.0	5.81	82.1	116.1	5.1	11.3
100	9.0	1.6	3.6	1400	58.8	38.5	0.65	5.76	80.1	10.2	11.8	Operation not recommended						
	9.0	1.6	3.6	1950	63.6	45.3	0.71	6.06	84.3	10.5	12.4							
	13.5	3.2	7.4	1400	61.4	39.6	0.64	5.37	81.4	11.4	10.4							
	13.5	3.2	7.4	1950	66.4	46.5	0.70	5.65	85.7	11.8	10.9							
	18.0	5.4	12.5	1400	62.8	40.1	0.64	5.19	82.1	12.1	9.7							
	18.0	5.4	12.5	1950	67.8	47.2	0.70	5.46	86.5	12.4	10.2							
110	9.0	1.4	3.3	1400	54.8	37.0	0.68	6.44	78.2	8.5	14.2							
	9.0	1.4	3.3	1950	59.2	43.6	0.74	6.77	82.4	8.8	14.9							
	13.5	3.1	7.1	1400	57.3	37.9	0.66	6.01	79.3	9.5	12.6							
	13.5	3.1	7.1	1950	61.9	44.6	0.72	6.32	83.5	9.8	13.3							
	18.0	5.3	12.3	1400	58.6	38.4	0.66	5.80	79.9	10.1	11.9							
	18.0	5.3	12.3	1950	63.3	45.2	0.71	6.10	84.1	10.4	12.5							
120	9.0	1.2	2.7	1400	51.0	35.9	0.70	7.24	77.1	7.1	16.9							
	9.0	1.2	2.7	1950	55.2	42.2	0.76	7.61	81.1	7.3	17.8							
	13.5	2.9	6.6	1400	53.3	36.5	0.69	6.74	77.7	7.9	15.2							
	13.5	2.9	6.6	1950	57.6	43.0	0.75	7.09	81.8	8.1	16.0							
	18.0	5.2	11.9	1400	54.5	36.9	0.68	6.50	78.1	8.4	14.3							
	18.0	5.2	11.9	1950	58.9	43.4	0.74	6.84	82.2	8.6	15.1							

Interpolation is permissible; extrapolation is not.
All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.
AHRI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.
Table does not reflect fan or pump power corrections for AHRI/ISO conditions.
All performance is based upon the lower voltage of dual voltage rated units.
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% methanol 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.

Air Flow Correction Table - Units with PSC Fan

TS006-018 with PSC Fan Motor

Airflow	Cooling					Heating		
% of Rated	Total Capacity	Sensible Capacity	S/T	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
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

TS024-070 with PSC Fan Motor

Airflow	Cooling					Heating		
% of Rated	Total Capacity	Sensible Capacity	S/T	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
72	0.925	0.850	0.919	0.951	0.950	0.957	1.124	0.942
80	0.954	0.903	0.946	0.966	0.968	0.973	1.072	0.963
88	0.974	0.941	0.966	0.977	0.982	0.984	1.037	0.979
96	0.992	0.981	0.989	0.992	0.995	0.995	1.010	0.994
100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
104	1.007	1.018	1.011	1.009	1.005	1.005	0.993	1.006
112	1.017	1.052	1.035	1.027	1.013	1.012	0.986	1.015
120	1.023	1.082	1.058	1.047	1.019	1.019	0.990	1.022

Air Flow Correction Table - Units with ECM Fan

TS018 with ECM Fan Motor

Airflow	Cooling					Heating		
% of Rated	Total Capacity	Sensible Capacity	S/T	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
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

TS024-070 with ECM Fan Motor

Airflow	Cooling					Heating		
% of Rated	Total Capacity	Sensible Capacity	S/T	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
72	0.925	0.850	0.919	0.951	0.950	0.957	1.124	0.942
80	0.954	0.903	0.946	0.966	0.968	0.973	1.072	0.963
88	0.974	0.941	0.966	0.977	0.982	0.984	1.037	0.979
96	0.992	0.981	0.989	0.992	0.995	0.995	1.010	0.994
100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
104	1.007	1.018	1.011	1.009	1.005	1.005	0.993	1.006
112	1.017	1.052	1.035	1.027	1.013	1.012	0.986	1.015
120	1.023	1.082	1.058	1.047	1.019	1.019	0.990	1.022

Entering Air Correction Tables

Unit Sizes 006-018

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

Unit Sizes 024-070

Heating			
Entering Air DB °F	Heating Capacity	Power	Heat of Extraction
45	1.032	0.777	1.089
50	1.029	0.817	1.077
55	1.025	0.859	1.062
60	1.018	0.903	1.044
65	1.010	0.950	1.024
70	1.000	1.000	1.000
75	0.988	1.052	0.974
80	0.974	1.107	0.944

Unit Sizes 006-018

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	Operation not recommended				0.6008	0.6289	0.8323	1.0578	1.2773	1.0123	1.0959

Unit Sizes 024-070

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	0.7491	0.7663	*	*	*	*	*	*	*	*	0.9894	0.8389
55	0.8265	0.5937	0.8724	1.0816	*	*	*	*	*	*	0.9927	0.8886
60	0.9040		0.6709	0.8826	1.1211	*	*	*	*	*	0.9959	0.9383
65	0.9814			0.6624	0.8850	1.0986	1.1140	*	*	*	0.9992	0.9881
66.2	1.0000			0.6065	0.8268	1.0394	1.0536	1.2294	*	*	1.0000	1.0000
67	1.0124			0.5685	0.7879	1.0000	1.0133	1.1891	1.3838	*	1.0005	1.0080
70	1.0589				0.6391	0.8521	0.8599	1.0361	1.2347	1.4461	1.0025	1.0378
75	1.1363	Operation not recommended				0.6056	0.5981	0.7783	0.9861	1.2256	1.0058	1.0875

* = Sensible capacity equals total capacity
AHRI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1
and Heating - 68°F DB/59°F WB entering air temperature
For ClimaDry® equipped units the minimum entering air temperature when cooling is 65ºF DB / 55ºF WB. Operation below this minimum may result in nuisance faults.

Correction Tables - Antifreeze and Water Pressure Drop Adder for Options

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 Option 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

ClimaDry® II Option Corrections (When Operating in Non-ClimaDry® Mode)

Model	WPD Adders		
	GPM	PSI	FT
018	2.8	0.77	1.77
	4.1	1.65	3.80
024	4.0	1.57	3.62
	6.0	3.53	8.14
030	4.0	0.69	1.59
	6.0	1.55	3.58
036	4.5	0.87	2.02
	6.8	1.99	4.60
042	5.5	1.30	3.01
	8.3	6.75	15.58
048	6.0	1.55	3.58
	9.0	3.49	8.06
060	7.5	1.49	3.45
	11.3	3.39	7.82
070	8.3	1.83	4.22
	12.4	4.08	9.42

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	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
006	HI	240	150	317	305	285	271	250	230	203	168			
	MED			260	245	230	214	190	167					
	LO			216	201	189	156							
009	HI	300	225	393	378	364	346	325	253					
	MED			366	353	341	326	310	230					
	LO			326	316	303	290	274						
012	HI	350	300	520	500	479	453	403	347	312				
	MED			459	447	428	411	368	317					
	LO			371	368	358	345	315						
018	HI	600	450	704	711	693	690	675	640	598	515			
	MED			602	599	581	585	573	547	492				
	LO			531	527	517	506	495	462					
018 HS	HS HI	600	450	894	877	841	812	760	728	659				
	HS MED			765	755	738	711	668	640	602				
	HS LO			683	661	636	596	571	549					
024	HI	950	655	1111	1105	1066	1006	934	854	765	662			
	MED			890	879	854	818	770	708					
	LO			759	745	730	704	662						
024 HS	HS HI	950	655	1374	1351	1296	1228	1159	1090	1016	919	775		
	HS MED			1146	1151	1128	1091	1047	997	934	844	705		
	HS LO			1011	1015	999	945	911	863	785	656			
030	HI	1000	685	1374	1351	1296	1228	1159	1090	1016	919	775		
	MED			1146	1151	1128	1091	1047	997	934	844	705		
	LO			1011	1015	999	945	911	863	785				
030 HS	HS HI	1000	685	1342	1316	1249	1166	1083	1006	927	830	688		
	HS MED			1298	1250	1183	1110	1039	969	894	796	652		
	HS LO			1213	1172	1112	1046	982	919	850	758			
036	HI	1200	825	1375	1387	1377	1350	1307	1251	1182	1099	1003	890	
	MED			992	1013	1013	1002	986	967	941	900	832		
	LO			887	900	897	886	872	853	826				
036 HS	HS HI	1200	825	1751	1717	1664	1592	1503	1399	1285	1163	1039	919	
	HS MED			1538	1520	1485	1432	1361	1271	1165	1049	926		
	HS LO			1321	1294	1263	1226	1182	1130	1064	980	871		
042	HI	1400	960	1808	1759	1723	1680	1617	1524	1399	1247	1075		
	MED			1537	1518	1494	1459	1408	1338	1247	1134	1001		
	LO			1323	1309	1284	1246	1192	1122	1036				
042 HS	HS HI	1400	960	1805	1791	1760	1720	1674	1620	1552	1457	1318	1116	
	HS MED			1296	1297	1299	1299	1293	1276	1240	1176	1072		
	HS LO			991	998	1013	1019	1004	963					
048	HI	1600	1100	1805	1791	1760	1720	1674	1620	1552	1457	1318	1116	
	MED			1296	1297	1299	1299	1293	1276	1240	1176			
	LO													
048 HS	HS HI	1600	1100	1871	1889	1873	1833	1777	1706	1617	1504	1353	1150	
	HS MED			1663	1680	1686	1678	1650	1599	1520	1409	1262		
	HS LO			1479	1508	1521	1516	1492	1446	1376	1249	1148		
060	HI	1950	1500	2311	2300	2279	2257	2209	2140	2088	1990	1901	1856	1752
	MED			2058	2039	2016	1983	1949	1920	1874	1807	1750	1670	1582
	LO			1868	1858	1858	1838	1806	1792	1749	1699	1636	1570	
060 HS	HS HI	1950	1500	2510	2486	2455	2424	2377	2318	2247	2161	2078	1986	1855
	HS MED			2171	2162	2162	2153	2117	2085	2024	1971	1891	1823	1691
	HS LO			2010	2006	2006	2006	1977	1947	1892	1851	1782	1705	1600
070	HI	2100	1800	2510	2486	2455	2424	2377	2318	2247	2161	2078	1986	1855
	MED			2171	2162	2162	2153	2117	2085	2024	1971	1891	1823	
	LO			2010	2006	2006	2006	1977	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 & M) available on 575V units.
Performance stated is at the rated power supply, performance may vary as the power supply varies from the rated.
HS = High static fan option

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.

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. Fan speeds are selected with a DIP switch setting. 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 the ECM interface board, followed by detailed information for each set

Cooling settings

Tap Setting	DIP Switch	
	SW1	SW2
1	ON	ON
2	ON	OFF
3	OFF	ON
4	OFF	OFF

Heating settings

Tap Setting	DIP Switch	
	SW3	SW4
1	ON	ON
2	ON	OFF
3	OFF	ON
4	OFF	OFF

CFM Adjust settings

Tap Setting	DIP Switch	
	SW7	SW8
TEST	ON	ON
-	ON	OFF
+	OFF	ON
NORM	OFF	OFF

Dehum Mode settings

Tap Setting	DIP Switch
	SW9
NORM	ON
Dehumid	OFF

Only DIP switch numbers 1 to 4 and 7 to 9 are used

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. 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. 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.

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 +/- 5%. The +/- settings are used to “fine tune” airflow adjustments. The TEST setting runs the ECM motor at 400 cfm/ton, which causes the motor to operate like a standard PSC motor, and disables the CFM counter.

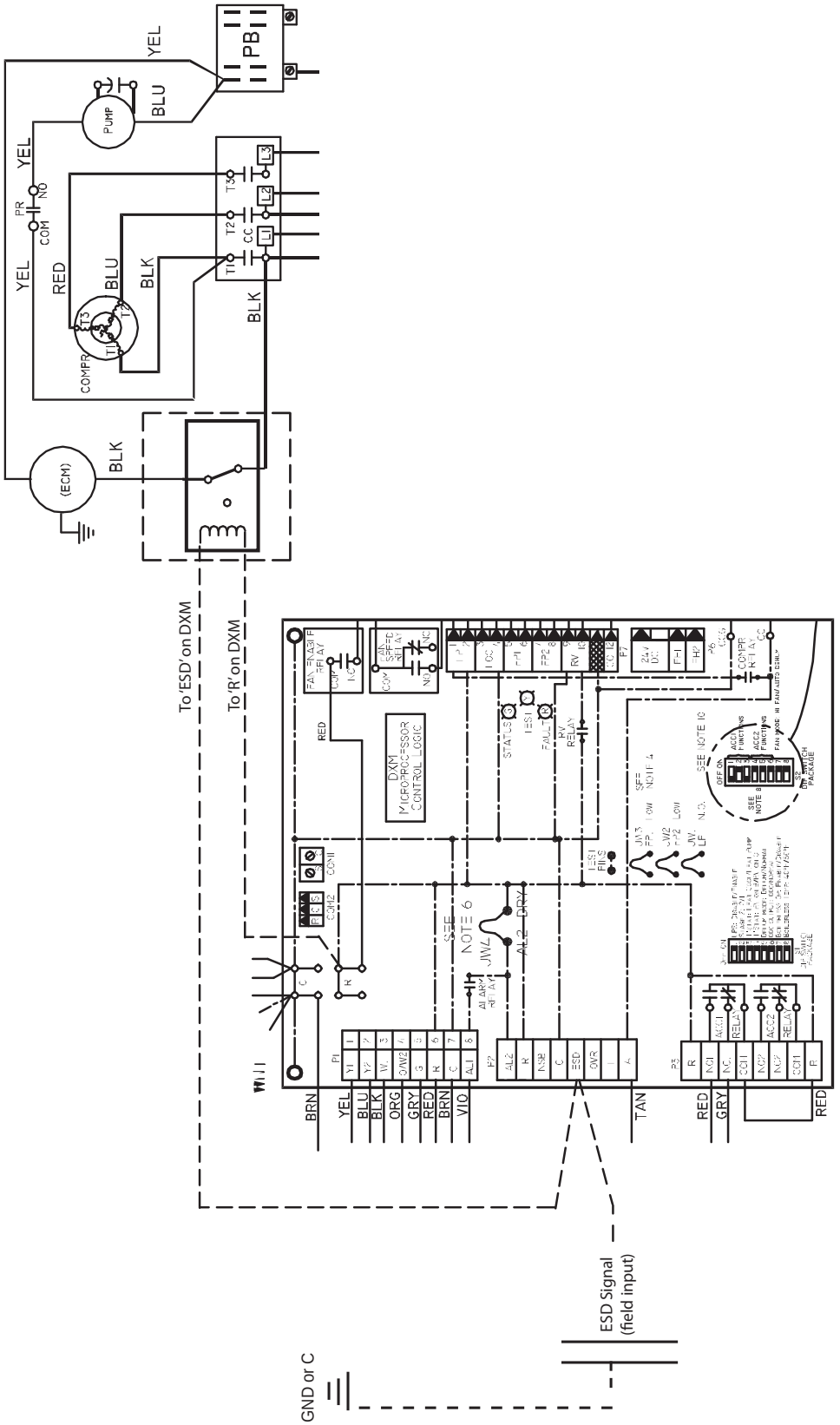
Dehumidification Mode Settings: The dehumidification mode setting provides field selection of humidity control. When operating in the normal mode, the cooling airflow settings are determined by the cooling tap setting above. When dehumidification is enabled there is a reduction in airflow in cooling 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.

1. Constant Dehumidification Mode: When the dehumidification mode is selected (via DIP switch), 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.
2. Automatic (Humidistat-controlled) Dehumidification Mode: When the dehumidification mode is selected (via DIP switch) AND a humidistat is connected to terminal DH, the cooling airflow will only be reduced when the humidistat senses that additional dehumidification is required. The DH 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.**

The ECM motor includes "soft start" and "ramp down" features. The soft start feature is a gentle increase of motor rpm at blower start up. This creates a much quieter blower start cycle.

The ramp down feature allows the blower to slowly decrease rpm to a full stop at the end of each blower cycle. This creates a much quieter end to each blower cycle and adds overall unit efficiency.

The ramp down feature may be eliminated during an ESD (Emergency Shut Down) situation when using a DXM unit controller. A relay is required to break the line voltage to the ECM motor during ESD. This relay can be wired as shown below to eliminate the ramp down (and operation) of the ECM blower.



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			Residential Units Only	
				Stg 1	Stg 2	Fan	Stg 1	Stg 2	Fan	Stg 1	Stg 2	Fan	AUX CFM	Aux/ Emerg Mode
018	1.0	1/2	4	640	800	400	500	620	400	640	800	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
024	1.0	1/2	4	900	1100	470	610	740	470	900	1100	470	4	1100
			3	780	950	420	540	660	420	780	950	420	3	950
			2	670	825	360	490	600	360	670	825	390	2	820
			1	550	675	300				550	675	340	1	690
030	1.0	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	950	450	2	950
			1	660	800	400				640	780	400	1	780
036	0.90	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
042	0.90	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
048	1.0	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	1110	1350	720	2	1350
			1	1050	1280	640				980	1250	640	1	1200
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
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 AHRI/ISO/ASHRAE 13256-1 rated HP CFM Setting 3.
ClimaDry units are factory wired to operate in stage 2 airflow.

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.

ClimaDry® II Option - Benefits and Application

ClimaDry® II Modulating Reheat Option

ClimateMaster's patented ClimaDry® II Dehumidification option is an innovative means of providing modulating reheat without the complication of refrigeration controls. ClimaDry® II is hot gas generated reheat, which utilizes one of the biggest advantages of a Water-Source Heat Pump (WSHP), the transfer of energy through the water piping system. ClimaDry® II simply diverts condenser water through a water-to-air coil that is placed after the evaporator coil. If condenser water is not warm enough, the internal "run-around" loop increases the water temperature with each pass through the condenser coil (see figure 1, below).

ClimaDry® II Benefits

ClimaDry® II is like no other reheat option on the market. Proportional reheat is controlled to the desired leaving air temperature setpoint (factory setpoint of 72°F, 22°C), no matter what the water loop temperature is. Since dehumidification operation will occur under less than full load cooling conditions a good percentage of the time, it is important to have a reheat function that provides 100% reheat in the spring and fall when the water loop is cool. Supply air temperature is field adjustable to +/- 3°F [+/- 1.7°C] for even greater flexibility with the optional potentiometer. It is recommended that the ClimaDry® supply air temperature be set to match the space cooling setpoint so that ClimaDry® does not impact room temperature. Competitors without ClimaDry® II typically use an on/off (non-modulating) refrigeration based reheat circuit, typically referred to as "Hot gas reheat" (HGR).

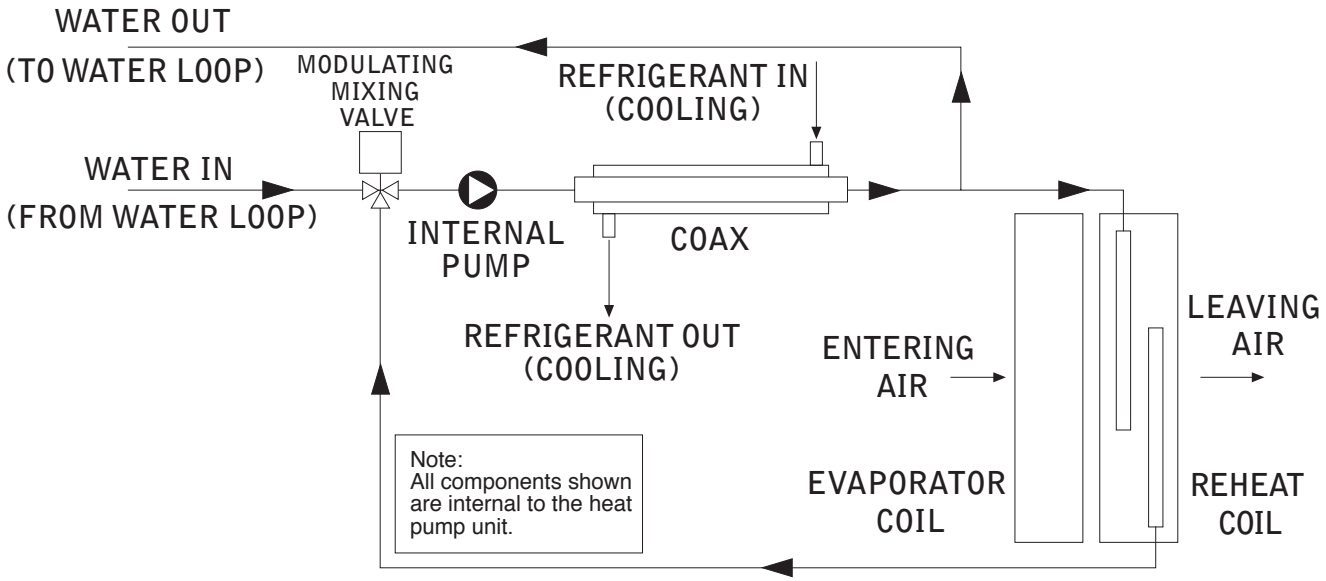
HGR needs higher condensing temperatures to work well, typically 85°F [29°C] entering water temperature (EWT). With HGR, cooler water temperatures produce cooler supply air temperatures, which could overcool the space, requiring additional space heating from another source or a special auto-change-over relay to allow the unit to switch back and forth between reheat and heating. Rarely does HGR provide 100% reheat, like ClimaDry® II. ClimaDry® II has a simple and easy to troubleshoot refrigerant circuit. No switching valves or hard to diagnose leaky check valves are utilized. No unusual refrigerant pressures occur during the reheat mode. The ClimaDry® II refrigerant circuit is like every other ClimateMaster unit (without reheat), so everything the technician already knows applies to troubleshooting the ClimaDry® II refrigeration circuit. Plus, the water loop portion of the ClimaDry® II option is easy to understand and diagnose.

ClimaDry® II Applications

ClimaDry® II can be applied to a number of common applications, such as:

- Classrooms.
- Condominiums.
- Apartments.
- Computer rooms.
- Spaces with high latent loads like auditoriums, theaters, convention centers, etc.
- Most applications where humidity is a problem. **(Note: ClimaDry® is not for use in high fraction outdoor air applications or in applications with corrosive atmospheres, such as pool rooms.)**

Figure 1: ClimaDry® II Schematic



ClimaDry® II Option - Benefits and Application

With the ClimaDry® II option, return air from the space is cooled by the air-to-refrigerant (evaporator) coil, and then reheated by the water-to-air (reheat) coil to dehumidify the air, but maintain the same space temperature (thus operating as a dehumidifier).

The moisture removal capability of the heat pump is determined by the unit's latent capacity rating. Latent capacity equals Total capacity minus Sensible capacity. Using unit performance data from submittals (http://www.climatemaster.com/) select the correct model, use your maximum entering water temperature (EWT) and flow rate to select TC and SC. For example, at 80°F [26.7°C] EWT and 6.8 GPM, the moisture removal capability (latent capacity) of a ClimateMaster TS036 is 8.1 Mbtuh [2.4kW] as shown below.

Dividing the latent capacity by 1,069 BTU/LB of water vapor at 80°F DB and 67°F WB [26.7°C DB and 19.4°C WB] moist air enthalpy, converts the amount of moisture removal to pounds per hour (multiply pounds per hour by 0.4536 to obtain kg/hr). Calculations are shown below.

Most ClimateMaster heat pumps have a sensible-to-total (S/T) ratio of 0.72 to 0.82. Therefore, approximately, 25% of the cooling capacity is dedicated to latent cooling capacity (moisture removal). When selecting a unit with ClimaDry® II, the space sensible and latent loads should be calculated. If the unit will be used for space cooling, a unit with at least enough capacity to satisfy the building sensible load should be selected. If the latent cooling load is not satisfied by the selection, a larger unit with enough latent capacity will be required. If the unit will be used for dehumidification purposes only, the latent capacity is the only consideration necessary. In this case, sensible load is immaterial.

Example TS036 PSC Blower Performance

LC = TC - SC = 32.3 - 24.2 = 8.1 Mbtuh

8,100 Btuh ÷ 1069 = 7.6 lbs/hr

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
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
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
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
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

Note: Minimum entering air temperature

Dividing the latent capacity by 1,069 BTU/LB of water vapor at 80°F DB and 67°F WB [26.7°C DB and 19.4°C WB] moist air enthalpy, converts the amount of moisture removal to pounds per hour (multiply pounds per hour by 0.4536 to obtain kg/hr).

ClimaDry® II Option - Sequence of Operation

ClimaDry® II Sequence of Operation - A heat pump equipped with ClimaDry® II can operate in three modes; cooling, cooling with reheat (dehumidification), and heating. The cooling/heating modes are like any other ClimateMaster WSHP. The reversing valve ("O" signal) is energized in cooling, along with the compressor contactor(s) and blower relay. In the heating mode the reversing valve is de-energized. Almost any thermostat will activate the heat pump in heating or cooling modes. The DXM microprocessor board, which is required with the ClimaDry® II option, will accept either heat pump (Y,O) thermostats or non-heat pump (Y,W) thermostats. The reheat mode requires either a separate humidistat/ dehumidistat or a thermostat that has an integrated dehumidification function for activation. The DXM board is configured to work with either a humidistat or dehumidistat input to terminal "H". Upon receiving an "H" input, the DXM board will activate the cooling mode and engage reheat. Table 4 shows the relationship between thermostat input signals and unit operation.There are four operational inputs for single stage units and six operational inputs for dual stage units:

-Fan Only
-1st Stage Cooling
-2nd Stage Cooling
-1st Stage Heating
-2nd Stage Heating
-Reheat Mode

Fan Only: A (G) call from the thermostat to the (G) terminal of the DXM control board will bring the unit on in fan only mode.

1st Stage Cooling: A simultaneous call from (G), (Y1), and (O) to the (G), (Y1), (O/W2) terminals of the DXM control board will bring the unit on in 1st Stage Cooling.

2nd Stage Cooling: A simultaneous call from (G), (Y1), (Y2), and (O) to the (G), (Y1), (Y2), and (O/W2) terminals of the DXM control board will bring the unit on in 2nd Stage Cooling. When the call is satisfied at the thermostat the unit will continue to run in 1st Stage Cooling until the 1st Stage Cooling call is removed or satisfied, shutting down the unit. **NOTE: Not all units have two-stage cooling functionality.**

1st Stage Heating: A simultaneous call from (G) and (Y1) to

Table 2: Humidistat/Dehumidistat Logic and DXM (2.1, 2.2., 2.3) DIP Settings

Sensor	2.1	2.2	2.3	Logic	Reheat (ON) - H	Reheat (OFF) - H
Humidistat	OFF	OFF	OFF	Reverse	0 VAC	24 VAC
Dehumidistat	OFF	ON	OFF	Standard	24 VAC	0 VAC

Table 3: ClimaDry® II Operating Modes

Mode	Input					Output				
	O	G	Y1	Y2[3]	H	O	G	Y1	Y2[3]	Reheat
No Demand	ON/OFF	OFF	OFF	OFF	OFF	ON/OFF	OFF	OFF	OFF	OFF
Fan Only	ON/OFF	ON	OFF	OFF	OFF	ON/OFF	ON	OFF	OFF	OFF
Cooling 1st Stage	ON	ON	ON	OFF	OFF	ON	ON	ON	OFF	OFF
Cooling 2nd Stage	ON	ON	ON	ON	OFF	ON	ON	ON	ON	OFF
Cooling & Dehumidistat[1]	ON	ON	ON	ON/OFF	ON	ON	ON	ON	ON/OFF	OFF
Dehumidistat Only	ON/OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON
Heating 1st Stage	OFF	ON	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
Heating 2nd Stage	OFF	ON	ON	ON	OFF	OFF	ON	ON	ON	OFF
Heating & Dehumidistat[2]	OFF	ON	ON	ON/OFF	ON	OFF	ON	ON	ON/OFF	OFF

[1]Cooling input takes priority over dehumidify input.
[2]DXM is programmed to ignore the H demand when the unit is in heating mode.
[3]N/A for single stage units; Full load operation for dual capacity units.
[4]ON/OFF = Either ON or OFF.

the (G) and (Y1) terminals of the DXM control board will bring the unit on in 1st Stage Heating.

2nd Stage Heating: A simultaneous call from (G), (Y1), and (Y2) to the (G), (Y1), and (Y2) terminals of the DXM control board will bring the unit on in 2nd Stage Heating. When the call is satisfied at the thermostat the unit will continue to run in 1st Stage Heating until the call is removed or satisfied, shutting down the unit. **NOTE: Not all units have two-stage heating functionality (e.g. TLV084-150 units).**

Reheat Mode: A call from the Humidistat/Dehumidistat to the (H) terminal of the DXM control board will bring the unit on in Reheat Mode if there is no call for cooling at the thermostat. When the Humidistat/Dehumidification call is removed or satisfied the unit will shut down.

NOTE: Cooling always overrides Reheat Mode. In the Cooling mode, the unit cools and dehumidifies. If the cooling thermostat is satisfied but there is still a call for dehumidification, the unit will continue to operate in Reheat Mode.

Note: Care must be taken when using a humidistat to operate ClimaDry®. When the DIP switch on the DXM controller is set for 'humidistat' it reverses the control logic so that an "open" control circuit initiates a ClimaDry® run cycle. If a humidistat is not connected, or if a manual switch on the humidistat is set to "off", ClimaDry® will see the open circuit and call for dehumidification.

ClimaDry® II Component Functions

The ClimaDry® II option consists of the following components:
Motorized Valve/Proportional Controller
Supply Air Sensor
Loop Pump
Hydronic Coil
Low Air Temperature Switch

The Proportional Controller operates on 24 VAC power supply and automatically adjusts the water valve based upon the Supply Air Sensor. The Supply Air Sensor senses supply air temperature at the blower inlet providing the input signal necessary for the proportional control to drive the motorized valve during the reheat mode of operation. The Motorized Valve is a proportional actuator/three-way valve combination used to divert the condenser water from the coax to the hydronic reheat coil during the reheat mode of operation. The proportional controller signals the motorized valve based on the supply air temperature of the supply air sensor.

The Loop Pump circulates condenser water through the hydronic reheat coil during the reheat mode of operation. In this application, the loop pump is only energized during the reheat mode of operation. The Hydronic Coil is utilized during the reheat mode of operation to reheat the air to the setpoint of the proportional controller. Condenser water is diverted by the motorized valve and pumped through the hydronic coil by the loop pump in proportion to the control setpoint. The amount of reheating is dependent on the setpoint and how far from setpoint the supply air temperature is. The factory setpoint is 72°F [22°C], generally considered "neutral" air.

ClimaDry® II Application Considerations

The reheat coil adds a small amount of resistance to the air stream. In some cases the high static option may be required for applications with higher static ductwork. Consult the submittal data or the Installation/Operation/Maintenance (I.O.M.) manual for the specific heat pump to review blower tables.

Unlike most hot gas reheat options, the ClimaDry® II option will operate over a wide range of EWTs. Special flow regulation (water regulating valve) is not required for low EWT conditions.

Unit minimum entering air temperature while in the dehumidification, cooling, or continuous fan modes is **65ºF DB/55ºF WB**. Operation below this minimum may result in nuisance faults.

Water-source heat pumps with ClimaDry® II should not be used as make-up air units. These applications should use equipment specifically designed for make-up air.

Physical Data

Model	006	009	012	018	024	030	036	042	048	060	070
Compressor (1 Each)	Rotary			Scroll							
Factory Charge HFC-410A (oz) [kg]	24 [0.68]	32 [0.91]	34 [0.96]	50 [1.13]	41 [1.16]	41 [1.16]	48 [1.36]	68 [1.93]	68 [1.93]	136 [3.86]	141 [4.0]
ECM Fan Motor & Blower											
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]	11 x 10 [279 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]
PSC Fan Motor & Blower (3 Speeds)											
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]
Water Connection Size											
FPT (in)	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1"
HWG Connection Size											
FPT (in)	N/A	N/A	N/A	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Coax Volume											
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]
Vertical Upflow/Downflow											
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]	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 [75]	170 [77]	267 [121]	276 [125]	278 [126]	337 [153]	424 [192]	426 [193]	451 [205]	453 [205]
Horizontal											
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]	2 - 20 x 24 [2 - 508 x 610]	2 - 20 x 24 [2 - 508 x 610]
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 [75]	170 [77]	267 [121]	276 [125]	278 [126]	337 [153]	424 [192]	426 [193]	451 [205]	453 [205]

Notes:
All units have TXV expansion device and 1/2" & 3/4" electrical knockouts.
575 volt motors are two speed.
For units with ClimaDry® II option add 66lbs (30kg) to weights.

Unit Maximum Water Working Pressure	
Options	Max Pressure PSIG [kPa]
Base Unit	500 [3,447]
Internal Secondary Pump (ISP)	145 [999]
ClimaDry®	145 [999]
Internal Motorized Water Valve (MWV)	300 [2,068]
Internal Auto Flow Valve	300 [2,068]

Use the lowest maximum pressure rating when multiple options are combined.

TS - Horizontal – Dimensional Data

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

*Does not include air filter supports. Add 2" (5.1cm) when a 1" (25.4mm) filter is used, add 3" (7.6cm) when a 2" (50.8mm) filter is used.

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

Water Connections - Units with ClimaDry®	
1	2
Loop In D	Loop Out E
N/A	N/A
2.1	10.0
5.2	25.4
5.96	13.13
15.14	33.35
5.96	13.13
15.14	33.35
5.96	13.13
15.14	33.35
5.96	13.13
15.14	33.35

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

CCP = Control/Compressor Access Panel
BSP = Blower Service Panel
*ASP = Additional Service Panel (not required)

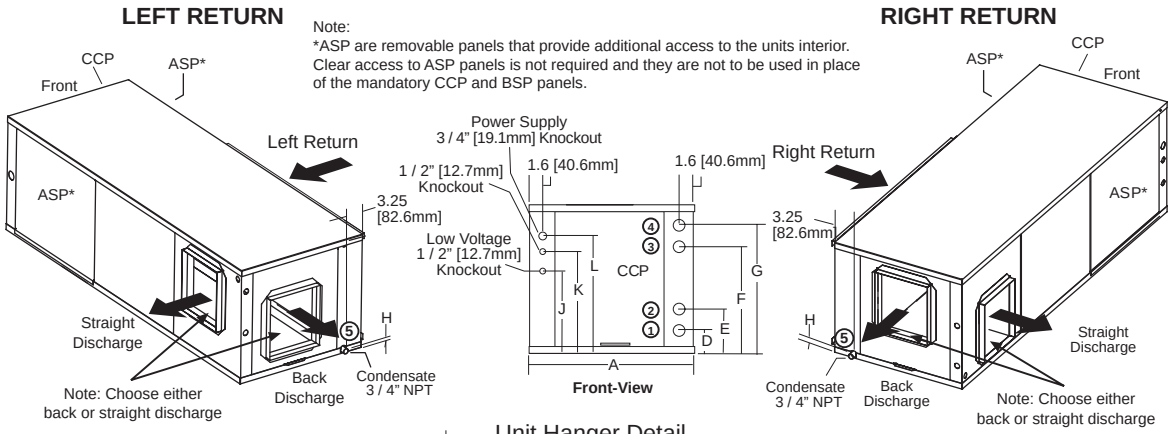
Note:

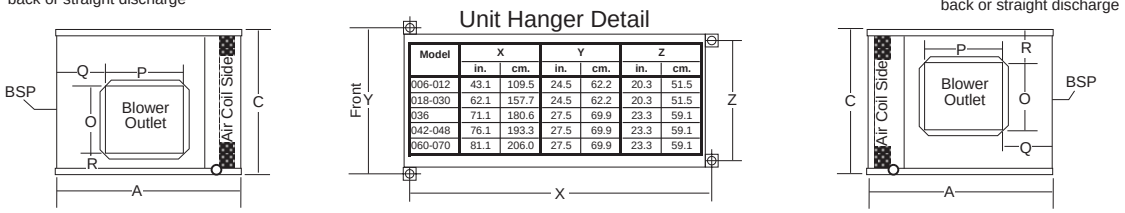
*ASP are removable panels that provide additional access to the units interior. Clear access to ASP panels is not required and they are not to be used in place of the mandatory CCP and BSP panels.

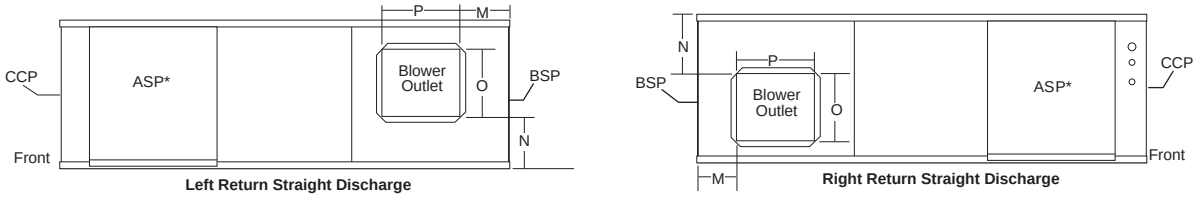
TS - Horizontal – Dimensional Data

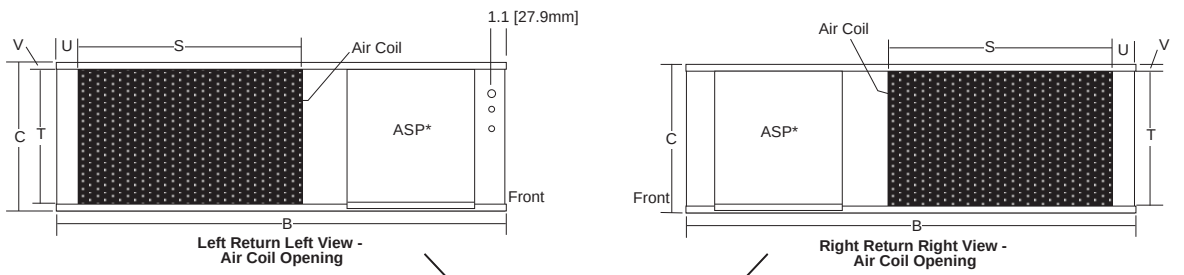
Horizontal Model		Discharge Connection Duct Flange Installed						Return Connection Using Return Air Opening				Return Connection Using Optional Air Filter Frame			
		M	N	O Supply Height	P Supply Width	Q	R	S Return Width	T Return Height	U	V	S Return Width	T Return Height	U	V
006 - 012	in	5.3	4.1	9.0	9.0	5.3	4.1	17.1	15.3	2.1	1.0	17.7	14.2	2.3	1.7
	cm	13.4	10.3	22.5	22.5	13.4	10.3	43.4	38.9	5.3	2.5	45.0	36.1	5.8	4.3
018	in	3.6	2.0	15.5	12.5	3.6	2.0	28.1	17.3	6.2	1.0	33.8	16.2	2.3	1.7
	cm	9.3	5.1	39.4	31.8	9.2	5.2	71.4	43.9	15.7	2.5	85.8	41.0	5.8	4.3
024 - 030	in	3.6	2.0	15.5	12.5	3.6	2.0	32.1	17.3	2.3	1.0	33.8	16.2	2.3	1.7
	cm	9.3	5.1	39.4	31.8	9.2	5.2	81.5	43.9	5.8	2.5	85.8	41.0	5.8	4.3
036	in	*3.1	1.2	19.0	17.5	*3.1	1.0	36.1	19.3	2.3	1.0	34.8	18.2	3.1	1.7
	cm	7.9	3.1	48.3	44.5	7.9	2.6	91.7	49.0	5.7	2.5	88.3	46.1	7.8	4.3
042 - 048	in	3.1	1.2	19.0	17.5	3.1	1.0	41.1	19.3	2.3	1.0	39.8	18.2	3.1	1.7
	cm	7.9	3.1	48.3	44.5	7.9	2.6	104.4	49.0	5.7	2.5	101.0	46.1	7.8	4.3
060 - 070	in	3.1	1.2	19.0	17.5	3.1	1.0	46.1	19.3	2.3	1.0	44.8	18.2	3.1	1.7
	cm	7.9	3.1	48.3	44.5	7.9	2.6	117.1	49.0	57	2.5	113.7	46.1	7.8	4.3

*For units with modulating reheat option this dimension is 2.9" (7.4 cm).
All dimensions +/- 0.20 in. (5.1 mm).







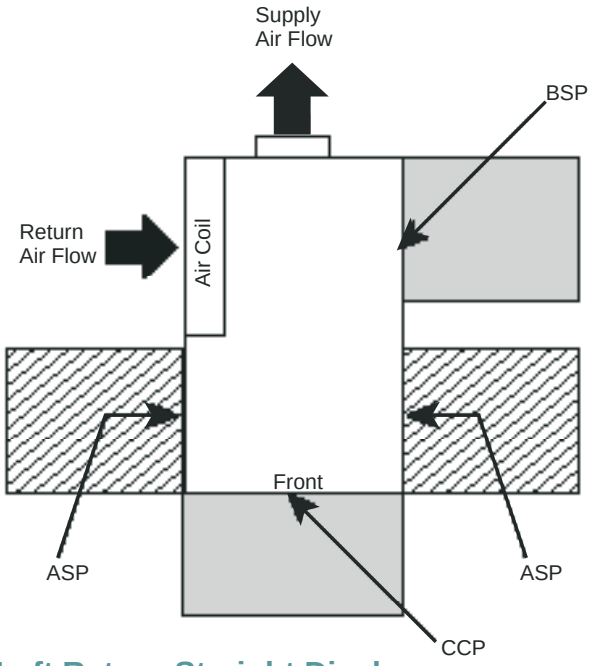


Filter Rails Removed

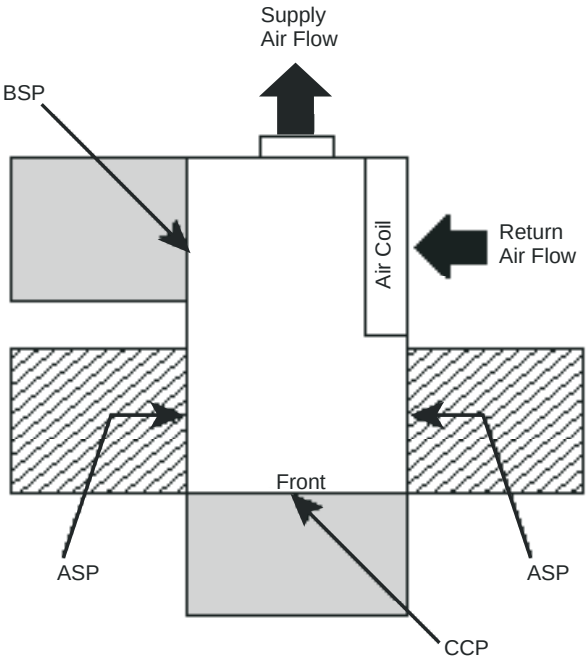
See Aff ---- for accessory air filter frame with duct collar

TS - Horizontal Service Access

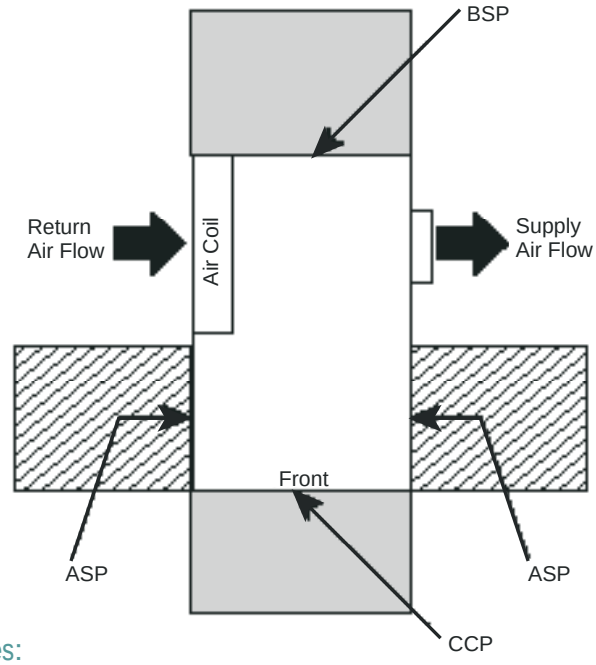
Left Return Back Discharge



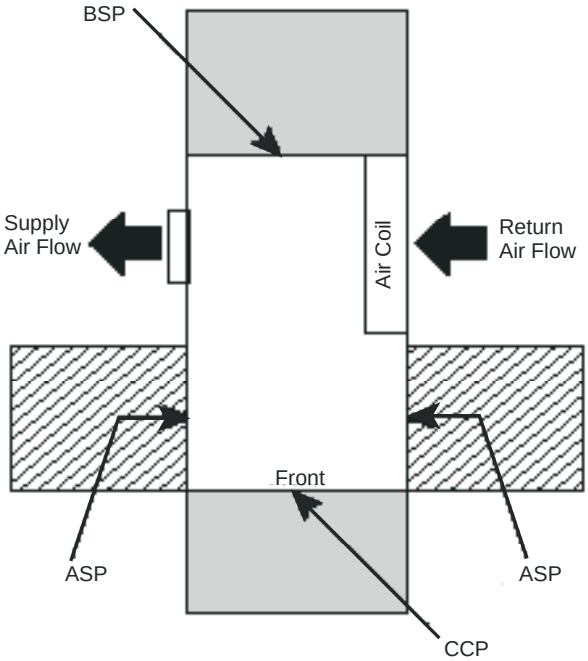
Right Return Back Discharge



Left Return Straight Discharge



Right Return Straight Discharge



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. CCP and BSP requires 2' service access.
3. Blower service access is through back panel on straight discharge units or through panel opposite air coil on back discharge units.
4. ASP are removable panels that provide additional access to the units interior. Clear access to ASP panels is not required and they are not to be used in place of the mandatory CCP and BSP panels.

= mandatory 2′ service access

= (optional) additional 2′ service access

Legend:

CCP = Control/Compressor Access Panel
BSP = Blower Service Panel
ASP = Additional Service Panel (not required)

TS - Vertical Upflow – Dimensional Data

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

*Does not include air filter supports. Add 2” (5.1cm) when a 1” (25.4mm) filter is used, add 3” (7.6cm) when a 2” (50.8mm) filter is used.

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

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

Notes:

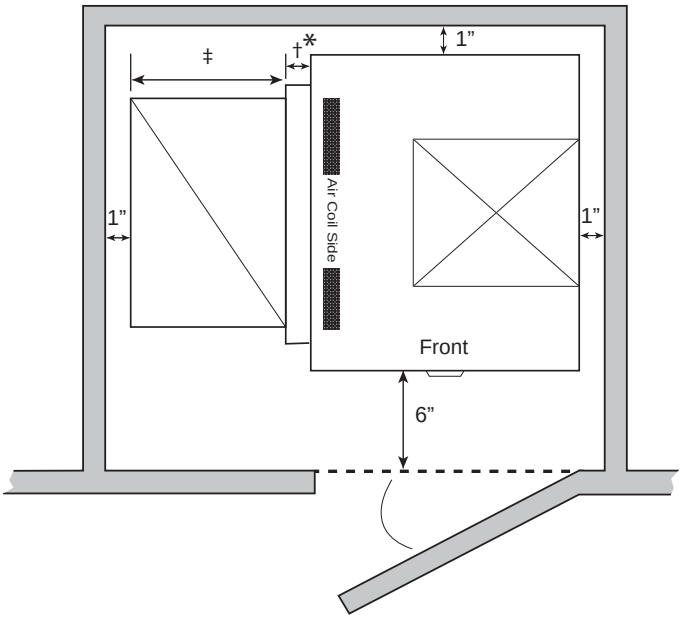
1. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.
2. Front & Side access is preferred for service access. However, all components may be serviced from the front access panel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

Legend:

CCP = Control/Compressor Access Panel
BSP = Blower Service Panel
ASP = Additional Service Panel (not required)

Recommended Minimum Installation Clearances for Vertical Units*	
1”	Back of unit
	Side opposite return air
6”	Front if hard piped
Return Air Side	
1”	Ducted return - ‡ *Add for duct width - † Add 2” for 1” filter frame/rail or 3” for 2” filter frame/rail
	Free (open) return - calculate required dimension for a maximum velocity of 600 fpm

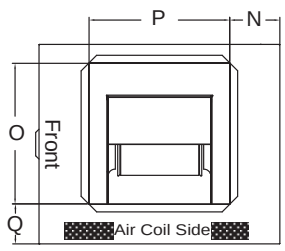
*Field installed accessories (hoses, air cleaners, etc.) and factory WSE option will require additional space. Top supply air is shown, the same clearances apply to bottom supply air units.



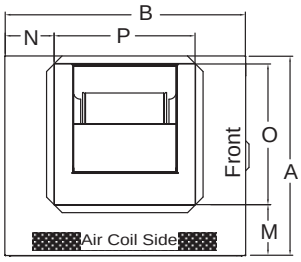
TS - Vertical Upflow – Dimensional Data

Vertical Upflow Model		Discharge Connection Duct Flange Installed					Return Connection Using Return Air Opening				Return Connection Using Optional Air Filter Frame			
		M	N	O Supply Width	P Supply Depth	Q	R	S Return Depth	T Return Height	U	R	S Return Depth	T Return Height	U
006 - 012	in	6.7	6.3	9.0	9.0	6.7	2.3	17.1	15.3	1.0	1.7	17.7	14.2	1.7
	cm	17.0	16.0	22.9	22.9	17.0	5.8	43.3	38.9	2.5	4.3	45.0	36.1	4.3
018	in	7.2	5.8	14.0	14.0	4.9	2.3	21.1	23.7	1.0	1.7	22.2	22.2	1.7
	cm	18.3	14.8	35.6	35.6	12.4	5.8	53.6	60.2	2.5	4.3	56.4	66.5	4.3
024 - 030	in	7.2	5.8	14.0	14.0	4.9	2.3	21.1	27.7	1.0	1.7	22.2	26.2	1.7
	cm	18.3	14.8	35.6	35.6	12.4	5.8	53.6	70.4	2.5	4.3	56.4	66.5	4.3
036	in	6.4	6.3	18.0	18.0	5.3	2.3	26.1	27.7	1.0	1.7	27.2	26.2	1.7
	cm	16.1	16.0	45.7	45.7	13.5	5.8	66.3	70.4	2.5	4.3	69.1	66.5	4.3
042 - 048	in	6.4	6.3	18.0	18.0	5.3	2.3	26.1	30.5	1.0	1.7	27.2	30.2	1.7
	cm	16.1	16.0	45.7	45.7	13.5	5.8	66.3	77.5	2.5	4.3	69.1	76.7	4.3
060 - 070	in	6.4	6.3	18.0	18.0	5.3	2.3	26.1	35.7	1.0	1.7	27.2	34.2	1.7
	cm	16.1	16.0	45.7	45.7	13.5	5.8	66.3	90.7	2.5	4.3	69.1	86.9	4.3

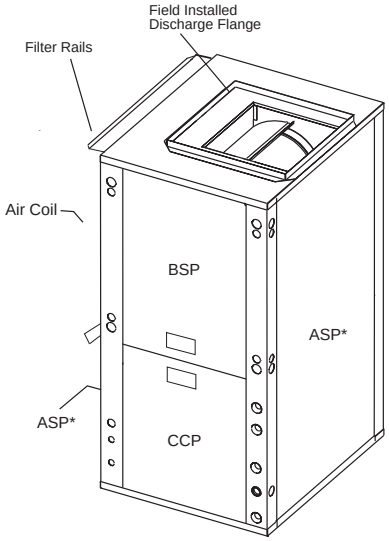
All dimensions +/- .20 in, (+/- 5.1mm).



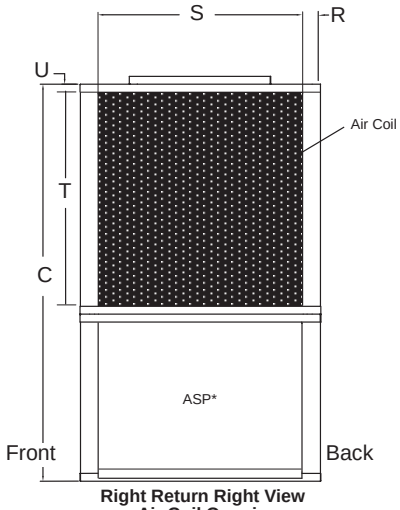
Top View-Right Return



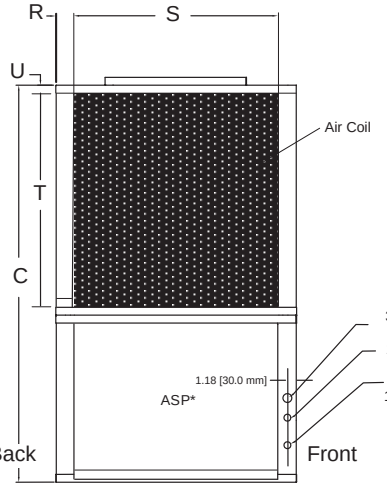
Top View-Left Return



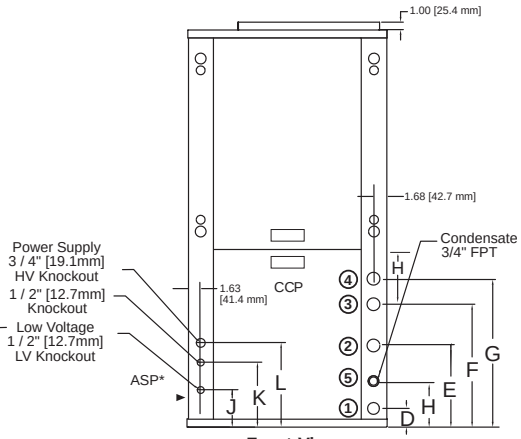
Isometric (Left Return) View



Right Return Right View - Air Coil Opening



Left Return Left View - Air Coil Opening



Front-View

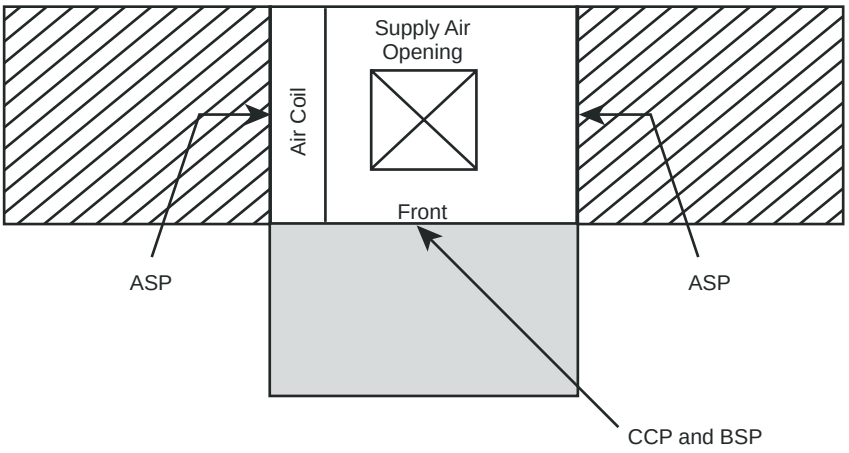
Filter Rails Removed

See Aff ---- for accessory air filter frame with duct collar

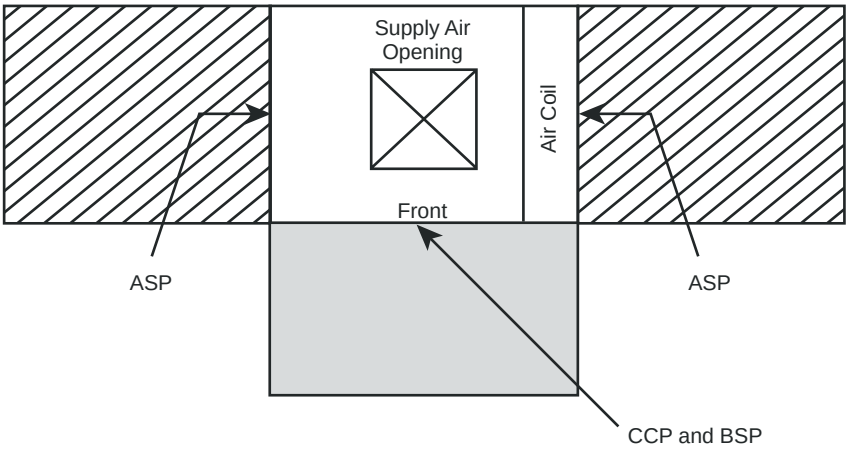
Note:
*ASP are removable panels that provide additional access to the units interior. Clear access to ASP panels is not required and they are not to be used in place of the mandatory CCP and BSP panels.

Vertical Units

Left Return



Right Return



= mandatory 2′ service access

= (optional) additional 2′ service access

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. ASP are removable panels that provide additional access to the units interior. Clear access to ASP panels is not required and they are not to be used in place of the mandatory CCP and BSP panels.
4. Top supply air is shown, the same clearances apply to bottom supply air units.

Legend:

CCP = Control/Compressor Access Panel
BSP = Blower Service Panel
ASP = Additional Service Panel (not required)

TS - Vertical Downflow – Dimensional Data

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

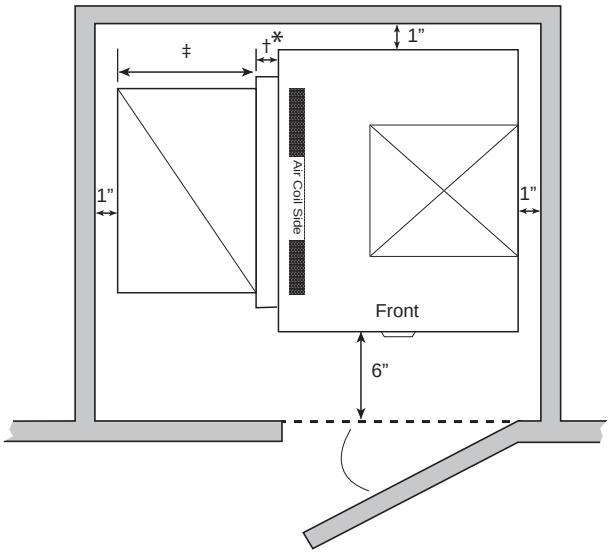
*Does not include air filter supports. Add 2” (5.1cm) when a 1” (25.4mm) filter is used, add 3” (7.6cm) when a 2” (50.8mm) filter is used.

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

Vertical Downflow Model		Water Connections						
		1	2	3	4	5		
		Loop In D	Loop Out E	HWG In F	HWG Out G	H	Water Loop FPT	HWG FPT
018	in	17.2	9.3	5.4	2.4	3.6	3/4”	1/2”
	cm	43.7	23.6	13.7	6.1	9.2		
024 - 030	in	17.9	10.5	5.7	2.4	3.6	3/4”	1/2”
	cm	45.5	26.7	14.5	6.1	9.2		
036	in	17.9	10.5	5.7	2.4	3.6	3/4”	1/2”
	cm	45.5	26.7	14.5	6.1	9.2		
042 - 048	in	17.9	10.5	5.7	2.4	3.6	1”	1/2”
	cm	45.5	26.7	14.5	6.1	9.2		
060 - 070	in	17.9	10.5	5.7	2.4	3.6	1”	1/2”
	cm	45.5	26.7	14.5	6.1	9.2		

Recommended Minimum Installation Clearances for Vertical Units*	
1”	Back of unit
	Side opposite return air
6”	Front if hard piped
Return Air Side	
1”	Ducted return - ‡ *Add for duct width - † Add 2” for 1” filter frame/rail or 3” for 2” filter frame/rail
	Free (open) return - calculate required dimension for a maximum velocity of 600 fpm

*Field installed accessories (hoses, air cleaners, etc.) and factory WSE option will require additional space. Top supply air is shown, the same clearances apply to bottom supply air units.

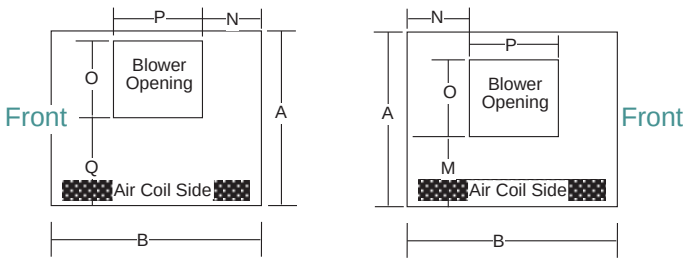


TS - Vertical Downflow – Dimensional Data

Vertical Downflow Model		Discharge Connection Duct Flange Installed					Return Connection Using Return Air Opening				Return Connection Using Optional Air Filter Frame			
		M	N	O Supply Width	P Supply Depth	Q	R	S Return Depth	T Return Height	U	R	S Return Depth	T Return Height	U
018	in	6.7	8.4	10.1	9.1	10.8	2.2	21.1	23.7	21.2	1.7	22.2	22.2	21.9
	cm	17.1	21.4	25.7	23.0	27.4	5.6	53.6	60.2	53.8	4.3	56.4	56.4	55.6
024 - 030	in	6.7	8.4	10.1	9.1	10.8	2.2	21.1	27.7	21.2	1.7	22.2	26.2	21.9
	cm	17.1	21.4	25.7	23.0	27.4	5.6	53.6	70.4	53.8	4.3	56.4	66.5	55.6
036	in	7.2	9.0	13.4	12.9	10.4	2.2	26.1	27.7	23.2	1.7	27.2	26.2	23.9
	cm	18.3	22.9	34.0	32.7	26.5	5.6	66.3	70.4	58.9	4.3	69.1	66.5	60.7
042 - 048	in	7.2	9.0	13.4	12.9	10.4	2.2	26.1	30.5	23.2	1.7	27.2	30.2	23.9
	cm	18.3	22.9	34.0	32.7	26.5	5.6	66.3	77.5	58.9	4.3	69.1	76.7	60.7
060 - 070	in	7.2	9.0	13.4	12.9	10.4	2.2	26.1	35.7	23.2	1.7	27.2	34.2	23.9
	cm	18.3	22.9	34.0	32.7	26.5	5.6	66.3	90.7	23.2	4.3	69.1	86.9	60.7

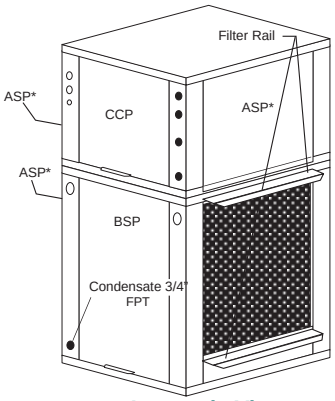
All dimensions +/- .20 in, (+/- 5.1mm).

Legend:
CCP = Control/Compressor Access Panel
BSP = Blower Service Panel
ASP = Additional Service Panel (not required)

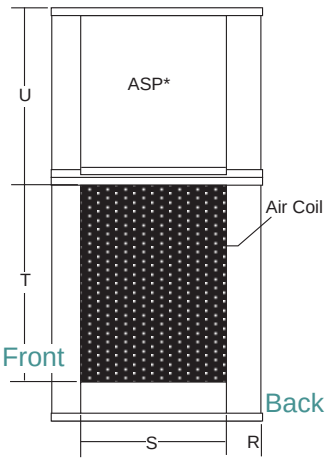


Right Return Discharge Floor Foot Print

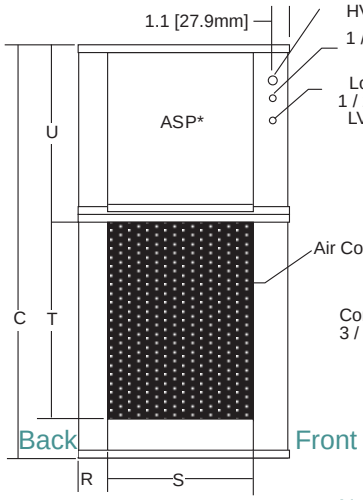
Left Return Discharge Floor Foot Print



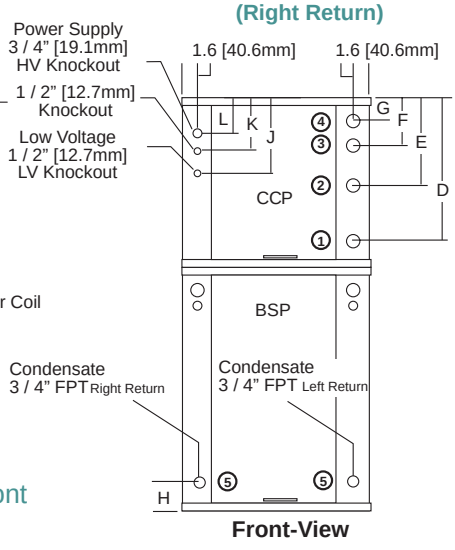
Isometric View (Right Return)



Right Return Right View - Air Coil Opening



Left Return Left View - Air Coil Opening



Front-View

Filter Rails Removed
See Aff ---- for accessory air filter frame with duct collar

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. Condensate is 3/4" FPT PVC.
4. ASP are removable panels that provide additional access to the units interior. Clear access to ASP panels is not required and they are not to be used in place of the mandatory CCP and BSP panels.

Corner Weights for TSH Series Units

Model		Total	Left-Front*	Right-Front*	Left-Back*	Right-Back*
006	Lbs	136	45.0	30.0	33.0	28.0
	kg	62	20.4	13.6	15.0	12.7
009	Lbs	156	55.0	33.0	36.0	32.0
	kg	71	24.9	15.0	16.3	14.5
012	Lbs	160	56.0	34.0	37.0	33.0
	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.

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								
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
024	G	208/230/60/1	197/254	1	13.5	58.3	1.6	15.1	18.5	30	0.8	15.9	19.3	30
	E	265/60/1	239/292	1	9	54.0	1.1	10.1	12.4	20	0.7	10.8	13.1	20
	H	208/230/60/3	197/254	1	7.1	55.4	1.6	8.7	10.5	15	0.8	9.5	11.3	15
	F*	460/60/3*	414/506	1	3.5	28.0	0.9	4.4	5.3	15	0.7	5.1	6.0	15
030	G	208/230/60/1	197/254	1	12.8	64.0	1.8	14.6	17.8	30	0.8	15.4	18.6	30
	E	265/60/1	239/292	1	10.9	60.0	1.4	12.3	15.0	25	0.7	13.0	15.7	25
	H	208/230/60/3	197/254	1	8.3	58.0	1.8	10.1	12.2	20	0.8	10.9	13.0	20
	F*	460/60/3*	414/506	1	5.1	28.0	1.0	6.1	7.4	15	0.7	6.8	8.1	15
036	G	208/230/60/1	197/254	1	16.0	77.0	1.8	17.8	21.8	35	0.8	18.6	22.6	35
	E	265/60/1	239/292	1	12.2	72.0	2.0	14.2	17.3	25	0.7	14.9	18.0	30
	H	208/230/60/3	197/254	1	10	71.0	1.8	11.8	14.3	20	0.8	12.6	15.1	25
	F*	460/60/3*	414/506	1	4.7	38.0	1.0	5.7	6.9	15	0.7	6.4	7.6	15
042	G	208/230/60/1	197/254	1	16.7	79.0	2.2	18.9	23.1	35	0.8	19.7	23.9	40
	E	265/60/1	239/292	1	13.5	72.0	1.7	15.2	18.6	30	0.7	15.9	19.3	30
	H	208/230/60/3	197/254	1	10.4	73.0	2.2	12.6	15.2	25	0.8	13.4	16.0	25
	F*	460/60/3*	414/506	1	5.8	38.0	1.0	6.8	8.3	15	0.7	7.5	9.0	15
	N	575/60/3	518/633	1	3.8	36.5	0.8	4.6	5.6	15	N/A	N/A	N/A	N/A
048	G	208/230/60/1	197/254	1	21.8	117.0	2.7	24.5	30.0	50	1.1	25.6	31.0	50
	E	265/60/1	239/292	1	16.3	98.0	2.9	19.2	23.3	35	1.3	20.5	24.6	40
	H	208/230/60/3	197/254	1	13.7	83.1	2.7	16.4	19.8	30	1.1	17.5	20.9	30
	F*	460/60/3*	414/506	1	6.2	41.0	1.7	7.9	9.5	15	1.3	9.0	10.6	15
	N	575/60/3	518/633	1	4.8	33.0	1.4	6.2	7.4	15	N/A	N/A	N/A	N/A
060	G	208/230/60/1	197/254	1	26.4	134.0	3.8	30.2	36.8	60	1.1	31.3	37.9	60
	H	208/230/60/3	197/254	1	16	110.0	3.8	19.8	23.8	35	1.1	20.9	24.9	40
	F*	460/60/3*	414/506	1	7.8	52.0	1.3	9.1	11.1	15	1.3	10.4	12.4	20
	N	575/60/3	518/633	1	5.7	38.9	2.2	7.9	9.3	15	N/A	N/A	N/A	N/A
070	G	208/230/60/1	197/254	1	30.8	178.0	4.0	34.8	42.5	70	1.1	35.9	43.6	70
	H	208/230/60/3	197/254	1	19.6	138.0	4.0	23.6	28.5	45	1.1	24.7	29.6	45
	F*	460/60/3*	414/506	1	8.2	66.1	2.6	10.8	12.9	20	1.3	12.1	14.2	20
	N	575/60/3	518/633	1	6.6	55.3	1.5	8.1	9.8	15	N/A	N/A	N/A	N/A

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with ClimaDry® require a four wire power supply with neutral. Reheat pump is rated 265 vac and is wired between one 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	LRA								
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
024	G	208/230/60/1	197/254	1	13.5	58.3	1.8	15.3	18.7	30	0.8	16.1	19.5	30
	E	265/60/1	239/292	1	9	54.0	1.4	10.4	12.7	20	0.7	11.1	13.4	20
	H	208/230/60/3	197/254	1	7.1	55.4	1.8	8.9	10.7	15	0.8	9.7	11.5	15
	F*	460/60/3*	414/506	1	3.5	28.0	1	4.5	5.4	15	0.7	5.2	6.1	15
030	G	208/230/60/1	197/254	1	12.8	64.0	2.2	15.0	18.2	30	0.8	15.8	19.0	30
	E	265/60/1	239/292	1	10.9	60.0	1.7	12.6	15.3	25	0.7	13.3	16.0	25
	H	208/230/60/3	197/254	1	8.3	58.0	2.2	10.5	12.6	20	0.8	11.3	13.4	20
	F*	460/60/3*	414/506	1	5.1	28.0	1.0	6.1	7.4	15	0.7	6.8	8.1	15
036	G	208/230/60/1	197/254	1	16.0	77.0	2.2	18.2	22.2	35	0.8	19.0	23.0	35
	E	265/60/1	239/292	1	12.2	72.0	1.7	13.9	17.0	25	0.7	14.6	17.7	25
	H	208/230/60/3	197/254	1	10	71.0	2.2	12.2	14.7	25	0.8	13.0	15.5	25
	F*	460/60/3*	414/506	1	4.7	38.0	1.0	5.7	6.9	15	0.7	6.4	7.6	15
042	G	208/230/60/1	197/254	1	16.7	79.0	2.7	19.4	23.6	35	0.8	20.2	24.4	40
	E	265/60/1	239/292	1	13.5	72.0	2.9	16.4	19.8	30	0.7	17.1	20.5	30
	H	208/230/60/3	197/254	1	10.4	73.0	2.7	13.1	15.7	25	0.8	13.9	16.5	25
	F*	460/60/3*	414/506	1	5.8	38.0	1.7	7.5	9.0	15	0.7	8.2	9.7	15
	N	575/60/3	518/633	1	3.8	36.5	1.4	5.2	6.2	15	N/A	N/A	N/A	N/A
048	G	208/230/60/1	197/254	1	21.8	117.0	2.6	24.4	29.9	50	1.1	25.5	31.0	50
	H	208/230/60/3	197/254	1	13.7	83.1	2.6	16.3	19.7	30	1.1	17.4	20.8	30
	F*	460/60/3*	414/506	1	6.2	41.0	1.8	8.0	9.6	15	1.3	9.3	10.9	15
	N	575/60/3	518/633	1	4.8	33.0	1.4	6.2	7.4	15	N/A	N/A	N/A	N/A
060	G	208/230/60/1	197/254	1	26.4	134.0	4.0	30.4	37.0	60	1.1	31.5	38.1	60
	H	208/230/60/3	197/254	1	16	110.0	4.0	20.0	24.0	35	1.1	21.1	25.1	40
	F*	460/60/3*	414/506	1	7.8	52.0	2.6	10.4	12.4	15	1.3	11.7	13.7	20
	N	575/60/3	518/633	1	5.7	38.9	1.5	7.2	8.6	15	N/A	N/A	N/A	N/A

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with ClimaDry® require a four wire power supply with neutral. Reheat pump is rated 265 vac and is wired between one hot leg and neutral.

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	LRA								
018	G	208/230/60/1	197/254	1	9.0	48.0	3.9	12.9	15.2	20	0.8	13.7	16.0	20
	E	265/60/1	239/292	1	8.4	40.0	3.2	11.6	13.7	20	0.7	12.3	14.4	20
024	G	208/230/60/1	197/254	1	13.5	58.3	3.9	17.4	20.8	30	0.8	18.2	21.6	35
	E	265/60/1	239/292	1	9	54.0	3.2	12.2	14.5	20	0.7	12.9	15.2	20
	H	208/230/60/3	197/254	1	7.1	55.4	3.9	11.0	12.8	15	0.8	11.8	13.6	20
	F*	460/60/3*	414/506	1	3.5	28.0	3.2	6.7	7.6	15	0.7	7.4	8.3	15
030	G	208/230/60/1	197/254	1	12.8	64.0	3.9	16.7	19.9	30	0.8	17.5	20.7	30
	E	265/60/1	239/292	1	10.9	60.0	3.2	14.1	16.8	25	0.7	14.8	17.5	25
	H	208/230/60/3	197/254	1	8.3	58.0	3.9	12.2	14.3	20	0.8	13.0	15.1	20
	F*	460/60/3*	414/506	1	5.1	28.0	3.2	8.3	9.6	15	0.7	9.0	10.3	15
036	G	208/230/60/1	197/254	1	16.0	77.0	3.9	19.9	23.9	35	0.8	20.7	24.7	40
	E	265/60/1	239/292	1	12.2	72.0	3.2	15.4	18.5	30	0.7	16.1	19.2	30
	H	208/230/60/3	197/254	1	10	71.0	3.9	13.9	16.4	25	0.8	14.7	17.2	25
	F*	460/60/3*	414/506	1	4.7	38.0	3.2	7.9	9.1	15	0.7	8.6	9.8	15
042	G	208/230/60/1	197/254	1	16.7	79.	3.9	20.6	24.8	40	0.8	21.4	25.6	40
	E	265/60/1	239/292	1	13.5	72.0	3.2	16.7	20.1	30	0.7	17.4	20.8	30
	H	208/230/60/3	197/254	1	10.4	73.0	3.9	14.3	16.9	25	0.8	15.1	17.7	25
	F*	460/60/3*	414/506	1	5.8	38.0	3.2	9.0	10.5	15	0.7	9.7	11.2	15
048	G	208/230/60/1	197/254	1	21.8	117.0	6.9	28.7	34.2	50	1.1	29.8	35.3	50
	E	265/60/1	239/292	1	16.3	98.0	6.0	22.3	26.4	40	1.3	23.6	27.7	40
	H	208/230/60/3	197/254	1	13.7	83.1	6.9	20.6	24.0	35	1.1	21.7	25.1	35
	F*	460/60/3*	414/506	1	6.2	41.0	6.0	12.2	13.8	20	1.3	13.5	15.1	20
060	G	208/230/60/1	197/254	1	26.4	134.0	6.9	33.3	39.9	60	1.1	34.4	41.0	60
	E	265/60/1	239/292	1	19.9	130.0	6.0	25.9	30.9	50	1.3	27.2	32.2	50
	H	208/230/60/3	197/254	1	16	110.0	6.9	22.9	26.9	40	1.1	24.0	28.0	40
	F*	460/60/3*	414/506	1	7.8	52.0	6.0	13.8	15.8	20	1.3	15.1	17.1	20
070	G	208/230/60/1	197/254	1	30.8	178.0	6.9	37.7	45.4	70	1.1	37.9	45.6	70
	H	208/230/60/3	197/254	1	19.6	138.0	6.9	26.5	31.4	50	1.1	27.6	32.5	50
	F*	460/60/3*	414/506	1	8.2	66.1	6.0	14.2	16.3	20	1.3	15.5	17.6	25

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with ECM motors/ClimaDry® require a four wire power supply with neutral. ECM motors/reheat pumps are rated 265 vac and are wired between one 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								
006	G	208/230/60/1	197/254	1	3.1	17.7	0.4	3.5	4.3	15	0.4	3.9	4.7	15
	E	265/60/1	239/292	1	2.6	13.5	0.4	3.0	3.6	15	0.7	3.7	4.3	15
009	G	208/230/60/1	197/254	1	3.9	21.0	0.4	4.3	5.3	15	0.4	4.7	5.7	15
	E	265/60/1	239/292	1	3.7	22.0	0.4	4.1	5.0	15	0.7	4.8	5.7	15
012	G	208/230/60/1	197/254	1	5.0	25.0	0.7	5.7	7.0	15	0.4	6.1	7.4	15
	E	265/60/1	239/292	1	4.5	22.0	0.7	5.2	6.4	15	0.7	5.9	7.0	15
018	G	208/230/60/1	197/254	1	9.0	48.0	1.0	10.0	12.3	20	0.4	10.4	12.7	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
024	G	208/230/60/1	197/254	1	13.5	58.3	1.6	15.1	18.5	30	0.4	15.5	18.9	30
	E	265/60/1	239/292	1	9	54.0	1.1	10.1	12.4	20	0.7	10.8	13.1	20
	H	208/230/60/3	197/254	1	7.1	55.4	1.6	8.7	10.5	15	0.4	9.13	10.9	15
	F*	460/60/3*	414/506	1	3.5	28.0	0.9	4.4	5.3	15	0.7	5.1	6.0	15
030	G	208/230/60/1	197/254	1	12.8	64.0	1.8	14.6	17.8	30	0.8	15.4	18.6	30
	E	265/60/1	239/292	1	10.9	60.0	1.4	12.3	15.0	25	0.7	13.0	15.7	25
	H	208/230/60/3	197/254	1	8.3	58.0	1.8	10.1	12.2	20	0.8	10.9	13.0	20
	F*	460/60/3*	414/506	1	5.1	28.0	1.0	6.1	7.4	15	0.7	6.8	8.1	15
036	G	208/230/60/1	197/254	1	16.0	77.0	1.8	17.8	21.8	35	0.8	18.6	22.6	35
	E	265/60/1	239/292	1	12.2	72.0	2.0	14.2	17.3	25	0.7	14.9	18.0	30
	H	208/230/60/3	197/254	1	10	71.0	1.8	11.8	14.3	20	0.8	12.6	15.1	25
	F*	460/60/3*	414/506	1	4.7	38.0	1.0	5.7	6.9	15	0.7	6.4	7.6	15
042	G	208/230/60/1	197/254	1	16.7	79.0	2.2	18.9	23.1	35	0.8	19.7	23.9	40
	E	265/60/1	239/292	1	13.5	72.0	1.7	15.2	18.6	30	0.7	15.9	19.3	30
	H	208/230/60/3	197/254	1	10.4	73.0	2.2	12.6	15.2	25	0.8	13.4	16.0	25
	F*	460/60/3*	414/506	1	5.8	38.0	1.0	6.8	8.3	15	0.7	7.5	9.0	15
	N	575/60/3	518/633	1	3.8	36.5	0.8	4.6	5.6	15	N/A	N/A	N/A	N/A
048	G	208/230/60/1	197/254	1	21.8	117.0	2.7	24.5	30.0	50	0.8	25.3	30.8	50
	E	265/60/1	239/292	1	16.3	98.0	2.9	19.2	23.3	35	0.7	19.9	24.0	40
	H	208/230/60/3	197/254	1	13.7	83.1	2.7	16.4	19.8	30	0.8	17.2	20.6	30
	F*	460/60/3*	414/506	1	6.2	41.0	1.7	7.9	9.5	15	0.7	8.6	10.2	15
	N	575/60/3	518/633	1	4.8	33.0	1.4	6.2	7.4	15	N/A	N/A	N/A	N/A
060	G	208/230/60/1	197/254	1	26.4	134.0	3.8	30.2	36.8	60	1.1	31.3	37.9	60
	H	208/230/60/3	197/254	1	16	110.0	3.8	19.8	23.8	35	1.1	20.9	24.9	40
	F*	460/60/3*	414/506	1	7.8	52.0	1.3	9.1	11.1	15	1.3	10.4	12.4	20
	N	575/60/3	518/633	1	5.7	38.9	2.2	7.9	9.3	15	N/A	N/A	N/A	N/A
070	G	208/230/60/1	197/254	1	30.8	178.0	4.0	34.8	42.5	70	1.1	35.9	43.6	70
	H	208/230/60/3	197/254	1	19.6	138.0	4.0	23.6	28.5	45	1.1	24.7	29.6	45
	F*	460/60/3*	414/506	1	8.2	66.1	2.6	10.8	12.9	20	1.3	12.1	14.2	20
	N	575/60/3	518/633	1	6.6	55.3	1.5	8.1	9.8	15	N/A	N/A	N/A	N/A

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with internal secondary circulators require a four wire power supply with neutral. Internal secondary circulators are rated 265 vac and are wired between one hot leg and neutral.

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	LRA								
018	G	208/230/60/1	197/254	1	9.0	48.0	1.1	10.1	12.4	20	0.4	10.5	12.8	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
024	G	208/230/60/1	197/254	1	13.5	58.3	1.8	15.3	18.7	30	0.4	15.7	19.1	30
	E	265/60/1	239/262	1	9	54.0	1.4	10.4	12.7	20	0.7	11.1	13.4	20
	H	208/230/60/3	197/254	1	7.1	55.4	1.8	8.9	10.7	15	0.4	9.3	11.1	15
	F*	460/60/3*	414/506	1	3.5	28.0	1	4.5	5.4	15	0.7	5.2	6.1	15
030	G	208/230/60/1	197/254	1	12.8	64.0	2.2	15.0	18.2	30	0.8	15.8	19.0	30
	E	265/60/1	239/292	1	10.9	60.0	1.7	12.6	15.3	25	0.7	13.3	16.0	25
	H	208/230/60/3	197/254	1	8.3	58.0	2.2	10.5	12.6	20	0.8	11.3	13.4	20
	F*	460/60/3*	414/506	1	5.1	28.0	1.0	6.1	7.4	15	0.7	6.8	8.1	15
036	G	208/230/60/1	197/254	1	16.0	77.0	2.2	18.2	22.2	35	0.8	19.0	23.0	35
	E	265/60/1	239/292	1	12.2	72.0	1.7	13.9	29.2	25	0.7	14.6	17.7	25
	H	208/230/60/3	197/254	1	10	71.0	2.2	12.2	14.7	25	0.8	13.0	15.5	25
	F*	460/60/3*	414/506	1	4.7	38.0	1.0	5.7	6.9	15	0.7	6.4	7.6	15
042	G	208/230/60/1	197/254	1	16.7	79.0	2.7	19.4	23.6	35	0.8	20.2	24.4	40
	E	265/60/1	239/292	1	13.5	72.0	2.9	16.4	19.8	30	0.7	17.1	20.5	30
	H	208/230/60/3	197/254	1	10.4	73.0	2.7	13.1	15.7	25	0.8	13.9	16.5	25
	F*	460/60/3*	414/506	1	5.8	38.0	1.7	7.5	9.0	15	0.7	8.2	9.7	15
	N	575/60/3	518/633	1	3.8	36.5	1.4	5.2	6.2	15	N/A	N/A	N/A	N/A
048	G	208/230/60/1	197/254	1	21.8	117.0	2.6	24.4	29.9	50	0.8	25.2	30.7	50
	H	208/230/60/3	197/254	1	13.7	83.1	2.6	16.3	19.7	30	0.8	17.1	20.5	30
	F*	460/60/3*	414/506	1	6.2	41.0	1.8	8.0	9.6	15	0.7	8.7	10.3	15
	N	575/60/3	518/633	1	4.8	33.0	1.4	6.2	7.4	15	N/A	N/A	N/A	N/A
060	G	208/230/60/1	197/254	1	26.4	134.0	4.0	30.4	37.0	60	1.1	31.5	38.1	60
	H	208/230/60/3	197/254	1	16	110.0	4.0	20.0	24.0	35	1.1	21.1	25.1	40
	F*	460/60/3*	414/506	1	7.8	52.0	2.6	10.4	12.4	15	1.3	11.7	13.7	20
	N	575/60/3	518/633	1	5.7	38.9	1.5	7.2	8.6	15	N/A	N/A	N/A	N/A

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with internal secondary circulators require a four wire power supply with neutral. Internal secondary circulators are rated 265 vac and are wired between one 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	LRA								
018	G	208/230/60/1	197/254	1	9.0	48.0	3.9	12.9	15.2	20	0.4	13.3	15.6	20
	E	265/60/1	239/292	1	8.4	40.0	3.2	11.6	13.7	20	0.7	12.3	14.4	20
024	G	208/230/60/1	197/254	1	13.5	58.3	3.9	17.4	20.8	30	0.4	17.8	21.2	30
	E	265/60/1	239/292	1	9	54.0	3.2	12.2	14.5	20	0.7	12.9	15.2	20
	H	208/230/60/3	197/254	1	7.1	55.4	3.9	11.0	12.8	15	0.4	11.4	13.2	20
	F*	460/60/3*	414/506	1	3.5	28.0	3.2	6.7	7.6	15	0.7	7.4	8.3	15
030	G	208/230/60/1	197/254	1	12.8	64.0	3.9	16.7	19.9	30	0.8	17.5	20.7	30
	E	265/60/1	239/292	1	10.9	60.0	3.2	14.1	16.8	25	0.7	14.8	17.5	25
	H	208/230/60/3	197/254	1	8.3	58.0	3.9	12.2	14.3	20	0.8	13.0	15.1	20
	F*	460/60/3*	414/506	1	5.1	28.0	3.2	8.3	9.6	15	0.7	9.0	10.3	15
036	G	208/230/60/1	197/254	1	16.0	77.0	3.9	19.9	23.9	35	0.8	20.7	24.7	40
	E	265/60/1	239/292	1	12.2	72.0	3.2	15.4	30.7	30	0.7	16.1	19.2	30
	H	208/230/60/3	197/254	1	10	71.0	3.9	13.9	16.4	25	0.8	14.7	17.2	25
	F*	460/60/3*	414/506	1	4.7	38.0	3.2	7.9	9.1	15	0.7	8.6	9.8	15
042	G	208/230/60/1	197/254	1	16.7	79.0	3.9	20.6	24.8	40	0.8	21.4	25.6	40
	E	265/60/1	239/292	1	13.5	72.0	3.2	16.7	20.1	30	0.7	17.4	20.8	30
	H	208/230/60/3	197/254	1	10.4	73.0	3.9	14.3	16.9	25	0.8	15.1	17.7	25
	F*	460/60/3*	414/506	1	5.8	38.0	3.2	9.0	10.5	15	0.7	9.7	11.2	15
048	G	208/230/60/1	197/254	1	21.8	117.0	6.9	28.7	34.2	50	0.8	29.5	35.0	50
	E	265/60/1	239/292	1	16.3	98.0	6.0	22.3	26.4	40	0.7	23.	27.1	40
	H	208/230/60/3	197/254	1	13.7	83.1	6.9	20.6	24.0	35	0.8	21.4	24.8	35
	F*	460/60/3*	414/506	1	6.2	41.0	6.0	12.2	13.8	20	0.7	12.9	14.5	20
060	G	208/230/60/1	197/254	1	26.4	134.0	6.9	33.3	39.9	60	1.1	34.4	41.0	60
	E	265/60/1	239/292	1	19.9	130.0	6.0	25.9	30.9	50	1.3	27.2	32.2	50
	H	208/230/60/3	197/254	1	16	110.0	6.9	22.9	26.9	40	1.1	24.0	28.0	40
	F*	460/60/3*	414/506	1	7.8	52.0	6.0	13.8	15.8	20	1.3	15.1	17.1	20
070	G	208/230/60/1	197/254	1	30.8	178.0	6.9	37.7	45.4	70	1.1	37.9	45.6	70
	H	208/230/60/3	197/254	1	19.6	138.0	6.9	26.5	31.4	50	1.1	27.6	32.5	50
	F*	460/60/3*	414/506	1	8.2	66.1	6.0	14.2	16.3	20	1.3	15.5	17.6	25

* NEUTRAL CONNECTION REQUIRED! All F Voltage (460 vac) units with ECM motors/internal secondary circulators require a four wire power supply with neutral. ECM motors/internal secondary circulators are rated 265 vac and are wired between one hot leg and neutral.

TS Series Wiring Diagram Matrix

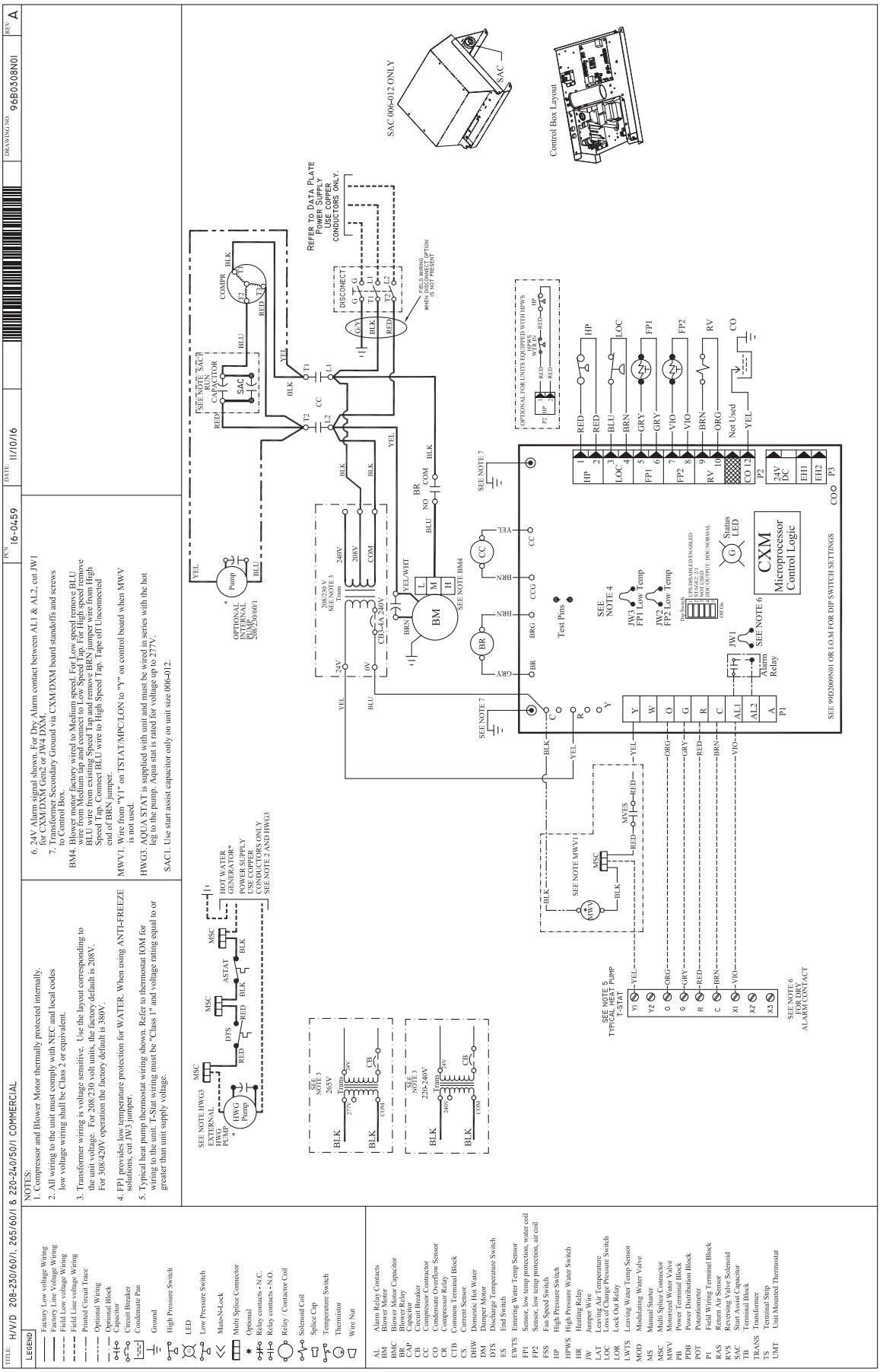
All current diagrams can be located online at climatemaster.com. Click 'Commercial Professional' (go to 'Resources/literature/wiring diagrams' in the upper right), use part numbers below to lookup wiring diagrams

Model	Refrigerant	Wiring Diagram Part Number	Electrical	Control	DDC	Fan Motor
TS Series Single Phase	EarthPure® HFC-410A	96B0308N06	208/230-60-1 265-60-1	CXM	-	ECM
		96B0308N07			LON	
		96B0308N08			MPC	
		96B0308N01			-	PSC
		96B0308N02			LON	
		96B0308N03			MPC	
		96B0307N04		DXM	-	ECM
		96B0309N07			LON	
		96B0309N08			MPC	
		96B0309N15			ClimaDry®	
		96B0309N01			-	PSC
		96B0309N07			LON	
		96B0309N03			MPC	
		96B0309N11			ClimaDry®	
TS Series Three Phase (230 Style)	EarthPure® HFC-410A	96B0310N06	208/230-60-3	CXM	-	ECM
		96B0310N07			LON	
		96B0310N08			MPC	
		96B0310N01			-	PSC
		96B0310N02			LON	
		96B0310N03			MPC	
		96B0311N06		DXM	-	ECM
		96B0311N07			LON	
		96B0311N08			MPC	
		96B0311N15			ClimaDry®	
		96B0311N01			-	PSC
		96B0311N02			LON	
		96B0311N03			MPC	
		96B0311N11			ClimaDry®	
TS Series Three Phase (460 Style)	EarthPure® HFC-410A	96B0312N06	460-60-3…	CXM	-	ECM
		96B0312N07			LON	
		96B0312N08			MPC	
		96B0312N01			-	PSC
		96B0312N02			LON	
		96B0312N03			MPC	
		96B0313N06		DXM	-	ECM
		96B0313N07			LON	
		96B0313N08			MPC	
		96B0313N15			ClimaDry®	
		96B0313N01			-	PSC
		96B0313N02			LON	
		96B0313N03			MPC	
		97B0313N11			ClimaDry®	

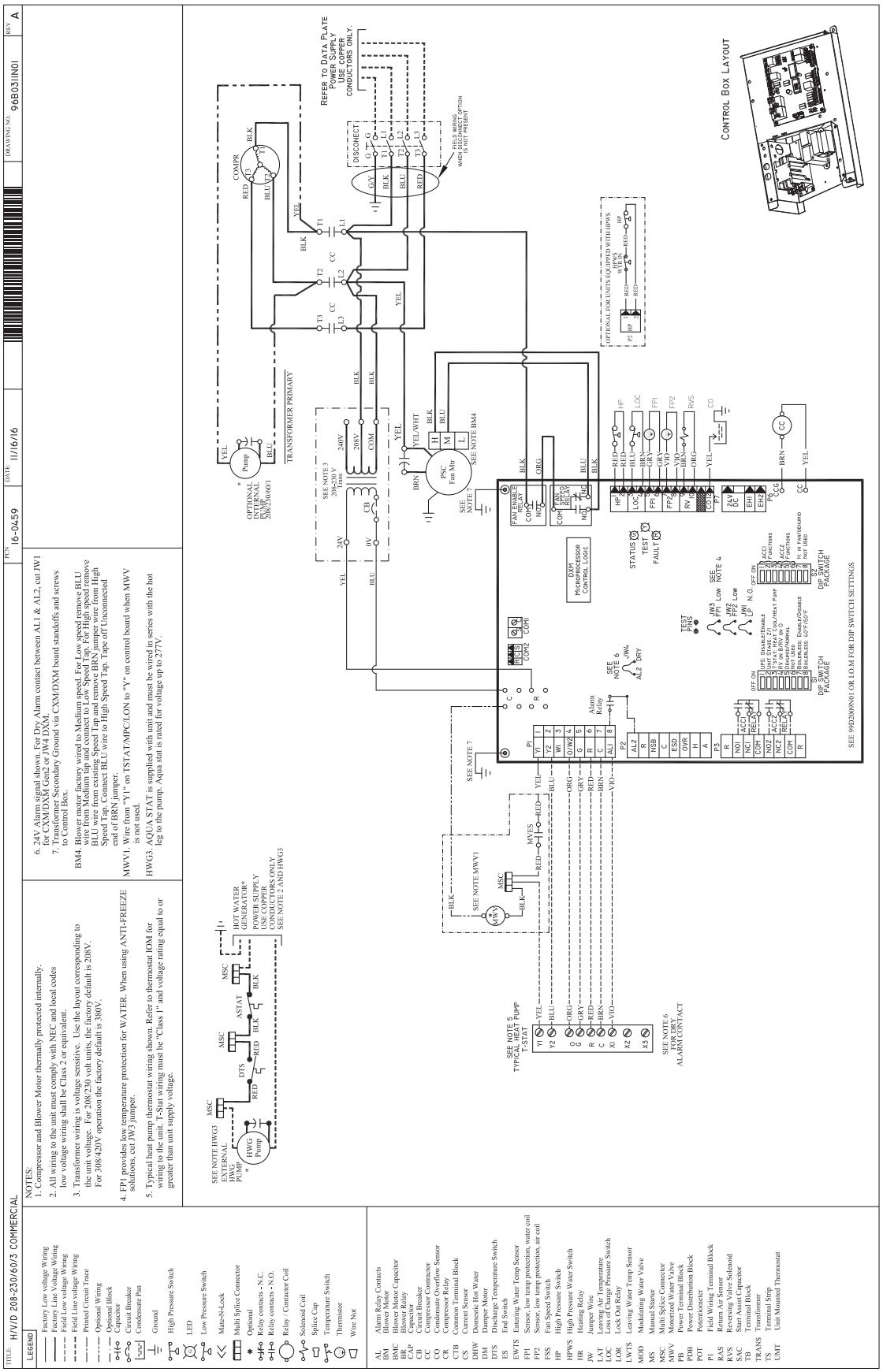
All wiring diagrams available at climatemaster.com.

Note: Contact ClimateMaster applications support for assistance with diagrams not listed here.

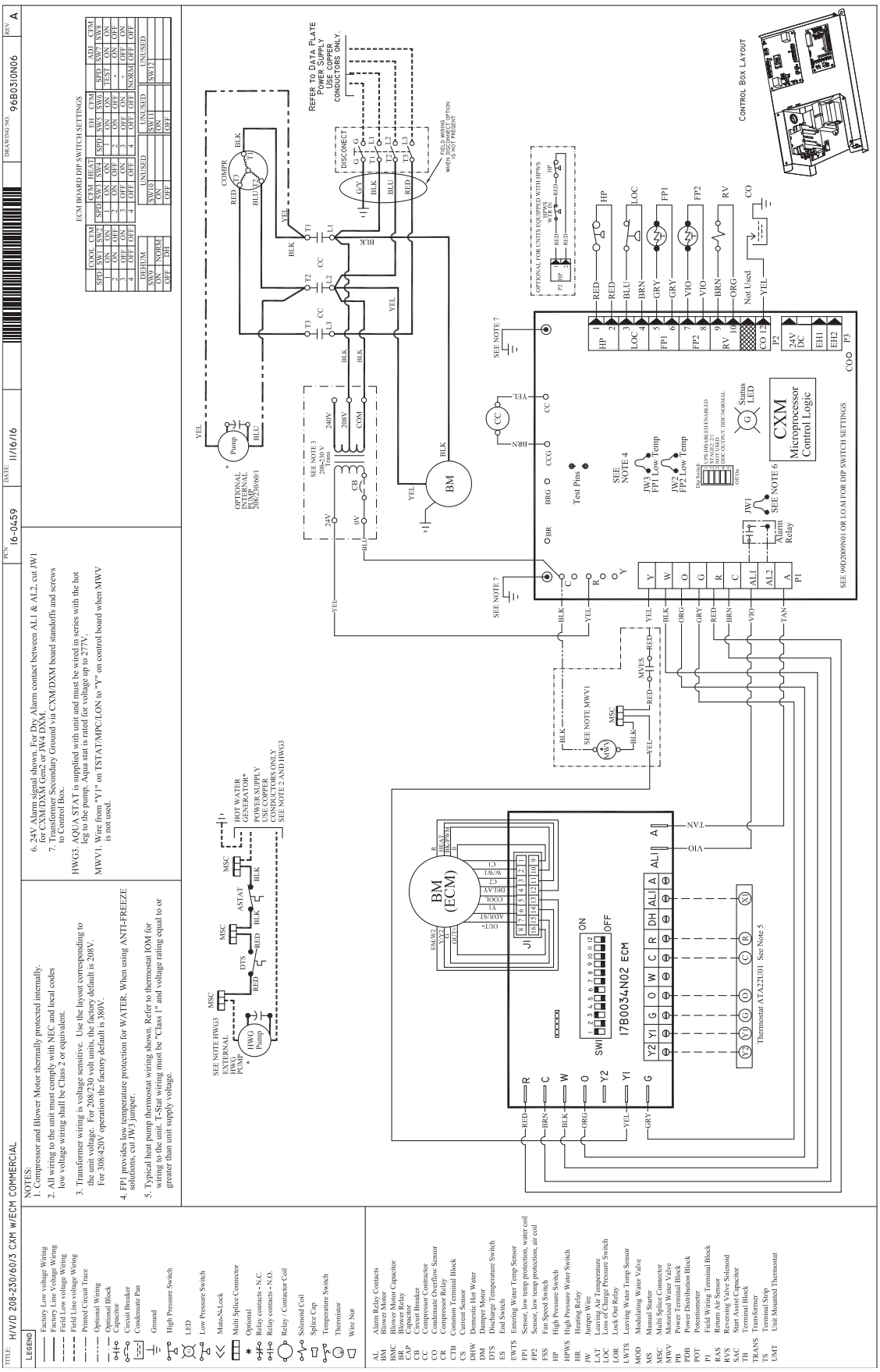
Typical Wiring Diagram – Single Phase TS Units with CXM Controller



Typical Wiring Diagram – Three Phase TS Units with DXM Controller



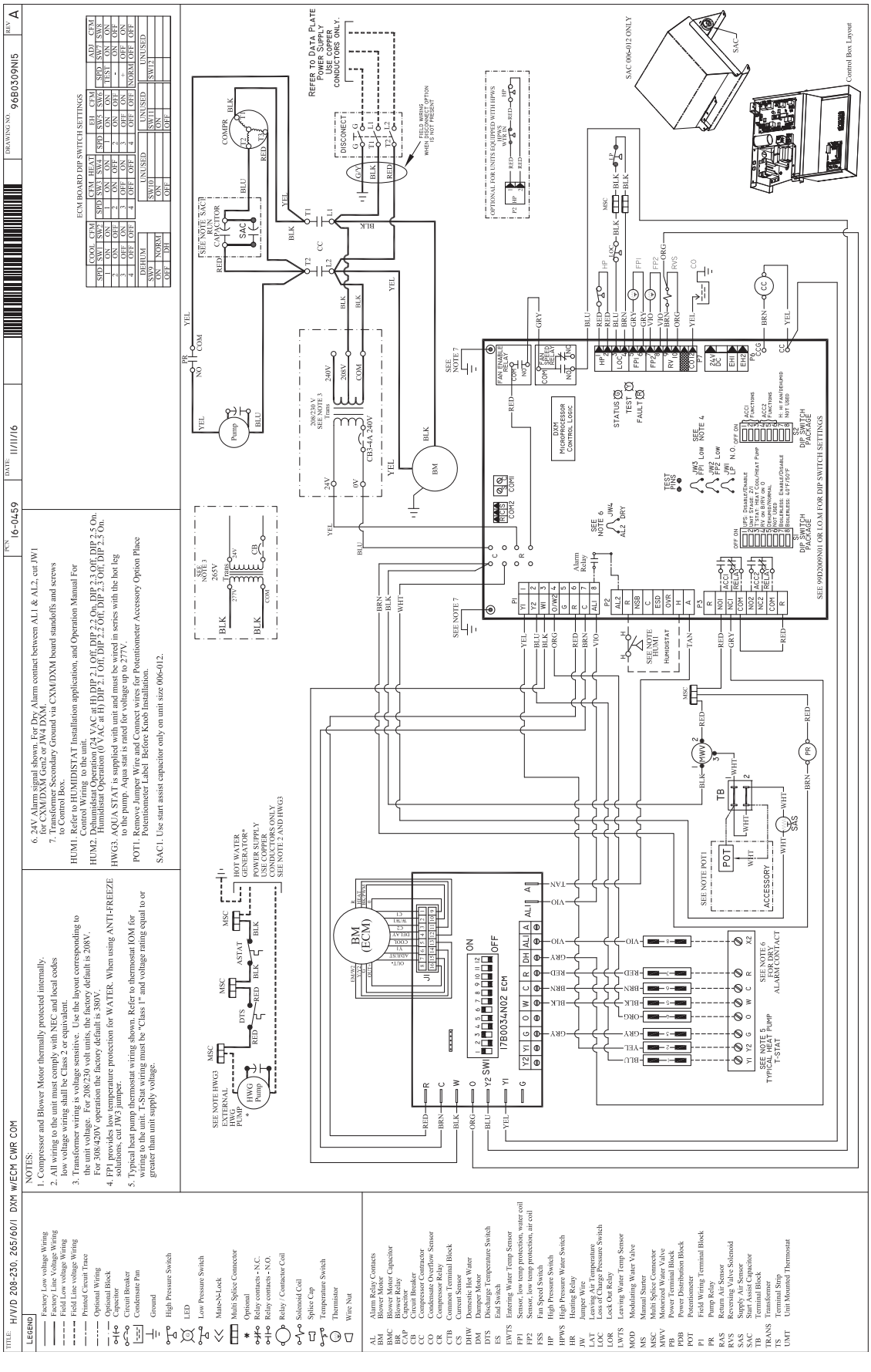
Typical Wiring Diagram – Three Phase TS Units with CXM Controller and ECM Blower



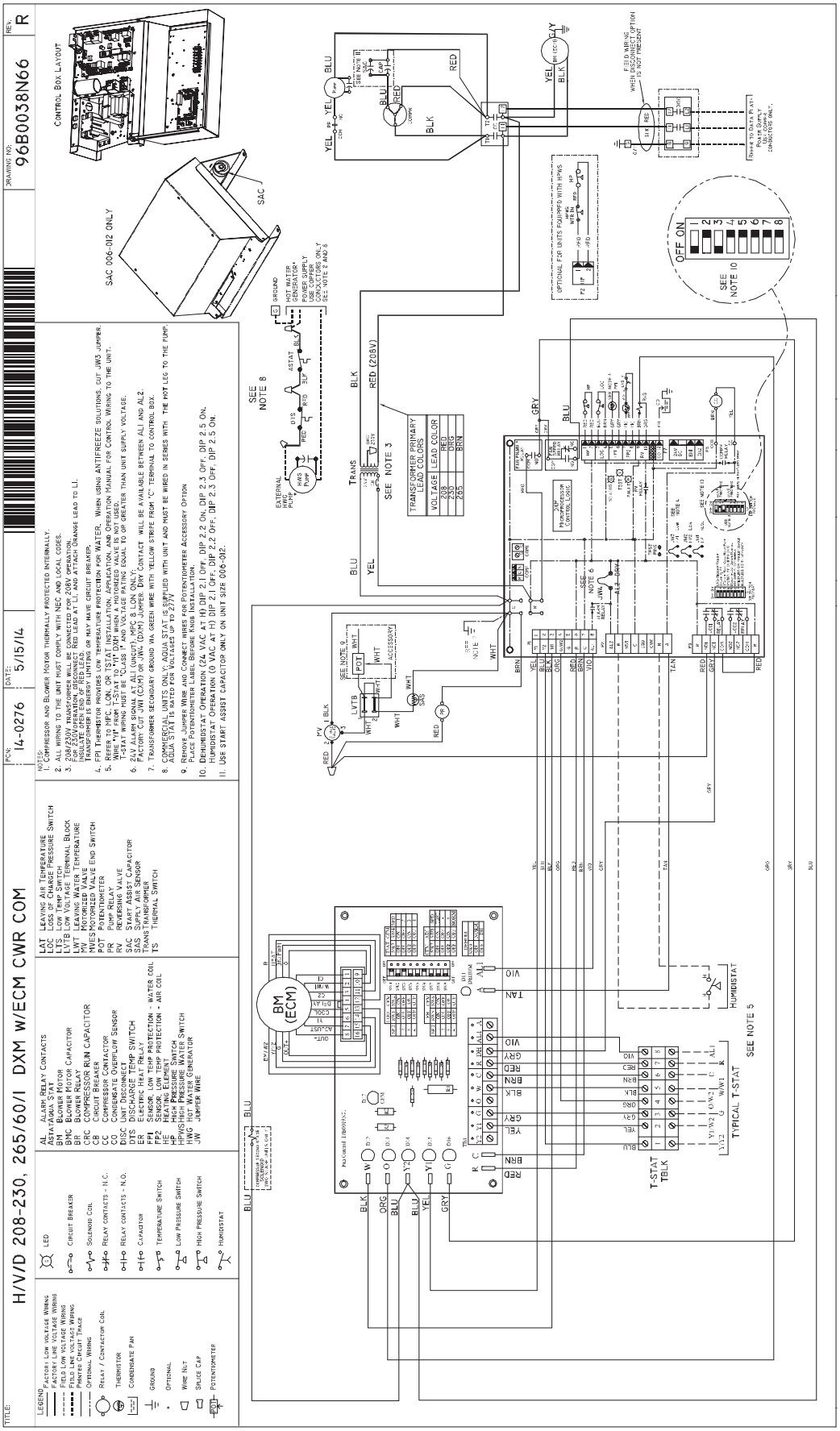
AL	Alarm Relay Contacts	
BM	Blower Motor	
BMC	Blower Motor Capacitor	
BR	Blower Relay	
CAP	Capacitor	
CB	Circuit Breaker	
CC	Compressor Contactor	
CO	Condensate Overflow Sensor	
CR	Compressor Relay	
CTB	Common Terminal Block	
DFT	Defrost Thermostat	
DHW	Domestic Hot Water	
DM	Damper Motor	
DTS	Discharge Temperature Switch	
ES	End Switch	
EWTS	Entering Water Temp Sensor	
FP1	Sensor, low temp protection, water coil	
FP2	Sensor, low temp protection, air coil	
FSS	Fan Speed Switch	
HP	High Pressure Switch	
HPWS	High Pressure Water Switch	
HR	Heating Relay	
JW	Jumper Wire	
LAT	Leaving Air Temperature	
LOC	Loss of Charge Pressure Switch	
LOR	Lock Out Relay	
LWTS	Leaving Water Temp Sensor	
MOD	Modulating Water Valve	
MS	Manual Starter	
MSC	Molex Single Connector	
MWV	Motorized Water Valve	
PB	Power Terminal Block	
PDB	Power Distribution Block	
POT	Potentiometer	
PT	Field Wiring Terminal Block	
RAS	Return Air Sensor	
RVS	Reversing Valve Solenoid	
SAC	Start Assist Capacitor	
TB	Terminal Block	
TRANS	Transformer	
TS	Terminal Strip	
UMT	Unit Mounted Thermostat	

	Factory Low voltage Wiring
	Factory Line Voltage Wiring
	Field Low voltage Wiring
	Field Line voltage Wiring
	Printed Circuit Trace
	Optional Wiring
	Optional Block
	Capacitor
	Circuit Breaker
	Condensate Pan
	Ground
	High Pressure Switch
	LED
	Low Pressure Switch
	Mate-N-Lock
	Multi Splice Connector
	Optional
	Relay contacts - N.C.
	Relay contacts - N.O.
	Relay / Contactor Coil
	Solenoid Coil
	Splice Cap
	Temperature Switch
	Thermistor
	Wire Nut

Typical Wiring Diagram – Single Phase TS Units with CXM, MPC, and ECM Controller



Typical Wiring Diagram – Single Phase TS Units with ClimaDry® II and ECM Blower



General:

Furnish and install ClimateMaster Tranquility® "TS" 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.

Units shall be supplied completely factory built capable of operating over an entering water temperature range from 20° to 120°F (-6.7° to 48.9°C) as standard. Equivalent units from other manufacturers may 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 Air-Conditioning, Heating and Refrigeration Institute/International Standards Organization (AHRI/ISO 13256-1). All equipment must be tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada, by Intertek Testing Laboratories (ETL). The units shall have AHRI/ISO and ETL-US-C labels.

All units shall pass a factory acceptance test. The quality control system shall automatically perform factory acceptance test via computer. A detailed report card from the factory acceptance test shall ship with each unit. **(Note: If unit fails the factory acceptance test, it shall not be allowed to ship. Unit serial number shall be recorded by factory acceptance test and furnished on report card for ease of unit warranty status.)**

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, 1-1/2 lb/ft3 (24 kg/m3) acoustic type glass fiber insulation. Air handling section interior surfaces shall be lined with 1/2 in (12.7mm) thick, 1-1/2 lb/ft3 (24 kg/m3) foil faced 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 faced 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 FPT fittings, and shall be securely mounted flush to the cabinet corner post 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 (available on TS018-070 Units) 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 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, including 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.

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 (006-048) 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 wet coil and a clean filter in place. **Ratings shall NOT be acceptable based on a dry coil and/or no air filter.**

Option: ECM motors (sizes 018 to 070): The fan motor shall be an ECM variable speed ball bearing type motor. The ECM 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 dip switch on the control board or may be controlled externally from a humidistat.

Option: High static PSC motors (sizes 018-060).

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 or all aluminum micro channel 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 specially engineered sound-tested EPDM vibration isolation grommets to a large heavy gauge compressor mounting 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 or all aluminum micro channel construction rated to withstand 625 PSIG (4309 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 (4309 kPa) working refrigerant pressure and 500 PSIG (3445 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 48.9°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.

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

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

Option: The refrigerant to air heat exchanger shall be coated.

Option: Unit shall include ClimaDry®II reheat option. Only modulating reheat that will adjust capacity based upon supply air temperature to provide “neutral” (72ºF, 22.2ºC) constant air temperature will be accepted. “Neutral” supply air temperature shall be provided regardless of entering loop water

temperatures (above 55ºF, 12.8ºC) or refrigerant condensing pressures. Control of reheat must be accomplished via a humidistat or dehumidistat contact closure. Refrigerant circuit must be AHRI 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 AHRI certified when the reheat option is applied will not be accepted.

Drain Pan:

The drain pan shall be constructed of 201LN 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 unobstructed drainage of condensate. Drain outlet for horizontal units shall be connected from pan directly to FPT 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 FPT 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.

Option: Units shall be supplied with factory installed non-fused electrical service disconnect switch.

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.
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 antifreeze).
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 ECM Fan Control Board (60 Hz Units with ECM Fan Option Only):

Airflow selection shall be accomplished via 3 jumper switches on the ECM 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 (±5%) by the ECM 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.

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 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.

Digital Night Setback with Pump Restart (DXM w/ ATP32U03/04)

The unit will be provided with a Digital Night Setback feature using an accessory relay on the DXM controller with an ATP32U03/04 thermostat and an external, field-provided time clock. The external time clock will initiate and terminate the night setback period. The thermostat will have a night setback override feature with a programmable override time period. An additional accessory relay on the

unit DXM controller will energize the building loop pump control for the duration of the override period. **(**Note: **this feature requires additional low voltage wiring. Consult Application Drawings for details.)**

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.

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 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, FPT connections.
b. Ball valve with memory stop and PT port.
c. "Y" strainer with blowdown valve; bronze material, FPT connections.
d. Motorized water valve; slow acting, 24v, FPT 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 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 with PT ports, and ball valve.
d. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having ball valve with PT port.

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 (ATM11C11)
Thermostat shall be a single-stage, horizontal mount, manual changeover with HEAT-OFF-COOL system switch and fan ON-AUTO switch. Thermostat shall have a mechanical temperature set point indicator. Thermostat shall only require 4 wires for connection. Mercury bulb thermostats are not acceptable.

b. 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 ºF or ºC. 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.

c. Single Stage Digital Auto or Manual Changeover and Manual Two Fan Speed Selections (ATA11U03)
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system settings, high and low fan settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, setpoint(s), mode, and status indication. The temperature indication shall be selectable for ºF or ºC. The thermostat shall provide permanent memory of setpoint(s) without batteries. Thermostat shall provide heating setpoint range limit, cooling setpoint range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall allow the use of an accessory remote temperature sensor (17B0008N05). Thermostat navigation shall be accomplished via 4 push buttons.

d. Multistage Digital Automatic Changeover (ATA22U01)
Thermostat shall be multi-stage (2H/2C), manual or automatic changeover with HEAT-OFF-COOL-AUTO-EM HEAT 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 ºF or ºC. 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.

e. Multistage 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), manual changeover with HEAT-OFF-COOL-EM HEAT 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 ºF or ºC. The thermostat shall provide permanent memory of set-point(s) without batteries. Thermostat shall provide convenient override feature to temporarily change setpoint.

f. Multistage Automatic or Manual Changeover Programmable 7 Day (ATP32U03C)
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-EM HEAT 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 ºF or ºC. 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.

g. Multistage Automatic or Manual Changeover Programmable 7 Day with Humidity Control (ATP32U04C)
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-EM HEAT 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 ºF or ºC. 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 adjustment and override (MPC only).
d. Sensor with setpoint adjustment and override, LCD display, status/fault indication (LON and MPC).

SUBMITTAL DATA - S-I UNITS

Unit Designation: _____

Job Name: _____

Architect: _____

Engineer: _____

Contractor: _____

PERFORMANCE DATA

Cooling Capacity: _____ kW

EER: _____

Heating Capacity: _____ kW

COP: _____

Ambient Air Temp: _____ °C

Entering Water Temp (Clg): _____ °C

Entering Air Temp (Clg): _____ °C

Entering Water Temp (Htg): _____ °C

Entering Air Temp (Htg): _____ °C

Airflow: _____ l/s

Fan Speed or Motor/RPM/Turns: _____

Operating Weight: _____ (kg)

ELECTRICAL DATA

Power Supply: _____ Volts

_____ Phase _____ Hz

Minimum Circuit Ampacity: _____

Maximum Overcurrent Protection: _____

SUBMITTAL DATA - I-P UNITS

Unit Designation: _____

Job Name: _____

Architect: _____

Engineer: _____

Contractor: _____

PERFORMANCE DATA

Cooling Capacity: _____ Btuh

EER: _____

Heating Capacity: _____ Btuh

COP: _____

Ambient Air Temp: _____ °F

Entering Water Temp (Clg): _____ °F

Entering Air Temp (Clg): _____ °F

Entering Water Temp (Htg): _____ °F

Entering Air Temp (Htg): _____ °F

Airflow: _____ CFM

Fan Speed or Motor/RPM/Turns: _____

Operating Weight: _____ (lb)

ELECTRICAL DATA

Power Supply: _____ Volts

_____ Phase _____ Hz

Minimum Circuit Ampacity: _____

Maximum Overcurrent Protection: _____

Notes

Revision Log

Date	Item:	Action:
09/20/17	Page 59	Update Wiring Diagram Matrix
06/14/17	Page 37	Update drawing
11/1/16	Updated Document Design	Updated
10/16/16	Page 37	Added ClimaDry Note
03/4/16	Pages 35 to 37 and 64	Edits to ECM controll and run test
10/22/15	Pages 48 and 51	Edited dimensions “T” on sizes 42,48
08/04/15	Engineering Specifications and Unit Features	Updated, ECM Options Text, Edited Compressors Mount Text, Fan and Motor Assembly Text
07/22/15	Page 13 & 14	Updated HWC Data
06/17/15	Decoder - Page 7; Tables - Pages 13 & 53-58	Updated
03/25/15	Table - Page 43	Updated Maximum Working Water Pressure
03/05/15	Decoder - Page 7	Updated
01/23/15	Table - Page 56	Updated
12/16/14	Edits - Page 45 & 47	Updated
09/30/14	Text Edit - Page 67	Updated
08/15/14	TS060 E Voltage Elec. Tables	Added ECM with ISP and CWR
06/12/14	Rev. C Size 036 E Voltage	Added
05/12/14	Air Coil Description page 66-67	Updated
03/31/14	Illustration - Page 48	Updated
03/24/14	ECM Blower Data - Page 38	Updated Max ESP
02/10/14	Page 41	Updated Table 2
01/27/14	All	Updated Sizes 024-070 to Rev. C, added service clearances
7/17/13	EAT Minimum Limit ClimaDry	Updated
02/26/13	AHRI Table	Size 018 PSC Updated
01/07/13	Physical Data Table TS Vertical Upflow - Dimensional Data - TSV Right Return	Updated Updated Blower Orientation
09/27/12	EAT Limits Recommended Minimum Installation Clearances for Vertical Units *	Updated
02/20/12	Engineering Specifications	Updated
02/02/12	ClimaDry® II option Information	Merge data from ClimaDry® II Submittal
12/14/11	ECM Control	Updated CFM adjust settings
11/02/11	Decoder	Updated
10/19/11	Dimensional Data, Optional Filter Frame	Added
08/09/11	Unit Maximum Working Water Pressure	Updated to Reflect New Safeties
08/03/11	Engineering Specifications	Added Digital Night Setback with Pump Restart (DXM w/ ATP32U03/04)
06/17/11	Coated Air Coil Option	Changed Description
05/16/11	Electrical Data 018E and 024F ISP	Added
04/07/11	Engineering Specification NOTICE	Updated
02/11/11	Performance Data Selection Notes	Updated
01/03/11	Format - All Pages	Updated
09/29/10	ECM Electrical Data	Updated
09/28/10	Engineering Specifications	Updated
09/07/10	ECM Blower Control	Added Ramp Down Feature
09/01/10	Engineering Specifications	Updated
08/24/10	Horizontal Units	Supply Air Dimension M and Q updated
07/26/10	Wiring Diagrams	Updated
07/26/10	Compressor Mounting Information and Graphics	Updated to Reflect Spring/Grommet Change
06/11/10	Format - All Pages	Updated
06/11/10	Engineering Specifiations	Updated
06/01/10	TSH S.A. Dimensions	Dimension M & Q changed

Revision Log

03/30/10	Performance Data/Blower Data	Size 018 data changes
05/27/09	Stand-Alone and Big Book Submittals	Consolidated
04/29/09	Electrical Data Table (High Static PSC Motor & Secondary Pump)	036 E Data Corrected
04/29/09	Performance Data IP Table Corrected	
11/17/08	TS HorizontaL Data Table	Data Corrected
09/19/08	Engineering Specifications	ClimaDry® Note Added
08/26/08	Physical Data Table	Max Working Pressure Table Added
08/01/08	Electrical Data Table	Asterisks Added
08/0407	All	Added Sizes 006, 009, & 012
05/14/07	All	Updated Size 018 for Rev.: B
04/19/07	Table of Contents	Added Table of Contents
04/19/07	Specifications	Updated Specifications for new Safety Agency
12/14/06	Dimensional Data	Corrected TSH18-030 Supply dimensions
11/16/06	Electrical Data	Various updates
11/16/06	Dimensional Data	Updated dimensional data to new format
11/16/06	Performance Data/Blower Data	Added new rated voltage note
11/19/06	Specifications	Updated thermostat offering
11/19/06	Wiring Diagrams	Added pressure switch for motorized valve option
07/19/06	Electrical Data	Added secondary pump data, updated ClimaDry® data, various formatting changes
07/19/06	ECM Blower Performance	Updated CFM data
07/19/06	Performance Data	Added low temperature selection notes
12/23/05	Motorized Valves	Added Cv, MOPD, and WPD data
11/30/05	Tables	Updated all tables to new format
11/30/05	Dimensional data	Added new dimensional drawings and installation and service notes
11/30/05	Physical Data	Added Coax volumes
11/30/05	Blower Data, Electrical Data, Unit Specifications	Added ClimaDry® Reheat option
08/15/05	Correction Factors	Updated verbiage - No data changes
08/15/05	Physical Data	Added Coax volume chart
08/15/05	Dimensional Data	Added corner weights - Horizontal units
08/15/05	Electrical Data	Updated 030 “E” voltage total unit FLA & MCA
08/15/05	Specifications	Updated verbiage in CXM section
06/20/05	Entire Document	Updated to Adobe Acrobat 7.0
06/20/05	Electrical Data	Removed TS024 265V data
06/20/05	ECM Motor	Added Information on new interface board
06/20/05	Specifications	Updated specs to include mufflers
03/30/05	Electrical Data	Updated 018, 024, 030
03/30/05	Horizontal Dimensions	Updated dim. “H”
03/30/05	Added Revision Log	

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