



Project Name: _____

Engineer: _____

Contractor: _____

Architect: _____

Date Received: _____

Date Submitted: _____

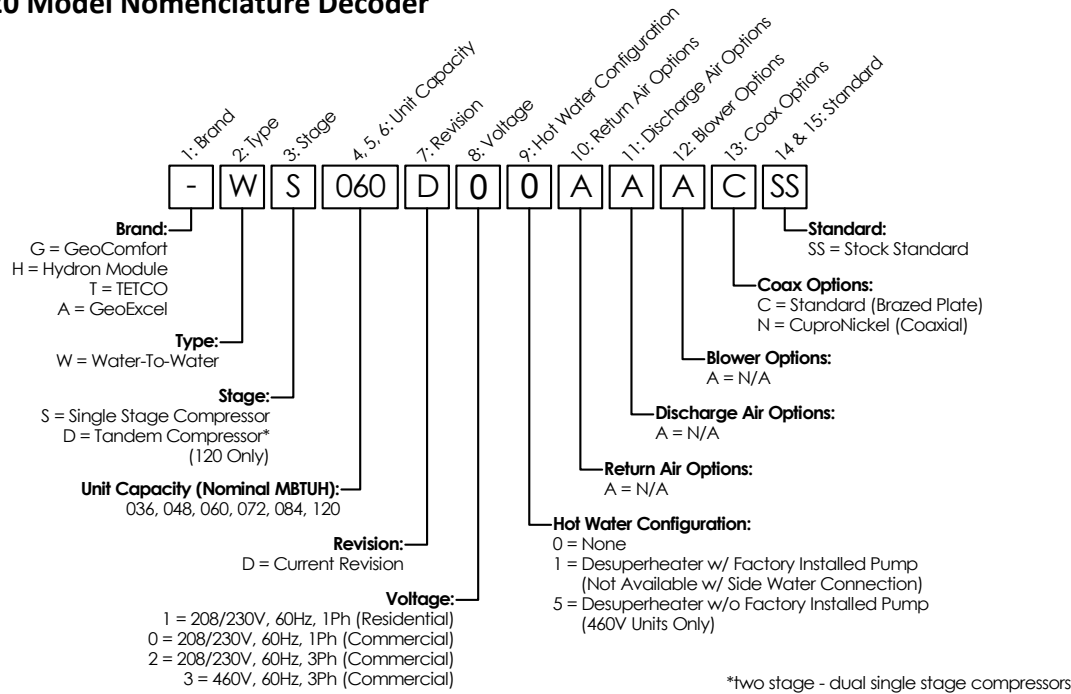
Model Number

Notes: _____

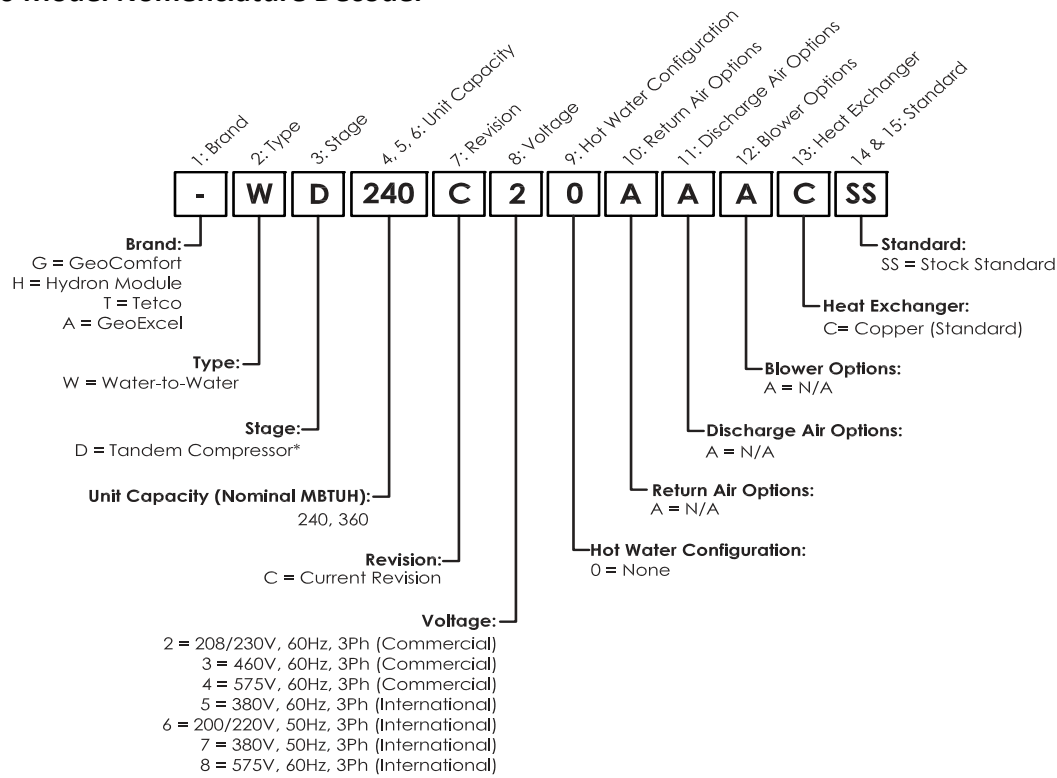
ENGINEERING SPECIFICATIONS:

Model Nomenclatures

WS/WD 036-120 Model Nomenclature Decoder



WD 240-360 Model Nomenclature Decoder



AHRI Performance Data

Model	Application	Full Load Cooling		Full Load Heating		Part Load Cooling		Part Load Heating	
		Btu/hr	EER	Btu/hr	COP	Btu/hr	EER	Btu/hr	EER
Single Compressor Models									
WS036	Ground Water	37,300	22.6	41,100	4.0	-	-	-	-
	Ground Loop	36,100	17.3	31,600	3.1	-	-	-	-
WS048	Ground Water	52,000	21.9	57,200	3.9	-	-	-	-
	Ground Loop	49,400	16.6	45,700	3.2	-	-	-	-
WS060	Ground Water	62,500	21.9	67,500	3.9	-	-	-	-
	Ground Loop	58,100	16.5	53,700	3.2	-	-	-	-
WS072	Ground Water	76,300	21.4	81,600	4.0	-	-	-	-
	Ground Loop	72,500	16.7	62,800	3.1	-	-	-	-
WS084	Ground Water	92,000	20.5	91,100	3.9	-	-	-	-
	Ground Loop	84,300	16.1	70,100	3.1	-	-	-	-
Dual Compressor Two Stage Model									
WS120	Ground Water	122,200	18.1	124,400	3.4	68,100	23.6	65,100	4.0
	Ground Loop	115,600	14.4	99,400	2.8	65,600	20.7	57,500	3.6

Ground Loop (GL) Notes:

Rated in accordance with ISO Standard 13256-2 which includes Pump Penalties.

Heating capacities based on 32°F EST & 104°F ELT.

Cooling capacities based on 77°F EST & 53.6°F ELT.

Entering load temperature over 120°F heating and under 45°F Cooling is not permissible.

Floor heating is most generally designed for 85°F entering load temperature.

Ground Water (GW) Notes:

Rated in accordance with ISO Standard 13256-2 which includes Pump Penalties.

Heating capacities based on 50°F EST & 104°F ELT.

Cooling capacities based on 59°F EST & 53.6°F ELT.

Entering load temperature over 120°F heating and under 45°F Cooling is not permissible.

Floor heating is most generally designed for 85°F entering load temperature.

AHRI Ground Loop and Ground Water Heat Pump Performance Data

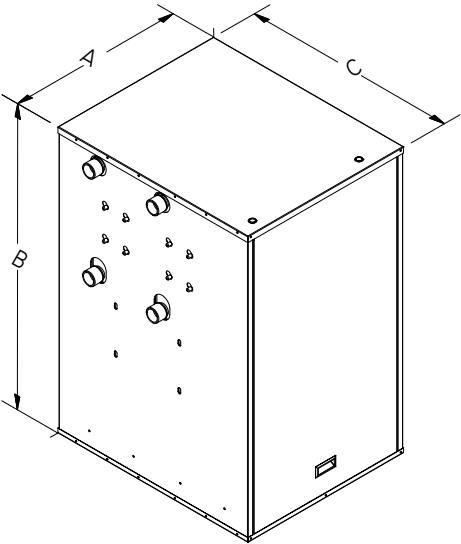
Model	Application	Full Load Cooling		Full Load Heating		Part Load Cooling		Part Load Heating	
		Mbtu/hr	EER	Mbtu/hr	COP	Mbtu/hr	EER	Mbtu/hr	COP
Single Compressor Models									
WD240	Ground Loop	240,700	15.2	222,400	3.3	142,000	21.8	130,600	4.3
WD360	Ground Loop	316,500	14.6	318,000	3.3	191,700	19.6	189,750	4.3

*Model 20 and 30 ton are outside the scope of the ENERGY STAR program and AHRI listing. Model 20 and 30 ton are tested in accordance with ISO Standard 13256-2. AHRI does not rate equipment with capacity above 135,000 Btu/hr.

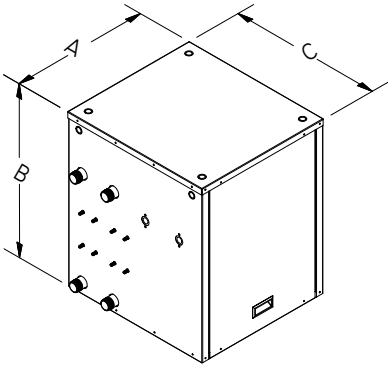
ENGINEERING SPECIFICATIONS:

Unit Dimensional Data

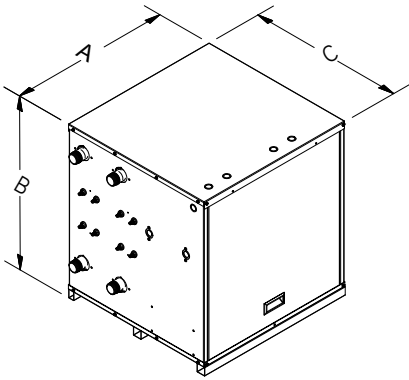
DIMENSION	3-7 TON	10 TON	20-30 TON
A	23.4	27.0	30
B	29.2	27.5	51
C	25.8	26.1	36.7
D	6.1	10.1	19.9
E	3.2	2.8	7.6
F	18.1	25.6	48.4
G	2.8	7.5	30.5
H	18.3	18.6	N/A
J	6.5	10.5	N/A
K	4.4	3.4	N/A
L	2.0	2.0	N/A
M	26.5	27.1	N/A
N	19.7	N/A	N/A
P	9.4	N/A	N/A
WATER CONN.	3-7 TON	10 TON	20-30 TON
SOURCE (COPPER)	1.25 MPT	1.25 MPT	2.0 MPT
SOURCE (CuNi)	1.00 FPT	1.00 FPT	2.0 MPT
HYDRONIC LOOP	1.25 MPT	1.25 MPT	2.0 MPT
HWG (DOMESTIC)	1.00 FPT	1.00 FPT	N/A



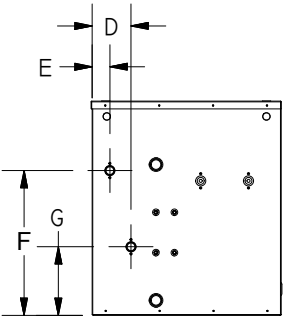
WD 20-30 TON DUAL COMPRESSOR UNIT



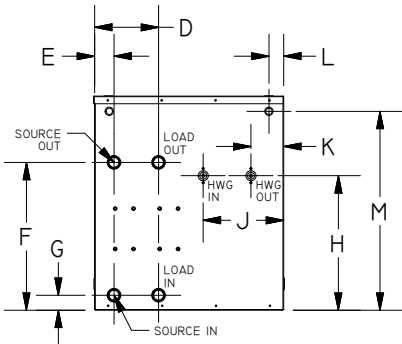
WS 3-7 TON SINGLE COMPRESSOR UNIT



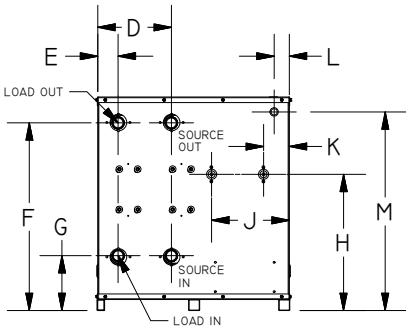
WD 10 TON DUAL COMPRESSOR



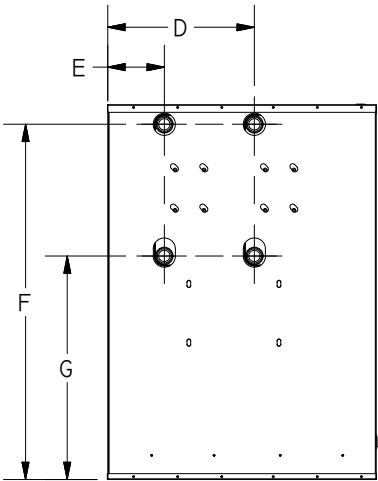
WS 3-7 TON SIDE VIEW
CuNi



WS 3-7 TON SIDE VIEW
COPPER



WD 10 TON SIDE VIEW



WD 20-30 TON SIDE VIEW

Single/DUAL Compressor Unit Electrical Data

Model	Voltage Code/ HWG Option	60 Hz Power		Compressor		HWG Pump FLA	Ext. Loop Pump FLA	Total Unit FLA	Min Circuit AMPS	Max Brkr HACR
		Volts	Phase	LRA	RLA					
WS036	00	208/230	1	112.0	17.9	0.0	0.0	17.9	22.4	40
	01	208/230	1	112.0	17.9	0.3	0.0	18.2	22.7	40
	10	208/230	1	112.0	17.9	0.0	4.0	21.9	26.4	40
	11	208/230	1	112.0	17.9	0.3	4.0	22.2	26.7	45
	20	208/230	3	88.0	13.2	0.0	0.0	13.2	16.5	30
	21	208/230	3	88.0	13.2	0.3	0.0	13.5	16.8	30
	30/35	460	3	44.0	6.0	0.0	0.0	6.0	7.5	15
WS048	00	208/230	1	134.0	25.4	0.0	0.0	25.4	31.8	50
	01	208/230	1	134.0	25.4	0.3	0.0	25.7	32.1	50
	10	208/230	1	134.0	25.4	0.0	5.5	30.9	37.3	60
	11	208/230	1	134.0	25.4	0.3	5.5	31.2	37.6	60
	20	208/230	3	110.0	15.9	0.0	0.0	15.9	19.9	35
	21	208/230	3	110.0	15.9	0.3	0.0	16.2	20.2	35
	30/35	460	3	52.0	7.1	0.0	0.0	7.1	8.9	15
WS060	00	208/230	1	178.0	28.3	0.0	0.0	28.3	35.4	60
	01	208/230	1	178.0	28.3	0.3	0.0	28.6	35.7	60
	10	208/230	1	178.0	28.3	0.0	5.5	33.8	40.9	60
	11	208/230	1	178.0	28.3	0.3	5.5	34.1	41.2	60
	20	208/230	3	136.0	19.2	0.0	0.0	19.2	24.0	40
	21	208/230	3	136.0	19.2	0.3	0.0	19.5	24.3	40
	30/35	460	3	66.1	8.7	0.0	0.0	8.7	10.9	20
WS072	00	208/230	1	148.0	32.1	0.0	0.0	32.1	40.1	70
	01	208/230	1	148.0	32.1	0.3	0.0	32.4	40.4	70
	10	208/230	1	148.0	32.1	0.0	5.5	37.6	45.6	70
	11	208/230	1	148.0	32.1	0.3	5.5	37.9	45.9	70
	20	208/230	3	164.0	23.2	0.0	0.0	23.2	29.0	50
	21	208/230	3	164.0	23.2	0.3	0.0	23.5	29.3	50
	30/35	460	3	75.0	11.2	0.0	0.0	11.2	14.0	25
WS084	00	208/230	1	185.0	32.1	0.0	0.0	32.1	40.1	70
	01	208/230	1	185.0	32.1	0.3	0.0	32.4	40.4	70
	10	208/230	1	185.0	32.1	0.0	5.5	37.6	45.6	70
	11	208/230	1	185.0	32.1	0.3	5.5	37.9	45.9	70
	20	208/230	3	164.0	25.0	0.0	0.0	25.0	31.3	50
	21	208/230	3	164.0	25.0	0.3	0.0	25.3	31.6	50
	30/35	460	3	100.0	12.2	0.0	0.0	12.2	15.3	25
WD120	00	208/230	1	158.0 ea.	30.1 ea.	0.0	0.0	60.2	67.7	90
	01	208/230	1	158.0 ea.	30.1 ea.	0.3	0.0	60.5	68.0	90
	10	208/230	1	158.0 ea.	30.1 ea.	0.0	5.5	65.7	73.2	100
	11	208/230	1	158.0 ea.	30.1 ea.	0.3	5.5	66.0	73.5	100
	20	208/230	3	155.0 ea.	20.5 ea.	0.0	0.0	41.0	46.1	60
	21	208/230	3	155.0 ea.	20.5 ea.	0.3	0.0	41.3	46.4	60
	30/35	460	3	75.0 ea.	9.6 ea.	0.0	0.0	19.2	21.6	30

Notes:

1. All line and low voltage wiring must adhere to the National Electrical Code and local codes, whichever is the most stringent.
 2. In determining the correct supply wire size and maximum length, reference NFPA 70, Section 310. If the calculation is close to the maximum allowable ampacity of a particular wire size, use the next size up. This will ensure that no adverse effects occur, such as light dimming and/or shortened compressor life.
 3. Min/Max Voltage: 208/230/60 = 187-252, 460/60 = 432-502
 4. See Wiring Diagrams for proper 460V and 575V power.
- *The external loop pump FLA is based on a maximum of three UP26-116F-230V pumps (1/2hp) for 048-120 and two pumps for 036.

ENGINEERING SPECIFICATIONS:

Single/Dual Compressor Unit Electrical Data continued

Model	Voltage Code/ HWG Option	60 Hz OR (50 Hz ⁶) Power		Compressor		HWG Pump FLA	Ext. Loop Pump FLA	Total Unit FLA	Min Circuit AMPS	Max Brkr HACR
		Volts	Phase	LRA	RLA					
WD240	2	208/230	3	239.0 ea.	33.3 ea.	0.0	0.0	66.6	74.9	100
	3	460	3	125.0 ea.	17.9 ea.	0.0	0.0	35.8	40.3	50
	4	575	3	80.0 ea.	12.8 ea.	0.0	0.0	25.6	28.8	40
	5	380	3	145.0 ea.	23.7 ea.	0.0	0.0	47.4	53.3	70
	6	200/220	3	239.0 ea.	34.6 ea.	0.0	0.0	69.2	77.9	110
	7	380	3	118.0 ea.	17.9 ea.	0.0	0.0	35.8	40.3	50
	8	575	3	80.0ea.	12.8 ea.	0.0	0.0	25.6	28.8	40
WD360	2	208/230	3	340.0 ea.	55.8 ea.	0.0	0.0	111.6	125.6	175
	3	460	3	173.0 ea.	26.9 ea.	0.0	0.0	53.8	60.5	80
	4	575	3	132.0 ea.	23.7 ea.	0.0	0.0	47.4	53.3	70
	5	380	3	196.0 ea.	34.0 ea.	0.0	0.0	68.0	76.5	110
	6	200/220	3	325.0 ea.	50.6 ea.	0.0	0.0	101.2	113.9	150
	7	380	3	173.0 ea.	25.0 ea.	0.0	0.0	50.0	56.3	80
	8	575	3	132.0 ea.	23.7 ea.	0.0	0.0	47.4	53.3	70

Notes:

1. All line and low voltage wiring must adhere to the National Electrical Code and local codes, whichever is the most stringent.
2. In determining the correct supply wire size and maximum length, reference NFPA 70, Section 310. If the calculation is close to the maximum allowable ampacity of a particular wire size, use the next size up. This will ensure that no adverse effects occur, such as light dimming and/or shortened compressor life.
3. Min/Max Voltage: 208/230/60 = 187-252, 460/60 = 432-502, 575/60 = 540-630, 380/50 = 327-418, 200/220/50= 172-242
4. See Wiring Diagrams for proper 460V and 575V power.
5. Voltage Code/ HWG Option 5, 6, & 7 are 50 Hz.

NOTE: Proper Power Supply Evaluation

When any compressor bearing unit is connected to a weak power supply, starting current will generate a significant “sag” in the voltage which reduces the starting torque of the compressor motor and increases the start time. This will influence the rest of the electrical system in the building by lowering the voltage to the lights. This momentary low voltage causes “light dimming”. The total electrical system should be evaluated with an electrician and HVAC technician. The evaluation should include all connections, sizes of wires, and size of the distribution panel between the unit and the utility’s connection. The transformer connection and sizing should be evaluated by the electric utility provider.

Specification Glossary, Calculations

Glossary

COP = Coefficient of Performance = BTU Output / BTU Input	HR = Total Heat Of Rejection, Btu/hr
DH = Desuperheater Capacity, Btu/hr	KW = Total Power Unit Input, Kilowatts
EER = Energy Efficiency Ratio = BTU output/Watts input	LWT = Leaving Source Water Temperature, Fahrenheit
EST = Entering Source Water Temperature, Fahrenheit	LLT = Leaving Load Water Temperature, Fahrenheit
ELT = Entering Load Water Temperature, Fahrenheit	TC = Total Cooling Capacity, Btu/hr
GPM = Water Flow, Gallons Per Minute	HC = Heating Capacity, Btu/hr
HE = Total Heat Of Extraction, Btu/hr	WPD = Water Pressure Drop, PSI & Feet of Water

Heating & Cooling Calculations

Heating	Cooling
$LWT = EST - \frac{HE}{GPM \times 500^*}$	$LWT = EST + \frac{HR}{GPM \times 500^*}$
$HE = 500^* \times GPM \times (EWT - LWT)$	$HR = 500^* \times GPM \times (LWT - EWT)$

*500 = Constant factor for pure water. Brine should be 485.

It is important to design the system to maintain flow rates above the minimum to avoid a fault. Antifreeze is generally required for all closed loop (geothermal) applications. Extreme Southern U.S. locations are the only exception. Open loop (well water) systems cannot use antifreeze, and must have enough flow rate in order to avoid freezing conditions at the Leaving Source Water Temperature connection.

IMPORTANT: Applications with Brazed Plate Heat Exchangers (All WV units) require antifreeze in the ground loop if units will be operating in the heating mode. Coaxial heat exchangers are recommended for systems without antifreeze. Antifreeze is required in the load piping for units that will be producing chilled water for cooling.

Heating Mode Leaving Water Temp Calculations

The WV compressor and source/load pumps are variable speed, and can operate over a wide range. However, it's good practice to design the loop piping/pumping for nominal flow (12 gpm for WV040 and 15 gpm for WV060). If pressure drop does not allow nominal flow with the available pumping options, the middle full load flow rate (9 gpm for WV040 and 11.3 gpm for WV060) is acceptable, provide the minimum ground loop temperature is 30 deg. F or higher.

Application Notes for Performance Data

1. EWT (Entering Water Temperature) is also called EST (Entering Source Temperature).
2. It is permissible to operate in the shaded areas intermittently but it is recommended to avoid extended run time in these areas.
3. Any condition outside this performance table is not allowed to ensure safe and continuous operation.
4. Performance data accurate within $\pm 15\%$.
5. Unit performance test is run without hot water generation.
6. Capacity data includes the load-side internal pump power but not the source-side pump power and it does not reflect pump power correction for AHRI/ISO conditions.
7. Performance data is based upon the lower voltage of dual voltage rated units.
8. Capacity data is based on 15% (by mass) methanol antifreeze solution (multiplier: 485) on the source side and pure water (multiplier: 500) on the load side.
9. Interpolation of unit performance data is permissible; extrapolation is not.
10. Performance data is a result of lab testing and is not related to warranty
11. Due to variations in installation, actual unit performance may vary from the tabulated data.

ENGINEERING SPECIFICATIONS:

Model 036, 3 Ton, Full Load Heating Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 7 GPM 1.2 PSIG dP, 2.9 FT dP					HYDRONIC FLOW - 9 GPM 2.0 PSIG dP, 4.6 FT dP														
EWT °F	GPM	dP psig	dP ft		TEMP RISE	CAP kBTUh	PWR kW	COP	HE kBTUh	TEMP RISE	CAP kBTUh	PWR kW	COP	HE kBTUh										
25	9	1.4	3.2	115	6.8	23.9	2.8	2.5	14.2	5.3	24.0	2.8	2.5	14.5										
				100	7.0	24.4	2.4	2.9	16.1	5.4	24.5	2.4	3.0	16.4										
				85	7.1	24.9	2.0	3.6	18.0	5.6	25.0	2.0	3.7	18.2										
				70	7.3	25.5	1.6	4.6	19.9	5.7	25.6	1.6	4.7	20.1										
30	9	1.4	3.2	115	7.3	25.7	2.9	2.6	15.9	5.7	25.8	2.8	2.7	16.3										
				100	7.5	26.3	2.4	3.1	17.9	5.9	26.4	2.4	3.2	18.2										
				85	7.7	26.8	2.0	3.8	19.8	6.0	26.9	2.0	4.0	20.1										
				70	7.8	27.4	1.6	4.9	21.8	6.1	27.5	1.6	5.0	22.0										
35	9	1.4	3.2	115	7.9	27.5	2.9	2.8	17.7	6.1	27.6	2.8	2.9	18.0										
				100	8.0	28.1	2.5	3.4	19.7	6.3	28.2	2.4	3.4	20.0										
				85	8.2	28.7	2.0	4.1	21.7	6.4	28.8	2.0	4.2	22.0										
				70	8.4	29.3	1.6	5.2	23.7	6.5	29.4	1.6	5.4	24.0										
40	7	1.1	2.5	115	8.2	28.6	2.8	2.9	18.9	6.4	28.7	2.8	3.0	19.3										
				100	8.3	29.2	2.4	3.5	20.9	6.5	29.3	2.4	3.6	21.3										
				85	8.5	29.9	2.0	4.3	22.9	6.7	30.0	2.0	4.5	23.3										
				70	8.7	30.5	1.6	5.5	25.0	6.8	30.6	1.6	5.7	25.3										
	9	1.4	3.2	115	8.4	29.3	2.9	3.0	19.5	6.5	29.4	2.8	3.1	19.8										
				100	8.5	29.9	2.5	3.6	21.5	6.7	30.0	2.4	3.7	21.8										
				85	8.7	30.6	2.0	4.4	23.6	6.8	30.7	2.0	4.5	23.9										
				70	8.9	31.2	1.6	5.6	25.7	7.0	31.4	1.6	5.8	25.9										
45	6	1	2.3	115	8.4	29.4	2.8	3.1	19.8	6.6	29.5	2.7	3.2	20.2										
				100	8.6	30.1	2.4	3.6	21.8	6.7	30.2	2.3	3.8	22.2										
				85	8.8	30.7	2.0	4.5	23.9	6.9	30.8	1.9	4.6	24.2										
				70	9.0	31.4	1.6	5.8	25.9	7.0	31.5	1.6	5.9	26.2										
	7	1.1	2.5	115	8.7	30.3	2.9	3.1	20.6	6.8	30.8	2.8	3.2	21.3										
				100	8.9	31.0	2.4	3.7	22.7	7.0	31.4	2.4	3.9	23.3										
				85	9.1	31.7	2.0	4.6	24.8	7.1	32.1	2.0	4.8	25.4										
				70	9.2	32.4	1.6	5.9	26.9	7.3	32.8	1.6	6.1	27.5										
	9	1.4	3.2	115	8.9	31.1	2.9	3.2	21.2	6.9	31.2	2.8	3.2	21.6										
				100	9.1	31.8	2.5	3.8	23.3	7.1	31.9	2.4	3.9	23.7										
				85	9.3	32.5	2.1	4.6	25.5	7.2	32.6	2.0	4.8	25.8										
				70	9.5	33.1	1.6	6.0	27.6	7.4	33.3	1.6	6.1	27.8										
50	6	1	2.3	115	8.9	31.1	2.8	3.2	21.4	6.9	31.2	2.8	3.3	21.8										
				100	9.1	31.8	2.4	3.9	23.5	7.1	31.9	2.4	4.0	23.9										
				85	9.3	32.5	2.0	4.7	25.6	7.3	32.6	2.0	4.9	26.0										
				70	9.5	33.2	1.6	6.1	27.8	7.4	33.3	1.6	6.3	28.0										
	7	1.1	2.5	115	9.2	32.1	2.9	3.3	22.3	7.2	32.5	2.8	3.4	23.0										
				100	9.4	32.8	2.5	3.9	24.4	7.4	33.3	2.4	4.1	25.1										
				85	9.6	33.5	2.0	4.8	26.6	7.6	34.0	2.0	5.0	27.2										
				70	9.8	34.2	1.6	6.2	28.7	7.7	34.7	1.6	6.5	29.4										
	9	1.4	3.2	115	9.4	32.9	2.9	3.3	23.0	7.3	33.0	2.8	3.4	23.3										
				100	9.6	33.6	2.5	4.0	25.1	7.5	33.7	2.4	4.1	25.5										
				85	9.8	34.3	2.1	4.9	27.3	7.7	34.5	2.0	5.0	27.6										
				70	10.0	35.1	1.6	6.3	29.5	7.8	35.2	1.6	6.5	29.8										
55	6	1	2.3	115	9.4	32.8	2.8	3.4	23.1	7.3	32.9	2.8	3.5	23.5										
				100	9.6	33.5	2.4	4.0	25.3	7.5	33.7	2.4	4.2	25.6										
				85	9.8	34.3	2.0	5.0	27.4	7.6	34.4	2.0	5.2	27.8										
				70	10.0	35.0	1.6	6.4	29.6	7.8	35.2	1.5	6.7	29.9										
	7	1.1	2.5	115	9.7	33.8	2.9	3.4	24.0	7.6	34.3	2.8	3.6	24.7										
				100	9.9	34.6	2.5	4.1	26.2	7.8	35.1	2.4	4.3	26.9										
				85	10.1	35.4	2.0	5.1	28.4	8.0	35.9	2.0	5.3	29.1										
				70	10.3	36.1	1.6	6.6	30.6	8.1	36.6	1.6	6.8	31.3										
	9	1.4	3.2	115	OPERATION NOT RECOMMENDED					7.7	34.8	2.8	3.6	25.1										
				100						7.9	35.6	2.4	4.3	27.3										
				85						8.1	36.4	2.0	5.3	29.5										
				70						8.3	37.1	1.6	6.8	31.7										
60	6	1	2.3	115	9.9	34.5	2.9	3.5	24.8	7.7	34.6	2.8	3.7	25.2										
				100	10.1	35.3	2.4	4.2	27.0	7.9	35.4	2.4	4.4	27.3										
				85	10.3	36.0	2.0	5.3	29.2	8.0	36.2	2.0	5.4	29.5										
				70	10.5	36.8	1.6	6.8	31.4	8.2	37.0	1.5	7.0	31.7										
	7	1.1	2.5	115	OPERATION NOT RECOMMENDED					8.0	36.1	2.8	3.8	26.5										
				100						8.2	36.9	2.4	4.5	28.7										
				85						8.4	37.7	2.0	5.6	31.0										
				70						8.6	38.5	1.6	7.2	33.2										
70	6	1	2.3	115	OPERATION NOT RECOMMENDED					OPERATION NOT RECOMMENDED														
				100																				
				85																				
				70																				
	7	1.1	2.5	OPERATION NOT RECOMMENDED																				
	9	1.4	3.2																					

Model 036, 3 Ton, Full Load Cooling Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 7 GPM 1.2 PSIG dP, 2.9 FT dP					HYDRONIC FLOW - 9 GPM 2.0 PSIG dP, 4.6 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh	TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh
50	6	1	3.7	35	9.2	32.4	1.4	22.8	37.2	7.5	33.7	1.4	23.5	38.6
				40	9.7	33.8	1.5	23.0	38.8	7.8	35.2	1.5	23.7	40.3
				45	10.1	35.3	1.5	23.1	40.5	8.2	36.7	1.5	23.8	42.0
				50	10.5	36.7	1.6	23.2	42.1	8.5	38.2	1.6	23.9	43.7
	7	1.1	4.6	35	9.4	32.8	1.4	23.9	37.5	7.6	34.1	1.4	24.6	38.9
				40	9.8	34.3	1.4	24.0	39.1	7.9	35.7	1.4	24.8	40.6
				45	10.2	35.7	1.5	24.2	40.8	8.3	37.2	1.5	24.9	42.3
				50	10.6	37.2	1.5	24.3	42.4	8.6	38.7	1.5	25.0	44.0
	9	1.4	7.4	35	9.5	33.2	1.3	24.8	37.8	7.7	34.5	1.3	25.7	39.1
				40	9.9	34.7	1.4	25.0	39.5	8.0	36.1	1.4	25.9	40.8
				45	10.3	36.2	1.4	25.1	41.1	8.4	37.6	1.4	26.0	42.6
				50	10.8	37.7	1.5	25.2	42.8	8.7	39.2	1.5	26.1	44.3
60	6	1	3.7	35	8.6	30.2	1.7	17.9	36.0	7.0	31.5	1.7	18.5	37.3
				40	9.1	31.9	1.7	18.5	37.8	7.4	33.2	1.7	19.1	39.2
				45	9.6	33.6	1.8	19.1	39.6	7.8	35.0	1.8	19.7	41.0
				50	10.1	35.2	1.8	19.7	41.4	8.2	36.7	1.8	20.3	42.9
	7	1.1	4.6	35	8.8	30.7	1.6	18.7	36.2	7.1	31.9	1.7	19.3	37.5
				40	9.2	32.3	1.7	19.4	38.0	7.5	33.7	1.7	20.0	39.4
				45	9.7	34.0	1.7	20.0	39.8	7.9	35.4	1.7	20.6	41.3
				50	10.2	35.7	1.7	20.6	41.6	8.3	37.2	1.8	21.2	43.2
	9	1.4	7.4	35	8.9	31.1	1.6	19.5	36.5	7.2	32.3	1.6	20.2	37.7
				40	9.4	32.8	1.6	20.1	38.3	7.6	34.0	1.6	20.8	39.6
				45	9.9	34.5	1.7	20.8	40.1	8.0	35.8	1.7	21.5	41.5
				50	10.3	36.2	1.7	21.4	42.0	8.4	37.6	1.7	22.1	43.4
65	6	1	3.7	35	8.3	29.2	1.8	16.0	35.4	6.8	30.4	1.8	16.5	36.7
				40	8.8	31.0	1.8	16.8	37.3	7.2	32.2	1.9	17.3	38.6
				45	9.4	32.7	1.9	17.5	39.1	7.6	34.1	1.9	18.0	40.5
				50	9.9	34.5	1.9	18.2	41.0	8.0	35.9	1.9	18.8	42.5
	7	1.1	4.6	35	8.5	29.6	1.8	16.7	35.6	6.8	30.8	1.8	17.3	36.9
				40	9.0	31.4	1.8	17.5	37.5	7.3	32.7	1.8	18.1	38.8
				45	9.5	33.2	1.8	18.3	39.4	7.7	34.5	1.8	18.9	40.8
				50	10.0	35.0	1.8	19.0	41.2	8.1	36.4	1.9	19.6	42.7
	9	1.4	7.4	35	8.6	30.0	1.7	17.4	35.9	6.9	31.1	1.7	18.0	37.0
				40	9.1	31.8	1.7	18.2	37.8	7.3	33.0	1.8	18.9	39.0
				45	9.6	33.6	1.8	19.0	39.7	7.8	34.9	1.8	19.7	41.0
				50	10.1	35.4	1.8	19.8	41.5	8.2	36.8	1.8	20.5	43.0
70	6	1	3.7	OPERATION NOT RECOMMENDED										
	7	1.1	4.6	35	3.6	28.5	1.9	15.0	35.0	6.6	29.7	1.9	15.5	36.2
				40	3.8	30.4	1.9	15.9	36.9	7.0	31.7	1.9	16.4	38.3
				45	4.0	32.3	1.9	16.8	38.9	7.5	33.7	1.9	17.3	40.3
				50	4.3	34.2	1.9	17.7	40.8	7.9	35.6	2.0	18.2	42.3
	9	1.4	7.4	35	3.6	28.9	1.9	15.6	35.2	6.7	30.0	1.9	16.2	36.4
				40	3.9	30.8	1.9	16.5	37.2	7.1	32.0	1.9	17.1	38.5
				45	4.1	32.8	1.9	17.5	39.2	7.6	34.0	1.9	18.1	40.6
				50	4.3	34.7	1.9	18.4	41.1	8.0	36.0	1.9	19.0	42.8
80	6	1	3.7	OPERATION NOT RECOMMENDED										
	7	1.1	4.6	35	3.3	26.4	2.2	12.2	33.7	6.1	27.5	2.2	12.6	34.9
				40	3.6	28.5	2.2	13.2	35.9	6.6	29.7	2.2	13.6	37.1
				45	3.8	30.6	2.1	14.3	38.0	7.1	31.9	2.2	14.7	39.3
				50	4.1	32.8	2.1	15.3	40.1	7.6	34.1	2.2	15.8	41.5
	9	1.4	7.4	35	3.3	26.7	2.1	12.7	33.9	6.2	27.8	2.1	13.1	35.0
				40	3.6	28.9	2.1	13.7	36.0	6.7	30.0	2.1	14.2	37.2
				45	3.9	31.0	2.1	14.8	38.2	7.2	32.2	2.1	15.3	39.4
				50	4.1	33.2	2.1	15.9	40.3	7.7	34.5	2.1	16.5	41.6
90	6	1	3.7	OPERATION NOT RECOMMENDED										
	7	1.1	4.6	OPERATION NOT RECOMMENDED										
	9	1.4	7.4	35	7.0	24.6	2.4	10.4	32.6	5.7	25.5	2.4	10.7	33.6
				40	7.7	26.9	2.3	11.5	34.9	6.2	28.0	2.3	11.9	36.0
				45	8.4	29.3	2.3	12.7	37.2	6.8	30.5	2.3	13.1	38.4
100	6	1	3.7	OPERATION NOT RECOMMENDED										
	7	1.1	4.6	OPERATION NOT RECOMMENDED										
	9	1.4	7.4	35	6.4	22.4	2.6	8.5	31.3	5.2	23.3	2.6	8.8	32.2
				40	7.1	25.0	2.6	9.7	33.8	5.8	26.0	2.6	10.0	34.8
				45	7.9	27.6	2.5	10.9	36.2	6.4	28.7	2.5	11.3	37.3
				50	8.6	30.2	2.5	12.2	38.7	7.0	31.4	2.5	12.6	39.9

ENGINEERING SPECIFICATIONS:

Model 048, 4 Ton, Full Load Heating Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 10 GPM 1.2 PSIG dP, 2.8 FT dP					HYDRONIC FLOW - 12 GPM 1.8 PSIG dP, 4.2 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP RISE	CAP kBTUh	PWR kW	COP	HE kBTUh	TEMP RISE	CAP kBTUh	PWR kW	COP	HE kBTUh
25	12	1.8	4.2	115	6.8	34.0	4.0	2.5	20.3	5.7	34.1	3.9	2.5	20.7
				100	7.0	35.0	3.4	3.0	23.2	5.9	35.1	3.4	3.1	23.7
				85	7.2	36.0	2.9	3.7	26.2	6.0	36.2	2.8	3.8	26.6
				70	7.4	37.0	2.3	4.7	29.2	6.2	37.2	2.2	4.9	29.5
30	12	1.8	4.2	115	7.2	35.9	4.0	2.6	22.2	6.0	36.1	3.9	2.7	22.7
				100	7.4	37.0	3.4	3.1	25.2	6.2	37.1	3.4	3.2	25.6
				85	7.6	38.0	2.9	3.9	28.2	6.4	38.1	2.8	4.0	28.6
				70	7.8	39.0	2.3	5.0	31.2	6.5	39.2	2.2	5.1	31.5
35	12	1.8	4.2	115	7.6	37.8	4.0	2.8	24.2	6.3	38.0	3.9	2.8	24.7
				100	7.8	38.9	3.4	3.3	27.2	6.5	39.1	3.4	3.4	27.6
				85	8.0	40.0	2.9	4.1	30.2	6.7	40.1	2.8	4.2	30.6
				70	8.2	41.0	2.3	5.2	33.2	6.9	41.2	2.2	5.4	33.5
40	10	1.2	2.8	115	7.8	38.8	4.0	2.9	25.3	6.5	39.0	3.8	3.0	25.9
				100	8.0	39.9	3.4	3.4	28.3	6.7	40.1	3.3	3.6	28.8
				85	8.2	41.0	2.8	4.2	31.3	6.9	41.1	2.8	4.4	31.7
				70	8.4	42.0	2.3	5.4	34.3	7.0	42.2	2.2	5.6	34.6
	12	1.8	4.2	115	8.0	39.8	4.0	2.9	26.1	6.7	39.9	3.9	3.0	26.6
				100	8.2	40.9	3.4	3.5	29.2	6.8	41.0	3.3	3.6	29.6
				85	8.4	42.0	2.9	4.3	32.2	7.0	42.1	2.8	4.4	32.6
				70	8.6	43.0	2.3	5.5	35.2	7.2	43.2	2.3	5.6	35.5
45	8	0.9	2.1	115	7.9	39.5	3.9	3.0	26.2	6.6	39.6	3.8	3.1	26.7
				100	8.1	40.5	3.3	3.5	29.1	6.8	40.7	3.3	3.7	29.6
				85	8.3	41.6	2.8	4.3	32.0	7.0	41.8	2.7	4.5	32.5
				70	8.5	42.6	2.3	5.5	34.9	7.1	42.8	2.2	5.7	35.3
	10	1.2	2.8	115	8.1	40.7	3.9	3.0	27.3	6.9	41.3	3.8	3.2	28.2
				100	8.4	41.8	3.4	3.6	30.2	7.1	42.4	3.3	3.8	31.1
				85	8.6	42.9	2.8	4.4	33.2	7.2	43.5	2.8	4.6	34.1
				70	8.8	44.0	2.3	5.6	36.2	7.4	44.6	2.2	5.9	37.0
	12	1.8	4.2	115	8.3	41.7	4.0	3.1	28.1	7.0	41.9	3.9	3.2	28.6
				100	8.6	42.8	3.4	3.7	31.1	7.2	43.0	3.3	3.8	31.6
				85	8.8	43.9	2.9	4.5	34.2	7.4	44.1	2.8	4.6	34.6
				70	9.0	45.0	2.3	5.7	37.2	7.5	45.2	2.3	5.9	37.5
50	8	2.6	6.0	115	8.3	41.3	3.9	3.1	28.0	6.9	41.5	3.8	3.2	28.6
				100	8.5	42.4	3.3	3.7	31.0	7.1	42.6	3.3	3.8	31.5
				85	8.7	43.5	2.8	4.5	33.9	7.3	43.6	2.7	4.7	34.3
				70	8.9	44.5	2.3	5.8	36.8	7.5	44.7	2.2	6.0	37.2
	10	3.8	8.8	115	8.5	42.6	3.9	3.2	29.2	7.2	43.2	3.8	3.3	30.1
				100	8.7	43.7	3.4	3.8	32.2	7.4	44.3	3.3	3.9	33.1
				85	9.0	44.8	2.8	4.6	35.2	7.6	45.5	2.8	4.8	36.0
				70	9.2	46.0	2.3	5.9	38.1	7.8	46.6	2.2	6.1	39.0
	12	5.3	12.2	115	8.7	43.6	4.0	3.2	30.1	7.3	43.8	3.9	3.3	30.5
				100	9.0	44.8	3.4	3.8	33.1	7.5	44.9	3.3	3.9	33.5
				85	9.2	45.9	2.9	4.7	36.1	7.7	46.1	2.8	4.8	36.5
				70	9.4	47.1	2.3	6.0	39.2	7.9	47.2	2.3	6.1	39.5
55	8	2.6	6.0	115	8.6	43.1	3.9	3.3	29.9	7.2	43.3	3.8	3.4	30.4
				100	8.8	44.2	3.3	3.9	32.8	7.4	44.4	3.2	4.0	33.3
				85	9.1	45.3	2.8	4.7	35.8	7.6	45.5	2.7	4.9	36.2
				70	9.3	46.4	2.3	6.0	38.7	7.8	46.6	2.2	6.2	39.1
	10	3.8	8.8	115	8.9	44.5	3.9	3.3	31.1	7.5	45.1	3.8	3.5	32.1
				100	9.1	45.6	3.4	4.0	34.1	7.7	46.3	3.3	4.1	35.0
				85	9.4	46.8	2.8	4.8	37.1	7.9	47.4	2.8	5.0	38.0
				70	9.6	47.9	2.3	6.1	40.1	8.1	48.6	2.2	6.4	41.0
	12	5.3	12.2	115	OPERATION NOT RECOMMENDED					7.6	45.7	3.9	3.5	32.5
				100						7.8	46.9	3.3	4.1	35.5
				85						8.0	48.1	2.8	5.0	38.5
				70						8.2	49.3	2.3	6.4	41.6
60	8	2.6	6.0	115	9.0	44.9	3.9	3.4	31.7	7.5	45.1	3.8	3.5	32.3
				100	9.2	46.1	3.3	4.0	34.7	7.7	46.3	3.2	4.2	35.2
				85	9.4	47.2	2.8	4.9	37.6	7.9	47.4	2.7	5.1	38.1
				70	9.7	48.3	2.3	6.3	40.6	8.1	48.5	2.2	6.5	41.0
	10	3.8	8.8	115	OPERATION NOT RECOMMENDED					7.8	47.0	3.8	3.6	34.0
				100						8.0	48.2	3.3	4.3	37.0
				85						8.2	49.4	2.8	5.2	40.0
				70						8.4	50.6	2.2	6.6	43.0
70	8	2.6	6.0	115	OPERATION NOT RECOMMENDED					OPERATION NOT RECOMMENDED				
				100										
				85										
				70										
	10	3.8	8.8	OPERATION NOT RECOMMENDED										
	12	5.3	12.2											

Model 048, 4 Ton, Full Load cooling Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 10 GPM 1.2 PSIG dP, 2.8 FT dP					HYDRONIC FLOW - 12 GPM 1.8 PSIG dP, 4.2 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh	TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh
50	8	0.9	2.1	35	7.6	37.9	2.1	18.0	45.1	6.6	39.4	2.1	18.5	46.7
				40	8.3	41.4	2.1	19.5	48.6	7.2	43.1	2.1	20.1	50.4
				45	9.0	44.9	2.1	21.0	52.2	7.8	46.8	2.2	21.6	54.2
				50	9.7	48.5	2.2	22.5	55.8	8.4	50.5	2.2	23.2	57.9
	10	1.2	2.8	35	7.7	38.4	2.0	18.8	45.3	6.7	40.0	2.1	19.4	47.0
				40	8.4	42.0	2.1	20.4	49.0	7.3	43.7	2.1	21.0	50.8
				45	9.1	45.5	2.1	22.0	52.6	7.9	47.4	2.1	22.6	54.6
				50	9.8	49.1	2.1	23.5	56.2	8.5	51.1	2.1	24.2	58.3
	12	1.8	4.2	35	7.8	38.9	2.0	19.6	45.7	6.7	40.4	2.0	20.3	47.2
				40	8.5	42.5	2.0	21.2	49.4	7.4	44.2	2.0	22.0	51.0
				45	9.2	46.1	2.0	22.8	53.0	8.0	47.9	2.0	23.6	54.9
				50	10.0	49.8	2.0	24.4	56.7	8.6	51.7	2.0	25.3	58.7
60	8	0.9	2.1	35	7.4	37.2	2.4	15.6	45.4	6.5	38.7	2.4	16.0	47.0
				40	8.1	40.5	2.4	16.8	48.8	7.0	42.2	2.4	17.3	50.5
				45	8.8	43.8	2.4	18.0	52.1	7.6	45.6	2.5	18.6	54.0
				50	9.4	47.1	2.5	19.2	55.5	8.2	49.1	2.5	19.8	57.5
	10	1.2	2.8	35	7.5	37.7	2.3	16.3	45.6	6.5	39.3	2.3	16.8	47.2
				40	8.2	41.1	2.3	17.6	49.0	7.1	42.7	2.4	18.1	50.8
				45	8.9	44.4	2.4	18.8	52.5	7.7	46.2	2.4	19.4	54.4
				50	9.6	47.8	2.4	20.1	55.9	8.3	49.7	2.4	20.7	57.9
	12	1.8	4.2	35	7.6	38.2	2.3	16.9	45.9	6.6	39.7	2.3	17.5	47.4
				40	8.3	41.6	2.3	18.3	49.4	7.2	43.2	2.3	18.9	51.0
				45	9.0	45.0	2.3	19.6	52.9	7.8	46.8	2.3	20.3	54.6
				50	9.7	48.4	2.3	20.9	56.3	8.4	50.3	2.3	21.6	58.2
65	8	0.9	2.1	35	7.4	36.9	2.5	14.5	45.5	6.4	38.4	2.6	15.0	47.1
				40	8.0	40.1	2.6	15.7	48.8	7.0	41.7	2.6	16.1	50.5
				45	8.7	43.3	2.6	16.8	52.1	7.5	45.1	2.6	17.3	54.0
				50	9.3	46.5	2.6	17.9	55.4	8.1	48.4	2.6	18.4	57.4
	10	1.2	2.8	35	7.5	37.4	2.5	15.2	45.7	6.5	38.9	2.5	15.7	47.4
				40	8.1	40.6	2.5	16.4	49.1	7.0	42.3	2.5	16.9	50.8
				45	8.8	43.9	2.5	17.5	52.4	7.6	45.7	2.5	18.1	54.3
				50	9.4	47.1	2.5	18.7	55.7	8.2	49.0	2.5	19.2	57.7
	12	1.8	4.2	35	7.6	37.9	2.4	15.8	46.0	6.6	39.3	2.4	16.4	47.5
				40	8.2	41.1	2.4	17.0	49.4	7.1	42.8	2.4	17.6	51.0
				45	8.9	44.4	2.4	18.2	52.8	7.7	46.2	2.4	18.9	54.5
				50	9.5	47.7	2.5	19.4	56.1	8.3	49.6	2.5	20.1	58.0
70	8	0.9	2.1	OPERATION NOT RECOMMENDED										
	10	1.2	2.8	35	4.6	37.0	2.6	14.3	45.9	6.4	38.5	2.6	14.7	47.5
				40	5.0	40.2	2.6	15.3	49.1	7.0	41.8	2.6	15.8	50.8
				45	5.4	43.3	2.6	16.4	52.3	7.5	45.1	2.7	16.9	54.2
				50	5.8	46.4	2.7	17.4	55.5	8.1	48.3	2.7	17.9	57.5
	12	1.8	4.2	35	4.7	37.5	2.5	14.8	46.1	6.5	39.0	2.5	15.3	47.6
				40	5.1	40.7	2.6	15.9	49.4	7.0	42.3	2.6	16.5	51.0
				45	5.5	43.9	2.6	17.0	52.7	7.6	45.6	2.6	17.6	54.4
				50	5.9	47.1	2.6	18.1	55.9	8.1	48.9	2.6	18.7	57.8
80	8	0.9	2.1	OPERATION NOT RECOMMENDED										
	10	1.2	2.8	35	4.5	36.3	2.9	12.6	46.1	6.3	37.8	2.9	13.0	47.7
				40	4.9	39.3	2.9	13.5	49.2	6.8	40.9	2.9	13.9	50.9
				45	5.3	42.2	2.9	14.4	52.2	7.3	43.9	3.0	14.8	54.0
				50	5.6	45.1	3.0	15.3	55.2	7.8	47.0	3.0	15.7	57.1
	12	1.8	4.2	35	4.6	36.8	2.8	13.1	46.4	6.4	38.3	2.8	13.6	47.9
				40	5.0	39.8	2.8	14.1	49.4	6.9	41.3	2.8	14.6	51.0
				45	5.3	42.7	2.9	15.0	52.5	7.4	44.4	2.9	15.5	54.2
				50	5.7	45.7	2.9	15.9	55.5	7.9	47.5	2.9	16.4	57.4
90	8	0.9	2.1	OPERATION NOT RECOMMENDED										
	10	1.2	2.8	OPERATION NOT RECOMMENDED										
	12	1.8	4.2	35	7.2	36.1	3.1	11.8	46.6	6.3	37.5	3.1	12.2	48.1
				40	7.8	38.9	3.1	12.5	49.5	6.7	40.4	3.1	13.0	51.0
				45	8.3	41.6	3.1	13.3	52.3	7.2	43.2	3.1	13.7	54.0
				50	8.9	44.3	3.2	14.0	55.1	7.7	46.1	3.2	14.5	56.9
100	8	0.9	2.1	OPERATION NOT RECOMMENDED										
	10	1.2	2.8	OPERATION NOT RECOMMENDED										
	12	1.8	4.2	35	7.1	35.4	3.3	10.6	46.8	6.1	36.8	3.4	11.0	48.3
				40	7.6	38.0	3.4	11.2	49.5	6.6	39.4	3.4	11.6	51.0
				45	8.1	40.5	3.4	11.9	52.1	7.0	42.1	3.4	12.3	53.7
	12	1.8	4.2	50	8.6	43.0	3.4	12.5	54.8	7.4	44.7	3.5	12.9	56.5

ENGINEERING SPECIFICATIONS:

Model 060, 5 Ton, Full Load heating Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 12 GPM 2.5 PSIG dP, 5.8 FT dP					HYDRONIC FLOW - 15 GPM 3.3 PSIG dP, 7.6 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP RISE	CAP kBTU/h	PWR kW	COP	HE kBTU/h	TEMP RISE	CAP kBTU/h	PWR kW	COP	HE kBTU/h
25	15	3.3	7.6	115	7.3	43.9	5.1	2.5	26.5	5.9	44.0	5.0	2.6	27.1
				100	7.6	45.5	4.4	3.1	30.6	6.1	45.7	4.3	3.1	31.1
				85	7.9	47.1	3.6	3.8	34.7	6.3	47.3	3.6	3.9	35.2
				70	8.1	48.7	2.9	4.9	38.7	6.5	48.9	2.9	5.0	39.2
30	15	3.3	7.6	115	7.8	46.8	5.1	2.7	29.3	6.3	47.0	5.0	2.8	29.9
				100	8.1	48.6	4.4	3.2	33.6	6.5	48.8	4.3	3.3	34.2
				85	8.4	50.4	3.7	4.0	37.9	6.7	50.6	3.6	4.1	38.4
				70	8.7	52.2	2.9	5.2	42.2	7.0	52.4	2.9	5.4	42.6
35	15	3.3	7.6	115	8.3	49.8	5.2	2.8	32.1	6.7	50.0	5.1	2.9	32.8
				100	8.6	51.7	4.4	3.4	36.6	6.9	52.0	4.3	3.5	37.2
				85	8.9	53.7	3.7	4.3	41.1	7.2	53.9	3.6	4.4	41.6
				70	9.3	55.6	2.9	5.5	45.6	7.4	55.8	2.9	5.7	46.0
40	12	2.5	5.8	115	8.6	51.6	5.2	2.9	33.9	6.9	51.8	5.0	3.0	34.6
				100	8.9	53.6	4.4	3.5	38.5	7.2	53.8	4.3	3.7	39.1
				85	9.3	55.6	3.7	4.4	43.1	7.4	55.9	3.6	4.6	43.7
				70	9.6	57.7	2.9	5.8	47.7	7.7	57.9	2.8	6.0	48.2
	15	3.3	7.6	115	8.8	52.8	5.2	3.0	35.0	7.1	53.0	5.1	3.0	35.6
				100	9.1	54.9	4.5	3.6	39.6	7.3	55.1	4.4	3.7	40.2
				85	9.5	57.0	3.7	4.5	44.3	7.6	57.2	3.6	4.6	44.8
				70	9.8	59.0	2.9	5.9	49.0	7.9	59.3	2.9	6.0	49.5
45	9	1.8	4.2	115	8.8	52.8	5.2	3.0	35.2	7.1	53.0	5.0	3.1	35.9
				100	9.1	54.9	4.4	3.7	39.9	7.4	55.1	4.3	3.8	40.5
				85	9.5	57.0	3.6	4.6	44.6	7.6	57.3	3.5	4.7	45.2
				70	9.9	59.1	2.9	6.0	49.3	7.9	59.4	2.8	6.2	49.8
	12	2.5	5.8	115	9.1	54.5	5.2	3.1	36.6	7.4	55.2	5.1	3.2	37.9
				100	9.4	56.6	4.5	3.7	41.4	7.7	57.4	4.3	3.9	42.6
				85	9.8	58.8	3.7	4.7	46.2	8.0	59.6	3.6	4.9	47.4
				70	10.2	61.0	2.9	6.1	51.0	8.2	61.9	2.8	6.4	52.1
	15	3.3	7.6	115	9.3	55.8	5.3	3.1	37.8	7.5	56.0	5.2	3.2	38.4
				100	9.7	58.0	4.5	3.8	42.6	7.8	58.2	4.4	3.9	43.2
				85	10.0	60.2	3.7	4.7	47.5	8.1	60.5	3.6	4.9	48.1
				70	10.4	62.5	3.0	6.2	52.4	8.4	62.7	2.9	6.4	52.9
50	9	1.8	3.5	115	9.3	55.6	5.2	3.1	37.8	7.4	55.8	5.1	3.2	38.6
				100	9.6	57.9	4.4	3.8	42.7	7.7	58.1	4.3	3.9	43.4
				85	10.0	60.1	3.7	4.8	47.6	8.1	60.4	3.6	5.0	48.2
				70	10.4	62.4	2.9	6.3	52.5	8.4	62.6	2.8	6.5	53.0
	12	2.5	4.8	115	9.6	57.4	5.3	3.2	39.4	7.8	58.2	5.1	3.3	40.7
				100	10.0	59.7	4.5	3.9	44.4	8.1	60.5	4.4	4.1	45.6
				85	10.3	62.0	3.7	4.9	49.4	8.4	62.9	3.6	5.1	50.6
				70	10.7	64.4	2.9	6.4	54.4	8.7	65.3	2.9	6.7	55.5
	15	3.3	6.7	115	9.8	58.7	5.3	3.2	40.6	7.9	59.0	5.2	3.3	41.2
				100	10.2	61.1	4.5	3.9	45.7	8.2	61.4	4.4	4.1	46.3
				85	10.6	63.5	3.7	5.0	50.7	8.5	63.8	3.7	5.1	51.3
				70	11.0	65.9	3.0	6.5	55.8	8.8	66.2	2.9	6.7	56.3
55	9	1.8	3.5	115	9.7	58.4	5.3	3.3	40.5	7.8	58.7	5.1	3.4	41.2
				100	10.1	60.8	4.5	4.0	45.6	8.1	61.1	4.3	4.1	46.3
				85	10.5	63.2	3.7	5.0	50.6	8.5	63.5	3.6	5.2	51.3
				70	10.9	65.6	2.9	6.6	55.7	8.8	65.9	2.8	6.8	56.3
	12	2.5	4.8	115	10.0	60.3	5.3	3.3	42.1	8.1	61.1	5.2	3.5	43.5
				100	10.5	62.8	4.5	4.1	47.3	8.5	63.6	4.4	4.2	48.6
				85	10.9	65.2	3.7	5.1	52.5	8.8	66.1	3.6	5.3	53.8
				70	11.3	67.7	2.9	6.8	57.7	9.2	68.7	2.9	7.0	58.9
	15	3.3	6.7	115	OPERATION NOT RECOMMENDED					8.3	62.0	5.2	3.5	44.1
				100						8.6	64.5	4.5	4.2	49.3
				85						8.9	67.1	3.7	5.3	54.5
				70						9.3	69.6	2.9	7.0	59.7
60	9	1.8	3.5	115	10.2	61.2	5.3	3.4	43.1	8.2	61.5	5.2	3.5	43.9
				100	10.6	63.8	4.5	4.2	48.4	8.5	64.1	4.4	4.3	49.1
				85	11.1	66.3	3.7	5.2	53.7	8.9	66.6	3.6	5.4	54.3
				70	11.5	68.9	2.9	6.9	59.0	9.2	69.2	2.8	7.2	59.5
	12	2.5	4.8	115	OPERATION NOT RECOMMENDED					8.5	64.1	5.2	3.6	46.2
				100						8.9	66.7	4.4	4.4	51.6
				85						9.3	69.4	3.6	5.6	56.9
				70						9.6	72.1	2.9	7.4	62.3
70	9	1.8	3.5	115	OPERATION NOT RECOMMENDED					9.0	67.2	5.2	3.8	49.3
				100						9.3	70.0	4.4	4.6	54.8
				85						9.7	72.8	3.6	5.9	60.4
				70						10.1	75.7	2.8	7.8	66.0
	12	2.5	4.8	OPERATION NOT RECOMMENDED										
15	3.3	6.7												

Model 060, 5 Ton, Full Load cooling Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 12 GPM 2.5 PSIG dP, 5.8 FT dP					HYDRONIC FLOW - 15 GPM 3.3 PSIG dP, 7.6 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh	TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh
50	9	1.8	4.2	35	7.9	47.4	2.8	17.2	56.9	6.6	49.4	2.8	17.7	58.9
				40	8.9	53.7	2.8	19.0	63.3	7.4	55.9	2.8	19.6	65.6
				45	10.0	59.9	2.9	20.8	69.7	8.3	62.3	2.9	21.4	72.3
				50	11.0	66.1	2.9	22.5	76.1	9.2	68.8	3.0	23.2	78.9
	12	2.5	5.8	35	8.0	48.1	2.7	18.0	57.2	6.7	50.1	2.7	18.5	59.3
				40	9.1	54.4	2.7	19.9	63.7	7.5	56.6	2.8	20.5	66.0
				45	10.1	60.7	2.8	21.8	70.2	8.4	63.2	2.8	22.4	72.8
				50	11.2	67.0	2.8	23.5	76.7	9.3	69.7	2.9	24.3	79.5
	15	3.3	7.6	35	8.1	48.7	2.6	18.7	57.6	6.8	50.6	2.6	19.3	59.6
				40	9.2	55.1	2.7	20.7	64.2	7.6	57.3	2.7	21.4	66.4
				45	10.2	61.5	2.7	22.6	70.8	8.5	63.9	2.7	23.4	73.2
				50	11.3	67.9	2.8	24.5	77.3	9.4	70.5	2.8	25.3	80.0
60	9	1.8	4.2	35	7.6	45.5	3.1	14.7	56.0	6.3	47.3	3.1	15.2	58.0
				40	8.6	51.4	3.1	16.3	62.1	7.1	53.5	3.2	16.8	64.3
				45	9.5	57.3	3.2	17.8	68.2	7.9	59.6	3.2	18.4	70.7
				50	10.5	63.1	3.3	19.2	74.3	8.8	65.7	3.3	19.8	77.0
	12	2.5	5.8	35	7.7	46.1	3.0	15.4	56.3	6.4	48.0	3.0	15.9	58.3
				40	8.7	52.1	3.1	17.1	62.5	7.2	54.2	3.1	17.6	64.7
				45	9.7	58.0	3.1	18.6	68.6	8.1	60.4	3.1	19.2	71.1
				50	10.7	64.0	3.2	20.1	74.8	8.9	66.6	3.2	20.8	77.6
	15	3.3	7.6	35	7.8	46.7	2.9	16.0	56.6	6.5	48.5	2.9	16.6	58.5
				40	8.8	52.7	3.0	17.7	62.9	7.3	54.8	3.0	18.4	65.0
				45	9.8	58.8	3.0	19.4	69.1	8.1	61.1	3.0	20.0	71.5
				50	10.8	64.8	3.1	20.9	75.4	9.0	67.4	3.1	21.7	78.0
65	9	1.8	4.2	35	7.4	44.5	3.2	13.7	55.6	6.2	46.3	3.3	14.1	57.5
				40	8.4	50.2	3.3	15.2	61.5	7.0	52.3	3.3	15.6	63.7
				45	9.3	55.9	3.4	16.5	67.5	7.8	58.2	3.4	17.0	69.9
				50	10.3	61.7	3.5	17.9	73.4	8.6	64.2	3.5	18.4	76.1
	12	2.5	5.8	35	7.5	45.1	3.1	14.3	55.8	6.3	46.9	3.2	14.8	57.8
				40	8.5	50.9	3.2	15.9	61.8	7.1	53.0	3.2	16.3	64.0
				45	9.4	56.7	3.3	17.3	67.9	7.9	59.0	3.3	17.8	70.3
				50	10.4	62.5	3.3	18.7	73.9	8.7	65.1	3.4	19.3	76.6
	15	3.3	7.6	35	7.6	45.7	3.1	14.9	56.1	6.3	47.5	3.1	15.4	58.0
				40	8.6	51.6	3.1	16.5	62.2	7.1	53.6	3.1	17.1	64.3
				45	9.6	57.4	3.2	18.0	68.3	8.0	59.7	3.2	18.6	70.6
				50	10.6	63.3	3.3	19.4	74.4	8.8	65.8	3.3	20.1	77.0
70	9	1.8	4.2	OPERATION NOT RECOMMENDED										
	12	2.5	5.8	35	5.5	44.1	3.3	13.4	55.3	6.1	45.9	3.3	13.8	57.3
				40	6.2	49.7	3.4	14.8	61.2	6.9	51.8	3.4	15.2	63.4
				45	6.9	55.4	3.4	16.1	67.1	7.7	57.6	3.5	16.6	69.5
				50	7.6	61.0	3.5	17.4	73.0	8.5	63.5	3.5	17.9	75.6
	15	3.3	7.6	35	5.6	44.7	3.2	13.9	55.6	6.2	46.4	3.2	14.4	57.4
				40	6.3	50.4	3.3	15.3	61.6	7.0	52.4	3.3	15.9	63.6
				45	7.0	56.1	3.4	16.7	67.5	7.8	58.3	3.4	17.3	69.8
				50	7.7	61.8	3.4	18.1	73.5	8.6	64.2	3.4	18.7	75.9
80	9	1.8	4.2	OPERATION NOT RECOMMENDED										
	12	2.5	5.8	35	5.3	42.1	3.6	11.7	54.4	5.8	43.8	3.6	12.0	56.3
				40	5.9	47.4	3.7	12.9	60.0	6.6	49.3	3.7	13.2	62.0
				45	6.6	52.7	3.8	14.0	65.5	7.3	54.9	3.8	14.4	67.8
				50	7.3	58.0	3.8	15.1	71.1	8.1	60.4	3.9	15.6	73.6
	15	3.3	7.6	35	5.3	42.6	3.5	12.1	54.7	5.9	44.3	3.5	12.5	56.4
				40	6.0	48.0	3.6	13.4	60.3	6.7	49.9	3.6	13.8	62.2
				45	6.7	53.4	3.7	14.6	65.9	7.4	55.5	3.7	15.1	68.1
				50	7.3	58.8	3.7	15.7	71.6	8.1	61.1	3.8	16.2	73.9
90	9	1.8	4.2	OPERATION NOT RECOMMENDED										
	12	2.5	5.8	OPERATION NOT RECOMMENDED										
	15	3.3	7.6	35	6.8	40.6	3.8	10.6	53.7	5.6	42.2	3.8	11.0	55.3
				40	7.6	45.7	3.9	11.7	59.0	6.3	47.4	3.9	12.1	60.8
				45	8.5	50.7	4.0	12.7	64.3	7.0	52.7	4.0	13.2	66.3
				50	9.3	55.8	4.1	13.7	69.6	7.7	57.9	4.1	14.2	71.9
100	9	1.8	4.2	OPERATION NOT RECOMMENDED										
	12	2.5	5.8	OPERATION NOT RECOMMENDED										
	15	3.3	7.6	35	6.4	38.6	4.1	9.3	52.7	5.3	40.1	4.1	9.7	54.2
				40	7.2	43.3	4.2	10.3	57.7	6.0	45.0	4.2	10.6	59.4
				45	8.0	48.0	4.3	11.2	62.7	6.7	49.9	4.3	11.5	64.6
				50	8.8	52.7	4.4	12.0	67.7	7.3	54.8	4.4	12.4	69.8

ENGINEERING SPECIFICATIONS:

Model 072, 6 Ton, Full Load heating Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 15 GPM 1.7 PSIG dP, 3.9 FT dP					HYDRONIC FLOW - 18 GPM 2.3 PSIG dP, 5.3 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP RISE	CAP kBTUh	PWR kW	COP	HE kBTUh	TEMP RISE	CAP kBTUh	PWR kW	COP	HE kBTUh
25	18	2.3	5.3	115	6.9	51.8	6.2	2.4	30.6	5.8	52.0	6.1	2.5	31.3
				100	7.1	53.2	5.3	3.0	35.2	5.9	53.4	5.1	3.0	35.9
				85	7.3	54.5	4.3	3.7	39.9	6.1	54.7	4.2	3.8	40.4
				70	7.5	55.9	3.3	4.9	44.5	6.2	56.1	3.3	5.0	45.0
30	18	2.3	5.3	115	7.5	56.1	6.2	2.6	34.8	6.3	56.3	6.1	2.7	35.6
				100	7.7	57.7	5.3	3.2	39.6	6.4	57.9	5.2	3.3	40.3
				85	7.9	59.2	4.3	4.0	44.4	6.6	59.5	4.2	4.1	45.0
				70	8.1	60.8	3.4	5.2	49.2	6.8	61.0	3.3	5.4	49.7
35	18	2.3	5.3	115	8.1	60.4	6.3	2.8	39.1	6.7	60.7	6.1	2.9	39.8
				100	8.3	62.2	5.3	3.4	44.0	6.9	62.4	5.2	3.5	44.7
				85	8.5	63.9	4.4	4.3	49.0	7.1	64.2	4.3	4.4	49.6
				70	8.8	65.7	3.5	5.6	53.9	7.3	66.0	3.4	5.7	54.5
40	15	1.7	3.9	115	8.4	63.2	6.2	3.0	42.0	7.1	63.5	6.1	3.1	42.8
				100	8.7	65.1	5.3	3.6	47.0	7.3	65.4	5.2	3.7	47.8
				85	8.9	67.0	4.4	4.5	52.1	7.5	67.3	4.3	4.6	52.8
				70	9.2	69.0	3.5	5.8	57.1	7.7	69.3	3.4	6.0	57.7
	18	2.3	5.3	115	8.6	64.7	6.3	3.0	43.3	7.2	65.0	6.1	3.1	44.0
				100	8.9	66.7	5.4	3.6	48.4	7.4	67.0	5.2	3.7	49.1
				85	9.2	68.7	4.4	4.5	53.5	7.7	68.9	4.3	4.7	54.1
				70	9.4	70.6	3.5	5.9	58.6	7.9	70.9	3.4	6.1	59.2
45	12	1.3	3.0	115	8.7	65.4	6.2	3.1	44.3	7.3	65.6	6.0	3.2	45.2
				100	9.0	67.4	5.3	3.7	49.4	7.5	67.7	5.1	3.9	50.2
				85	9.3	69.4	4.4	4.6	54.5	7.7	69.7	4.3	4.8	55.2
				70	9.5	71.5	3.5	6.0	59.6	8.0	71.8	3.4	6.2	60.2
	15	1.7	3.9	115	9.0	67.4	6.3	3.2	46.1	7.6	68.4	6.1	3.3	47.6
				100	9.3	69.5	5.3	3.8	51.3	7.8	70.5	5.2	4.0	52.8
				85	9.6	71.6	4.4	4.7	56.5	8.1	72.6	4.3	4.9	57.9
				70	9.8	73.7	3.5	6.1	61.7	8.3	74.8	3.4	6.4	63.0
	18	2.3	5.3	115	9.2	69.1	6.3	3.2	47.5	7.7	69.3	6.2	3.3	48.3
				100	9.5	71.2	5.4	3.9	52.8	7.9	71.5	5.3	4.0	53.5
				85	9.8	73.4	4.5	4.8	58.1	8.2	73.7	4.4	4.9	58.7
				70	10.1	75.5	3.6	6.2	63.3	8.4	75.8	3.5	6.4	63.9
50	12	1.3	3.0	115	9.3	69.4	6.2	3.3	48.3	7.7	69.7	6.0	3.4	49.2
				100	9.6	71.7	5.3	4.0	53.5	8.0	72.0	5.2	4.1	54.3
				85	9.9	73.9	4.4	4.9	58.8	8.2	74.2	4.3	5.0	59.5
				70	10.1	76.1	3.5	6.3	64.0	8.5	76.4	3.4	6.5	64.7
	15	1.7	3.9	115	9.6	71.7	6.3	3.3	50.2	8.1	72.6	6.1	3.5	51.8
				100	9.9	73.9	5.4	4.0	55.6	8.3	75.0	5.2	4.2	57.1
				85	10.2	76.2	4.5	5.0	60.9	8.6	77.3	4.4	5.2	62.4
				70	10.5	78.5	3.6	6.4	66.3	8.8	79.6	3.5	6.7	67.7
	18	2.3	5.3	115	9.8	73.4	6.3	3.4	51.7	8.2	73.7	6.2	3.5	52.5
				100	10.1	75.7	5.4	4.1	57.2	8.4	76.0	5.3	4.2	57.9
				85	10.4	78.1	4.5	5.1	62.6	8.7	78.4	4.4	5.2	63.3
				70	10.7	80.4	3.6	6.5	68.1	9.0	80.7	3.5	6.7	68.7
55	12	1.3	3.0	115	9.8	73.5	6.2	3.5	52.3	8.2	73.8	6.1	3.6	53.2
				100	10.1	75.9	5.3	4.2	57.7	8.5	76.3	5.2	4.3	58.5
				85	10.4	78.3	4.5	5.1	63.1	8.7	78.7	4.4	5.3	63.8
				70	10.8	80.8	3.6	6.6	68.5	9.0	81.1	3.5	6.8	69.2
	15	1.7	3.9	115	10.1	75.9	6.3	3.5	54.4	8.5	76.9	6.1	3.7	56.0
				100	10.4	78.4	5.4	4.2	59.9	8.8	79.4	5.3	4.4	61.5
				85	10.8	80.8	4.5	5.2	65.4	9.1	82.0	4.4	5.5	66.9
				70	11.1	83.3	3.6	6.7	70.9	9.4	84.5	3.5	7.0	72.4
	18	2.3	5.3	115	OPERATION NOT RECOMMENDED					8.7	78.0	6.2	3.7	56.8
				100						9.0	80.6	5.3	4.4	62.3
				85						9.2	83.1	4.5	5.5	67.9
				70						9.5	85.7	3.6	7.0	73.4
60	12	1.3	3.0	115	10.3	77.6	6.2	3.6	56.3	8.7	77.9	6.1	3.8	57.2
				100	10.7	80.2	5.4	4.4	61.8	8.9	80.5	5.2	4.5	62.7
				85	11.0	82.8	4.5	5.4	67.4	9.2	83.2	4.4	5.5	68.2
				70	11.4	85.4	3.7	6.8	72.9	9.5	85.8	3.6	7.1	73.6
	15	1.7	3.9	115	OPERATION NOT RECOMMENDED					9.0	81.2	6.2	3.9	60.2
				100						9.3	83.9	5.3	4.6	65.8
				85						9.6	86.6	4.5	5.7	71.4
				70						9.9	89.3	3.6	7.3	77.1
70	12	1.3	3.0	115	OPERATION NOT RECOMMENDED					9.6	86.1	6.1	4.1	65.2
				100						9.9	89.1	5.3	4.9	71.0
				85						10.2	92.1	4.5	6.0	76.8
				70						10.6	95.1	3.7	7.6	82.6
	15	1.7	3.9	OPERATION NOT RECOMMENDED										
	18	2.3	5.3											

Model 072, 6 Ton, Full Load cooling Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 15 GPM 1.7 PSIG dP, 3.9 FT dP					HYDRONIC FLOW - 18 GPM 2.3 PSIG dP, 5.3 FT dP				
EWI °F	GPM	dP psig	dP ft		TEMP DROP	CAP kBtu/h	PWR kW	EER	HR kBtu/h	TEMP DROP	CAP kBtu/h	PWR kW	EER	HR kBtu/h
50	12	1.3	3.0	35	8.5	63.8	3.2	19.9	74.7	7.4	66.4	3.2	20.5	77.5
				40	9.1	68.3	3.2	21.0	79.4	7.9	71.1	3.3	21.7	82.3
				45	9.7	72.8	3.3	22.2	84.0	8.4	75.8	3.3	22.8	87.1
				50	10.3	77.3	3.3	23.3	88.6	8.9	80.5	3.4	24.0	91.9
	15	1.7	3.9	35	8.6	64.6	3.1	20.8	75.3	7.5	67.3	3.1	21.4	78.0
				40	9.2	69.2	3.1	22.0	79.9	8.0	72.0	3.2	22.7	82.9
				45	9.8	73.8	3.2	23.2	84.6	8.5	76.8	3.2	23.9	87.8
				50	10.4	78.3	3.2	24.3	89.3	9.1	81.5	3.3	25.1	92.6
	18	2.3	5.3	35	8.7	65.5	3.0	21.6	75.8	7.6	68.1	3.0	22.3	78.4
				40	9.3	70.1	3.1	22.9	80.6	8.1	72.9	3.1	23.7	83.4
				45	10.0	74.7	3.1	24.1	85.3	8.6	77.7	3.1	24.9	88.3
				50	10.6	79.4	3.1	25.3	90.1	9.2	82.5	3.1	26.2	93.2
60	12	1.3	3.0	35	8.2	61.5	3.7	16.5	74.2	7.1	64.0	3.8	17.0	76.9
				40	8.9	66.7	3.8	17.7	79.5	7.7	69.4	3.8	18.2	82.4
				45	9.6	71.9	3.8	18.9	84.9	8.3	74.8	3.8	19.4	87.9
				50	10.3	77.0	3.8	20.0	90.2	8.9	80.2	3.9	20.6	93.5
	15	1.7	3.9	35	8.3	62.3	3.6	17.2	74.6	7.2	64.9	3.7	17.8	77.3
				40	9.0	67.6	3.7	18.5	80.0	7.8	70.3	3.7	19.1	82.9
				45	9.7	72.8	3.7	19.7	85.4	8.4	75.8	3.7	20.3	88.5
				50	10.4	78.1	3.7	20.9	90.8	9.0	81.3	3.8	21.6	94.1
	18	2.3	5.3	35	8.4	63.1	3.5	17.9	75.2	7.3	65.6	3.5	18.5	77.7
				40	9.1	68.5	3.6	19.2	80.6	7.9	71.1	3.6	19.9	83.3
				45	9.8	73.8	3.6	20.5	86.1	8.5	76.7	3.6	21.2	89.0
				50	10.5	79.1	3.6	21.8	91.5	9.1	82.2	3.6	22.5	94.6
65	12	1.6	3.0	35	8.0	60.3	4.0	15.1	74.0	7.0	62.8	4.0	15.6	76.6
				40	8.8	65.9	4.0	16.3	79.6	7.6	68.6	4.1	16.8	82.5
				45	9.5	71.4	4.1	17.5	85.3	8.3	74.3	4.1	18.1	88.3
				50	10.3	76.9	4.1	18.7	90.9	8.9	80.1	4.2	19.3	94.2
	15	1.9	3.9	35	8.2	61.1	3.9	15.8	74.3	7.1	63.6	3.9	16.3	77.0
				40	8.9	66.7	3.9	17.1	80.1	7.7	69.5	3.9	17.6	82.9
				45	9.6	72.3	3.9	18.3	85.8	8.4	75.3	4.0	18.9	88.9
				50	10.4	77.9	4.0	19.6	91.5	9.0	81.1	4.0	20.2	94.9
	18	2.5	5.3	35	8.3	61.9	3.8	16.4	74.8	7.2	64.4	3.8	17.0	77.3
				40	9.0	67.6	3.8	17.8	80.6	7.8	70.3	3.8	18.4	83.3
				45	9.8	73.3	3.8	19.1	86.4	8.5	76.2	3.9	19.7	89.3
				50	10.5	79.0	3.9	20.3	92.2	9.1	82.1	3.9	21.1	95.4
70	12	1.6	3.0	OPERATION NOT RECOMMENDED										
	15	1.9	3.9	35	7.5	60.0	4.1	14.5	74.0	6.9	62.4	4.2	15.0	76.6
				40	8.2	65.9	4.2	15.8	80.1	7.6	68.6	4.2	16.3	83.0
				45	9.0	71.9	4.2	17.1	86.2	8.3	74.8	4.2	17.6	89.3
				50	9.7	77.8	4.2	18.4	92.3	9.0	81.0	4.3	18.9	95.6
	18	2.5	5.3	35	7.6	60.8	4.0	15.1	74.5	7.0	63.1	4.0	15.6	76.9
				40	8.3	66.8	4.1	16.5	80.6	7.7	69.4	4.1	17.0	83.3
				45	9.1	72.8	4.1	17.8	86.8	8.4	75.7	4.1	18.4	89.7
				50	9.9	78.8	4.1	19.1	92.9	9.1	81.9	4.1	19.8	96.1
80	12	1.6	3.0	OPERATION NOT RECOMMENDED										
	15	1.9	3.9	35	7.2	57.6	4.6	12.5	73.4	6.7	60.0	4.7	12.8	76.0
				40	8.0	64.3	4.7	13.8	80.2	7.4	66.9	4.7	14.2	83.0
				45	8.9	70.9	4.7	15.1	87.0	8.2	73.8	4.8	15.5	90.0
				50	9.7	77.5	4.7	16.3	93.7	9.0	80.7	4.8	16.8	97.1
	18	2.5	5.3	35	7.3	58.4	4.5	12.9	73.8	6.7	60.7	4.5	13.4	76.1
				40	8.1	65.1	4.6	14.3	80.6	7.5	67.7	4.6	14.8	83.3
				45	9.0	71.8	4.6	15.7	87.5	8.3	74.7	4.6	16.2	90.4
				50	9.8	78.6	4.6	17.0	94.4	9.1	81.6	4.6	17.6	97.5
90	12	1.6	3.0	OPERATION NOT RECOMMENDED										
	15	1.9	3.9	OPERATION NOT RECOMMENDED										
	18	2.5	5.3	35	7.5	56.0	5.0	11.2	73.1	6.5	58.2	5.0	11.6	75.4
				40	8.5	63.5	5.0	12.6	80.7	7.3	65.9	5.1	13.0	83.2
				45	9.5	70.9	5.1	13.9	88.2	8.2	73.7	5.1	14.4	91.1
				50	10.4	78.3	5.1	15.3	95.8	9.0	81.4	5.1	15.8	98.9
100	12	1.6	3.0	OPERATION NOT RECOMMENDED										
	15	1.9	3.9	OPERATION NOT RECOMMENDED										
	18	2.5	5.3	35	7.2	53.7	5.5	9.8	72.4	6.2	55.8	5.5	10.1	74.6
				40	8.2	61.8	5.5	11.2	80.7	7.1	64.2	5.6	11.5	83.2
				45	9.3	69.9	5.6	12.5	89.0	8.1	72.6	5.6	13.0	91.8
				50	10.4	78.0	5.6	13.9	97.2	9.0	81.1	5.6	14.4	100.4

ENGINEERING SPECIFICATIONS:

Model 084, 7 Ton, Full Load heating Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 16 GPM 2.4 PSIG dP, 5.5 FT dP					HYDRONIC FLOW - 20 GPM 3.3 PSIG dP, 7.6 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP RISE	CAP kBTU/h	PWR kW	COP	HE kBTU/h	TEMP RISE	CAP kBTU/h	PWR kW	COP	HE kBTU/h
25	20	2.8	6.5	115	7.6	60.4	6.8	2.6	37.2	6.1	60.6	6.6	2.7	38.0
				100	7.6	60.6	6.1	2.9	39.8	6.1	60.9	6.0	3.0	40.6
				85	7.6	60.9	5.4	3.3	42.5	6.1	61.1	5.3	3.4	43.1
				70	7.6	61.1	4.7	3.8	45.1	6.1	61.4	4.6	3.9	45.7
30	20	2.8	6.5	115	8.1	64.8	6.9	2.8	41.4	6.5	65.0	6.7	2.8	42.2
				100	8.1	65.1	6.1	3.1	44.2	6.5	65.4	6.0	3.2	45.0
				85	8.2	65.5	5.4	3.5	47.0	6.6	65.8	5.3	3.6	47.7
				70	8.2	65.9	4.7	4.1	49.9	6.6	66.1	4.6	4.2	50.5
35	20	2.8	6.5	115	8.6	69.1	6.9	2.9	45.6	6.9	69.4	6.7	3.0	46.4
				100	8.7	69.6	6.2	3.3	48.6	7.0	69.9	6.0	3.4	49.4
				85	8.8	70.1	5.4	3.8	51.6	7.0	70.4	5.3	3.9	52.3
				70	8.8	70.6	4.7	4.4	54.6	7.1	70.9	4.6	4.5	55.3
40	16	1.8	4.2	115	9.0	71.8	6.9	3.1	48.3	7.2	72.1	6.7	3.2	49.3
				100	9.0	72.4	6.1	3.5	51.5	7.3	72.7	6.0	3.6	52.4
				85	9.1	73.0	5.4	4.0	54.6	7.3	73.3	5.2	4.1	55.4
				70	9.2	73.6	4.6	4.7	57.8	7.4	73.9	4.5	4.8	58.5
	20	2.8	6.5	115	9.2	73.5	7.0	3.1	49.8	7.4	73.8	6.8	3.2	50.6
				100	9.3	74.1	6.2	3.5	53.0	7.4	74.4	6.0	3.6	53.8
				85	9.3	74.7	5.4	4.0	56.2	7.5	75.0	5.3	4.1	56.9
				70	9.4	75.3	4.7	4.7	59.4	7.6	75.6	4.6	4.9	60.1
45	12	1.2	2.7	115	9.2	73.7	6.8	3.2	50.4	7.4	74.0	6.7	3.3	51.3
				100	9.3	74.4	6.1	3.6	53.6	7.5	74.7	5.9	3.7	54.5
				85	9.4	75.1	5.3	4.1	56.9	7.5	75.4	5.2	4.3	57.8
				70	9.5	75.8	4.6	4.9	60.2	7.6	76.1	4.4	5.0	61.0
	16	1.9	4.3	115	9.5	76.1	6.9	3.2	52.4	7.7	77.1	6.7	3.4	54.1
				100	9.6	76.8	6.2	3.7	55.8	7.8	77.8	6.0	3.8	57.4
				85	9.7	77.5	5.4	4.2	59.1	7.9	78.5	5.2	4.4	60.7
				70	9.8	78.2	4.6	5.0	62.4	7.9	79.3	4.5	5.2	63.9
	20	2.8	6.5	115	9.7	77.9	7.0	3.3	54.0	7.8	78.2	6.8	3.4	54.9
				100	9.8	78.6	6.2	3.7	57.4	7.9	78.9	6.1	3.8	58.2
				85	9.9	79.3	5.4	4.3	60.8	8.0	79.6	5.3	4.4	61.5
				70	10.0	80.0	4.7	5.0	64.2	8.0	80.4	4.5	5.2	64.8
50	12	1.2	2.7	115	9.7	77.9	6.9	3.3	54.3	7.8	78.2	6.7	3.4	55.3
				100	9.8	78.6	6.1	3.8	57.8	7.9	79.0	5.9	3.9	58.7
				85	9.9	79.4	5.3	4.4	61.3	8.0	79.8	5.2	4.5	62.1
				70	10.0	80.2	4.5	5.2	64.7	8.1	80.6	4.4	5.3	65.5
	16	1.9	4.3	115	10.0	80.3	7.0	3.4	56.5	8.1	81.4	6.8	3.5	58.3
				100	10.1	81.1	6.2	3.8	60.0	8.2	82.3	6.0	4.0	61.7
				85	10.2	82.0	5.4	4.5	63.6	8.3	83.1	5.2	4.6	65.2
				70	10.3	82.8	4.6	5.3	67.1	8.4	83.9	4.5	5.5	68.7
	20	2.8	6.5	115	10.3	82.3	7.1	3.4	58.2	8.3	82.6	6.9	3.5	59.1
				100	10.4	83.1	6.2	3.9	61.8	8.3	83.4	6.1	4.0	62.6
				85	10.5	83.9	5.4	4.5	65.3	8.4	84.3	5.3	4.6	66.1
				70	10.6	84.8	4.6	5.3	68.9	8.5	85.1	4.5	5.5	69.6
55	12	1.2	2.7	115	10.2	82.0	6.9	3.5	58.3	8.2	82.3	6.8	3.6	59.3
				100	10.4	82.9	6.1	4.0	61.9	8.3	83.2	6.0	4.1	62.9
				85	10.5	83.8	5.3	4.6	65.6	8.4	84.2	5.2	4.8	66.5
				70	10.6	84.7	4.5	5.5	69.2	8.5	85.1	4.4	5.7	70.0
	16	1.9	4.3	115	10.6	84.6	7.0	3.5	60.6	8.6	85.8	6.8	3.7	62.4
				100	10.7	85.5	6.2	4.0	64.3	8.7	86.7	6.0	4.2	66.1
				85	10.8	86.5	5.4	4.7	68.0	8.8	87.7	5.3	4.9	69.7
				70	10.9	87.4	4.6	5.6	71.7	8.9	88.6	4.5	5.8	73.4
	20	2.8	6.5	OPERATION NOT RECOMMENDED						8.7	87.0	6.9	3.7	63.3
										8.8	87.9	6.1	4.2	67.0
										8.9	88.9	5.3	4.9	70.7
										9.0	89.8	4.5	5.8	74.4
60	12	1.2	2.7	115	10.8	86.1	7.0	3.6	62.3	8.6	86.5	6.8	3.7	63.3
				100	10.9	87.1	6.2	4.1	66.1	8.8	87.5	6.0	4.3	67.0
				85	11.0	88.2	5.3	4.8	69.9	8.9	88.5	5.2	5.0	70.8
				70	11.1	89.2	4.5	5.8	73.7	9.0	89.6	4.4	6.0	74.6
	16	1.9	4.3	OPERATION NOT RECOMMENDED						9.0	90.1	6.9	3.8	66.6
										9.1	91.2	6.1	4.4	70.4
										9.2	92.2	5.3	5.1	74.3
										9.3	93.3	4.5	6.1	78.1
70	12	1.2	2.7	OPERATION NOT RECOMMENDED						9.5	94.8	6.9	4.0	71.3
										9.6	96.0	6.1	4.6	75.4
										9.7	97.3	5.2	5.5	79.5
										9.9	98.5	4.4	6.6	83.6
	16	1.9	4.3	OPERATION NOT RECOMMENDED										
	20	2.8	6.5											

Model 084, 7 Ton, Full Load cooling Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 16 GPM 2.4 PSIG dP, 5.5 FT dP					HYDRONIC FLOW - 20 GPM 3.3 PSIG dP, 7.6 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh	TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh
50	12	1.2	2.7	35	9.7	78.0	4.0	19.6	91.6	8.1	81.2	4.0	20.2	94.9
				40	9.9	78.9	4.1	19.4	92.8	8.2	82.1	4.1	20.0	96.1
				45	10.0	79.8	4.2	19.2	93.9	8.3	83.0	4.2	19.8	97.4
				50	10.1	80.7	4.2	19.0	95.1	8.4	84.0	4.3	19.6	98.6
	16	1.9	4.3	35	9.9	79.0	3.9	20.5	92.2	8.2	82.3	3.9	21.1	95.6
				40	10.0	79.9	3.9	20.3	93.4	8.3	83.2	4.0	20.9	96.8
				45	10.1	80.8	4.0	20.1	94.6	8.4	84.2	4.1	20.7	98.0
				50	10.2	81.7	4.1	19.9	95.8	8.5	85.1	4.1	20.5	99.3
	20	2.8	6.5	35	10.0	80.1	3.8	21.3	92.9	8.3	83.2	3.8	22.0	96.1
				40	10.1	81.0	3.8	21.1	94.1	8.4	84.2	3.9	21.8	97.3
				45	10.2	81.9	3.9	20.9	95.3	8.5	85.1	3.9	21.6	98.6
				50	10.4	82.8	4.0	20.7	96.5	8.6	86.1	4.0	21.4	99.8
60	12	1.2	2.7	35	9.4	75.4	4.4	17.1	90.4	7.8	78.5	4.5	17.6	93.7
				40	9.6	76.6	4.5	16.9	92.0	8.0	79.7	4.6	17.5	95.3
				45	9.7	77.8	4.6	16.8	93.6	8.1	81.0	4.7	17.4	97.0
				50	9.9	79.1	4.7	16.7	95.2	8.2	82.3	4.8	17.2	98.6
	16	1.9	4.3	35	9.5	76.4	4.3	17.8	91.0	8.0	79.5	4.3	18.4	94.3
				40	9.7	77.6	4.4	17.7	92.6	8.1	80.8	4.4	18.3	95.9
				45	9.9	78.9	4.5	17.6	94.2	8.2	82.1	4.5	18.2	97.6
				50	10.0	80.1	4.6	17.5	95.8	8.3	83.4	4.6	18.0	99.2
	20	2.8	6.5	35	9.7	77.4	4.2	18.5	91.6	8.0	80.4	4.2	19.2	94.7
				40	9.8	78.7	4.3	18.4	93.2	8.2	81.7	4.3	19.1	96.4
				45	10.0	79.9	4.4	18.3	94.8	8.3	83.1	4.4	19.0	98.0
				50	10.2	81.2	4.5	18.2	96.4	8.4	84.4	4.5	18.8	99.7
65	12	1.2	2.7	35	9.3	74.0	4.6	16.0	89.9	7.7	77.1	4.7	16.5	93.1
				40	9.4	75.5	4.7	15.9	91.7	7.9	78.6	4.8	16.4	94.9
				45	9.6	76.9	4.9	15.8	93.5	8.0	80.0	4.9	16.3	96.8
				50	9.8	78.3	5.0	15.8	95.2	8.2	81.5	5.0	16.2	98.6
	16	1.9	4.3	35	9.4	75.0	4.5	16.7	90.4	7.8	78.1	4.5	17.2	93.6
				40	9.6	76.5	4.6	16.6	92.2	8.0	79.6	4.6	17.1	95.5
				45	9.7	77.9	4.7	16.6	94.0	8.1	81.1	4.8	17.1	97.3
				50	9.9	79.3	4.8	16.5	95.8	8.3	82.6	4.9	17.0	99.2
	20	2.8	6.5	35	9.5	76.0	4.4	17.4	91.0	7.9	79.0	4.4	18.0	94.0
				40	9.7	77.5	4.5	17.3	92.8	8.1	80.5	4.5	17.9	95.9
				45	9.9	78.9	4.6	17.2	94.6	8.2	82.0	4.6	17.8	97.7
				50	10.0	80.4	4.7	17.1	96.4	8.4	83.5	4.7	17.7	99.6
70	12	1.2	2.7	OPERATION NOT RECOMMENDED										
	16	1.9	4.3	35	9.2	73.7	4.7	15.7	89.8	7.7	76.7	4.7	16.2	92.9
				40	9.4	75.3	4.8	15.6	91.8	7.8	78.4	4.9	16.1	95.0
				45	9.6	76.9	4.9	15.6	93.8	8.0	80.1	5.0	16.1	97.1
				50	9.8	78.5	5.0	15.6	95.8	8.2	81.8	5.1	16.0	99.2
	20	2.8	6.5	35	9.3	74.7	4.6	16.3	90.3	7.8	77.6	4.6	16.9	93.3
				40	9.5	76.3	4.7	16.3	92.3	7.9	79.3	4.7	16.8	95.4
				45	9.7	78.0	4.8	16.2	94.4	8.1	81.0	4.8	16.8	97.5
				50	9.9	79.6	4.9	16.2	96.4	8.3	82.7	4.9	16.7	99.5
80	12	1.2	2.7	OPERATION NOT RECOMMENDED										
	16	1.9	4.3	35	8.9	71.1	5.1	13.9	88.5	7.4	74.0	5.2	14.3	91.6
				40	9.1	73.0	5.3	13.9	90.9	7.6	76.0	5.3	14.3	94.1
				45	9.4	75.0	5.4	13.9	93.4	7.8	78.1	5.4	14.4	96.6
				50	9.6	76.9	5.5	14.0	95.8	8.0	80.1	5.6	14.4	99.1
	20	2.8	6.5	35	9.0	72.0	5.0	14.4	89.0	7.5	74.8	5.0	14.9	91.9
				40	9.2	74.0	5.1	14.4	91.5	7.7	76.9	5.1	15.0	94.4
				45	9.5	76.0	5.2	14.5	93.9	7.9	78.9	5.3	15.0	96.9
				50	9.7	78.0	5.4	14.5	96.3	8.1	81.0	5.4	15.0	99.4
90	12	1.2	2.7	OPERATION NOT RECOMMENDED										
	16	1.9	4.3	OPERATION NOT RECOMMENDED										
	20	2.8	6.5	35	8.7	69.3	5.4	12.8	87.7	7.2	72.0	5.4	13.3	90.5
				40	9.0	71.6	5.5	12.9	90.6	7.4	74.4	5.6	13.4	93.5
				45	9.2	74.0	5.7	13.0	93.4	7.7	76.9	5.7	13.5	96.4
100	12	1.2	2.7	OPERATION NOT RECOMMENDED										
	16	1.9	4.3	OPERATION NOT RECOMMENDED										
	20	2.8	6.5	35	8.3	66.6	5.8	11.5	86.5	6.9	69.2	5.8	11.9	89.1
				40	8.7	69.3	6.0	11.6	89.7	7.2	72.0	6.0	12.0	92.5
				45	9.0	72.0	6.1	11.7	92.9	7.5	74.8	6.2	12.2	95.8
100	20	2.8	6.5	50	9.3	74.7	6.3	11.9	96.2	7.8	77.6	6.3	12.3	99.2

ENGINEERING SPECIFICATIONS:

Model 120, 10 Ton, Part Load heating Performance Data

GROUND				HYD LWT °F	Hydronic Flow – 24 GPM 1.7 PSIG dP, 3.9 FT dP					Hydronic Flow – 30 GPM 2.6 PSIG dP, 6.0 FT dP				
EWT °F	GPM	dP psig	dP ft		dT °F	CAP kBtU/h	PWR kW	COP	HE kBtU/h	dT °F	CAP kBtU/h	PWR kW	COP	HE kBtU/h
25	30	2.6	6.0	115	5.7	45.5	4.6	2.9	29.8	4.6	45.7	4.5	3.0	30.3
				100	5.7	46.0	4.0	3.4	32.4	4.6	46.1	3.9	3.5	32.9
				85	5.8	46.4	3.3	4.1	35.0	4.7	46.6	3.3	4.2	35.4
				70	5.9	46.9	2.7	5.1	37.6	4.7	47.1	2.7	5.2	38.0
30	30	2.6	6.0	115	5.9	47.1	4.6	3.0	31.3	4.7	47.3	4.5	3.1	31.9
				100	6.0	48.2	4.0	3.5	34.6	4.8	48.4	3.9	3.6	35.1
				85	6.2	49.3	3.4	4.3	37.8	4.9	49.5	3.3	4.4	38.3
				70	6.3	50.4	2.7	5.4	41.0	5.1	50.6	2.7	5.5	41.5
35	30	2.6	6.0	115	6.1	48.7	4.6	3.1	32.9	4.9	48.9	4.5	3.2	33.4
				100	6.3	50.4	4.0	3.7	36.7	5.1	50.6	3.9	3.8	37.3
				85	6.5	52.2	3.4	4.5	40.6	5.2	52.4	3.3	4.6	41.1
				70	6.7	53.9	2.8	5.7	44.5	5.4	54.1	2.7	5.9	44.9
40	24	1.7	3.9	115	6.1	49.1	4.6	3.1	33.4	4.9	49.3	4.5	3.2	34.0
				100	6.4	51.4	4.0	3.8	37.8	5.2	51.7	3.9	3.9	38.4
				85	6.7	53.8	3.4	4.7	42.2	5.4	54.0	3.3	4.8	42.8
				70	7.0	56.1	2.8	5.9	46.7	5.6	56.4	2.7	6.1	47.2
	30	2.6	6.0	115	6.3	50.3	4.7	3.2	34.4	5.0	50.5	4.5	3.3	35.0
				100	6.6	52.7	4.0	3.8	38.9	5.3	52.9	3.9	3.9	39.4
				85	6.9	55.1	3.4	4.7	43.4	5.5	55.3	3.3	4.9	43.9
				70	7.2	57.5	2.8	6.0	47.9	5.8	57.7	2.7	6.2	48.4
45	20	1.2	2.8	115	6.1	49.1	4.6	3.2	33.5	4.9	49.3	4.4	3.3	34.1
				100	6.5	52.0	4.0	3.8	38.4	5.2	52.2	3.9	4.0	39.0
				85	6.9	54.8	3.4	4.8	43.4	5.5	55.1	3.3	4.9	43.9
				70	7.2	57.7	2.8	6.1	48.3	5.8	58.0	2.7	6.3	48.8
	24	1.7	3.9	115	6.3	50.6	4.6	3.2	34.9	5.1	51.3	4.5	3.3	36.0
				100	6.7	53.6	4.0	3.9	39.9	5.4	54.4	3.9	4.1	41.0
				85	7.1	56.6	3.4	4.9	45.0	5.7	57.4	3.3	5.1	46.1
				70	7.4	59.6	2.8	6.2	50.0	6.0	60.4	2.7	6.5	51.1
	30	2.6	6.0	115	6.5	51.9	4.7	3.3	35.9	5.2	52.1	4.6	3.3	36.5
				100	6.9	54.9	4.1	4.0	41.1	5.5	55.1	4.0	4.1	41.6
				85	7.2	57.9	3.4	4.9	46.2	5.8	58.2	3.4	5.1	46.7
				70	7.6	61.0	2.8	6.3	51.4	6.1	61.2	2.8	6.5	51.8
50	20	1.2	2.8	115	6.3	50.6	4.6	3.2	35.0	5.1	50.8	4.5	3.3	35.6
				100	6.8	54.1	4.0	4.0	40.5	5.4	54.3	3.9	4.1	41.1
				85	7.2	57.6	3.4	5.0	46.0	5.8	57.8	3.3	5.2	46.6
				70	7.6	61.1	2.8	6.4	51.6	6.1	61.3	2.7	6.6	52.1
	24	1.7	3.9	115	6.5	52.2	4.6	3.3	36.4	5.3	52.9	4.5	3.4	37.5
				100	7.0	55.8	4.0	4.1	42.0	5.7	56.6	3.9	4.2	43.2
				85	7.4	59.4	3.4	5.1	47.7	6.0	60.2	3.3	5.3	48.9
				70	7.9	63.0	2.8	6.6	53.4	6.4	63.9	2.7	6.8	54.5
	30	2.6	6.0	115	6.7	53.4	4.7	3.3	37.5	5.4	53.7	4.6	3.4	38.1
				100	7.1	57.1	4.1	4.1	43.2	5.7	57.4	4.0	4.2	43.8
				85	7.6	60.8	3.5	5.2	49.0	6.1	61.1	3.4	5.3	49.5
				70	8.1	64.5	2.8	6.6	54.8	6.5	64.8	2.8	6.8	55.3
55	20	1.2	2.8	115	6.5	52.1	4.6	3.3	36.4	5.2	52.3	4.5	3.4	37.1
				100	7.0	56.2	4.0	4.1	42.5	5.6	56.4	3.9	4.3	43.2
				85	7.5	60.3	3.4	5.2	48.7	6.1	60.5	3.3	5.4	49.3
				70	8.0	64.4	2.8	6.7	54.8	6.5	64.7	2.7	6.9	55.4
	24	1.7	3.9	115	6.7	53.7	4.7	3.4	37.9	5.4	54.5	4.5	3.5	39.0
				100	7.2	58.0	4.0	4.2	44.2	5.9	58.8	3.9	4.4	45.3
				85	7.8	62.2	3.4	5.3	50.4	6.3	63.1	3.4	5.5	51.6
				70	8.3	66.4	2.8	6.8	56.7	6.7	67.4	2.8	7.1	57.9
	30	2.6	6.0	115						5.5	55.2	4.6	3.5	39.6
				100						6.0	59.6	4.0	4.4	46.0
				85						6.4	64.0	3.4	5.5	52.4
				70						6.8	68.3	2.8	7.1	58.7
60	20	1.2	2.8	115	6.7	53.6	4.6	3.4	37.9	5.4	53.8	4.5	3.5	38.5
				100	7.3	58.3	4.0	4.3	44.6	5.9	58.6	3.9	4.4	45.2
				85	7.9	63.0	3.4	5.4	51.3	6.3	63.3	3.3	5.6	51.9
				70	8.5	67.7	2.8	7.0	58.1	6.8	68.0	2.8	7.2	58.6
	24	1.7	3.9	115						5.6	56.1	4.5	3.6	40.6
				100						6.1	61.0	4.0	4.5	47.5
				85						6.6	65.9	3.4	5.7	54.4
				70						7.1	70.9	2.8	7.4	61.3
70	20	1.2	2.8	115										
				100										
				85										
				70										
	24	1.7	3.9	115										
				100										
				85										
				70										

Model 120, 10 Ton, Part Load cooling Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 16 GPM 3.4 PSIG dP, 7.9 FT dP					HYDRONIC FLOW - 20 GPM 4.0 PSIG dP, 9.2 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh	TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh
50	20	1.2	2.772	35	5.9	47.3	2.6	18.5	56.0	4.9	49.2	2.6	19.0	58.0
				40	6.6	53.0	2.5	21.2	61.5	5.5	55.1	2.5	21.8	63.8
				45	7.3	58.7	2.4	24.0	67.0	6.1	61.1	2.5	24.8	69.5
				50	8.0	64.4	2.4	27.0	72.5	6.7	67.0	2.4	27.8	75.2
	24	1.7	3.927	35	6.0	47.9	2.5	19.3	56.4	5.0	49.9	2.5	19.9	58.4
				40	6.7	53.7	2.4	22.2	61.9	5.6	55.9	2.4	22.8	64.2
				45	7.4	59.5	2.4	25.1	67.5	6.2	61.9	2.4	25.9	70.1
				50	8.2	65.2	2.3	28.3	73.1	6.8	67.9	2.3	29.1	75.9
	30	2.6	6.006	35	6.1	48.5	2.4	20.1	56.8	5.0	50.4	2.4	20.8	58.7
				40	6.8	54.4	2.4	23.0	62.4	5.7	56.5	2.4	23.9	64.6
				45	7.5	60.3	2.3	26.1	68.1	6.3	62.6	2.3	27.0	70.5
				50	8.3	66.1	2.3	29.4	73.8	6.9	68.7	2.3	30.4	76.4
60	20	1.2	2.772	35	5.7	45.4	2.9	15.8	55.2	4.7	47.3	2.9	16.3	57.1
				40	6.4	50.8	2.8	17.8	60.6	5.3	52.9	2.9	18.4	62.7
				45	7.0	56.3	2.8	19.8	65.9	5.9	58.6	2.9	20.5	68.3
				50	7.7	61.7	2.8	21.9	71.3	6.4	64.2	2.8	22.5	73.9
	24	1.7	3.927	35	5.8	46.0	2.8	16.6	55.5	4.8	47.9	2.8	17.1	57.5
				40	6.4	51.5	2.8	18.7	60.9	5.4	53.6	2.8	19.2	63.1
				45	7.1	57.0	2.7	20.8	66.4	5.9	59.4	2.8	21.4	68.8
				50	7.8	62.5	2.7	22.9	71.8	6.5	65.1	2.8	23.6	74.5
	30	2.6	6.006	35	5.8	46.6	2.7	17.2	55.9	4.8	48.4	2.7	17.8	57.7
				40	6.5	52.2	2.7	19.4	61.4	5.4	54.2	2.7	20.1	63.5
				45	7.2	57.8	2.7	21.6	66.9	6.0	60.0	2.7	22.3	69.2
				50	7.9	63.3	2.7	23.8	72.4	6.6	65.8	2.7	24.6	74.9
65	20	1.2	2.772	35	5.6	44.5	3.0	14.7	54.8	4.6	46.3	3.0	15.2	56.7
				40	6.2	49.8	3.0	16.4	60.1	5.2	51.8	3.1	17.0	62.2
				45	6.9	55.0	3.0	18.2	65.4	5.7	57.3	3.1	18.7	67.8
				50	7.5	60.3	3.0	19.9	70.7	6.3	62.8	3.1	20.5	73.3
	24	1.7	3.927	35	5.6	45.1	2.9	15.4	55.0	4.7	46.9	3.0	15.9	57.0
				40	6.3	50.4	2.9	17.2	60.4	5.2	52.5	3.0	17.7	62.6
				45	7.0	55.8	2.9	19.0	65.8	5.8	58.1	3.0	19.6	68.2
				50	7.6	61.1	2.9	20.8	71.2	6.4	63.7	3.0	21.4	73.8
	30	2.6	6.006	35	5.7	45.7	2.9	16.0	55.4	4.7	47.5	2.9	16.6	57.2
				40	6.4	51.1	2.9	17.9	60.8	5.3	53.1	2.9	18.5	62.9
				45	7.1	56.5	2.9	19.7	66.3	5.9	58.7	2.9	20.4	68.5
				50	7.7	62.0	2.9	21.6	71.7	6.4	64.4	2.9	22.4	74.2
70	20	1.2	2.772	OPERATION NOT RECOMMENDED										
	24	1.7	3.927	35	5.5	44.1	3.1	14.4	54.6	4.6	45.9	3.1	14.8	56.5
				40	6.2	49.3	3.1	15.9	59.9	5.1	51.4	3.1	16.4	62.1
				45	6.8	54.6	3.1	17.5	65.2	5.7	56.8	3.2	18.0	67.6
				50	7.5	59.8	3.2	19.0	70.5	6.2	62.2	3.2	19.5	73.1
	30	2.6	6.006	35	5.6	44.7	3.0	14.9	54.9	4.6	46.5	3.0	15.4	56.7
				40	6.2	50.0	3.0	16.5	60.3	5.2	51.9	3.0	17.1	62.5
				45	6.9	55.3	3.0	18.1	65.7	5.7	57.4	3.1	18.8	68.3
				50	7.6	60.6	3.1	19.7	71.1	6.3	62.9	3.1	20.4	74.0
80	20	1.2	2.772	OPERATION NOT RECOMMENDED										
	24	1.7	3.927	35	5.3	42.2	3.4	12.5	53.7	4.4	44.0	3.4	12.9	55.6
				40	5.9	47.2	3.4	13.7	58.9	4.9	49.1	3.5	14.1	61.0
				45	6.5	52.1	3.5	14.9	64.1	5.4	54.2	3.5	15.3	66.3
				50	7.1	57.0	3.6	16.0	69.2	5.9	59.4	3.6	16.4	71.7
	30	2.6	6.006	35	5.3	42.8	3.3	13.0	54.0	4.4	44.5	3.3	13.5	55.7
				40	6.0	47.8	3.4	14.3	59.2	5.0	49.7	3.4	14.8	61.1
				45	6.6	52.8	3.4	15.4	64.5	5.5	54.9	3.4	16.0	66.6
				50	7.2	57.8	3.5	16.6	69.7	6.0	60.1	3.5	17.2	72.0
90	20	1.2	2.772	OPERATION NOT RECOMMENDED										
	24	1.7	3.927	OPERATION NOT RECOMMENDED										
	30	2.6	6.006	35	5.1	40.9	3.6	11.4	53.1	4.2	42.5	3.6	11.8	54.7
				40	5.7	45.6	3.7	12.4	58.2	4.7	47.4	3.7	12.8	60.0
				45	6.3	50.3	3.8	13.3	63.2	5.2	52.3	3.8	13.7	65.3
100	20	1.2	2.772	OPERATION NOT RECOMMENDED										
	24	1.7	3.927	OPERATION NOT RECOMMENDED										
	30	2.6	6.006	35	4.9	39.0	3.9	10.1	52.2	4.0	40.5	3.9	10.4	53.7
				40	5.4	43.4	4.0	10.8	57.1	4.5	45.1	4.0	11.2	58.8
				45	6.0	47.8	4.2	11.5	62.0	5.0	49.7	4.2	11.9	64.0
100	30	2.6	6.006	50	6.5	52.3	4.3	12.1	67.0	5.4	54.3	4.3	12.6	69.1

ENGINEERING SPECIFICATIONS:

Model 120, 10 Ton, Full Load heating Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 24 GPM 7.0 PSIG dP, 16.2 FT dP					HYDRONIC FLOW - 20 GPM 9.4 PSIG dP, 21.7 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP RISE	CAP kBTUh	PWR kW	COP	HE kBTUh	TEMP RISE	CAP kBTUh	PWR kW	COP	HE kBTUh
25	30	5	11.6	115	7.6	91.3	10.3	2.6	56.3	6.1	91.7	10.0	2.7	57.5
				100	7.8	93.2	8.8	3.1	63.3	6.2	93.6	8.6	3.2	64.4
				85	7.9	95.2	7.3	3.8	70.3	6.4	95.5	7.1	3.9	71.3
				70	8.1	97.1	5.8	4.9	77.4	6.5	97.5	5.6	5.1	78.2
30	30	5	11.6	115	7.9	94.9	10.3	2.7	59.9	6.4	95.3	10.0	2.8	61.1
				100	8.1	97.0	8.8	3.2	67.1	6.5	97.3	8.6	3.3	68.1
				85	8.3	99.0	7.3	4.0	74.2	6.6	99.4	7.1	4.1	75.2
				70	8.4	101.1	5.8	5.1	81.4	6.8	101.5	5.6	5.3	82.2
35	30	5	11.6	115	8.2	98.5	10.2	2.8	63.5	6.6	98.8	10.0	2.9	64.7
				100	8.4	100.7	8.8	3.4	70.8	6.7	101.1	8.5	3.5	71.9
				85	8.6	102.9	7.3	4.1	78.1	6.9	103.3	7.1	4.3	79.1
				70	8.8	105.1	5.8	5.3	85.4	7.0	105.5	5.6	5.5	86.3
40	24	4	9.2	115	8.3	99.6	10.1	2.9	65.1	6.7	100.1	9.9	3.0	66.5
				100	8.5	101.9	8.7	3.5	72.4	6.8	102.4	8.4	3.6	73.6
				85	8.7	104.3	7.2	4.2	79.7	7.0	104.7	7.0	4.4	80.8
				70	8.9	106.6	5.7	5.5	87.0	7.1	107.0	5.6	5.6	88.0
	30	5	11.6	115	8.5	102.0	10.2	2.9	67.1	6.8	102.4	10.0	3.0	68.3
				100	8.7	104.4	8.7	3.5	74.6	7.0	104.8	8.5	3.6	75.7
				85	8.9	106.8	7.3	4.3	82.0	7.1	107.2	7.1	4.4	83.0
				70	9.1	109.1	5.8	5.5	89.4	7.3	109.6	5.6	5.7	90.3
45	20	3	6.9	115	8.3	99.9	10.0	2.9	65.9	6.7	100.4	9.7	3.0	67.2
				100	8.5	102.3	8.5	3.5	73.2	6.9	102.8	8.3	3.6	74.4
				85	8.7	104.7	7.1	4.3	80.5	7.0	105.2	6.9	4.5	81.6
				70	8.9	107.1	5.7	5.6	87.8	7.2	107.6	5.5	5.7	88.8
	24	4	9.2	115	8.6	103.1	10.1	3.0	68.6	7.0	104.5	9.8	3.1	71.0
				100	8.8	105.6	8.7	3.6	76.1	7.1	107.0	8.4	3.7	78.3
				85	9.0	108.0	7.2	4.4	83.5	7.3	109.5	7.0	4.6	85.7
				70	9.2	110.5	5.7	5.7	91.0	7.5	112.0	5.6	5.9	93.0
	30	5	11.6	115	8.8	105.6	10.2	3.0	70.7	7.1	106.0	10.0	3.1	72.0
				100	9.0	108.1	8.7	3.6	78.3	7.2	108.5	8.5	3.7	79.4
				85	9.2	110.6	7.3	4.5	85.9	7.4	111.1	7.1	4.6	86.9
				70	9.4	113.1	5.8	5.7	93.4	7.6	113.6	5.6	5.9	94.3
50	20	3	6.9	115	8.6	103.3	10.0	3.0	69.3	6.9	103.8	9.7	3.1	70.6
				100	8.8	105.8	8.5	3.6	76.7	7.1	106.3	8.3	3.8	78.0
				85	9.0	108.4	7.1	4.5	84.2	7.3	108.8	6.9	4.6	85.3
				70	9.2	110.9	5.7	5.7	91.6	7.4	111.4	5.5	5.9	92.6
	24	4	9.2	115	8.9	106.6	10.1	3.1	72.1	7.2	108.1	9.8	3.2	74.5
				100	9.1	109.2	8.6	3.7	79.7	7.4	110.7	8.4	3.9	82.0
				85	9.3	111.8	7.2	4.6	87.3	7.6	113.4	7.0	4.8	89.5
				70	9.5	114.4	5.7	5.9	94.9	7.7	116.0	5.6	6.1	97.0
	30	5	11.6	115	9.1	109.2	10.2	3.1	74.3	7.3	109.6	10.0	3.2	75.6
				100	9.3	111.8	8.7	3.8	82.0	7.5	112.3	8.5	3.9	83.2
				85	9.5	114.5	7.3	4.6	89.7	7.7	115.0	7.1	4.8	90.8
				70	9.8	117.2	5.8	5.9	97.4	7.8	117.6	5.6	6.1	98.4
55	20	3	6.9	115	8.9	106.7	10.0	3.1	72.7	7.1	107.1	9.7	3.2	74.1
				100	9.1	109.4	8.5	3.8	80.3	7.3	109.8	8.3	3.9	81.5
				85	9.3	112.0	7.1	4.6	87.8	7.5	112.5	6.9	4.8	89.0
				70	9.6	114.7	5.7	5.9	95.4	7.7	115.2	5.5	6.1	96.4
	24	4	9.2	115	9.2	110.1	10.1	3.2	75.6	7.4	111.6	9.8	3.3	78.1
				100	9.4	112.8	8.6	3.8	83.4	7.6	114.4	8.4	4.0	85.7
				85	9.6	115.6	7.2	4.7	91.1	7.8	117.2	7.0	4.9	93.4
				70	9.9	118.3	5.7	6.1	98.8	8.0	120.0	5.6	6.3	101.0
	30	5	11.6	115	OPERATION NOT RECOMMENDED					7.5	113.2	10.0	3.3	79.2
				100						7.7	116.0	8.5	4.0	86.9
				85						7.9	118.8	7.1	4.9	94.7
				70						8.1	121.7	5.6	6.3	102.4
60	20	3	6.9	115	9.2	110.1	10.0	3.2	76.1	7.4	110.5	9.7	3.3	77.5
				100	9.4	112.9	8.5	3.9	83.8	7.6	113.4	8.3	4.0	85.1
				85	9.6	115.7	7.1	4.8	91.5	7.7	116.2	6.9	4.9	92.7
				70	9.9	118.5	5.7	6.1	99.2	7.9	119.0	5.5	6.3	100.2
	24	4	9.2	115	OPERATION NOT RECOMMENDED					7.7	115.1	9.8	3.4	81.7
				100						7.9	118.1	8.4	4.1	89.5
				85						8.1	121.0	7.0	5.1	97.2
				70						8.3	124.0	5.6	6.5	105.0
30	5	11.6	OPERATION NOT RECOMMENDED											
70	20	3	6.9	115	OPERATION NOT RECOMMENDED					7.8	117.3	9.7	3.6	84.4
				100						8.0	120.4	8.3	4.3	92.2
				85						8.2	123.5	6.9	5.3	100.0
				70						8.4	126.6	5.5	6.8	107.9
	24	4	9.2	OPERATION NOT RECOMMENDED										
	30	5	11.6											

Model 120, 10 Ton, Full Load cooling Performance Data

GROUND				Hyd LWT °F	HYDRONIC FLOW - 24 GPM 7.0 PSIG dP, 16.2 FT dP					HYDRONIC FLOW - 30 GPM 9.4 PSIG dP, 21.7 FT dP				
EWT °F	GPM	dP psig	dP ft		TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh	TEMP DROP	CAP kBtUh	PWR kW	EER	HR kBtUh
50	20	3	6.9	35	8.1	97.8	5.7	17.3	117.1	6.8	101.8	5.7	17.8	121.3
				40	8.5	102.6	5.7	18.1	121.9	7.1	106.8	5.7	18.6	126.3
				45	8.9	107.4	5.7	18.9	126.8	7.5	111.8	5.7	19.5	131.4
				50	9.3	112.2	5.7	19.7	131.6	7.8	116.8	5.8	20.3	136.4
	24	4	9.2	35	8.3	99.1	5.5	18.1	117.8	6.9	103.2	5.5	18.6	122.1
				40	8.7	103.9	5.5	18.9	122.7	7.2	108.2	5.6	19.5	127.2
				45	9.1	108.8	5.5	19.8	127.6	7.6	113.3	5.6	20.4	132.2
				50	9.5	113.7	5.5	20.6	132.5	7.9	118.3	5.6	21.2	137.3
	30	5	11.6	35	8.4	100.4	5.3	18.8	118.7	7.0	104.3	5.4	19.4	122.6
				40	8.8	105.3	5.4	19.7	123.6	7.3	109.4	5.4	20.3	127.8
				45	9.2	110.2	5.4	20.5	128.6	7.6	114.6	5.4	21.3	132.9
				50	9.6	115.2	5.4	21.4	133.5	8.0	119.7	5.4	22.2	138.1
60	20	3	6.9	35	7.7	92.8	6.3	14.7	114.3	6.4	96.6	6.4	15.1	118.3
				40	8.2	98.5	6.4	15.3	120.4	6.8	102.5	6.5	15.8	124.6
				45	8.7	104.2	6.5	16.0	126.4	7.2	108.5	6.6	16.5	130.9
				50	9.2	109.9	6.6	16.6	132.5	7.6	114.4	6.7	17.1	137.2
	24	4	9.2	35	7.8	94.0	6.1	15.4	114.9	6.5	97.9	6.2	15.8	119.0
				40	8.3	99.8	6.2	16.0	121.0	6.9	103.9	6.3	16.5	125.3
				45	8.8	105.6	6.3	16.7	127.1	7.3	109.9	6.4	17.2	131.7
				50	9.3	111.4	6.4	17.3	133.3	7.7	115.9	6.5	17.9	138.1
	30	5	11.6	35	7.9	95.2	6.0	16.0	115.6	6.6	99.0	6.0	16.5	119.4
				40	8.4	101.1	6.1	16.7	121.8	7.0	105.1	6.1	17.3	125.8
				45	8.9	107.0	6.2	17.4	128.0	7.4	111.2	6.2	18.0	132.3
				50	9.4	112.8	6.3	18.0	134.2	7.8	117.2	6.3	18.7	138.7
65	20	3	6.9	35	7.5	90.2	6.6	13.6	112.9	6.3	94.0	6.7	14.0	116.9
				40	8.0	96.4	6.8	14.2	119.6	6.7	100.4	6.9	14.6	123.8
				45	8.5	102.6	6.9	14.8	126.3	7.1	106.8	7.0	15.2	130.7
				50	9.1	108.8	7.1	15.3	133.0	7.5	113.2	7.2	15.8	137.7
	24	4	9.2	35	7.6	91.5	6.4	14.2	113.4	6.3	95.2	6.5	14.6	117.4
				40	8.1	97.7	6.6	14.8	120.2	6.8	101.7	6.7	15.3	124.4
				45	8.7	104.0	6.7	15.4	126.9	7.2	108.2	6.8	15.9	131.4
				50	9.2	110.2	6.9	16.0	133.7	7.6	114.7	6.9	16.5	138.4
	30	5	11.6	35	7.7	92.7	6.3	14.8	114.1	6.4	96.3	6.3	15.3	117.8
				40	8.3	99.0	6.4	15.4	120.9	6.9	102.9	6.4	16.0	124.9
				45	8.8	105.3	6.6	16.1	127.7	7.3	109.5	6.6	16.6	131.9
				50	9.3	111.7	6.7	16.7	134.5	7.7	116.0	6.7	17.2	139.0
70	20	3	6.9	OPERATION NOT RECOMMENDED										
	24	4	9.2	35	11.1	88.9	6.8	13.2	112.0	6.2	92.6	6.8	13.6	115.8
				40	12.0	95.6	6.9	13.8	119.3	6.6	99.6	7.0	14.2	123.5
				45	12.8	102.3	7.1	14.3	126.7	7.1	106.5	7.2	14.8	131.1
				50	13.6	109.1	7.3	14.9	134.1	7.6	113.5	7.4	15.3	138.8
	30	5	11.6	35	11.3	90.1	6.6	13.7	112.6	6.2	93.6	6.6	14.2	116.2
				40	12.1	96.9	6.8	14.3	120.0	6.7	100.7	6.8	14.8	123.9
				45	13.0	103.7	7.0	14.9	127.4	7.2	107.8	7.0	15.4	131.6
				50	13.8	110.5	7.1	15.5	134.9	7.7	114.8	7.2	16.0	139.3
80	20	3	6.9	OPERATION NOT RECOMMENDED										
	24	4	9.2	35	10.5	83.8	7.4	11.3	109.0	5.8	87.3	7.5	11.7	112.7
				40	11.4	91.5	7.7	11.9	117.6	6.3	95.2	7.7	12.3	121.7
				45	12.4	99.1	8.0	12.5	126.3	6.9	103.2	8.0	12.8	130.6
				50	13.3	106.8	8.2	13.0	134.9	7.4	111.1	8.3	13.4	139.5
	30	5	11.6	35	10.6	84.9	7.2	11.8	109.5	5.9	88.3	7.2	12.2	112.9
				40	11.6	92.7	7.5	12.4	118.2	6.4	96.3	7.5	12.8	121.9
				45	12.6	100.4	7.8	13.0	126.9	7.0	104.4	7.8	13.4	130.9
				50	13.5	108.2	8.0	13.5	135.6	7.5	112.4	8.1	13.9	139.9
90	20	3	6.9	OPERATION NOT RECOMMENDED										
	24	4	9.2	OPERATION NOT RECOMMENDED										
	30	5	11.6	35	6.6	79.8	7.8	10.2	106.5	5.5	82.9	7.9	10.6	109.7
				40	7.4	88.5	8.2	10.8	116.4	6.1	91.9	8.2	11.2	120.0
				45	8.1	97.2	8.6	11.4	126.3	6.7	101.0	8.6	11.8	130.2
100	20	3	6.9	OPERATION NOT RECOMMENDED										
	24	4	9.2	OPERATION NOT RECOMMENDED										
	30	5	11.6	35	6.2	74.6	8.4	8.8	103.4	5.2	77.5	8.5	9.2	106.4
				40	7.0	84.3	8.9	9.5	114.6	5.8	87.6	8.9	9.8	118.0
				45	7.8	93.9	9.3	10.0	125.8	6.5	97.6	9.4	10.4	129.6
100	30	5	11.6	50	8.6	103.5	9.8	10.6	137.0	7.2	107.6	9.8	10.9	141.1

ENGINEERING SPECIFICATIONS:

Model 240, 20 Ton, Full Load Heating Performance Data

EST (°F)	Source Flow (GPM)	Source WPD PSI(FOH)	ELT (°F)	Load Flow: 30 GPM					Load Flow:45 GPM					Load Flow: 60 GPM				
				HC (MBtuh)	Power (kW)	HE (MBtuh)	LLT (°F)	COP	HC (MBtuh)	Power (kW)	HE (MBtuh)	LLT (°F)	COP	HC (MBtuh)	Power (kW)	HE (MBtuh)	LLT (°F)	COP
25	45	2.1 (4.9)	60	203.8	12.06	162.6	73.6	5.0	205.3	11.88	164.8	69.1	5.1	206.2	11.77	166.0	66.9	5.1
25	45		75	195.1	13.95	147.5	88.0	4.1	195.9	13.67	149.2	83.7	4.2	196.4	13.49	150.4	81.5	4.3
25	45		90	189.4	16.87	131.8	102.6	3.3	189.7	16.49	133.5	98.4	3.4	190.0	16.23	134.6	96.3	3.4
25	45		100	187.2	19.39	121.0	112.5	2.8	187.5	18.93	122.9	108.3	2.9	187.6	18.63	124.1	106.3	3.0
25	45		110	Operation Not Recommended					Operation Not Recommended					Operation Not Recommended				
25	60	3.5 (8.1)	60	206.6	12.11	165.3	73.8	5.0	208.2	11.92	167.5	69.3	5.1	209.2	11.81	168.9	67.0	5.2
25	60		75	197.4	14.01	149.6	88.2	4.1	198.6	13.72	151.7	83.8	4.2	199.2	13.53	153.1	81.6	4.3
25	60		90	191.3	16.91	133.6	102.8	3.3	192.0	16.52	135.6	98.5	3.4	192.4	16.26	136.9	96.4	3.5
25	60		100	189.0	19.40	122.8	112.6	2.9	189.4	18.94	124.8	108.4	2.9	189.6	18.63	126.0	106.3	3.0
25	60		110	188.0	22.33	111.8	122.5	2.5	188.1	21.80	113.7	118.4	2.5	188.1	21.45	114.9	116.3	2.6
30	30	1.0 (2.3)	60	213.5	12.20	171.8	74.2	5.1	214.4	12.00	173.4	69.5	5.2	215.0	11.89	174.5	67.2	5.3
30	30		75	204.8	14.03	156.9	88.7	4.3	205.1	13.75	158.1	84.1	4.4	205.5	13.57	159.2	81.8	4.4
30	30		90	199.1	16.92	141.4	103.3	3.4	199.0	16.53	142.6	98.8	3.5	199.3	16.27	143.7	96.6	3.6
30	30		100	196.7	19.45	130.3	113.1	3.0	196.8	18.97	132.1	108.7	3.0	197.0	18.65	133.4	106.6	3.1
30	30		110	196.4	22.38	120.0	123.1	2.6	196.1	21.82	121.7	118.7	2.6	196.1	21.45	122.9	116.5	2.7
30	45	2.0 (4.6)	60	217.3	12.24	175.5	74.5	5.2	218.9	12.06	177.7	69.7	5.3	219.8	11.95	179.0	67.3	5.4
30	45		75	208.4	14.11	160.3	88.9	4.3	209.4	13.82	162.3	84.3	4.4	210.1	13.63	163.6	82.0	4.5
30	45		90	202.4	16.98	144.4	103.5	3.5	202.9	16.58	146.4	99.0	3.6	203.4	16.32	147.7	96.8	3.7
30	45		100	199.6	19.46	133.2	113.3	3.0	200.1	18.98	135.3	108.9	3.1	200.3	18.66	136.7	106.7	3.1
30	45		110	198.9	22.40	122.5	123.3	2.6	199.0	21.83	124.5	118.8	2.7	199.0	21.45	125.8	116.6	2.7
30	60	3.4 (7.9)	60	220.9	12.32	178.9	74.7	5.3	222.6	12.12	181.3	69.9	5.4	223.6	12.00	182.7	67.5	5.5
30	60		75	211.3	14.16	163.0	89.1	4.4	212.5	13.86	165.2	84.4	4.5	213.3	13.67	166.7	82.1	4.6
30	60		90	204.6	17.02	146.6	103.6	3.5	205.4	16.61	148.8	99.1	3.6	206.0	16.34	150.2	96.9	3.7
30	60		100	201.7	19.47	135.2	113.4	3.0	202.2	18.98	137.5	109.0	3.1	202.5	18.66	138.9	106.8	3.2
30	60		110	200.5	22.40	124.1	123.4	2.6	200.7	21.82	126.3	118.9	2.7	200.9	21.45	127.7	116.7	2.7
40	30	1.0 (2.2)	60	241.2	12.54	198.5	76.1	5.6	242.5	12.35	200.3	70.8	5.8	243.3	12.23	201.6	68.1	5.8
40	30		75	233.0	14.36	184.1	90.5	4.8	233.8	14.05	185.9	85.4	4.9	234.4	13.85	187.2	82.8	5.0
40	30		90	226.1	17.17	167.6	105.1	3.9	226.6	16.73	169.5	100.1	4.0	227.1	16.45	171.0	97.6	4.0
40	30		100	222.4	19.61	155.5	114.8	3.3	223.0	19.07	157.9	109.9	3.4	223.4	18.73	159.5	107.4	3.5
40	30		110	218.7	22.58	141.6	124.6	2.8	218.6	22.06	143.3	119.7	2.9	217.8	21.81	143.3	117.3	2.9
40	45	2.0 (4.5)	60	246.9	12.61	203.8	76.5	5.7	248.5	12.42	206.1	71.0	5.9	249.4	12.29	207.5	68.3	5.9
40	45		75	238.3	14.45	189.0	90.9	4.8	239.6	14.13	191.4	85.6	5.0	240.4	13.92	192.9	83.0	5.1
40	45		90	230.6	17.24	171.8	105.4	3.9	231.5	16.79	174.2	100.3	4.0	232.2	16.50	175.9	97.7	4.1
40	45		100	226.5	19.63	159.5	115.1	3.4	227.3	19.10	162.1	110.1	3.5	227.8	18.75	163.8	107.6	3.6
40	45		110	222.6	22.51	145.8	124.8	2.9	223.0	21.98	148.0	119.9	3.0	222.8	21.69	148.8	117.4	3.0
40	60	3.3 (7.6)	60	250.7	12.66	207.5	76.7	5.8	252.4	12.46	209.9	71.2	5.9	253.4	12.33	211.3	68.4	6.0
40	60		75	241.9	14.51	192.4	91.1	4.9	243.5	14.18	195.2	85.8	5.0	244.4	13.96	196.8	83.1	5.1
40	60		90	233.7	17.28	174.7	105.6	4.0	234.8	16.82	177.4	100.4	4.1	235.5	16.53	179.1	97.9	4.2
40	60		100	229.2	19.65	162.1	115.3	3.4	230.1	19.11	164.9	110.2	3.5	230.7	18.76	166.7	107.7	3.6
40	60		110	225.3	22.49	148.6	125.0	2.9	226.0	21.94	151.2	120.0	3.0	226.5	21.63	152.7	117.5	3.1
50	30	0.9 (2.1)	60	271.6	12.87	227.7	78.1	6.2	273.1	12.66	229.9	72.1	6.3	274.0	12.53	231.3	69.1	6.4
50	30		75	263.1	14.71	212.9	92.5	5.2	264.4	14.36	215.4	86.8	5.4	265.2	14.13	217.0	83.8	5.5
50	30		90	255.5	17.47	195.8	107.0	4.3	256.6	16.98	198.6	101.4	4.4	257.3	16.66	200.5	98.6	4.5
50	30		100	250.7	19.82	183.1	116.7	3.7	251.7	19.24	186.1	111.2	3.8	252.4	18.86	188.0	108.4	3.9
50	30		110	246.7	22.57	169.7	126.4	3.2	247.6	21.91	172.8	121.0	3.3	248.2	21.48	174.9	118.3	3.4
50	45	1.8 (4.2)	60	278.7	12.95	234.5	78.6	6.3	280.3	12.73	236.9	72.5	6.5	281.3	12.59	238.4	69.4	6.5
50	45		75	269.7	14.78	219.2	93.0	5.3	271.1	14.42	221.9	87.1	5.5	272.1	14.19	223.7	84.1	5.6
50	45		90	261.3	17.53	201.5	107.4	4.4	262.6	17.03	204.5	101.7	4.5	263.5	16.70	206.5	98.8	4.6
50	45		100	256.0	19.86	188.2	117.1	3.8	257.2	19.27	191.4	111.4	3.9	258.0	18.89	193.6	108.6	4.0
50	45		110	251.4	22.61	174.2	126.8	3.3	252.4	21.93	177.6	121.2	3.4	253.1	21.49	179.8	118.4	3.5
50	60	3.1 (7.2)	60	283.5	13.00	239.2	78.9	6.4	285.2	12.77	241.6	72.7	6.5	286.2	12.63	243.1	69.5	6.6
50	60		75	274.1	14.83	223.5	93.3	5.4	275.7	14.46	226.4	87.3	5.6	276.7	14.22	228.2	84.2	5.7
50	60		90	265.3	17.57	205.3	107.7	4.4	266.8	17.06	208.5	101.9	4.6	267.7	16.73	210.6	98.9	4.7
50	60		100	259.6	19.90	191.7	117.3	3.8	260.9	19.30	195.1	111.6	4.0	261.8	18.91	197.3	108.7	4.1
50	60		110	254.5	22.64	177.2	127.0	3.3	255.7	21.95	180.8	121.4	3.4	256.5	21.50	183.1	118.6	3.5
70	30	0.9 (2.0)	60	542.6	20.85	471.4	84.1	7.6	547.6	20.34	478.2	76.1	7.9	550.0	20.11	481.4	72.2	8.0
70	30		75	508.6	23.60	428.1	97.6	6.3	512.7	22.80	434.9	90.1	6.6	514.9	22.44	438.3	86.4	6.7
70	30		90	474.0	27.51	380.1	111.1	5.0	477.5	26.46	387.2	104.0	5.3	479.3	25.97	390.7	100.7	5.4
70	30		100	450.6	30.77	345.6	120.0	4.3	453.7	29.57	352.9	113.3	4.5	455.4	28.99	356.5	110.1	4.6
70	30		110	Operation Not Recommended					429.9	33.21	316.6	122.6	3.8	431.4	32.55	320.3	119.6	3.9
70	45	1.8 (4.0)	60	565.3	21.24	492.8	85.1	7.8	571.1	20.75	500.3	76.8	8.1	574.2	20.53	504.1	72.8	8.2
70	45		75	528.1	23.88	446.6	98.5	6.5	533.0	23.09	454.2	90.7	6.8	535.5	22.71	458.0	86.9	

Model 240, 20 Ton, Full Load Cooling Performance Data

EST (°F)	Source Flow (GPM)	Source WPD PSI(FOH)	ELT (°F)	Load Flow: 30 GPM					Load Flow: 45 GPM					Load Flow: 60 GPM				
				TC (MBtuh)	Power (kW)	HR (MBtuh)	LLT (°F)	EER	TC (MBtuh)	Power (kW)	HR (MBtuh)	LLT (°F)	EER	TC (MBtuh)	Power (kW)	HR (MBtuh)	LLT (°F)	EER
50	30	0.8 (1.9)	50	228.7	12.15	270.1	34.8	18.8	235.4	12.22	277.1	39.5	19.3	239.9	12.26	281.7	42.0	19.6
50	30		55	241.3	12.28	283.2	38.9	19.6	248.7	12.36	290.9	43.9	20.1	253.7	12.40	296.0	46.5	20.5
50	30		60	253.7	12.41	296.0	43.1	20.4	261.8	12.48	304.4	48.4	21.0	267.3	12.52	310.0	51.1	21.3
50	30	1.7 (4.0)	65	265.7	12.53	308.4	47.3	21.2	274.6	12.60	317.5	52.8	21.8	280.6	12.64	323.7	55.6	22.2
50	45		50	230.4	12.04	271.5	34.6	19.1	237.2	12.10	278.5	39.5	19.6	241.8	12.13	283.2	41.9	19.9
50	45		55	243.0	12.17	284.5	38.8	20.0	250.5	12.22	292.2	43.9	20.5	255.5	12.26	297.4	46.5	20.8
50	45	2.9 (6.7)	60	255.3	12.29	297.2	43.0	20.8	263.5	12.34	305.6	48.3	21.4	269.1	12.37	311.3	51.0	21.8
50	45		65	267.2	12.39	309.5	47.2	21.6	276.2	12.43	318.6	52.7	22.2	282.3	12.46	324.8	55.6	22.6
50	60		50	231.5	11.97	272.4	34.6	19.3	238.4	12.03	279.4	39.4	19.8	243.0	12.06	284.1	41.9	20.1
50	60	0.8 (1.8)	55	244.1	12.10	285.3	38.7	20.2	251.6	12.15	293.0	43.8	20.7	256.7	12.18	298.2	46.4	21.1
50	60		60	256.4	12.20	298.0	42.9	21.0	264.6	12.25	306.4	48.2	21.6	270.2	12.28	312.1	51.0	22.0
50	60		65	268.3	12.29	310.2	47.1	21.8	277.3	12.33	319.4	52.7	22.5	283.3	12.36	325.5	55.6	22.9
70	30	1.7 (3.8)	50	214.7	14.01	262.6	35.7	15.3	221.2	14.08	269.2	40.2	15.7	225.5	14.12	273.7	42.5	16.0
70	30		55	228.3	14.17	276.7	39.8	16.1	235.5	14.24	284.1	44.5	16.5	240.3	14.29	289.1	47.0	16.8
70	30		60	241.8	14.33	290.7	43.9	16.9	249.8	14.41	298.9	48.9	17.3	255.1	14.46	304.5	51.5	17.6
70	30	2.8 (6.4)	65	255.1	14.49	304.6	48.0	17.6	263.9	14.58	313.6	53.3	18.1	269.7	14.64	319.7	56.0	18.4
70	45		50	217.1	13.70	263.8	35.5	15.8	223.8	13.75	270.7	40.1	16.3	228.3	13.79	275.3	42.4	16.5
70	45		55	230.8	13.84	278.0	39.6	16.7	238.2	13.90	285.6	44.4	17.1	243.1	13.95	290.7	46.9	17.4
70	45	0.8 (1.7)	60	244.4	13.98	292.2	43.7	17.5	252.5	14.05	300.5	48.8	18.0	258.0	14.09	306.1	51.4	18.3
70	45		65	257.9	14.12	306.1	47.8	18.3	266.8	14.19	315.2	53.1	18.8	272.7	14.24	321.3	55.9	19.2
70	60		50	218.7	13.50	264.7	35.4	16.2	225.5	13.55	271.7	40.0	16.6	230.0	13.58	276.4	42.3	16.9
70	60	1.6 (3.7)	55	232.4	13.63	279.0	39.5	17.1	239.9	13.69	286.6	44.3	17.5	245.0	13.72	291.8	46.8	17.9
70	60		60	246.1	13.76	293.1	43.6	17.9	254.4	13.82	301.5	48.7	18.4	259.9	13.86	307.2	51.3	18.8
70	60		65	259.7	13.88	307.0	47.7	18.7	268.7	13.94	316.2	53.1	19.3	274.7	13.98	322.4	55.8	19.6
80	30	2.7 (6.2)	50	207.2	15.54	260.2	36.2	13.3	213.3	15.60	266.5	40.5	13.7	217.4	15.64	270.8	42.8	13.9
80	30		55	221.4	15.70	275.0	40.2	14.1	228.3	15.77	282.1	44.9	14.5	232.9	15.82	286.9	47.2	14.7
80	30		60	235.4	15.87	289.6	44.3	14.8	243.1	15.95	297.5	49.2	15.2	248.2	16.00	302.9	51.7	15.5
80	30	0.7 (1.7)	65	249.2	16.04	303.9	48.4	15.5	257.6	16.13	312.7	53.6	16.0	263.3	16.19	318.5	56.2	16.3
80	45		50	209.7	15.14	261.4	36.0	13.9	216.2	15.19	268.0	40.4	14.2	220.5	15.22	272.4	42.7	14.5
80	45		55	224.2	15.28	276.3	40.1	14.7	231.3	15.34	283.7	44.7	15.1	236.1	15.38	288.6	47.1	15.4
80	45	1.5 (3.5)	60	238.5	15.42	291.1	44.1	15.5	246.3	15.49	299.2	49.1	15.9	251.6	15.53	304.6	51.6	16.2
80	45		65	252.4	15.56	305.5	48.2	16.2	261.0	15.64	314.4	53.4	16.7	266.9	15.69	320.4	56.1	17.0
80	60		50	211.5	14.88	262.2	35.9	14.2	218.0	14.92	268.9	40.3	14.6	222.4	14.95	273.5	42.6	14.9
80	60	0.8 (1.8)	55	226.1	15.00	277.3	39.9	15.1	233.3	15.05	284.7	44.6	15.5	238.2	15.09	289.7	47.1	15.8
80	60		60	240.5	15.13	292.1	44.0	15.9	248.5	15.19	300.3	49.0	16.4	253.9	15.23	305.8	51.5	16.7
80	60		65	254.6	15.25	306.6	48.0	16.7	263.3	15.32	315.6	53.3	17.2	269.3	15.36	321.7	56.0	17.5
90	30	1.6 (3.7)	50	198.7	17.47	258.3	36.8	11.4	204.4	17.53	264.2	40.9	11.7	208.3	17.57	268.2	43.1	11.9
90	30		55	212.5	17.63	272.7	40.8	12.1	219.0	17.70	279.4	45.3	12.4	223.3	17.74	283.8	47.6	12.6
90	30		60	226.7	17.80	287.4	44.9	12.7	233.9	17.88	294.9	49.6	13.1	238.8	17.93	299.9	52.0	13.3
90	30	0.7 (1.7)	65	241.2	17.97	302.6	48.9	13.4	249.3	18.06	310.9	53.9	13.8	254.6	18.12	316.5	56.5	14.1
90	45		50	201.4	16.98	259.4	36.6	11.9	207.5	17.03	265.6	40.8	12.2	211.6	17.06	269.8	42.9	12.4
90	45		55	215.6	17.11	274.0	40.6	12.6	222.4	17.16	280.9	45.1	13.0	226.9	17.20	285.6	47.4	13.2
90	45	1.5 (3.5)	60	230.1	17.25	289.0	44.7	13.3	237.6	17.31	296.7	49.4	13.7	242.6	17.36	301.8	51.9	14.0
90	45		65	245.0	17.39	304.3	48.7	14.1	253.2	17.46	312.8	53.7	14.5	258.8	17.51	318.5	56.4	14.8
90	60		50	203.3	16.66	260.2	36.4	12.2	209.6	16.70	266.6	40.7	12.5	213.7	16.73	270.8	42.9	12.8
90	60	2.7 (6.1)	55	217.7	16.78	274.9	40.5	13.0	224.6	16.82	282.0	45.0	13.4	229.2	16.86	286.7	47.4	13.6
90	60		60	232.4	16.89	290.0	44.5	13.8	240.0	16.95	297.8	49.3	14.2	245.1	16.99	303.1	51.8	14.4
90	60		65	247.5	17.01	305.5	48.5	14.5	255.8	17.08	314.1	53.6	15.0	261.5	17.12	319.9	56.3	15.3
100	30	0.8 (1.9)	50	190.9	19.82	258.6	37.3	9.6	196.3	19.87	264.1	41.3	9.9	199.9	19.90	267.8	43.3	10.0
100	30		55	204.8	19.96	272.9	41.3	10.3	210.8	20.01	279.1	45.6	10.5	214.9	20.05	283.3	47.8	10.7
100	30		60	219.1	20.11	287.7	45.4	10.9	225.9	20.18	294.7	50.0	11.2	230.4	20.23	299.5	52.3	11.4
100	30	1.5 (3.4)	65	234.0	20.28	303.2	49.4	11.5	241.5	20.36	311.0	54.3	11.9	246.6	20.42	316.2	56.8	12.1
100	45		50	194.0	19.24	259.7	37.1	10.1	199.7	19.28	265.4	41.1	10.4	203.5	19.30	269.3	43.2	10.5
100	45		55	208.2	19.35	274.2	41.1	10.8	214.5	19.39	280.7	45.5	11.1	218.8	19.43	285.1	47.7	11.3
100	45	2.7 (6.0)	60	222.9	19.47	289.4	45.1	11.5	230.0	19.52	296.6	49.8	11.8	234.7	19.56	301.5	52.2	12.0
100	45		65	238.2	19.60	305.1	49.1	12.2	246.0	19.67	313.1	54.1	12.5	251.3	19.71	318.6	56.6	12.7
100	60		50	196.1	18.86	260.5	36.9	10.4	201.9	18.89	266.4	41.0	10.7	205.8	18.91	270.4	43.1	10.9
100	60	0.7 (1.7)	55	210.5	18.95	275.2	41.0	11.1	217.0	18.99	281.8	45.4	11.4	221.4	19.02	286.3	47.6	11.6
100	60		60	225.5	19.05	290.5	45.0	11.8	232.7	19.10	297.9	49.7	12.2	237.6	19.13	302.8	52.1	12.4
100	60		65	240.9	19.16	306.3	48.9	12.6	249.0	19.22	314.6	53.9	13.0	254.4	19.26	320.1	56.5	13.2

ENGINEERING SPECIFICATIONS:

Model 360, 30 Ton, Full Load Heating Performance Data

EST (°F)	Source Flow (GPM)	Source WPD PSI(FOH)	ELT (°F)	Load Flow: 45 GPM					Load Flow: 68 GPM					Load Flow: 90 GPM				
				HC (MBtuh)	Power (kW)	HE (MBtuh)	LLT (°F)	COP	HC (MBtuh)	Power (kW)	HE (MBtuh)	LLT (°F)	COP	HC (MBtuh)	Power (kW)	HE (MBtuh)	LLT (°F)	COP
25	68	2.7 (6.2)	60	316.3	18.53	253.1	74.1	5.0	318.3	18.13	256.5	69.4	5.1	319.0	17.98	257.7	67.1	5.2
25	68		75	308.9	21.54	235.4	88.7	4.2	309.8	21.03	238.0	84.1	4.3	310.2	20.79	239.3	81.9	4.4
25	68		90	303.9	25.39	217.3	103.5	3.5	304.6	24.82	219.9	99.0	3.6	304.9	24.52	221.2	96.8	3.6
25	68		100	301.9	28.42	204.9	113.4	3.1	303.1	27.85	208.0	108.9	3.2	303.4	27.54	209.4	106.7	3.2
25	68		110	Operation Not Recommended					Operation Not Recommended					Operation Not Recommended				
25	90	4.5 (10.5)	60	317.7	18.17	255.7	74.1	5.1	318.9	17.76	258.3	69.4	5.3	319.6	17.56	259.7	67.1	5.3
25	90		75	311.4	21.45	238.2	88.8	4.3	312.3	20.93	240.9	84.2	4.4	312.7	20.68	242.1	81.9	4.4
25	90		90	306.8	25.43	220.0	103.6	3.5	307.4	24.82	222.7	99.0	3.6	307.6	24.52	224.0	96.8	3.7
25	90		100	304.6	28.47	207.5	113.5	3.1	305.1	27.81	210.2	109.0	3.2	305.4	27.48	211.6	106.8	3.3
25	90		110	303.2	31.83	194.6	123.5	2.8	303.6	31.12	197.4	118.9	2.9	304.0	30.75	199.1	116.8	2.9
30	45	1.3 (2.9)	60	327.1	18.42	264.3	74.5	5.2	328.1	18.00	266.7	69.6	5.3	329.1	17.82	268.3	67.3	5.4
30	45		75	322.6	21.89	247.9	89.3	4.3	323.5	21.38	250.6	84.5	4.4	324.1	21.13	252.0	82.2	4.5
30	45		90	318.3	25.93	229.9	104.1	3.6	319.2	25.32	232.8	99.4	3.7	319.5	25.02	234.1	97.1	3.7
30	45		100	316.2	29.02	217.2	114.1	3.2	317.0	28.33	220.3	109.3	3.3	317.2	28.00	221.7	107.0	3.3
30	45		110	312.8	32.15	203.1	123.9	2.9	313.4	31.40	206.3	119.2	2.9	313.5	31.03	207.7	117.0	3.0
30	68	2.7 (6.1)	60	335.7	18.53	272.5	74.9	5.3	337.6	18.10	275.8	69.9	5.5	338.3	17.92	277.2	67.5	5.5
30	68		75	327.9	21.63	254.1	89.6	4.4	329.0	21.08	257.0	84.7	4.6	329.5	20.82	258.4	82.3	4.6
30	68		90	321.9	25.54	234.7	104.3	3.7	322.5	24.88	237.6	99.5	3.8	329.3	24.93	244.3	97.3	3.9
30	68		100	319.2	28.65	221.4	114.2	3.3	319.8	27.93	224.5	109.4	3.4	320.2	27.58	226.0	107.1	3.4
30	68		110	316.4	31.98	207.2	124.1	2.9	316.8	31.20	210.4	119.3	3.0	328.7	31.48	221.3	117.3	3.1
30	90	4.5 (10.3)	60	338.0	18.25	275.7	75.0	5.4	339.3	17.80	278.6	70.0	5.6	340.0	17.58	280.0	67.6	5.7
30	90		75	331.1	21.57	257.5	89.7	4.5	332.1	21.01	260.4	84.8	4.6	332.6	20.73	261.8	82.4	4.7
30	90		90	325.3	25.60	237.9	104.5	3.7	326.1	24.94	241.0	99.6	3.8	326.4	24.61	242.5	97.3	3.9
30	90		100	322.3	28.70	224.3	114.3	3.3	322.9	27.97	227.5	109.5	3.4	323.2	27.61	229.0	107.2	3.4
30	90		110	319.3	32.08	209.9	124.2	2.9	319.9	31.29	213.1	119.4	3.0	320.2	30.90	214.8	117.1	3.0
40	45	1.2 (2.8)	60	355.9	18.64	292.3	75.8	5.6	357.4	18.17	295.4	70.5	5.8	358.4	17.95	297.1	68.0	5.9
40	45		75	348.4	21.91	273.7	90.5	4.7	349.7	21.31	276.9	85.3	4.8	350.3	21.02	278.6	82.8	4.9
40	45		90	342.3	26.03	253.5	105.2	3.9	343.3	25.29	257.0	100.1	4.0	343.8	24.94	258.7	97.6	4.0
40	45		100	339.0	29.24	239.2	115.1	3.4	339.9	28.42	243.0	110.0	3.5	340.3	28.02	244.7	107.6	3.6
40	45		110	336.3	32.82	224.3	124.9	3.0	337.1	31.91	228.2	119.9	3.1	337.5	31.48	230.1	117.5	3.1
40	68	2.5 (5.9)	60	366.3	18.76	302.3	76.3	5.7	368.4	18.28	306.0	70.8	5.9	369.3	18.06	307.7	68.2	6.0
40	68		75	356.6	21.84	282.1	90.8	4.8	358.0	21.21	285.6	85.5	4.9	358.7	20.91	287.4	83.0	5.0
40	68		90	349.0	25.90	260.6	105.5	3.9	349.9	25.11	264.2	100.3	4.1	350.4	24.74	266.0	97.8	4.2
40	68		100	345.1	29.15	245.6	115.3	3.5	345.7	28.25	249.3	110.2	3.6	346.2	27.84	251.3	107.7	3.6
40	68		110	342.1	32.84	230.1	125.2	3.1	342.6	31.82	234.0	120.1	3.2	343.1	31.37	236.0	117.6	3.2
40	90	4.3 (9.9)	60	370.9	18.66	307.2	76.5	5.8	372.7	18.17	310.7	71.0	6.0	373.7	17.93	312.5	68.3	6.1
40	90		75	361.5	21.91	286.8	91.1	4.8	363.1	21.27	290.5	85.7	5.0	363.9	20.96	292.3	83.1	5.1
40	90		90	353.5	26.00	264.8	105.7	4.0	354.8	25.23	268.7	100.4	4.1	355.4	24.85	270.6	97.9	4.2
40	90		100	348.9	29.20	249.3	115.5	3.5	350.0	28.34	253.3	110.3	3.6	350.5	27.93	255.3	107.8	3.7
40	90		110	344.9	32.78	233.0	125.3	3.1	345.9	31.84	237.2	120.2	3.2	346.3	31.38	239.2	117.7	3.2
50	45	1.2 (2.7)	60	392.4	19.12	327.1	77.4	6.0	394.5	18.61	331.0	71.6	6.2	395.7	18.37	333.0	68.8	6.3
50	45		75	382.5	22.26	306.5	92.0	5.0	384.3	21.58	310.7	86.3	5.2	385.3	21.26	312.7	83.6	5.3
50	45		90	373.8	26.35	283.9	106.6	4.2	375.3	25.50	288.3	101.0	4.3	376.1	25.09	290.4	98.4	4.4
50	45		100	368.7	29.60	267.7	116.4	3.7	370.1	28.65	272.3	110.9	3.8	370.8	28.19	274.6	108.2	3.9
50	45		110	363.8	33.25	250.3	126.2	3.2	365.1	32.20	255.2	120.7	3.3	365.7	31.69	257.6	118.1	3.4
50	68	2.4 (5.6)	60	405.4	19.29	339.5	78.0	6.2	408.0	18.78	343.9	72.0	6.4	409.4	18.54	346.1	69.1	6.5
50	68		75	393.9	22.39	317.5	92.5	5.2	396.1	21.70	322.1	86.7	5.4	397.3	21.36	324.4	83.8	5.5
50	68		90	383.7	26.46	293.4	107.1	4.3	385.5	25.59	298.2	101.3	4.4	386.5	25.17	300.6	98.6	4.5
50	68		100	377.6	29.71	276.3	116.8	3.7	379.3	28.74	281.3	111.2	3.9	380.2	28.26	283.8	108.4	3.9
50	68		110	371.8	33.37	257.9	126.5	3.3	373.3	32.29	263.1	121.0	3.4	374.2	31.76	265.8	118.3	3.5
50	90	4.1 (9.5)	60	412.4	19.39	346.3	78.3	6.2	415.3	18.88	350.9	72.2	6.4	416.7	18.64	353.1	69.3	6.6
50	90		75	400.1	22.46	323.5	92.8	5.2	402.5	21.76	328.3	86.8	5.4	403.7	21.42	330.6	84.0	5.5
50	90		90	389.0	26.51	298.6	107.3	4.3	391.1	25.64	303.6	101.5	4.5	392.1	25.21	306.1	98.7	4.6
50	90		100	382.5	29.77	280.9	117.0	3.8	384.3	28.78	286.1	111.3	3.9	385.2	28.30	288.6	108.6	4.0
50	90		110	376.1	33.43	262.0	126.7	3.3	377.8	32.34	267.5	121.1	3.4	378.6	31.80	270.1	118.4	3.5
70	45	1.1 (2.6)	60	542.6	20.85	471.4	84.1	7.6	547.6	20.34	478.2	76.1	7.9	550.0	20.11	481.4	72.2	8.0
70	45		75	508.6	23.60	428.1	97.6	6.3	512.7	22.80	434.9	90.1	6.6	514.9	22.44	438.3	86.4	6.7
70	45		90	474.0	27.51	380.1	111.1	5.0	477.5	26.46	387.2	104.0	5.3	479.3	25.97	390.7	100.7	5.4
70	45		100	450.6	30.77	345.6	120.0	4.3	453.7	29.57	352.9	113.3	4.5	455.4	28.99	356.5	110.1	4.6
70	45		110	Operation Not Recommended					429.9	33.21	316.6	122.6	3.8	431.4	32.55	320.3	119.6	3.9
70	68	2.3 (5.3)	60	565.3	21.24	492.8	85.1	7.8	571.1	20.75	500.3	76.8	8.1	574.2	20.53	504.1	72.8	8.2
70	68		75	528.1	23.88	446.6	98.5	6.5	533.0	23.09	454.2	90.						

Model 360, 30 Ton, Full Load Cooling Performance Data

EST (°F)	Source Flow (GPM)	Source WPD PSI(FOH)	ELT (°F)	Load Flow: 45 GPM					Load Flow: 68 GPM					Load Flow: 90 GPM				
				TC (MBtuh)	Power (kW)	HR (MBtuh)	LLT (°F)	EER	TC (MBtuh)	Power (kW)	HR (MBtuh)	LLT (°F)	EER	TC (MBtuh)	Power (kW)	HR (MBtuh)	LLT (°F)	EER
50	45		50	319.9	17.59	379.9	35.8	18.2	332.4	17.81	393.1	40.2	18.7	339.1	17.93	400.3	42.5	18.9
50	45	1.1	55	339.1	18.01	400.6	39.9	18.8	353.1	18.28	415.4	44.6	19.3	360.6	18.44	423.5	47.0	19.6
50	45	(2.5)	60	358.9	18.50	422.0	44.0	19.4	374.3	18.83	438.6	49.0	19.9	382.7	19.03	447.6	51.5	20.1
50	45		65	379.2	19.06	444.2	48.1	19.9	396.2	19.46	462.6	53.3	20.4	405.5	19.70	472.7	56.0	20.6
50	68		50	323.4	17.20	382.1	35.6	18.8	336.3	17.43	395.8	40.1	19.3	343.3	17.56	403.3	42.4	19.5
50	68	2.3	55	343.1	17.64	403.3	39.8	19.5	357.5	17.92	418.6	44.5	19.9	365.3	18.09	427.0	46.9	20.2
50	68	(5.3)	60	363.3	18.15	425.2	43.9	20.0	379.3	18.50	442.4	48.8	20.5	388.0	18.70	451.8	51.4	20.7
50	68		65	384.0	18.73	447.9	47.9	20.5	401.7	19.16	467.0	53.2	21.0	411.4	19.41	477.6	55.9	21.2
50	90		50	325.3	17.03	383.4	35.5	19.1	338.4	17.26	397.3	40.0	19.6	345.4	17.40	404.7	42.3	19.8
50	90	3.9	55	345.1	17.47	404.7	39.7	19.8	359.7	17.76	420.3	44.4	20.3	367.6	17.93	428.8	46.8	20.5
50	90	(9.1)	60	365.5	17.99	426.9	43.8	20.3	381.8	18.35	444.4	48.8	20.8	390.6	18.56	453.9	51.3	21.0
50	90		65	386.5	18.59	449.9	47.8	20.8	404.5	19.03	469.4	53.1	21.3	414.3	19.29	480.1	55.8	21.5
70	45		50	304.5	21.11	376.5	36.5	14.4	315.7	21.24	388.2	40.7	14.9	321.7	21.31	394.4	42.9	15.1
70	45	1.0	55	322.1	21.38	395.0	40.7	15.1	334.5	21.54	408.0	45.2	15.5	341.1	21.64	415.0	47.4	15.8
70	45	(2.4)	60	340.0	21.71	414.1	44.9	15.7	353.7	21.91	428.5	49.6	16.1	361.1	22.04	436.3	52.0	16.4
70	45		65	358.2	22.09	433.6	49.1	16.2	373.2	22.35	449.5	54.0	16.7	381.4	22.51	458.2	56.5	16.9
70	68		50	308.4	20.48	378.3	36.3	15.1	320.0	20.61	390.3	40.6	15.5	326.2	20.68	396.7	42.8	15.8
70	68	2.2	55	326.4	20.73	397.1	40.5	15.7	339.2	20.89	410.5	45.0	16.2	346.1	20.98	417.7	47.3	16.5
70	68	(5.1)	60	344.8	21.04	416.5	44.7	16.4	359.0	21.24	431.5	49.4	16.9	366.7	21.36	439.5	51.9	17.2
70	68		65	363.4	21.41	436.5	48.8	17.0	379.1	21.67	453.1	53.8	17.5	387.7	21.81	462.1	56.4	17.8
70	90		50	310.4	20.18	379.3	36.2	15.4	322.1	20.31	391.4	40.5	15.9	328.5	20.38	398.0	42.7	16.1
70	90	3.8	55	328.6	20.42	398.2	40.4	16.1	341.6	20.58	411.8	45.0	16.6	348.7	20.67	419.2	47.3	16.9
70	90	(8.7)	60	347.2	20.72	417.9	44.6	16.8	361.6	20.92	433.0	49.4	17.3	369.5	21.04	441.3	51.8	17.6
70	90		65	366.1	21.09	438.0	48.7	17.4	382.1	21.34	454.9	53.8	17.9	390.8	21.49	464.1	56.3	18.2
80	45		50	294.9	23.52	375.2	36.9	12.5	305.3	23.64	386.0	41.0	12.9	310.9	23.69	391.7	43.1	13.1
80	45	1.0	55	311.1	23.75	392.1	41.2	13.1	322.6	23.89	404.1	45.5	13.5	328.7	23.98	410.5	47.7	13.7
80	45	(2.4)	60	327.4	24.04	409.4	45.5	13.6	340.0	24.21	422.7	50.0	14.0	346.8	24.32	429.8	52.3	14.3
80	45		65	343.8	24.38	426.9	49.7	14.1	357.7	24.59	441.6	54.5	14.5	365.2	24.72	449.6	56.9	14.8
80	68		50	299.0	22.78	376.7	36.7	13.1	309.8	22.88	387.9	40.9	13.5	315.6	22.94	393.9	43.0	13.8
80	68	2.2	55	315.6	22.98	394.0	41.0	13.7	327.5	23.10	406.3	45.4	14.2	334.0	23.18	413.0	47.6	14.4
80	68	(5.0)	60	332.3	23.23	411.6	45.2	14.3	345.5	23.38	425.3	49.8	14.8	352.7	23.48	432.8	52.2	15.0
80	68		65	349.2	23.53	429.5	49.5	14.8	363.8	23.73	444.8	54.3	15.3	371.7	23.85	453.1	56.7	15.6
80	90		50	301.1	22.42	377.6	36.6	13.4	312.0	22.52	388.9	40.8	13.9	318.0	22.57	395.0	42.9	14.1
80	90	3.7	55	317.8	22.60	394.9	40.9	14.1	330.0	22.72	407.5	45.3	14.5	336.6	22.79	414.3	47.5	14.8
80	90	(8.6)	60	334.8	22.84	412.7	45.1	14.7	348.3	22.99	426.7	49.8	15.2	355.6	23.08	434.4	52.1	15.4
80	90		65	352.0	23.13	430.9	49.4	15.2	366.9	23.32	446.4	54.2	15.7	374.9	23.44	454.9	56.7	16.0
90	45		50	285.8	26.36	375.7	37.3	10.8	295.4	26.47	385.7	41.3	11.2	300.5	26.51	391.0	43.3	11.3
90	45	1.0	55	302.3	26.58	393.0	41.6	11.4	313.0	26.71	404.1	45.8	11.7	318.7	26.78	410.1	47.9	11.9
90	45	(2.3)	60	319.1	26.85	410.7	45.8	11.9	330.9	27.00	423.0	50.3	12.3	337.2	27.09	429.7	52.5	12.4
90	45		65	336.1	27.16	428.7	50.1	12.4	349.1	27.35	442.4	54.7	12.8	356.1	27.46	449.8	57.1	13.0
90	68		50	290.1	25.51	377.2	37.1	11.4	300.2	25.60	387.5	41.2	11.7	305.6	25.64	393.1	43.2	11.9
90	68	2.1	55	307.1	25.68	394.7	41.4	12.0	318.2	25.79	406.2	45.6	12.3	324.3	25.85	412.5	47.8	12.5
90	68	(4.9)	60	324.4	25.90	412.8	45.6	12.5	336.7	26.03	425.5	50.1	12.9	343.5	26.11	432.6	52.4	13.2
90	68		65	342.0	26.16	431.2	49.8	13.1	355.6	26.32	445.4	54.5	13.5	363.1	26.43	453.3	56.9	13.7
90	90		50	292.3	25.10	377.9	37.0	11.6	302.5	25.18	388.4	41.1	12.0	308.0	25.21	394.0	43.2	12.2
90	90	3.7	55	309.5	25.25	395.6	41.2	12.3	320.9	25.34	407.3	45.6	12.7	327.0	25.40	413.7	47.7	12.9
90	90	(8.5)	60	327.0	25.44	413.9	45.5	12.9	339.7	25.56	426.9	50.0	13.3	346.6	25.64	434.0	52.3	13.5
90	90		65	344.9	25.68	432.5	49.7	13.4	358.9	25.83	447.0	54.4	13.9	366.5	25.93	455.0	56.9	14.1
100	45		50	276.5	29.60	377.5	37.7	9.3	285.4	29.70	386.7	41.6	9.6	290.1	29.75	391.6	43.6	9.8
100	45	1.0	55	291.0	29.84	392.9	42.1	9.8	300.8	29.96	403.1	46.2	10.0	306.1	30.02	408.5	48.2	10.2
100	45	(2.3)	60	306.4	30.11	409.1	46.4	10.2	317.2	30.26	420.4	50.7	10.5	323.0	30.34	426.5	52.8	10.6
100	45		65	322.5	30.42	426.3	50.7	10.6	334.5	30.59	438.9	55.2	10.9	340.9	30.69	445.6	57.4	11.1
100	68		50	281.2	28.65	378.9	37.5	9.8	290.4	28.73	388.5	41.5	10.1	295.4	28.77	393.5	43.4	10.3
100	68	2.1	55	296.1	28.82	394.5	41.8	10.3	306.4	28.92	405.1	46.0	10.6	311.9	28.97	410.8	48.1	10.8
100	68	(4.9)	60	312.0	29.03	411.0	46.1	10.7	323.4	29.15	422.8	50.5	11.1	329.5	29.21	429.2	52.7	11.3
100	68		65	328.8	29.28	428.7	50.4	11.2	341.3	29.42	441.7	55.0	11.6	348.2	29.50	448.8	57.3	11.8
100	90		50	283.5	28.19	379.7	37.4	10.1	292.9	28.26	389.4	41.4	10.4	298.1	28.29	394.6	43.4	10.5
100	90	3.7	55	298.7	28.33	395.4	41.7	10.5	309.2	28.41	406.2	45.9	10.9	314.9	28.46	412.0	48.0	11.1
100	90	(8.5)	60	314.8	28.51	412.1	46.0	11.0	326.5	28.61	424.1	50.4	11.4	332.8	28.67	430.6	52.6	11.6
100	90		65	331.9	28.72	429.9	50.3	11.6	344.8	28.85	443.2	54.9	11.9	351.8	28.93	450.5	57.2	12.2

ENGINEERING SPECIFICATIONS:

Water-to-Water “WS” Series, Size 036-084

General Information

Packaged Water-to-Water Single-Stage “WS” Series Geothermal Heat Pumps shall be constructed based on all information to follow. Equipment shall be completely assembled, piped, internally wired, charged with refrigerant, and tested.

Units shall be supplied completely factory built capable of operating over an entering water temperature range from 25° to 120°F (-3.9° to 48.9°C) (extended data tables; Heating 25°F – 90°F, cooling 50°F – 110°F) as standard. All equipment listed in this section must be rated and certified in accordance with Air-Conditioning, Heating and Refrigeration Institute/ International Standards Organization (AHRI/ISO 13256-1). All equipment must be tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada, by Intertek Testing Laboratories (ETL). The units shall have AHRI/ISO and ETL-US-C labels.

All units shall be fully quality tested by factory run testing under normal operating conditions as described herein. Quality control system shall automatically perform via computer: helium leak check of both the water and refrigerant circuits, pressure tests, double evacuation and accurately charged system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail criteria.

Basic Construction

The heat pumps shall be fabricated from powder coated heavy gauge galvanized steel. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117.

All units must have a minimum of two side access panels and one removable top panel for serviceability of compressor compartment. See IOM manuals for service clearances.

All interior surfaces shall be lined with 3/8 inch (9.5mm) thick, 3-6 lb/ft³ (24 kg/m³) acoustic type closed cell, non-porous, non-fibrous Nitrile/Vinyl insulation. Standard cabinet panel insulation must meet UL-1995 and ASTM E 84/ UL 723 Flame 25 / Smoke 50 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. The insulation shall be UL-GREENGUARD certified under the Children and Schools classification and approved by the Factory Mutual Research Corporation. For added protection it shall be protected with an EPA-approved antimicrobial agent.

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 MPT fittings, and shall be securely mounted flush to the cabinet allowing for connection to a flexible hose without the use of a back-up wrench. All water connections and electrical knockouts must be in the compressor compartment as to not interfere with the serviceability of unit.

The unit shall be supplied with extended range internal insulation. All internal water lines and the evaporator side refrigeration tubing shall all have closed cell EPDM insulation. The water to refrigerant brazed plate heat exchangers shall have 8lb. EnVELO-Seal rigid closed cell spray foam applied to a minimum of .5” thickness.

Option: Sound attenuating compressor blanket for additional noise reduction.

Refrigerant Circuit

All units shall contain R-410A sealed refrigerant circuit including a high efficiency single stage scroll compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, reversing valve, brazed plate stainless steel refrigerant to water heat exchangers (source and load), and safety controls (see controls section). Refrigerant access ports shall be factory installed on high and low pressure refrigerant lines to facilitate field service. All units have factory installed bidirectional filter/drier for added moisture protection.

Hermetic compressors shall be internally sprung. The compressor shall have a dual level vibration isolation system. The compressor will be mounted on EPDM rubber grommets secured to a large heavy gauge compressor mounting plate, which is then mounted to the cabinet base with specially engineered sound-tested elastomeric foam vibration isolation pads for maximized vibration attenuation. Compressor shall have thermal overload protection. Compressor discharge and suction refrigerant lines to have shock loops directly at compressor for additional vibration elimination.

Refrigerant to water heat exchangers shall be of brazed plate stainless steel design, rated to withstand 625 PSIG (4309 kPa) working refrigerant pressure and 500 PSIG (3445 kPa) working water pressure, and designed to have a low water pressure drop (max.10ft.hd.).

Refrigerant metering shall be accomplished by thermostatic expansion valve only. Expansion valves shall be dual port balanced types with external equalizer for optimum refrigerant metering. The expansion valves must be bidirectional without the use of check valves. Units shall be designed and tested for operating ranges of entering water temperatures from 25° to 120°F (-3.9° to 48.9°C). Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function.

Option: The unit will be supplied with a cupronickel coaxial water to refrigerant heat exchanger (source heat exchanger only).

Option: The unit shall be supplied with a hot water generator (desuperheater) heat exchanger, which shall be double wall and vented.

Electrical

A control box shall be located within the unit compressor compartment and shall contain a 75VA transformer, 24 volt activated, 2 or 3 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation and control. Reversing valve wiring shall be routed through this electronic controller. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 Volt and provide heating or cooling as required by the remote aquastat/sensor.

Source pump high voltage terminal block including minimum 7amp circuit breaker protection to be provided for field wiring of source pumps.

A detachable low voltage thermostat terminal strip with screw terminals to be provided for field wiring.

ENGINEERING SPECIFICATIONS:

Solid State Control Board System

Units shall have a solid-state control system. The control system microprocessor board shall be specifically designed to protect against building electrical system noise contamination, EMI, and RFI interference. The control system shall interface with a heat pump type 24V thermostat. The control system shall have the following features:

- Anti-short cycle time delay on compressor operation (5 minutes).
- Random start on power up mode.
- Low voltage protection.
- High voltage protection.
- Unit shutdown on high or low refrigerant pressures.
- Unit shutdown on low temperature (low source coil temp OR low air coil temp).
- Condensate overflow electronic protection.
- Option to reset unit at thermostat or disconnect (soft or hard reset functions)
- Fault retry logic. The same fault trip has to occur 3 times before a hard lockout. If a fault occurs 3 times sequentially without thermostat meeting temperature, then lockout requiring manual reset will occur. A soft or hard reset will restart the unit.
- Ability to defeat time delays for servicing (test mode).
- Light emitting diode (LED) on circuit board to indicate high pressure, low pressure, low/high voltage, low water/air temperature, condensate overflow, high discharge gas temperature, faulty temperature sensor(s), and control voltage status.
- The low-pressure switch shall not be monitored for the first 90 seconds after a compressor start command to prevent nuisance safety trips.
- 24V output to cycle a motorized water valve or other device with compressor contactor.
- Water coil (evaporator) low temperature sensing selectable for water or anti-freeze.
- High discharge gas temperature sensing and protection.
- Smart desuperheater operation and logic to eliminate any heat transfer from the water tank to the source loop during cooling mode.

Water-to-Water “WD” Series Size 120-360

General Information

Packaged Water-to-Water Two-Stage “WD” Series Geothermal Heat Pumps shall be constructed based on all information to follow. Equipment shall be completely assembled, piped, internally wired, charged with refrigerant, and tested.

Units shall be supplied completely factory built capable of operating over an entering water temperature range from 25° to 120°F (-3.9°C to 48.9°C) (extended data tables; Heating 25°F – 90°F, cooling 50°F – 110°F) as standard. All equipment listed in this section must be rated and certified in accordance with Air-Conditioning, Heating and Refrigeration Institute/ International Standards Organization (AHRI/ISO 13256-1). All equipment must be tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada, by Intertek Testing Laboratories (ETL). The units shall have AHRI/ISO and ETL-US-C labels.

All units shall be fully quality tested by factory run testing under normal operating conditions as described herein. Quality control system shall automatically perform via computer: helium leak check of both the water and refrigerant circuits, pressure tests, double evacuation and accurately charged system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail criteria.

Basic Construction

The heat pumps shall be fabricated from powder coated heavy gauge galvanized steel. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117.

All interior surfaces shall be lined with 3/8 inch (9.5mm) thick, 3-6 lb/ft³ (24 kg/m³) acoustic type closed cell, non-porous, non-fibrous Nitrile/Vinyl insulation. Standard cabinet panel insulation must meet UL-1995 and ASTM E 84/UL 723 Flame 25 / Smoke 50 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. The insulation shall be UL-GREENGUARD certified under the Children and Schools classification and approved by the Factory Mutual Research Corporation. For added protection it shall be protected with an EPA-approved antimicrobial agent.

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 MPT fittings, and shall be securely mounted flush to the cabinet allowing for connection to a flexible hose without the use of a back-up wrench. All water connections and electrical knockouts must be in the compressor compartment as to not interfere with the serviceability of unit.

The unit shall be supplied with extended range internal insulation. All internal water lines and the evaporator side refrigeration tubing shall all have closed cell EPDM insulation. The water to refrigerant brazed plate heat exchangers shall have 8lb. EnVELO-Seal rigid closed cell spray foam applied to a minimum of .5" thickness.

Option: Sound attenuating compressor blanket for additional noise reduction.

Refrigerant Circuit

All units shall contain R-410A sealed refrigerant circuit including a tandem high efficiency single stage scroll compressor package designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, reversing valve, brazed plate stainless steel refrigerant to water heat exchangers (source and load), and safety controls (see controls section). Refrigerant access ports shall be factory installed on high and low pressure refrigerant lines to facilitate field service. All units have factory installed bidirectional filter/drier for added moisture protection.

Hermetic compressors shall be internally sprung. The compressors shall have a dual level vibration isolation system. The compressor will be mounted on EPDM rubber grommets secured to a large heavy gauge compressor mounting plate, which is then mounted to the cabinet base with specially engineered sound-tested elastomeric foam vibration isolation pads for maximized vibration attenuation. Compressors shall have thermal overload protection. Compressor discharge and suction refrigerant lines to have shock loops directly at compressor for additional vibration elimination. The tandem compressors are combined into one refrigeration circuit.

Refrigerant to water heat exchangers shall be of brazed plate stainless steel design, rated to withstand 625 PSIG (4309 kPa) working refrigerant pressure and 500 PSIG (3445 kPa) working water pressure, and designed to have a low water pressure drop (max. 10ft.hd.).

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ENGINEERING SPECIFICATIONS:

Option: The unit will be supplied with a cupronickel coaxial water to refrigerant heat exchanger (source heat exchanger only).

Option: The unit shall be supplied with a hot water generator (desuperheater) heat exchanger, which shall be double wall and vented.

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A control box shall be located within the unit compressor compartment and shall contain a 75VA transformer, 24 volt activated, 2 or 3 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation and control. Reversing valve wiring shall be routed through this electronic controller. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 Volt and provide heating or cooling as required by the remote aquastat/sensor.

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- Anti-short cycle time delay on compressor operation (5 minutes).
- Random start on power up mode.
- Low voltage protection.
- High voltage protection.
- Unit shutdown on high or low refrigerant pressures.
- Unit shutdown on low temperature (low source coil temp OR low air coil temp).
- Condensate overflow electronic protection.
- Option to reset unit at thermostat or disconnect (soft or hard reset functions)
- Fault retry logic. The same fault trip has to occur 3 times before a hard lockout. If a fault occurs 3 times sequentially without thermostat meeting temperature, then lockout requiring manual reset will occur. A soft or hard reset will restart the unit.
- Ability to defeat time delays for servicing (test mode).
- Light emitting diode (LED) on circuit board to indicate high pressure, low pressure, low/high voltage, low water/air temperature, condensate overflow, high discharge gas temperature, faulty temperature sensor(s), and control voltage status.
- The low-pressure switch shall not be monitored for the first 90 seconds after a compressor start command to prevent nuisance safety trips.
- 24V output to cycle a motorized water valve or other device with compressor contactor.
- Water coil (evaporator) low temperature sensing selectable for water or anti-freeze.
- High discharge gas temperature sensing and protection.
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Revision Table

Date	Description of Revision	Page
15NOV2019	Unit Electrical Data updated	5, 6
16JUN2019	Minor layout changes made	Various
22APR2019	WD240, 360 Extended Data Tables Updated.	29-32
27NOV2018	WD Nomenclature Updated	8
18JAN2018	Updated Physical Unit Data	ALL
10MAY2016	Corrected Full and added Part Load Perf Specs	24-27
04AUG2015	Updated Electrical Data Tables	10-11
25FEB2015	Updated nomenclature	
21JAN2015	Final posted to server	All
14JAN2015	Document Created	All



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