5 Series

500W11

GEOTHERMAL HYDRONIC HEAT PUMP
1.5 TO 6 TONS

WaterFurnace
Smarter from the Ground Up™

Submittal Data
English Language
IP/Metric Units
SD2506WN 06/16

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Model Nomenclature

1	2	3	4-6	7	8	9	10	11	12	13	14	15	16
N	S	W	050	G	1	0	R	C	S	S	0	A	N

Model
N – 5 Series Hydronic Heat Pump

Compressor Type
S – Single Speed

Cabinet Configuration
W – Water-to-Water

Unit Capacity
018, 025, 040, 050, 060, 075

Vintage
* - Factory Use Only

Voltage
1 – 208-230/60/1

Hot Water Option[1]
0 – No Hot Water Generation
2 – Hot Water Generation

IntelliStart®
N – None
A – IntelliStart

Controls Option
A – Aurora™ Base Controls (ABC)
B – Aurora™ Advanced Controls (ABC AXB)
C – Aurora™ Performance[3]
D – Aurora™ Performance[3] & Refrigeration

Future Option
0 – Standard

Future Option
S – Standard

Future Option
S – Standard

Water Coil Option[2]
C – Copper
N - CuproNickel
L – Source CuproNickel & Load Copper
S – Source Copper & Load CuproNickel

Reversible Option
H – Heating Only
R – Reversible

NOTES: 1 – Available on 040, 050, 060, and 075 only. Hot water generator requires field installed external pump kit.
2 – NSW018 and NSW025 heating only models are available only with copper double wall vented load coax for potable water, and are not designed to be converted to dedicated cooling units.
3 – Flow meter for Performance option is shipped with unit, and must be externally field installed.

Rev.: 18 January 2016

All Envision Series product is safety listed under UL1995 thru ETL and performance listed with AHRI in accordance with standard 13256-1. The Envision Series is also ENERGY STAR® rated.

Definitions

COP = Coefficient of Performance
EER = Energy Efficiency Ratio
ELT = Entering Load Temperature
FLA = Full Load Amps
FT HD = Feet of Head
GPM = Gallons per Minute
HC = Heating Capacity
HE = Heat of Extraction
HR = Heat of Rejection
KW = Power in KiloWatts
LLT = Leaving Load Temperature
LRA = Locked Rotor Amps
LST = Leaving Source Temperature
MCC = Maximum Continuous Current
PD = Pressure Drop
PSI = Pounds per Square Inch
RLA = Rated Load Amps
TC = Total Cooling Capacity

Performance Standard (AHRI/ISO/ASHRAE 13256-2)

The NSW is rated in accordance to the upcoming performance standard AHRI/ASHRAE/ISO 13256-2. This new standard will have three major categories: Water Loop, Ground Water, and Ground Loop.

Unit of Measure: The Cooling COP

The cooling efficiency is measured in EER (US version measured in Btuh per Watt. The Metric version is measured in a cooling COP (Watt per Watt) similar to the traditional COP measurement.

Pump Power Correction Calculation

Within each model, only one water flow rate is specified for all three groups and pumping Watts are calculated using the following formula. This additional power is added onto the existing power consumption.

• Pump power correction = (gpm x 0.0631) x (Press Drop x 2990) / 300

Where 'gpm' is waterflow in gpm and 'Press Drop' is the pressure drop through the unit heat exchanger at rated water flow in feet of head.

ISO Capacity and Efficiency Calculations

The following equations illustrate cooling calculations:

• ISO Cooling Capacity = Cooling Capacity (Btuh) x 3.412

• ISO EER Efficiency (W/W) = ISO Cooling Capacity (Btuh) x 3.412 / [Power Input (Watts) + Pump Power Correction (Watt)]

The following equations illustrate heating calculations:

• ISO Heating Capacity = Heating Capacity (Btuh) x 3.412

• ISO COP Efficiency (W/W) = ISO Heating Capacity (Btuh) x 3.412 / [Power Input (Watts) + Pump Power Correction (Watt)]

Test Conditions

	ISO/AHRI 13256-2 WLHP	ISO/AHRI 13256-2 GWHP	ISO/AHRI 13256-2 GLHP
Cooling			
Liquid Entering Indoor Side - °F	53.6	53.6	53.6
Standard Rating Test			
Liquid Entering Heat Exchanger - °F	86	59	77
Part-load Rating Test			
Liquid Entering Heat Exchanger	86	59	68
Fluid Flow Rate	*	*	*
Heating			
Liquid Entering Indoor Side - °F	104	104	104
Standard Rating Test			
Liquid Entering Outdoor-side Heat Exchanger - °F	68	50	32
Part-load Rating Test			
Liquid Entering Outdoor-side Heat Exchanger	68	50	41
Fluid Flow Rate	*	*	*

NOTES: *Flow rate is specified by the manufacturer
WLHP = Water Loop Heat Pump; GWHP = Ground Water Heat Pump;
GLHP = Ground Loop Heat Pump

Conversions

Water Flow (lps) = GPM x 0.0631
Press Drop (Pascals) = Press Drop (ft hd) x 2990

AHRI/ISO 13256-2 Performance Ratings

English (IP) Units

Model	Capacity Modulation	Flow Rate		Water Loop Heat Pump				Ground Water Heat Pump				
				Cooling 86°F Source 53.6°F Load		Heating 68°F Source 104°F Load		Cooling 59°F Source 53.6°F Load		Heating 50°F Source 104°F Load		
		Load Gpm	Source Gpm	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Energy Star Compliant
018	Single	5	5	16,400	14.0	22,200	4.5	18,800	22.9	18,500	3.7	Yes
025	Single	7	7	23,700	13.6	32,800	4.6	26,700	21.2	27,100	3.8	Yes
040	Single	10	10	35,900	15.5	47,900	4.8	40,900	23.4	39,100	3.9	Yes
050	Single	15	15	49,800	13.9	65,000	4.4	55,600	21.6	54,200	3.7	Yes
060	Single	18	18	55,400	13.6	78,000	4.7	62,500	20.6	63,200	3.8	Yes
075	Single	19	19	66,000	12.3	93,100	4.2	74,100	18.0	77,100	3.5	No

Model	Capacity Modulation	Flow Rate		Ground Loop Heat Pump				
				Cooling 77°F Source 53.6°F Load		Heating 32°F Source 104°F Load		
		Load Gpm	Source Gpm	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Energy Star Compliant
018	Single	5	5	17,300	16.6	14,700	3.1	Yes
025	Single	7	7	24,700	16.1	22,000	3.1	Yes
040	Single	10	10	37,700	17.5	30,500	3.1	Yes
050	Single	15	15	51,500	16.4	44,200	3.1	Yes
060	Single	18	18	58,000	16.1	50,100	3.1	Yes
075	Single	19	19	68,400	14.0	61,500	2.9	No

NOTE: All ratings based upon 208V operation.

01/03/12

ENERGY STAR

018 - Performance Data

Cooling Capacity

Source		Load Flow-3 GPM							Load Flow-4 GPM						Load Flow-5 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F
30	3	50	37.8	17.8	0.60	19.8	29.7	43.6	40.1	18.1	0.61	20.1	29.8	43.8	42.5	18.3	0.61	20.4	30.0	44.0
		70	56.8	19.3	0.59	21.3	32.5	44.6	59.3	19.4	0.60	21.5	32.6	44.8	61.9	19.6	0.60	21.6	32.7	44.9
		90	75.8	20.7	0.59	22.7	35.3	45.6	78.6	20.8	0.59	22.8	35.4	45.7	81.4	20.9	0.59	22.9	35.4	45.7
		110	94.7	22.2	0.58	24.2	38.3	46.6	97.8	22.2	0.58	24.2	38.3	46.6	100.8	22.2	0.58	24.2	38.3	46.6
	4	50	37.7	18.0	0.58	19.9	30.9	40.9	40.0	18.2	0.58	20.2	31.2	41.1	42.4	18.4	0.59	20.4	31.5	41.2
		70	56.7	19.3	0.57	21.3	33.8	41.7	59.3	19.5	0.57	21.4	34.0	41.8	61.9	19.6	0.58	21.6	34.1	41.9
		90	75.8	20.7	0.56	22.6	36.7	42.4	78.6	20.8	0.56	22.7	36.8	42.5	81.4	20.9	0.57	22.8	36.9	42.5
		110	94.9	22.0	0.56	23.9	39.6	43.2	97.9	22.1	0.56	23.9	39.7	43.2	100.9	22.1	0.56	24.0	39.8	43.2
	5	50	37.6	18.1	0.56	20.0	32.3	38.3	40.0	18.3	0.56	20.2	32.7	38.3	42.4	18.5	0.56	20.4	33.0	38.4
		70	56.7	19.3	0.55	21.2	35.2	38.7	59.3	19.5	0.55	21.4	35.5	38.8	61.9	19.7	0.55	21.5	35.8	38.9
		90	75.9	20.6	0.54	22.4	38.1	39.2	78.6	20.7	0.54	22.5	38.3	39.3	81.4	20.8	0.54	22.7	38.6	39.4
		110	95.0	21.8	0.53	23.6	41.1	39.7	98.0	21.9	0.53	23.7	41.3	39.8	100.9	22.0	0.53	23.8	41.5	39.8
50	3	50	38.4	16.9	0.80	19.6	22.9	63.4	40.5	17.3	0.80	20.0	23.3	63.8	42.7	17.8	0.80	20.5	23.7	64.1
		70	56.3	19.9	0.80	22.6	26.5	65.5	58.9	20.2	0.80	22.9	26.8	65.8	61.5	20.6	0.80	23.3	27.2	66.0
		90	74.3	22.9	0.80	25.6	30.1	67.6	77.3	23.1	0.79	25.8	30.4	67.8	80.4	23.4	0.79	26.1	30.7	67.9
		110	92.2	25.9	0.80	28.6	33.8	69.7	95.7	26.1	0.79	28.8	34.0	69.8	99.2	26.2	0.79	28.9	34.2	69.9
	4	50	38.3	17.0	0.77	19.6	22.0	60.8	40.5	17.4	0.77	20.0	22.6	61.0	42.6	17.8	0.77	20.5	23.1	61.2
		70	56.3	19.9	0.77	22.5	26.0	62.4	58.9	20.3	0.76	22.9	26.5	62.6	61.5	20.6	0.76	23.2	27.0	62.8
		90	74.3	22.9	0.76	25.5	30.2	64.0	77.3	23.1	0.76	25.7	30.5	64.2	80.4	23.4	0.76	25.9	30.9	64.3
		110	92.2	25.9	0.75	28.4	34.4	65.7	95.7	26.0	0.75	28.6	34.6	65.7	99.2	26.1	0.75	28.7	34.8	65.8
	5	50	38.2	17.1	0.75	19.7	24.7	58.1	40.4	17.5	0.75	20.0	25.3	58.3	42.6	17.9	0.74	20.4	25.9	58.4
		70	56.3	20.0	0.74	22.5	28.8	59.3	58.9	20.3	0.73	22.8	29.2	59.4	61.5	20.6	0.73	23.1	29.7	59.5
		90	74.3	22.9	0.72	25.4	33.0	60.5	77.3	23.1	0.72	25.6	33.3	60.5	80.4	23.3	0.72	25.8	33.6	60.6
		110	92.3	25.8	0.71	28.2	37.3	61.6	95.8	25.9	0.71	28.3	37.5	61.7	99.3	26.1	0.71	28.5	37.7	61.7
70	3	50	39.1	15.9	0.99	19.3	16.1	83.3	41.0	16.6	0.99	19.9	16.7	83.7	42.9	17.2	0.99	20.6	17.4	84.1
		70	55.9	20.5	1.00	23.9	20.5	86.4	58.5	21.0	1.00	24.4	21.1	86.8	61.1	21.5	0.99	24.9	21.7	87.1
		90	Operation not recommended																	
		110																		
	4	50	39.0	16.0	0.97	19.3	16.6	80.6	40.9	16.6	0.96	19.9	17.3	80.9	42.9	17.3	0.96	20.5	18.1	81.3
		70	55.9	20.6	0.96	23.8	21.4	83.1	58.5	21.1	0.96	24.3	22.0	83.4	61.1	21.6	0.95	24.8	22.6	83.7
		90	Operation not recommended																	
		110																		
	5	50	38.9	16.1	0.94	19.3	17.1	78.0	40.9	16.7	0.93	19.9	18.0	78.2	42.9	17.3	0.92	20.4	18.8	78.4
		70	55.8	20.7	0.92	23.8	22.4	79.8	58.5	21.1	0.92	24.2	23.0	80.0	61.1	21.6	0.91	24.7	23.7	80.2
		90	Operation not recommended																	
		110																		
90	3	50	40.4	14.0	1.30	18.4	11.8	102.7	42.1	14.5	1.30	19.0	12.3	103.0	43.8	15.1	1.30	19.5	12.7	103.4
		70	57.4	18.3	1.30	22.7	15.3	105.6	59.8	18.7	1.30	23.2	15.7	105.9	62.1	19.2	1.30	23.6	16.1	106.2
		90	Operation not recommended																	
		110																		
	4	50	40.3	14.1	1.27	18.4	11.2	100.1	42.0	14.6	1.26	19.0	11.6	100.4	43.8	15.2	1.26	19.5	12.0	100.7
		70	57.3	18.4	1.26	22.7	14.6	102.5	59.7	18.9	1.26	23.1	15.0	102.7	62.0	19.3	1.26	23.6	15.4	103.0
		90	Operation not recommended																	
		110																		
	5	50	40.2	14.3	1.24	18.5	12.6	97.6	42.0	14.8	1.23	18.9	13.2	97.8	43.7	15.3	1.23	19.4	13.7	98.0
		70	57.2	18.6	1.22	22.7	16.6	99.4	59.6	19.0	1.21	23.1	17.1	99.5	62.0	19.4	1.21	23.5	17.5	99.7
		90	Operation not recommended																	
		110																		
110	3	50	41.7	12.1	1.60	17.6	7.6	122.1	43.2	12.5	1.61	18.0	7.8	122.4	44.7	12.9	1.61	18.4	8.0	122.6
		70	59.0	16.1	1.60	21.5	10.0	124.8	61.0	16.5	1.60	21.9	10.3	125.1	63.1	16.8	1.61	22.3	10.5	125.3
		90	Operation not recommended																	
		110																		
	4	50	41.6	12.3	1.57	17.6	7.8	119.7	43.1	12.7	1.57	18.0	8.1	119.9	44.6	13.1	1.57	18.4	8.3	120.1
		70	58.8	16.3	1.56	21.6	10.5	121.9	60.9	16.6	1.56	22.0	10.7	122.1	63.0	17.0	1.56	22.3	10.9	122.3
		90	Operation not recommended																	
		110																		
	5	50	41.5	12.4	1.53	17.6	8.1	117.3	43.0	12.8	1.53	18.0	8.4	117.4	44.6	13.2	1.53	18.4	8.6	117.6
		70	58.7	16.5	1.51	21.6	10.9	118.9	60.8	16.8	1.51	22.0	11.1	119.1	62.9	17.2	1.51	22.4	11.4	119.2
		90	Operation not recommended																	
		110																		

8/20/09

018 - Performance Data cont.

Heating Capacity

Source		Load Flow-3 GPM							Load Flow-4 GPM						Load Flow-5 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F
25	4	60	Operation not recommended																	
		80																		
		100																		
		120																		
	5	60	69.8	14.2	0.90	11.1	4.62	20.4	67.4	14.3	0.88	11.3	4.76	20.3	65.9	14.4	0.86	11.5	4.91	20.3
		80	89.4	13.7	1.21	9.6	3.31	21.1	87.1	13.8	1.19	9.7	3.38	21.0	85.7	13.9	1.17	9.9	3.46	20.9
		100	109.1	13.2	1.53	8.0	2.53	21.7	106.8	13.3	1.51	8.1	2.58	21.6	105.5	13.3	1.49	8.3	2.63	21.6
		120	128.7	12.7	1.84	6.4	2.02	22.4	126.6	12.8	1.82	6.5	2.05	22.3	125.3	12.8	1.80	6.7	2.08	22.3
30	3	60	70.4	15.1	0.91	12.0	4.86	21.8	68.3	15.2	0.90	12.1	4.96	21.7	66.3	15.2	0.88	12.2	5.06	21.6
		80	90.0	14.5	1.22	10.4	3.48	22.9	88.0	14.6	1.21	10.5	3.55	22.8	86.0	14.6	1.19	10.6	3.61	22.7
		100	109.6	14.0	1.54	8.7	2.66	24.0	107.7	14.0	1.52	8.8	2.71	23.9	105.8	14.1	1.49	9.0	2.76	23.8
		120	129.2	13.4	1.85	7.1	2.12	25.1	127.4	13.5	1.83	7.2	2.16	25.0	125.6	13.5	1.80	7.4	2.20	24.9
	4	60	70.7	15.5	0.91	12.4	5.02	23.2	68.6	15.6	0.89	12.6	5.14	23.2	66.5	15.7	0.88	12.7	5.26	23.1
		80	90.2	14.9	1.22	10.7	3.58	24.2	88.2	15.0	1.20	10.9	3.66	24.1	86.2	15.0	1.18	11.0	3.75	24.0
		100	109.8	14.3	1.53	9.0	2.73	25.1	107.9	14.3	1.50	9.2	2.79	25.0	105.9	14.4	1.48	9.3	2.85	24.9
		120	129.4	13.7	1.85	7.4	2.17	26.0	127.5	13.7	1.81	7.5	2.21	25.9	125.6	13.7	1.78	7.6	2.26	25.8
	5	60	70.9	15.9	0.90	12.8	5.18	24.7	68.8	16.1	0.89	13.0	5.32	24.6	66.7	16.2	0.87	13.2	5.46	24.5
		80	90.5	15.2	1.21	11.1	3.68	25.4	88.4	15.3	1.19	11.3	3.78	25.3	86.4	15.4	1.16	11.5	3.89	25.3
		100	110.0	14.6	1.53	9.4	2.80	26.1	108.0	14.6	1.49	9.5	2.87	26.1	106.0	14.7	1.46	9.7	2.95	26.0
		120	129.6	13.9	1.84	7.6	2.21	26.9	127.6	13.9	1.80	7.8	2.27	26.8	125.7	13.9	1.75	7.9	2.33	26.7
50	3	60	73.5	19.7	0.90	16.6	6.46	38.6	70.9	19.8	2.74	10.4	4.71	42.8	68.2	20.0	4.59	4.3	2.97	47.1
		80	93.0	18.9	1.21	14.7	4.58	39.9	90.4	19.0	2.43	10.7	3.48	42.7	87.9	19.1	3.65	6.6	2.37	45.4
		100	112.4	18.1	1.52	12.9	3.48	41.2	110.0	18.1	2.12	10.9	2.85	42.5	107.5	18.2	2.71	9.0	2.21	43.8
		120	131.9	17.3	1.84	11.0	2.76	42.4	129.5	17.3	1.80	11.1	2.82	42.3	127.2	17.4	1.77	11.3	2.88	42.2
	4	60	73.9	20.2	0.89	17.1	6.62	40.7	71.2	20.4	1.81	14.2	3.31	42.7	68.5	20.6	2.72	11.3	2.22	44.8
		80	93.3	19.3	1.21	15.2	4.69	41.7	90.7	19.5	1.80	13.3	3.16	43.0	88.1	19.6	2.40	11.4	2.40	44.4
		100	112.7	18.4	1.52	13.2	3.55	42.8	110.2	18.5	1.80	12.4	3.02	43.4	107.7	18.6	2.08	11.5	2.63	44.0
		120	132.1	17.6	1.83	11.3	2.81	43.8	129.7	17.6	1.80	11.5	2.87	43.7	127.3	17.7	1.76	11.7	2.94	43.6
	5	60	74.2	20.7	0.89	17.7	6.83	42.7	71.5	21.0	0.87	18.0	7.12	42.6	68.7	21.2	0.85	18.3	7.41	42.4
		80	93.6	19.8	1.20	15.6	4.82	43.5	90.9	19.9	1.17	15.9	4.99	43.4	88.3	20.1	1.15	16.2	5.17	43.3
		100	112.9	18.8	1.52	13.6	3.64	44.4	110.4	18.9	1.48	13.9	3.75	44.3	107.8	19.0	1.45	14.1	3.87	44.2
		120	132.3	17.9	1.83	11.6	2.86	45.2	129.8	17.9	1.79	11.8	2.94	45.1	127.4	18.0	1.75	12.0	3.02	45.1
70	3	60	76.6	24.2	0.88	21.2	8.06	55.4	73.4	24.5	4.59	8.8	4.46	64.0	70.2	24.7	8.30	-3.6	0.87	72.5
		80	95.9	23.2	1.19	19.1	5.69	56.9	92.8	23.4	3.65	10.9	3.41	62.5	89.7	23.5	6.11	2.7	1.13	68.2
		100	115.2	22.1	1.51	17.0	4.30	58.3	112.2	22.3	2.72	13.0	2.99	61.1	109.2	22.4	3.93	9.0	1.67	63.8
		120	134.5	21.1	1.82	14.9	3.40	59.8	131.6	21.2	1.78	15.1	3.48	59.6	128.7	21.2	1.74	15.3	3.57	59.5
	4	60	77.1	24.9	0.88	21.8	8.27	58.1	73.8	25.2	2.72	15.9	2.71	62.2	70.5	25.5	4.56	9.9	1.64	66.4
		80	96.3	23.7	1.19	19.6	5.82	59.3	93.1	23.9	2.41	15.7	2.91	62.0	90.0	24.2	3.62	11.8	1.96	64.8
		100	115.5	22.6	1.51	17.4	4.39	60.5	112.5	22.7	2.09	15.6	3.18	61.8	109.4	22.9	2.68	13.7	2.50	63.1
		120	134.7	21.5	1.82	15.2	3.45	61.7	131.8	21.5	1.78	15.4	3.54	61.6	128.9	21.6	1.74	15.7	3.64	61.4
	5	60	77.5	25.5	0.88	22.5	8.49	60.7	74.2	25.9	0.85	22.9	8.93	60.5	70.8	26.2	0.82	23.4	9.36	60.3
		80	96.7	24.3	1.19	20.2	5.96	61.7	93.5	24.5	1.16	20.6	6.20	61.5	90.2	24.8	1.13	21.0	6.45	61.4
		100	115.8	23.0	1.51	17.9	4.48	62.6	112.7	23.2	1.47	18.2	4.63	62.5	109.6	23.4	1.43	18.5	4.78	62.4
		120	135.0	21.8	1.82	15.6	3.51	63.6	132.0	21.9	1.78	15.8	3.61	63.5	129.1	22.0	1.74	16.1	3.70	63.4
90	3	60	79.6	28.5	0.88	25.5	9.49	72.5	75.6	28.4	0.85	25.5	9.84	72.5	71.6	28.2	0.81	25.4	10.20	72.5
		80	98.6	27.1	1.18	23.0	6.70	74.2	94.9	27.1	1.15	23.1	6.92	74.1	91.1	27.0	1.11	23.2	7.14	74.0
		100	Operation not recommended																	
		120																		
	4	60	80.1	29.2	0.88	26.2	9.72	75.7	76.0	29.0	0.85	26.1	10.05	75.7	71.9	28.8	0.81	26.0	10.40	75.8
		80	99.0	27.7	1.19	23.6	6.84	77.1	95.2	27.6	1.15	23.7	7.05	77.0	91.4	27.6	1.11	23.8	7.28	77.0
		100	Operation not recommended																	
		120																		
	5	60	80.5	29.9	0.88	26.9	9.96	78.9	76.3	29.6	0.85	26.7	10.28	79.0	72.1	29.3	0.81	26.5	10.60	79.1
		80	99.4	28.2	1.19	24.2	6.97	80.0	95.5	28.2	1.15	24.2	7.19	80.0	91.6	28.1	1.11	24.3	7.42	80.0
		100	Operation not recommended																	
		120																		

8/19/09

018 DHW - Performance Data cont.

Heating Only Capacity

Source		Load Flow-3 GPM							Load Flow-4 GPM						Load Flow-5 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F
25	4	60	Operation not recommended																	
		80																		
		100																		
		120																		
	5	60	70.0	14.5	0.97	11.2	4.38	20.4	67.6	14.7	0.95	11.4	4.52	20.3	66.1	14.8	0.93	11.6	4.66	20.2
		80	89.7	14.1	1.30	9.7	3.19	21.0	87.4	14.3	1.28	9.9	3.27	20.9	85.9	14.4	1.26	10.1	3.36	20.8
		100	109.5	13.8	1.62	8.2	2.48	21.6	107.2	13.9	1.60	8.4	2.54	21.5	105.8	14.0	1.58	8.6	2.59	21.5
		120	129.2	13.4	1.95	6.7	2.01	22.2	127.0	13.5	1.93	6.9	2.05	22.1	125.6	13.6	1.91	7.1	2.09	22.1
30	3	60	70.4	15.2	0.97	11.9	4.59	21.8	68.4	15.4	0.95	12.1	4.74	21.7	66.4	15.5	0.93	12.3	4.88	21.5
		80	90.2	14.9	1.30	10.4	3.35	22.8	88.2	15.0	1.28	10.6	3.43	22.7	86.2	15.1	1.26	10.8	3.52	22.6
		100	110.0	14.5	1.63	9.0	2.61	23.8	108.0	14.7	1.61	9.2	2.67	23.7	106.1	14.8	1.59	9.3	2.72	23.6
		120	129.8	14.2	1.96	7.5	2.12	24.8	127.8	14.3	1.94	7.7	2.16	24.7	125.9	14.4	1.92	7.8	2.20	24.6
	4	60	70.7	15.6	0.97	12.3	4.71	23.3	68.6	15.8	0.95	12.5	4.86	23.2	66.6	15.9	0.93	12.7	5.01	23.1
		80	90.4	15.2	1.30	10.8	3.43	24.1	88.4	15.3	1.28	11.0	3.51	24.0	86.4	15.5	1.26	11.2	3.60	23.9
		100	110.2	14.8	1.63	9.2	2.66	25.0	108.2	14.9	1.61	9.4	2.71	24.9	106.2	15.0	1.59	9.6	2.77	24.8
		120	129.9	14.4	1.96	7.7	2.15	25.8	127.9	14.5	1.94	7.9	2.19	25.7	126.0	14.6	1.92	8.0	2.23	25.6
	5	60	71.0	16.0	0.97	12.7	4.83	24.8	68.9	16.2	0.95	12.9	4.98	24.7	66.7	16.3	0.93	13.1	5.14	24.6
		80	90.7	15.5	1.30	11.1	3.50	25.4	88.6	15.7	1.28	11.3	3.59	25.3	86.5	15.8	1.26	11.5	3.68	25.3
		100	110.4	15.1	1.63	9.5	2.71	26.1	108.3	15.2	1.61	9.7	2.76	26.0	106.3	15.2	1.58	9.8	2.82	25.9
		120	130.0	14.6	1.96	7.9	2.18	26.7	128.0	14.7	1.94	8.0	2.22	26.7	126.1	14.7	1.91	8.2	2.26	26.6
50	3	60	73.4	19.6	0.98	16.2	5.87	38.9	70.8	19.8	0.95	16.5	6.10	38.7	68.2	20.0	0.93	16.8	6.33	38.5
		80	93.0	18.9	1.31	14.4	4.23	40.1	90.5	19.1	1.28	14.7	4.37	39.9	87.9	19.3	1.25	15.0	4.51	39.7
		100	112.5	18.3	1.64	12.7	3.26	41.3	110.1	18.4	1.61	12.9	3.35	41.1	107.6	18.6	1.58	13.2	3.44	41.0
		120	132.1	17.6	1.97	10.9	2.62	42.5	129.7	17.7	1.94	11.1	2.68	42.4	127.4	17.9	1.91	11.3	2.74	42.2
	4	60	73.8	20.1	0.98	16.7	6.03	40.9	71.1	20.3	0.95	17.0	6.26	40.7	68.5	20.5	0.93	17.3	6.49	40.5
		80	93.3	19.4	1.31	14.9	4.34	41.9	90.7	19.5	1.28	15.2	4.47	41.7	88.1	19.7	1.25	15.4	4.61	41.6
		100	112.8	18.6	1.64	13.0	3.33	42.9	110.3	18.8	1.61	13.3	3.41	42.8	107.8	18.9	1.58	13.5	3.50	42.6
		120	132.3	17.9	1.97	11.2	2.66	43.9	129.9	18.0	1.94	11.4	2.72	43.8	127.5	18.1	1.91	11.6	2.78	43.7
	5	60	74.2	20.6	0.98	17.3	6.18	42.9	71.4	20.8	0.95	17.6	6.43	42.7	68.7	21.1	0.93	17.9	6.68	42.6
		80	93.6	19.8	1.31	15.3	4.44	43.7	91.0	20.0	1.28	15.6	4.58	43.6	88.3	20.1	1.25	15.9	4.72	43.5
		100	113.1	19.0	1.64	13.4	3.39	44.5	110.5	19.1	1.61	13.6	3.48	44.4	107.9	19.2	1.58	13.8	3.57	44.3
		120	132.5	18.2	1.97	11.5	2.70	45.3	130.0	18.3	1.94	11.6	2.76	45.2	127.5	18.3	1.91	11.8	2.82	45.1
70	3	60	76.4	23.9	0.98	20.6	7.15	55.9	73.2	24.2	0.95	20.9	7.46	55.6	70.1	24.4	0.92	21.3	7.77	55.4
		80	95.8	22.9	1.31	18.5	5.12	57.3	92.7	23.2	1.28	18.8	5.30	57.1	89.6	23.4	1.25	19.1	5.49	56.9
		100	115.1	22.0	1.65	16.3	3.91	58.8	112.2	22.2	1.61	16.7	4.03	58.6	109.2	22.3	1.57	17.0	4.16	58.3
		120	134.4	21.0	1.98	14.2	3.11	60.2	131.6	21.2	1.94	14.5	3.20	60.0	128.8	21.3	1.90	14.8	3.28	59.8
	4	60	76.9	24.6	0.98	21.2	7.34	58.4	73.6	24.8	0.95	21.6	7.66	58.2	70.4	25.1	0.92	22.0	7.99	58.0
		80	96.2	23.5	1.31	19.0	5.24	59.6	93.0	23.7	1.28	19.3	5.43	59.4	89.9	23.9	1.25	19.7	5.62	59.3
		100	115.4	22.5	1.65	16.8	3.99	60.8	112.4	22.6	1.61	17.1	4.11	60.7	109.4	22.8	1.57	17.4	4.24	60.5
		120	134.7	21.4	1.98	14.6	3.17	62.0	131.8	21.5	1.94	14.9	3.25	61.9	128.9	21.6	1.90	15.1	3.33	61.7
	5	60	77.3	25.2	0.98	21.9	7.53	61.0	74.0	25.5	0.95	22.3	7.88	60.8	70.6	25.8	0.92	22.7	8.22	60.7
		80	96.5	24.1	1.31	19.6	5.37	61.9	93.3	24.3	1.28	19.9	5.56	61.8	90.1	24.5	1.25	20.2	5.76	61.7
		100	115.8	22.9	1.65	17.3	4.08	62.9	112.7	23.1	1.61	17.6	4.20	62.8	109.6	23.2	1.57	17.8	4.32	62.6
		120	135.0	21.8	1.98	15.0	3.23	63.8	132.0	21.9	1.94	15.2	3.30	63.7	129.0	21.9	1.90	15.4	3.38	63.6
90	3	60	79.2	28.0	0.98	24.7	8.37	73.1	79.3	28.2	0.95	24.9	8.69	72.9	79.5	28.3	0.92	25.2	9.01	72.7
		80	98.2	26.5	1.31	22.0	5.93	74.9	98.4	26.7	1.27	22.4	6.16	74.6	98.5	27.0	1.24	22.7	6.39	74.4
		100	Operation not recommended																	
		120																		
	4	60																		
		80																		
		100																		
		120																		
	5	60																		
		80																		
		100																		
		120																		

10/28/09

025 - Performance Data

Cooling Capacity

Source		Load Flow-4 GPM							Load Flow-5.5 GPM						Load Flow-7 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F
30	4	50	36.6	25.9	0.96	29.2	27.0	45.0	39.3	26.7	0.96	30.0	27.8	45.5	41.9	27.5	0.96	30.8	28.6	45.9
		70	55.5	28.0	0.96	31.3	29.2	46.1	58.5	28.6	0.96	31.8	29.7	46.4	61.4	29.1	0.96	32.3	30.3	46.7
		90	74.5	30.2	0.96	33.4	31.4	47.2	77.7	30.4	0.96	33.7	31.7	47.4	81.0	30.6	0.96	33.9	31.9	47.5
		110	93.4	32.3	0.96	35.6	33.6	48.3	96.9	32.3	0.96	35.5	33.6	48.3	100.5	32.2	0.96	35.5	33.5	48.3
	5.5	50	36.9	25.4	0.93	28.6	27.3	41.6	39.5	26.2	0.93	29.3	28.1	41.9	42.1	26.9	0.93	30.1	28.9	42.3
		70	56.0	27.1	0.93	30.3	29.2	42.4	58.9	27.6	0.93	30.7	29.7	42.6	61.7	28.1	0.93	31.2	30.2	42.8
		90	75.2	28.8	0.93	31.9	31.0	43.1	78.3	29.0	0.93	32.2	31.3	43.2	81.4	29.2	0.93	32.4	31.5	43.3
		110	94.3	30.5	0.93	33.6	32.9	43.8	97.7	30.4	0.93	33.6	32.9	43.8	101.0	30.4	0.93	33.6	32.9	43.8
	7	50	37.2	24.9	0.90	28.0	27.7	38.2	39.7	25.6	0.90	28.7	28.4	38.4	42.3	26.3	0.90	29.4	29.2	38.7
		70	56.5	26.1	0.90	29.2	29.1	38.6	59.3	26.6	0.90	29.7	29.7	38.7	62.0	27.1	0.90	30.1	30.2	38.9
		90	75.9	27.4	0.89	30.4	30.6	39.0	78.8	27.6	0.89	30.6	30.9	39.0	81.8	27.8	0.89	30.9	31.2	39.1
		110	95.3	28.6	0.89	31.6	32.1	39.3	98.4	28.6	0.89	31.6	32.1	39.3	101.6	28.6	0.89	31.6	32.1	39.3
50	4	50	37.3	24.6	1.24	28.8	21.2	64.8	39.8	25.4	1.24	29.6	21.8	65.2	42.3	26.2	1.24	30.4	22.5	65.7
		70	55.4	28.3	1.25	32.6	24.0	66.8	58.3	29.0	1.25	33.3	24.5	67.2	61.2	29.7	1.25	34.0	25.0	67.5
		90	73.4	32.1	1.26	36.4	26.7	68.8	76.8	32.7	1.26	37.0	27.1	69.1	80.2	33.3	1.26	37.6	27.5	69.4
		110	91.5	35.9	1.27	40.2	29.4	70.7	95.3	36.4	1.27	40.7	29.7	71.0	99.1	36.9	1.27	41.2	29.9	71.3
	5.5	50	37.5	24.3	1.20	28.4	20.3	61.5	39.9	25.1	1.20	29.2	21.0	61.9	42.4	25.9	1.20	30.0	21.6	62.2
		70	55.7	27.8	1.20	31.9	23.1	63.0	58.5	28.5	1.20	32.6	23.7	63.3	61.4	29.2	1.20	33.3	24.3	63.6
		90	73.9	31.3	1.21	35.4	25.9	64.4	77.2	31.8	1.21	35.9	26.4	64.7	80.5	32.4	1.21	36.5	26.8	64.9
		110	92.1	34.7	1.21	38.9	28.7	65.9	95.8	35.2	1.21	39.3	29.1	66.1	99.5	35.7	1.21	39.8	29.4	66.3
	7	50	37.6	24.1	1.16	28.0	22.0	58.3	40.0	24.9	1.16	28.8	22.8	58.5	42.4	25.7	1.16	29.6	23.5	58.7
		70	56.0	27.2	1.16	31.2	24.5	59.2	58.8	27.9	1.16	31.9	25.1	59.4	61.6	28.6	1.16	32.5	25.8	59.6
		90	74.3	30.4	1.16	34.3	27.1	60.1	77.5	30.9	1.16	34.9	27.5	60.3	80.7	31.5	1.16	35.4	28.0	60.4
		110	92.7	33.6	1.16	37.5	29.6	61.0	96.3	34.0	1.16	37.9	29.9	61.2	99.9	34.4	1.16	38.3	30.2	61.3
70	4	50	38.0	23.2	1.51	28.4	15.4	84.6	40.4	24.0	1.52	29.2	15.8	85.0	42.7	24.8	1.52	30.0	16.3	85.5
		70	55.2	28.6	1.53	33.9	18.7	87.5	58.1	29.5	1.54	34.8	19.2	87.9	61.0	30.4	1.54	35.7	19.7	88.4
		90	72.4	34.1	1.55	39.4	22.0	90.3	75.9	35.0	1.56	40.3	22.5	90.8	79.4	36.0	1.56	41.3	23.1	91.3
		110	Operation not recommended																	
	5.5	50	38.0	23.2	1.47	28.2	15.8	81.4	40.3	24.1	1.47	29.1	16.4	81.8	42.7	25.0	1.47	30.0	17.0	82.1
		70	55.3	28.5	1.48	33.5	19.3	83.6	58.2	29.4	1.48	34.4	19.9	84.0	61.1	30.3	1.48	35.3	20.5	84.3
		90	72.6	33.7	1.49	38.8	22.7	85.8	76.1	34.7	1.49	39.7	23.3	86.2	79.5	35.6	1.49	40.7	23.9	86.5
		110	Operation not recommended																	
	7	50	38.0	23.2	1.42	28.0	16.3	78.3	40.3	24.2	1.42	29.0	17.1	78.5	42.6	25.1	1.41	29.9	17.8	78.8
		70	55.4	28.3	1.42	33.1	19.9	79.8	58.3	29.2	1.42	34.1	20.6	80.0	61.1	30.1	1.41	35.0	21.3	80.3
		90	72.8	33.4	1.42	38.2	23.5	81.3	76.2	34.3	1.42	39.1	24.2	81.5	79.6	35.2	1.42	40.0	24.8	81.8
		110	90.2	38.5	1.42	43.3	27.1	82.8	94.2	39.4	1.42	44.2	27.7	83.0	98.2	40.2	1.42	45.0	28.3	83.3
90	4	50	39.3	20.9	1.93	27.4	11.6	104.1	41.4	21.5	1.94	28.1	12.0	104.5	43.5	22.2	1.94	28.8	12.3	104.9
		70	56.3	26.6	1.96	33.3	14.5	107.2	59.0	27.4	1.97	34.1	14.9	107.6	61.7	28.3	1.97	35.0	15.3	108.0
		90	Operation not recommended																	
		110																		
	5.5	50	39.2	20.9	1.88	27.3	11.1	101.1	41.3	21.6	1.88	28.0	11.5	101.4	43.4	22.4	1.88	28.8	11.9	101.7
		70	56.3	26.7	1.89	33.1	14.1	103.4	59.0	27.5	1.90	34.0	14.5	103.8	61.7	28.3	1.90	34.8	14.9	104.1
		90	Operation not recommended																	
		110																		
	7	50	39.2	21.0	1.83	27.2	12.3	98.0	41.3	21.7	1.83	28.0	12.8	98.2	43.4	22.5	1.83	28.7	13.3	98.5
		70	56.2	26.8	1.83	33.0	15.6	99.7	58.9	27.6	1.83	33.8	16.1	100.0	61.6	28.4	1.83	34.6	16.6	100.2
		90	Operation not recommended																	
		110																		
110	4	50	40.5	18.5	2.35	26.5	7.9	123.7	42.3	19.1	2.36	27.1	8.1	124.0	44.2	19.6	2.36	27.7	8.3	124.3
		70	57.3	24.6	2.39	32.7	10.3	126.9	59.8	25.4	2.40	33.5	10.6	127.3	62.3	26.2	2.40	34.4	10.9	127.7
		90	Operation not recommended																	
		110																		
	5.5	50	40.4	18.6	2.30	26.4	8.1	120.7	42.3	19.2	2.30	27.0	8.3	120.9	44.2	19.8	2.30	27.6	8.6	121.2
		70	57.2	24.9	2.31	32.8	10.8	123.3	59.7	25.6	2.32	33.5	11.1	123.6	62.2	26.4	2.32	34.3	11.4	123.9
		90	Operation not recommended																	
		110																		
	7	50	40.4	18.7	2.24	26.3	8.3	117.8	42.2	19.3	2.24	26.9	8.6	117.9	44.1	19.9	2.24	27.5	8.9	118.1
		70	57.0	25.2	2.24	32.8	11.3	119.7	59.6	25.9	2.24	33.5	11.6	119.9	62.2	26.6	2.24	34.2	11.9	120.1
		90	Operation not recommended																	
		110																		

8/20/09

025 - Performance Data cont.

Heating Capacity

Source		Load Flow-4 GPM							Load Flow-5.5 GPM						Load Flow-7 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F
25	5.5	60	Operation not recommended																	
		80																		
		100																		
		120																		
	7	60	71.0	21.4	1.28	17.0	4.90	20.0	68.1	21.5	1.26	17.2	5.02	19.9	66.4	21.6	1.23	17.4	5.15	19.9
		80	90.6	20.5	1.70	14.7	3.54	20.7	87.7	20.7	1.67	14.9	3.62	20.6	86.1	20.8	1.65	15.1	3.70	20.5
		100	110.1	19.7	2.12	12.4	2.72	21.3	107.4	19.8	2.09	12.7	2.77	21.3	105.9	19.9	2.06	12.9	2.83	21.2
		120	129.7	18.8	2.54	10.1	2.17	22.0	127.1	19.0	2.51	10.4	2.21	21.9	125.6	19.1	2.48	10.6	2.26	21.9
30	4	60	71.4	22.2	1.29	17.8	5.04	20.8	69.1	22.4	1.26	18.1	5.21	20.7	66.7	22.6	1.23	18.4	5.38	20.5
		80	91.0	21.4	1.71	15.6	3.67	22.0	88.7	21.6	1.68	15.9	3.78	21.8	86.4	21.8	1.64	16.2	3.88	21.7
		100	110.6	20.6	2.12	13.4	2.84	23.1	108.4	20.8	2.09	13.6	2.91	23.0	106.2	20.9	2.06	13.9	2.98	22.8
		120	130.2	19.8	2.54	11.1	2.28	24.3	128.1	20.0	2.51	11.4	2.33	24.1	125.9	20.1	2.47	11.7	2.38	24.0
	5.5	60	71.8	22.9	1.29	18.4	5.19	22.6	69.3	23.0	1.26	18.7	5.35	22.5	66.8	23.2	1.23	19.0	5.53	22.4
		80	91.3	21.9	1.71	16.1	3.76	23.5	88.9	22.1	1.68	16.4	3.87	23.4	86.6	22.3	1.64	16.7	3.98	23.3
		100	110.8	21.0	2.12	13.7	2.90	24.5	108.6	21.2	2.09	14.1	2.97	24.4	106.3	21.4	2.06	14.4	3.05	24.2
		120	130.3	20.1	2.54	11.4	2.31	25.4	128.2	20.3	2.51	11.7	2.37	25.3	126.0	20.5	2.47	12.1	2.43	25.2
	7	60	72.1	23.5	1.29	19.1	5.34	24.4	69.6	23.7	1.26	19.3	5.50	24.3	67.0	23.8	1.23	19.6	5.67	24.2
		80	91.6	22.4	1.71	16.6	3.85	25.1	89.1	22.6	1.68	16.9	3.96	25.0	86.7	22.8	1.64	17.2	4.07	24.9
		100	111.0	21.4	2.12	14.1	2.95	25.8	108.7	21.6	2.09	14.5	3.03	25.7	106.4	21.9	2.06	14.8	3.12	25.6
		120	130.5	20.3	2.54	11.6	2.34	26.6	128.3	20.6	2.51	12.1	2.41	26.5	126.2	20.9	2.47	12.5	2.48	26.3
50	4	60	75.2	29.4	1.31	24.9	6.55	37.2	71.9	29.5	1.27	25.1	6.79	37.1	68.7	29.5	1.23	25.3	7.03	37.0
		80	94.5	28.2	1.74	22.3	4.74	38.5	91.4	28.3	1.69	22.5	4.89	38.4	88.3	28.3	1.65	22.7	5.04	38.3
		100	113.9	27.0	2.16	19.6	3.65	39.9	111.0	27.1	2.11	19.9	3.75	39.7	108.0	27.2	2.06	20.1	3.85	39.6
		120	133.3	25.9	2.59	17.0	2.91	41.2	130.5	25.9	2.54	17.3	2.99	41.1	127.7	26.0	2.48	17.5	3.07	41.0
	5.5	60	75.7	30.4	1.31	25.9	6.79	39.6	72.3	30.4	1.27	26.1	7.02	39.5	69.0	30.5	1.23	26.3	7.25	39.5
		80	95.0	29.1	1.74	23.2	4.90	40.7	91.8	29.1	1.69	23.4	5.04	40.6	88.6	29.2	1.65	23.6	5.19	40.6
		100	114.3	27.7	2.16	20.4	3.76	41.8	111.3	27.8	2.11	20.6	3.86	41.7	108.2	27.9	2.06	20.9	3.96	41.6
		120	133.6	26.4	2.59	17.6	2.99	42.9	130.7	26.5	2.54	17.9	3.06	42.8	127.8	26.6	2.48	18.2	3.15	42.7
	7	60	76.2	31.5	1.32	27.0	6.98	42.1	72.7	31.4	1.27	27.1	7.23	42.0	69.2	31.4	1.23	27.2	7.48	42.0
		80	95.4	30.0	1.74	24.0	5.02	42.9	92.1	30.0	1.69	24.2	5.18	42.9	88.8	30.0	1.65	24.4	5.34	42.8
		100	114.7	28.5	2.17	21.1	3.83	43.8	111.5	28.5	2.11	21.3	3.95	43.7	108.4	28.6	2.06	21.6	4.06	43.6
		120	133.9	27.0	2.59	18.1	3.04	44.7	131.0	27.1	2.54	18.4	3.13	44.6	128.0	27.3	2.48	18.8	3.22	44.5
70	4	60	78.9	36.6	1.33	32.1	8.06	53.5	74.8	36.5	1.28	32.1	8.37	53.4	70.7	36.4	1.23	32.2	8.67	53.4
		80	98.1	35.0	1.77	29.0	5.81	55.0	94.2	35.0	1.71	29.1	6.00	55.0	90.3	34.9	1.65	29.3	6.20	54.9
		100	117.3	33.5	2.20	25.9	4.45	56.6	113.5	33.4	2.14	26.1	4.59	56.5	109.8	33.4	2.07	26.3	4.73	56.4
		120	136.4	31.9	2.64	22.9	3.54	58.2	132.9	31.9	2.57	23.1	3.65	58.1	129.4	31.9	2.49	23.4	3.75	57.9
	5.5	60	79.6	38.0	1.34	33.4	8.34	56.6	75.3	37.9	1.28	33.5	8.65	56.6	71.1	37.7	1.23	33.5	8.98	56.6
		80	98.7	36.3	1.77	30.2	6.00	57.9	94.7	36.2	1.71	30.3	6.19	57.9	90.6	36.1	1.65	30.4	6.40	57.8
		100	117.8	34.5	2.21	27.0	4.58	59.2	114.0	34.5	2.14	27.2	4.72	59.1	110.1	34.4	2.07	27.3	4.87	59.0
		120	136.9	32.8	2.64	23.7	3.63	60.5	133.3	32.8	2.57	24.0	3.74	60.4	129.6	32.8	2.49	24.3	3.85	60.3
	7	60	80.3	39.4	1.34	34.8	8.61	59.7	75.9	39.2	1.29	34.8	8.95	59.7	71.5	39.0	1.23	34.8	9.29	59.7
		80	99.3	37.5	1.77	31.4	6.19	60.7	95.1	37.3	1.71	31.5	6.40	60.7	91.0	37.2	1.65	31.6	6.61	60.7
		100	118.3	35.5	2.21	28.0	4.72	61.8	114.4	35.5	2.14	28.2	4.86	61.7	110.4	35.4	2.07	28.3	5.01	61.7
		120	137.3	33.6	2.64	24.6	3.73	62.8	133.6	33.6	2.57	24.8	3.84	62.7	129.9	33.6	2.49	25.1	3.95	62.6
90	4	60	82.7	44.0	1.37	39.3	9.41	69.7	77.7	43.7	1.31	39.2	9.79	69.8	72.8	43.4	1.25	39.1	10.17	69.8
		80	101.6	41.9	1.80	35.7	6.80	71.6	96.9	41.7	1.73	35.8	7.07	71.6	92.2	41.5	1.66	35.9	7.33	71.5
		100	Operation not recommended																	
		120																		
	5.5	60	83.5	45.5	1.38	40.8	9.66	73.6	78.2	44.8	1.32	40.3	9.96	73.8	73.0	44.1	1.26	39.8	10.30	73.9
		80	102.3	43.2	1.81	37.0	6.99	75.2	97.4	42.8	1.74	36.8	7.22	75.2	92.5	42.4	1.66	36.7	7.46	75.2
		100	Operation not recommended																	
		120																		
	7	60	84.2	47.0	1.39	42.3	9.91	77.6	78.7	45.9	1.33	41.4	10.16	77.8	73.2	44.8	1.26	40.5	10.42	78.1
		80	102.9	44.5	1.82	38.3	7.18	78.7	97.8	43.8	1.74	37.9	7.38	78.8	92.7	43.2	1.67	37.5	7.59	79.0
		100	Operation not recommended																	
		120																		

8/19/09

025 DHW - Performance Data cont.

Heating Only Capacity

Source		Load Flow-4 GPM							Load Flow-5.5 GPM						Load Flow-7 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F
25	5.5	60	Operation not recommended																	
		80																		
		100																		
		120																		
	7	60	71.1	21.6	1.40	16.8	4.52	20.0	68.1	21.7	1.39	17.0	4.59	20.0	66.4	21.8	1.37	17.1	4.66	20.0
		80	90.8	20.9	1.84	14.6	3.33	20.7	87.9	21.1	1.79	14.9	3.44	20.6	86.2	21.2	1.74	15.2	3.56	20.5
		100	110.4	20.3	2.29	12.5	2.60	21.3	107.6	20.4	2.20	12.9	2.72	21.2	106.0	20.5	2.11	13.3	2.85	21.1
		120	130.1	19.6	2.73	10.3	2.10	22.0	127.4	19.8	2.61	10.9	2.22	21.8	125.9	19.9	2.48	11.4	2.35	21.6
30	4	60	71.7	22.7	1.41	17.9	4.72	20.8	69.2	22.8	1.38	18.0	4.83	20.7	66.7	22.8	1.35	18.2	4.95	20.6
		80	91.4	22.1	1.86	15.7	3.48	21.9	89.0	22.1	1.77	16.1	3.67	21.7	86.5	22.2	1.68	16.4	3.87	21.5
		100	111.0	21.4	2.31	13.5	2.72	23.0	108.7	21.5	2.16	14.1	2.93	22.7	106.3	21.5	2.00	14.7	3.15	22.4
		120	130.7	20.8	2.76	11.4	2.21	24.1	128.4	20.9	2.55	12.2	2.42	23.7	126.2	20.9	2.33	12.9	2.63	23.3
	5.5	60	72.0	23.3	1.42	18.4	4.81	22.6	69.4	23.3	1.38	18.6	4.94	22.5	66.9	23.4	1.35	18.8	5.08	22.5
		80	91.6	22.5	1.87	16.2	3.54	23.5	89.1	22.6	1.80	16.5	3.68	23.4	86.7	22.7	1.73	16.8	3.84	23.2
		100	111.2	21.8	2.32	13.9	2.76	24.4	108.9	21.9	2.21	14.3	2.90	24.2	106.5	22.0	2.11	14.8	3.05	24.0
		120	130.9	21.1	2.77	11.7	2.24	25.3	128.6	21.2	2.63	12.2	2.36	25.1	126.3	21.3	2.50	12.7	2.50	24.8
	7	60	72.3	23.8	1.42	19.0	4.91	24.4	69.7	23.9	1.39	19.2	5.06	24.4	67.1	24.0	1.35	19.4	5.21	24.3
		80	91.9	23.0	1.87	16.6	3.60	25.1	89.3	23.1	1.83	16.9	3.70	25.0	86.8	23.2	1.79	17.1	3.80	25.0
		100	111.4	22.2	2.32	14.3	2.80	25.8	109.0	22.3	2.27	14.5	2.88	25.7	106.6	22.4	2.22	14.8	2.95	25.6
		120	131.0	21.4	2.77	11.9	2.26	26.5	128.7	21.5	2.72	12.2	2.32	26.4	126.4	21.6	2.66	12.5	2.38	26.3
50	4	60	75.2	29.5	1.47	24.4	5.85	37.4	71.9	29.5	1.42	24.7	6.06	37.3	68.7	29.6	1.38	24.9	6.27	37.2
		80	94.6	28.3	1.92	21.7	4.28	38.8	91.5	28.4	1.84	22.1	4.48	38.6	88.4	28.5	1.77	22.4	4.68	38.4
		100	114.0	27.1	2.38	19.0	3.32	40.2	111.0	27.2	2.27	19.5	3.50	40.0	108.1	27.4	2.16	20.0	3.68	39.7
		120	133.4	25.9	2.84	16.2	2.66	41.6	130.5	26.1	2.69	16.9	2.83	41.3	127.7	26.3	2.55	17.6	2.99	40.9
	5.5	60	75.6	30.3	1.47	25.3	6.03	39.8	72.3	30.4	1.43	25.5	6.25	39.8	69.0	30.5	1.38	25.7	6.48	39.7
		80	95.0	29.0	1.93	22.4	4.41	41.0	91.8	29.1	1.86	22.8	4.58	40.9	88.6	29.2	1.80	23.1	4.77	40.7
		100	114.3	27.7	2.38	19.6	3.41	42.1	111.3	27.9	2.30	20.0	3.55	41.9	108.3	28.0	2.21	20.5	3.71	41.8
		120	133.6	26.4	2.84	16.7	2.72	43.3	130.8	26.6	2.74	17.3	2.85	43.0	127.9	26.8	2.63	17.8	2.99	42.8
	7	60	76.1	31.2	1.48	26.1	6.13	42.3	72.7	31.3	1.43	26.4	6.38	42.2	69.2	31.4	1.38	26.6	6.63	42.2
		80	95.3	29.8	1.94	23.2	4.48	43.2	92.1	29.9	1.88	23.5	4.64	43.1	88.8	30.0	1.83	23.8	4.80	43.0
		100	114.6	28.3	2.39	20.2	3.45	44.1	111.5	28.5	2.33	20.6	3.57	43.9	108.5	28.7	2.27	21.0	3.69	43.8
		120	133.9	26.9	2.85	17.2	2.76	44.9	131.0	27.2	2.78	17.7	2.85	44.8	128.1	27.4	2.72	18.1	2.95	44.7
70	4	60	78.7	36.2	1.52	31.0	6.98	54.0	74.7	36.3	1.46	31.3	7.29	53.9	70.7	36.3	1.40	31.5	7.60	53.8
		80	97.8	34.5	1.98	27.7	5.09	55.7	94.0	34.6	1.92	28.1	5.29	55.5	90.2	34.7	1.85	28.4	5.49	55.4
		100	116.9	32.7	2.45	24.4	3.92	57.4	113.3	33.0	2.38	24.8	4.07	57.2	109.8	33.2	2.31	25.3	4.21	57.0
		120	136.0	31.0	2.91	21.1	3.12	59.1	132.6	31.3	2.84	21.6	3.24	58.9	129.3	31.6	2.76	22.2	3.35	58.6
	5.5	60	79.3	37.4	1.53	32.2	7.16	57.1	75.2	37.5	1.47	32.4	7.48	57.0	71.0	37.5	1.41	32.7	7.82	56.9
		80	98.3	35.5	1.99	28.7	5.22	58.5	94.4	35.7	1.93	29.1	5.43	58.3	90.5	35.8	1.86	29.5	5.64	58.2
		100	117.3	33.6	2.45	25.2	4.01	59.9	113.7	33.9	2.38	25.7	4.16	59.7	110.0	34.1	2.31	26.2	4.32	59.5
		120	136.3	31.7	2.92	21.8	3.19	61.3	132.9	32.1	2.84	22.4	3.31	61.0	129.5	32.4	2.77	23.0	3.43	60.8
	7	60	79.9	38.6	1.54	33.3	7.34	60.2	75.6	38.7	1.48	33.6	7.69	60.1	71.4	38.7	1.41	33.9	8.04	60.0
		80	98.8	36.5	2.00	29.7	5.35	61.2	94.8	36.7	1.93	30.1	5.57	61.1	90.9	36.9	1.86	30.5	5.80	61.0
		100	117.8	34.5	2.46	26.1	4.11	62.3	114.0	34.8	2.39	26.6	4.27	62.2	110.3	35.0	2.32	27.1	4.43	62.0
		120	136.7	32.4	2.92	22.4	3.25	63.4	133.2	32.8	2.85	23.1	3.38	63.2	129.8	33.2	2.77	23.7	3.51	63.0
90	4	60	82.0	42.7	1.56	37.4	8.02	70.7	82.2	43.0	1.49	37.9	8.48	70.5	82.3	43.3	1.42	38.5	8.93	70.2
		80	100.9	40.5	2.02	33.6	5.86	72.7	101.0	40.8	1.95	34.2	6.15	72.4	101.2	41.1	1.87	34.8	6.44	72.1
		100	Operation not recommended																	
		120																		
	5.5	60																		
		80																		
		100																		
		120																		
	7	60																		
		80																		
		100																		
		120																		

10/28/09

040 - Performance Data

Cooling Capacity

Source		Load Flow-5 GPM							Load Flow-7.5 GPM						Load Flow-10 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F
30	5	50	34.0	38.7	1.38	43.4	28.0	47.9	37.8	39.8	1.39	44.5	28.7	48.4	41.6	40.9	1.39	45.6	29.4	48.8
		70	54.5	37.5	1.27	41.8	29.4	47.2	58.3	38.0	1.25	42.3	30.4	47.4	62.0	38.6	1.23	42.8	31.4	47.6
		90	75.1	36.2	1.17	40.2	31.1	46.6	78.8	36.2	1.12	40.0	32.6	46.5	82.5	36.2	1.06	39.9	34.1	46.4
		110	95.6	35.0	1.06	38.6	33.0	45.9	99.3	34.5	0.98	37.8	35.3	45.6	103.0	33.9	0.90	37.0	37.7	45.2
	7.5	50	34.5	37.7	1.32	42.2	28.6	43.2	38.2	38.6	1.33	43.1	29.1	43.5	41.9	39.4	1.33	43.9	29.6	43.8
		70	55.1	36.2	1.23	40.4	29.6	42.6	58.7	36.7	1.21	40.8	30.3	42.8	62.3	37.1	1.19	41.2	31.2	42.9
		90	75.7	34.7	1.13	38.6	30.7	42.1	79.3	34.8	1.09	38.5	31.9	42.1	82.8	34.9	1.05	38.5	33.1	42.0
		110	96.3	33.2	1.04	36.7	32.1	41.6	99.8	32.9	0.98	36.2	33.7	41.4	103.3	32.6	0.92	35.7	35.6	41.2
	10	50	34.9	36.7	1.26	41.0	29.1	38.5	38.5	37.3	1.27	41.6	29.5	38.6	42.2	37.9	1.27	42.2	29.8	38.7
		70	55.6	34.9	1.18	38.9	29.7	38.0	59.1	35.3	1.17	39.3	30.3	38.1	62.6	35.7	1.16	39.6	30.9	38.2
		90	76.3	33.2	1.09	36.9	30.3	37.6	79.7	33.3	1.07	37.0	31.2	37.6	83.1	33.5	1.04	37.1	32.1	37.6
		110	97.1	31.4	1.01	34.8	31.1	37.2	100.3	31.4	0.97	34.7	32.4	37.1	103.5	31.3	0.93	34.5	33.7	37.1
50	5	50	35.3	35.7	1.76	41.7	21.6	67.2	38.6	37.4	1.76	43.4	22.6	67.9	41.9	39.2	1.76	45.2	23.5	68.6
		70	53.4	40.2	1.73	46.1	24.5	69.0	57.3	41.5	1.72	47.4	25.5	69.5	61.2	42.8	1.71	48.6	26.4	70.1
		90	71.5	44.8	1.71	50.6	27.4	70.9	76.0	45.6	1.69	51.4	28.5	71.2	80.4	46.4	1.66	52.1	29.5	71.5
		110	89.6	49.4	1.68	55.1	30.4	72.7	94.7	49.7	1.65	55.3	31.7	72.8	99.7	50.1	1.62	55.6	33.0	72.9
	7.5	50	39.1	35.3	1.69	41.0	20.9	62.8	38.8	36.9	1.68	42.6	21.9	63.3	42.1	38.5	1.68	44.2	22.9	63.8
		70	57.8	39.2	1.65	44.8	23.7	64.0	58.7	40.3	1.64	45.9	24.5	64.4	61.4	41.5	1.63	47.1	25.4	64.7
		90	76.5	43.0	1.62	48.6	26.5	65.2	77.8	43.8	1.60	49.2	27.3	65.4	80.8	44.5	1.59	49.9	28.1	65.7
		110	95.2	46.9	1.59	52.3	29.5	66.5	95.4	47.2	1.56	52.5	30.2	66.5	100.2	47.5	1.54	52.7	30.9	66.6
	10	50	42.8	34.9	1.61	40.4	23.0	58.3	38.9	36.4	1.61	41.9	23.8	58.6	42.2	37.9	1.61	43.3	24.7	58.9
		70	62.1	38.1	1.57	43.5	25.3	59.0	60.1	39.1	1.57	44.5	26.1	59.2	61.7	40.2	1.56	45.5	26.9	59.4
		90	81.5	41.3	1.54	46.5	27.6	59.6	79.6	41.9	1.52	47.1	28.4	59.7	81.2	42.6	1.51	47.7	29.1	59.8
		110	100.8	44.5	1.50	49.6	30.0	60.2	96.2	44.7	1.48	49.7	30.8	60.3	100.7	44.9	1.46	49.9	31.5	60.3
70	5	50	36.6	32.6	2.14	39.9	15.2	86.5	39.4	35.0	2.14	42.3	16.4	87.4	42.3	37.4	2.13	44.7	17.6	88.4
		70	52.3	43.0	2.19	50.5	19.6	90.8	56.3	45.0	2.20	52.5	20.5	91.6	60.3	47.0	2.20	54.5	21.4	92.5
		90	68.0	53.3	2.25	61.0	23.7	95.2	73.2	55.0	2.26	62.7	24.4	95.8	78.3	56.6	2.26	64.3	25.0	96.5
		110	Operation not recommended																	
	7.5	50	36.5	32.9	2.05	39.8	16.0	82.3	39.4	35.2	2.04	42.2	17.2	83.1	42.2	37.6	2.04	44.5	18.5	83.8
		70	56.9	42.1	2.08	49.2	20.2	85.3	58.7	44.0	2.08	51.1	21.2	85.9	60.5	45.9	2.08	52.9	22.1	86.5
		90	73.9	51.4	2.11	58.6	24.3	88.4	76.4	52.7	2.12	59.9	24.9	88.8	78.8	54.1	2.12	61.3	25.5	89.3
		110	Operation not recommended																	
	10	50	36.4	33.1	1.96	39.8	16.9	78.2	39.3	35.5	1.95	42.1	18.2	78.7	42.2	37.8	1.94	44.4	19.5	79.2
		70	61.5	41.2	1.97	48.0	20.9	79.9	61.1	43.0	1.96	49.7	21.9	80.2	60.8	44.7	1.96	51.4	22.8	80.6
		90	79.8	49.4	1.98	56.1	24.9	81.6	79.6	50.5	1.98	57.2	25.5	81.8	79.4	51.6	1.97	58.3	26.1	82.0
		110	86.3	57.5	1.99	64.3	28.9	83.3	92.1	58.0	1.99	64.8	29.1	83.4	97.9	58.5	1.99	65.3	29.4	83.5
90	5	50	38.0	29.1	2.74	38.4	11.4	105.8	40.6	30.9	2.74	40.3	12.2	106.6	43.2	32.8	2.74	42.2	13.0	107.4
		70	53.8	39.2	2.80	48.8	15.0	110.1	57.5	41.1	2.81	50.7	15.7	110.9	61.1	43.0	2.81	52.6	16.4	111.7
		90	69.6	49.4	2.86	59.1	18.4	114.4	74.3	51.3	2.87	61.1	19.0	115.2	79.0	53.3	2.88	63.1	19.6	116.0
		110	Operation not recommended																	
	7.5	50	41.0	29.2	2.65	38.3	11.0	101.8	40.6	31.1	2.64	40.1	11.8	102.4	43.2	33.0	2.64	42.0	12.5	103.0
		70	57.9	38.9	2.68	48.1	14.5	104.9	59.6	40.8	2.68	49.9	15.2	105.5	61.2	42.7	2.68	51.8	15.9	106.1
		90	74.9	48.6	2.71	57.9	17.9	108.0	77.0	50.5	2.71	59.7	18.6	108.6	79.2	52.3	2.71	61.6	19.3	109.2
		110	Operation not recommended																	
	10	50	43.9	29.4	2.55	38.1	12.5	97.9	40.5	31.3	2.54	40.0	13.4	98.2	43.1	33.3	2.54	41.9	14.3	98.6
		70	62.0	38.7	2.56	47.4	16.2	99.8	61.7	40.5	2.55	49.2	17.0	100.1	61.3	42.3	2.54	51.0	17.8	100.5
		90	80.1	47.9	2.56	56.6	19.8	101.7	79.8	49.6	2.56	58.4	20.6	102.0	79.4	51.4	2.55	60.1	21.3	102.4
		110	Operation not recommended																	
110	5	50	39.5	25.5	3.34	36.9	7.6	125.2	41.8	26.9	3.35	38.3	8.0	125.8	44.2	28.2	3.35	39.6	8.4	126.3
		70	55.4	35.5	3.41	47.1	10.4	129.4	58.7	37.3	3.42	48.9	10.9	130.2	61.9	39.1	3.42	50.8	11.4	130.9
		90	Operation not recommended																	
		110																		
	7.5	50	39.4	25.6	3.24	36.7	7.9	121.4	41.8	27.0	3.24	38.1	8.3	121.8	44.1	28.5	3.24	39.5	8.8	122.2
		70	59.0	35.8	3.28	46.9	10.9	124.5	60.4	37.6	3.28	48.8	11.5	125.1	61.9	39.5	3.28	50.7	12.1	125.7
		90	Operation not recommended																	
		110																		
	10	50	39.4	25.7	3.14	36.4	8.2	117.5	41.7	27.2	3.14	37.9	8.7	117.8	44.1	28.7	3.13	39.4	9.2	118.1
		70	62.6	36.1	3.14	46.8	11.5	119.6	62.2	38.0	3.14	48.7	12.1	120.0	61.8	39.9	3.13	50.6	12.8	120.4
		90	Operation not recommended																	
		110																		

8/20/09

040 - Performance Data cont.

Heating Capacity

Source		Load Flow-5 GPM							Load Flow-7.5 GPM						Load Flow-10 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F
25	7.5	60	Operation not recommended																	
		80																		
		100																		
		120																		
	10	60	72.2	29.7	1.83	23.5	4.76	20.2	68.2	29.7	1.78	23.6	4.89	20.1	66.1	29.6	1.72	23.7	5.04	20.1
		80	91.9	28.8	2.42	20.6	3.50	20.8	87.9	28.8	2.36	20.7	3.58	20.7	85.9	28.7	2.29	20.9	3.67	20.7
		100	111.5	28.0	3.00	17.7	2.73	21.3	107.7	27.9	2.94	17.9	2.78	21.3	105.7	27.8	2.87	18.0	2.84	21.3
		120	131.2	27.1	3.59	14.8	2.21	21.9	127.4	27.0	3.52	15.0	2.25	21.9	125.5	26.9	3.44	15.2	2.29	21.9
30	5	60	72.7	30.9	1.84	24.6	4.92	19.8	69.5	30.8	1.79	24.7	5.06	19.8	66.3	30.7	1.73	24.8	5.20	19.8
		80	92.4	30.0	2.42	21.8	3.64	21.0	89.3	30.0	2.36	21.9	3.73	21.0	86.2	29.9	2.30	22.0	3.81	20.9
		100	112.0	29.2	2.99	19.0	2.85	22.2	109.0	29.1	2.93	19.1	2.91	22.1	106.0	29.0	2.86	19.3	2.97	22.1
		120	131.7	28.3	3.57	16.1	2.32	23.4	128.7	28.3	3.50	16.3	2.37	23.3	125.8	28.2	3.43	16.5	2.41	23.2
	7.5	60	73.3	32.3	1.84	26.0	5.14	22.1	70.0	32.2	1.78	26.1	5.29	22.1	66.6	32.2	1.73	26.3	5.46	22.0
		80	92.8	31.0	2.43	22.7	3.74	23.1	89.6	31.0	2.36	23.0	3.85	23.0	86.4	31.1	2.29	23.2	3.97	22.9
		100	112.3	29.8	3.02	19.5	2.90	24.0	109.2	29.9	2.94	19.9	2.98	23.9	106.2	30.0	2.86	20.2	3.07	23.9
		120	131.8	28.6	3.61	16.3	2.32	25.0	128.9	28.7	3.52	16.7	2.39	24.9	125.9	28.9	3.43	17.1	2.46	24.8
	10	60	73.9	33.6	1.84	27.3	5.35	24.4	70.4	33.6	1.78	27.5	5.54	24.3	66.9	33.6	1.72	27.7	5.72	24.3
		80	93.2	32.0	2.44	23.7	3.85	25.1	89.9	32.1	2.37	24.1	3.99	25.0	86.6	32.2	2.29	24.4	4.12	25.0
		100	112.6	30.5	3.04	20.1	2.94	25.9	109.5	30.7	2.95	20.6	3.05	25.8	106.4	30.9	2.86	21.1	3.16	25.6
		120	131.9	28.9	3.64	16.5	2.33	26.6	129.0	29.2	3.54	17.1	2.42	26.5	126.1	29.5	3.43	17.8	2.52	26.3
50	5	60	76.9	41.1	1.88	34.7	6.37	35.7	72.7	40.8	1.81	34.7	6.61	35.7	68.4	40.6	1.74	34.6	6.84	35.7
		80	96.3	39.5	2.47	31.1	4.67	37.2	92.2	39.3	2.39	31.1	4.82	37.2	88.1	39.1	2.30	31.2	4.97	37.1
		100	115.6	37.9	3.06	27.4	3.61	38.7	111.7	37.7	2.96	27.6	3.72	38.6	107.8	37.6	2.87	27.8	3.84	38.5
		120	134.9	36.3	3.65	23.8	2.90	40.2	131.2	36.2	3.54	24.1	2.99	40.1	127.5	36.2	3.44	24.4	3.08	39.9
	7.5	60	77.7	43.0	1.86	36.6	6.77	38.9	73.2	42.7	1.80	36.5	6.95	38.9	68.7	42.3	1.74	36.4	7.15	38.9
		80	96.9	41.1	2.46	32.7	4.89	40.1	92.7	40.9	2.38	32.7	5.03	40.0	88.4	40.7	2.30	32.8	5.18	40.0
		100	116.1	39.1	3.06	28.7	3.75	41.3	112.1	39.1	2.97	29.0	3.86	41.2	108.0	39.0	2.87	29.2	3.98	41.1
		120	135.4	37.2	3.66	24.7	2.98	42.4	131.5	37.3	3.55	25.2	3.08	42.3	127.7	37.4	3.44	25.6	3.19	42.2
	10	60	78.5	44.9	1.84	38.6	7.14	42.0	73.8	44.5	1.79	38.4	7.29	42.1	69.1	44.1	1.74	38.2	7.43	42.1
		80	97.6	42.6	2.45	34.3	5.08	42.9	93.1	42.5	2.38	34.3	5.23	42.9	88.7	42.3	2.30	34.4	5.37	42.9
		100	116.7	40.4	3.07	30.0	3.85	43.8	112.5	40.4	2.97	30.3	3.99	43.8	108.3	40.4	2.87	30.6	4.13	43.7
		120	135.8	38.2	3.68	25.6	3.03	44.7	131.9	38.4	3.56	26.3	3.16	44.6	128.0	38.6	3.44	26.9	3.29	44.5
70	5	60	81.2	51.3	1.92	44.7	7.83	51.5	75.8	50.9	1.83	44.6	8.16	51.6	70.4	50.4	1.74	44.5	8.49	51.7
		80	100.2	48.9	2.52	40.3	5.69	53.4	95.1	48.6	2.42	40.4	5.91	53.4	90.0	48.3	2.31	40.4	6.13	53.3
		100	119.2	46.6	3.12	35.9	4.37	55.2	114.4	46.4	3.00	36.1	4.54	55.1	109.5	46.2	2.88	36.4	4.70	55.0
		120	138.2	44.2	3.72	31.5	3.48	57.0	133.7	44.2	3.59	31.9	3.61	56.8	129.1	44.1	3.45	32.3	3.75	56.7
	7.5	60	82.1	53.7	1.88	47.3	8.37	55.6	76.5	53.1	1.81	46.9	8.58	55.7	70.8	52.5	1.75	46.5	8.82	55.8
		80	101.1	51.1	2.49	42.6	6.00	57.1	95.7	50.7	2.40	42.5	6.18	57.1	90.4	50.3	2.31	42.4	6.38	57.1
		100	120.0	48.5	3.11	37.9	4.57	58.5	115.0	48.3	2.99	38.1	4.73	58.4	109.9	48.1	2.88	38.3	4.90	58.4
		120	138.9	45.9	3.72	33.2	3.61	59.9	134.2	45.9	3.58	33.6	3.75	59.8	129.5	45.9	3.45	34.1	3.90	59.6
	10	60	83.1	56.1	1.84	49.8	8.93	59.7	77.2	55.4	1.80	49.2	9.04	59.9	71.3	54.6	1.75	48.6	9.14	60.0
		80	102.0	53.2	2.47	44.8	6.32	60.8	96.4	52.8	2.39	44.6	6.47	60.8	90.8	52.3	2.31	44.4	6.62	60.8
		100	120.8	50.4	3.09	39.8	4.77	61.8	115.5	50.2	2.99	40.0	4.93	61.8	110.3	50.0	2.88	40.2	5.09	61.7
		120	139.6	47.5	3.72	34.8	3.74	62.8	134.7	47.6	3.58	35.4	3.90	62.7	129.8	47.7	3.44	36.0	4.06	62.6
90	5	60	85.4	61.5	1.99	54.7	9.05	67.4	78.5	59.0	1.88	52.5	9.20	68.3	71.6	56.4	1.77	50.4	9.34	69.2
		80	104.5	59.4	2.56	50.7	6.79	69.1	97.8	56.7	2.44	48.3	6.80	70.1	91.1	53.9	2.32	46.0	6.80	71.0
		100	Operation not recommended																	
		120																		
	7.5	60	86.2	63.7	2.01	56.8	9.30	72.6	79.0	60.4	1.89	53.9	9.37	73.5	71.8	57.1	1.77	51.0	9.44	74.3
		80	105.5	61.9	2.58	53.1	7.03	73.8	98.4	58.3	2.45	49.9	6.97	74.7	91.3	54.7	2.33	46.8	6.90	75.6
		100	124.8	60.1	3.15	49.3	5.59	75.0	117.8	56.2	3.01	45.9	5.47	76.0	110.8	52.4	2.88	42.6	5.33	76.9
		120	Operation not recommended																	
	10	60	87.1	65.8	2.02	58.9	9.54	77.9	79.5	61.8	1.90	55.3	9.55	78.6	71.9	57.7	1.77	51.7	9.55	79.3
		80	106.5	64.3	2.59	55.4	7.27	78.6	99.0	59.9	2.46	51.5	7.13	79.4	91.5	55.6	2.33	47.6	7.00	80.2
		100	125.9	62.7	3.16	51.9	5.82	79.3	118.4	58.1	3.02	47.8	5.62	80.2	111.0	53.4	2.88	43.6	5.43	81.0
		120	Operation not recommended																	

8/17/09

050 - Performance Data

Cooling Capacity

Source		Load Flow-8 GPM							Load Flow-11.5 GPM						Load Flow-15 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F
30	8	50	35.8	55.2	1.98	61.9	27.9	46.0	38.8	57.0	2.00	63.8	28.6	46.4	41.9	58.8	2.01	65.7	29.3	46.9
		70	54.6	59.8	2.01	66.6	29.8	47.2	58.0	61.0	2.02	67.8	30.3	47.5	61.5	62.2	2.02	69.1	30.7	47.8
		90	73.4	64.3	2.03	71.3	31.6	48.4	77.2	64.9	2.04	71.9	31.9	48.5	81.0	65.5	2.04	72.5	32.2	48.7
		110	92.2	68.9	2.06	75.9	33.4	49.6	96.4	68.9	2.06	75.9	33.5	49.6	100.5	68.9	2.05	75.9	33.6	49.6
	11.5	50	35.9	54.6	1.90	61.1	28.8	42.1	39.0	56.3	1.92	62.8	29.3	42.5	42.0	57.9	1.94	64.5	29.8	42.8
		70	55.0	58.1	1.92	64.6	30.3	42.9	58.4	59.1	1.93	65.7	30.7	43.1	61.7	60.2	1.94	66.9	31.0	43.3
		90	74.2	61.5	1.93	68.1	31.8	43.6	77.8	62.0	1.94	68.6	32.0	43.8	81.4	62.6	1.94	69.2	32.3	43.9
		110	93.3	64.9	1.95	71.6	33.3	44.4	97.2	64.9	1.95	71.5	33.4	44.4	101.1	64.9	1.94	71.5	33.5	44.4
	15	50	36.1	54.1	1.82	60.3	29.7	38.3	39.1	55.6	1.85	61.8	30.1	38.5	42.2	57.0	1.87	63.4	30.5	38.7
		70	55.5	56.4	1.83	62.6	30.9	38.6	58.7	57.3	1.84	63.6	31.1	38.7	62.0	58.3	1.86	64.6	31.4	38.9
		90	74.9	58.6	1.83	64.9	32.0	38.9	78.3	59.1	1.84	65.4	32.2	39.0	81.8	59.6	1.84	65.9	32.3	39.1
		110	94.3	60.9	1.84	67.2	33.1	39.2	98.0	60.9	1.84	67.2	33.2	39.2	101.6	60.9	1.83	67.1	33.3	39.2
50	8	50	36.7	51.5	2.53	60.2	21.7	65.5	39.5	53.5	2.53	62.2	22.4	66.0	42.4	55.5	2.54	64.2	23.1	66.5
		70	54.6	59.9	2.58	68.7	24.4	67.7	57.9	61.5	2.59	70.4	24.9	68.1	61.3	63.1	2.60	72.0	25.5	68.5
		90	72.4	68.3	2.64	77.3	26.9	69.9	76.3	69.5	2.65	78.5	27.3	70.2	80.3	70.7	2.65	79.8	27.7	70.6
		110	90.2	76.7	2.70	85.9	29.4	72.1	94.7	77.5	2.71	86.7	29.6	72.4	99.2	78.3	2.71	87.5	29.8	72.6
	11.5	50	39.8	51.6	2.43	59.9	21.3	61.9	39.6	53.4	2.44	61.7	21.9	62.2	42.4	55.2	2.45	63.6	22.5	62.6
		70	58.3	58.9	2.47	67.4	23.9	63.4	58.2	60.3	2.48	68.8	24.4	63.7	61.5	61.7	2.48	70.2	24.9	64.0
		90	76.8	66.3	2.51	74.8	26.4	64.9	76.8	67.3	2.51	75.8	26.8	65.1	80.6	68.3	2.52	76.9	27.1	65.4
		110	95.3	73.6	2.55	82.3	28.9	66.5	95.4	74.2	2.55	82.9	29.1	66.6	99.7	74.8	2.55	83.5	29.3	66.7
	15	50	42.9	51.7	2.33	59.7	23.5	58.2	39.6	53.3	2.35	61.3	24.0	58.4	42.5	54.9	2.36	63.0	24.5	58.7
		70	62.0	58.0	2.35	66.0	25.8	59.1	58.4	59.2	2.36	67.2	26.2	59.2	61.7	60.4	2.37	68.5	26.5	59.4
		90	81.2	64.2	2.37	72.3	28.0	59.9	77.2	65.0	2.38	73.1	28.2	60.1	80.9	65.9	2.38	74.0	28.5	60.2
		110	100.3	70.5	2.39	78.6	30.2	60.8	96.0	70.9	2.39	79.1	30.3	60.9	100.2	71.4	2.40	79.5	30.5	60.9
70	8	50	37.7	47.9	3.07	58.4	15.6	85.0	40.2	50.1	3.07	60.5	16.3	85.6	42.8	52.2	3.07	62.7	17.0	86.2
		70	54.5	60.1	3.16	70.9	19.0	88.3	57.9	62.1	3.17	72.9	19.6	88.8	61.2	64.0	3.17	74.9	20.2	89.3
		90	71.4	72.3	3.25	83.4	22.2	91.5	75.5	74.1	3.26	85.2	22.7	92.0	79.6	75.9	3.27	87.0	23.2	92.4
		110	Operation not recommended																	
	11.5	50	37.5	48.6	2.96	58.7	16.4	81.6	40.1	50.6	2.96	60.6	17.1	82.0	42.8	52.5	2.96	62.6	17.7	82.4
		70	54.6	59.8	3.02	70.1	19.8	83.9	57.9	61.5	3.02	71.8	20.4	84.3	61.3	63.3	3.03	73.6	20.9	84.6
		90	71.7	71.0	3.08	81.5	23.1	86.2	75.8	72.5	3.09	83.1	23.5	86.5	79.8	74.0	3.10	84.6	23.9	86.9
		110	Operation not recommended																	
	15	50	37.3	49.3	2.84	59.0	17.4	78.1	40.0	51.1	2.85	60.8	17.9	78.4	42.7	52.8	2.85	62.5	18.5	78.6
		70	54.7	59.5	2.87	69.3	20.7	79.5	58.0	61.0	2.88	70.8	21.2	79.7	61.4	62.5	2.89	72.3	21.6	79.9
		90	72.0	69.8	2.91	79.7	24.0	81.0	76.1	71.0	2.92	80.9	24.3	81.1	80.1	72.1	2.92	82.1	24.7	81.3
		110	89.4	80.0	2.94	90.0	27.2	82.4	94.1	80.9	2.95	91.0	27.4	82.5	98.8	81.8	2.96	91.9	27.6	82.6
90	8	50	38.9	43.0	3.93	56.4	11.8	104.5	41.3	44.7	3.94	58.1	12.2	105.0	43.6	46.4	3.95	59.9	12.7	105.4
		70	56.0	54.5	4.02	68.2	14.5	107.6	59.0	56.2	4.04	70.0	14.9	108.0	62.0	58.0	4.05	71.8	15.4	108.5
		90	73.0	66.0	4.12	80.0	17.1	110.6	76.7	67.8	4.13	81.9	17.5	111.1	80.4	69.5	4.15	83.7	17.9	111.6
		110	Operation not recommended																	
	11.5	50	38.8	43.6	3.81	56.6	11.5	101.2	41.2	45.2	3.81	58.2	11.8	101.5	43.6	46.8	3.82	59.8	12.2	101.8
		70	55.9	54.7	3.87	67.9	14.1	103.4	59.0	56.3	3.88	69.6	14.5	103.8	62.0	57.9	3.89	71.2	14.9	104.1
		90	73.0	65.9	3.93	79.3	16.8	105.7	76.8	67.5	3.95	81.0	17.1	106.1	80.5	69.1	3.96	82.7	17.4	106.4
		110	Operation not recommended																	
	15	50	38.6	44.2	3.68	56.8	13.0	97.8	41.1	45.7	3.69	58.2	13.4	98.0	43.5	47.1	3.69	59.7	13.8	98.2
		70	55.8	55.0	3.72	67.7	15.9	99.3	58.9	56.5	3.72	69.2	16.3	99.5	62.0	57.9	3.73	70.7	16.7	99.7
		90	73.0	65.8	3.75	78.6	18.7	100.8	76.8	67.3	3.76	80.1	19.1	101.0	80.6	68.7	3.77	81.6	19.4	101.2
		110	Operation not recommended																	
110	8	50	40.2	38.0	4.79	54.3	7.9	124.0	42.3	39.3	4.81	55.7	8.2	124.4	44.4	40.6	4.82	57.1	8.4	124.7
		70	57.4	48.8	4.89	65.5	10.0	126.9	60.1	50.4	4.91	67.1	10.3	127.3	62.9	51.9	4.93	68.7	10.5	127.7
		90	Operation not recommended																	
		110																		
	11.5	50	40.1	38.6	4.66	54.4	8.3	120.8	42.2	39.8	4.67	55.7	8.5	121.0	44.4	41.0	4.68	57.0	8.8	121.3
		70	57.2	49.7	4.72	65.8	10.5	123.0	60.0	51.2	4.74	67.3	10.8	123.3	62.8	52.6	4.75	68.9	11.1	123.6
		90	Operation not recommended																	
		110																		
	15	50	39.9	39.1	4.52	54.5	8.7	117.5	42.1	40.3	4.53	55.7	8.9	117.7	44.3	41.4	4.53	56.9	9.1	117.8
		70	57.0	50.5	4.56	66.1	11.1	119.1	59.8	51.9	4.57	67.5	11.4	119.3	62.7	53.4	4.58	69.0	11.7	119.5
		90	Operation not recommended																	
		110																		

8/20/09

050 - Performance Data cont.

Heating Capacity

Source		Load Flow-8 GPM							Load Flow-11.5 GPM						Load Flow-15 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F
25	11.5	60	Operation not recommended																	
		80																		
		100																		
		120																		
	15	60	71.3	43.9	2.50	35.4	5.15	20.1	67.9	44.0	2.50	35.4	5.16	20.1	66.0	44.0	2.49	35.5	5.18	20.1
		80	91.0	42.6	3.41	31.0	3.66	20.7	87.6	42.6	3.37	31.1	3.71	20.7	85.9	42.6	3.33	31.3	3.75	20.7
		100	110.6	41.3	4.32	26.6	2.80	21.3	107.4	41.3	4.25	26.8	2.85	21.3	105.7	41.3	4.17	27.0	2.90	21.3
		120	130.3	40.0	5.23	22.2	2.24	22.0	127.2	40.0	5.12	22.5	2.29	21.9	125.5	39.9	5.01	22.8	2.33	21.9
30	8	60	71.8	45.7	2.36	37.6	5.67	20.3	69.0	45.8	2.43	37.5	5.53	20.3	66.3	45.8	2.49	37.3	5.39	20.4
		80	91.4	44.4	3.31	33.1	3.92	21.5	88.8	44.4	3.33	33.0	3.91	21.5	86.1	44.4	3.34	33.0	3.89	21.5
		100	111.1	43.0	4.27	28.5	2.96	22.7	108.5	43.0	4.23	28.6	2.98	22.6	105.9	43.0	4.19	28.7	3.01	22.6
		120	130.7	41.7	5.22	23.9	2.34	23.8	128.2	41.7	5.13	24.1	2.38	23.8	125.7	41.6	5.04	24.4	2.42	23.7
	11.5	60	72.2	47.2	2.50	38.6	5.53	22.4	69.3	47.2	2.49	38.7	5.56	22.4	66.5	47.3	2.48	38.8	5.59	22.4
		80	91.7	45.5	3.41	33.9	3.92	23.4	89.0	45.6	3.37	34.1	3.96	23.3	86.3	45.6	3.33	34.2	4.01	23.3
		100	111.3	43.9	4.31	29.2	2.98	24.3	108.7	43.9	4.25	29.4	3.03	24.2	106.0	43.9	4.18	29.6	3.08	24.2
		120	130.9	42.3	5.22	24.5	2.37	25.2	128.4	42.3	5.13	24.8	2.42	25.1	125.8	42.2	5.03	25.0	2.46	25.1
	15	60	72.5	48.6	2.64	39.6	5.39	24.6	69.6	48.7	2.56	40.0	5.59	24.5	66.7	48.8	2.47	40.4	5.79	24.5
		80	92.0	46.7	3.50	34.8	3.91	25.2	89.2	46.8	3.41	35.1	4.02	25.2	86.4	46.8	3.32	35.5	4.13	25.1
		100	111.5	44.8	4.36	29.9	3.01	25.9	108.9	44.8	4.27	30.2	3.08	25.8	106.2	44.8	4.17	30.6	3.15	25.8
		120	131.1	42.9	5.22	25.1	2.41	26.6	128.5	42.9	5.12	25.4	2.45	26.5	125.9	42.8	5.02	25.7	2.50	26.5
50	8	60	75.1	58.8	2.56	50.0	6.65	37.1	71.6	58.6	2.54	50.0	6.72	37.1	68.0	58.5	2.52	49.9	6.80	37.1
		80	94.5	56.3	3.47	44.4	4.71	38.5	91.1	56.2	3.42	44.6	4.80	38.5	87.7	56.2	3.36	44.7	4.88	38.5
		100	113.9	53.9	4.39	38.9	3.58	40.0	110.6	53.8	4.30	39.2	3.66	39.9	107.4	53.8	4.21	39.4	3.74	39.8
		120	133.2	51.4	5.30	33.3	2.83	41.4	130.2	51.4	5.18	33.7	2.91	41.3	127.1	51.5	5.06	34.2	2.98	41.2
	11.5	60	75.7	61.0	2.64	52.0	6.78	39.8	72.0	60.8	2.58	52.0	6.91	39.9	68.3	60.5	2.51	51.9	7.06	39.9
		80	95.0	58.1	3.53	46.1	4.83	41.0	91.5	57.9	3.44	46.2	4.93	41.0	87.9	57.8	3.36	46.3	5.04	41.0
		100	114.2	55.2	4.41	40.2	3.67	42.1	110.9	55.1	4.31	40.4	3.75	42.1	107.6	55.0	4.21	40.6	3.83	42.0
		120	133.5	52.4	5.30	34.3	2.89	43.3	130.3	52.3	5.18	34.6	2.96	43.2	127.2	52.3	5.06	35.0	3.03	43.1
	15	60	76.3	63.3	2.72	54.0	6.79	42.6	72.4	62.9	2.61	54.0	7.03	42.6	68.6	62.5	2.51	53.9	7.27	42.6
		80	95.4	59.9	3.58	47.7	4.89	43.4	91.8	59.6	3.47	47.8	5.03	43.4	88.2	59.4	3.36	47.9	5.17	43.4
		100	114.6	56.6	4.44	41.5	3.72	44.3	111.2	56.4	4.32	41.7	3.82	44.3	107.7	56.2	4.20	41.9	3.91	44.2
		120	133.7	53.3	5.30	35.2	2.94	45.2	130.5	53.2	5.18	35.5	3.01	45.1	127.3	53.1	5.05	35.8	3.07	45.1
70	8	60	78.5	71.8	2.76	62.4	7.62	53.9	74.1	71.5	2.65	62.5	7.92	53.9	69.8	71.2	2.54	62.5	8.21	53.9
		80	97.6	68.2	3.63	55.8	5.50	55.6	93.5	68.1	3.51	56.1	5.69	55.5	89.3	67.9	3.39	56.3	5.87	55.5
		100	116.7	64.7	4.51	49.3	4.20	57.3	112.8	64.6	4.37	49.7	4.34	57.2	108.9	64.6	4.23	50.2	4.47	57.1
		120	135.7	61.1	5.38	42.7	3.33	59.0	132.1	61.2	5.23	43.4	3.43	58.8	128.4	61.3	5.08	44.0	3.54	58.7
	11.5	60	79.3	74.9	2.78	65.4	7.90	57.3	74.7	74.3	2.66	65.2	8.18	57.3	70.1	73.7	2.55	65.0	8.48	57.3
		80	98.2	70.7	3.64	58.3	5.69	58.6	93.9	70.3	3.52	58.3	5.86	58.6	89.6	69.9	3.39	58.3	6.04	58.6
		100	117.2	66.6	4.51	51.2	4.32	60.0	113.1	66.3	4.37	51.4	4.44	59.9	109.1	66.1	4.24	51.6	4.57	59.9
		120	136.1	62.4	5.38	44.0	3.40	61.4	132.3	62.4	5.23	44.5	3.49	61.3	128.6	62.3	5.08	45.0	3.59	61.2
	15	60	80.1	77.9	2.79	68.4	8.18	60.6	75.3	77.1	2.67	67.9	8.47	60.7	70.5	76.2	2.55	67.5	8.76	60.7
		80	98.9	73.2	3.65	60.7	5.87	61.7	94.4	72.5	3.52	60.5	6.04	61.7	89.9	71.9	3.39	60.3	6.21	61.7
		100	117.6	68.4	4.52	53.0	4.44	62.7	113.5	68.0	4.38	53.1	4.56	62.7	109.3	67.6	4.24	53.1	4.68	62.7
		120	136.4	63.7	5.38	45.3	3.47	63.8	132.6	63.5	5.23	45.7	3.56	63.7	128.7	63.3	5.08	46.0	3.65	63.7
90	8	60	81.9	84.9	2.85	75.2	8.73	70.6	76.5	82.8	3.51	70.8	7.21	71.7	71.1	80.7	4.16	66.5	5.68	72.9
		80	100.6	80.1	3.71	67.4	6.32	72.6	95.6	78.7	4.09	64.8	5.70	73.3	90.6	77.4	4.47	62.2	5.08	74.0
		100	119.4	75.2	4.58	59.6	4.82	74.6	114.8	74.7	4.68	58.7	4.68	74.9	110.2	74.1	4.77	57.8	4.55	75.1
		120	Operation not recommended																	
	11.5	60	82.3	86.6	2.86	76.9	8.89	74.9	76.8	84.1	3.12	73.5	7.91	75.6	71.2	81.6	3.38	70.1	7.08	76.4
		80	101.1	81.8	3.72	69.0	6.43	76.5	95.9	80.2	3.84	67.1	6.12	76.9	90.8	78.6	3.95	65.1	5.83	77.3
		100	119.8	76.9	4.59	61.2	4.91	78.0	115.1	76.2	4.56	60.7	4.90	78.1	110.4	75.5	4.52	60.1	4.90	78.3
		120	Operation not recommended																	
	15	60	82.8	88.3	2.86	78.5	9.05	79.2	77.0	85.4	2.73	76.1	9.19	79.5	71.3	82.5	2.59	73.7	9.33	79.9
		80	101.5	83.4	3.73	70.7	6.55	80.3	96.2	81.6	3.58	69.3	6.68	80.5	91.0	79.7	3.43	68.0	6.81	80.7
		100	120.2	78.6	4.61	62.8	5.00	81.4	115.4	77.7	4.44	62.6	5.14	81.4	110.6	76.9	4.26	62.3	5.28	81.4
		120	Operation not recommended																	

8/19/09

060 - Performance Data

Cooling Capacity

Source		Load Flow-9 GPM							Load Flow-13.5 GPM						Load Flow-18 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F
30	9	50	36.0	61.1	2.23	68.7	27.4	45.7	39.1	64.5	2.25	72.1	28.7	46.5	42.2	67.8	2.26	75.5	30.0	47.3
		70	54.4	68.1	2.26	75.9	30.1	47.4	58.0	70.6	2.28	78.4	31.0	48.0	61.6	73.1	2.29	80.9	32.0	48.5
		90	72.8	75.2	2.30	83.0	32.7	49.0	76.9	76.8	2.31	84.7	33.3	49.4	81.0	78.5	2.31	86.4	33.9	49.8
		110	91.2	82.2	2.33	90.2	35.3	50.7	95.8	83.0	2.34	91.0	35.5	50.8	100.4	83.8	2.34	91.8	35.8	51.0
	13.5	50	36.1	60.5	2.14	67.8	28.3	41.7	39.2	64.0	2.15	71.3	29.7	42.3	42.3	67.5	2.17	74.8	31.2	42.9
		70	54.8	66.1	2.16	73.5	30.6	42.8	58.4	68.6	2.17	76.0	31.7	43.2	61.9	71.1	2.18	78.5	32.7	43.6
		90	73.6	71.8	2.18	79.2	33.0	43.8	77.5	73.3	2.18	80.7	33.6	44.1	81.4	74.8	2.19	82.2	34.2	44.4
		110	92.3	77.4	2.20	84.9	35.3	44.9	96.6	77.9	2.20	85.4	35.4	45.0	101.0	78.4	2.20	85.9	35.6	45.1
	18	50	36.3	59.9	2.05	66.9	29.2	37.7	39.3	63.5	2.06	70.5	30.8	38.1	42.3	67.1	2.07	74.2	32.4	38.5
		70	55.3	64.1	2.05	71.1	31.2	38.1	58.7	66.6	2.06	73.6	32.3	38.4	62.1	69.1	2.07	76.1	33.4	38.7
		90	74.3	68.4	2.06	75.4	33.2	38.6	78.1	69.7	2.06	76.7	33.8	38.8	81.9	71.0	2.06	78.1	34.4	38.9
		110	93.4	72.6	2.06	79.6	35.2	39.1	97.5	72.8	2.06	79.8	35.3	39.1	101.6	73.0	2.06	80.0	35.4	39.2
50	9	50	36.8	57.4	2.86	67.2	21.4	65.4	39.8	60.2	2.87	70.0	22.4	66.0	42.8	63.0	2.88	72.8	23.3	66.7
		70	54.3	68.3	2.93	78.3	24.6	67.9	58.0	70.6	2.94	80.7	25.3	68.5	61.6	72.9	2.95	83.0	26.0	69.0
		90	71.8	79.3	3.00	89.5	27.6	70.5	76.2	81.1	3.01	91.3	28.1	70.9	80.5	82.8	3.02	93.2	28.6	71.3
		110	89.3	90.2	3.07	100.7	30.5	73.1	94.4	91.5	3.08	102.0	30.8	73.4	99.4	92.8	3.10	103.3	31.1	73.7
	13.5	50	36.9	57.3	2.75	66.6	20.9	61.5	39.8	60.2	2.75	69.6	21.9	62.0	42.8	63.1	2.76	72.5	22.9	62.5
		70	54.7	66.9	2.79	76.4	24.0	63.2	58.2	69.2	2.80	78.8	24.7	63.6	61.8	71.5	2.81	81.1	25.5	64.0
		90	72.5	76.6	2.83	86.2	27.0	65.0	76.7	78.2	2.84	87.9	27.5	65.3	80.8	79.9	2.85	89.7	28.0	65.6
		110	90.3	86.2	2.88	96.0	30.0	66.8	95.1	87.3	2.89	97.1	30.2	67.0	99.9	88.3	2.90	98.2	30.5	67.2
	18	50	36.9	57.2	2.63	66.1	23.1	57.6	39.8	60.2	2.64	69.2	24.3	57.9	42.8	63.2	2.64	72.2	25.4	58.3
		70	55.0	65.5	2.65	74.5	25.9	58.5	58.5	67.8	2.66	76.9	26.8	58.8	62.0	70.1	2.66	79.2	27.6	59.1
		90	73.1	73.9	2.67	83.0	28.7	59.5	77.1	75.4	2.68	84.6	29.2	59.7	81.2	77.0	2.68	86.2	29.8	59.9
		110	91.2	82.2	2.69	91.4	31.5	60.5	95.8	83.1	2.70	92.2	31.7	60.6	100.4	83.9	2.71	93.1	31.9	60.7
70	9	50	37.7	53.7	3.49	65.6	15.4	85.0	40.5	56.0	3.50	67.9	16.0	85.6	43.3	58.2	3.50	70.1	16.6	86.1
		70	54.3	68.5	3.60	80.8	19.1	88.5	58.0	70.6	3.61	82.9	19.6	89.0	61.7	72.7	3.62	85.0	20.1	89.5
		90	70.9	83.4	3.70	96.0	22.5	92.0	75.5	85.3	3.72	98.0	22.9	92.4	80.0	87.2	3.73	99.9	23.4	92.9
		110	Operation not recommended																	
	13.5	50	37.6	54.1	3.35	65.5	16.1	81.3	40.4	56.4	3.35	67.8	16.8	81.7	43.3	58.8	3.36	70.2	17.5	82.1
		70	54.5	67.7	3.42	79.4	19.8	83.7	58.1	69.8	3.43	81.5	20.4	84.1	61.8	71.9	3.44	83.6	20.9	84.5
		90	71.4	81.4	3.49	93.3	23.3	86.2	75.8	83.2	3.50	95.2	23.7	86.5	80.3	85.1	3.52	97.1	24.2	86.8
		110	Operation not recommended																	
	18	50	37.5	54.4	3.21	65.4	16.9	77.5	40.4	56.9	3.21	67.8	17.7	77.8	43.2	59.3	3.21	70.3	18.5	78.0
		70	54.7	66.9	3.24	77.9	20.6	78.9	58.3	69.0	3.25	80.1	21.2	79.2	61.9	71.1	3.26	82.2	21.8	79.4
		90	71.8	79.3	3.28	90.5	24.2	80.4	76.2	81.2	3.29	92.4	24.7	80.6	80.5	83.0	3.30	94.2	25.1	80.8
		110	89.0	91.8	3.31	103.1	27.7	81.8	94.1	93.3	3.33	104.7	28.0	82.0	99.1	94.8	3.35	106.2	28.3	82.2
90	9	50	39.1	47.6	4.48	62.8	11.5	104.4	41.6	49.5	4.48	64.7	11.9	104.8	44.1	51.4	4.49	66.7	12.4	105.3
		70	55.8	61.8	4.58	77.4	14.5	107.7	59.2	63.7	4.59	79.4	14.9	108.2	62.5	65.6	4.61	81.4	15.3	108.6
		90	72.6	76.1	4.68	92.0	17.3	111.1	76.7	78.0	4.70	94.0	17.7	111.5	80.8	79.9	4.73	96.1	18.0	112.0
		110	Operation not recommended																	
	13.5	50	39.0	48.0	4.32	62.7	11.1	100.8	41.5	49.9	4.32	64.6	11.5	101.1	44.1	51.9	4.33	66.6	12.0	101.4
		70	55.9	61.6	4.38	76.5	14.1	103.2	59.2	63.6	4.40	78.6	14.5	103.5	62.5	65.5	4.41	80.6	14.9	103.9
		90	72.8	75.2	4.45	90.4	16.9	105.6	76.8	77.2	4.47	92.5	17.3	106.0	80.9	79.2	4.49	94.6	17.6	106.3
		110	Operation not recommended																	
	18	50	38.9	48.4	4.16	62.5	12.6	97.2	41.5	50.4	4.16	64.5	13.1	97.4	44.0	52.4	4.16	66.5	13.7	97.6
		70	55.9	61.4	4.19	75.7	15.7	98.7	59.2	63.4	4.20	77.7	16.2	98.9	62.5	65.5	4.21	79.8	16.7	99.1
		90	73.0	74.4	4.22	88.8	18.8	100.2	77.0	76.5	4.24	90.9	19.3	100.4	81.0	78.6	4.25	93.1	19.7	100.7
		110	Operation not recommended																	
110	9	50	40.5	41.4	5.46	60.0	7.6	123.8	42.7	43.0	5.47	61.6	7.9	124.1	44.9	44.5	5.48	63.2	8.1	124.5
		70	57.4	55.1	5.55	74.0	9.9	127.0	60.3	56.8	5.58	75.9	10.2	127.4	63.3	58.6	5.61	77.7	10.4	127.8
		90	Operation not recommended																	
		110																		
	13.5	50	40.4	41.9	5.29	59.9	7.9	120.3	42.6	43.4	5.29	61.5	8.2	120.6	44.9	45.0	5.30	63.0	8.5	120.8
		70	57.3	55.5	5.35	73.7	10.4	122.7	60.3	57.3	5.36	75.6	10.7	123.0	63.2	59.2	5.38	77.5	11.0	123.3
		90	Operation not recommended																	
		110																		
	18	50	40.3	42.3	5.11	59.7	8.3	116.8	42.6	43.9	5.11	61.3	8.6	117.0	44.8	45.4	5.11	62.8	8.9	117.2
		70	57.2	55.9	5.14	73.4	10.9	118.4	60.2	57.8	5.15	75.4	11.2	118.6	63.2	59.8	5.16	77.4	11.6	118.9
		90	Operation not recommended																	
		110																		

8/20/09

060 - Performance Data cont.

Heating Capacity

Source		Load Flow-9 GPM							Load Flow-13.5 GPM						Load Flow-18 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F
25	13.5	60	Operation not recommended																	
		80																		
		100																		
		120																		
	18	60	71.1	48.3	2.93	38.3	4.83	20.6	67.4	48.6	2.86	38.8	4.98	20.6	65.6	48.9	2.79	39.4	5.14	20.5
		80	90.8	47.3	3.93	33.9	3.53	21.1	87.3	47.6	3.85	34.4	3.62	21.1	85.5	47.8	3.76	35.0	3.72	21.0
		100	110.6	46.3	4.93	29.5	2.75	21.6	107.1	46.5	4.83	30.0	2.82	21.6	105.4	46.8	4.74	30.6	2.89	21.5
		120	130.4	45.3	5.93	25.1	2.24	22.1	126.9	45.5	5.82	25.6	2.29	22.1	125.2	45.7	5.71	26.2	2.35	22.0
30	9	60	71.5	50.1	2.94	40.1	4.99	20.8	68.7	50.5	2.87	40.7	5.17	20.7	65.8	50.9	2.79	41.4	5.35	20.5
		80	91.3	49.3	3.95	35.9	3.66	21.8	88.5	49.7	3.86	36.5	3.77	21.6	85.7	50.0	3.77	37.1	3.89	21.5
		100	111.1	48.6	4.95	31.7	2.87	22.7	108.4	48.8	4.85	32.3	2.95	22.6	105.6	49.0	4.74	32.8	3.03	22.5
		120	131.0	47.8	5.96	27.5	2.35	23.7	128.2	48.0	5.84	28.0	2.41	23.6	125.5	48.1	5.72	28.6	2.46	23.5
	13.5	60	71.9	52.1	3.0	42.0	5.17	22.9	68.9	51.8	2.87	42.0	5.29	22.9	65.9	51.6	2.8	42.0	5.41	22.8
		80	91.7	50.9	4.0	37.4	3.77	23.7	88.7	50.8	3.86	37.6	3.86	23.6	85.8	50.7	3.8	37.8	3.95	23.5
		100	111.4	49.7	5.0	32.8	2.94	24.4	108.6	49.8	4.84	33.2	3.01	24.3	105.7	49.8	4.7	33.7	3.08	24.3
		120	131.1	48.6	6.0	28.2	2.39	25.2	128.4	48.8	5.83	28.9	2.45	25.1	125.6	49.0	5.7	29.5	2.51	25.0
	18	60	72.4	54.1	2.97	44.0	5.34	25.0	69.2	53.2	2.88	43.3	5.41	25.0	66.0	52.2	2.79	42.7	5.48	25.1
		80	92.0	52.5	3.96	39.0	3.88	25.5	89.0	52.0	3.86	38.8	3.95	25.6	85.9	51.4	3.76	38.6	4.01	25.6
		100	111.7	50.9	4.96	34.0	3.01	26.1	108.7	50.8	4.84	34.2	3.07	26.1	105.8	50.6	4.72	34.5	3.14	26.1
		120	131.3	49.3	5.95	29.0	2.43	26.7	128.5	49.6	5.82	29.7	2.50	26.6	125.7	49.8	5.69	30.4	2.56	26.5
50	9	60	75.1	66.0	3.0	55.7	6.34	37.2	71.4	66.2	2.92	56.2	6.62	37.1	67.6	66.3	2.8	56.7	6.90	37.0
		80	94.6	63.9	4.0	50.2	4.66	38.5	91.0	64.1	3.89	50.8	4.83	38.4	87.4	64.3	3.8	51.4	4.99	38.2
		100	114.1	61.7	5.0	44.7	3.63	39.8	110.6	62.0	4.86	45.4	3.74	39.6	107.1	62.3	4.7	46.1	3.86	39.4
		120	133.7	59.6	6.0	39.3	2.93	41.0	130.3	60.0	5.83	40.1	3.02	40.8	126.9	60.3	5.7	40.9	3.11	40.6
	13.5	60	75.8	68.8	3.1	58.4	6.61	40.1	71.8	68.5	2.93	58.5	6.84	40.1	67.8	68.2	2.8	58.5	7.09	40.0
		80	95.2	66.2	4.0	52.5	4.81	41.1	91.4	66.1	3.90	52.8	4.96	41.0	87.6	66.1	3.8	53.2	5.13	41.0
		100	114.6	63.7	5.0	46.6	3.72	42.1	111.0	63.8	4.87	47.2	3.84	42.0	107.3	64.0	4.7	47.8	3.96	41.9
		120	134.0	61.1	6.0	40.6	2.98	43.1	130.5	61.5	5.85	41.5	3.08	42.9	127.1	61.9	5.7	42.4	3.18	42.8
	18	60	76.4	71.6	3.1	61.1	6.79	43.0	72.2	70.8	2.95	60.7	7.01	43.0	68.0	70.0	2.8	60.4	7.24	43.1
		80	95.7	68.6	4.1	54.7	4.93	43.7	91.7	68.2	3.92	54.8	5.09	43.7	87.8	67.8	3.8	54.9	5.25	43.7
		100	115.0	65.6	5.1	48.4	3.79	44.5	111.3	65.6	4.89	48.9	3.92	44.4	107.5	65.6	4.7	49.4	4.06	44.3
		120	134.3	62.6	6.0	42.0	3.03	45.2	130.8	63.0	5.87	43.0	3.15	45.1	127.3	63.4	5.7	44.0	3.26	45.0
70	9	60	78.8	81.9	3.12	71.3	7.69	53.7	74.1	81.8	2.98	71.6	8.07	53.6	69.4	81.7	2.83	72.0	8.46	53.5
		80	98.0	78.4	4.06	64.5	5.65	55.2	93.5	78.5	3.92	65.1	5.88	55.1	89.0	78.6	3.78	65.7	6.10	54.9
		100	117.2	74.9	5.01	57.8	4.38	56.8	112.9	75.2	4.87	58.6	4.54	56.6	108.7	75.6	4.72	59.4	4.69	56.4
		120	136.4	71.4	5.95	51.1	3.52	58.3	132.3	72.0	5.81	52.1	3.63	58.1	128.3	72.5	5.67	53.1	3.75	57.8
	13.5	60	79.6	85.5	3.1	74.8	7.97	57.4	74.6	85.1	3.00	74.9	8.33	57.3	69.7	84.8	2.8	75.0	8.73	57.3
		80	98.7	81.6	4.1	67.5	5.81	58.6	94.0	81.5	3.95	68.0	6.04	58.5	89.3	81.4	3.8	68.5	6.29	58.4
		100	117.8	77.6	5.1	60.3	4.48	59.8	113.4	77.8	4.91	61.1	4.65	59.6	108.9	78.1	4.7	61.9	4.83	59.5
		120	136.9	73.7	6.0	53.0	3.57	61.0	132.7	74.2	5.86	54.2	3.71	60.8	128.6	74.8	5.7	55.4	3.86	60.6
	18	60	80.4	89.1	3.17	78.3	8.24	61.0	75.2	88.5	3.02	78.2	8.62	61.0	70.1	87.8	2.86	78.0	8.99	61.1
		80	99.4	84.7	4.16	70.5	5.97	61.9	94.5	84.5	3.98	70.9	6.23	61.9	89.6	84.2	3.80	71.2	6.49	61.8
		100	118.4	80.3	5.14	62.7	4.57	62.8	113.8	80.5	4.95	63.6	4.77	62.7	109.2	80.6	4.75	64.4	4.98	62.6
		120	137.4	75.9	6.13	55.0	3.63	63.7	133.1	76.5	5.91	56.3	3.80	63.6	128.8	77.0	5.69	57.6	3.96	63.4
90	9	60	82.4	97.7	3.26	86.6	8.78	70.2	76.5	95.2	3.09	84.7	9.04	70.6	70.6	92.7	2.92	82.7	9.30	71.0
		80	101.4	93.2	4.25	78.7	6.42	72.0	95.9	91.9	4.06	78.0	6.65	72.1	90.4	90.5	3.86	77.4	6.87	72.3
		100	Operation not recommended																	
		120																		
	13.5	60	82.8	99.7	3.3	88.4	8.89	74.9	76.8	96.7	3.11	86.1	9.12	75.3	70.7	93.7	2.9	83.7	9.37	75.7
		80	101.8	95.3	4.3	80.6	6.52	76.3	96.2	93.5	4.08	79.6	6.72	76.4	90.5	91.8	3.9	78.6	6.94	76.6
		100	120.8	90.9	5.3	72.8	5.04	77.6	115.6	90.4	5.05	73.1	5.24	77.5	110.3	89.9	4.8	73.4	5.46	77.5
		120	Operation not recommended																	
	18	60	83.3	101.6	3.31	90.3	8.99	79.7	77.1	98.2	3.13	87.5	9.22	80.0	70.8	94.7	2.94	84.7	9.44	80.3
		80	102.3	97.3	4.31	82.6	6.61	80.5	96.5	95.2	4.10	81.2	6.81	80.7	90.7	93.1	3.89	79.8	7.00	80.9
		100	121.3	93.0	5.31	74.9	5.13	81.4	115.9	92.2	5.08	74.9	5.33	81.4	110.5	91.4	4.85	74.9	5.53	81.4
		120	Operation not recommended																	

8/19/09

075 - Performance Data

Cooling Capacity

Source		Load Flow-10 GPM							Load Flow-14.5 GPM						Load Flow-19 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F	LLT °F	TC MBTUH	Power kW	HR MBTUH	EER	LST °F
30	10	50	34.7	74.0	3.14	84.7	23.6	47.5	37.9	77.8	3.19	88.7	24.4	48.3	41.1	81.6	3.24	92.7	25.2	49.1
		70	52.4	85.1	3.29	96.4	25.9	49.9	56.3	88.0	3.34	99.3	26.3	50.5	60.2	90.8	3.38	102.3	26.8	51.1
		90	70.2	96.3	3.45	108.0	27.9	52.3	74.7	98.1	3.49	110.0	28.1	52.7	79.2	99.9	3.53	112.0	28.3	53.1
		110	87.9	107.4	3.60	119.7	29.8	54.7	93.0	108.3	3.64	120.7	29.8	54.9	98.2	109.1	3.67	121.6	29.7	55.1
	14.5	50	34.7	74.1	3.01	84.4	24.6	43.3	37.9	77.8	3.05	88.2	25.5	43.9	41.2	81.4	3.09	91.9	26.3	44.5
		70	52.9	83.1	3.12	93.8	26.6	44.9	56.6	85.8	3.16	96.6	27.2	45.3	60.4	88.5	3.20	99.4	27.7	45.8
		90	71.0	92.2	3.24	103.2	28.5	46.5	75.3	93.8	3.27	105.0	28.7	46.8	79.6	95.5	3.30	106.8	28.9	47.1
		110	89.1	101.2	3.35	112.6	30.2	48.1	94.0	101.9	3.38	113.4	30.2	48.2	98.9	102.6	3.41	114.2	30.1	48.3
	19	50	34.7	74.2	2.88	84.0	25.8	39.1	37.9	77.7	2.91	87.6	26.7	39.5	41.2	81.2	2.94	91.2	27.6	39.9
		70	53.3	81.1	2.95	91.2	27.5	39.9	57.0	83.6	2.98	93.8	28.1	40.2	60.7	86.1	3.01	96.4	28.6	40.5
		90	71.8	88.1	3.03	98.4	29.1	40.7	76.0	89.6	3.05	100.0	29.4	40.8	80.1	91.1	3.07	101.6	29.6	41.0
		110	90.4	95.0	3.10	105.6	30.6	41.5	95.0	95.5	3.12	106.1	30.6	41.5	99.6	96.0	3.14	106.7	30.6	41.6
50	10	50	35.8	68.9	3.94	82.3	18.5	67.0	38.8	72.3	3.99	85.9	19.2	67.7	41.8	75.6	4.03	89.4	19.8	68.4
		70	52.9	83.0	4.16	97.2	21.0	70.0	56.6	85.8	4.21	100.2	21.4	70.6	60.4	88.6	4.26	103.1	21.8	71.3
		90	70.0	97.0	4.38	112.0	23.2	73.1	74.5	99.3	4.44	114.5	23.4	73.6	79.0	101.6	4.49	116.9	23.6	74.1
		110	87.1	111.1	4.60	126.8	25.2	76.1	92.3	112.9	4.66	128.8	25.2	76.5	97.6	114.6	4.72	130.7	25.3	77.0
	14.5	50	35.7	69.3	3.78	82.2	18.3	62.9	38.7	72.6	3.82	85.6	19.0	63.5	41.8	75.9	3.86	89.0	19.7	64.0
		70	53.2	81.7	3.95	95.2	20.7	65.1	56.8	84.4	3.99	98.0	21.1	65.5	60.5	87.1	4.04	100.9	21.6	66.0
		90	70.6	94.1	4.12	108.2	22.9	67.2	75.0	96.3	4.17	110.5	23.1	67.6	79.3	98.4	4.22	112.7	23.3	67.9
		110	88.0	106.6	4.29	121.2	24.9	69.3	93.1	108.1	4.34	122.9	24.9	69.6	98.1	109.6	4.40	124.6	24.9	69.9
	19	50	35.6	69.7	3.63	82.0	20.3	58.9	38.7	72.9	3.66	85.4	21.1	59.3	41.7	76.2	3.69	88.7	21.8	59.6
		70	53.4	80.5	3.74	93.2	22.5	60.1	57.1	83.0	3.78	95.9	23.0	60.4	60.7	85.6	3.81	98.6	23.5	60.7
		90	71.2	91.3	3.86	104.4	24.6	61.3	75.4	93.2	3.90	106.5	24.9	61.6	79.7	95.1	3.94	108.6	25.1	61.8
		110	89.0	102.1	3.97	115.6	26.6	62.5	93.8	103.3	4.02	117.0	26.6	62.7	98.6	104.6	4.07	118.5	26.6	62.9
70	10	50	36.8	63.8	4.74	80.0	13.5	86.5	39.6	66.7	4.78	83.0	13.9	87.1	42.4	69.6	4.82	86.1	14.4	87.7
		70	53.3	80.8	5.03	98.0	16.1	90.2	57.0	83.6	5.08	101.0	16.5	90.8	60.6	86.4	5.14	104.0	16.8	91.4
		90	69.8	97.8	5.31	115.9	18.4	93.9	74.3	100.5	5.38	118.9	18.7	94.5	78.8	103.3	5.45	121.9	18.9	95.1
		110	Operation not recommended																	
	14.5	50	36.7	64.5	4.56	80.0	14.1	82.6	39.5	67.4	4.59	83.1	14.7	83.1	42.4	70.4	4.63	86.1	15.2	83.5
		70	53.4	80.3	4.78	96.6	16.8	85.3	57.1	83.0	4.83	99.5	17.2	85.7	60.7	85.8	4.88	102.4	17.6	86.2
		90	70.2	96.1	5.00	113.2	19.2	87.9	74.6	98.7	5.07	116.0	19.5	88.4	79.0	101.2	5.13	118.7	19.7	88.8
		110	Operation not recommended																	
	19	50	36.6	65.1	4.37	80.0	14.9	78.7	39.4	68.1	4.40	83.1	15.5	79.0	42.3	71.1	4.43	86.2	16.0	79.4
		70	53.6	79.8	4.53	95.2	17.6	80.3	57.2	82.5	4.57	98.1	18.0	80.6	60.8	85.1	4.62	100.9	18.4	80.9
		90	70.5	94.4	4.68	110.4	20.2	82.0	74.9	96.8	4.75	113.0	20.4	82.3	79.2	99.2	4.81	115.6	20.6	82.5
		110	87.5	109.1	4.84	125.6	22.5	83.6	92.6	111.2	4.92	127.9	22.6	83.9	97.7	113.2	5.00	130.3	22.6	84.1
90	10	50	38.3	56.8	6.04	77.4	10.1	106.0	40.8	59.2	6.08	79.9	10.5	106.5	43.3	61.5	6.12	82.4	10.8	107.0
		70	54.9	73.1	6.36	94.8	12.3	109.5	58.2	75.5	6.41	97.3	12.6	110.1	61.6	77.8	6.46	99.9	12.9	110.6
		90	71.6	89.4	6.68	112.2	14.2	113.1	75.7	91.8	6.74	114.8	14.5	113.7	79.8	94.1	6.81	117.4	14.7	114.2
		110	Operation not recommended																	
	14.5	50	38.1	57.5	5.82	77.4	9.9	102.2	40.7	59.9	5.85	79.9	10.2	102.6	43.2	62.4	5.88	82.4	10.6	103.0
		70	54.9	73.2	6.07	93.9	12.1	104.8	58.2	75.5	6.11	96.4	12.4	105.2	61.6	77.9	6.16	98.9	12.6	105.6
		90	71.7	88.8	6.32	110.4	14.0	107.5	75.8	91.1	6.38	112.9	14.3	107.9	79.9	93.4	6.43	115.3	14.5	108.2
		110	Operation not recommended																	
	19	50	38.0	58.3	5.60	77.4	11.2	98.4	40.6	60.7	5.63	79.9	11.6	98.7	43.1	63.2	5.65	82.5	12.0	99.0
		70	54.9	73.3	5.79	93.0	13.5	100.1	58.2	75.6	5.82	95.4	13.9	100.4	61.5	77.9	5.85	97.9	14.2	100.6
		90	71.8	88.3	5.97	108.6	15.7	101.8	75.9	90.4	6.01	110.9	16.0	102.0	80.0	92.6	6.06	113.3	16.2	102.3
		110	Operation not recommended																	
110	10	50	39.7	49.8	7.34	74.9	6.8	125.4	42.0	51.6	7.38	76.8	7.0	125.8	44.2	53.4	7.41	78.7	7.2	126.2
		70	56.5	65.4	7.69	91.6	8.5	128.9	59.5	67.3	7.74	93.7	8.7	129.3	62.5	69.2	7.78	95.8	8.9	129.7
		90	Operation not recommended																	
		110																		
	14.5	50	39.6	50.6	7.09	74.8	7.1	121.8	41.8	52.5	7.11	76.7	7.4	122.1	44.1	54.4	7.14	78.7	7.6	122.4
		70	56.4	66.1	7.37	91.2	9.0	124.4	59.4	68.0	7.40	93.3	9.2	124.7	62.4	69.9	7.44	95.3	9.4	125.0
		90	Operation not recommended																	
		110																		
	19	50	39.4	51.4	6.83	74.7	7.5	118.1	41.7	53.4	6.85	76.7	7.8	118.3	44.0	55.3	6.87	78.7	8.0	118.5
		70	56.2	66.7	7.04	90.8	9.5	119.9	59.3	68.7	7.07	92.8	9.7	120.1	62.3	70.7	7.09	94.9	10.0	120.3
		90	Operation not recommended																	
		110																		

8/20/09

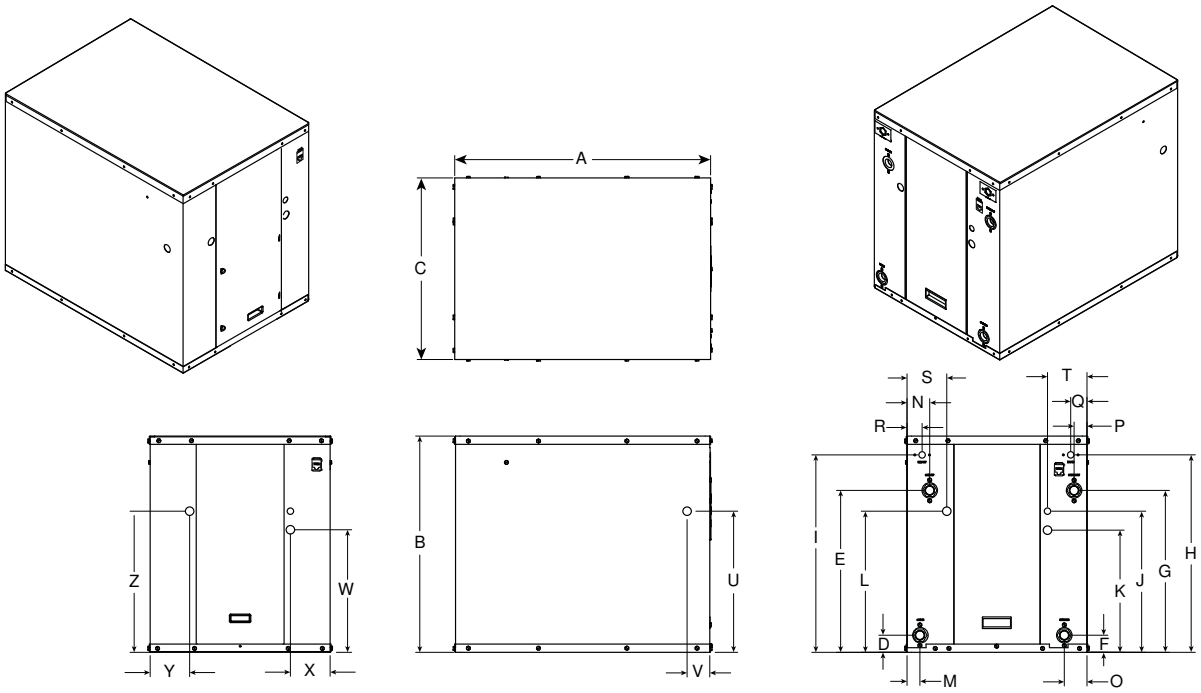
075 - Performance Data cont.

Heating Capacity

Source		Load Flow-10 GPM							Load Flow-14.5 GPM						Load Flow-19 GPM					
EST °F	Flow GPM	ELT °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F	LLT °F	HC MBTUH	Power kW	HE MBTUH	COP	LST °F
25	14.5	60	Operation not recommended																	
		80																		
		100																		
		120																		
	19	60	72.1	58.8	3.90	45.5	4.42	20.1	68.4	58.9	3.78	46.0	4.57	20.0	66.4	59.0	3.66	46.5	4.72	19.95
		80	91.8	57.4	5.11	40.0	3.29	20.7	88.2	57.5	4.97	40.6	3.39	20.6	86.2	57.6	4.82	41.1	3.50	20.5
		100	111.6	56.1	6.32	34.5	2.60	21.3	108.0	56.1	6.15	35.1	2.67	21.2	106.1	56.1	5.98	35.7	2.75	21.1
		120	131.3	54.7	7.53	29.0	2.13	21.9	127.8	54.7	7.34	29.7	2.18	21.8	125.9	54.7	7.14	30.3	2.24	21.7
30	10	60	72.6	61.1	3.90	47.8	4.59	20.1	69.6	61.2	3.79	48.3	4.74	20.0	66.7	61.3	3.68	48.7	4.88	20.0
		80	92.3	59.7	5.12	42.3	3.42	21.3	89.4	59.8	4.99	42.8	3.52	21.2	86.5	59.9	4.85	43.3	3.61	21.1
		100	112.0	58.4	6.35	36.7	2.69	22.4	109.2	58.4	6.19	37.3	2.77	22.3	106.3	58.4	6.03	37.9	2.84	22.2
		120	131.8	57.0	7.57	31.2	2.21	23.6	129.0	57.0	7.39	31.8	2.26	23.4	126.2	57.0	7.20	32.4	2.32	23.3
	14.5	60	73.1	63.5	3.9	50.1	4.74	22.2	70.0	63.6	3.82	50.5	4.88	22.2	66.9	63.7	3.7	51.0	5.03	22.1
		80	92.7	61.7	5.2	44.1	3.51	23.2	89.7	61.8	5.02	44.6	3.60	23.1	86.7	61.9	4.9	45.2	3.71	23.0
		100	112.4	59.9	6.4	38.1	2.75	24.1	109.4	60.0	6.23	38.7	2.82	24.0	106.5	60.1	6.1	39.4	2.90	23.9
		120	132.0	58.2	7.6	32.1	2.24	25.0	129.2	58.2	7.43	32.8	2.29	24.9	126.3	58.3	7.2	33.5	2.36	24.8
	19	60	73.6	65.8	3.95	52.3	4.88	24.3	70.4	65.9	3.84	52.8	5.03	24.3	67.2	66.0	3.73	53.3	5.18	24.2
		80	93.1	63.6	5.19	45.9	3.59	25.0	90.0	63.7	5.05	46.5	3.70	25.0	86.9	63.8	4.92	47.1	3.80	24.9
		100	112.7	61.5	6.43	39.5	2.80	25.7	109.7	61.6	6.27	40.2	2.88	25.6	106.7	61.7	6.10	40.8	2.96	25.6
		120	132.2	59.3	7.67	33.1	2.27	26.4	129.3	59.4	7.48	33.9	2.33	26.3	126.5	59.5	7.29	34.6	2.39	26.2
50	10	60	76.7	81.0	4.2	66.7	5.60	36.2	72.7	81.0	4.02	67.3	5.85	36.1	68.8	81.0	3.9	67.8	6.10	36.0
		80	96.1	78.2	5.4	59.6	4.17	37.7	92.3	78.2	5.24	60.3	4.34	37.6	88.5	78.3	5.1	61.0	4.50	37.4
		100	115.5	75.3	6.7	52.5	3.28	39.2	111.9	75.4	6.46	53.3	3.39	39.0	108.2	75.5	6.3	54.2	3.51	38.8
		120	134.9	72.5	7.9	45.4	2.66	40.6	131.4	72.6	7.69	46.4	2.75	40.4	127.9	72.8	7.5	47.3	2.84	40.2
	14.5	60	77.4	84.5	4.2	70.1	5.86	39.1	73.3	84.4	4.07	70.5	6.08	39.1	69.2	84.3	3.9	71.0	6.32	39.0
		80	96.7	81.1	5.5	62.4	4.35	40.3	92.8	81.1	5.29	63.1	4.50	40.2	88.8	81.2	5.1	63.7	4.66	40.1
		100	116.0	77.7	6.7	54.8	3.39	41.5	112.2	77.9	6.51	55.7	3.51	41.4	108.5	78.0	6.3	56.5	3.63	41.2
		120	135.3	74.4	8.0	47.2	2.74	42.7	131.7	74.6	7.73	48.2	2.83	42.5	128.1	74.8	7.5	49.3	2.93	42.3
	19	60	78.1	87.9	4.3	73.4	5.98	42.0	73.8	87.8	4.11	73.8	6.19	42.0	69.5	87.7	4.0	74.1	6.40	42.0
		80	97.3	84.0	5.5	65.2	4.42	42.9	93.2	84.1	5.33	65.9	4.58	42.9	89.1	84.1	5.2	66.5	4.74	42.8
		100	116.5	80.2	6.8	57.1	3.44	43.8	112.6	80.3	6.55	58.0	3.57	43.7	108.7	80.5	6.3	58.9	3.69	43.6
		120	135.7	76.3	8.0	48.9	2.77	44.7	132.0	76.6	7.77	50.1	2.87	44.6	128.3	76.9	7.5	51.2	2.98	44.4
70	10	60	80.8	100.9	4.48	85.6	6.60	52.3	75.9	100.8	4.26	86.3	6.96	52.2	70.9	100.7	4.03	86.9	7.32	52.1
		80	99.9	96.6	5.74	77.0	4.93	54.1	95.2	96.6	5.50	77.8	5.16	54.0	90.5	96.6	5.26	78.7	5.39	53.8
		100	119.0	92.2	7.00	68.3	3.86	55.9	114.5	92.4	6.74	69.4	4.02	55.7	110.0	92.6	6.48	70.4	4.18	55.5
		120	138.1	87.9	8.26	59.7	3.12	57.7	133.9	88.2	7.99	60.9	3.24	57.4	129.6	88.5	7.71	62.2	3.36	57.2
	14.5	60	81.7	105.5	4.5	90.0	6.84	56.0	76.6	105.2	4.32	90.5	7.14	56.0	71.4	105.0	4.1	91.0	7.48	55.9
		80	100.7	100.5	5.8	80.8	5.09	57.5	95.8	100.5	5.55	81.5	5.30	57.4	90.9	100.5	5.3	82.3	5.53	57.2
		100	119.7	95.6	7.0	71.5	3.97	58.9	115.1	95.7	6.79	72.6	4.13	58.7	110.4	95.9	6.5	73.7	4.31	58.6
		120	138.7	90.6	8.3	62.2	3.19	60.3	134.3	91.0	8.02	63.6	3.32	60.1	129.9	91.4	7.7	65.0	3.46	59.9
	19	60	82.7	110.0	4.55	94.5	7.08	59.7	77.3	109.7	4.38	94.7	7.35	59.7	71.9	109.3	4.20	95.0	7.62	59.7
		80	101.5	104.4	5.82	84.6	5.26	60.8	96.4	104.4	5.60	85.2	5.47	60.7	91.3	104.3	5.39	85.9	5.67	60.7
		100	120.4	98.9	7.09	74.7	4.09	61.9	115.6	99.1	6.83	75.8	4.26	61.8	110.8	99.3	6.57	76.9	4.43	61.7
		120	139.2	93.3	8.36	64.8	3.27	63.0	134.7	93.8	8.06	66.3	3.42	62.8	130.2	94.3	7.76	67.8	3.56	62.6
90	10	60	84.8	120.1	4.74	103.9	7.42	68.6	78.6	117.4	4.45	102.2	7.75	68.9	72.4	114.6	4.16	100.4	8.07	69.3
		80	103.7	114.9	6.02	94.4	5.59	70.5	97.9	113.2	5.71	93.7	5.82	70.7	92.1	111.5	5.39	93.1	6.06	70.8
		100	Operation not recommended																	
		120																		
	14.5	60	85.3	122.8	4.77	106.5	7.55	73.4	79.0	119.5	4.49	104.2	7.80	73.7	72.6	116.2	4.22	101.8	8.08	74.0
		80	104.2	117.6	6.07	96.8	5.67	74.9	98.3	115.4	5.76	95.8	5.88	75.0	92.3	113.3	5.44	94.7	6.10	75.2
		100	123.2	112.4	7.38	87.2	4.46	76.4	117.6	111.4	7.02	87.4	4.65	76.4	112.0	110.4	6.67	87.7	4.85	76.3
		120	Operation not recommended																	
	19	60	85.9	125.4	4.79	109.1	7.67	78.2	79.3	121.6	4.53	106.1	7.88	78.5	72.8	117.8	4.27	103.2	8.08	78.8
		80	104.8	120.2	6.13	99.3	5.75	79.2	98.6	117.7	5.81	97.9	5.95	79.4	92.5	115.2	5.49	96.4	6.15	79.5
		100	123.7	115.0	7.46	89.5	4.51	80.3	118.0	113.8	7.08	89.6	4.72	80.3	112.2	112.5	6.70	89.7	4.92	80.3
		120	Operation not recommended																	

8/19/09

Dimensional Data



2/15/16

Model		Overall Cabinet			Water Connections									Electrical Knockouts		
		A	B	C	D	E	F	G	H	I				J	K	L
		Depth	Height	Width	Load Liquid In	Load Liquid Out	Source Liquid In	Source Liquid Out	HWG In	HWG Out	Load Water FPT	Source Water FPT	HWG Water FPT	1/2 in. cond Low Voltage	3/4 in. cond Ext Pump	3/4 in. cond Power Supply
018	in.	23.5	26.1	19.5	10.0	22.2	10.0	22.2	-	-	1 in.	1 in.	-	16.0	14.2	14.2
	cm.	59.7	66.3	49.5	25.4	56.4	25.4	56.4	-	-	25.4 mm	25.4 mm	-	40.6	36.1	36.1
025	in.	23.5	26.1	19.5	10.0	22.2	10.0	22.2	-	-	1 in.	1 in.	-	16.0	14.2	14.2
	cm.	59.7	66.3	49.5	25.4	56.4	25.4	56.4	-	-	25.4 mm	25.4 mm	-	40.6	36.1	36.1
040	in.	31.0	26.2	22.0	2.1	19.6	2.1	19.6	23.9	23.9	1 in.	1 in.	1/2 in.	17.1	14.8	17.1
	cm.	78.7	66.5	55.9	5.3	49.8	5.3	49.8	60.7	60.7	25.4 mm	25.4 mm	12.7 mm	43.4	37.6	43.4
050	in.	31.0	26.2	22.0	2.2	20.6	2.2	20.6	23.9	23.9	1-1/4 in.	1-1/4 in.	1/2 in.	17.1	14.8	17.1
	cm.	78.7	66.5	55.9	5.6	52.3	5.6	52.3	60.7	60.7	31.8 mm	31.8 mm	12.7 mm	43.4	37.6	43.4
060 & 075	in.	31.0	26.2	22.0	2.4	23.0	2.4	23.0	20.6	20.6	1-1/4 in.	1-1/4 in.	1/2 in.	17.1	14.8	17.1
	cm.	78.7	66.5	55.9	6.1	58.4	6.1	58.4	52.3	52.3	31.8 mm	31.8 mm	12.7 mm	43.4	37.6	43.4

Model		Water Connections										Electrical Knockouts			
		M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
		Load Liquid In	Load Liquid Out	Source Liquid In	Source Liquid Out	HWG In	HWG Out	Power Supply	Low Voltage	Side Power Supply	Side Power Supply	Ext Pump	Ext Pump	Power Supply	Power Supply
018	in.	2.4	2.4	2.4	2.4	-	-	3.5	2.9	14.9	2.6	2.1	1.8	2.9	4.1
	cm.	6.1	6.1	6.1	6.1	-	-	8.9	7.4	37.8	6.6	5.3	4.4	7.4	10.4
025	in.	2.4	2.4	2.4	2.4	-	-	3.5	2.9	14.9	2.6	2.1	1.8	2.9	4.1
	cm.	6.1	6.1	6.1	6.1	-	-	8.9	7.4	37.8	6.6	5.3	4.4	7.4	10.4
040	in.	1.6	2.8	2.8	1.6	2.0	1.8	4.8	4.8	17.1	2.8	14.9	4.8	4.8	17.1
	cm.	4.1	7.0	7.0	4.1	5.1	4.6	12.2	12.2	43.4	7.0	37.8	12.2	12.2	43.4
050	in.	1.8	3.6	3.6	1.8	2.1	1.8	4.8	4.8	17.1	2.8	14.9	4.8	4.8	17.1
	cm.	4.6	9.1	9.1	4.6	5.3	4.6	12.2	12.2	43.4	7.1	37.8	12.2	12.2	43.4
060 & 075	in.	1.8	4.0	4.0	1.8	4.2	1.4	4.8	4.8	17.1	2.8	14.9	4.8	4.8	17.1
	cm.	4.6	10.2	10.2	4.6	10.7	3.6	12.2	12.2	43.4	7.1	37.8	12.2	12.2	43.4

8/6/10

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Physical Data

Model	018	025	040	050	060	075
Compressor (1 each)	Scroll					
Factory Charge R410a, oz [kg]	44.0 [1.25]	58.0 [1.64]	70 [1.98]	68 [1.93]	104 [2.95]	110 [3.12]
Coax & Piping Water Volume - gal [l]*	.52 [1.97]	.89 [3.38]	1.0 [3.94]	1.4 [5.25]	1.6 [6.13]	1.6 [6.13]
Weight - Operating, lb [kg]	191 [86.6]	225 [102.1]	290 [131.5]	325 [147.4]	345 [156.5]	345 [156.5]
Weight - Packaged, lb [kg]	213 [96.6]	247 [112.0]	305 [138.3]	340 [154.2]	360 [163.3]	360 [163.3]

NOTE: * Source or load side only.

8/6/10

Electrical Data

Unit Model	Rated Voltage	Voltage Min/Max	Compressor			Load Pump	Source Pump	Total Unit FLA	Min Ckt Amp	Maximum Fuse/HACR
			RLA	LRA	LRA*					
018	208-230/60/1	187/253	9.0	48.0	17	1.8	5.4	16.2	18.5	25
025	208-230/60/1	187/253	14.1	73.0	25.5	1.8	5.4	21.3	24.8	35
040	208-230/60/1	187/253	20.0	115.0	40.3	1.8	5.4	27.2	32.2	50
050	208-230/60/1	187/253	26.4	134.0	46.9	1.8	5.4	33.6	40.2	60
060	208-230/60/1	187/253	30.1	145.0	50.8	1.8	5.4	37.3	44.8	70
075	208-230/60/1	187/253	26.9	145.0	50.8	1.8	5.4	34.1	40.8	60

Notes:All fuses type “D” time delay (or HACR circuit breaker in USA).

1/15/2015

Source pump amps shown are for up to a 1/2 HP pump

Load pump amps shown are for small circulators.

*With optional IntelliStart

Pressure Drop

Model	GPM	Pressure Drop (psi)				
		30°F	60°F	80°F	100°F	120°F
018R*	3.0	0.5	0.4	0.4	0.3	0.3
	4.0	1.1	0.9	0.9	0.8	0.8
	5.0	1.6	1.4	1.4	1.3	1.3
	6.0	2.1	1.9	1.9	1.8	1.8
025R*	4.0	0.7	0.6	0.4	0.3	0.3
	5.5	1.3	1.1	0.9	0.7	0.6
	7.0	1.9	1.7	1.5	1.3	1.2
	8.5	2.6	2.4	2.2	2.0	1.9
040H/R	5.0	0.9	0.6	0.6	0.5	0.5
	7.5	2.3	2.1	2.0	1.9	1.8
	10.0	3.7	3.5	3.3	3.2	3.0
	12.5	5.0	4.7	4.4	4.2	4.0
050H/R	8.0	1.7	1.4	1.4	1.3	1.3
	11.5	3.6	3.4	3.2	3.0	2.8
	15.0	5.6	5.4	5.0	4.6	4.2
	18.5	8.3	8.1	7.6	7.2	6.8
060H/R	9.0	1.4	1.1	1.0	1.0	0.9
	13.5	4.2	3.9	3.5	3.1	2.7
	18.0	6.9	6.7	6.0	5.2	4.5
	22.5	10.7	10.5	10.0	9.4	8.7
075H/R	10.0	3.2	3.0	2.8	2.7	2.5
	14.5	5.5	5.3	5.1	4.9	4.7
	19.0	7.9	7.6	7.3	7.1	6.8
	23.5	11.5	11.3	11.0	10.8	10.5

NOTES: Temperatures are Entering Water Temperatures
*Domestic water heating units source side pressure drop and reversible units load and source pressure drop.

8/9/10

Vented Only Load Side

Model	GPM	Pressure Drop (psi)			
		60°F	80°F	100°F	120°F
018H	3.0	0.5	0.4	0.4	0.3
	4.0	1.4	1.3	1.2	1.2
	5.0	2.2	2.1	2.1	2.0
	6.0	3.0	2.9	2.9	2.8
025H	4.0	1.3	1.3	1.2	1.2
	5.5	3.0	2.9	2.8	2.7
	7.0	4.6	4.4	4.3	4.1
	8.5	6.7	6.5	6.4	6.2

NOTES: Temperatures are Entering Water Temperatures.
Double wall vented coax for heating potable water

7/13/09

Correction Factor Tables

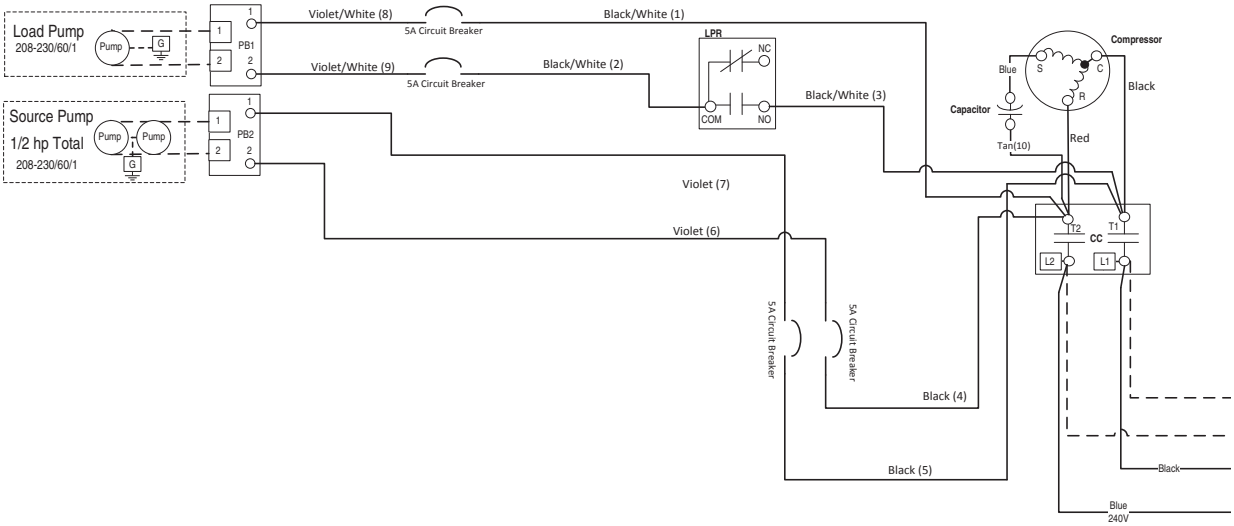
Catalog performance can be corrected for antifreeze use. Please use the following table and note the example given.

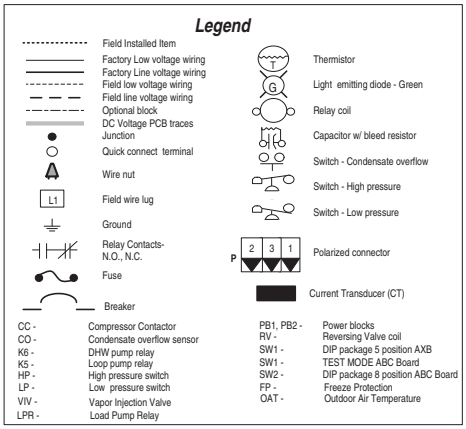
Antifreeze Type	Antifreeze % by wt	Heating		Cooling		Pressure Drop
		Load	Source	Load	Source	
EWT - °F [°C]		**80 [26.7]**	**30 [-1.1]**	**50 [10.0]**	**90 [32.2]**	**30 [-1.1]**
Water	0	1.000	1.000	1.000	1.000	1.000
Ethylene Glycol	10	0.990	0.973	0.976	0.991	1.075
	20	0.978	0.943	0.947	0.979	1.163
	30	0.964	0.917	0.921	0.965	1.225
	40	0.953	0.890	0.897	0.955	1.324
	50	0.942	0.865	0.872	0.943	1.419
Propylene Glycol	10	0.981	0.958	0.959	0.981	1.130
	20	0.967	0.913	0.921	0.969	1.270
	30	0.946	0.854	0.869	0.950	1.433
	40	0.932	0.813	0.834	0.937	1.614
	50	0.915	0.770	0.796	0.922	1.816
Ethanol	10	0.986	0.927	0.945	0.991	1.242
	20	0.967	0.887	0.906	0.972	1.343
	30	0.944	0.856	0.869	0.947	1.383
	40	0.926	0.815	0.830	0.930	1.523
	50	0.907	0.779	0.795	0.911	1.639
Methanol	10	0.985	0.957	0.962	0.986	1.127
	20	0.969	0.924	0.929	0.970	1.197
	30	0.950	0.895	0.897	0.951	1.235
	40	0.935	0.863	0.866	0.936	1.323
	50	0.919	0.833	0.836	0.920	1.399

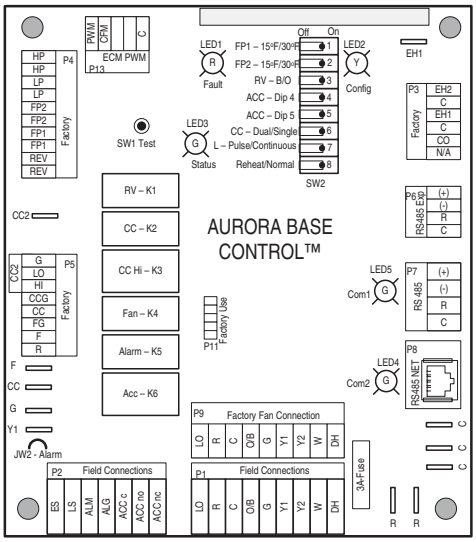
WARNING: Gray area represents antifreeze concentrations greater than 35% by weight and should be avoided due to the extreme performance penalty they represent.

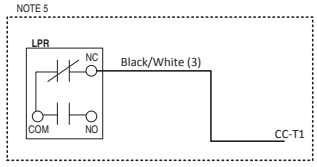
Wiring Schematics

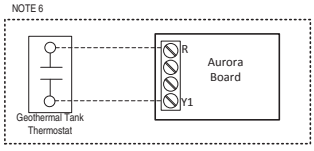
Aurora Control - 208-230/60/1

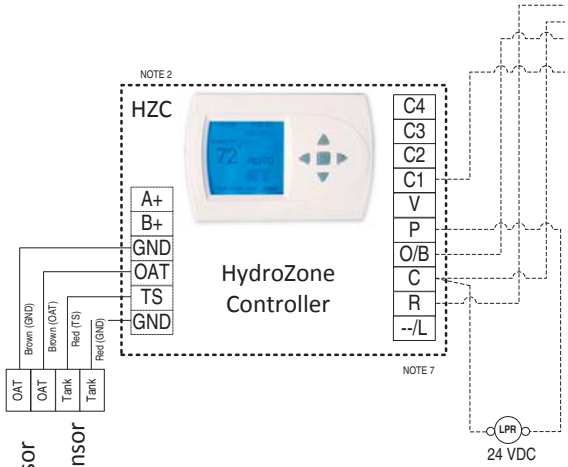






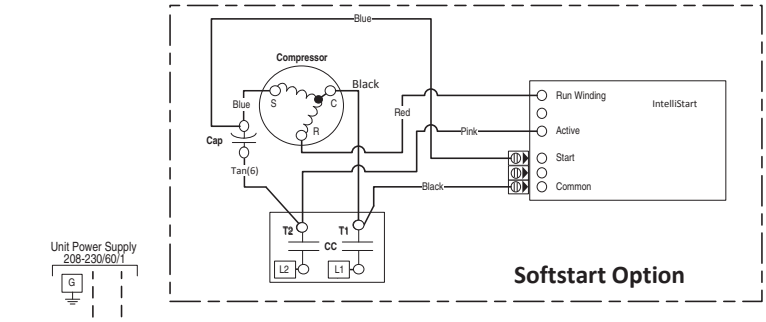






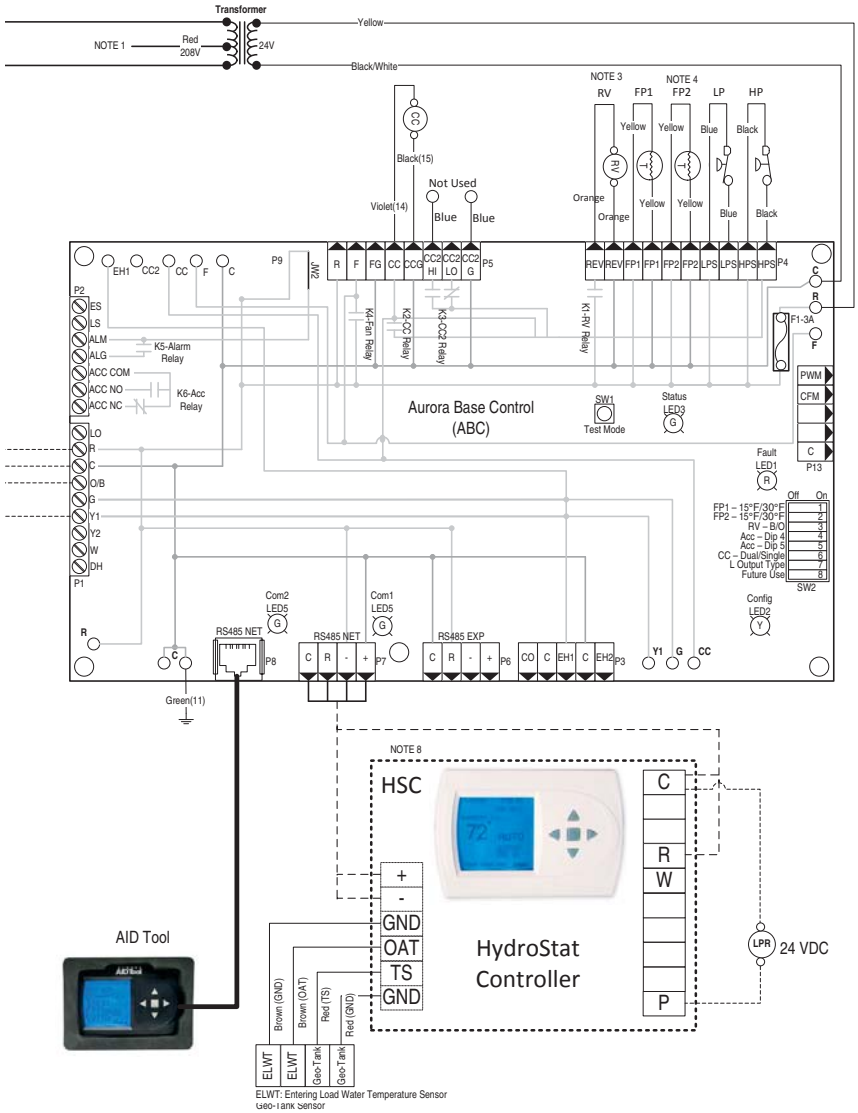
Wiring Schematics - cont.

Aurora Control - 208-230/60/1



Notes

1 - Switch blue and red wires for 208V operation.
2 – HydroZone controller is an optional field installed accessory.
3 – Reversing Valve wires not installed on heating only option
4 – FP2 is replaced with a resistor on heating only option
5 – Move black/white(3) wire when HydroZone is not used for pump control
6 – When Geothermal Storage Tank is wired directly to the Aurora Board
7 – HydroZone Controller may be labeled - - or L.
8 – HydroStat Communicating Controller is an optional field installed accessory.



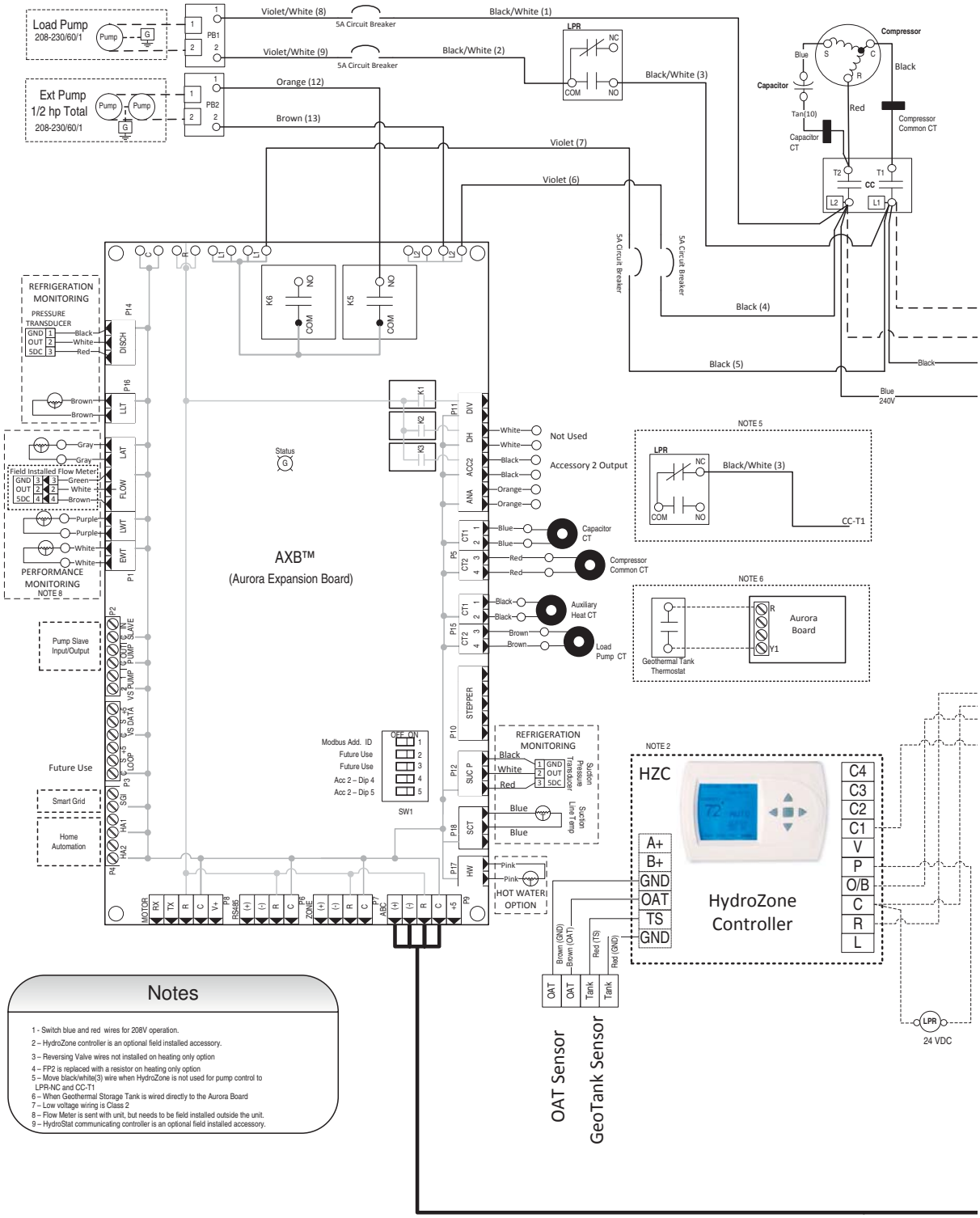
ABC SW2 Accessory Relay		
DESCRIPTION	SW2-4	SW2-5
Cycle with Blower	ON	ON
Cycle with Compressor	OFF	OFF
Water Valve Slow Opening	ON	OFF
Cycle with Comm. T-stat Hum Cmd	OFF	ON

Aurora Timing Events		
Event	Normal Mode	Test Mode
Random Start Delay	5 to 80 seconds	1 second
Compressor On Delay	5 seconds	< 1 second
Compressor Minimum On Time	2 minutes	5 seconds
Compressor Short Cycle Delay	4 minutes	15 seconds
Fault Recognition Delay – High Pressure	Less than 1 second	Less than 1 second
Start-Up Bypass – Low Pressure	2 minutes	30 seconds
Fault Recognition Delay – Low Pressure	30 seconds	30 seconds
Start-Up Bypass – Low Water Coil Limit	2 minutes	30 seconds
Fault Recognition Delay – Low Water Coil Limit	30 seconds	30 seconds
Fault Recognition Delay – Condensate Overflow	30 seconds	30 seconds
HydroZone Call Recognition Time	2 seconds	2 seconds
Water Valve Slow Open Delay	90 seconds	90 seconds

Aurora LED Flash Codes			
Slow Flash	1 second on and 1 second off		
Fast Flash	100 milliseconds on and 100 milliseconds off		
Flash Code	100 milliseconds on and 400 milliseconds off with a 2 second pause before repeating		
Random Start Delay (Alternating Colors)		Configuration LED (LED2, Yellow)	
Status LED (LED1, Green)	Fast Flash	No Software Overide	OFF
Configuration LED (LED2, Yellow)	Fast Flash	DIP Switch Overide	Slow Flash
Fault LED (LED3, Red)	Fast Flash		
Fault LED (LED1, Red)		Status LED (LED3, Green)	
Normal Mode	OFF	Normal Mode	ON
Input Fault Lockout	Flash Code 1	Control is Non-Functional	OFF
High Pressure Lockout	Flash Code 2	Test Mode	Slow Flash
Low Pressure Lockout	Flash Code 3	Lockout Active	Fast Flash
Future Use	Flash Code 4	Dehumidification Mode	Flash Code 2
Freeze Detection – FP1	Flash Code 5	Future Use	Flash Code 3
Reserved	Flash Code 6	Future Use	Flash Code 4
Condensate Overflow Lockout	Flash Code 7	Load Shed	Flash Code 5
Over/Under Voltage Shutdown	Flash Code 8	ESD	Flash Code 6
Future Use	Flash Code 9	Future Use	Flash Code 7
Future Use	Flash Code 10		
FP1 and FP2 Sensor Error	Flash Code 11		

Wiring Schematics cont.

Aurora Advanced Control - 208-230/60/1

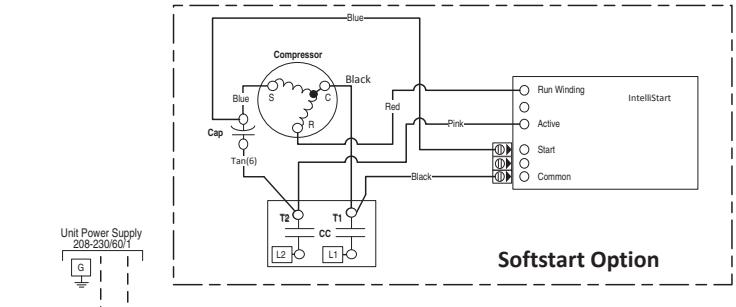


Notes

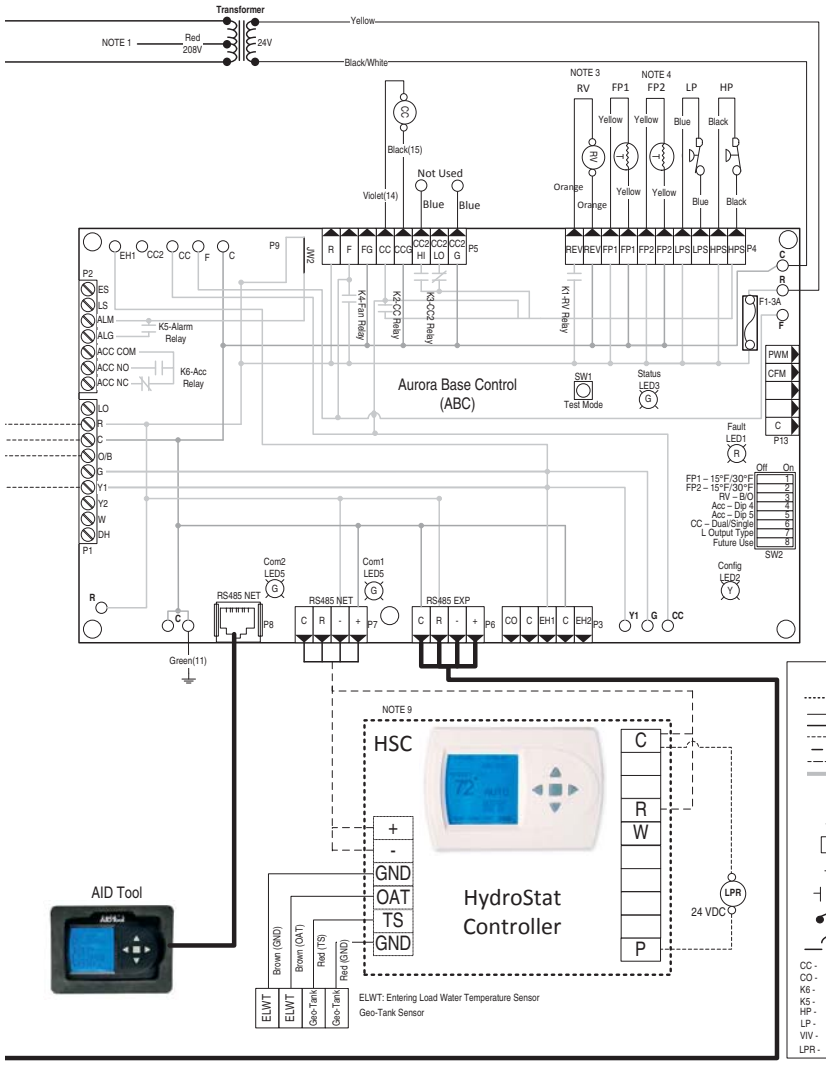
1 - Switch blue and red wires for 208V operation.
2 – HydroZone controller is an optional field installed accessory.
3 – Reversing Valve wires not installed on heating only option
4 – FP2 is replaced with a resistor on heating only option
5 – Move black/white(3) wire when HydroZone is not used for pump control to LPR-NC and CC-T1
6 – When Geothermal Storage Tank is wired directly to the Aurora Board
7 – Low voltage wiring is Class 2
8 – Flow Meter is sent with unit, but needs to be field installed outside the unit.
9 – HydroStat communicating controller is an optional field installed accessory.

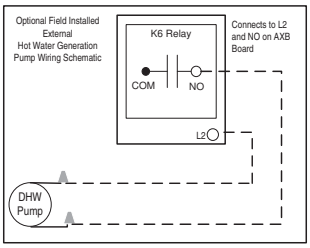
Wiring Schematics cont.

Aurora Advanced Control - 208-230/60/1



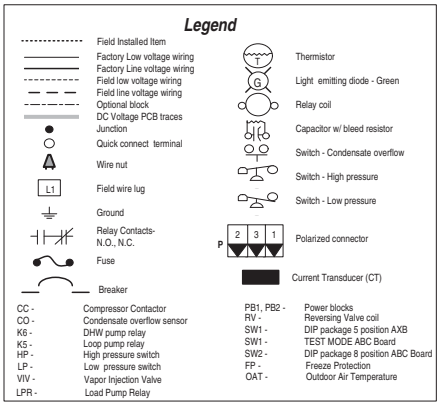
Aurora LED Flash Codes			
Slow Flash	1 second on and 1 second off		
Fast Flash	100 milliseconds on and 100 milliseconds off		
Flash Code	100 milliseconds on and 400 milliseconds off with a 2 second pause before repeating		
Random Start Delay (Alternating Colors)		**Configuration LED (LED2, Yellow)**	
Status LED (LED1, Green)	Fast Flash	No Software Overide	OFF
Configuration LED (LED2, Yellow)	Fast Flash	DIP Switch Overide	Slow Flash
Fault LED (LED3, Red)	Fast Flash		
Fault LED (LED1, Red)		**Status LED (LED3, Green)**	
Normal Mode	OFF	Normal Mode	ON
Input Fault Lockout	Flash Code 1	Control is Non-Functional	OFF
High Pressure Lockout	Flash Code 2	Test Mode	Slow Flash
Low Pressure Lockout	Flash Code 3	Lockout Active	Fast Flash
Future Use	Flash Code 4	Dehumidification Mode	Flash Code 2
Freeze Detection – FP1	Flash Code 5	Future Use	Flash Code 3
Reserved	Flash Code 6	Future Use	Flash Code 4
Condensate Overflow Lockout	Flash Code 7	Load Shed	Flash Code 5
Over/Under Voltage Shutdown	Flash Code 8	ESD	Flash Code 6
Future Use	Flash Code 9	Future Use	Flash Code 7
Future Use	Flash Code 10		
FP1 and FP2 Sensor Error	Flash Code 11		





ABC SW2 Accessory Relay		
DESCRIPTION	**SW2-4**	**SW2-5**
Cycle with Blower	ON	ON
Cycle with Compressor	OFF	OFF
Water Valve Slow Opening	ON	OFF
Cycle with Comm. T-stat Hum Cmd	OFF	ON

Aurora Timing Events		
Event	**Normal Mode**	**Test Mode**
Random Start Delay	5 to 80 seconds	1 second
Compressor On Delay	5 seconds	< 1 second
Water Valve Slow Open Delay	90 seconds	90 seconds
Compressor Minimum On Time	2 minutes	5 seconds
Compressor Short Cycle Delay	4 minutes	15 seconds
Fault Recognition Delay – High Pressure	Less than 1 second	Less than 1 second
Start-Up Bypass – Low Pressure	2 minutes	30 seconds
Fault Recognition Delay – Low Pressure	30 seconds	30 seconds
Start-Up Bypass – Low Water Coil Limit	2 minutes	30 seconds
Fault Recognition Delay – Low Water Coil Limit	30 seconds	30 seconds
Fault Recognition Delay – Condensate Overflow	30 seconds	30 seconds
HydroZone Call Recognition Time	2 seconds	2 seconds



Engineering Guide Specifications

General

The liquid source water-to-water heat pump shall be a single packaged heating only or reverse-cycle heating/cooling unit. Dedicated non-reversing heating only units shall be easily field convertible to cooling only units. The unit shall be listed by a nationally recognized safety-testing laboratory or agency, such as ETL Testing Laboratory, Underwriters Laboratory (UL), or Canadian Standards Association (CSA). The unit shall be rated in accordance with Air Conditioning, Heating, and Refrigeration Institute/International Standards Organization (AHRI/ISO) and Canadian Standards Association (CSA-US). The liquid source water-to-water heat pump unit shall be designed to operate with source liquid temperatures between 30°F [-1.1°C] and 110°F [43.3°C] in cooling, and between 25°F [-3.9°C] and 90°F [32.2°C] in heating.

Casing and Cabinet

The cabinet shall be fabricated from heavy-gauge galvanized steel and finished with corrosion-resistant powder coating. This corrosion protection system shall meet the stringent 1,000 hour salt spray test per ASTM B117. The interior shall be insulated with ½ in. thick, multi-density, coated glass fiber for noise suppression.

All units 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. The control box shall be field switchable from front to back for improved application flexibility with quick attach low voltage harnesses. The control box is shipped standard on the same end as the water connections.

Refrigerant Circuit

All units shall utilize the non-ozone depleting and low global warming potential refrigerant R-410A. All units shall contain a sealed refrigerant circuit including a hermetic motor-compressor, bidirectional thermostatic expansion valve, optional reversing valve, coaxial tube water-to-refrigerant heat exchanger, optional hot water generator coil, and service ports. An optional vented double wall load coaxial water-to-refrigerant heat exchanger is available on 018 and 025.

Compressors shall be high-efficiency scroll type designed for heat pump duty and mounted on vibration isolators. The compressor shall be double isolation mounted using selected durometer grommets to provide vibration free compressor mounting. All models will feature a compressor discharge muffler to help quiet compressor gas pulsations. A high density sound attenuating blanket shall be factory installed around the compressor to reduce sound. Compressor motors shall be single-phase PSC with overload protection.

The coaxial water-to-refrigerant heat exchangers shall be designed for low water pressure drop and constructed of a convoluted copper (cupronickel option) inner tube and a steel outer tube. Refrigerant-to-water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 600 PSIG (4135 kPa) working refrigerant pressure and 450 PSIG (3101 kPa) working water pressure. The thermostatic expansion valve shall provide proper superheat over the entire liquid temperature range with minimal "hunting." The valve shall operate bidirectionally without the use of check valves.

Option: Cupronickel refrigerant-to-water heat exchanger shall be of copper-nickel inner water tube and steel refrigerant outer tube design, rated to withstand 600 PSIG (4135 kPa) working refrigerant pressure and 450 PSIG (3101 kPa) working water pressure.

Option: Hot Water Generator (available on 040-075) - Internal double wall vented hot water generator coil refrigerant to water heat exchangers suitable for potable water shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 600 PSIG (4135 kPa) working refrigerant pressure and 450 PSIG (3101 kPa) working water pressure.

Option: Vented double wall water-to-refrigerant heat exchange (available on 018 and 025) - Internal vented double wall water-to-refrigerant coaxial heat exchangers suitable for potable water shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 600 PSIG (4136 kPA) working refrigerant pressure and 450 PSIG (3101 kPA) water pressure.

Piping and Connections

Supply and return water connections shall be 1 in. [25.4 mm] for the 018-040, 1 ¼ in. [31.75 mm] for the 050-075, and all hot water generator water connections shall be ½ in. [12.7 mm] FPT copper fittings. The FPT fittings shall be fixed to the cabinet by use of a captive fitting, which eliminates the need for backup pipe wrenches.

Electrical

A control box shall be located within the unit compressor compartment and shall contain a 75VA transformer, 24 volt activated, 2 pole compressor contactor, circuit breakers for protecting pumps, terminal block for thermostat wiring, and solid-state controller for complete unit operation. Electromechanical operation WILL NOT be accepted. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 volt and provide heating or cooling as required by the remote thermostat/sensor.

Engineering Guide Specifications cont.

An Aurora, a microprocessor-based controller, interfaces with a external control to monitor and control unit operation shall be provided. The unit control shall provide operational sequencing, high and low pressure switch monitoring, freeze detection, hot water limit thermistor sensing, lockout mode control, hot water, load and loop pump control, LED status and fault indicators, fault memory, field selectable options, and accessory output. The Lockout signal output shall have a pulsed option so that DDC systems can read specific lockout conditions from the control.

The optional Aurora Advanced Control shall also feature an Energy Monitoring Package that will provide real time total power consumption, compressor monitoring, On Peak input signal for utility controlled demand programs, intelligent hot water generation with user adjustable temperature limit, loop pump linking for multiple units driving a common flow center and up to two optional home automation inputs. Optional Performance and Refrigerant Monitoring kits to provide real time data including refrigerant superheat.

A detachable terminal block with screw terminals will be provided for field control wiring. All units shall have knockouts for entrance of low and line voltage wiring. The blower motor and control box shall be harness plug wired for easy removal.

An optional Aurora Interface Diagnostic (AID) Tool shall communicate with the Aurora control allowing quick and easy access to monitoring, and troubleshooting of any Aurora control. The device shall include the features fault description and history, manual operation capability, sensor readings, timings, and other diagnostic tools.

Optional IntelliStart® (compressor Soft Starter) shall be factory installed for use in applications that require low starting amps, reduced compressor start-up noise, off-grid, and improved start-up behavior. IntelliStart shall reduce normal starting current by up to 60%.

Accessories

Hose Kits – Automatic Balancing and Ball Valves with 'Y' strainer (field-installed)

WaterFurnace P/N - WFI-HKM-100-24-M0
(1 in. hose kit for 018-040)
WFI-HKM-125-24-M0
(1 ¼ in. hose kit for 050-075)

A flexible steel braid hose featuring Kevlar® reinforced EPDM core with ANSI 302/304 stainless steel outer braid and fire rated materials per ASTM E 84-00 (NFPA 255, ANSI/ UL 723 & UBC 8-1). Ball valve at one end; swivel connector with adapter at the other end (swivel to adapter connection via fiber or EPDM gasket). Swivel connection provides union between heat pump and piping system. The hoses feature brass fittings, stainless steel ferrules. A "y" strainer is provided on one end for fluid straining and integral "blowdown" valve. A full port ball valve shall be provided with integral P/T (pressure/temperature) port on supply hose and automatic balancing valve with integral P/T ports and full port ball valve on return hose.

Specifications:

- Temperature range of 35°F [2°C] to 180°F [82°C].
- Max. working pressure of 400 psi [2756 kPa] for ½ in. and ¾ in. hose kits; max. working pressure of 350 psi [2413 kPa] for 1 in. and 1 ¼ in. hose kits.
- Minimum burst pressure of four times working pressure.

Revision Guide

Pages:	Description:	Date:	By:
All	Updated NSW to 5 Series Product Line		MA