Selection Procedure

Reference Calculations

HEATING

$$LWT = EWT - \frac{HE}{GPM \text{ X } Constant}$$

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

COOLING

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

$$LC = TC - SC$$

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

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

Constant = 500 for water, 485 for antifreeze

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

Airflow	Water Flow	Est 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

Legend and Glossary of Abbreviations

Abbreviations	Descriptions
Btuh	Btu (British Thermal Unit) per hour
CDT	Compressor discharge temperature
CFM	Airflow, cubic feet per minute
COP	Coefficient of performance = Btuh output/Btuh input
CT ECM	Electronic commutated constant torque fan motor
CV ECM	Electronic commutated constant volume fan motor
DB	Dry bulb temperature, °F
EAT	Entering air temperature
EER	Energy efficient ratio = Btuh output/Watt input
ESP	External static pressure, inches w.g.
EWT	Entering water temperature
FPT	Female pipe thread
GPM	Water flow in U.S., gallons per minute
HC	Air heating capacity, Btuh
HE	Total heat of extraction, Btuh
HR	Total heat of rejection, Btuh
HWC	Hot water generator (desuperheater) capacity, MBtuh
kW	Total power unit input, kilowatts
LAT	Leaving air temperature, °F
LC	Latent cooling capacity, Btuh
LOC	Loss of charge
LWT	Leaving water temperature, °F
MBtuh	1,000 Btu per hour
MPT	Male pipe thread
MWV	Motorized water valve
PSC	Permanent split capacitor
RDS	Refrigerant Detection System
SC	Sensible cooling capacity, Btuh
S/T	Sensible to total cooling ratio
TC	Total cooling capacity, Btuh
TD or delta T	Temperature differential
VFD	Variable frequency drive
WB	Wet bulb temperature, °F
WPD	Waterside pressure drop, psi or feet of head
WSE	Waterside economizer

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Performance Data – AHRI/ASHRAE/ISO 13256-2

TMW036-340 Performance Data AHRI/ASHRAE/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
TMW036	32,300	14.60	43,100	4.90	36,200	23.10	35,300	4.00	33,300	16.40	27,400	3.10
TMW060	52,800	14.00	72,700	4.60	56,600	20.30	60,300	3.80	55,600	15.10	48,500	2.90
TMW120	105,600	13.80	145,400	4.50	113,200	20.10	120,600	3.70	111,200	15.00	97,000	2.90
TMW170	123,500	13.30	164,600	4.30	138,400	19.30	136,200	3.70	130,300	15.30	108,600	2.90
TMW340	253,500	13.60	336,000	4.40	282,000	19.60	277,000	3.70	266,600	15.60	220,000	3.00

All TMW036 ratings @ 9GPM load w/9GPM source.
All TMW060 ratings @ 15GPM load w/15GPM source.
All TMW120 ratings @ 30GPM load w/30GPM source.
All TMW170 ratings @ 35GPM load w/35GPM source.
All TMW340 ratings @ 70GPM load w/70GPM source.
All ratings based upon operation at lower voltage of dual voltage rated models.

TMW036-340 Performance Data AHRI/ASHRAE/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
TMW036	9.47	4.28	12.64	4.90	10.62	6.77	10.35	4.00	9.77	4.81	8.04	3.10
TMW060	15.48	4.10	21.32	4.60	16.60	5.95	17.68	3.80	16.31	4.43	14.22	2.90
TMW120	30.97	4.04	42.64	4.50	33.20	5.89	35.37	3.70	32.61	4.40	28.45	2.90
TMW170	36.22	3.90	48.27	4.30	40.59	5.66	39.94	3.70	38.21	4.49	31.85	2.90
TMW340	74.34	3.99	98.53	4.40	82.70	5.75	81.23	3.70	78.18	4.57	64.52	3.00

All TMW036 ratings @ 0.57 l/s load w/ 0.57 l/s source.
All TMW060 ratings @ 0.95 l/s load w/0.95 l/s source.
All TMW120 ratings @ 1.89 l/s load w/1.89 l/s source.
All TMW170 ratings @ 2.21 l/s load w/2.21 l/s source.
All TMW340 ratings @ 4.42 l/s load w/4.42 l/s source.
All ratings based upon operation at lower voltage of dual voltage rated models.

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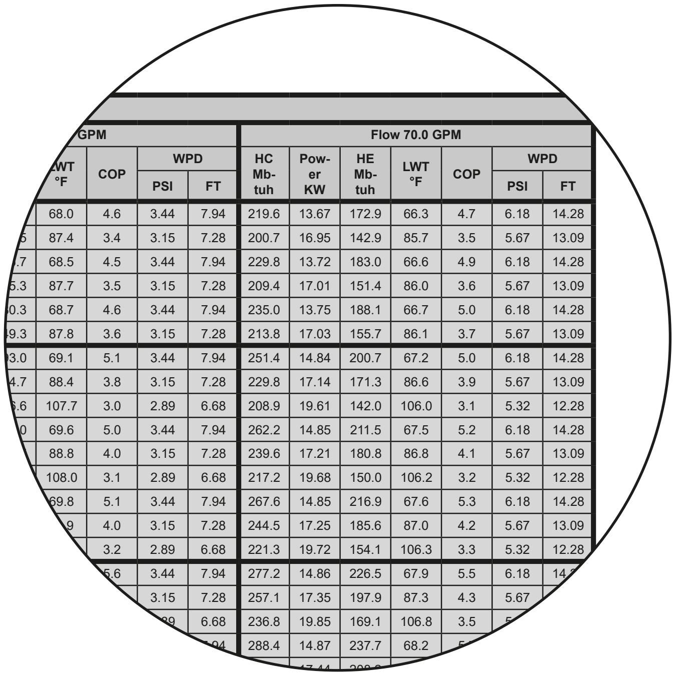
Performance Data – Selection Notes

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 should be used in systems with leaving water temperatures of 40°F [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.



	GPM				Flow 70.0 GPM						
	LWT °F	COP	WPD		HC Mb-tuh	Pow-er KW	HE Mb-tuh	LWT °F	COP	WPD	
			PSI	FT						PSI	FT
	68.0	4.6	3.44	7.94	219.6	13.67	172.9	66.3	4.7	6.18	14.28
5	87.4	3.4	3.15	7.28	200.7	16.95	142.9	85.7	3.5	5.67	13.09
.7	68.5	4.5	3.44	7.94	229.8	13.72	183.0	66.6	4.9	6.18	14.28
5.3	87.7	3.5	3.15	7.28	209.4	17.01	151.4	86.0	3.6	5.67	13.09
0.3	68.7	4.6	3.44	7.94	235.0	13.75	188.1	66.7	5.0	6.18	14.28
9.3	87.8	3.6	3.15	7.28	213.8	17.03	155.7	86.1	3.7	5.67	13.09
3.0	69.1	5.1	3.44	7.94	251.4	14.84	200.7	67.2	5.0	6.18	14.28
4.7	88.4	3.8	3.15	7.28	229.8	17.14	171.3	86.6	3.9	5.67	13.09
6.6	107.7	3.0	2.89	6.68	208.9	19.61	142.0	106.0	3.1	5.32	12.28
0	69.6	5.0	3.44	7.94	262.2	14.85	211.5	67.5	5.2	6.18	14.28
	88.8	4.0	3.15	7.28	239.6	17.21	180.8	86.8	4.1	5.67	13.09
	108.0	3.1	2.89	6.68	217.2	19.68	150.0	106.2	3.2	5.32	12.28
	69.8	5.1	3.44	7.94	267.6	14.85	216.9	67.6	5.3	6.18	14.28
	9	4.0	3.15	7.28	244.5	17.25	185.6	87.0	4.2	5.67	13.09
		3.2	2.89	6.68	221.3	19.72	154.1	106.3	3.3	5.32	12.28
		5.6	3.44	7.94	277.2	14.86	226.5	67.9	5.5	6.18	14.
			3.15	7.28	257.1	17.35	197.9	87.3	4.3	5.67	
			89	6.68	236.8	19.85	169.1	106.8	3.5	5.	
				.94	288.4	14.87	237.7	68.2	5.		

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).

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Performance Data – TMW036 (60 Hz I-P) - Cooling

Source				LOAD																				
EWT	Flow			EWT °F	Flow 4.5 GPM					WPD		Flow 6.75 GPM					WPD		Flow 9GPM					WPD	
°F	GPM	WPD PSI	WPD FT		TC Mbtuh	Power KW	HR Mbtuh	LWT °F	EER	PSI	FT	TC Mbtuh	Power KW	HR Mbtuh	LWT °F	EER	PSI	FT	TC Mbtuh	Power KW	HR Mbtuh	LWT °F	EER	PSI	FT
50	4.5	1.3	3.1	50	32.5	1.49	37.6	35.6	21.8	0.6	1.4	34.5	1.52	39.7	34.7	22.7	1.4	3.2	35.3	1.52	40.5	34.3	23.2	2.6	5.9
				60	36.8	1.53	42.0	43.6	24.1	0.5	1.2	38.4	1.54	43.6	42.9	24.9	1.3	3.1	39.2	1.55	44.5	42.6	25.3	2.5	5.8
				70	40.4	1.55	45.7	52.0	26.0	0.5	1.1	41.6	1.56	47.0	51.5	26.6	1.3	2.9	42.4	1.57	47.8	51.2	27.0	2.4	5.6
				80	43.2	1.57	48.6	60.8	27.5	0.4	0.9	44.2	1.58	49.6	60.3	28.0	1.2	2.8	44.8	1.59	50.3	60.1	28.1	2.3	5.4
				90	45.1	1.58	50.5	69.9	28.6	0.3	0.8	46.2	1.60	51.7	69.5	28.9	1.1	2.6	46.6	1.61	52.1	69.3	28.9	2.2	5.1
	6.75	3.4	7.8	50	32.9	1.41	37.7	40.3	23.3	0.6	1.4	34.9	1.44	39.8	39.7	24.2	1.4	3.2	35.8	1.44	40.7	39.4	24.8	2.6	5.9
				60	37.3	1.45	42.2	49.0	25.7	0.5	1.2	38.9	1.46	43.9	48.5	26.6	1.3	3.1	39.7	1.47	44.7	48.2	27.1	2.5	5.8
				70	40.9	1.47	46.0	57.9	27.8	0.5	1.1	42.2	1.48	47.2	57.5	28.4	1.3	2.9	42.9	1.49	48.0	57.3	28.8	2.4	5.6
				80	43.8	1.49	48.9	67.0	29.4	0.4	0.9	44.8	1.50	49.9	66.7	29.9	1.2	2.8	45.4	1.51	50.6	66.5	30.0	2.3	5.4
				90	45.7	1.50	50.8	76.5	30.5	0.3	0.8	Operation not recommended													
	9	6.0	13.9	50	33.3	1.33	37.8	42.6	25.1	0.6	1.4	35.4	1.35	40.0	42.1	26.1	1.4	3.2	36.2	1.35	40.9	41.9	26.8	2.6	5.9
				60	37.8	1.36	42.4	51.6	27.8	0.5	1.2	39.4	1.37	44.0	51.3	28.7	1.3	3.1	40.2	1.38	44.9	51.1	29.2	2.5	5.8
				70	41.5	1.38	46.2	60.8	30.0	0.5	1.1	42.7	1.39	47.5	60.5	30.7	1.3	2.9	43.5	1.40	48.3	60.3	31.1	2.4	5.6
				80	44.3	1.40	49.1	70.1	31.7	0.4	0.9	45.4	1.41	50.2	69.9	32.3	1.2	2.8	46.0	1.42	50.8	69.8	32.5	2.3	5.4
				90	46.3	1.41	51.1	79.7	33.0	0.3	0.8														
70	4.5	1.0	2.3	50	30.1	1.96	36.8	36.6	15.3	0.6	1.4	32.1	1.95	38.8	35.7	16.4	1.4	3.2	33.0	1.98	39.7	35.3	16.7	2.6	5.9
				60	34.1	1.98	40.9	44.8	17.2	0.5	1.2	37.6	1.96	44.3	43.3	19.2	1.3	3.1	36.6	1.96	43.3	43.7	18.7	2.5	5.8
				70	39.0	2.01	45.9	52.7	19.4	0.5	1.1	41.7	1.98	48.5	51.5	21.0	1.3	2.9	39.9	2.00	46.7	52.3	19.9	2.4	5.6
				80	42.7	2.03	49.7	61.0	21.1	0.4	1.0	45.4	2.01	52.3	59.8	22.5	1.2	2.8	42.9	2.04	49.8	60.9	21.1	2.3	5.4
				90	46.2	2.05	53.2	69.5	22.5	0.3	0.8														
	6.75	2.8	6.5	50	30.5	1.86	36.8	41.0	16.4	0.6	1.4	32.5	1.85	38.8	40.4	17.5	1.4	3.2	33.4	1.87	39.8	40.1	17.8	2.6	5.9
				60	34.6	1.88	41.0	49.8	18.4	0.5	1.2	38.1	1.86	44.4	48.7	20.4	1.3	3.1	37.1	1.86	43.4	49.0	19.9	2.5	5.8
				70	39.5	1.90	46.0	58.3	20.8	0.5	1.1	42.3	1.88	48.7	57.5	22.4	1.3	2.9	40.4	1.90	46.9	58.0	21.3	2.4	5.6
				80	43.3	1.93	49.9	67.2	22.5	0.4	0.9	46.0	1.91	52.5	66.4	24.1	1.2	2.8	43.4	1.93	50.0	67.1	22.5	2.3	5.4
				90	46.8	1.95	53.4	76.1	24.0	0.3	0.8														
	9	5.1	11.9	50	30.8	1.74	36.8	43.1	17.7	0.6	1.4	32.9	1.74	38.8	42.7	19.0	1.4	3.2	33.8	1.76	39.8	42.5	19.3	2.6	5.9
				60	35.0	1.76	41.0	52.2	19.9	0.5	1.2	38.6	1.75	44.5	51.4	22.1	1.3	3.1	37.5	1.74	43.5	51.7	21.5	2.5	5.8
				70	40.0	1.78	46.1	61.1	22.4	0.5	1.1	42.8	1.77	48.8	60.5	24.2	1.3	2.9	40.9	1.78	47.0	60.9	23.0	2.4	5.6
				80	43.8	1.81	50.0	70.3	24.3	0.4	0.9	46.6	1.79	52.7	69.6	26.0	1.2	2.8	44.0	1.81	50.2	70.2	24.3	2.3	5.4
				90	47.4	1.83	53.6	79.5	26.0	0.3	0.8														
90	4.5	0.8	1.8	50	27.0	2.55	35.7	38.0	10.6	0.6	1.4	28.9	2.59	37.7	37.2	11.1	1.4	3.2	29.7	2.57	38.4	36.8	11.5	2.6	5.9
				60	31.1	2.58	39.9	46.2	12.1	0.5	1.2	34.0	2.60	42.8	44.9	13.1	1.3	3.1	33.6	2.56	42.3	45.1	13.1	2.5	5.8
				70	36.2	2.60	45.1	53.9	13.9	0.5	1.1	38.9	2.62	47.8	52.7	14.9	1.3	2.9	37.4	2.59	46.2	53.4	14.4	2.4	5.6
				80	40.5	2.62	49.4	62.0	15.5	0.4	0.9	42.9	2.65	52.0	60.9	16.2	1.2	2.8	41.1	2.63	50.0	61.7	15.6	2.3	5.4
				90	44.2	2.64	53.2	70.4	16.7	0.3	0.8														
	6.75	2.4	5.4	50	27.3	2.42	35.6	41.9	11.3	0.6	1.4	29.3	2.46	37.7	41.3	11.9	1.4	3.2	30.0	2.44	38.4	41.1	12.3	2.6	5.9
				60	31.5	2.44	39.8	50.7	12.9	0.5	1.2	34.4	2.46	42.8	49.8	14.0	1.3	3.1	34.0	2.43	42.3	49.9	14.0	2.5	5.8
				70	36.7	2.47	45.1	59.1	14.9	0.5	1.1	39.4	2.48	47.9	58.3	15.9	1.3	2.9	37.8	2.46	46.2	58.8	15.4	2.4	5.6
				80	41.0	2.49	49.5	67.9	16.5	0.4	0.9	43.5	2.51	52.1	67.1	17.3	1.2	2.8	41.6	2.50	50.1	67.7	16.7	2.3	5.4
				90	44.7	2.50	53.3	76.7	17.9	0.3	0.8														
	9	4.5	10.3	50	27.7	2.27	35.4	43.8	12.2	0.6	1.4	29.6	2.31	37.5	43.4	12.9	1.4	3.2	30.4	2.29	38.2	43.2	13.3	2.6	5.9
				60	31.9	2.29	39.7	52.9	13.9	0.5	1.2	34.8	2.31	42.7	52.3	15.1	1.3	3.1	34.4	2.28	42.2	52.3	15.1	2.5	5.8
				70	37.2	2.31	45.1	61.7	16.1	0.5	1.1	39.9	2.33	47.8	61.1	17.1	1.3	2.9	38.3	2.31	46.2	61.5	16.6	2.4	5.6
				80	41.5	2.33	49.5	70.8	17.8	0.4	0.9	44.0	2.35	52.1	70.2	18.7	1.2	2.8	42.1	2.34	50.1	70.6	18.0	2.3	5.4
				90	45.3	2.35	53.3	79.9	19.3	0.3	0.8														

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 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. Operation in shaded areas requires antifreeze.

Table Continued on Next Page

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Performance Data – TMW036 (60 Hz I-P) - Cooling

Table Continued from Previous Page

Source				LOAD																					
EWT	Flow			EWT °F	Flow 4.5 GPM					WPD		Flow 6.75 GPM					WPD		Flow 9GPM					WPD	
°F	GPM	WPD PSI	WPD FT		TC Mbtuh	Power KW	HR Mbtuh	LWT °F	EER	PSI	FT	TC Mbtuh	Power KW	HR Mbtuh	LWT °F	EER	PSI	FT	TC Mbtuh	Power KW	HR Mbtuh	LWT °F	EER	PSI	FT
110	4.5	0.6	1.4	50	23.3	3.27	34.4	39.7	7.1	0.6	1.4	24.9	3.33	36.2	38.9	7.5	1.4	3.2	25.3	3.33	36.7	38.7	7.6	2.6	5.9
				60	27.7	3.30	39.0	47.7	8.4	0.5	1.2	29.4	3.33	40.8	46.9	8.8	1.3	3.1	30.2	3.33	41.6	46.6	9.1	2.5	5.8
				70	32.1	3.33	43.5	55.7	9.6	0.5	1.1	33.9	3.34	45.3	54.9	10.2	1.3	2.9	34.9	3.35	46.3	54.5	10.4	2.4	5.6
				80	36.4	3.34	47.8	63.8	10.9	0.4	0.9	38.4	3.36	49.8	63.0	11.4	1.2	2.8	39.4	3.37	50.9	62.5	11.7	2.3	5.4
	6.75	2.0	4.7	50	23.5	3.10	34.1	43.0	7.6	0.6	1.4	25.2	3.16	36.0	42.5	8.0	1.4	3.2	25.7	3.16	36.4	42.4	8.1	2.6	5.9
				60	28.1	3.14	38.8	51.7	9.0	0.5	1.2	29.8	3.16	40.6	51.2	9.4	1.3	3.1	30.6	3.16	41.4	50.9	9.7	2.5	5.8
				70	32.5	3.16	43.3	60.4	10.3	0.5	1.1	34.3	3.17	45.1	59.8	10.8	1.3	2.9	35.3	3.18	46.2	59.5	11.1	2.4	5.6
				80	36.9	3.17	47.7	69.1	11.6	0.4	0.9	38.8	3.19	49.7	68.5	12.2	1.2	2.8	39.9	3.20	50.8	68.2	12.5	2.3	5.4
	9	4.0	9.2	50	23.8	2.91	33.8	44.7	8.2	0.6	1.4	25.5	2.96	35.6	44.3	8.6	1.4	3.2	26.0	2.96	36.1	44.2	8.8	2.6	5.9
				60	28.4	2.94	38.5	53.7	9.7	0.5	1.2	30.2	2.96	40.3	53.3	10.2	1.3	3.1	31.0	2.97	41.1	53.1	10.4	2.5	5.8
				70	32.9	2.96	43.0	62.7	11.1	0.5	1.1	34.8	2.97	44.9	62.3	11.7	1.3	2.9	35.8	2.98	45.9	62.1	12.0	2.4	5.6
				80	37.4	2.97	47.5	71.7	12.6	0.4	0.9	39.3	2.99	49.5	71.3	13.1	1.2	2.8	40.4	3.00	50.6	71.0	13.5	2.3	5.4
120	6.75	1.9	4.4	50	20.7	3.55	32.8	43.9	5.8	0.6	1.4	22.1	3.60	34.4	43.4	6.1	1.4	3.2	22.5	3.61	34.9	43.3	6.2	2.6	5.9
				60	25.3	3.59	37.6	52.5	7.1	0.5	1.2	26.9	3.61	39.2	52.0	7.5	1.3	3.1	27.6	3.62	39.9	51.8	7.6	2.5	5.8
				70	30.0	3.60	42.3	61.1	8.3	0.5	1.1	31.7	3.61	44.0	60.6	8.8	1.3	2.9	32.6	3.63	45.0	60.3	9.0	2.4	5.6
				80	34.4	3.61	46.8	69.8	9.5	0.4	0.9	36.2	3.64	48.6	69.3	9.9	1.2	2.8	37.2	3.65	49.7	69.0	10.2	2.3	5.4
	9	3.8	8.8	50	21.0	3.39	32.6	45.3	6.2	0.6	1.4	22.5	3.45	34.2	45.0	6.5	1.4	3.2	22.9	3.45	34.7	44.9	6.6	2.6	5.9
				60	25.7	3.43	37.4	54.3	7.5	0.5	1.2	27.3	3.45	39.1	53.9	7.9	1.3	3.1	28.0	3.46	39.8	53.8	8.1	2.5	5.8
				70	30.5	3.45	42.2	63.2	8.8	0.5	1.1	32.2	3.46	44.0	62.8	9.3	1.3	2.9	33.1	3.47	44.9	62.6	9.5	2.4	5.6

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 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. Operation in shaded areas requires antifreeze.

ClimateMaster works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be as described herein. Please contact ClimateMaster's Customer Service Department at 1-405-745-6000 for specific information on the current design and specifications. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely ClimateMaster's opinion or commendation of its products. The latest version of this document is available at **climatemaster.com**. © ClimateMaster, Inc. All rights reserved 2009

Performance Data – TMW036 (60 Hz I-P) - Heating

SOURCE				LOAD																					
EWT °F	Flow			EWT °F	Flow 4.5 GPM							Flow 6.8 GPM							Flow 9.0 GPM						
	GPM	WPD			HC	Power	HE	LWT	COP	WPD		HC	Power	HE	LWT	COP	WPD		HC	Power	HE	LWT	COP	WPD	
		PSI	FT		Mbtuh	KW	Mbtuh	°F		PSI	FT	Mbtuh	KW	Mbtuh	°F		PSI	FT	Mbtuh	KW	Mbtuh	°F		PSI	FT
20	9.0	7.7	17.9	60	26.1	1.53	20.9	71.6	5.0	0.5	1.2	26.4	1.45	21.5	67.8	5.3	1.3	3.1	26.5	1.41	21.7	65.9	5.5	2.5	5.8
				80	25.7	1.96	19.0	91.4	3.8	0.4	0.9	25.9	1.86	19.6	87.7	4.1	1.2	2.8	25.9	1.81	19.8	85.8	4.2	2.3	5.4
				100	25.0	2.56	16.3	111.1	2.9	0.3	0.7	25.0	2.42	16.7	107.4	3.0	1.1	2.5	24.9	2.36	16.9	105.5	3.1	2.1	4.9
30	4.5	1.7	4.0	60	27.1	1.54	21.9	72.1	5.2	0.5	1.2	27.5	1.45	22.5	68.1	5.5	1.3	3.1	27.6	1.42	22.7	66.1	5.7	2.5	5.8
				80	26.7	1.97	20.0	91.9	4.0	0.4	0.9	27.0	1.86	20.6	88.0	4.2	1.2	2.8	27.0	1.81	20.8	86.0	4.4	2.3	5.4
				100	26.1	2.56	17.3	111.6	3.0	0.3	0.7	26.1	2.43	17.8	107.7	3.2	1.1	2.5	26.0	2.36	18.0	105.8	3.2	2.1	4.9
				120	25.1	3.32	13.8	131.2	2.2	0.2	0.5	24.9	3.14	14.2	127.4	2.3	0.9	2.1	24.7	3.06	14.3	125.5	2.4	1.8	4.3
	6.8	4.1	9.4	60	28.4	1.54	23.2	72.6	5.4	0.5	1.2	28.8	1.46	23.8	68.5	5.8	1.3	3.1	28.9	1.42	24.1	66.4	6.0	2.5	5.8
				80	27.9	1.97	21.2	92.4	4.2	0.4	0.9	28.2	1.87	21.8	88.4	4.4	1.2	2.8	28.2	1.82	22.0	86.3	4.6	2.3	5.4
				100	27.1	2.57	18.3	112.0	3.1	0.3	0.7	27.2	2.43	18.9	108.0	3.3	1.1	2.5	27.1	2.37	19.0	106.0	3.4	2.1	4.9
				120	25.9	3.33	14.6	131.5	2.3	0.2	0.5	25.7	3.15	15.0	127.6	2.4	0.9	2.1	25.6	3.07	15.1	125.7	2.4	1.8	4.3
	9.0	7.1	16.4	60	29.2	1.54	23.9	73.0	5.5	0.5	1.2	29.6	1.46	24.6	68.8	5.9	1.3	3.1	29.7	1.42	24.8	66.6	6.1	2.5	5.8
				80	28.6	1.98	21.9	92.7	4.2	0.4	0.9	28.9	1.87	22.5	88.6	4.5	1.2	2.8	28.9	1.82	22.7	86.4	4.7	2.3	5.4
				100	27.7	2.58	18.9	112.3	3.2	0.3	0.7	27.8	2.44	19.5	108.2	3.3	1.1	2.5	27.7	2.37	19.6	106.2	3.4	2.1	4.9
				120	26.4	3.34	15.0	131.7	2.3	0.2	0.5	26.2	3.16	15.4	127.8	2.4	0.9	2.1	26.1	3.08	15.6	125.8	2.5	1.8	4.3
40	4.5	1.5	3.5	60	30.7	1.41	25.9	71.5	6.4	0.5	1.2	31.2	1.33	26.7	67.9	6.9	1.3	3.1	31.3	1.30	26.9	66.0	7.1	2.5	5.8
				80	30.6	1.81	24.4	90.8	4.9	0.4	0.9	31.0	1.72	25.1	87.4	5.3	1.2	2.8	31.1	1.67	25.3	85.6	5.4	2.3	5.4
				100	29.9	2.39	21.7	109.7	3.7	0.3	0.7	30.1	2.27	22.4	106.6	3.9	1.1	2.5	30.1	2.21	22.6	105.0	4.0	2.1	4.9
				120	28.8	3.17	18.0	128.0	2.7	0.2	0.5	28.7	3.00	18.5	125.5	2.8	0.9	2.1	28.6	2.92	18.6	124.1	2.9	1.8	4.3
	6.8	3.7	8.6	60	32.6	1.48	27.5	72.2	6.4	0.5	1.2	33.1	1.40	28.3	68.4	6.9	1.3	3.1	33.3	1.37	28.6	66.4	7.1	2.5	5.8
				80	32.1	1.90	25.6	91.4	4.9	0.4	0.9	32.5	1.80	26.3	87.8	5.3	1.2	2.8	32.6	1.75	26.6	85.9	5.4	2.3	5.4
				100	31.1	2.49	22.6	110.0	3.7	0.3	0.7	31.3	2.36	23.3	106.9	3.9	1.1	2.5	31.3	2.30	23.5	105.2	4.0	2.1	4.9
				120	29.7	3.26	18.6	128.3	2.7	0.2	0.5	29.7	3.09	19.1	125.7	2.8	0.9	2.1	29.6	3.01	19.3	124.3	2.9	1.8	4.3
	9.0	6.5	15.1	60	34.5	1.55	29.2	73.0	6.5	0.5	1.2	35.0	1.47	30.0	68.9	7.0	1.3	3.1	35.2	1.43	30.3	66.7	7.2	2.5	5.8
				80	33.6	1.99	26.8	91.9	4.9	0.4	0.9	34.0	1.89	27.6	88.2	5.3	1.2	2.8	34.1	1.84	27.8	86.2	5.4	2.3	5.4
				100	32.3	2.59	23.5	110.4	3.7	0.3	0.7	32.5	2.45	24.2	107.2	3.9	1.1	2.5	32.5	2.39	24.4	105.4	4.0	2.1	4.9
				120	30.7	3.36	19.2	128.5	2.7	0.2	0.5	30.6	3.18	19.8	125.9	2.8	0.9	2.1	30.5	3.09	20.0	124.4	2.9	1.8	4.3
50	4.5	1.3	3.1	60	35.9	1.55	30.6	76.0	6.8	0.5	1.2	36.5	1.47	31.5	70.8	7.3	1.3	3.1	36.7	1.43	31.8	68.2	7.5	2.5	5.8
				80	35.0	2.00	28.2	95.6	5.1	0.4	0.9	35.5	1.89	29.0	90.5	5.5	1.2	2.8	35.6	1.84	29.3	87.9	5.7	2.3	5.4
				100	33.8	2.60	24.9	115.0	3.8	0.3	0.7	34.0	2.46	25.6	110.1	4.1	1.1	2.5	34.0	2.39	25.9	107.6	4.2	2.1	4.9
				120	32.2	3.36	20.7	134.3	2.8	0.2	0.5	32.1	3.18	21.3	129.5	3.0	0.9	2.1	32.1	3.09	21.5	127.1	3.0	1.8	4.3
				130	**Operation not recommended**							31.1	3.59	18.8	139.2	2.5	0.8	1.9	30.9	3.50	19.0	136.9	2.6	1.7	3.9
	6.75	3.4	7.8	60	37.7	1.56	32.4	76.8	7.1	0.5	1.2	38.4	1.48	33.3	71.4	7.6	1.3	3.1	38.5	1.44	33.6	68.6	7.9	2.5	5.8
				80	36.6	2.00	29.8	96.3	5.4	0.4	0.9	37.1	1.89	30.7	91.0	5.7	1.2	2.8	37.3	1.84	31.0	88.3	5.9	2.3	5.4
				100	35.2	2.60	26.3	115.6	4.0	0.3	0.7	35.5	2.46	27.1	110.5	4.2	1.1	2.5	35.5	2.40	27.3	107.9	4.3	2.1	4.9
				120	33.4	3.37	21.9	134.8	2.9	0.2	0.5	33.4	3.19	22.5	129.9	3.1	0.9	2.1	33.3	3.10	22.7	127.4	3.1	1.8	4.3
				130								32.2	3.60	19.9	139.5	2.6	0.8	1.9	32.0	3.51	20.1	137.1	2.7	1.7	3.9
	9.0	6.0	13.9	60	38.6	1.56	33.3	77.2	7.2	0.5	1.2	39.3	1.48	34.3	71.7	7.8	1.3	3.1	39.5	1.44	34.6	68.8	8.0	2.5	5.8
				80	37.5	2.01	30.7	96.7	5.5	0.4	0.9	38.0	1.90	31.6	91.3	5.9	1.2	2.8	38.2	1.85	31.9	88.5	6.1	2.3	5.4
				100	36.0	2.61	27.1	116.0	4.0	0.3	0.7	36.3	2.47	27.9	110.8	4.3	1.1	2.5	36.3	2.40	28.1	108.1	4.4	2.1	4.9
				120	34.0	3.37	22.5	135.1	3.0	0.2	0.5	34.1	3.19	23.2	130.1	3.1	0.9	2.1	34.0	3.11	23.4	127.6	3.2	1.8	4.3
				130								32.8	3.61	20.5	139.7	2.7	0.8	1.9	32.6	3.52	20.6	137.3	2.7	1.7	3.9

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 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. Operation in shaded areas requires antifreeze.

Table Continued on Next Page

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Performance Data – TMW036 (60 Hz I-P) - Heating

Table Continued from Previous Page

SOURCE				LOAD																					
EWT °F	Flow			EWT °F	Flow 4.5 GPM							Flow 6.8 GPM							Flow 9.0 GPM						
	GPM	WPD			HC Mbtuh	Power KW	HE Mbtuh	LWT °F	COP	WPD		HC Mbtuh	Power KW	HE Mbtuh	LWT °F	COP	WPD		HC Mbtuh	Power KW	HE Mbtuh	LWT °F	COP	WPD	
		PSI	FT							PSI	FT						PSI	FT						PSI	FT
60	4.5	1.2	2.7	60	39.0	1.57	33.6	77.3	7.3	0.5	1.2	39.7	1.48	34.6	71.8	7.8	1.3	3.1	39.9	1.44	34.9	68.9	8.1	2.5	5.8
				80	38.6	2.01	31.8	97.2	5.6	0.4	0.9	39.2	1.90	32.7	91.6	6.0	1.2	2.8	39.3	1.85	33.0	88.7	6.2	2.3	5.4
				100	37.6	2.61	28.7	116.7	4.2	0.3	0.7	38.0	2.47	29.6	111.3	4.5	1.1	2.5	38.0	2.40	29.8	108.5	4.6	2.1	4.9
				120	36.0	3.37	24.5	136.0	3.1	0.2	0.5	36.1	3.19	25.2	130.7	3.3	0.9	2.1	36.0	3.11	25.4	128.0	3.4	1.8	4.3
				130	Operation not recommended							34.8	3.61	22.5	140.3	2.8	0.8	1.9	34.7	3.51	22.7	137.7	2.9	1.7	3.9
	6.75	3.1	7.1	60	40.6	1.57	35.3	78.1	7.6	0.5	1.2	41.4	1.49	36.3	72.3	8.2	1.3	3.1	41.6	1.45	36.6	69.2	8.4	2.5	5.8
				80	40.2	2.01	33.4	97.9	5.9	0.4	0.9	40.8	1.90	34.3	92.1	6.3	1.2	2.8	41.0	1.85	34.6	89.1	6.5	2.3	5.4
				100	39.1	2.61	30.2	117.4	4.4	0.3	0.7	39.5	2.47	31.0	111.7	4.7	1.1	2.5	39.5	2.41	31.3	108.8	4.8	2.1	4.9
				120	37.2	3.38	25.7	136.5	3.2	0.2	0.5	37.3	3.20	26.4	131.1	3.4	0.9	2.1	37.3	3.11	26.6	128.3	3.5	1.8	4.3
				130								35.9	3.62	23.6	140.6	2.9	0.8	1.9	35.8	3.52	23.8	138.0	3.0	1.7	3.9
	9.0	5.6	12.8	60	41.5	1.57	36.1	78.4	7.7	0.5	1.2	42.2	1.49	37.2	72.5	8.3	1.3	3.1	42.4	1.45	37.5	69.4	8.6	2.5	5.8
				80	41.0	2.01	34.1	98.2	6.0	0.4	0.9	41.6	1.91	35.1	92.3	6.4	1.2	2.8	41.8	1.86	35.5	89.3	6.6	2.3	5.4
				100	39.8	2.62	30.9	117.7	4.5	0.3	0.7	40.2	2.48	31.8	111.9	4.8	1.1	2.5	40.3	2.41	32.0	109.0	4.9	2.1	4.9
				120	37.8	3.38	26.3	136.8	3.3	0.2	0.5	38.0	3.20	27.0	131.2	3.5	0.9	2.1	37.9	3.12	27.3	128.4	3.6	1.8	4.3
				130								36.5	3.62	24.1	140.8	3.0	0.8	1.9	36.4	3.53	24.4	138.1	3.0	1.7	3.9
70	4.5	1.0	2.3	60	42.1	1.58	36.7	78.7	7.8	0.5	1.2	42.9	1.49	37.8	72.7	8.4	1.3	3.1	43.1	1.46	38.1	69.6	8.7	2.5	5.8
				80	42.4	2.02	35.5	98.8	6.2	0.4	0.9	43.0	1.91	36.5	92.7	6.6	1.2	2.8	43.2	1.86	36.8	89.6	6.8	2.3	5.4
				100	41.6	2.62	32.7	118.5	4.7	0.3	0.7	42.1	2.48	33.6	112.5	5.0	1.1	2.5	42.2	2.41	33.9	109.4	5.1	2.1	4.9
				120	39.8	3.38	28.3	137.7	3.5	0.2	0.5	40.0	3.20	29.1	131.9	3.7	0.9	2.1	40.0	3.12	29.4	128.9	3.8	1.8	4.3
				130								38.6	3.62	26.3	141.4	3.1	0.8	1.9	38.5	3.53	26.5	138.6	3.2	1.7	3.9
	6.75	2.8	6.5	60	43.6	1.58	38.2	79.4	8.1	0.5	1.2	44.4	1.50	39.3	73.2	8.7	1.3	3.1	44.7	1.46	39.7	69.9	9.0	2.5	5.8
				80	43.8	2.02	36.9	99.5	6.4	0.4	0.9	44.5	1.91	38.0	93.2	6.8	1.2	2.8	44.7	1.86	38.4	89.9	7.0	2.3	5.4
				100	43.0	2.62	34.0	119.1	4.8	0.3	0.7	43.5	2.49	35.0	112.9	5.1	1.1	2.5	43.6	2.42	35.3	109.7	5.3	2.1	4.9
				120	41.0	3.39	29.5	138.2	3.5	0.2	0.5	41.3	3.21	30.3	132.2	3.8	0.9	2.1	41.3	3.13	30.6	129.2	3.9	1.8	4.3
				130								39.7	3.63	27.3	141.8	3.2	0.8	1.9	39.7	3.54	27.6	138.8	3.3	1.7	3.9
	9.0	5.1	11.9	60	44.3	1.59	38.9	79.7	8.2	0.5	1.2	45.1	1.50	40.0	73.4	8.8	1.3	3.1	45.4	1.46	40.4	70.1	9.1	2.5	5.8
				80	44.5	2.02	37.6	99.8	6.4	0.4	0.9	45.2	1.92	38.7	93.4	6.9	1.2	2.8	45.4	1.87	39.1	90.1	7.1	2.3	5.4
				100	43.6	2.63	34.6	119.4	4.9	0.3	0.7	44.1	2.49	35.6	113.1	5.2	1.1	2.5	44.2	2.42	36.0	109.8	5.4	2.1	4.9
				120	41.6	3.40	30.0	138.5	3.6	0.2	0.5	41.8	3.22	30.9	132.4	3.8	0.9	2.1	41.8	3.13	31.1	129.3	3.9	1.8	4.3
				130								40.2	3.64	27.8	141.9	3.2	0.8	1.9	40.2	3.54	28.1	138.9	3.3	1.7	3.9
80	4.5	0.9	2.0	60	45.3	1.59	39.8	80.1	8.3	0.5	1.2	46.1	1.51	41.0	73.7	9.0	1.3	3.1	46.4	1.47	41.4	70.3	9.3	2.5	5.8
				80	46.2	2.03	39.2	100.5	6.7	0.4	0.9	46.9	1.92	40.4	93.9	7.2	1.2	2.8	47.1	1.87	40.8	90.5	7.4	2.3	5.4
				100	45.7	2.63	36.7	120.3	5.1	0.3	0.7	46.3	2.49	37.8	113.7	5.4	1.1	2.5	46.4	2.42	38.1	110.3	5.6	2.1	4.9
				120	43.8	3.40	32.2	139.5	3.8	0.2	0.5	44.1	3.22	33.2	133.1	4.0	0.9	2.1	44.2	3.13	33.5	129.8	4.1	1.8	4.3
				130								27.9	3.61	15.6	138.3	2.3	0.8	1.9	27.7	3.51	15.7	136.2	2.3	1.7	3.9
	6.75	2.6	5.9	60	46.6	1.59	41.2	80.7	8.6	0.5	1.2	47.5	1.51	42.4	74.1	9.2	1.3	3.1	47.8	1.47	42.8	70.6	9.5	2.5	5.8
				80	47.5	2.03	40.6	101.1	6.9	0.4	0.9	48.3	1.92	41.7	94.3	7.4	1.2	2.8	48.5	1.87	42.1	90.8	7.6	2.3	5.4
				100	46.9	2.64	37.9	120.9	5.2	0.3	0.7	47.5	2.50	39.0	114.1	5.6	1.1	2.5	47.7	2.43	39.4	110.6	5.8	2.1	4.9
				120	44.9	3.40	33.3	140.0	3.9	0.2	0.5	45.3	3.22	34.3	133.4	4.1	0.9	2.1	45.3	3.14	34.6	130.1	4.2	1.8	4.3
				130								28.5	3.62	16.1	138.4	2.3	0.8	1.9	28.3	3.52	16.3	136.3	2.4	1.7	3.9
	9.0	4.8	11.0	60	47.1	1.60	41.7	81.0	8.7	0.5	1.2	48.1	1.51	42.9	74.2	9.3	1.3	3.1	48.3	1.47	43.3	70.7	9.6	2.5	5.8
				80	48.0	2.03	41.1	101.3	6.9	0.4	0.9	48.8	1.93	42.3	94.5	7.4	1.2	2.8	49.0	1.88	42.7	90.9	7.7	2.3	5.4
				100	47.4	2.64	38.4	121.1	5.3	0.3	0.7	48.1	2.50	39.5	114.2	5.6	1.1	2.5	48.2	2.43	39.9	110.7	5.8	2.1	4.9
				120	45.4	3.41	33.7	140.2	3.9	0.2	0.5	45.7	3.23	34.7	133.5	4.2	0.9	2.1	45.8	3.14	35.0	130.2	4.3	1.8	4.3

I assume that it is the reference rating value

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 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. Operation in shaded areas requires antifreeze.

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