Tranquility® Large Water-to-Water (TMW) Series Submittal Data

Models TMW360 - 840
60Hz - HFC-410A

English Language/I-P Units

Rev.: 27, February 2013

ClimateMaster®
Water-Source Heat Pump Systems

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: _____

Tranquility® Large Water-to-Water (TMW) Series Submittal Data

Models TMW360 - 840
60Hz - HFC-410A

English Language/S-I Units

Rev.: 27, February 2013

ClimateMaster®
Water-Source Heat Pump Systems

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: _____

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Unit Features

THE TRANQUILITY® LARGE WATER-TO-WATER (TMW) SERIES

The Tranquility® Large Water-to-Water (TMW) Series offers high efficiency and high capacity with advanced features, quiet operation and application flexibility at competitive prices. As ClimateMaster's largest water-to-water unit, the TMW Large Series can be used for radiant floor heating, snow/ice melt, chilled or hot water for fan coils, industrial process control, potable hot water generation*, hot/chilled water for make-up air, and many other types of HVAC and industrial applications that require cost effective heated or chilled water.

The Tranquility® Large Water-to-Water (TMW) Series exceeds ASHRAE 90.1 efficiencies, and also uses EarthPure® (HFC-410A) zero ozone depletion refrigerant, making it an extremely environmentally-friendly option. The unit is eligible for additional LEED® (Leadership in Energy and Environmental Design) points because of the "green" technology design.

Available in 30, 50, and 70 ton capacities (105.6 kW, 176 kW, and 246 kW), the TMW Large Series provides high capacity in a small footprint, which saves mechanical room space. The TMW Large Series has an extended range refrigerant circuit (refrigerant and water circuit insulation is standard), capable of ground loop (geothermal) applications as well as water loop (boiler-tower) applications. Standard features are many. Microprocessor controls, galvanized steel cabinet, polyester powder coat paint, modulating motorized water valve on source side, and TXV refrigerant metering device are just some of the features of the flexible TMW Large Series. The brazed plate heat exchangers constructed of 316 stainless steel are designed for many years of reliable operation.

Scroll compressor(s) operate quietly, and provide part load operation for capacity control. For ease of installation and service, access to the refrigeration service and electrical control panel is located at the front of the unit, allowing units to be installed side-by-side for large capacity applications.

TMW Large Series is controlled by a (BAS) Building Automation System or BACview6. BAS or BACview6 is used to monitor, change operating setpoints, check faults, and service diagnostics of the TMW.

The TMW Series water-to-water heat pumps are designed to meet the challenges of today's HVAC demands with a high efficiency, high value solution.

*Requires field supplied secondary heat exchanger.

UNIT FEATURES

- Sizes 360 (30 tons, 105.6 kW), 600 (50 tons, 176 kW), and 840 (70 tons, 246 kW)
- Copeland scroll compressor(s)
- Dual independent refrigeration circuits
- Exceeds ASHRAE 90.1 efficiencies
- Brazed plate heat exchanger for both source and load
- Exclusive front and back service access allows multiple units to be installed side-by-side for large capacity installations
- Top water connections, staggered for ease of manifolding multiple units
- Fully insulated water and refrigerant circuits
- Heavy gauge galvanized steel construction with polyester powder coat paint
- Insulated compressor compartment
- Small footprint
- TXV metering devices
- Extended range (30 to 120°F, -1.1 to 48.9°C) operation
- Microprocessor controls standard
- BACnet, Modbus, and Johnson N2 compatibility for DDC controls
- Lights on the front of the cabinet indicate unit power, fault, compressor 1 and 2 in operation
- Eleven safeties standard to protect the compressors and brazed plate heat exchangers
- Differential pressure sensors (2) for proof of water flow for Load and Source, factory installed.
- Optional modulating motorized water valve on Source side to maintain compressor head pressure
- Optional motorized valve on Load side for variable speed pumping.
- BACview 6 controller is used to set up unit controller at start up, and to monitor, change default settings, or service unit.
- Accessory 60 Mesh Y and basket strainers to mount external of unit.

Selection Procedure

Reference Calculations

Heating	Cooling
$LWT = EWT - \frac{HE}{GPM \times 500}$	$LWT = EWT + \frac{HR}{GPM \times 500}$

Legend and Glossary of Abbreviations

BTUH = BTU(British Thermal Unit) per hour
COP = coefficient of performance = BTUH output/BTUH input
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 = heating capacity, BTUH
HR = total heat of rejection, BTUH
FPT = female pipe thread
KW = total power unit input, kilowatts
LWT = leaving water temperature, °F
MBTUH = 1000 BTU per hour
TC = total cooling capacity, BTUH
WPD = waterside pressure drop (psi & ft. of hd.)

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

Water Flow	Water Pressure Drop
Water Flow (L/s) = gpm x 0.0631	PD (kPa) = PD (ft of hd) x 2.99

Selection Procedure

Step 1: Determine the actual heating and/or cooling loads at the applicable source water temperature/flow rate and load water temperature/flow rate. The source heat exchanger is the condenser in cooling/evaporator in heating; the load heat exchanger is the evaporator in cooling/condenser in heating.

Step 2: Obtain the following design parameters: Entering source/load water temperature, source/load water flow rate in GPM and water flow pressure drop. Water flow rate is generally between 2.25 and 3.00 GPM/ton for closed loop (boiler/tower and geothermal) systems, and between 1.5 and 2.0 GPM/ton for open loop (well water) systems. 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: Determine application requirements. Water-to-water applications are almost always designed for a particular installation, which will change how the data tables are used for unit selection. For example, a water-to-water unit used for radiant floor heating on a geothermal closed loop is significantly different in unit selection from a water-to-water unit on a boiler/tower application used for generating chilled water for fan coil units. It is especially important to note that the load water flow rate must be maintained above minimum flow rates as shown in the data tables for proper refrigerant circuit operation and unit longevity. For example, most radiant floor applications require buffer (storage) tanks because the flow rate through the floor is usually lower than the minimum flow rate for the water-to-water unit. Therefore, selection of the heat pump is dependent upon maintaining a certain tank temperature and unit load flow rate. There would be a pump between the heat pump and the buffer tank, and a pump(s) between the buffer tank and radiant floor to maintain design flow rate on both sides.

Step 4: Enter tables at the design source water temperature and flow rate. Choose the appropriate load water temperature and flow rate. Read the total heating or cooling capacities (Note: interpolation is permissible; extrapolation is not).

Step 5: If the units selected are not within 10% of the load calculations, then review what effect changing the GPM and water temperature would have on the capacities. If the desired capacity cannot be achieved, select the next larger or smaller unit and repeat the procedure.

Example Equipment Selection for Heating

Step 1 Load Determination:

Assume we have determined that the application will be heating only (radiant floor) for a large commercial warehouse, and that the appropriate heating load at design conditions is as follows:

Total heating.....480,000 BTUH

Step 2 Design Conditions:

Entering source temperature.....30°F (geothermal closed loop)

Source flow rate.....113 GPM

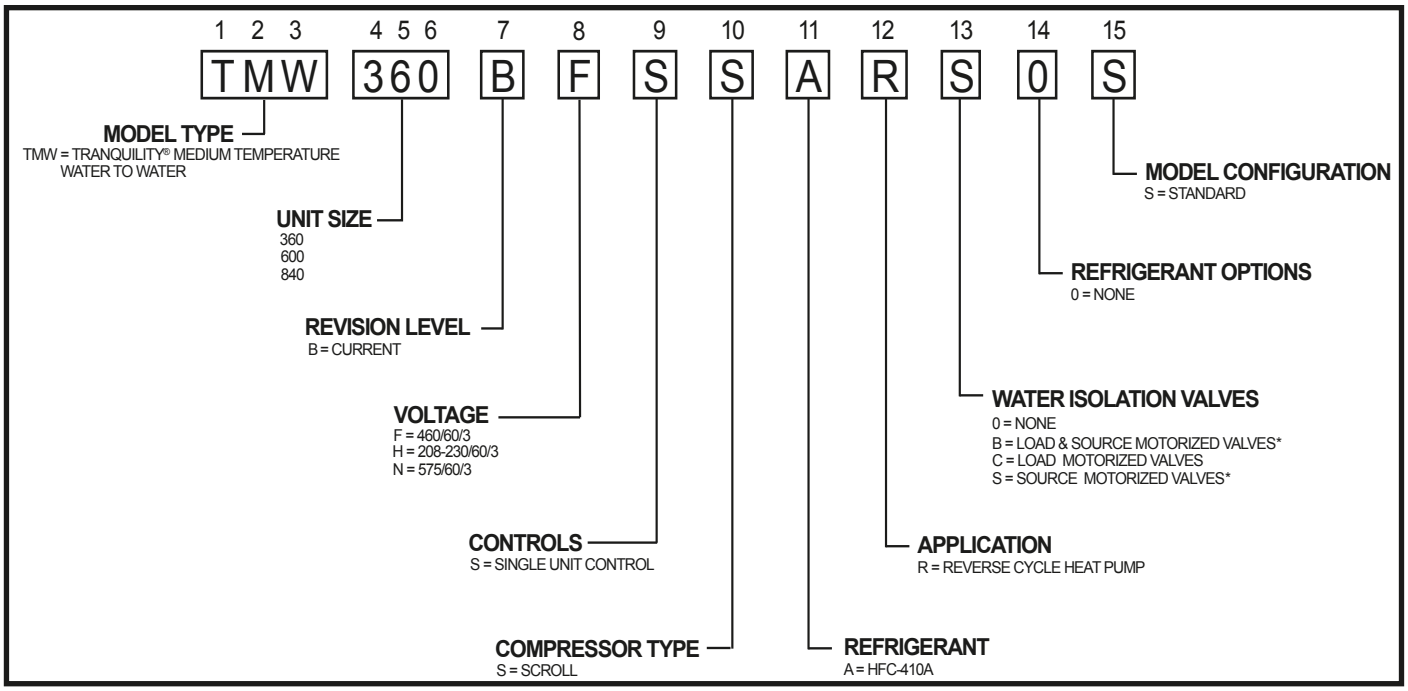
Entering load temperature.....130°F

Load flow rate.....113 GPM

Steps 3, 4, 5 HP Selection:

We enter the tables at design source water temperature and flow rate, and select the appropriate load water temperature and flow rate. A TMW600 at design conditions supplies 479,100 BTUH, which meets the design heating load requirement.

TMW Large Series Nomenclature



Performance Data - AHRI/ASHRAE/ISO 13256-2

TMW 360-840 Performance Data ASHRAE/AHRI/ISO 13256-2 English (I-P) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
	Indoor 53.6°F Outdoor 86°F		Indoor 104°F Outdoor 68°F		Indoor 53.6°F Outdoor 59°F		Indoor 104°F Outdoor 50°F		Indoor 53.6°F Outdoor 77°F		Indoor 104°F Outdoor 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
TMW360	380,300	16.00	531,000	5.10	438,000	24.20	416,000	4.20	399,600	18.40	316,000	3.40
TMW600	619,800	16.00	873,000	5.20	707,400	23.20	680,000	4.30	649,600	18.20	517,000	3.40
TMW840	814,800	16.20	1,141,000	5.30	925,700	23.30	894,000	4.40	852,600	18.40	677,000	3.40

All TMW360 ratings @ 90GPM Load w/90 GPM Source.
All TMW600 ratings @ 150GPM Load w/150 GPM Source.
All TMW840 ratings @ 210GPM Load w/210 GPM Source.
All ratings based upon operation at lower voltage of dual voltage rated models.

TMW 360-840 Performance Data ASHRAE/AHRI/ISO 13256-2 Metric (S-I) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
	Indoor 12°C Outdoor 30°C		Indoor 40°C Outdoor 20°C		Indoor 12°C Outdoor 15°C		Indoor 40°C Outdoor 10°C		Indoor 12°C Outdoor 25°C		Indoor 40°C Outdoor 0°C	
	Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP	Capacity kW	EER W/W	Capacity kW	COP
TMW360	111.46	4.70	155.63	5.10	128.37	7.10	121.92	4.20	117.12	5.39	92.61	3.40
TMW600	181.65	4.70	255.86	5.20	207.33	6.80	199.30	4.30	190.39	5.33	151.52	3.40
TMW840	238.80	4.75	334.41	5.30	271.31	6.83	262.02	4.40	249.88	5.39	198.42	3.40

All TMW360 ratings @ 5.68 l/s Load w/5.68 l/s Source.
All TMW600 ratings @ 9.47 l/s Load w/9.47 l/s Source.
All TMW840 ratings @ 13.25 l/s Load w/13.25 l/s Source.
All ratings based upon operation at lower voltage of dual voltage rated models.

Performance Data - TMW360 (60Hz I-P) - Cooling

SOURCE				LOAD									LOAD								LOAD							
EWT °F	Flow GPM	WPD PSI	WPD FT	EWT °F	Flow 45 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F	Flow 68 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F	Flow 90 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F
60	45	1.1	3	30																	278.4	17.8	338.9	23.9	15.6	4.2	9.6	75.0
				40	312.4	18.30	374.5	26.3	17.1	1.2	2.7	76.6	326.5	18.5	389.3	30.4	17.6	2.4	5.6	77.2	333.3	18.6	396.5	32.7	17.9	4.2	9.6	77.6
				50	365.2	19.11	430.1	33.9	19.1	1.2	2.7	79.1	384.5	19.4	450.4	38.7	19.8	2.4	5.6	80.0	393.8	19.6	460.3	41.3	20.1	4.2	9.6	80.5
				60	421.4	20.07	489.5	41.4	21.0	1.2	2.7	81.8	447.0	20.5	516.8	46.8	21.8	2.4	5.6	83.0	459.5	20.8	530.1	49.8	22.1	4.2	9.6	83.6
				70	480.4	21.20	552.4	48.7	22.7	1.2	2.7	84.6	513.5	21.9	588.0	54.8	23.4	2.4	5.6	86.2	529.9	22.3	605.6	58.2	23.8	4.2	9.6	87.1
				80	541.5	22.53	618.1	55.9	24.0	1.2	2.7	87.6																
	68	2.4	6	60									460.5	19.3	526.0	46.4	23.9	2.4	5.6	75.6	474.3	19.5	540.6	49.5	24.3	4.2	9.6	76.0
				70	494.1	19.85	561.5	48.1	24.9	1.2	2.7	76.7	530.7	20.5	600.4	54.3	25.9	2.4	5.6	77.8	549.0	20.9	619.9	57.8	26.3	4.2	9.6	78.4
				80	558.2	21.02	629.6	55.2	26.6	1.2	2.7	78.7																
75	45	1.1	3	30									251.9	20.9	323.0	22.6	12.0	2.4	5.6	89.3	255.9	21.0	327.3	24.4	12.2	4.2	9.6	89.5
				40	289.6	21.54	362.7	27.3	13.4	1.2	2.7	91.1	301.4	21.7	375.2	31.2	13.9	2.4	5.6	91.7	307.1	21.8	381.3	33.2	14.1	4.2	9.6	92.0
				50	339.5	22.37	415.5	35.0	15.2	1.2	2.7	93.5	355.8	22.7	432.8	39.5	15.7	2.4	5.6	94.3	363.7	22.8	441.1	42.0	16.0	4.2	9.6	94.7
				60	392.9	23.34	472.2	42.6	16.8	1.2	2.7	96.1	414.6	23.8	495.4	47.8	17.4	2.4	5.6	97.2	425.2	24.0	506.7	50.6	17.7	4.2	9.6	97.7
				70	449.1	24.50	532.3	50.1	18.3	1.2	2.7	98.8	477.3	25.1	562.8	55.9	19.0	2.4	5.6	100.2	491.1	25.5	577.7	59.1	19.3	4.2	9.6	100.9
				80	507.5	25.86	595.4	57.4	19.6	1.2	2.7	101.7																
	68	2.4	6	30									258.0	20.0	325.9	22.5	12.9	2.4	5.6	84.6	262.3	20.1	330.4	24.2	13.1	4.2	9.6	84.8
				40	296.8	20.48	366.3	26.9	14.5	1.2	2.7	85.8	309.6	20.6	379.7	30.9	15.0	2.4	5.6	86.3	315.8	20.7	386.2	33.0	15.2	4.2	9.6	86.4
				50	348.9	21.15	420.7	34.6	16.5	1.2	2.7	87.5	366.6	21.4	439.3	39.2	17.1	2.4	5.6	88.1	375.3	21.5	448.4	41.7	17.4	4.2	9.6	88.3
				60	404.7	21.95	479.3	42.1	18.4	1.2	2.7	89.3	428.7	22.3	504.5	47.4	19.2	2.4	5.6	90.0	440.4	22.5	517.0	50.3	19.6	4.2	9.6	90.4
				70	463.7	22.91	541.6	49.4	20.2	1.2	2.7	91.1	495.3	23.5	575.1	55.3	21.1	2.4	5.6	92.2	510.9	23.8	591.7	58.7	21.5	4.2	9.6	92.7
				80	525.3	24.07	607.1	56.7	21.8	1.2	2.7	93.1																
	90	4.2	10	30									261.0	19.6	327.4	22.4	13.3	2.4	5.6	82.3	265.5	19.6	332.1	24.2	13.5	4.2	9.6	82.4
				40	300.4	19.97	368.2	26.8	15.0	1.2	2.7	83.2	313.7	20.1	382.0	30.8	15.6	2.4	5.6	83.5	320.1	20.2	388.7	33.0	15.9	4.2	9.6	83.6
				50	353.5	20.56	423.3	34.4	17.2	1.2	2.7	84.4	372.0	20.8	442.6	39.1	17.9	2.4	5.6	84.9	381.1	20.9	452.1	41.6	18.2	4.2	9.6	85.1
				60	410.5	21.28	482.8	41.8	19.3	1.2	2.7	85.8	435.7	21.6	509.2	47.1	20.1	2.4	5.6	86.4	448.1	21.8	522.2	50.1	20.5	4.2	9.6	86.7
				70	471.0	22.16	546.2	49.1	21.3	1.2	2.7	87.2	504.2	22.7	581.4	55.1	22.2	2.4	5.6	88.0	520.8	23.0	598.9	58.4	22.7	4.2	9.6	88.4
				80	534.2	23.22	613.1	56.3	23.0	1.2	2.7	88.7																
90	45	1.1	3	30	221.5	24.66	305.4	20.3	9.0	1.2	2.7	103.6	228.4	24.8	312.6	23.3	9.2	2.4	5.6	103.9	231.7	24.9	316.1	24.9	9.3	4.2	9.6	104.1
				40	264.5	25.45	351.0	28.4	10.4	1.2	2.7	105.7	274.2	25.6	361.3	32.0	10.7	2.4	5.6	106.1	278.9	25.7	366.3	33.9	10.8	4.2	9.6	106.4
				50	311.3	26.33	400.8	36.3	11.8	1.2	2.7	107.9	326.3	26.6	416.8	40.4	12.3	2.4	5.6	108.7	332.8	26.7	423.8	42.7	12.4	4.2	9.6	109.0
				60	363.2	27.37	456.3	43.9	13.3	1.2	2.7	110.5	381.3	27.8	475.7	48.7	13.7	2.4	5.6	111.4	390.0	28.0	485.1	51.4	13.9	4.2	9.6	111.8
				70	416.3	28.58	513.5	51.5	14.6	1.2	2.7	113.1	439.9	29.2	539.2	57.0	15.1	2.4	5.6	114.3	451.4	29.5	551.6	60.0	15.3	4.2	9.6	114.8
				80	465.1	29.83	566.6	59.3	15.6	1.2	2.7	115.5																
	68	2.4	6	30	227.4	23.59	307.6	20.0	9.6	1.2	2.7	99.1	234.8	23.7	315.3	23.1	9.9	2.4	5.6	99.4	238.4	23.7	319.0	24.8	10.0	4.2	9.6	99.5
				40	272.2	24.20	354.5	28.0	11.3	1.2	2.7	100.5	282.8	24.3	365.6	31.7	11.6	2.4	5.6	100.9	287.9	24.4	370.9	33.7	11.8	4.2	9.6	101.0
				50	321.3	24.88	405.9	35.8	12.9	1.2	2.7	102.1	336.1	25.1	421.4	40.1	13.4	2.4	5.6	102.6	343.2	25.2	428.9	42.4	13.6	4.2	9.6	102.8
				60	374.1	25.69	461.4	43.5	14.6	1.2	2.7	103.8	394.1	26.0	482.6	48.4	15.1	2.4	5.6	104.4	403.9	26.2	492.9	51.1	15.4	4.2	9.6	104.8
				70	430.1	26.66	520.8	50.9	16.1	1.2	2.7	105.6	456.6	27.2	549.0	56.5	16.8	2.4	5.6	106.5	469.6	27.4	562.9	59.6	17.1	4.2	9.6	106.9
				80	487.0	27.79	581.5	58.3	17.5	1.2	2.7	107.4																
	90	4.2	10	30	230.3	23.07	308.7	19.9	10.0	1.2	2.7	96.9	238.0	23.2	316.7	23.0	10.3	2.4	5.6	97.1	241.7	23.2	320.5	24.7	10.4	4.2	9.6	97.1
				40	276.1	23.59	356.2	27.9	11.7	1.2	2.7	97.9	287.1	23.7	367.7	31.6	12.1	2.4	5.6	98.2	292.5	23.8	373.3	33.6	12.3	4.2	9.6	98.3
				50	326.2	24.18	408.4	35.6	13.5	1.2	2.7	99.1	341.7	24.4	424.6	39.9	14.0	2.4	5.6	99.5	349.3	24.5	432.4	42.3	14.3	4.2	9.6	99.7
				60	380.4	24.89	465.0	43.2	15.3	1.2	2.7	100.4	401.5	25.2	487.2	48.2	15.9	2.4	5.6	100.9	411.8	25.4	498.0	50.9	16.2	4.2	9.6	101.2
				70	437.9	25.76	525.5	50.6	17.0	1.2	2.7	101.8	466.0	26.2	555.2	56.2	17.8	2.4	5.6	102.5	479.9	26.5	569.9	59.3	18.1	4.2	9.6	102.8
				80	498.4	26.81	589.5	57.8	18.6	1.2	2.7	103.3																
105	45	1.1	3	30	198.4	29.44	298.5	21.3	6.7	1.2	2.7	118.4	203.8	29.6	304.4	24.0	6.9	2.4	5.6	118.6	206.4	29.6	307.2	25.5	7.0	4.2	9.6	118.8
				40	238.1	30.32	341.2	29.5	7.9	1.2	2.7	120.3	245.8	30.5	349.5	32.8	8.1	2.4	5.6	120.7	249.5	30.6	353.5	34.5	8.2	4.2	9.6	120.9
				50	281.5	31.27	387.9	37.6	9.0	1.2	2.7	122.4	292.1	31.5	399.4	41.4	9.3	2.4	5.6	123.0	297.2	31.6	404.9	43.4	9.4	4.2	9.6	123.2
				60	328.1	32.37	438.2	45.5	10.1	1.2	2.7	124.7	342.4	32.7	453.8	49.9	10.5	2.4	5.6	125.5	349.3	32.9	461.3	52.3	10.6	4.2	9.6	125.8
				70	377.5	33.65	492.0	53.3	11.2	1.2	2.7	127.2	396.2	34.2	512.5	58.3	11.6	2.4	5.6	128.2	405.1	34.4	522.3	61.0	11.8	4.2	9.6	128.6
				80	412.5	34.66	530.5	61.7	11.9	1.2	2.7	129.0																
	68	2.4	6	30	204.8	28.13	300.5	21.0	7.3	1.2	2.7	114.0	210.7	28.2	306.7	23.8	7.5	2.4	5.6	114.2	213.6	28.3	309.7	25.3	7.6	4.2	9.6	114.2
				40	246.5	28.79	344.4	29.2	8.6	1.2	2.7	115.3	255.0	28.9	353.4	32.5	8.8	2.4	5.6	115.6	259.1	29.0	357.8	34.3	8.9	4.2	9.6	115.7
				50	292.3	29.51	392.7	37.1	9.9	1.2	2.7	116.8	304.3	29.7	405.4	41.0	10.2	2.4	5.6	117.1	310.1	29.8	411.5	43.2	10.4	4.2	9.6	117.3
				60	341.9	30.35	445.1	44.9	11.3	1.2	2.7	118.4	358.2	30.7	462.5	49.4	11.7	2.4	5.6	118.9	366.1	30.8	470.9	51.9	11.9	4.2	9.6	119.1
				70	394.6	31.35	501.3	52.5	12.6	1.2	2.7	120.1	416.3	31.8	524.5	57.7	13.1	2.4	5.6	120.8	426.8	32.0	535.8	60.5	13.3	4.2	9.6	121.1
				80	437.6	32.27	547.4	60.5	13.6	1.2	2.7	121.5																
	90	4.2	10	30	208.0	27.50	301.5	20.9	7.6	1.2	2.7	111.7	214.2	27.6	308.0	23.7	7.8	2.4	5.6	111.9	217.1	27.6	311.1	25.2	7.9	4.2	9.6	112.0
				40	250.7	28.06	346.1	29.0	8.9	1.2	2.7	112.8	259.6	28.2	355.4	32.4	9.2	2.4	5.6	113.0	264.0	28.2	360.0	34.2	9.4	4.2	9.6	113.1
				50	297.7	28.67	395.2	36.9	10.4	1.2	2.7	113.9	310.3	28.8	408.4	40.9	10.8	2.4	5.6	114.2	316.5	28.9	414.8	43.0	10.9	4.2	9.6	114.3
				60	348.6	29.38	448.6	44.6	11.9	1.2	2.7	115.1	366.0	29.7	466.9	49.2	12.3	2.4	5.6	115.5	374.5	29.8	475.8	51.7	12.6	4.2	9.6	115.7
				70	403.1	30.26	506.0	52.1	13.3	1.2	2.7	116.4	426.3	30.7	530.7	57.4	13.9	2.4	5.6	117.0	437.7	30.9	542.7	60.3	14.2	4.2	9.6	117.3
				80	450.3	31.12	556.2	60.0	14.5	1.2	2.7	117.6																
120	45	1.1	3	30	171.0	35.38	291.4	22.5	4.8	1.2	2.7	133.1	175.0	35.5	295.8	24.9	4.9	2.4	5.6	133.3	176.9	35.5	297.8	26.1	5.0	4.2	9.6	133.4
				40	206.6	36.35	330.4	30.9	5.7	1.2	2.7	134.9	212.3	36.5	336.5	33.8	5.8	2.4	5.6	135.2	215.0	36.6	339.5	35.3	5.9	4.2	9.6	135.3
				50	245.7	37.39	373.0	39.2	6.6	1.2	2.7	136.8	253.6	37.6	381.6	42.5	6.7	2.4	5.6	137.2	257.3	37.7	385.7	44.3	6.8	4.2	9.6	137.4
				60	287.8	38.56	419.1	47.3	7.5	1.2	2.7	139.0	298.4	38.9	430.7	51.2	7.7	2.4	5.6	139.5	303.5	39.0	436.3	53.3	7.8	4.2	9.6	139.8
				70	332.4	39.91	468.3	55.2	8.3	1.2	2.7	141.2																
	68	2.4	6	30	178.2	33.78	293.1	22.2	5.3	1.2	2.7	128.8	182.6	33.9	297.9	24.7	5.4	2.4	5.6	128.9	184.7	33.9	300.1	25.9	5.4	4.2	9.6	129.0
				40	216.0	34.51	333.4	30.5	6.3	1.2	2.7	130.0	222.4	34.6	340.3	33.5	6.4	2.4	5.6	130.2	225.5	34.7	343.6	35.0	6.5	4.2	9.6	130.3
				50	257.8	35.28	377.9	38.6	7.3	1.2	2.7	131.4	266.9	35.5	387.6	42.1	7.5	2.4	5.6	131.7	271.2	35.5	392.2	44.0	7.6	4.2	9.6	131.8
				60	303.2	36.16	426.3	46.6	8.4	1.2	2.7	132.8	315.7	36.4	439.6	50.7	8.7	2.4	5.6	133.3	321.6	36.5	446.0	52.9	8.8	4.2	9.6	133.5
				70	351.7	37.20	478.3	54.4	9.5	1.2	2.7	134.4	368.3	37.6	496.3	59.1	9.8	2.4	5.6	135.0	375.6	37.8	504.1	61.7	9.9	4.2	9.6	135.2
				30	181.7	33.00	294.0	22.0	5.5	1.2	2.7	126.6	186.4	33.1	298.9	24.5	5.6	2.4	5.6	126.7	188.6	33.1	301.3	25.9	5.7	4.2	9.6	126.8
				40	220.6	33.62	335.0	30.3	6.6	1.2	2.7	127.5	227.4	33.7	342.2	33.3	6.7	2.4	5.6	127.7	230.7	33.8	345.6	34.9	6.8	4.2	9.6	127.8
				50	263.7	34.26	380.3	38.4	7.7	1.2	2.7	128.6	273.4	34.4	390.5	42.0	7.9	2.4	5.6	128.8	278.1	34.5	395.5	43.9	8.1	4.2	9.6	128.9
				60	310.7	35.00	429.8	46.3	8.9	1.2	2.7	129.7	324.2	35.2	444.1	50.4	9.2	2.4	5.6	130.0	330.6	35.3	450.9	52.7	9.4	4.2	9.6	130.2
				70	361.1	35.89	483.3	54.0	10.1	1.2	2.7	130.9	379.2	36.2	502.6	58.8	10.5	2.4	5.6	131.4	388.0	36.4	511.9	61.4	10.7	4.2	9.6	131.6
				80																	387.1	36.4	511.0	71.4	10.6	4.2	9.6	131.6
				90																	386.0	36.4	509.9	81.4	10.6	4.2	9.6	131.6

Interpolation is permissible; extrapolation is not.
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 in grey shaded area requires antifreeze solution, protect Load side to 10ºF below LWT.

Performance Data - TMW360 (60Hz I-P) - Heating

SOURCE				LOAD								LOAD								LOAD							
EWT °F	Flow			EWT °F	Flow 45 GPM							SLWT °F	Flow 67 GPM							SLWT °F	Flow 90 GPM							SLWT °F
	GPM	WPD PSI	WPD FT		TC	kW	HE	LLWT	COP	WPD PSI	WPD FT		TC	kW	HE	LLWT	COP	WPD PSI	WPD FT		TC	kW	HE	LLWT	COP	WPD PSI	WPD FT	
30	45	1.2	2.7	100	301.1	27.73	206.8	113.5	3.2	1.1	2.6	20.9	303.1	26.51	213.0	109.0	3.4	2.4	5.5	20.7	304.2	25.91	216.1	106.8	3.4	4.2	9.6	20.5
				80	319.5	22.14	244.3	94.2	4.2	1.1	2.6	22.9	322.3	21.16	250.4	89.5	4.5	2.4	5.5	22.7	323.8	20.69	253.5	87.2	4.6	4.2	9.6	22.6
	67	2.4	5.6	100	307.4	27.86	212.7	113.7	3.2	1.1	2.6	23.8	309.9	26.61	219.4	109.2	3.4	2.4	5.5	23.6	311.2	26.00	222.8	107.0	3.5	4.2	9.6	23.5
				120	295.7	35.49	175.0	133.3	2.4	1.1	2.6	24.9	297.8	33.87	182.6	128.9	2.6	2.4	5.5	24.7	298.9	33.08	186.4	126.7	2.6	4.2	9.6	24.5
				130									292.4	38.38	161.7	138.8	2.2	2.4	5.5	25.3	293.4	37.49	165.8	136.6	2.3	4.2	9.6	25.1
				60	338.9	17.81	278.4	75.0	5.6	1.1	2.6	23.9									343.9	16.57	287.7	67.6	6.1	4.2	9.6	23.7
				80	323.5	22.20	248.0	94.4	4.3	1.1	2.6	24.6	326.6	21.21	254.5	89.7	4.5	2.4	5.5	24.4	328.2	20.73	257.8	87.3	4.6	4.2	9.6	24.3
	90	4.2	9.6	100	310.5	27.92	215.5	113.9	3.3	1.1	2.6	25.3	313.2	26.66	222.5	109.3	3.4	2.4	5.5	25.1	314.6	26.04	226.0	107.0	3.5	4.2	9.6	25.0
				120	297.8	35.55	176.9	133.4	2.5	1.1	2.6	26.1	300.1	33.91	184.7	129.0	2.6	2.4	5.5	25.9	301.3	33.12	188.6	126.8	2.7	4.2	9.6	25.9
				130									294.2	38.42	163.4	138.8	2.2	2.4	5.5	26.4	295.3	37.52	167.6	136.7	2.3	4.2	9.6	26.3
40				60	374.5	18.30	312.4	76.6	6.0	1.1	2.6	26.3																
				80	358.8	22.75	281.5	96.0	4.6	1.1	2.6	27.6	362.4	21.64	288.8	90.7	4.9	2.4	5.5	27.3	364.2	21.10	292.5	88.1	5.1	4.2	9.6	27.1
	45	1.2	2.7	100	344.9	28.58	247.7	115.4	3.5	1.1	2.6	29.1	348.2	27.15	255.8	110.4	3.8	2.4	5.5	28.7	349.8	26.46	259.9	107.8	3.9	4.2	9.6	28.6
				120	330.3	36.35	206.6	134.9	2.7	1.1	2.6	30.9	333.4	34.51	216.0	130.0	2.8	2.4	5.5	30.5	335.0	33.62	220.6	127.5	2.9	4.2	9.6	30.3
				130									326.1	39.07	193.0	139.8	2.4	2.4	5.5	31.5	327.6	38.06	198.0	137.4	2.5	4.2	9.6	31.3
				60	389.3	18.51	326.5	77.2	6.2	1.1	2.6	30.4																
				80	370.6	22.94	292.6	96.5	4.7	1.1	2.6	31.4	375.0	21.79	300.9	91.1	5.0	2.4	5.5	31.2	377.2	21.24	305.1	88.4	5.2	4.2	9.6	31.0
	67	2.4	5.6	100	353.9	28.75	256.1	115.9	3.6	1.1	2.6	32.5	357.9	27.29	265.1	110.7	3.8	2.4	5.5	32.2	360.0	26.58	269.6	108.1	4.0	4.2	9.6	32.1
				120	336.5	36.51	212.3	135.2	2.7	1.1	2.6	33.8	340.3	34.63	222.4	130.2	2.9	2.4	5.5	33.5	342.2	33.72	227.4	127.7	3.0	4.2	9.6	33.3
				130									331.5	39.18	198.1	140.0	2.5	2.4	5.5	34.2	333.4	38.16	203.5	137.5	2.6	4.2	9.6	34.0
				60	396.5	18.61	333.3	77.6	6.2	1.1	2.6	32.7																
				80	376.2	23.03	298.0	96.8	4.8	1.1	2.6	33.4	381.1	21.87	306.8	91.3	5.1	2.4	5.5	33.2	383.5	21.30	311.2	88.5	5.3	4.2	9.6	33.2
	90	4.2	9.6	100	358.2	28.84	260.1	116.1	3.6	1.1	2.6	34.3	362.6	27.36	269.6	110.8	3.9	2.4	5.5	34.1	364.8	26.64	274.3	108.2	4.0	4.2	9.6	34.0
				120	339.5	36.58	215.0	135.3	2.7	1.1	2.6	35.3	343.6	34.69	225.5	130.3	2.9	2.4	5.5	35.0	345.6	33.77	230.7	127.8	3.0	4.2	9.6	34.9
				130									334.1	39.24	200.6	140.1	2.5	2.4	5.5	35.6	336.2	38.20	206.1	137.6	2.6	4.2	9.6	35.5
50				60	430.1	19.11	365.2	79.1	6.6	1.1	2.6	33.9																
				80	410.6	23.60	330.4	98.3	5.1	1.1	2.6	35.4	415.7	22.31	340.0	92.4	5.5	2.4	5.5	35.0	418.4	21.69	344.7	89.3	5.7	4.2	9.6	34.8
	45	1.2	2.7	100	392.7	29.51	292.3	117.6	3.9	1.1	2.6	37.1	397.6	27.86	302.9	111.9	4.2	2.4	5.5	36.6	400.1	27.06	308.1	109.0	4.3	4.2	9.6	36.4
				120	372.9	37.39	245.7	136.8	2.9	1.1	2.6	39.1	377.8	35.28	257.8	131.4	3.1	2.4	5.5	38.6	380.3	34.26	263.7	128.6	3.3	4.2	9.6	38.4
				130																	370.0	38.73	238.1	138.4	2.8	4.2	9.6	39.5
				60	450.4	19.43	384.4	80.0	6.8	1.1	2.6	38.7																
				80	426.9	23.88	345.7	99.1	5.2	1.1	2.6	39.8	433.3	22.54	356.7	92.9	5.6	2.4	5.5	39.5	436.6	21.90	362.2	89.7	5.8	4.2	9.6	39.3
	67	2.4	5.6	100	405.2	29.76	303.9	118.2	4.0	1.1	2.6	41.1	411.3	28.06	315.8	112.3	4.3	2.4	5.5	40.7	414.4	27.24	321.7	109.3	4.5	4.2	9.6	40.5
				120	381.6	37.61	253.6	137.2	3.0	1.1	2.6	42.5	387.5	35.45	266.9	131.7	3.2	2.4	5.5	42.1	390.5	34.41	273.4	128.8	3.3	4.2	9.6	41.9
				130																	378.2	38.87	245.9	138.6	2.9	4.2	9.6	42.8
				60	460.3	19.59	393.8	80.5	6.9	1.1	2.6	41.3																
		4.2		80	434.7	24.02	353.1	99.4	5.3	1.1	2.6	42.2	441.9	22.66	364.9	93.2	5.7	2.4	5.5	41.9	445.5	22.01	370.8	89.9	5.9	4.2	9.6	41.8
	90		9.6	100	411.2	29.89	309.5	118.5	4.0	1.1	2.6	43.2	417.8	28.16	322.1	112.5	4.3	2.4	5.5	42.9	421.3	27.33	328.3	109.5	4.5	4.2	9.6	42.8
				120	385.7	37.71	257.3	137.4	3.0	1.1	2.6	44.3	392.2	35.54	271.2	131.8	3.2	2.4	5.5	44.0	395.5	34.48	278.1	128.9	3.4	4.2	9.6	43.9
		4.1		130																	382.2	38.93	249.7	138.6	2.9	4.2	9.6	44.5
60				60	489.5	20.07	421.4	81.8	7.1	1.1	2.6	41.4																
				80	466.3	24.59	382.7	100.9	5.6	1.1	2.6	43.1	473.3	23.11	394.8	94.1	6.0	2.4	5.5	42.5	476.9	22.40	400.8	90.6	6.2	4.2	9.6	42.3
	45	1.2	2.7	100	444.3	30.58	340.2	120.0	4.3	1.1	2.6	44.9	451.2	28.68	353.6	113.5	4.6	2.4	5.5	44.4	454.7	27.78	360.2	110.2	4.8	4.2	9.6	44.1
				120	419.0	38.56	287.7	139.0	3.2	1.1	2.6	47.2	426.2	36.16	303.1	132.8	3.5	2.4	5.5	46.6	429.8	35.00	310.7	129.7	3.6	4.2	9.6	46.2
				130																	416.3	39.49	281.9	139.4	3.1	4.2	9.6	47.5
				60	516.8	20.55	447.0	83.0	7.4	1.1	2.6	46.8	526.0	19.30	460.5	75.6	8.0	2.4	5.5	46.4								
				80	488.2	25.01	403.2	101.9	5.7	1.1	2.6	48.1	497.3	23.47	417.5	94.8	6.2	2.4	5.5	47.7	501.9	22.74	424.6	91.2	6.5	4.2	9.6	47.5
	67	2.4	5.6	100	461.1	30.95	355.8	120.8	4.4	1.1	2.6	49.5	469.9	29.00	371.3	114.1	4.7	2.4	5.5	49.0	474.3	28.06	378.9	110.7	5.0	4.2	9.6	48.8
				120	430.7	38.87	298.4	139.5	3.2	1.1	2.6	51.2	439.6	36.42	315.6	133.3	3.5	2.4	5.5	50.7	444.0	35.23	324.1	130.0	3.7	4.2	9.6	50.4
				130																	427.9	39.69	292.7	139.7	3.2	4.2	9.6	51.4
				60	530.1	20.79	459.5	83.6	7.5	1.1	2.6	49.8	540.6	19.52	474.3	76.0	8.1	2.4	5.5	49.5								
		4.2		80	498.8	25.22	413.1	102.4	5.8	1.1	2.6	50.9	509.0	23.66	428.6	95.2	6.3	2.4	5.5	50.5	514.2	22.91	436.3	91.5	6.6	4.2	9.6	50.3
	90		9.6	100	469.3	31.14	363.3	121.1	4.4	1.1	2.6	52.0	478.9	29.15	379.8	114.4	4.8	2.4	5.5	51.6	483.9	28.20	388.0	110.9	5.0	4.2	9.6	51.4
				120	436.3	39.03	303.4	139.8	3.3	1.1	2.6	53.3	446.0	36.55	321.6	133.5	3.6	2.4	5.5	52.9	450.9	35.34	330.6	130.2	3.7	4.2	9.6	52.7
		4.1		130																	433.4	39.79	297.9	139.8	3.2	4.2	9.6	53.4
70				60	552.4	21.20	480.4	84.6	7.6	1.1	2.6	48.7	561.5	19.85	494.1	76.7	8.3	2.4	5.5	48.1								
				80	525.5	25.76	437.9	103.6	6.0	1.1	2.6	50.6	534.7	24.07	452.9	96.0	6.5	2.4	5.5	49.9	539.4	23.27	460.3	92.1	6.8	4.2	9.6	49.6
	45	1.2	2.7	100	499.2	31.83	390.9	122.5	4.6	1.1	2.6	52.6	508.5	29.67	407.6	115.3	5.0	2.4	5.5	51.9	513.2	28.64	415.8	111.6	5.3	4.2	9.6	51.6
				120									478.3	37.20	351.7	134.4	3.8	2.4	5.5	54.4	483.2	35.89	361.1	130.9	3.9	4.2	9.6	54.0
				60	588.0	21.91	513.5	86.2	7.9	1.1	2.6	54.8	600.4	20.51	530.7	77.8	8.6	2.4	5.5	54.3								
				80	554.2	26.38	464.5	104.9	6.2	1.1	2.6	56.3	566.5	24.63	482.8	96.9	6.7	2.4	5.5	55.7	572.7	23.79	491.9	92.8	7.1	4.2	9.6	55.4
	67	2.4	5.6	100	521.5	32.38	411.3	123.5	4.7	1.1	2.6	57.8	533.5	30.15	431.0	116.0	5.2	2.4	5.5	57.2	539.7	29.08	440.8	112.2	5.4	4.2	9.6	57.0
				120									496.3	37.59	368.3	135.0	3.9	2.4	5.5	59.1	502.5	36.24	379.2	131.4	4.1	4.2	9.6	58.8
				60	605.6	22.28	529.9	87.1	8.0	1.1	2.6	58.2	619.9	20.85	549.0	78.4	8.7	2.4	5.5	57.8								
				80	568.2	26.70	477.5	105.5	6.2	1.1	2.6	59.4	582.2	24.92	497.5	97.4	6.8	2.4	5.5	59.0	589.3	24.07	507.5	93.2	7.2	4.2	9.6	58.7
	90	4.2	9.6	100	532.2	32.66	421.1	124.0	4.8	1.1	2.6	60.6	545.7	30.39	442.4	116.4	5.3	2.4	5.5	60.2	552.7	29.30	453.0	112.5	5.5	4.2	9.6	59.9
				120									504.1	37.76	375.6	135.2	3.9	2.4	5.5	61.7	511.9	36.41	387.9	131.6	4.1	4.2	9.6	61.4

Interpolation is permissible; extrapolation is not.
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 in grey shaded area requires antifreeze solution, protect Source side to 10ºF below LWT.

Performance Data - TMW600 (60Hz I-P) - Cooling

SOURCE				LOAD									LOAD								LOAD							
EWT °F	Flow GPM	WPD PSI	WPD FT	EWT °F	Flow 75 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F	Flow 113 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F	Flow 150 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F
60	75	1.7	4.0	40	506.2	30.6	610.3	26.6	16.5	1.7	3.9	76.2	528.3	30.9	633.4	30.7	17.1	3.6	8.3	76.8	538.9	31.1	644.6	32.9	17.3	6.3	14.5	77.1
				50	593.0	31.8	701.3	34.3	18.6	1.7	3.9	78.7	623.6	32.3	733.5	39.0	19.3	3.6	8.3	79.5	638.6	32.5	749.2	41.5	19.6	6.3	14.5	80.0
				60	686.7	33.2	799.7	41.8	20.7	1.7	3.9	81.3	728.5	33.9	843.7	47.1	21.5	3.6	8.3	82.5	749.1	34.2	865.3	50.1	21.9	6.3	14.5	83.1
				70	786.8	34.7	905.0	49.1	22.6	1.7	3.9	84.2	842.4	35.6	963.6	55.0	23.7	3.6	8.3	85.8	870.2	36.0	992.9	58.4	24.1	6.3	14.5	86.6
				80	892.3	36.4	1016.2	56.2	24.5	1.7	3.9	87.2																
	113	3.7	8.6	50	606.0	30.4	709.3	34.0	20.0	1.7	3.9	72.6																
				60	703.3	31.5	810.6	41.3	22.3	1.7	3.9	74.4	748.6	32.1	857.9	46.7	23.3	3.6	8.3	75.3	771.1	32.4	881.4	49.8	23.8	6.3	14.5	75.7
				70	807.4	32.9	919.3	48.5	24.6	1.7	3.9	76.4	868.4	33.7	982.9	54.6	25.8	3.6	8.3	77.5	899.2	34.1	1015.1	58.0	26.4	6.3	14.5	78.1
				80	917.6	34.3	1034.3	55.5	26.7	1.7	3.9	78.5																
75	75	1.7	4.0	30									409.1	34.5	526.6	22.8	11.8	3.6	8.3	89.0	415.4	34.6	533.3	24.5	12.0	6.3	14.5	89.2
				40	470.9	35.5	591.7	27.6	13.3	1.7	3.9	90.8	489.6	35.8	611.4	31.4	13.7	3.6	8.3	91.3	498.6	35.9	620.9	33.4	13.9	6.3	14.5	91.6
				50	553.2	36.8	678.3	35.4	15.0	1.7	3.9	93.1	579.3	37.2	705.8	39.8	15.6	3.6	8.3	93.9	592.0	37.4	719.2	42.2	15.8	6.3	14.5	94.3
				60	642.4	38.2	772.3	43.0	16.8	1.7	3.9	95.7	678.2	38.7	810.0	48.0	17.5	3.6	8.3	96.7	695.7	39.0	828.5	50.8	17.8	6.3	14.5	97.2
				70	738.1	39.7	873.2	50.4	18.6	1.7	3.9	98.4	785.9	40.5	923.7	56.0	19.4	3.6	8.3	99.8	809.6	40.9	948.7	59.2	19.8	6.3	14.5	100.5
				80	839.3	41.4	980.1	57.6	20.3	1.7	3.9	101.4																
	113	3.7	8.6	30									418.3	33.1	531.1	22.7	12.6	3.6	8.3	84.4	425.1	33.2	538.1	24.4	12.8	6.3	14.5	84.5
				40	481.9	33.9	597.3	27.3	14.2	1.7	3.9	85.6	502.0	34.2	618.3	31.2	14.7	3.6	8.3	86.0	511.8	34.3	628.4	33.2	14.9	6.3	14.5	86.2
				50	567.4	34.9	686.3	35.0	16.2	1.7	3.9	87.2	595.8	35.3	715.9	39.5	16.9	3.6	8.3	87.8	609.6	35.5	730.3	41.9	17.2	6.3	14.5	88.0
				60	660.5	36.1	783.2	42.5	18.3	1.7	3.9	89.0	699.7	36.6	824.1	47.6	19.1	3.6	8.3	89.7	719.0	36.8	844.3	50.4	19.5	6.3	14.5	90.1
				70	760.6	37.3	887.6	49.8	20.4	1.7	3.9	90.9	813.5	38.0	942.9	55.6	21.4	3.6	8.3	91.9	840.0	38.3	970.5	58.8	21.9	6.3	14.5	92.4
				80	866.8	38.7	998.5	56.9	22.4	1.7	3.9	92.9																
	150	6.5	15.1	30									422.9	32.5	533.3	22.6	13.0	3.6	8.3	82.1	429.9	32.5	540.6	24.3	13.2	6.3	14.5	82.2
				40	487.4	33.1	600.2	27.1	14.7	1.7	3.9	83.0	508.2	33.4	621.8	31.1	15.2	3.6	8.3	83.3	518.3	33.5	632.3	33.2	15.5	6.3	14.5	83.4
				50	574.4	34.1	690.4	34.8	16.9	1.7	3.9	84.2	604.0	34.4	721.0	39.3	17.6	3.6	8.3	84.6	618.4	34.5	735.9	41.8	17.9	6.3	14.5	84.8
				60	669.4	35.1	788.8	42.2	19.1	1.7	3.9	85.6	710.4	35.5	831.3	47.4	20.0	3.6	8.3	86.1	730.7	35.7	852.4	50.3	20.4	6.3	14.5	86.4
				70	771.7	36.2	894.8	49.5	21.3	1.7	3.9	87.0	827.3	36.8	952.6	55.3	22.5	3.6	8.3	87.8	855.3	37.2	981.7	58.6	23.0	6.3	14.5	88.2
				80	880.3	37.4	1007.8	56.5	23.5	1.7	3.9	88.5																
90	75	1.7	4.0	30	361.9	40.2	498.9	20.5	9.0	1.7	3.9	103.3	372.6	40.5	510.4	23.5	9.2	3.6	8.3	103.7	377.8	40.6	515.9	25.0	9.3	6.3	14.5	103.8
				40	431.9	41.5	573.4	28.6	10.4	1.7	3.9	105.4	447.4	41.8	589.8	32.1	10.7	3.6	8.3	105.8	454.8	42.0	597.7	34.0	10.8	6.3	14.5	106.0
				50	509.2	42.9	655.3	36.5	11.9	1.7	3.9	107.6	533.6	43.3	681.1	40.6	12.3	3.6	8.3	108.3	544.2	43.5	692.4	42.8	12.5	6.3	14.5	108.6
				60	596.3	44.4	747.5	44.2	13.4	1.7	3.9	110.1	626.4	44.9	779.4	48.9	13.9	3.6	8.3	111.0	641.1	45.2	794.9	51.5	14.2	6.3	14.5	111.4
				70	687.3	46.0	843.9	51.7	14.9	1.7	3.9	112.8	727.7	46.7	886.8	57.1	15.6	3.6	8.3	114.0	747.6	47.1	907.9	60.0	15.9	6.3	14.5	114.5
				80	771.4	47.5	933.1	59.4	16.2	1.7	3.9	115.2																
	113	3.7	8.6	30	370.8	38.6	502.3	20.2	9.6	1.7	3.9	98.9	382.4	38.8	514.5	23.3	9.9	3.6	8.3	99.2	387.9	38.9	520.3	24.9	10.0	6.3	14.5	99.3
				40	443.7	39.7	578.7	28.3	11.2	1.7	3.9	100.3	460.4	39.9	596.2	31.9	11.5	3.6	8.3	100.6	468.5	40.0	604.7	33.8	11.7	6.3	14.5	100.8
				50	524.4	40.7	663.0	36.1	12.9	1.7	3.9	101.9	548.2	41.0	687.8	40.3	13.4	3.6	8.3	102.3	559.7	41.2	699.9	42.6	13.6	6.3	14.5	102.5
				60	612.7	41.8	755.2	43.7	14.6	1.7	3.9	103.5	645.8	42.3	789.7	48.6	15.3	3.6	8.3	104.2	662.0	42.5	806.6	51.2	15.6	6.3	14.5	104.5
				70	708.2	43.1	854.8	51.2	16.4	1.7	3.9	105.4	753.1	43.7	901.8	56.6	17.3	3.6	8.3	106.2	775.4	44.0	925.0	59.7	17.6	6.3	14.5	106.7
				80	805.0	44.3	956.1	58.5	18.2	1.7	3.9	107.2																
	150	6.5	15.1	30	375.2	37.9	504.1	20.1	9.9	1.7	3.9	96.7	387.2	38.0	516.6	23.2	10.2	3.6	8.3	96.9	393.0	38.1	522.6	24.8	10.3	6.3	14.5	97.0
				40	449.5	38.7	581.4	28.1	11.6	1.7	3.9	97.8	466.9	38.9	599.5	31.8	12.0	3.6	8.3	98.0	475.4	39.0	608.3	33.7	12.2	6.3	14.5	98.1
				50	531.9	39.6	666.9	35.9	13.4	1.7	3.9	98.9	556.8	39.9	692.7	40.2	13.9	3.6	8.3	99.3	568.9	40.1	705.3	42.5	14.2	6.3	14.5	99.5
				60	622.3	40.6	760.6	43.5	15.3	1.7	3.9	100.2	657.1	41.0	796.7	48.4	16.0	3.6	8.3	100.7	674.2	41.2	814.4	51.0	16.4	6.3	14.5	101.0
				70	720.1	41.7	862.1	50.8	17.3	1.7	3.9	101.6	767.6	42.2	911.4	56.4	18.2	3.6	8.3	102.3	791.3	42.5	935.9	59.5	18.6	6.3	14.5	102.6
				80	824.5	42.9	970.5	58.0	19.2	1.7	3.9	103.1																
105	75	1.7	4.0	30	327.0	47.4	488.4	21.4	6.9	1.7	3.9	118.1	335.6	47.6	497.8	24.1	7.0	3.6	8.3	118.4	339.7	47.7	502.3	25.5	7.1	6.3	14.5	118.5
				40	391.8	48.9	558.4	29.7	8.0	1.7	3.9	120.0	404.3	49.2	571.8	32.9	8.2	3.6	8.3	120.4	410.3	49.3	578.2	34.6	8.3	6.3	14.5	120.6
				50	463.8	50.4	635.5	37.7	9.2	1.7	3.9	122.1	481.4	50.8	654.3	41.5	9.5	3.6	8.3	122.7	489.8	50.9	663.3	43.5	9.6	6.3	14.5	122.9
				60	542.5	52.0	719.7	45.6	10.4	1.7	3.9	124.4	566.8	52.5	745.6	50.0	10.8	3.6	8.3	125.2	578.5	52.7	758.1	52.3	11.0	6.3	14.5	125.5
				70	627.6	53.7	810.4	53.3	11.7	1.7	3.9	126.9	660.2	54.3	845.4	58.3	12.1	3.6	8.3	127.9	676.1	54.7	862.3	61.0	12.4	6.3	14.5	128.4
				80	689.3	54.9	876.5	61.6	12.5	1.7	3.9	128.8																
	113	3.7	8.6	30	336.4	45.5	491.4	21.1	7.4	1.7	3.9	113.8	345.8	45.7	501.3	23.9	7.6	3.6	8.3	114.0	350.3	45.8	506.1	25.4	7.7	6.3	14.5	114.1
				40	404.3	46.7	563.2	29.3	8.7	1.7	3.9	115.1	418.0	46.9	577.6	32.6	8.9	3.6	8.3	115.4	424.6	47.0	584.6	34.4	9.0	6.3	14.5	115.5
				50	479.9	47.8	642.8	37.3	10.0	1.7	3.9	116.5	499.5	48.1	663.3	41.2	10.4	3.6	8.3	116.9	508.9	48.2	673.2	43.3	10.6	6.3	14.5	117.1
				60	563.2	49.0	730.1	45.1	11.5	1.7	3.9	118.1	590.5	49.4	758.7	49.5	12.0	3.6	8.3	118.7	603.8	49.6	772.7	52.0	12.2	6.3	14.5	118.9
				70	653.5	50.3	824.7	52.6	13.0	1.7	3.9	119.9	690.9	50.8	863.9	57.7	13.6	3.6	8.3	120.6	709.2	51.1	883.1	60.6	13.9	6.3	14.5	121.0
				80	727.9	51.3	902.7	60.6	14.2	1.7	3.9	121.3																
	150	6.5	15.1	30	341.0	44.6	492.9	21.0	7.6	1.7	3.9	111.6	350.8	44.7	503.2	23.8	7.8	3.6	8.3	111.8	355.5	44.8	508.1	25.3	7.9	6.3	14.5	111.8
				40	410.5	45.6	565.7	29.2	9.0	1.7	3.9	112.6	424.8	45.8	580.6	32.5	9.3	3.6	8.3	112.8	431.7	45.9	587.9	34.3	9.4	6.3	14.5	112.9
				50	487.9	46.6	646.5	37.1	10.5	1.7	3.9	113.7	508.5	46.8	667.9	41.0	10.9	3.6	8.3	114.0	518.5	46.9	678.3	43.1	11.1	6.3	14.5	114.1
				60	573.4	47.6	735.3	44.8	12.1	1.7	3.9	114.9	602.3	47.9	765.4	49.3	12.6	3.6	8.3	115.3	616.4	48.1	780.1	51.8	12.8	6.3	14.5	115.5
				70	666.3	48.6	831.9	52.3	13.7	1.7	3.9	116.2	690.9	50.8	863.9	57.7	13.6	3.6	8.3	120.6	725.7	49.3	893.7	60.3	14.7	6.3	14.5	117.1
				80	747.5	49.6	916.3	60.1	15.1	1.7	3.9	117.4																
120	75	1.7	4.0	30	287.0	55.9	477.4	22.4	5.1	1.7	3.9	132.9	293.5	56.1	484.6	24.8	5.2	3.6	8.3	133.1	296.6	56.2	488.0	26.1	5.3	6.3	14.5	133.2
				40	345.4	57.6	541.7	30.9	6.0	1.7	3.9	134.6	354.8	57.9	552.0	33.8	6.1	3.6	8.3	134.9	359.3	58.0	556.9	35.3	6.2	6.3	14.5	135.1
				50	410.5	59.3	612.6	39.1	6.9	1.7	3.9	136.6	423.8	59.7	627.1	42.5	7.1	3.6	8.3	137.0	430.2	59.8	634.0	44.3	7.2	6.3	14.5	137.2
				60	482.0	61.1	690.1	47.2	7.9	1.7	3.9	138.7	500.4	61.5	710.0	51.1	8.1	3.6	8.3	139.3	509.2	61.7	719.5	53.2	8.2	6.3	14.5	139.5
				70	559.3	62.9	773.6	55.1	8.9	1.7	3.9	141.0																
	113	3.7	8.6	30	297.1	53.7	480.0	22.2	5.5	1.7	3.9	128.6	304.3	53.9	487.8	24.7	5.6	3.6	8.3	128.8	307.7	53.9	491.5	25.9	5.7	6.3	14.5	128.8
				40	358.9	55.0	546.4	30.5	6.5	1.7	3.9	129.8	369.4	55.3	557.7	33.5	6.7	3.6	8.3	130.0	374.5	55.4	563.1	35.1	6.8	6.3	14.5	130.1
				50	428.1	56.3	620.1	38.7	7.6	1.7	3.9	131.2	443.2	56.6	636.1	42.2	7.8	3.6	8.3	131.5	450.5	56.7	643.8	44.0	7.9	6.3	14.5	131.6
				60	504.7	57.6	701.1	46.6	8.8	1.7	3.9	132.7	526.0	58.0	723.6	50.7	9.1	3.6	8.3	133.1	536.2	58.2	734.4	52.9	9.2	6.3	14.5	133.3
				70	588.2	59.0	789.2	54.3	10.0	1.7	3.9	134.3	617.4	59.5	820.0	59.0	10.4	3.6	8.3	134.9	630.7	59.7	834.0	61.6	10.6	6.3	14.5	135.1
	150	6.5	15.1	30	302.1	52.6	481.3	22.0	5.7	1.7	3.9	126.5	309.6	52.8	489.4	24.6	5.9	3.6	8.3	126.6	313.3	52.8	493.3	25.9	5.9	6.3	14.5	126.7
				40	365.5	53.8	548.7	30.4	6.8	1.7	3.9	127.4	376.6	54.0	560.5	33.4	7.0	3.6	8.3	127.6	382.0	54.1	566.1	35.0	7.1	6.3	14.5	127.6
				50	436.8	54.9	623.7	38.4	8.0	1.7	3.9	128.4	452.9	55.1	640.6	42.0	8.2	3.6	8.3	128.7	460.6	55.2	648.8	43.9	8.3	6.3	14.5	128.8
				60	515.8	56.0	706.5	46.3	9.2	1.7	3.9	129.6	538.6	56.3	730.3	50.5	9.6	3.6	8.3	129.9	549.7	56.4	741.9	52.7	9.7	6.3	14.5	130.1
				70	602.3	57.1	796.8	54.0	10.6	1.7	3.9	130.8	617.4	59.5	820.0	59.0	10.4	3.6	8.3	134.9	649.3	57.7	845.8	61.3	11.3	6.3	14.5	131.5

Interpolation is permissible; extrapolation is not.
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 in grey shaded area requires antifreeze solution, protect Load side to 10ºF below LWT.

Performance Data - TMW600 (60Hz I-P) - Heating

Source				LOAD									LOAD								LOAD							
EWT °F	Flow			EWT °F	Flow 75 GPM							SLWT °F	Flow 113 GPM							SLWT °F	Flow 150 GPM							SLWT °F
	GPM	WPD PSI	WPD FT		TC	kW	HE	LLWT	COP	WPD PSI	WPD FT		TC	kW	HE	LLWT	COP	WPD PSI	WPD FT		TC	kW	HE	LLWT	COP	GPM PSI	GPM FT	
30	75	1.7	3.9	100	492.4	44.89	339.5	113.2	3.2	1.7	4.0	21.1	495.5	43.09	348.7	108.9	3.4	3.7	8.6	20.8	497.1	42.21	353.3	106.7	3.5	6.5	15.1	20.7
				80	521.1	36.38	397.3	93.9	4.2	1.7	4.0	23.0	525.5	34.91	406.7	89.3	4.4	3.7	8.6	22.9	527.7	34.19	411.3	87.0	4.5	6.5	15.1	22.8
	113	3.6	8.3	100	502.5	45.10	348.9	113.5	3.3	1.7	4.0	23.9	506.2	43.26	358.9	109.0	3.4	3.7	8.6	23.7	508.1	42.36	363.9	106.8	3.5	6.5	15.1	23.6
				120	484.6	56.10	293.5	133.1	2.5	1.7	4.0	24.8	487.8	53.86	304.3	128.8	2.7	3.7	8.6	24.7	489.4	52.77	309.6	126.6	2.7	6.5	15.1	24.6
				130									479.1	60.11	274.3	138.6	2.3	3.7	8.6	25.2	480.7	58.91	280.0	136.5	2.4	6.5	15.1	25.1
	150	6.3	14.5	80	527.4	36.48	403.2	94.1	4.2	1.7	4.0	24.7	532.1	34.99	413.0	89.5	4.5	3.7	8.6	24.6	534.5	34.26	417.9	87.1	4.6	6.5	15.1	24.5
				100	507.3	45.20	353.4	113.6	3.3	1.7	4.0	25.3	511.4	43.34	363.8	109.1	3.5	3.7	8.6	25.2	513.5	42.43	369.0	106.9	3.5	6.5	15.1	25.1
				120	488.0	56.20	296.6	133.2	2.5	1.7	4.0	26.1	491.5	53.94	307.7	128.8	2.7	3.7	8.6	25.9	493.3	52.84	313.3	126.7	2.7	6.5	15.1	25.9
				130									482.2	60.19	277.1	138.7	2.3	3.7	8.6	26.3	483.9	58.98	283.0	136.5	2.4	6.5	15.1	26.3
40	75	1.7	3.9	60	610.3	30.59	506.2	76.2	5.8	1.7	4.0	26.6																
				80	585.5	37.38	458.3	95.6	4.6	1.7	4.0	27.9	591.0	35.70	469.6	90.5	4.9	3.7	8.6	27.6	593.9	34.88	475.1	87.9	5.0	6.5	15.1	27.5
				100	564.0	46.30	406.3	115.2	3.6	1.7	4.0	29.3	569.0	44.19	418.5	110.2	3.8	3.7	8.6	29.0	571.5	43.16	424.6	107.7	3.9	6.5	15.1	28.8
				120	541.7	57.62	345.4	134.6	2.8	1.7	4.0	30.9	546.4	55.04	358.8	129.8	2.9	3.7	8.6	30.5	548.7	53.79	365.5	127.4	3.0	6.5	15.1	30.3
				130									534.9	61.46	325.4	139.7	2.6	3.7	8.6	31.4	537.3	60.08	332.6	137.3	2.6	6.5	15.1	31.2
	113	3.6	8.3	60	633.4	30.91	528.3	76.8	6.0	1.7	4.0	30.7																
				80	604.1	37.67	475.9	96.2	4.7	1.7	4.0	31.6	610.9	35.93	488.6	90.9	5.0	3.7	8.6	31.4	614.3	35.09	494.9	88.2	5.1	6.5	15.1	31.3
				100	578.4	46.58	419.8	115.6	3.6	1.7	4.0	32.6	584.5	44.41	433.3	110.5	3.9	3.7	8.6	32.4	587.6	43.35	440.0	107.9	4.0	6.5	15.1	32.3
				120	552.0	57.88	354.8	134.9	2.8	1.7	4.0	33.7	557.6	55.26	369.4	130.0	3.0	3.7	8.6	33.5	560.5	53.97	376.6	127.6	3.0	6.5	15.1	33.4
				130									544.1	61.66	334.0	139.8	2.6	3.7	8.6	34.1	547.0	60.26	341.7	137.4	2.7	6.5	15.1	34.0
	150	6.3	14.5	60	644.6	31.07	538.9	77.1	6.1	1.7	4.0	32.9																
				80	613.1	37.81	484.4	96.4	4.8	1.7	4.0	33.6	620.4	36.05	497.7	91.1	5.0	3.7	8.6	33.4	624.2	35.20	504.4	88.3	5.2	6.5	15.1	33.3
				100	585.4	46.71	426.3	115.7	3.7	1.7	4.0	34.4	592.0	44.51	440.4	110.6	3.9	3.7	8.6	34.2	595.3	43.44	447.4	108.0	4.0	6.5	15.1	34.1
				120	556.9	58.01	359.3	135.1	2.8	1.7	4.0	35.3	563.1	55.36	374.5	130.1	3.0	3.7	8.6	35.1	566.1	54.06	382.0	127.6	3.1	6.5	15.1	35.0
				130									548.5	61.76	338.0	139.9	2.6	3.7	8.6	35.5	551.6	60.35	346.0	137.5	2.7	6.5	15.1	35.4
50	75	1.7	3.9	60	701.3	31.84	592.9	78.7	6.5	1.7	4.0	34.3																
				80	670.6	38.68	538.9	98.0	5.1	1.7	4.0	35.7	678.5	36.73	553.5	92.1	5.4	3.7	8.6	35.3	682.5	35.79	560.7	89.1	5.6	6.5	15.1	35.2
				100	642.9	47.76	480.2	117.3	3.9	1.7	4.0	37.3	650.3	45.30	496.0	111.7	4.2	3.7	8.6	36.9	654.1	44.10	503.9	108.8	4.3	6.5	15.1	36.7
				120	612.6	59.33	410.4	136.6	3.0	1.7	4.0	39.1	620.0	56.34	428.1	131.2	3.2	3.7	8.6	38.7	623.7	54.89	436.7	128.4	3.3	6.5	15.1	38.4
				130									603.8	62.89	389.5	140.9	2.8	3.7	8.6	39.7	607.7	61.30	398.9	138.2	2.9	6.5	15.1	39.4
	113	3.6	8.3	60	733.5	32.29	623.6	79.5	6.7	1.7	4.0	39.0																
				80	696.6	39.08	563.6	98.7	5.2	1.7	4.0	40.0	706.5	37.06	580.4	92.6	5.6	3.7	8.6	39.8	711.5	36.08	588.7	89.5	5.8	6.5	15.1	39.6
				100	663.2	48.13	499.3	117.9	4.0	1.7	4.0	41.2	672.3	45.59	517.1	112.1	4.3	3.7	8.6	40.9	677.0	44.36	526.0	109.1	4.5	6.5	15.1	40.7
				120	627.1	59.67	423.8	137.0	3.1	1.7	4.0	42.5	636.1	56.61	443.2	131.5	3.3	3.7	8.6	42.2	640.6	55.12	452.8	128.7	3.4	6.5	15.1	42.0
				130																	621.7	61.52	412.0	138.4	3.0	6.5	15.1	42.7
	150	6.3	14.5	60	749.2	32.52	638.6	80.0	6.8	1.7	4.0	41.5																
				80	709.2	39.27	575.5	99.0	5.3	1.7	4.0	42.4	720.1	37.22	593.4	92.9	5.7	3.7	8.6	42.1	725.7	36.23	602.4	89.7	5.9	6.5	15.1	42.0
				100	672.9	48.31	508.4	118.1	4.1	1.7	4.0	43.3	683.0	45.73	527.3	112.3	4.4	3.7	8.6	43.0	688.2	44.48	536.7	109.3	4.5	6.5	15.1	42.9
				120	634.0	59.83	430.2	137.2	3.1	1.7	4.0	44.3	643.8	56.74	450.5	131.6	3.3	3.7	8.6	44.0	648.8	55.23	460.6	128.8	3.4	6.5	15.1	43.9
				130																	628.3	61.62	418.4	138.5	3.0	6.5	15.1	44.5
60	75	1.7	3.9	60	799.7	33.22	686.7	81.3	7.1	1.7	4.0	41.8																
				80	763.0	40.09	626.6	100.5	5.6	1.7	4.0	43.4	773.9	37.85	645.1	93.8	6.0	3.7	8.6	42.9	779.4	36.78	654.2	90.4	6.2	6.5	15.1	42.6
				100	728.9	49.30	561.0	119.7	4.3	1.7	4.0	45.1	739.4	46.46	581.2	113.3	4.7	3.7	8.6	44.6	744.7	45.09	591.2	110.0	4.8	6.5	15.1	44.3
				120	690.0	61.07	481.9	138.7	3.3	1.7	4.0	47.2	701.0	57.64	504.6	132.7	3.6	3.7	8.6	46.6	706.4	55.97	515.8	129.6	3.7	6.5	15.1	46.3
				130																	685.5	62.46	472.7	139.3	3.2	6.5	15.1	47.4
	113	3.6	8.3	60	843.7	33.85	728.5	82.5	7.3	1.7	4.0	47.1	857.9	32.11	748.6	75.3	7.8	3.7	8.6	46.7								
				80	798.7	40.64	660.4	101.5	5.8	1.7	4.0	48.3	812.6	38.31	682.2	94.5	6.2	3.7	8.6	47.9	819.8	37.20	693.2	91.0	6.5	6.5	15.1	47.7
				100	756.9	49.80	587.3	120.4	4.5	1.7	4.0	49.6	770.1	46.86	610.5	113.9	4.8	3.7	8.6	49.2	776.9	45.44	622.2	110.5	5.0	6.5	15.1	49.0
				120	709.9	61.51	500.3	139.3	3.4	1.7	4.0	51.1	723.5	58.00	525.9	133.1	3.7	3.7	8.6	50.7	730.3	56.27	538.6	129.9	3.8	6.5	15.1	50.5
				130																	705.2	62.74	491.4	139.6	3.3	6.5	15.1	51.3
	150	6.3	14.5	60	865.3	34.17	749.1	83.1	7.4	1.7	4.0	50.1	881.4	32.40	771.1	75.7	8.0	3.7	8.6	49.8								
				80	816.1	40.91	676.8	101.9	5.8	1.7	4.0	51.0	831.7	38.54	700.5	94.9	6.3	3.7	8.6	50.7	839.7	37.41	712.4	91.3	6.6	6.5	15.1	50.5
				100	770.4	50.05	599.9	120.8	4.5	1.7	4.0	52.0	785.1	47.05	624.9	114.1	4.9	3.7	8.6	51.7	792.7	45.61	637.3	110.7	5.1	6.5	15.1	51.5
				120	719.5	61.73	509.1	139.5	3.4	1.7	4.0	53.2	734.4	58.16	536.2	133.3	3.7	3.7	8.6	52.9	741.8	56.41	549.6	130.1	3.9	6.5	15.1	52.7
				130																	714.7	62.87	500.4	139.7	3.3	6.5	15.1	53.3
70	75	1.7	3.9	60	905.0	34.74	786.8	84.2	7.6	1.7	4.0	49.1	919.3	32.86	807.5	76.4	8.2	3.7	8.6	48.5								
				80	862.4	41.63	720.6	103.2	6.1	1.7	4.0	50.8	876.7	39.08	743.7	95.7	6.6	3.7	8.6	50.2	884.0	37.88	755.1	91.9	6.8	6.5	15.1	49.9
				100	821.7	50.95	648.1	122.2	4.7	1.7	4.0	52.7	835.9	47.71	673.4	115.1	5.1	3.7	8.6	52.1	843.1	46.15	685.9	111.4	5.4	6.5	15.1	51.7
				120									789.1	58.99	588.1	134.3	3.9	3.7	8.6	54.3	796.7	57.08	602.2	130.8	4.1	6.5	15.1	54.0
	113	3.6	8.3	60	963.6	35.61	842.4	85.8	7.9	1.7	4.0	55.0	982.9	33.66	868.4	77.5	8.6	3.7	8.6	54.6								
				80	910.2	42.39	765.9	104.5	6.3	1.7	4.0	56.4	929.2	39.73	794.0	96.7	6.9	3.7	8.6	55.9	939.0	38.47	808.0	92.6	7.2	6.5	15.1	55.7
				100	859.4	51.64	683.5	123.3	4.9	1.7	4.0	57.9	877.8	48.26	713.5	115.8	5.3	3.7	8.6	57.3	887.3	46.63	728.5	112.0	5.6	6.5	15.1	57.1
				120									820.0	59.46	617.4	134.9	4.0	3.7	8.6	59.0	829.7	57.48	633.8	131.3	4.2	6.5	15.1	58.7
	150	6.3	14.5	60	992.9	36.05	870.2	86.6	8.1	1.7	4.0	58.4	1015.1	34.07	899.2	78.1	8.7	3.7	8.6	58.0								
				80	933.8	42.77	788.2	105.2	6.4	1.7	4.0	59.5	955.4	40.06	819.1	97.2	7.0	3.7	8.6	59.1	966.6	38.78	834.5	93.0	7.3	6.5	15.1	58.9
				100	877.7	51.97	700.6	123.8	4.9	1.7	4.0	60.7	898.5	48.53	733.2	116.2	5.4	3.7	8.6	60.2	909.2	46.87	749.5	112.3	5.7	6.5	15.1	60.0
				120									834.0	59.67	630.7	135.1	4.1	3.7	8.6	61.6	845.8	57.68	649.2	131.5	4.3	6.5	15.1	61.3

Interpolation is permissible; extrapolation is not.
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 in grey shaded area requires antifreeze solution, protect Source side to 10ºF below LWT.

Performance Data - TMW840 (60Hz I-P) - Cooling

Source PD				LOAD									LOAD								LOAD							
EWT °F	Flow GPM	WPD PSI	WPD FT	EWT °F	Flow 105 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F	Flow 158 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F	Flow 210 GPM TC	kW	HR	LLWT	EER	WPD PSI	WPD FT	SLWT °F
60	105	2.8	6.4	40	666.2	39.3	800.0	27.4	17.0	2.6	5.9	75.2	693.4	39.7	828.6	31.3	17.5	5.5	12.8	75.7	706.6	39.9	842.4	33.3	17.7	9.6	22.2	76.0
				50	783.4	41.1	923.2	35.2	19.1	2.6	5.9	77.5	821.0	41.7	962.8	39.6	19.7	5.5	12.8	78.3	839.2	42.0	982.0	42.1	20.0	9.6	22.2	78.7
				60	908.7	43.1	1055.5	42.8	21.1	2.6	5.9	80.1	959.1	44.0	1108.8	47.9	21.8	5.5	12.8	81.2	983.6	44.4	1134.8	50.7	22.2	9.6	22.2	81.7
				70	1040.7	45.4	1195.4	50.2	22.9	2.6	5.9	82.8	1106.4	46.6	1265.3	56.0	23.7	5.5	12.8	84.2	1138.5	47.3	1299.5	59.2	24.1	9.6	22.2	84.9
				80	1172.1	47.9	1335.3	57.7	24.5	2.6	5.9	85.6	1156.2	47.7	1318.5	65.3	24.3	5.5	12.8	85.3	1148.4	47.5	1310.3	69.0	24.2	9.6	22.2	85.2
	158	6.0	13.8	70	1066.6	43.2	1213.7	49.7	24.7	2.6	5.9	75.4	1138.6	44.3	1289.6	55.6	25.7	5.5	12.8	76.4	1174.2	44.9	1327.2	58.8	26.1	9.6	22.2	76.9
				80	1210.5	45.5	1365.6	56.9	26.6	2.6	5.9	77.4	1197.9	45.4	1352.4	64.8	26.4	5.5	12.8	77.3	1189.3	45.2	1343.4	68.7	26.3	9.6	22.2	77.2
75	105	2.8	6.4	30	521.0	44.1	671.1	20.2	11.8	2.6	5.9	87.8	537.3	44.3	688.3	23.3	12.1	5.5	12.8	88.1	545.2	44.4	696.6	24.9	12.3	9.6	22.2	88.3
				40	622.6	45.6	778.0	28.3	13.7	2.6	5.9	89.8	645.8	46.0	802.4	31.9	14.0	5.5	12.8	90.3	657.0	46.1	814.2	33.8	14.2	9.6	22.2	90.5
				50	733.2	47.4	894.5	36.1	15.5	2.6	5.9	92.1	765.2	47.9	928.3	40.3	16.0	5.5	12.8	92.7	780.6	48.1	944.6	42.6	16.2	9.6	22.2	93.1
				60	851.6	49.4	1019.7	43.9	17.3	2.6	5.9	94.5	894.4	50.1	1065.2	48.7	17.8	5.5	12.8	95.4	915.1	50.5	1087.2	51.3	18.1	9.6	22.2	95.8
				70	976.3	51.7	1152.4	51.4	18.9	2.6	5.9	97.1	1032.2	52.8	1212.0	56.9	19.6	5.5	12.8	98.3	1059.2	53.4	1241.0	59.9	19.9	9.6	22.2	98.9
				80	1080.3	53.8	1263.5	59.4	20.1	2.6	5.9	99.3	1066.8	53.6	1249.2	66.4	19.9	5.5	12.8	99.1	1060.2	53.4	1242.3	69.9	19.8	9.6	22.2	98.9
	158	6.0	13.8	30	530.7	42.4	675.1	20.0	12.5	2.6	5.9	83.5	548.0	42.6	693.1	23.1	12.9	5.5	12.8	83.8	556.3	42.7	701.8	24.8	13.0	9.6	22.2	83.9
				40	635.6	43.7	784.3	28.0	14.6	2.6	5.9	85.0	660.3	44.0	810.1	31.7	15.0	5.5	12.8	85.3	672.3	44.1	822.6	33.7	15.2	9.6	22.2	85.5
				50	750.2	45.1	904.0	35.8	16.6	2.6	5.9	86.5	784.8	45.6	940.1	40.1	17.2	5.5	12.8	87.0	801.5	45.8	957.6	42.4	17.5	9.6	22.2	87.2
				60	873.6	46.8	1033.1	43.4	18.7	2.6	5.9	88.2	920.4	47.5	1082.3	48.4	19.4	5.5	12.8	88.8	943.2	47.9	1106.3	51.1	19.7	9.6	22.2	89.1
				70	1004.4	48.8	1170.7	50.9	20.6	2.6	5.9	90.0	1066.1	49.8	1235.9	56.5	21.4	5.5	12.8	90.8	1096.3	50.4	1267.9	59.6	21.8	9.6	22.2	91.2
				80	1124.0	50.8	1297.1	58.6	22.1	2.6	5.9	91.6	1108.9	50.6	1281.3	65.9	21.9	5.5	12.8	91.4	1101.6	50.5	1273.6	69.5	21.8	9.6	22.2	91.3
	210	10.4	24.1	30	535.5	41.6	677.1	19.9	12.9	2.6	5.9	81.4	553.2	41.8	695.5	23.1	13.2	5.5	12.8	81.6	561.8	41.9	704.4	24.7	13.4	9.6	22.2	81.7
				40	641.9	42.7	787.5	27.9	15.0	2.6	5.9	82.5	667.5	43.0	814.0	31.6	15.5	5.5	12.8	82.8	679.9	43.2	826.9	33.6	15.7	9.6	22.2	82.9
				50	758.6	44.1	908.7	35.7	17.2	2.6	5.9	83.7	794.5	44.5	946.1	40.0	17.8	5.5	12.8	84.0	811.9	44.7	964.2	42.3	18.2	9.6	22.2	84.2
				60	884.5	45.6	1039.9	43.2	19.4	2.6	5.9	84.9	933.4	46.3	1091.0	48.2	20.2	5.5	12.8	85.4	957.2	46.6	1116.0	50.9	20.5	9.6	22.2	85.7
				70	1018.2	47.5	1180.0	50.6	21.4	2.6	5.9	86.3	1083.1	48.5	1248.1	56.3	22.4	5.5	12.8	87.0	1115.0	48.9	1281.7	59.4	22.8	9.6	22.2	87.3
				80	1146.3	49.4	1314.7	58.2	23.2	2.6	5.9	87.6	1130.4	49.2	1298.0	65.6	23.0	5.5	12.8	87.5	1122.6	49.1	1289.9	69.3	22.9	9.6	22.2	87.4
90	105	2.8	6.4	30	477.5	51.9	654.4	21.0	9.2	2.6	5.9	102.5	491.1	52.2	668.8	23.8	9.4	5.5	12.8	102.8	679.9	43.2	826.9	33.6	15.7	9.6	22.2	82.9
				40	573.0	53.5	755.2	29.2	10.7	2.6	5.9	104.5	592.3	53.8	775.6	32.6	11.0	5.5	12.8	104.9	601.6	54.0	785.4	34.3	11.1	9.6	22.2	105.0
				50	676.9	55.2	865.1	37.2	12.3	2.6	5.9	106.6	703.5	55.7	893.4	41.1	12.6	5.5	12.8	107.1	716.2	56.0	906.9	43.2	12.8	9.6	22.2	107.4
				60	791.8	57.3	987.1	45.0	13.8	2.6	5.9	109.0	827.8	58.0	1025.5	49.5	14.3	5.5	12.8	109.7	845.0	58.4	1043.9	52.0	14.5	9.6	22.2	110.1
				70	909.4	59.7	1112.9	52.7	15.2	2.6	5.9	111.4	956.3	60.7	1163.3	57.9	15.7	5.5	12.8	112.4	975.2	61.2	1183.7	60.7	15.9	9.6	22.2	112.9
				80	989.2	61.5	1198.7	61.1	16.1	2.6	5.9	113.2	977.9	61.3	1186.7	67.6	16.0	5.5	12.8	113.0	972.4	61.2	1180.8	70.7	15.9	9.6	22.2	112.9
	158	6.0	13.8	30	488.3	49.9	658.4	20.8	9.8	2.6	5.9	98.4	502.8	50.1	673.5	23.7	10.0	5.5	12.8	98.6	509.8	50.2	680.8	25.2	10.2	9.6	22.2	98.7
				40	587.2	51.2	761.5	28.9	11.5	2.6	5.9	99.7	608.0	51.4	783.2	32.4	11.8	5.5	12.8	100.0	618.0	51.6	793.6	34.2	12.0	9.6	22.2	100.1
				50	695.3	52.6	874.4	36.9	13.2	2.6	5.9	101.2	724.3	53.0	904.8	40.9	13.7	5.5	12.8	101.6	738.3	53.2	919.4	43.0	13.9	9.6	22.2	101.8
				60	811.7	54.2	996.4	44.6	15.0	2.6	5.9	102.8	851.0	54.8	1037.8	49.2	15.5	5.5	12.8	103.3	869.9	55.1	1057.8	51.7	15.8	9.6	22.2	103.6
				70	935.1	56.2	1126.5	52.2	16.6	2.6	5.9	104.5	987.0	57.1	1181.5	57.5	17.3	5.5	12.8	105.2	1011.5	57.5	1207.5	60.4	17.6	9.6	22.2	105.5
				80	1027.2	57.8	1224.2	60.4	17.8	2.6	5.9	105.7	1014.7	57.6	1211.0	67.1	17.6	5.5	12.8	105.6	1008.6	57.5	1204.5	70.4	17.5	9.6	22.2	105.5
	210	10.4	24.1	30	493.6	49.0	660.4	20.7	10.1	2.6	5.9	96.3	508.6	49.1	675.9	23.6	10.4	5.5	12.8	96.5	515.8	49.2	683.4	25.1	10.5	9.6	22.2	96.5
				40	594.2	50.0	764.6	28.8	11.9	2.6	5.9	97.3	615.8	50.3	787.0	32.3	12.2	5.5	12.8	97.5	626.2	50.4	797.8	34.1	12.4	9.6	22.2	97.6
				50	704.5	51.3	879.1	36.7	13.7	2.6	5.9	98.4	734.7	51.6	910.6	40.7	14.2	5.5	12.8	98.7	749.3	51.8	925.8	42.9	14.5	9.6	22.2	98.9
				60	823.4	52.8	1003.1	44.4	15.6	2.6	5.9	99.6	864.6	53.3	1046.2	49.1	16.2	5.5	12.8	100.1	884.6	53.6	1067.1	51.6	16.5	9.6	22.2	100.3
				70	950.0	54.5	1135.7	51.9	17.4	2.6	5.9	100.9	1004.7	55.4	1193.3	57.3	18.2	5.5	12.8	101.5	1031.4	55.8	1221.4	60.2	18.5	9.6	22.2	101.8
				80	1049.5	56.1	1240.5	60.0	18.7	2.6	5.9	102.0	1036.2	55.9	1226.6	66.8	18.5	5.5	12.8	101.8	1029.7	55.8	1219.8	70.2	18.5	9.6	22.2	101.8
105	105	2.8	6.4	30	431.3	61.5	640.7	21.9	7.0	2.6	5.9	117.3	442.4	61.7	652.5	24.5	7.2	5.5	12.8	117.5	447.7	61.8	658.2	25.8	7.2	9.6	22.2	117.6
				40	520.8	63.1	735.9	30.2	8.3	2.6	5.9	119.1	536.6	63.4	752.7	33.3	8.5	5.5	12.8	119.5	544.1	63.6	760.7	34.9	8.6	9.6	22.2	119.6
				50	617.9	65.0	839.3	38.3	9.5	2.6	5.9	121.2	639.6	65.4	862.5	41.9	9.8	5.5	12.8	121.6	650.0	65.6	873.6	43.8	9.9	9.6	22.2	121.8
				60	721.7	67.1	950.4	46.3	10.8	2.6	5.9	123.3	750.7	67.8	981.6	50.5	11.1	5.5	12.8	124.0	764.5	68.1	996.5	52.7	11.2	9.6	22.2	124.3
				70	831.0	69.6	1068.2	54.2	11.9	2.6	5.9	125.7	868.7	70.5	1109.1	59.0	12.3	5.5	12.8	126.5	876.1	70.7	1117.1	61.7	12.4	9.6	22.2	126.6
	158	6.0	13.8	30	443.0	59.1	644.4	21.7	7.5	2.6	5.9	113.2	455.0	59.3	656.9	24.3	7.7	5.5	12.8	113.4	460.8	59.3	663.0	25.7	7.8	9.6	22.2	113.5
				40	536.2	60.4	741.8	29.9	8.9	2.6	5.9	114.5	553.3	60.6	759.8	33.0	9.1	5.5	12.8	114.7	561.6	60.7	768.4	34.7	9.3	9.6	22.2	114.8
				50	637.8	61.8	848.3	37.9	10.3	2.6	5.9	115.9	661.7	62.1	873.5	41.7	10.6	5.5	12.8	116.2	673.2	62.3	885.5	43.6	10.8	9.6	22.2	116.4
				60	747.1	63.5	963.3	45.8	11.8	2.6	5.9	117.4	779.5	64.0	997.6	50.1	12.2	5.5	12.8	117.8	795.1	64.3	1014.1	52.5	12.4	9.6	22.2	118.1
				70	863.1	65.4	1086.1	53.6	13.2	2.6	5.9	119.0	905.9	66.2	1131.7	58.5	13.7	5.5	12.8	119.6	918.4	66.5	1145.0	61.3	13.8	9.6	22.2	119.8
				80	931.1	66.7	1158.6	62.2	13.9	2.6	5.9	120.0	920.8	66.6	1147.6	68.3	13.8	5.5	12.8	119.8	915.7	66.5	1142.3	71.3	13.8	9.6	22.2	119.8
	210	10.4	24.1	30	448.9	57.9	646.3	21.6	7.7	2.6	5.9	111.2	461.3	58.1	659.2	24.2	7.9	5.5	12.8	111.3	467.2	58.2	665.4	25.6	8.0	9.6	22.2	111.4
				40	543.8	59.0	744.8	29.7	9.2	2.6	5.9	112.2	561.7	59.2	763.4	32.9	9.5	5.5	12.8	112.3	570.3	59.3	772.4	34.6	9.6	9.6	22.2	112.4
				50	647.6	60.2	852.9	37.8	10.8	2.6	5.9	113.2	672.7	60.6	879.0	41.5	11.1	5.5	12.8	113.5	684.8	60.7	891.6	43.5	11.3	9.6	22.2	113.6
				60	759.7	61.7	969.9	45.6	12.3	2.6	5.9	114.3	793.9	62.2	1005.8	50.0	12.8	5.5	12.8	114.7	810.3	62.4	1023.1	52.3	13.0	9.6	22.2	114.9
				70	878.9	63.4	1095.1	53.3	13.9	2.6	5.9	115.6	905.9	66.2	1131.7	58.5	13.7	5.5	12.8	119.6	939.8	64.4	1159.4	61.1	14.6	9.6	22.2	116.2
120	105	2.8	6.4	30	377.2	72.8	625.4	22.9	5.2	2.6	5.9	132.1	385.8	73.0	634.6	25.2	5.3	5.5	12.8	132.2	389.9	73.1	639.0	26.3	5.3	9.6	22.2	132.3
				40	459.3	74.6	713.6	31.3	6.2	2.6	5.9	133.8	471.4	74.9	726.6	34.1	6.3	5.5	12.8	134.0	477.2	75.0	732.8	35.5	6.4	9.6	22.2	134.2
				50	548.0	76.6	809.1	39.6	7.2	2.6	5.9	135.6	564.7	77.0	827.1	42.9	7.3	5.5	12.8	136.0	572.6	77.2	835.6	44.6	7.4	9.6	22.2	136.2
				60	642.6	78.9	911.4	47.8	8.1	2.6	5.9	137.7	664.7	79.4	935.5	51.6	8.4	5.5	12.8	138.1	675.2	79.7	946.9	53.6	8.5	9.6	22.2	138.4
				70	741.9	81.5	1019.7	55.9	9.1	2.6	5.9	139.8	770.5	82.3	1051.2	60.2	9.4	5.5	12.8	140.4	767.8	82.3	1048.2	62.7	9.3	9.6	22.2	140.4
	158	6.0	13.8	30	390.1	70.1	628.9	22.7	5.6	2.6	5.9	128.1	399.4	70.2	638.7	25.0	5.7	5.5	12.8	128.2	403.9	70.3	643.4	26.2	5.7	9.6	22.2	128.3
				40	476.2	71.4	719.5	31.0	6.7	2.6	5.9	129.3	489.6	71.6	733.7	33.8	6.8	5.5	12.8	129.4	496.0	71.7	740.4	35.3	6.9	9.6	22.2	129.5
				50	569.9	72.9	818.4	39.2	7.8	2.6	5.9	130.5	588.6	73.2	838.2	42.6	8.0	5.5	12.8	130.8	597.5	73.4	847.6	44.3	8.1	9.6	22.2	130.9
				60	670.6	74.7	925.1	47.3	9.0	2.6	5.9	131.9	695.9	75.1	952.0	51.2	9.3	5.5	12.8	132.3	708.0	75.4	964.9	53.3	9.4	9.6	22.2	132.5
				70	777.4	76.7	1038.9	55.2	10.1	2.6	5.9	133.4	810.8	77.4	1074.8	59.7	10.5	5.5	12.8	133.9	811.9	77.5	1076.0	62.3	10.5	9.6	22.2	133.9
	210	10.4	24.1	30	396.5	68.7	630.6	22.5	5.8	2.6	5.9	126.1	406.2	68.8	640.8	24.9	5.9	5.5	12.8	126.2	410.9	68.9	645.7	26.1	6.0	9.6	22.2	126.2
				40	484.5	69.8	722.5	30.9	6.9	2.6	5.9	127.0	498.6	70.0	737.2	33.7	7.1	5.5	12.8	127.1	505.3	70.1	744.2	35.2	7.2	9.6	22.2	127.2
				50	580.6	71.1	823.0	39.0	8.2	2.6	5.9	128.0	600.4	71.4	843.7	42.4	8.4	5.5	12.8	128.2	609.9	71.5	853.6	44.2	8.5	9.6	22.2	128.3
				60	684.3	72.6	931.8	47.0	9.4	2.6	5.9	129.0	711.3	73.0	960.3	51.0	9.7	5.5	12.8	129.3	724.2	73.2	973.9	53.1	9.9	9.6	22.2	129.4
				70	794.8	74.4	1048.4	54.9	10.7	2.6	5.9	130.2	810.8	77.4	1074.8	59.7	10.5	5.5	12.8	133.9	834.0	75.1	1090.0	62.1	11.1	9.6	22.2	130.6

Interpolation is permissible; extrapolation is not.
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 in grey shaded area requires antifreeze solution, protect Load side to 10ºF below LWT.

Performance Data - TMW840 (60Hz I-P) - Heating

Source				LOAD									LOAD								LOAD							
EWT °F	Flow			EWT °F	Flow 105 GPM							SLWT °F	Flow 158 GPM							SLWT °F	Flow 210 GPM							SLWT °F
	GPM	WPD			TC	kW	HE	LLWT	COP	WPD			TC	kW	HE	LLWT	COP	WPD			TC	kW	HE	LLWT	COP	GPM		
		PSI	FT							PSI	FT							PSI	FT							PSI	FT	
30	105	2.5	5.9	80	665.6	46.5	507.1	92.7	4.2	2.8	6.4	20.5	669.6	44.8	517.2	88.5	4.4	6.0	13.8	20.3	671.6	43.9	522.2	86.4	4.5	10.4	24.1	20.2
				100	646.0	58.1	448.0	112.4	3.3	2.8	6.4	21.6	649.8	55.9	459.5	108.3	3.4	6.0	13.8	21.4	649.2	54.8	462.6	106.2	3.5	10.4	24.1	21.3
	158	5.5	12.8	80	681.8	46.8	522.5	93.0	4.3	2.8	6.4	23.4	686.6	44.9	533.5	88.7	4.5	6.0	13.8	23.3	689.0	44.1	539.0	86.6	4.6	10.4	24.1	23.2
				100	658.7	58.3	460.0	112.6	3.3	2.8	6.4	24.2	663.2	56.0	472.3	108.5	3.5	6.0	13.8	24.1	662.8	54.9	475.8	106.3	3.5	10.4	24.1	24.0
				120	634.6	73.0	385.8	132.2	2.6	2.8	6.4	25.2	638.7	70.2	399.4	128.2	2.7	6.0	13.8	25.0	640.8	68.8	406.2	126.2	2.7	10.4	24.1	24.9
				130									626.7	78.6	358.8	138.1	2.3	6.0	13.8	25.5	628.8	77.1	366.1	136.1	2.4	10.4	24.1	25.4
	210	9.6	22.2	60	716.7	38.1	586.9	73.6	5.5	2.8	6.4	24.5	721.5	36.7	596.6	69.1	5.8	6.0	13.8	24.4	723.9	36.0	601.3	66.8	5.9	10.4	24.1	24.3
				80	689.6	46.9	529.9	93.1	4.3	2.8	6.4	25.0	694.8	45.0	541.4	88.8	4.5	6.0	13.8	24.9	697.4	44.2	547.1	86.6	4.6	10.4	24.1	24.9
				100	664.8	58.4	465.8	112.7	3.3	2.8	6.4	25.6	669.7	56.1	478.5	108.6	3.5	6.0	13.8	25.5	669.4	55.0	482.1	106.4	3.6	10.4	24.1	25.5
				120	639.0	73.1	389.9	132.3	2.6	2.8	6.4	26.3	643.4	70.3	403.9	128.3	2.7	6.0	13.8	26.2	645.7	68.9	410.9	126.2	2.8	10.4	24.1	26.1
				130									630.6	78.6	362.5	138.1	2.4	6.0	13.8	26.6	632.8	77.1	369.9	136.1	2.4	10.4	24.1	26.5
40	105	2.5	5.9	60	799.9	39.3	666.2	75.2	6.0	2.8	6.4	27.4	805.9	37.7	677.5	70.2	6.3	6.0	13.8	27.2	808.9	37.0	683.0	67.7	6.4	10.4	24.1	27.1
				80	770.4	48.1	606.7	94.7	4.7	2.8	6.4	28.6	776.7	46.0	620.1	89.9	5.0	6.0	13.8	28.3	779.9	45.0	626.7	87.4	5.1	10.4	24.1	28.2
				100	743.2	59.7	539.8	114.3	3.7	2.8	6.4	29.8	749.3	57.1	554.7	109.6	3.8	6.0	13.8	29.5	752.3	55.8	562.1	107.2	4.0	10.4	24.1	29.4
				120	713.5	74.6	459.3	133.8	2.8	2.8	6.4	31.3	719.5	71.4	476.1	129.3	3.0	6.0	13.8	31.0	722.4	69.8	484.4	127.0	3.0	10.4	24.1	30.9
				130									703.9	79.9	431.6	139.1	2.6	6.0	13.8	31.9	707.0	78.2	440.6	136.8	2.7	10.4	24.1	31.7
	158	5.5	12.8	60	828.6	39.7	693.4	75.7	6.1	2.8	6.4	31.3	836.0	38.1	706.4	70.6	6.4	6.0	13.8	31.1	839.7	37.3	712.7	68.0	6.6	10.4	24.1	31.0
				80	793.5	48.4	628.6	95.2	4.8	2.8	6.4	32.1	801.2	46.3	643.5	90.2	5.1	6.0	13.8	31.9	805.1	45.3	650.9	87.7	5.2	10.4	24.1	31.8
				100	761.3	60.0	556.8	114.6	3.7	2.8	6.4	33.0	768.6	57.3	573.2	109.8	3.9	6.0	13.8	32.8	772.3	56.0	581.3	107.4	4.0	10.4	24.1	32.7
				120	726.6	74.9	471.4	134.0	2.8	2.8	6.4	34.1	733.6	71.6	489.6	129.4	3.0	6.0	13.8	33.8	737.2	70.0	498.5	127.1	3.1	10.4	24.1	33.7
				130									715.5	80.1	442.6	139.2	2.6	6.0	13.8	34.4	719.2	78.3	452.2	137.0	2.7	10.4	24.1	34.3
	210	9.6	22.2	60	842.4	39.9	706.6	76.0	6.2	2.8	6.4	33.3	850.6	38.3	720.3	70.8	6.5	6.0	13.8	33.2	854.7	37.5	727.1	68.1	6.7	10.4	24.1	33.1
				80	804.6	48.6	639.1	95.4	4.9	2.8	6.4	34.0	813.0	46.4	654.8	90.3	5.1	6.0	13.8	33.8	817.2	45.4	662.6	87.8	5.3	10.4	24.1	33.7
				100	769.9	60.2	564.9	114.8	3.8	2.8	6.4	34.7	777.8	57.5	582.1	110.0	4.0	6.0	13.8	34.5	781.9	56.1	590.6	107.5	4.1	10.4	24.1	34.4
				120	732.8	75.0	477.2	134.2	2.9	2.8	6.4	35.5	740.4	71.7	496.0	129.5	3.0	6.0	13.8	35.3	744.2	70.1	505.3	127.2	3.1	10.4	24.1	35.2
				130									721.1	80.2	447.9	139.3	2.6	6.0	13.8	35.8	725.1	78.4	457.8	137.0	2.7	10.4	24.1	35.7
50	105	2.5	5.9	60	923.2	41.1	783.4	77.5	6.6	2.8	6.4	35.2	932.5	39.3	798.7	71.8	7.0	6.0	13.8	34.9	937.0	38.5	806.1	68.9	7.1	10.4	24.1	34.8
				80	884.7	49.8	715.1	96.9	5.2	2.8	6.4	36.5	894.2	47.4	732.6	91.4	5.5	6.0	13.8	36.1	898.9	46.3	741.3	88.6	5.7	10.4	24.1	36.0
				100	849.0	61.5	639.4	116.3	4.0	2.8	6.4	37.9	858.1	58.5	658.7	111.0	4.3	6.0	13.8	37.5	862.7	57.0	668.3	108.3	4.4	10.4	24.1	37.4
				120	809.0	76.6	548.0	135.6	3.1	2.8	6.4	39.6	818.3	72.9	569.8	130.5	3.3	6.0	13.8	39.2	823.0	71.1	580.6	128.0	3.4	10.4	24.1	39.0
				130									796.8	81.5	519.1	140.3	2.9				801.7	79.5	530.7	137.8	3.0	10.4	24.1	40.0
	158	5.5	12.8	60	962.8	41.7	821.0	78.3	6.8	2.8	6.4	39.6	974.6	39.9	838.9	72.4	7.2				980.4	39.0	847.7	69.3	7.4			
				80	916.6	50.3	745.3	97.5	5.3	2.8	6.4	40.6	928.4	47.9	765.3	91.8	5.7	6.0	13.8	40.3	934.3	46.7	775.2	88.9	5.9	10.4	24.1	40.2
				100	874.0	62.0	662.8	116.8	4.1	2.8	6.4	41.6	885.1	58.9	684.5	111.3	4.4	6.0	13.8	41.4	890.7	57.4	695.2	108.6	4.6	10.4	24.1	41.2
				120	827.0	77.0	564.7	136.0	3.2	2.8	6.4	42.9	838.2	73.2	588.6	130.8	3.4	6.0	13.8	42.6	843.7	71.4	600.4	128.2	3.5	10.4	24.1	42.4
				130	801.1	85.8	508.5	145.5	2.7	2.8	6.4	43.6	813.0	81.8	534.3	140.5	2.9				818.9	79.8	547.0	137.9	3.0	10.4	24.1	43.1
	210	9.6	22.2	60	982.0	42.0	839.2	78.7	6.9	2.8	6.4	42.1	995.1	40.1	858.5	72.6	7.3				1001.6	39.3	868.0	69.5	7.8			
				80	932.0	50.6	759.8	97.8	5.4	2.8	6.4	42.8	944.9	48.1	781.1	92.1	5.8	6.0	13.8	42.6	951.4	46.9	791.7	89.1	5.9	10.4	24.1	42.5
				100	886.0	62.2	674.0	117.1	4.2	2.8	6.4	43.6	898.1	59.1	696.8	111.5	4.5	6.0	13.8	43.4	904.2	57.5	708.2	108.7	4.6	10.4	24.1	43.3
				120	835.6	77.2	572.6	136.2	3.2	2.8	6.4	44.6	847.6	73.4	597.5	130.9	3.4	6.0	13.8	44.3	853.6	71.5	609.9	128.3	3.5	10.4	24.1	44.2
				130	808.0	86.0	514.9	145.7	2.8	2.8	6.4	45.1	820.8	81.9	541.6	140.6	2.9				827.1	79.9	554.8	138.0	3.0	10.4	24.1	44.7
60	105	2.5	5.9	60	1055.5	43.1	908.7	80.1	7.2	2.8	6.4	42.8	1068.8	41.1	928.9	73.6	7.6				1075.5	40.2	938.7	70.2	7.8			
				80	1007.5	51.8	831.1	99.3	5.7	2.8	6.4	44.2	1020.9	49.1	853.7	93.0	6.1	6.0	13.8	43.8	1027.7	47.8	864.9	89.8	6.3	10.4	24.1	43.6
				100	962.7	63.6	745.8	118.6	4.4	2.8	6.4	45.8	975.7	60.2	770.6	112.5	4.8	6.0	13.8	45.4	982.2	58.5	782.9	109.5	4.9	10.4	24.1	45.2
				120	911.3	78.9	642.5	137.7	3.4	2.8	6.4	47.8	925.0	74.7	670.5	131.9	3.6	6.0	13.8	47.3	931.8	72.6	684.3	129.0	3.8	10.4	24.1	47.0
				130	881.6	87.8	582.1	147.1	2.9	2.8	6.4	48.9	896.8	83.3	612.8	141.6	3.2				904.1	81.1	627.8	138.8	3.3	10.4	24.1	48.1
	158	5.5	12.8	60	1108.8	44.0	959.1	81.2	7.4	2.8	6.4	47.9	1126.1	41.9	983.4	74.3	7.9				1134.9	41.0	995.4	70.8	8.1			
				80	1050.5	52.6	871.5	100.2	5.9	2.8	6.4	49.0	1067.5	49.8	898.0	93.6	6.3	6.0	13.8	48.6	1076.1	48.4	911.1	90.3	6.5	10.4	24.1	48.5
				100	996.3	64.3	777.2	119.2	4.5	2.8	6.4	50.2	1012.4	60.7	805.5	113.0	4.9	6.0	13.8	49.8	1020.7	59.0	819.6	109.8	5.1	10.4	24.1	49.6
				120	935.5	79.4	664.7	138.1	3.5	2.8	6.4	51.6	952.0	75.1	695.9	132.3	3.7	6.0	13.8	51.2	960.2	73.0	711.3	129.3	3.9	10.4	24.1	51.0
				130	901.0	88.3	599.8	147.5	3.0	2.8	6.4	52.4	919.0	83.7	633.5	141.9	3.2				927.7	81.5	650.1	139.0	3.3	10.4	24.1	51.8
	210	9.6	22.2	60	1134.8	44.4	983.6	81.7	7.5	2.8	6.4	50.7	1154.3	42.3	1010.2	74.7	8.0				1164.1	41.4	1023.3	71.1	8.3			
				80	1071.2	52.9	890.9	100.6	5.9	2.8	6.4	51.5	1090.1	50.1	919.4	93.9	6.4	6.0	13.8	51.3	1099.7	48.8	933.7	90.5	6.6	10.4	24.1	51.1
				100	1012.4	64.6	792.1	119.5	4.6	2.8	6.4	52.5	1030.1	61.0	822.2	113.2	5.0	6.0	13.8	52.2	1039.2	59.3	837.3	110.0	5.1	10.4	24.1	52.1
				120	946.9	79.7	675.2	138.4	3.5	2.8	6.4	53.6	964.9	75.4	708.0	132.5	3.8	6.0	13.8	53.3	973.9	73.2	724.2	129.4	3.9	10.4	24.1	53.1
				130	910.2	88.6	608.1	147.7	3.0	2.8	6.4	54.2	929.5	83.9	643.4	142.0	3.2				939.0	81.6	660.7	139.1	3.4	10.4	24.1	53.7
70	105	2.5	5.9	60	1195.4	45.4	1040.7	82.8	7.7	2.8	6.4	50.2	1213.7	43.2	1066.7	75.4	8.2	6.0	13.8	49.7	1222.9	42.2	1079.4	71.7	8.5			
				80	1137.8	54.1	953.4	101.9	6.2	2.8	6.4	51.9	1156.0	51.1	982.0	94.8	6.6	6.0	13.8	51.3	1165.3	49.6	996.2	91.2	6.9	10.4	24.1	51.1
				100	1083.3	66.1	858.1	120.9	4.8	2.8	6.4	53.7	1101.1	62.1	889.3	114.2	5.2	6.0	13.8	53.1	1110.1	60.3	904.8	110.7	5.4	10.4	24.1	52.8
				120	1019.6	81.5	741.8	139.8	3.7	2.8	6.4	55.9	1038.8	76.7	777.3	133.4	4.0	6.0	13.8	55.2	1048.3	74.4	794.7	130.2	4.1	10.4	24.1	54.9
				130	981.9	90.6	673.1	149.1	3.2	2.8	6.4	57.2	1003.5	85.4	712.2	143.0	3.4				1013.9	82.9	731.2	139.9	3.6	10.4	24.1	56.1
	158	5.5	12.8	60	1265.3	46.6	1106.4	84.2	8.0	2.8	6.4	56.0	1289.7	44.3	1138.6	76.4	8.5	6.0	13.8	55.6	1302.9	43.3	1154.6	72.4	8.8			
				80	1194.2	55.2	1006.0	103.0	6.3	2.8	6.4	57.2	1217.8	52.1	1040.5	95.6	6.9	6.0	13.8	56.8	1229.9	50.6	1057.7	91.8	7.1	10.4	24.1	56.6
				100	1127.3	67.0	898.8	121.8	4.9	2.8	6.4	58.6	1150.0	63.0	935.4	114.8	5.4	6.0	13.8	58.1	1161.5	61.0	953.6	111.2	5.6	10.4	24.1	57.9
				120	1051.1	82.3	770.5	140.4	3.7	2.8	6.4	60.2	1074.7	77.4	810.8	133.9	4.1	6.0	13.8	59.7	1086.5	75.0	830.7	130.5	4.2	10.4	24.1	59.5
	210	9.6	22.2	60	1299.5	47.3	1138.5	84.9	8.1	2.8	6.4	59.2	1327.2	44.9	1174.2	76.9	8.7	6.0	13.8	58.8	1341.4	43.9	1192.0	72.8	9.0			
				80	1221.4	55.8	1031.4	103.5	6.4	2.8	6.4	60.2	1247.9	52.5	1069.0	96.0	7.0	6.0	13.8	59.8	1261.6	51.0	1087.8	92.1	7.3	10.4	24.1	59.6
				100	1139.4	67.3	909.9	122.1	5.0	2.8	6.4	61.3	1167.6	63.3	951.9	115.1	5.4	6.0	13.8	60.9	1182.3	61.3	973.3	111.4	5.7	10.4	24.1	60.7
				120	1048.2	82.3	767.8	140.4	3.7				1076.0	77.5	811.9	133.9	4.1	6.0	13.8	62.3	1090.0	75.1	834.0	130.6	4.3	10.4	24.1	62.1

Interpolation is permissible; extrapolation is not.
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 in grey shaded area requires antifreeze solution, protect Load side to 10ºF below LWT.

Antifreeze Correction Table

Antifreeze Type	Antifreeze %	Cooling			Heating		WPD Corr. Fct. EWT 30°F
		EWT 90°F			EWT 30°F		
		Total Cap	Sens Cap	Power	Htg Cap	Power	
Water	0	1.000	1.000	1.000			
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

Physical & Electrical Data

Physical Data

Model	TMW360	TMW600		TMW 840
Compressor (qty)	Scroll (2)	Scroll (2)		Scroll (2)
Compressor Oil Type	ALL	REVA	REVB	ALL
	POE	POE	PVE	PVE
Factory Charge HFC-410A (lbs) [kg] / circuit	15 [6.8]	27.5 [12.5]		33.8 [15.4]
Indoor / Load Water connection sizes FPT (in)	2	2-1/2		2-1/2
Outdoor / Source Water connection size FPT (in)	2	2-1/2		2-1/2
Weight - Operating (lbs) [kg]	1400 [635]	2055 [932]		2305 [1042]
Weight - Shipping (lbs) [kg]	1325 [601]	1925 [873]		2175 [983]
Water Volume (Source)				
Gallons [Liters]	4.7 [17.8]	8.3 [31.4]		9.5 [36]
Water Volume (Load)				
Gallons [Liters]	4.4 [16.7]	7.3 [27.6]		8.5 [32.2]

Unit Maximum Water Working Pressure	
Options	**Max Working Pressure PSIG [kPa]**
Base Unit	300 [2,068]
Motorized Valves	300 [2,068]

TMW Electrical Data

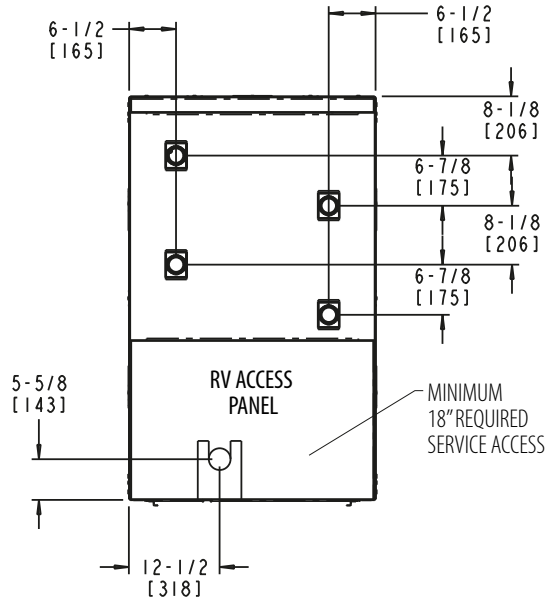
Model	Voltage Code	Voltage	Voltage Min/Max	Compressor			Total Unit FLA	Min Circuit Amps	Max UL/CSA HACR
				Qty	RLA (EA)	LRA (EA)			
TMW360	H	208-230/60/3	187/254	2	56.4	425	113	127	175
	F	460/60/3	414/506	2	25.5	173	51	57	80
	N	575/60/3	518/633	2	20.4	128	41	46	60
TMW600	H	208-230/60/3	187/254	2	94.7	605	189	213	300
	F	460/60/3	414/506	2	42.8	272	86	96	125
	N	575/60/3	518/633	2	34.3	238	69	77	110
TMW840	H	208-230/60/3	187/254	2	124.3	599	249	280	400
	F	460/60/3	414/506	2	56.2	310	112	126	175
	N	575/60/3	518/633	2	45.0	239	90	101	125

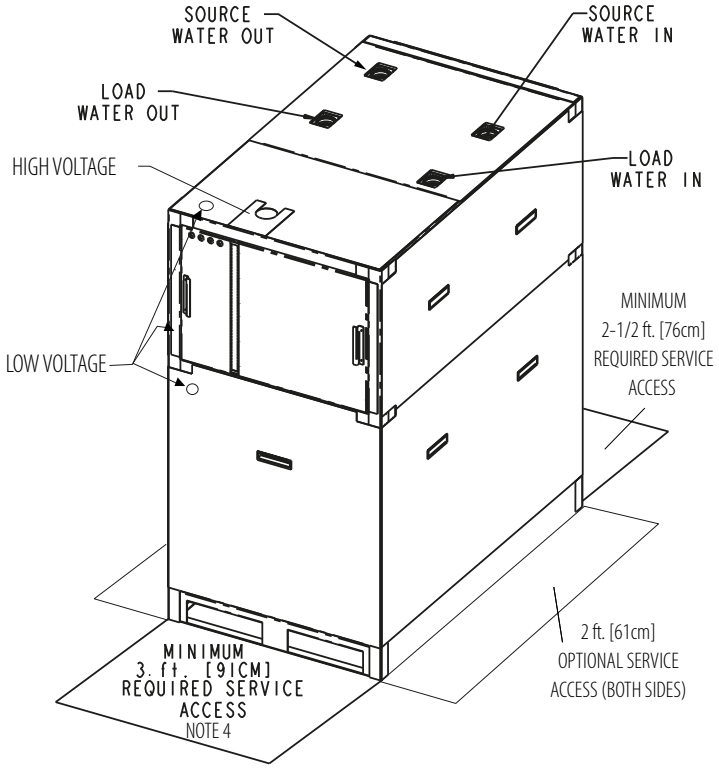
HACR circuit breaker in USA only

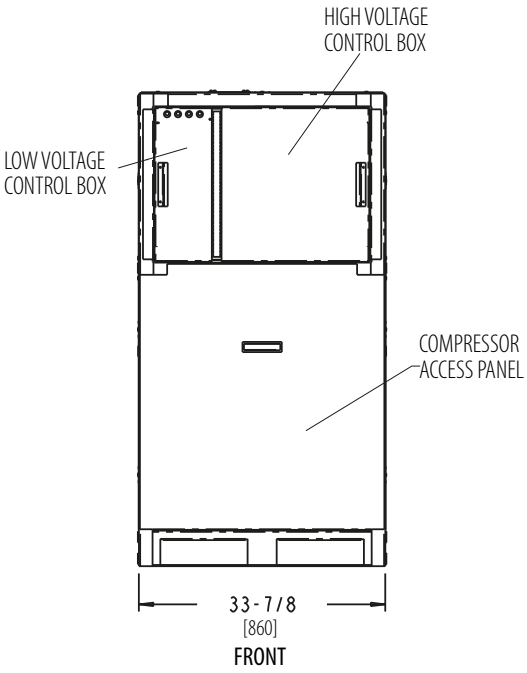
TMW Corner Weights (control box is on front) lbs [kg]

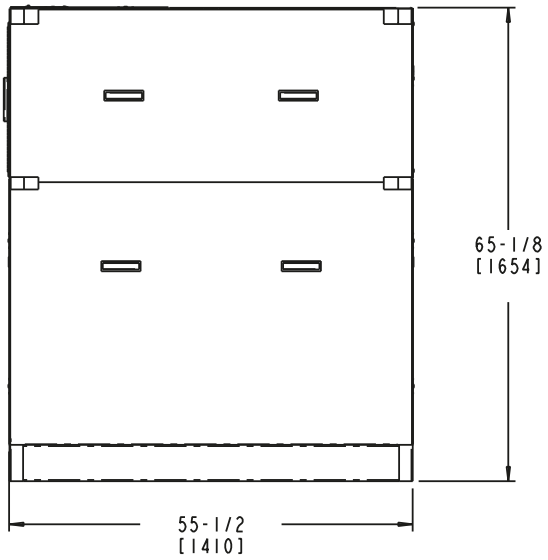
Model	Left Front	Left Rear	Right Front	Right Rear
TMW360	345 [156]	350 [159]	275 [125]	355 [161]
TMW600	492 [223]	500 [227]	400 [181]	533 [242]
TMW840	557 [252]	565 [255]	452 [204]	601 [271]

Dimensional Data - TMW360 - 840









NOTE:

1. DIMENSIONS SHOWN IN INCHES AND [MILLIMETERS].
2. TMW360 WATER CONNECTIONS ARE 2" FPT.
3. TMW600 AND 840 WATER CONNECTIONS ARE 2.5" FPT.
4. FOR MULTIPLE UNITS PLACED SIDE BY SIDE. ALLOW SUFFICIENT SPACE FRONT OR BACK TO REMOVE UNIT.

TMW Large Series - Sound Data and Wiring Diagram Matrix

Sound Power Data

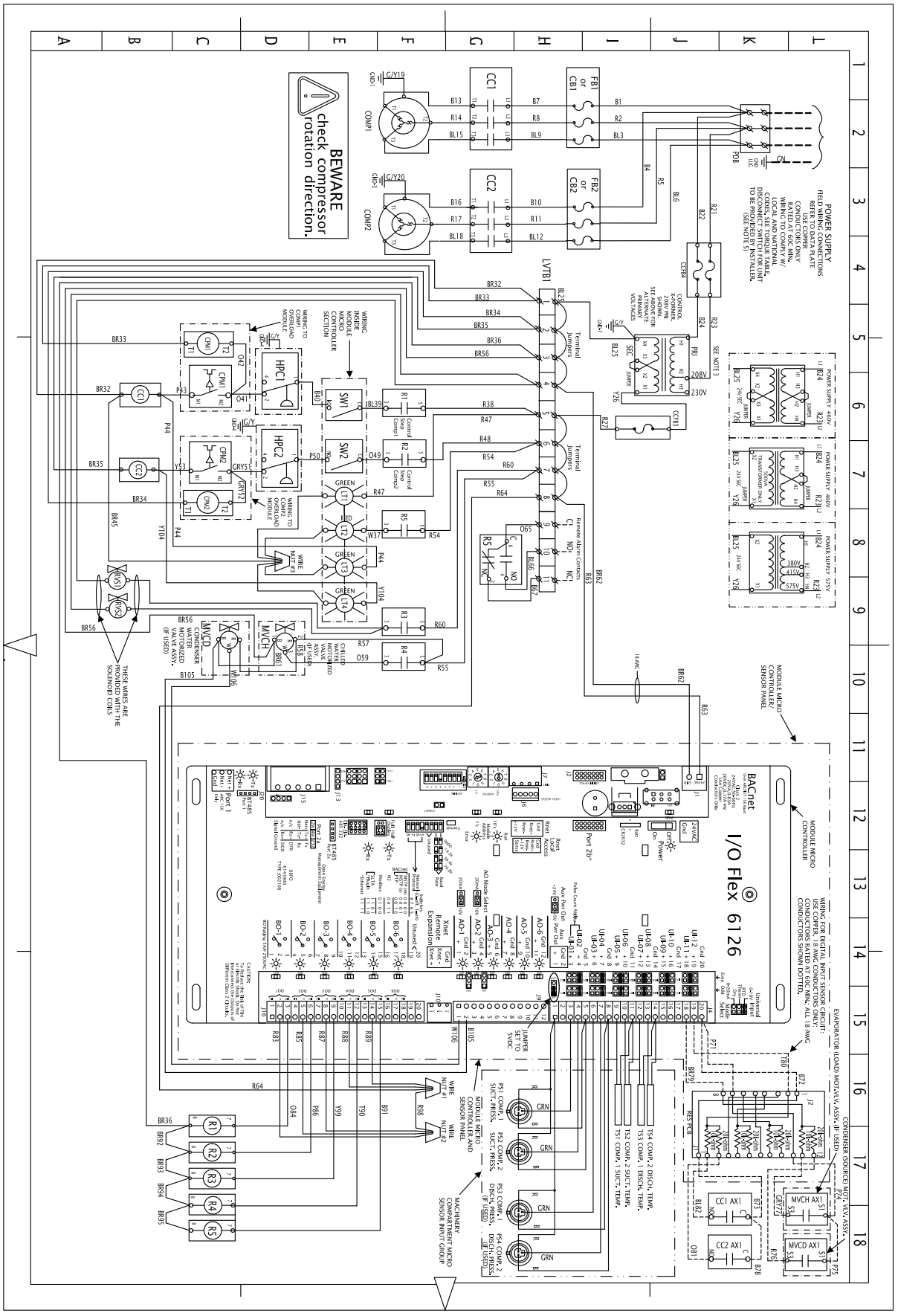
Model	dBA
TMW360	67
TMW600	70
TMW800	72

Wiring Diagrams

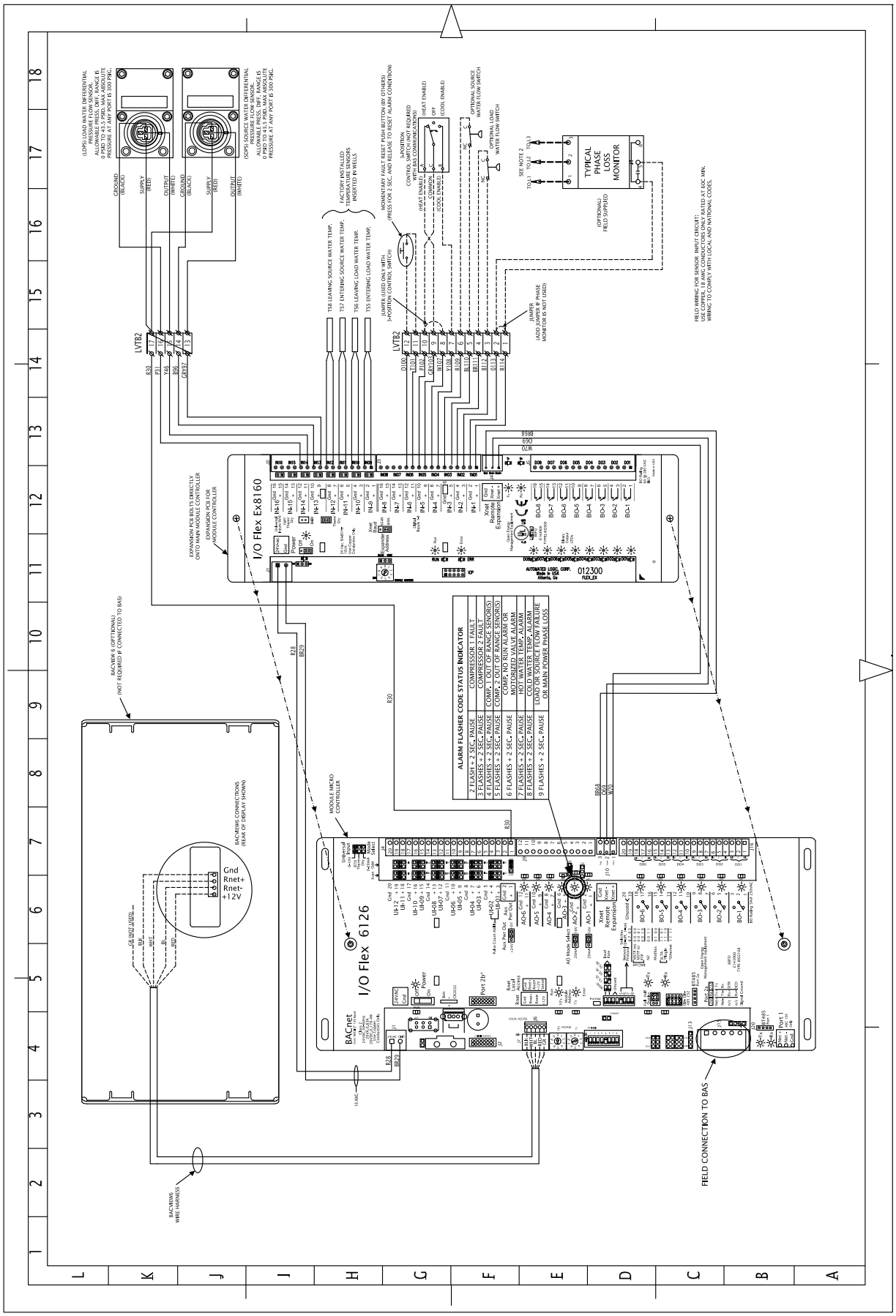
Model	Refrigerant	Wiring Diagram Part Number	Electrical	Agency
TMW360-840	EarthPure® HFC-410A	96B0152N01	208-230/60/3 460/60/3 575/60/3	UL

All current diagrams may be downloaded at www.climatemaster.com/commercial-wiring

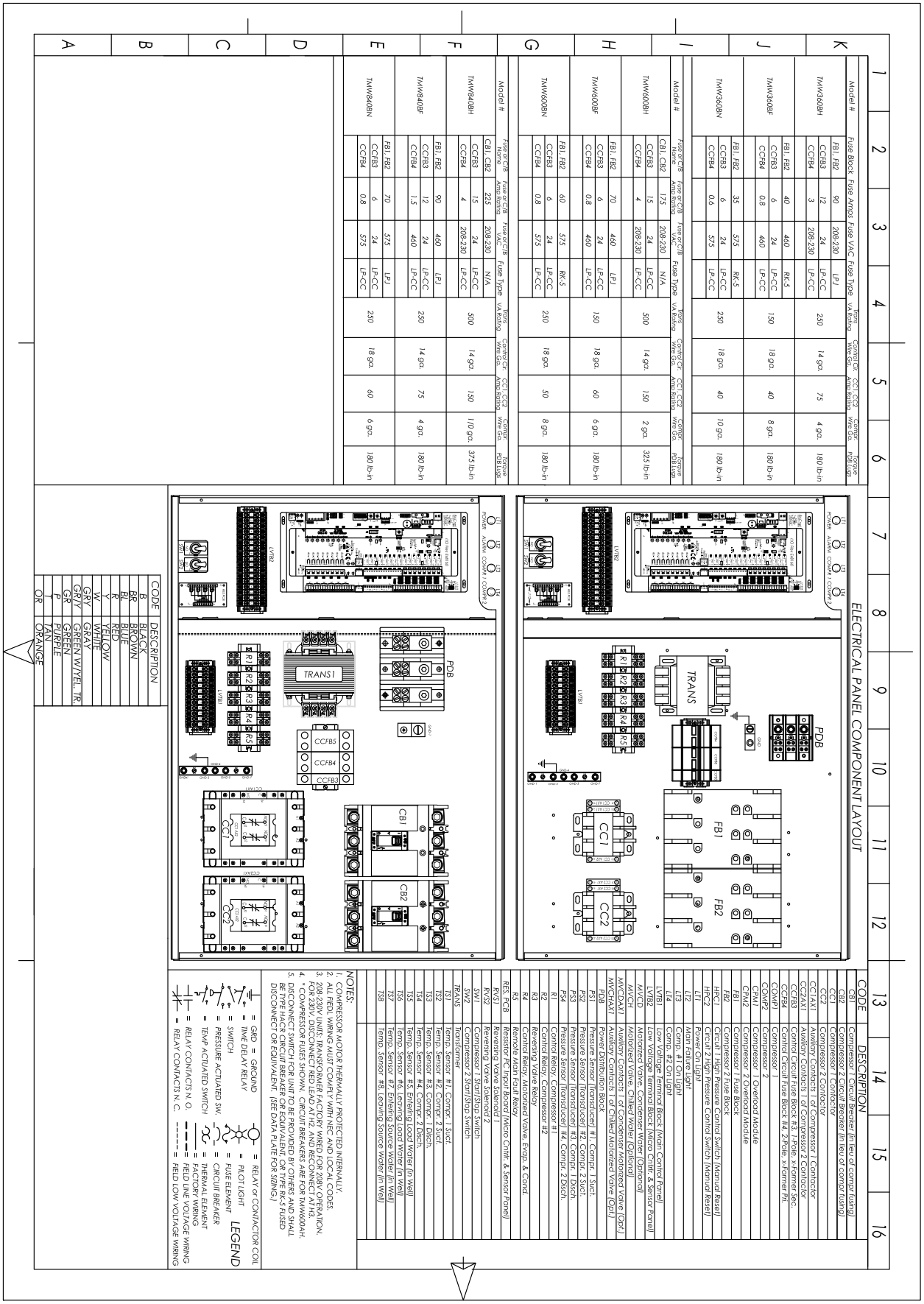
TMW Large Series - Typical Wiring Diagram



TMW Large Series - Typical Wiring Diagram (Continued)



TMW Large Series - Typical Wiring Diagram (Continued)



Model #	Fuse Block	Fuse Amps	Fuse VAC	Fuse Type	Trans VA Rating	Contctr Ctrl Wire Ga.	CC1, CC2 Amb Rating	Contctr Wire Ga.	Torque PDB (Lbs)
TMW3608H	FB1, FB2	90	208-230	LPJ	250	14 ga.	75	4 ga.	180 lb-in
	CCFB3	12	24	LP-CC					
	CCFB4	3	208-230	LP-CC					
TMW3608F	FB1, FB2	40	460	RK-5	150	18 ga.	40	8 ga.	180 lb-in
	CCFB3	6	24	LP-CC					
	CCFB4	0.8	460	LP-CC					
TMW3608N	FB1, FB2	35	575	RK-5	250	18 ga.	40	10 ga.	180 lb-in
	CCFB3	6	24	LP-CC					
	CCFB4	0.6	575	LP-CC					

Model #	Fuse or C/B Name	Fuse or C/B Amb Rating	Fuse or C/B VAC	Fuse Type	Trans VA Rating	Contctr Ctrl Wire Ga.	CC1, CC2 Amb Rating	Contctr Wire Ga.	Torque PDB (Lbs)
TMW4808H	CB1, CB2	175	208-230	N/A	500	14 ga.	150	2 ga.	325 lb-in
	CCFB3	15	24	LP-CC					
	CCFB4	4	208-230	LP-CC					
TMW4808F	FB1, FB2	70	460	LPJ	150	18 ga.	60	6 ga.	180 lb-in
	CCFB3	6	24	LP-CC					
	CCFB4	0.8	460	LP-CC					
TMW4808N	FB1, FB2	60	575	RK-5	250	18 ga.	50	8 ga.	180 lb-in
	CCFB3	6	24	LP-CC					
	CCFB4	0.8	575	LP-CC					

Model #	Fuse or C/B Name	Fuse or C/B Amb Rating	Fuse or C/B VAC	Fuse Type	Trans VA Rating	Contctr Ctrl Wire Ga.	CC1, CC2 Amb Rating	Contctr Wire Ga.	Torque PDB (Lbs)
TMW4840H	CB1, CB2	225	208-230	N/A	500	14 ga.	150	1/0 ga.	375 lb-in
	CCFB3	15	24	LP-CC					
	CCFB4	4	208-230	LP-CC					
TMW4840F	FB1, FB2	90	460	LPJ	250	14 ga.	75	4 ga.	180 lb-in
	CCFB3	12	24	LP-CC					
	CCFB4	1.5	460	LP-CC					
TMW4840N	FB1, FB2	70	575	LPJ	250	18 ga.	60	6 ga.	180 lb-in
	CCFB3	6	24	LP-CC					
	CCFB4	0.8	575	LP-CC					

CODE	DESCRIPTION
CB1	Compressor 1 Circuit Breaker (In lieu of Compr fusing)
CB2	Compressor 2 Circuit Breaker (In lieu of Compr fusing)
CC1	Compressor 1 Contactor
CC2	Compressor 2 Contactor
CC1AX1	Auxiliary Contacts 1 of Compressor 1 Contactor
CC2AX1	Auxiliary Contacts 1 of Compressor 2 Contactor
CCFB3	Control Circuit Fuse Block #3, 1-Pole, x-Former Sec.
CCFB4	Control Circuit Fuse Block #4, 2-Pole, x-Former Pri.
COMP1	Compressor 1
COMP2	Compressor 2
CPM1	Compressor 1 Overload Module
CPM2	Compressor 2 Overload Module
FB1	Compressor 1 Fuse Block
FB2	Compressor 2 Fuse Block
HPC1	Circuit 1 High Pressure Control Switch (Manual Reset)
HPC2	Circuit 2 High Pressure Control Switch (Manual Reset)
LIT	Power On Light
LIT2	Main Failure Light
LIT3	Comp. #1 On Light
LIT4	Comp. #2 On Light
LVTB1	Low Voltage Terminal Block (Main Control Panel)
LVTB2	Low Voltage Terminal Block (Micro Cntrlr. & Sensor Panel)
MVCD	Motorized Valve, Condenser Water (Optional)
MVCH	Motorized Valve, Chilled Water (Optional)
MVCDAX1	Auxiliary Contacts 1 of Condenser Motorized Valve (Opt.)
MVCHAX1	Auxiliary Contacts 1 of Chilled Motorized Valve (Opt.)
PDB	Power Distribution Block
PS1	Pressure Sensor (Transducer) #1, Compr. 1 Suct.
PS2	Pressure Sensor (Transducer) #2, Compr. 2 Suct.
PS3	Pressure Sensor (Transducer) #3, Compr. 1 Disch.
PS4	Pressure Sensor (Transducer) #4, Compr. 2 Disch.
R1	Control Relay, Compressor #1
R2	Control Relay, Compressor #2
R3	Reversing Valve Relay
R4	Control Relay, Motorized Valve, Evap. & Cond.
R5	Remote Main Fault Relay
RES. PCB	Resistor PC Input Board (Micro Cntrlr. & Sensor Panel)
RVS1	Reversing Valve Solenoid 1
RVS2	Reversing Valve Solenoid 2
SW1	Compressor 1 Start/Stop Switch
SW2	Compressor 2 Start/Stop Switch
TRANS	Transformer
TS1	Temp. Sensor #1, Compr. 1 Suct.
TS2	Temp. Sensor #2, Compr. 2 Suct.
TS3	Temp. Sensor #3, Compr. 1 Disch.
TS4	Temp. Sensor #4, Compr. 2 Disch.
TS5	Temp. Sensor #5, Entering Load Water (In Well)
TS6	Temp. Sensor #6, Leaving Load Water (In Well)
TS7	Temp. Sensor #7, Entering Source Water (In Well)
TS8	Temp. Sensor #8, Leaving Source Water (In Well)

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General:
Furnish and install ClimateMaster "TMW" 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 30° to 120°F (-1.1° 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 in accordance with Air-Conditioning, Heating and Refrigeration Institute/International Standards Organization (AHRI/ISO 13256-2). The units shall be certified to UL508A Standard. The units shall have AHRI/ISO and UL-US-C labels.

All units shall be fully quality tested by factory run testing under normal operating conditions as described herein. Quality control system shall automatically perform via computer: triple leak check, pressure tests, evacuation and accurately charge system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail criteria. Detailed report card will ship with each unit displaying status for critical tests and components. **NOTE: If unit fails on any cross check, it shall not be allowed to ship. Serial numbers will be recorded by factory and furnished to contractor on report card for ease of unit warranty status. Units tested without water flow are not acceptable.**

Units can be connected to building automated system (BAS) or Stand Alone.

Basic Construction:
All units must have multiple removable panels for serviceability of compressor compartment. **Units having only one access panel shall not be acceptable.** Service panels shall have Allen head three-quarter turn quick release latches, and hand hold pockets for easy removal.

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. All 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.

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 acceptable.**

The frame design shall consist of heavy gauge galvanized steel with powder coat finish. The module must have a low center of gravity base with cutouts for forklift or pallet jack and the frame must be designed to fit through a standard 36 inch doorway.

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. **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.

Unit(s) shall have exterior indicator lights showing, 1) power (on-Green), 2) unit "fault" status (fault - Red), 3) compressor 1 operation (on-Green), and 4) compressor 2 operation (on-Green). **Contractor shall be responsible for providing control circuitry and indicator lights for units not providing this feature.**

Refrigerant Circuit:
Units shall have sealed, isolated refrigerant circuits, each including a high efficiency scroll compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, a reversing valve, sight glass, filter dryer, load and source brazed plate refrigerant to water heat exchangers, and safety controls including a high pressure switch, low pressure switch (loss of charge), and low water temperature sensors. 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.

Hermetic compressors shall be internally sprung. The compressors will be mounted on specially engineered sound-tested EPDM vibration isolation grommets to a large heavy gauge base plate. Compressors shall have thermal overload protection. Each compressor shall have isolation switch to aid start-up and service. **Units without isolation switch are not acceptable.**

Heat exchangers shall be highly efficient, refrigerant to water, dual circuited, brazed plate design, constructed of 316 stainless steel; designed, tested, and UL stamped in accordance with ASME Section VIII pressure vessel code for 650 PSIG (4482 kPa) working refrigerant pressure. The heat exchangers shall be mounted to eliminate the effect of migration of refrigerant to the cold evaporator with consequent liquid slugging on start-up. The heat exchangers shall be mounted on two layers of noise attenuating rubber isolation pads which also acts as a thermal barrier. The heat exchangers shall be wrapped with 3/4 inch closed cell insulated blanket and closed cell insulation shall be provided on suction side refrigerant tubing to prevent condensation.

Water Circuit:
Unit shall have all internal water tubing insulated with closed cell insulation. Field connections shall be on the top so multiple units can be installed side by side. PT ports and heat exchanger flushing connections shall be accessable from back service panel. Load and Source water shall be tested and results approved by ClimateMaster to activate unit warranty.

Unit shall have Source Motorized Valve to prevent unit from locking out when water temperature is below 60°F in cooling mode. Valve will automatically modulate to maintain compressor head pressure, for continuous unit operation.

Unit shall have Pressure Differential Sensors for Load and Source factory installed. Sensors are for proof of water flow.

External of unit contractor must supply the following: minimum 60 mesh stainless steel screen strainers (for Load and Source), and pressure taps. All components should be isolated for ease of service.

Option: Motorized valve. Valve is used when variable speed pump is incorporated on water circuit.

Option: Source motorized valve can be omitted. If unit is heating only and does not have variable speed pump.

Electrical:
The control box shall consist of a NEMA Type I enclosure with high and low voltage compartments, components include: low voltage connection block, power distribution block, compressor fusing, contactors, finger safe control fusing, transformer, isolation relays, status and alarm relay, 16-bit microprocessor DDC controller with built in native Building Automation System (BAS) communication protocols (BACnet and Modbus) two isolation switches to disable each individual compressor during start-up or troubleshooting, and external status indicating lights.

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Solid State Control System:
DDC Controller shall be specifically designed to protect against building electrical system noise contamination, EMI and RFI interference. DDC control system shall be fully compatible with the Building Automation System via native BACnet or Modbus communication or BACview 6. Scheduling of the various compressors shall be performed by the microprocessor based controller. Controller shall provide following compressor safety protections: anti-short cycling, high voltage, low voltage, high discharge pressure, low suction pressure, high discharge temperature, low suction temperature, high source leaving water temperature, low load leaving water temperature, load low water flow, and source low water flow.

Units not providing the 11 safety protections of anti-short cycling, high voltage, low voltage, high discharge pressure, low suction pressure, high discharge temperature, low suction temperature, high source leaving water temperature, low load leaving water temperature, load loss of water flow, and source loss of water flow will not be accepted. A compressor run time equalization sequence is provided to ensure even distribution of compressor run time. **Units without even distribution of compressor run time are not acceptable.** A load limit control shall be available to limit the number of compressors that can be energized at one time.

DDC Controller shall monitor and report the following for each refrigeration circuit:

a. Discharge pressure and temperature faults.
b. Suction pressure and temperature faults.
c. Compressor winding high temperature fault.
d. Low Load leaving chilled water temperature fault.
e. High source leaving water temperature fault.

DDC Controller shall monitor and report the following system parameters for the unit:

f. Chilled water entering and leaving temperature.
g. Condenser water entering and leaving temperature.
h. Load and Source low water flow.
i. Communication error
j. Electrical voltage/phase failure

Any failure condition shall cause a "fault" indication at the DDC Controller and shutdown of that compressor circuit. In the case of a system "fault" the entire unit will shutdown. When any fault occurs, the DDC Controller shall record conditions at the time of the fault, and store the data for recall. This information shall be capable of recall through BACview6 and displayed on the 4 line by 40 character, back-lit LCD. A history of faults shall be maintained including date and time for each fault (up to the last 100 occurrences). Internal leaving chilled water reset control will ensure that the parallel evaporators are operated above the freeze point for part load operation.
DDC Controller shall have flashing Light Emitting Diode (LED) for the following: compressor 1 fault, compressor 2 fault, sensors for compressor 1 out of range, sensors for compressor 2 out of range, compressor alarm, motorized water valve alarm, hot water temperature alarm, cold water temperature alarm, load flow failure, source flow failure, and main power phase loss.
Units without flashing LED for unit fault are not acceptable.

Bacview 6 with cable must be used for setting controller at start up. Bacview 6 can also be used to operate, monitor, and change default settings, or as a service tool for the unit.

Warranty:
ClimateMaster shall warranty equipment for a period of 12 months from start up or 18 months from shipping (which ever occurs first). Warranty is not activated until 1). water test is approved, and 2). factory start-up is complete.

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

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

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

FIELD OPTIONS/ACCESSORIES

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: for field installation.
a. Ball valve; bronze material, standard port full flow design, FPT connections.
b. Ball valve with memory stop and PT port.

Strainers:
The following strainers are available and will be shipped loose: for field installation.
a. 3" FPT Y-strainer. 60 mesh screen.
b. 3" FPT Basket strainer. 60 mesh screen.

BACview6 and Cable: 6A:
Used to control the unit if BAS is not used or as a service tool for service diagnostics at the unit. DDC Controller has port for cable.

3 way switch: (Not required if connected to BAS) field obtained and installed operation mode switch selects - off, cool, heat.

Phase monitor: (Not required, recommended) field obtained and installed. Protects compressors.

Notes:

Notes:

Revision History

Date:	Item:	Action:
02/27/13	Heating Performance Data	Updated
12/17/12	All Pages	Added Size 840
11/14/11	Dimensional Data	Updated
08/09/11	Unit Maximum Working Water Pressure	Updated to Reflect New Safeties
04/29/11	Physical Data Table, Performance Data Tables	Updated
02/08/11	Created	