

TruClimate 100

30 TO 150 KW

Commercial Reversible Chiller - 50 Hz

WaterFurnace®
Commercial Solutions

Submittal Data
English Language
IP/Metric Units
SD2552WNB 06/23

Contractor: _____ P.O.: _____

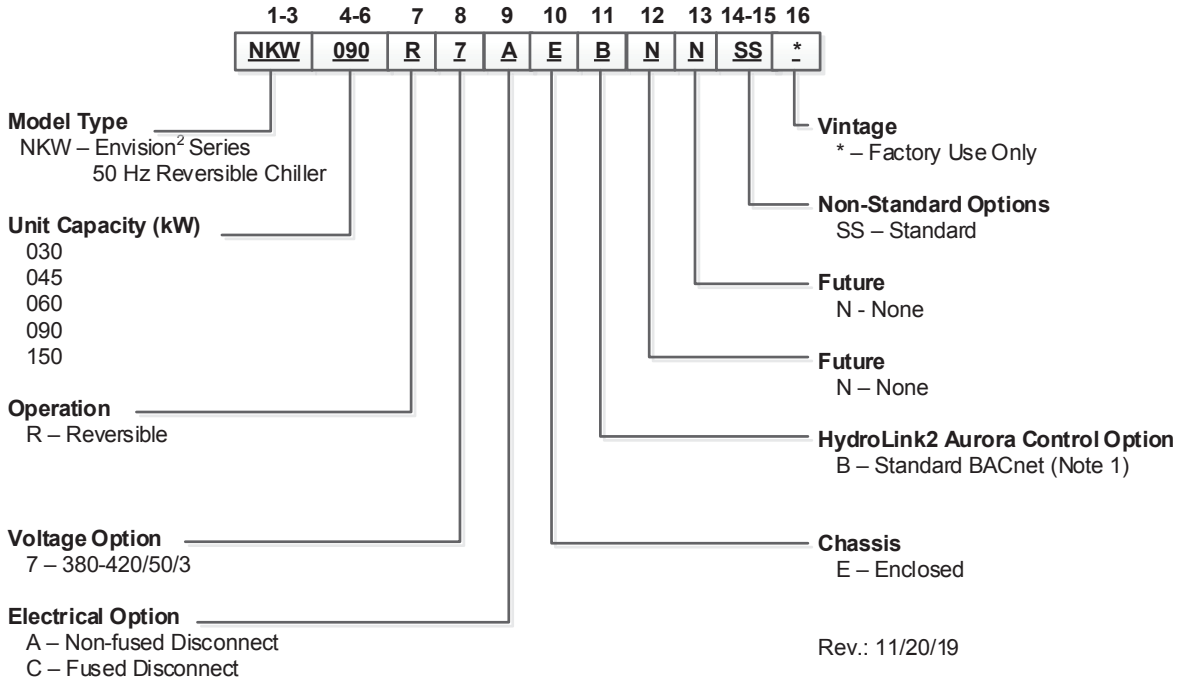
Engineer: _____

Project Name: _____ Unit Tag: _____

TruClimate 100
Reversible Chiller - 50Hz

WaterFurnace Commercial Solutions

Model Nomenclature



Notes:
1. Standard controls option includes BACnet and standalone control.

Envision Reversible Chiller Availability

Voltage	Chiller				
	030	045	060	090	150
380-420/50/3	•	•	•	•	•

Legend:

NA = Not Available

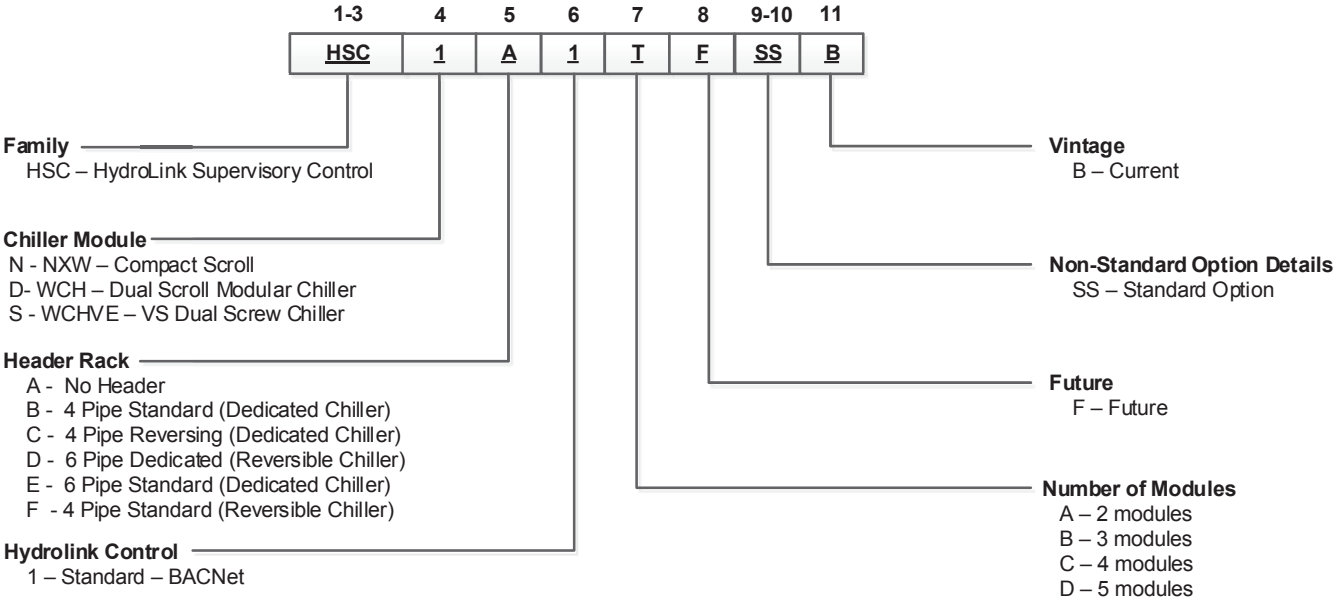
• = Voltage available in this size

10/7/14

All TruClimate 100 10-50 Ton 50Hz product is safety tested to CE standards and performance tested in accordance with standard EN 14511-2.

WaterFurnace works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Please contact WaterFurnace at 1-888-929-2837 for latest design and specifications. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely WaterFurnace's opinion or commendation of its products. The latest version of this document is available at www.waterfurnace.com.

HydroLink2 Supervisory Control Box Nomenclature



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Engineer: _____

Project Name: _____ Unit Tag: _____

EN 14511-2 2011 Ratings

TruClimate 100 10-50 Ton Heat Pump
Heating Performance Data
EN 14511-2 2011

Model	B0/W35			W10/W35			B0/W45			B5/W35			W10/W45		
	Capacity Output kW	COP	Power Input kW	Capacity Output kW	COP	Power Input kW	Capacity Output kW	COP	Power Input kW	Capacity Output kW	COP	Power Input kW	Capacity Output kW	COP	Power Input kW
030	29.3	3.50	8.4	40.8	4.70	8.6	28.3	2.90	9.9	34.3	4.00	8.5	39.1	3.90	10.0
045	42.6	3.70	11.4	57.3	4.90	11.8	41.3	3.20	13.1	48.9	4.20	11.6	55.4	4.10	13.5
060	54.0	3.70	14.7	73.9	4.70	15.6	52.2	3.00	17.2	62.6	4.10	15.2	71.7	4.00	18.1
090	83.4	3.80	22.1	107.3	4.70	23.1	80.6	3.20	25.5	93.3	4.10	22.6	103.1	3.90	26.4
150	118.8	3.60	32.9	179.0	4.80	37.1	107.4	2.90	37.4	145.5	4.20	35.0	162.8	4.00	40.8

All ratings based upon 380-400V operation 10/7/14
All ratings based on new heat pump with clean heat exchangers

Cooling Performance Data
EN 14511-2 2011

Model	W30/B0			W30/W12			W30/W23		
	Capacity Output kW	EER (W/W)	Power Input kW	Capacity Output kW	EER (W/W)	Power Input kW	Capacity Output kW	EER (W/W)	Power Input kW
030	19.2	2.60	7.40	34.8	4.40	7.90	48.4	5.80	8.30
045	28.2	2.70	10.4	48.8	4.40	11.2	66.5	5.50	12.0
060	39.3	2.90	13.7	62.5	4.20	14.9	82.0	5.10	16.0
090	58.4	2.80	20.6	91.1	4.10	22.3	118.7	5.00	23.8
150	98.7	2.90	33.9	152.7	4.20	36.4	198.1	5.10	38.7

All ratings based upon 380-400V operation 10/7/14
All ratings based on new heat pump with clean heat exchangers

Energy Labelling

Supplier		WaterFurnace International, Inc.					
Model		NKW030		NKW045		NKW060	
Model hot water heater		-		-		-	
Temperature application	°C	35	55	35	55	35	55
Declared load profile for water heating		-		-		-	
Seasonal space heating energy efficiency class, average climate		A++	A+	A++	A+	A++	A+
Water heating energy efficiency class, average climate		-		-		-	
Rated heat output (Pdesignh), average climate	kW	29		43		54	
Annual energy consumption space heating, average climate	kWh	16,186	19,872	22,059	26,531	29,951	29,610
Annual energy consumption water heating, average climate	kWh	-		-		-	
Seasonal space heating energy efficiency, average climate	%	142	110	152	122	158	122
Water heating energy efficiency, average climate	%	-		-		-	
Sound power level LWA indoors	dB	62		64		64	
Rated heat output (Pdesignh), cold climate	kW	29		43		54	
Rated heat output (Pdesignh), warm climate	kW	29		43		54	
Sound power level LWA outdoors dB	dB	-		-		-	

3/18/2016

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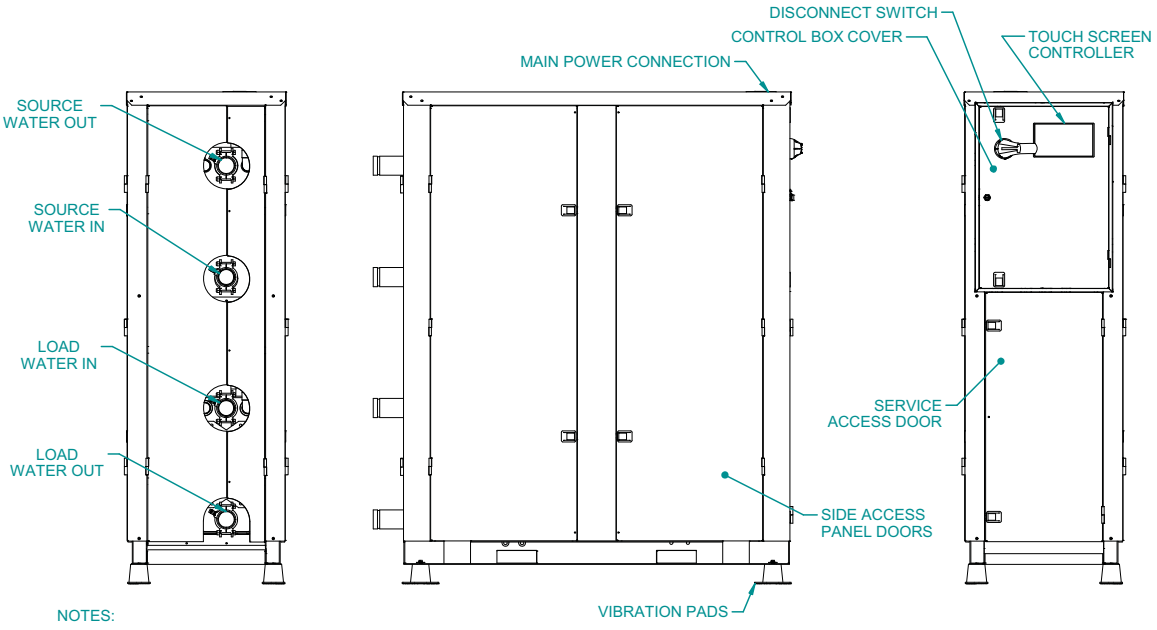
Engineer: _____

Project Name: _____ Unit Tag: _____

TruClimate 100
Reversible Chiller - 50Hz

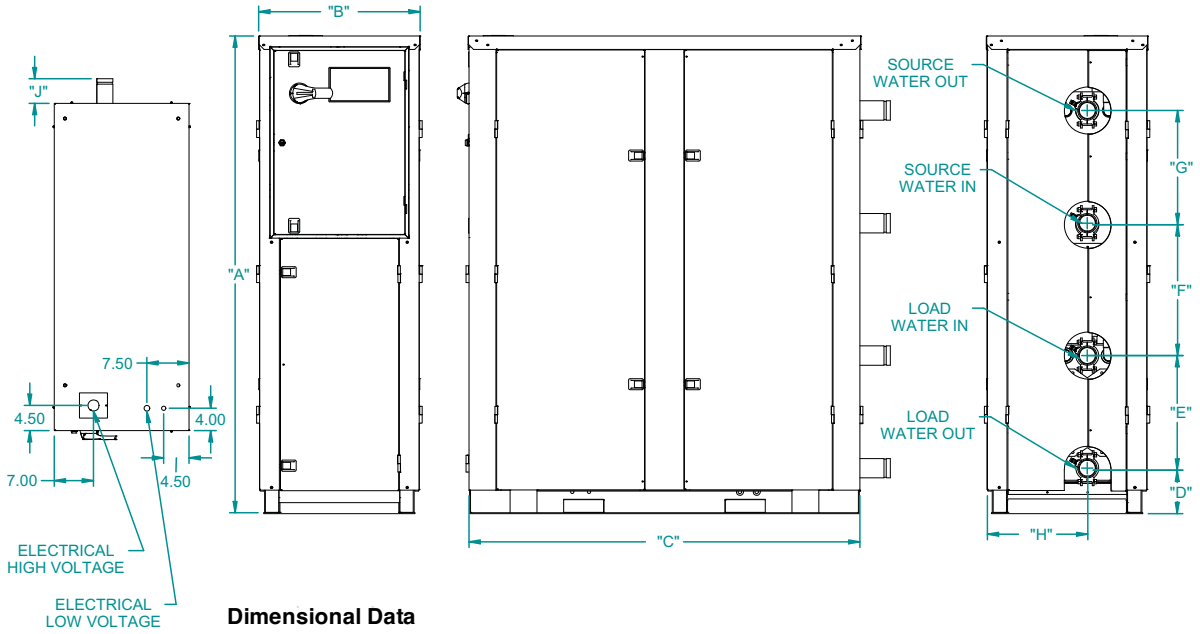
WaterFurnace Commercial Solutions

Physical Dimensions (Reversible only)



NOTES:

1. DO NOT SCALE DRAWING.
2. RECOMMENDED TO HAVE 24" CLEARANCE ON ALL SIDES.



Dimensional Data

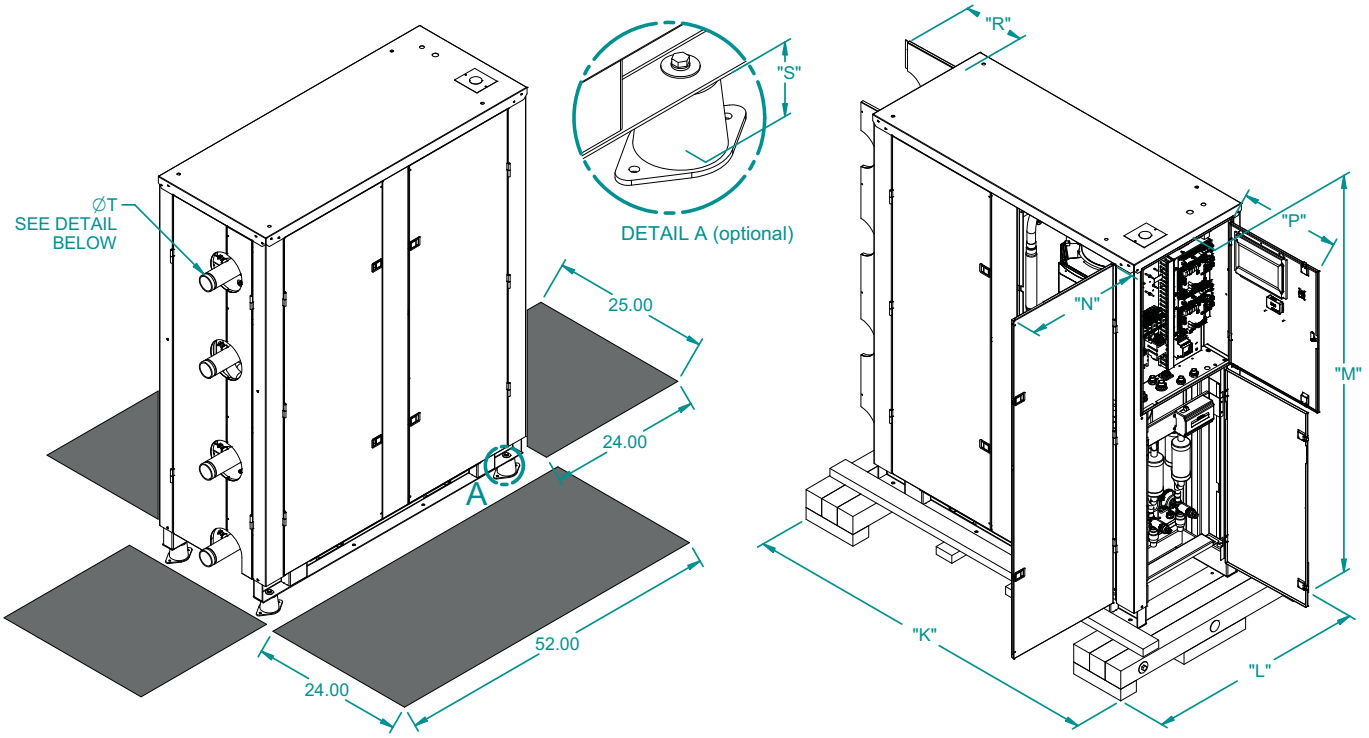
Dimensional Data for unit with enclosure

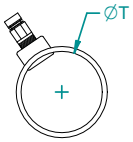
Model	A	B	C	D	E	F	G	H	J
120-180	57.3 [1455]	24.1 [612]	42.5 [1080]	5.0 [127]	17.0 [432]	8.8 [224]	17.0 [432]	11.9 [302]	5.8 [147]
240-360	64.2 [1631]	24.1 [612]	50.5 [1283]	6.9 [175]	17.0 [432]	13.9 [353]	17.0 [432]	12.1 [307]	4.8 [122]
600	71.1 [1806]	24.1 [610]	58.5 [1486]	6.5 [165]	17.0 [432]	19.5 [495]	17.0 [432]	15.0 [381]	4.4 [112]

All dimensions in inches, [mm]

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Physical Dimensions (Reversible only) cont.





Dimensional Data

Dimensional Data for unit with enclosure

Model	K	L	M	N	P	R	S	*T
120-180	57.0 [1448]	42.0 [1067]	63.1 [1603]	15.9 [404]	19.5 [495]	9.7 [246]	1.3 [33]	2.0 [51]
240-360	65.0 [1651]	42.0 [1067]	69.9 [1775]	19.9 [505]	19.5 [495]	9.7 [246]	1.8 [46]	2.0 [51]
600	70.0 [1778]	42.0 [1067]	76.8 [1951]	22.0 [559]	19.5 [495]	12.7 [323]	1.8 [46]	2.5 [64]

All dimensions in inches, [mm]

*T - Units shipped with groove pipe connection

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Vibration Isolators

Mounting Units

Remove the unit from the wooden shipping skids (see physical dimensions). Units do not ship standard with vibration isolation hardware, however, non-standard options are selectable for the unit.
Non-standard options include:

- Rubber Isolators - Heavy-duty durometer rubber grommets for reduced sound transmitted through the floor via the frame.
- Spring Isolators - For increased sound attenuation, heavy-duty isolation springs can reduce sound levels by 3 dBA.

Rubber Isolators

Part Number	Type	Color Code	Max Load, kg	Deflection, mm	Qty
99S502-01	RD2	Green	172	12.7	4

• Compatible with 030-045

Part Number	Type	Color Code	Max Load, kg	Deflection, mm	Qty
99S502-02	RD3	Green	340	12.7	4

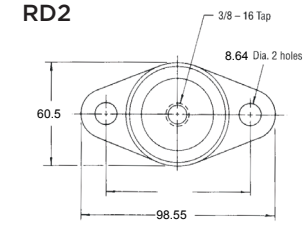
• Compatible with 060-150

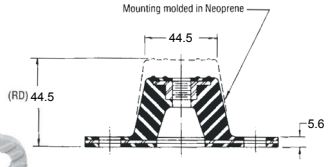




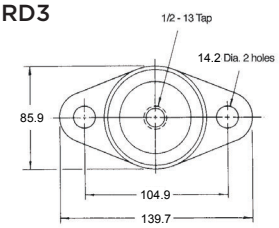


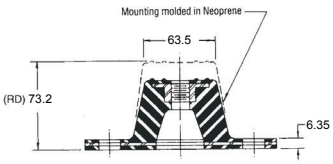
RD2





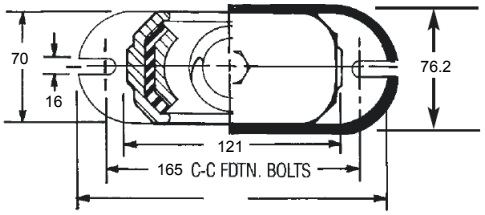
RD3

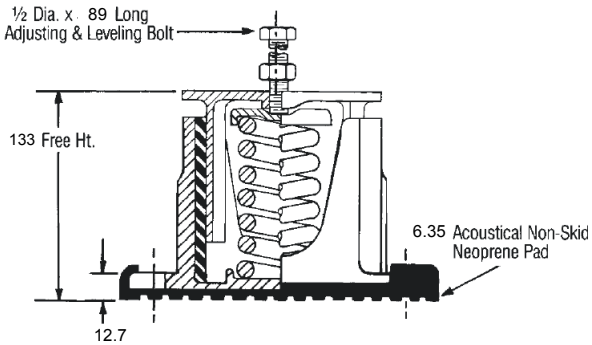


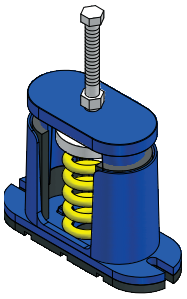


Spring Isolators

Number	Compatible With	Spring Color	Rated Capacity	Rated Deflection	Isolator Constant	Adjustment Bolt [in x mm]	Qty
IS-340-01	030-045	Red	147 kg	31 mm	4.72 kg/mm	1/2 x 89	4
IS-900-01	090-130	DK Green	340 kg	27 mm	12.65 kg/mm	1/2 x 89	4









Wat ,roduct at the time of order may be changed without notice. Please contact WaterFurnace at 1-888-929-2837 for latest design and specifications. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely WaterFurnace's opinion or commendation of its products. The latest version of this document is available at www.waterfurnace.com.

Physical Data

Model	Compressor	Refrigerant Charge*	Total Weight	
			Shipping	Installed
030	Scroll (2)	5.3	720	710
		[2.4]	[327]	[323]
045	Scroll (2)	7.8	838	844
		[3.5]	[381]	[384]
060	Scroll (2)	10.5	1130	1152
		[4.8]	[514]	[524]
090	Scroll (2)	17.9	1320	1388
		[8.1]	[600]	[631]
150	Scroll (2)	27.3	1748	1850
		[12.4]	[795]	[841]

Weights shown in Pounds, [kg] 1/30/2014

* Refrigerant per circuit in Pounds, [kg]

Add 32 lbs [15 kg] for fluid weight when full. (120)

Add 48 lbs [22 kg] for fluid weight when full. (180)

Add 64 lbs [29 kg] for fluid weight when full. (240)

Add 110 lbs [50 kg] for fluid weight when full. (360)

Add 144 lbs [65 kg] for fluid weight when full. (600)

NOTE: See page 16 for minimum fluid volume guidelines.

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Electrical Data

Chiller (30-150kW) Electrical Table

Model	Rated Voltage	Voltage Min/Max	Compressor[1]			Total Unit FLA	Min Circ Amp	Min Fuse/ HACR	Max Fuse/ HACR[2]
			MCC	RLA	LRA				
030	380-420/50/3	340/440	19.0	12.2	87.0	24.4	27.5	30.0	35
045	380-420/50/3	340/440	19.0	12.2	110.0	24.4	27.5	30.0	35
060	380-420/50/3	340/440	27.0	19.2	140.0	38.4	43.2	45.0	60
090	380-420/50/3	340/440	38.6	24.7	197.0	49.4	55.6	60.0	80
150	380-420/50/3	340/440	62.0	39.7	260.0	79.4	89.3	100.0	125

HACR circuit breaker in USA only 10/7/14

[1] - MCC, RLA, & LRA rating per compressor. Breaker & FLA sized for both compressors.

[2] - Equipment supplied with Class J fuses per minimum fuse size.

Compressor Protection Module

An electronic protection module is provided with compressors utilized in model size 150. This module will protect against phase reversal and phase loss at start-up. Protection is active for 5 seconds after the first second of compressor operation. In the event that either phase sequencing or phase loss has occurred the following blink sequence will display on the module.

In case of phase reverse error:



In case of phase loss error:



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Reference Calculations

Heating Calculations:	Cooling Calculations:
$LWT = EWT - \frac{HE}{L/S \times 4.2^*}$	$LWT = EWT + \frac{HR}{L/S \times 4.2^*}$

NOTE: * When using water. Use 4.1 for 15% methanol/water or Environol solution.

Legend

ABBREVIATIONS AND DEFINITIONS:

COP = coefficient of performance
EER = cooling energy efficiency (TC/kW)
ELT = entering load fluid temperature
EST = entering source fluid temperature to heat pump
FLA = full load amps
FtHd = pressure drop in feet of head
gpm = US gallon per minute
HC = heating capacity in kW
HE = heat of extraction in kW
HR = heat rejected in kW
kPa = kilopascal
kW = kilowatt
L/s = liters per second
LLT = leaving load fluid temperature from heat pump
LRA = locked rotor amps (starting current)
LST = leaving source fluid temperature from heat pump
LWPD= load heat exchanger water pressure drop
MCC = maximum continuous current
PD = pressure drop
psi = pressure drop in pounds per square inch
P/T = Pressure/Temperature
RLA = run load amps
TC = total cooling capacity in kW
W = Watt

CONVERSIONS:

x°F = (*x* - 32)/1.8°C
1 bar = 100 kPa
1 gpm = 0.0631 L/s
1 US Gallon = 3.785412 L
1 Btu/h = 0.29037 W

Notes to Performance Data Tables

The following notes apply to all performance data tables:

- Three flow rates are shown for each unit. The lowest flow rate shown is used for geothermal open loop/well water systems with a minimum of 10°C EST. The middle flow rate shown is the minimum geothermal closed loop flow rate. The highest flow rate shown is optimum for geothermal closed loop systems and the suggested flow rate for boiler/tower applications.
- Water temperatures below 4.4°C assumes 15% antifreeze solution.
- Interpolation between ELT, EST, and GPM data is permissible.
- Operation in the gray areas is not recommended.

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Antifreeze Correction

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]		**90 [32.2]**	**30 [-1.1]**	**50 [10]**	**90 [32.2]**	**30 [-1.1]**
Water	0	1.000	1.000	1.000	1.000	1.000
Ethylene Glycol	10	0.991	0.973	0.975	0.991	1.075
	20	0.979	0.943	0.946	0.979	1.163
	30	0.965	0.917	0.920	0.965	1.225
	40	0.955	0.890	0.895	0.955	1.324
	50	0.943	0.865	0.870	0.943	1.419
Propylene Glycol	10	0.981	0.958	0.959	0.981	1.130
	20	0.969	0.913	0.919	0.969	1.270
	30	0.950	0.854	0.866	0.950	1.433
	40	0.937	0.813	0.829	0.937	1.614
	50	0.922	0.770	0.789	0.922	1.816
Ethanol	10	0.991	0.927	0.941	0.991	1.242
	20	0.972	0.887	0.901	0.972	1.343
	30	0.947	0.856	0.866	0.947	1.383
	40	0.930	0.815	0.826	0.930	1.523
	50	0.911	0.779	0.791	0.911	1.639
Methanol	10	0.986	0.957	0.961	0.986	1.127
	20	0.970	0.924	0.928	0.970	1.197
	30	0.951	0.895	0.897	0.951	1.235
	40	0.936	0.863	0.865	0.936	1.323
	50	0.920	0.833	0.835	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.

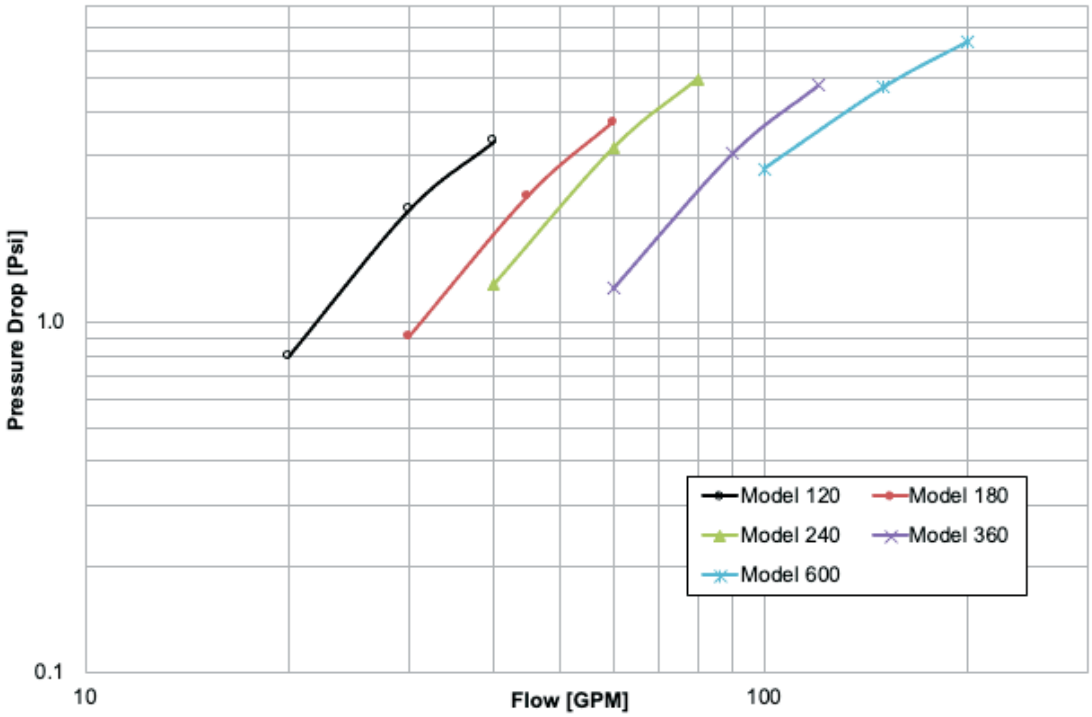
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Pressure Drop

Model	L/s	Pressure Drop (kPa)				
		0°C	10°C	20°C	30°C	45°C
030	1.3	5.5	4.8	4.1	4.1	3.4
	1.9	14.5	13.1	12.4	11.7	10.3
	2.5	22.8	21.4	20.0	19.3	17.2
045	1.9	6.3	5.5	5.1	4.9	4.0
	2.8	15.9	14.8	13.8	13.4	12.4
	3.8	25.7	24.1	23.0	22.1	20.1
060	2.5	8.9	8.2	7.9	7.5	6.6
	3.8	21.7	20.7	20.0	19.3	17.9
	5.1	34.3	32.6	31.4	30.6	28.6
090	3.8	8.6	7.9	7.4	6.9	6.1
	5.7	21.0	20.0	19.3	18.6	16.5
	7.6	32.9	31.4	30.3	29.6	27.2
150	6.3	19.0	17.6	16.5	15.4	14.0
	9.5	32.4	31.0	30.3	27.8	26.8
	12.6	43.9	42.5	41.8	39.3	38.3

10/7/14

Reversible Chiller
Water Pressure Drop vs. Flow at 30˚F



Note: Pressure drop is the same for load and source heat exchangers at 30°F [-1.1°C] fluid temperature.

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

030 Performance Data

030 - Heating Capacity Data

Source		ELT	Load Flow - 1.3 L/s						Load Flow - 1.9 L/s						Load Flow - 2.5 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC
0	1.9	15	20.7	31.3	5.9	25.4	5.3	-3.2	18.9	31.5	5.8	25.7	5.5	-3.2	18.0	31.6	5.6	26.0	5.7	-3.3
		25	30.5	29.9	8.0	21.9	3.7	-2.7	28.8	30.1	7.8	22.4	3.9	-2.8	27.9	30.3	7.5	22.8	4.0	-2.9
		40	45.2	28.6	10.1	18.5	2.8	-2.3	43.6	28.8	9.8	19.0	2.9	-2.4	42.8	29.1	9.5	19.6	3.1	-2.5
		50	55.0	27.2	12.2	15.0	2.2	-1.9	53.4	27.5	11.8	15.7	2.3	-2.0	52.7	27.8	11.4	16.4	2.4	-2.1
	2.5	15	20.9	32.5	6.0	26.5	5.4	-2.5	19.1	32.6	5.8	26.8	5.6	-2.6	18.1	32.7	5.6	27.1	5.8	-2.6
		25	30.6	30.8	8.0	22.8	3.8	-2.2	28.9	31.1	7.8	23.3	4.0	-2.2	28.0	31.3	7.5	23.7	4.1	-2.3
		40	45.4	29.2	10.1	19.1	2.9	-1.8	43.7	29.5	9.8	19.7	3.0	-1.9	42.8	29.9	9.5	20.4	3.2	-1.9
		50	55.1	27.6	12.2	15.4	2.3	-1.5	53.5	28.0	11.8	16.2	2.4	-1.5	52.7	28.4	11.4	17.0	2.5	-1.6
10	1.3	15	22.3	39.6	6.3	33.3	6.3	3.9	20.0	39.9	6.1	33.8	6.6	3.8	18.8	40.1	5.8	34.3	6.9	3.7
		25	31.9	37.7	8.4	29.4	4.5	4.6	29.8	38.1	8.1	30.0	4.7	4.5	28.7	38.4	7.7	30.6	5.0	4.4
		40	46.6	35.9	10.4	25.4	3.4	5.3	44.5	36.2	10.0	26.2	3.6	5.2	43.5	36.6	9.7	27.0	3.8	5.1
		50	56.2	34.0	12.5	21.5	2.7	6.1	54.3	34.4	12.0	22.4	2.9	5.9	53.3	34.9	11.6	23.3	3.0	5.7
	1.9	15	22.6	41.4	6.4	35.1	6.5	5.6	20.2	41.7	6.1	35.6	6.8	5.5	19.0	42.0	5.9	36.1	7.1	5.5
		25	32.2	39.2	8.4	30.8	4.7	6.1	30.0	39.6	8.1	31.5	4.9	6.1	28.8	40.0	7.8	32.2	5.1	6.0
		40	46.8	37.0	10.4	26.6	3.5	6.7	44.7	37.5	10.1	27.4	3.7	6.6	43.6	38.0	9.7	28.3	3.9	6.5
		50	56.4	34.8	12.5	22.3	2.8	7.2	54.4	35.4	12.0	23.3	2.9	7.1	53.4	36.0	11.6	24.4	3.1	6.9
	2.5	15	22.9	43.3	6.4	36.8	6.7	6.5	20.5	43.6	6.2	37.4	7.0	6.4	19.2	44.0	6.0	38.0	7.4	6.4
		25	32.5	40.7	8.5	32.2	4.8	6.9	30.2	41.2	8.1	33.0	5.1	6.9	29.0	41.7	7.8	33.8	5.3	6.8
		40	47.0	38.1	10.5	27.7	3.6	7.4	44.9	38.7	10.1	28.7	3.8	7.3	43.7	39.4	9.7	29.7	4.1	7.2
		50	56.5	35.6	12.5	23.1	2.8	7.8	54.6	36.3	12.0	24.3	3.0	7.7	53.5	37.0	11.6	25.5	3.2	7.6
20	1.3	15	24.0	49.0	6.7	42.3	7.3	12.2	21.2	49.4	6.4	43.0	7.7	12.1	19.7	49.8	6.1	43.7	8.1	12.0
		25	33.5	46.4	8.7	37.7	5.3	13.1	30.9	46.9	8.4	38.5	5.6	12.9	29.5	47.4	8.0	39.4	5.9	12.8
		40	48.0	43.8	10.8	33.1	4.1	13.9	45.6	44.4	10.3	34.1	4.3	13.8	44.3	44.9	9.8	35.1	4.6	13.6
		50	57.5	41.2	12.8	28.4	3.2	14.8	55.2	41.8	12.2	29.6	3.4	14.6	54.0	42.5	11.7	30.8	3.6	14.4
	1.9	15	24.4	51.5	6.8	44.7	7.6	14.4	21.5	52.0	6.5	45.5	8.0	14.3	20.0	52.5	6.2	46.3	8.4	14.2
		25	33.9	48.5	8.8	39.7	5.5	15.0	31.2	49.1	8.4	40.7	5.8	14.9	29.7	49.7	8.1	41.6	6.2	14.8
		40	48.3	45.4	10.8	34.7	4.2	15.7	45.8	46.2	10.3	35.8	4.5	15.5	44.5	46.9	9.9	37.0	4.7	15.4
		50	57.8	42.4	12.8	29.6	3.3	16.3	55.4	43.2	12.2	31.0	3.5	16.1	54.2	44.1	11.7	32.4	3.8	15.9
	2.5	15	24.9	54.0	6.9	47.1	7.8	15.5	21.8	54.6	6.6	48.0	8.2	15.4	20.3	55.2	6.3	48.8	8.7	15.3
		25	34.3	50.6	8.9	41.7	5.7	16.0	31.4	51.3	8.5	42.8	6.0	15.9	30.0	52.0	8.1	43.9	6.4	15.8
		40	48.6	47.1	10.8	36.3	4.3	16.5	46.0	48.0	10.4	37.6	4.6	16.4	44.7	48.8	9.9	38.9	4.9	16.3
		50	58.0	43.6	12.8	30.8	3.4	17.1	55.6	44.6	12.2	32.4	3.6	16.9	54.3	45.7	11.7	34.0	3.9	16.8
30	1.3	15	25.7	58.5	7.1	51.4	8.2	20.6	22.4	59.0	6.8	52.2	8.7	20.4	20.7	59.5	6.4	53.1	9.2	20.3
		25	35.1	55.1	9.1	46.0	6.1	21.6	32.0	55.7	8.7	47.1	6.4	21.4	30.4	56.4	8.2	48.1	6.9	21.2
		40	Operation not recommended.																	
		50																		
	1.9	15	26.3	61.6	7.2	54.4	8.5	23.2	22.8	62.3	6.9	55.4	9.0	23.1	21.0	62.9	6.6	56.4	9.6	22.9
		25	35.6	57.8	9.2	48.6	6.3	23.9	32.3	58.6	8.8	49.8	6.7	23.8	30.7	59.4	8.3	51.1	7.1	23.6
		40	Operation not recommended.																	
		50																		
	2.5	15	26.9	64.8	7.4	57.4	8.8	24.5	23.2	65.6	7.0	58.6	9.3	24.4	21.3	66.4	6.7	59.7	9.9	24.3
		25	36.1	60.4	9.3	51.1	6.5	25.1	32.7	61.4	8.8	52.6	6.9	25.0	30.9	62.4	8.4	54.0	7.4	24.9
		40	Operation not recommended.																	
		50																		

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

10/7/14

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030 Performance Data cont.

030 - Cooling Capacity Data

Source		ELT	Load Flow - 1.3 L/s						Load Flow - 1.9 L/s						Load Flow - 2.5 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC
10	1.3	10	3.7	34.3	5.3	39.6	22.2	17.3	5.5	36.1	5.6	41.7	22.2	17.6	6.4	37.9	5.8	43.7	22.2	18.0
		20	11.7	45.4	5.7	51.1	27.0	19.4	14.3	45.7	5.9	51.7	26.3	19.5	15.6	46.1	6.2	52.2	25.5	19.6
		30	19.7	56.4	6.2	62.6	31.2	21.5	23.1	55.3	6.3	61.7	29.8	21.3	24.8	54.3	6.5	60.8	28.6	21.1
	1.9	10	3.7	34.4	5.3	39.7	22.1	15.0	5.4	36.3	5.4	41.7	23.0	15.2	6.4	38.2	5.5	43.7	23.8	15.5
		20	12.1	43.2	5.6	48.8	26.1	16.1	14.4	44.9	5.7	50.6	26.8	16.3	15.6	46.5	5.8	52.3	27.5	16.6
		30	20.5	52.0	6.0	57.9	29.8	17.3	23.3	53.4	6.0	59.4	30.3	17.4	24.8	54.8	6.1	60.9	30.9	17.6
	2.5	10	3.7	34.5	5.4	39.8	22.0	13.8	5.4	36.5	5.2	41.8	23.8	14.0	6.3	38.6	5.1	43.7	25.8	14.2
		20	12.5	41.0	5.5	46.5	25.2	14.4	14.5	44.0	5.5	49.4	27.5	14.7	15.5	47.0	5.4	52.4	29.8	15.0
		30	21.3	47.5	5.7	53.2	28.3	15.1	23.6	51.4	5.7	57.1	30.9	15.4	24.7	55.4	5.6	61.0	33.5	15.8
20	1.3	10	4.2	31.7	6.6	38.2	16.5	27.0	5.9	33.1	6.9	40.0	16.3	27.3	6.7	34.6	7.3	41.9	16.2	27.7
		20	12.1	43.4	7.1	50.5	20.9	29.2	14.5	43.5	7.4	50.9	20.1	29.3	15.8	43.7	7.7	51.4	19.3	29.4
		30	19.9	55.1	7.6	62.7	24.7	31.5	23.2	54.0	7.9	61.8	23.4	31.3	25.0	52.8	8.1	60.9	22.2	31.2
	1.9	10	4.2	31.5	6.7	38.2	16.1	24.8	5.8	33.3	6.7	40.0	16.9	25.0	6.7	35.1	6.8	41.8	17.7	25.2
		20	12.4	41.3	7.0	48.4	20.0	26.1	14.6	43.4	7.1	50.5	20.8	26.3	15.7	45.4	7.2	52.6	21.6	26.6
		30	20.6	51.1	7.4	58.5	23.5	27.3	23.3	53.4	7.5	60.9	24.3	27.6	24.7	55.7	7.6	63.3	25.1	27.9
	2.5	10	4.2	31.4	6.8	38.2	15.8	23.6	5.8	33.5	6.5	40.0	17.6	23.8	6.6	35.6	6.2	41.8	19.5	24.0
		20	12.8	39.2	7.0	46.2	19.1	24.4	14.6	43.2	6.8	50.0	21.6	24.8	15.5	47.1	6.6	53.8	24.3	25.1
		30	21.4	47.1	7.2	54.3	22.2	25.2	23.4	52.9	7.1	60.0	25.3	25.7	24.4	58.7	7.0	65.7	28.5	26.3
30	1.3	10	4.7	29.0	8.1	37.2	12.2	36.8	6.1	31.3	7.8	39.0	13.7	37.1	6.8	33.5	7.4	40.9	15.5	37.5
		20	12.7	39.7	8.6	48.3	15.7	38.8	14.8	41.9	8.2	50.1	17.4	39.2	15.8	44.1	7.8	51.9	19.3	39.5
		30	Operation not recommended.																	
	1.9	10	4.7	28.7	8.2	36.9	12.0	34.6	6.2	30.0	8.4	38.4	12.3	34.8	7.0	31.3	8.5	39.9	12.5	35.0
		20	12.9	38.6	8.5	47.1	15.4	35.9	15.0	39.8	8.7	48.6	15.6	36.1	16.1	41.1	8.9	50.0	15.7	36.3
		30	Operation not recommended.																	
	2.5	10	4.8	28.3	8.2	36.6	11.8	33.5	6.2	30.3	8.0	38.3	13.0	33.7	6.9	32.3	7.8	40.1	14.2	33.8
		20	13.1	37.5	8.5	45.9	15.1	34.4	14.9	41.1	8.3	49.4	16.8	34.7	15.7	44.7	8.2	52.9	18.6	35.0
		30	Operation not recommended.																	
45	1.3	10	5.4	25.0	10.1	35.2	8.4	51.4	6.7	26.5	10.2	36.6	8.9	51.7	7.3	27.9	10.2	38.1	9.3	52.0
		20	13.6	35.2	10.6	45.8	11.3	53.4	15.4	37.0	10.7	47.7	11.8	53.7	16.3	38.9	10.8	49.7	12.3	54.1
		30	Operation not recommended.																	
	1.9	10	5.4	25.2	9.9	35.0	8.7	49.4	6.7	26.6	9.9	36.5	9.1	49.6	7.3	28.0	10.0	38.0	9.6	49.8
		20	13.5	35.5	10.3	45.7	11.8	50.7	15.3	37.3	10.4	47.6	12.3	51.0	16.3	39.1	10.4	49.5	12.8	51.2
		30	Operation not recommended.																	
	2.5	10	5.4	25.3	9.6	34.9	9.0	48.3	6.7	26.7	9.7	36.4	9.4	48.5	7.3	28.1	9.7	37.8	9.8	48.6
		20	13.5	35.7	9.9	45.7	12.3	49.3	15.3	37.5	10.0	47.5	12.8	49.5	16.3	39.2	10.1	49.3	13.3	49.7
		30	Operation not recommended.																	

10/7/14

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

045 Performance Data

045 - Heating Capacity Data

Source		ELT	Load Flow - 1.9 L/s						Load Flow - 2.8 L/s						Load Flow - 3.8 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC
0	2.8	15	20.6	44.9	8.3	36.6	5.4	-3.1	18.9	45.3	8.1	37.2	5.6	-3.2	17.9	45.7	7.9	37.8	5.8	-3.2
		25	30.4	43.2	10.8	32.4	4.0	-2.8	28.7	43.7	10.5	33.2	4.2	-2.8	27.8	44.1	10.2	33.9	4.3	-2.9
		40	45.2	41.4	13.2	28.2	3.1	-2.4	43.6	42.0	12.9	29.1	3.3	-2.5	42.7	42.5	12.5	30.0	3.4	-2.6
		50	55.0	39.7	15.7	24.0	2.5	-2.0	53.4	40.3	15.3	25.0	2.6	-2.1	52.6	40.9	14.8	26.1	2.8	-2.2
	3.8	15	20.8	46.4	8.4	38.0	5.5	-2.4	19.0	46.8	8.2	38.7	5.7	-2.4	18.0	47.2	7.9	39.3	5.9	-2.5
		25	30.6	44.4	10.8	33.6	4.1	-2.1	28.8	44.9	10.5	34.4	4.3	-2.2	27.8	45.4	10.2	35.2	4.4	-2.2
		40	45.3	42.4	13.3	29.1	3.2	-1.8	43.7	43.0	12.9	30.1	3.3	-1.9	42.7	43.6	12.6	31.0	3.5	-1.9
		50	55.1	40.4	15.7	24.7	2.6	-1.5	53.5	41.1	15.3	25.8	2.7	-1.6	52.6	41.8	14.9	26.9	2.8	-1.7
10	1.9	15	21.9	55.3	8.8	46.5	6.3	4.2	19.7	55.8	8.5	47.2	6.5	4.1	18.5	56.3	8.3	48.0	6.8	4.0
		25	31.6	52.9	11.3	41.7	4.7	4.8	29.6	53.5	10.9	42.6	4.9	4.7	28.4	54.1	10.6	43.5	5.1	4.6
		40	46.3	50.6	13.7	36.9	3.7	5.4	44.4	51.2	13.3	37.9	3.8	5.2	43.3	51.9	12.9	39.0	4.0	5.1
		50	56.0	48.2	16.2	32.1	3.0	6.0	54.2	49.0	15.7	33.3	3.1	5.8	53.1	49.7	15.2	34.5	3.3	5.7
	2.8	15	22.2	57.7	8.9	48.7	6.5	5.9	19.9	58.2	8.6	49.5	6.7	5.8	18.7	58.7	8.4	50.3	7.0	5.7
		25	31.9	55.1	11.4	43.7	4.8	6.3	29.7	55.7	11.0	44.6	5.0	6.2	28.5	56.2	10.7	45.6	5.3	6.1
		40	46.6	52.5	13.9	38.6	3.8	6.7	44.5	53.2	13.4	39.7	4.0	6.6	43.4	53.8	13.0	40.8	4.1	6.5
		50	56.3	49.9	16.3	33.5	3.1	7.1	54.3	50.7	15.8	34.8	3.2	7.0	53.2	51.4	15.3	36.1	3.4	6.9
	3.8	15	22.5	60.0	9.0	51.0	6.7	6.8	20.1	60.5	8.7	51.8	6.9	6.8	18.8	61.0	8.4	52.6	7.2	6.7
		25	32.2	57.2	11.5	45.7	5.0	7.1	29.9	57.8	11.1	46.7	5.2	7.1	28.7	58.4	10.8	47.6	5.4	7.0
		40	46.8	54.3	14.0	40.4	3.9	7.5	44.7	55.1	13.5	41.5	4.1	7.4	43.5	55.8	13.1	42.7	4.3	7.3
		50	56.5	51.5	16.5	35.0	3.1	7.8	54.5	52.3	16.0	36.4	3.3	7.7	53.3	53.2	15.4	37.7	3.4	7.6
20	1.9	15	23.4	67.1	9.4	57.8	7.2	12.8	20.8	67.7	9.0	58.7	7.5	12.6	19.3	68.4	8.7	59.6	7.8	12.5
		25	33.0	63.9	11.8	52.1	5.4	13.5	30.5	64.6	11.4	53.2	5.7	13.3	29.1	65.3	11.0	54.3	5.9	13.2
		40	47.6	60.8	14.3	46.5	4.3	14.2	45.2	61.5	13.8	47.8	4.5	14.0	43.9	62.3	13.3	49.0	4.7	13.9
		50	57.2	57.6	16.7	40.9	3.4	14.9	55.0	58.5	16.2	42.3	3.6	14.7	53.7	59.3	15.6	43.7	3.8	14.5
	2.8	15	23.8	70.4	9.5	60.9	7.4	14.8	21.0	71.0	9.2	61.8	7.7	14.7	19.5	71.6	8.8	62.8	8.1	14.7
		25	33.4	66.9	12.0	54.9	5.6	15.3	30.8	67.7	11.6	56.1	5.8	15.2	29.3	68.4	11.2	57.2	6.1	15.1
		40	48.0	63.5	14.5	49.0	4.4	15.8	45.5	64.3	14.0	50.4	4.6	15.7	44.1	65.2	13.5	51.7	4.8	15.6
		50	57.5	60.1	17.0	43.1	3.5	16.3	55.2	61.0	16.4	44.6	3.7	16.2	53.9	62.0	15.8	46.2	3.9	16.1
	3.8	15	24.2	73.6	9.7	64.0	7.6	16.0	21.3	74.2	9.3	64.9	8.0	15.9	19.7	74.8	9.0	65.9	8.4	15.9
		25	33.8	69.9	12.2	57.8	5.7	16.4	31.0	70.7	11.7	58.9	6.0	16.3	29.5	71.4	11.3	60.1	6.3	16.2
		40	48.3	66.3	14.7	51.6	4.5	16.8	45.7	67.1	14.2	53.0	4.7	16.7	44.3	68.0	13.7	54.3	5.0	16.6
		50	57.8	62.6	17.2	45.4	3.6	17.2	55.4	63.6	16.6	47.0	3.8	17.1	54.0	64.6	16.0	48.6	4.0	17.0
30	1.9	15	24.9	78.9	9.9	69.0	8.0	21.4	21.8	79.7	9.5	70.2	8.4	21.2	20.0	80.4	9.1	71.3	8.8	21.1
		25	34.4	74.9	12.3	62.6	6.1	22.2	31.4	75.8	11.9	63.9	6.4	22.0	29.8	76.6	11.4	65.2	6.7	21.8
		40	Operation not recommended.																	
		50																		
	2.8	15	25.4	83.1	10.1	73.0	8.2	23.8	22.1	83.8	9.7	74.1	8.6	23.7	20.3	84.5	9.3	75.2	9.1	23.6
		25	34.9	78.8	12.6	66.2	6.3	24.4	31.8	79.7	12.1	67.5	6.6	24.3	30.0	80.5	11.6	68.9	6.9	24.1
		40	Operation not recommended.																	
		50																		
	3.8	15	25.9	87.2	10.3	76.9	8.5	25.2	22.5	87.9	9.9	78.0	8.9	25.1	20.6	88.6	9.5	79.2	9.4	25.0
		25	35.4	82.7	12.9	69.8	6.4	25.6	32.1	83.6	12.4	71.2	6.8	25.5	30.3	84.4	11.8	72.6	7.1	25.5
		40	Operation not recommended.																	
		50																		

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

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045 Performance Data cont.

045 - Cooling Capacity Data

Source		ELT	Load Flow - 1.9 L/s						Load Flow - 2.8 L/s						Load Flow - 3.8 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC
10	1.9	10	3.9	49.0	7.7	56.7	21.7	17.1	5.7	51.1	7.8	58.9	22.5	17.4	6.7	53.2	7.8	61.0	23.2	17.6
		20	12.0	63.6	8.3	71.9	26.1	19.0	14.4	66.2	8.4	74.5	27.0	19.3	15.7	68.8	8.4	77.2	28.0	19.7
		30	20.2	78.1	8.9	87.0	30.0	20.9	23.1	81.3	8.9	90.2	31.0	21.3	24.7	84.5	9.0	93.5	32.1	21.7
	2.8	10	3.8	49.9	7.6	57.5	22.4	14.9	5.6	52.0	7.6	59.7	23.3	15.1	6.6	54.2	7.7	61.9	24.1	15.3
		20	11.9	64.5	8.0	72.5	27.4	16.2	14.4	65.9	8.1	74.0	27.8	16.3	15.8	67.3	8.1	75.5	28.3	16.4
		30	20.1	79.2	8.5	87.6	31.8	17.5	23.2	79.8	8.5	88.4	31.9	17.5	25.0	80.5	8.6	89.1	32.0	17.6
	3.8	10	3.6	50.7	7.5	58.2	23.2	13.6	5.5	53.0	7.5	60.5	24.1	13.8	6.5	55.2	7.5	62.7	25.0	13.9
		20	11.8	65.5	7.8	73.2	28.7	14.6	14.4	65.7	7.8	73.5	28.7	14.6	15.9	65.8	7.9	73.7	28.6	14.6
		30	19.9	80.2	8.1	88.3	33.9	15.5	23.3	78.3	8.1	86.5	32.9	15.4	25.2	76.5	8.2	84.7	31.8	15.3
20	1.9	10	4.3	45.5	9.2	54.7	16.8	26.9	6.0	47.3	9.3	56.6	17.4	27.1	6.9	49.1	9.3	58.4	17.9	27.3
		20	12.2	62.2	10.0	72.2	21.1	29.0	14.6	63.4	10.1	73.6	21.4	29.2	15.9	64.7	10.2	74.9	21.6	29.4
		30	20.1	78.8	10.9	89.7	24.8	31.2	23.2	79.6	11.0	90.5	24.7	31.3	25.0	80.3	11.1	91.4	24.7	31.5
	2.8	10	4.2	46.3	9.0	55.3	17.5	24.7	5.9	48.1	9.1	57.2	18.1	24.9	6.9	50.0	9.1	59.1	18.7	25.0
		20	12.1	63.2	9.7	73.0	22.2	26.2	14.5	64.6	9.8	74.4	22.5	26.3	15.9	65.9	9.9	75.7	22.8	26.4
		30	19.9	80.2	10.4	90.6	26.2	27.7	23.1	81.0	10.5	91.5	26.3	27.8	24.9	81.8	10.6	92.3	26.3	27.9
	3.8	10	4.1	47.1	8.8	55.9	18.2	23.5	5.8	49.0	8.9	57.9	18.8	23.6	6.8	50.9	8.9	59.8	19.5	23.7
		20	11.9	64.3	9.4	73.8	23.3	24.6	14.4	65.7	9.5	75.2	23.7	24.7	15.8	67.0	9.5	76.5	24.1	24.8
		30	19.8	81.6	10.0	91.6	27.8	25.7	23.0	82.4	10.0	92.4	28.0	25.8	24.8	83.2	10.1	93.3	28.2	25.8
30	1.9	10	4.8	41.2	11.5	52.7	12.2	36.6	6.4	42.8	11.6	54.5	12.6	36.8	7.2	44.5	11.7	56.2	13.0	37.0
		20	13.0	56.1	12.4	68.5	15.5	38.6	15.1	58.0	12.5	70.5	15.8	38.8	16.2	59.9	12.6	72.5	16.2	39.1
		30	Operation not recommended.																	
	2.8	10	4.8	41.6	11.3	52.9	12.6	34.5	6.3	43.3	11.4	54.7	13.0	34.6	7.2	45.0	11.4	56.5	13.5	34.8
		20	12.9	56.9	12.0	68.9	16.1	35.9	15.0	58.8	12.1	71.0	16.6	36.0	16.2	60.8	12.2	73.0	17.0	36.2
		30	Operation not recommended.																	
	3.8	10	4.7	42.0	11.0	53.1	13.0	33.3	6.3	43.8	11.1	54.9	13.5	33.4	7.1	45.6	11.1	56.7	14.0	33.6
		20	12.8	57.7	11.7	69.4	16.9	34.3	14.9	59.7	11.7	71.4	17.4	34.5	16.1	61.7	11.8	73.5	17.9	34.6
		30	Operation not recommended.																	
45	1.9	10	5.4	36.8	13.8	50.7	9.1	51.3	6.7	38.4	13.9	52.3	9.4	51.6	7.5	40.0	14.0	54.0	9.7	51.8
		20	13.7	50.0	14.7	64.8	11.6	53.1	15.5	52.6	14.9	67.4	12.1	53.5	16.5	55.1	15.0	70.1	12.5	53.8
		30	Operation not recommended.																	
	2.8	10	5.4	36.9	13.5	50.4	9.3	49.3	6.7	38.5	13.6	52.1	9.6	49.4	7.5	40.1	13.7	53.8	10.0	49.6
		20	13.7	50.5	14.3	64.9	12.1	50.5	15.5	53.1	14.4	67.6	12.6	50.7	16.5	55.7	14.6	70.3	13.1	51.0
		30	Operation not recommended.																	
	3.8	10	5.4	37.0	13.2	50.2	9.5	48.1	6.7	38.6	13.3	51.9	9.9	48.3	7.5	40.3	13.4	53.6	10.3	48.4
		20	13.6	51.1	13.9	65.0	12.5	49.1	15.4	53.7	14.0	67.7	13.1	49.2	16.5	56.3	14.1	70.4	13.7	49.4
		30	Operation not recommended.																	

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

060 Performance Data

060 - Heating Capacity Data

Source		ELT	Load Flow - 2.5 L/s						Load Flow - 3.8 L/s						Load Flow - 5.1 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC
0	3.8	15	20.5	57.4	9.9	47.5	5.8	-3.0	18.6	57.5	9.7	47.8	5.9	-3.0	17.7	57.6	9.5	48.2	6.1	-3.0
		25	30.2	54.3	13.2	41.0	4.1	-2.6	28.4	54.8	13.2	41.6	4.1	-2.6	27.6	55.3	13.2	42.1	4.2	-2.6
		40	44.9	51.2	16.6	34.6	3.1	-2.2	43.3	52.1	16.8	35.3	3.1	-2.2	42.5	53.0	17.0	36.0	3.1	-2.3
		50	54.6	48.0	19.9	28.1	2.4	-1.8	53.1	49.3	20.4	29.0	2.4	-1.8	52.4	50.6	20.8	29.8	2.4	-1.9
	5.1	15	20.7	60.1	9.9	50.3	6.1	-2.3	18.8	60.2	9.7	50.5	6.2	-2.4	17.8	60.3	9.6	50.8	6.3	-2.4
		25	30.3	55.6	12.9	42.7	4.3	-2.0	28.6	56.7	12.9	43.8	4.4	-2.0	27.7	57.7	13.0	44.8	4.4	-2.1
		40	44.9	51.2	15.9	35.2	3.2	-1.6	43.3	53.1	16.2	37.0	3.3	-1.7	42.6	55.1	16.4	38.8	3.4	-1.8
		50	54.4	46.7	19.0	27.7	2.5	-1.3	53.1	49.6	19.4	30.2	2.6	-1.4	52.5	52.5	19.8	32.7	2.7	-1.5
10	2.5	15	21.8	70.9	11.1	59.9	6.4	4.3	19.5	71.2	10.7	60.5	6.6	4.2	18.3	71.5	10.4	61.2	6.9	4.2
		25	31.5	68.4	14.9	53.6	4.6	4.9	29.3	69.0	14.8	54.2	4.7	4.8	28.2	69.6	14.7	54.9	4.7	4.8
		40	46.3	66.0	18.6	47.3	3.5	5.5	44.2	66.8	18.8	48.0	3.6	5.4	43.2	67.6	18.9	48.7	3.6	5.4
		50	56.0	63.5	22.4	41.0	2.8	6.1	54.0	64.6	22.8	41.7	2.8	6.0	53.1	65.6	23.2	42.4	2.8	6.0
	3.8	15	22.1	74.2	11.2	63.0	6.6	6.1	19.7	74.6	10.8	63.7	6.9	6.0	18.5	75.0	10.5	64.4	7.1	6.0
		25	31.7	70.4	14.5	55.9	4.8	6.5	29.5	71.4	14.5	57.0	4.9	6.4	28.4	72.4	14.4	58.1	5.0	6.4
		40	46.3	66.6	17.9	48.7	3.7	6.9	44.3	68.3	18.1	50.2	3.8	6.9	43.3	69.9	18.2	51.7	3.8	6.8
		50	56.0	62.9	21.3	41.6	3.0	7.4	54.1	65.1	21.7	43.5	3.0	7.3	53.1	67.4	22.0	45.3	3.1	7.2
	5.1	15	22.4	77.5	11.3	66.2	6.9	6.9	19.9	77.9	11.0	67.0	7.1	6.9	18.7	78.4	10.7	67.7	7.3	6.8
		25	31.9	72.4	14.2	58.2	5.1	7.3	29.6	73.8	14.1	59.7	5.2	7.2	28.5	75.3	14.1	61.2	5.3	7.1
		40	46.4	67.3	17.2	50.1	3.9	7.7	44.4	69.8	17.3	52.4	4.0	7.6	43.4	72.2	17.5	54.7	4.1	7.4
		50	55.9	62.2	20.1	42.1	3.1	8.0	54.1	65.7	20.5	45.2	3.2	7.9	53.2	69.1	20.9	48.2	3.3	7.7
20	2.5	15	23.3	87.1	12.2	74.9	7.1	12.9	20.5	87.6	11.8	75.8	7.4	12.8	19.1	88.1	11.4	76.7	7.7	12.7
		25	33.0	83.9	16.1	67.8	5.2	13.5	30.3	85.1	16.0	69.1	5.3	13.4	29.0	86.3	15.8	70.5	5.5	13.3
		40	47.7	80.8	20.1	60.7	4.0	14.2	45.2	82.6	20.1	62.4	4.1	14.1	43.9	84.4	20.2	64.2	4.2	13.9
		50	57.4	77.6	24.0	53.6	3.2	14.9	55.0	80.1	24.3	55.8	3.3	14.7	53.9	82.6	24.6	57.9	3.3	14.5
	3.8	15	23.7	91.0	12.4	78.5	7.3	15.1	20.7	91.6	12.0	79.6	7.6	15.0	19.3	92.3	11.6	80.7	8.0	14.9
		25	33.2	86.5	15.8	70.7	5.5	15.6	30.5	88.1	15.7	72.4	5.6	15.5	29.2	89.6	15.5	74.1	5.8	15.4
		40	47.8	82.1	19.2	62.9	4.3	16.1	45.3	84.5	19.3	65.2	4.4	15.9	44.1	86.8	19.4	67.4	4.5	15.8
		50	57.4	77.7	22.6	55.1	3.4	16.6	55.1	80.9	23.0	57.9	3.5	16.4	53.9	84.1	23.3	60.8	3.6	16.2
	5.1	15	24.0	94.8	12.7	82.1	7.5	16.2	21.0	95.6	12.2	83.4	7.8	16.1	19.5	96.5	11.8	84.7	8.2	16.0
		25	33.5	89.1	15.5	73.6	5.7	16.6	30.7	91.0	15.4	75.6	5.9	16.5	29.3	92.9	15.2	77.7	6.1	16.4
		40	47.9	83.4	18.4	65.1	4.5	17.0	45.4	86.4	18.5	67.9	4.7	16.8	44.2	89.3	18.6	70.7	4.8	16.7
		50	57.4	77.8	21.2	56.5	3.7	17.4	55.1	81.7	21.6	60.1	3.8	17.2	54.0	85.7	22.0	63.7	3.9	17.0
30	2.5	15	24.8	103.4	13.3	90.0	7.8	21.4	21.5	104.0	12.9	91.2	8.1	21.3	19.9	104.7	12.4	92.3	8.5	21.2
		25	34.5	99.5	17.4	82.1	5.7	22.2	31.3	101.2	17.2	84.0	5.9	22.0	29.8	102.9	16.9	86.0	6.1	21.8
		40	Operation not recommended.																	
		50																		
	3.8	15	25.3	107.7	13.7	94.1	7.9	24.1	21.8	108.7	13.2	95.5	8.3	24.0	20.1	109.6	12.6	97.0	8.7	23.9
		25	34.8	102.7	17.1	85.5	6.0	24.6	31.6	104.7	16.9	87.8	6.2	24.5	30.0	106.7	16.6	90.1	6.4	24.4
		40	Operation not recommended.																	
		50																		
	5.1	15	25.7	112.1	14.1	98.1	8.0	25.4	22.1	113.3	13.5	99.9	8.4	25.3	20.3	114.6	12.9	101.7	8.9	25.3
		25	35.1	105.9	16.8	89.0	6.3	25.8	31.8	108.2	16.6	91.6	6.5	25.7	30.2	110.5	16.3	94.2	6.8	25.6
		40	Operation not recommended.																	
		50																		

10/7/14

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

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060 Performance Data cont.

060 - Cooling Capacity Data

Source		ELT	Load Flow - 2.5 L/s						Load Flow - 3.8 L/s						Load Flow - 5.1 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC
10	2.5	10	3.7	65.8	9.9	75.7	22.8	17.2	5.7	69.3	10.0	79.3	23.6	17.6	6.6	72.8	10.2	82.9	24.4	17.9
		20	12.2	81.7	10.8	92.5	25.9	18.8	14.7	83.9	10.9	94.8	26.2	19.0	16.0	86.0	11.0	97.0	26.6	19.2
		30	20.7	97.7	11.7	109.3	28.5	20.4	23.8	98.4	11.8	110.2	28.5	20.5	25.4	99.2	11.9	111.1	28.4	20.6
	3.8	10	3.7	65.8	9.7	75.5	23.2	14.7	5.7	69.2	9.8	79.0	24.0	15.0	6.6	72.6	10.0	82.6	24.8	15.2
		20	12.4	79.7	10.4	90.1	26.0	15.6	14.9	81.7	10.6	92.3	26.3	15.8	16.1	83.7	10.7	94.4	26.6	15.9
		30	21.1	93.5	11.2	104.7	28.5	16.6	24.1	94.2	11.3	105.5	28.3	16.6	25.6	94.8	11.5	106.3	28.2	16.7
	5.1	10	3.7	65.8	9.5	75.3	23.7	13.5	5.7	69.1	9.7	78.8	24.4	13.7	6.6	72.4	9.8	82.2	25.1	13.8
		20	12.6	77.6	10.1	87.7	26.2	14.1	15.0	79.5	10.3	89.8	26.4	14.2	16.2	81.4	10.4	91.8	26.7	14.3
		30	21.5	89.4	10.8	100.1	28.4	14.7	24.4	89.9	10.9	100.8	28.2	14.7	25.8	90.4	11.0	101.4	28.0	14.7
20	2.5	10	4.3	59.8	12.5	72.3	16.3	26.9	6.1	62.8	12.6	75.5	17.0	27.2	6.9	65.8	12.8	78.6	17.6	27.5
		20	12.7	77.0	13.5	90.5	19.4	28.6	15.0	79.3	13.7	93.0	19.8	28.9	16.2	81.7	13.9	95.6	20.1	29.1
		30	21.0	94.2	14.5	108.7	22.1	30.4	24.0	95.8	14.8	110.6	22.2	30.5	25.4	97.5	15.0	112.5	22.2	30.7
	3.8	10	4.3	59.8	12.2	72.1	16.7	24.5	6.1	62.8	12.4	75.2	17.3	24.7	6.9	65.7	12.5	78.3	17.9	24.9
		20	12.8	75.8	13.1	88.9	19.8	25.6	15.1	78.1	13.3	91.4	20.1	25.7	16.2	80.4	13.5	93.8	20.4	25.9
		30	21.3	91.8	14.0	105.8	22.5	26.6	24.1	93.4	14.2	107.6	22.5	26.7	25.6	95.0	14.4	109.4	22.5	26.9
	5.1	10	4.3	59.9	12.0	71.8	17.1	23.4	6.1	62.8	12.1	74.9	17.7	23.5	6.9	65.6	12.3	77.9	18.3	23.6
		20	12.9	74.7	12.7	87.3	20.1	24.1	15.2	76.9	12.9	89.7	20.4	24.2	16.3	79.1	13.0	92.1	20.7	24.3
		30	21.5	89.4	13.4	102.8	22.8	24.8	24.3	91.0	13.6	104.6	22.8	24.9	25.7	92.5	13.8	106.3	22.9	25.0
30	2.5	10	4.9	53.8	15.2	69.0	12.1	36.6	6.5	56.4	15.3	71.6	12.6	36.8	7.2	58.9	15.4	74.3	13.0	37.1
		20	13.1	72.3	16.3	88.5	15.2	38.4	15.3	74.8	16.5	91.3	15.5	38.7	16.4	77.4	16.7	94.1	15.8	39.0
		30																		
	3.8	10	4.9	53.9	14.8	68.6	12.4	34.3	6.5	56.4	14.9	71.3	12.9	34.5	7.2	58.9	15.1	74.0	13.4	34.6
		20	13.1	72.0	15.7	87.7	15.6	35.5	15.3	74.5	16.0	90.5	15.9	35.7	16.4	77.1	16.2	93.2	16.2	35.8
		30																		
	5.1	10	4.9	53.9	14.4	68.3	12.8	33.2	6.5	56.4	14.6	70.9	13.2	33.3	7.3	58.9	14.7	73.6	13.7	33.4
		20	13.2	71.7	15.2	86.9	16.1	34.1	15.3	74.2	15.4	89.7	16.4	34.2	16.4	76.7	15.7	92.4	16.7	34.3
		30																		
45	2.5	10	5.4	47.8	17.8	65.6	9.2	51.2	6.9	49.9	17.9	67.8	9.5	51.5	7.6	52.0	18.1	70.0	9.8	51.7
		20	13.6	67.5	19.0	86.5	12.1	53.2	15.6	70.3	19.3	89.6	12.4	53.5	16.6	73.1	19.6	92.6	12.7	53.8
		30																		
	3.8	10	5.4	47.9	17.3	65.2	9.4	49.1	6.9	50.0	17.5	67.4	9.8	49.2	7.6	52.1	17.6	69.7	10.1	49.4
		20	13.5	68.1	18.4	86.5	12.6	50.4	15.6	70.9	18.7	89.6	13.0	50.6	16.6	73.7	18.9	92.7	13.3	50.8
		30																		
	5.1	10	5.4	47.9	16.9	64.8	9.7	48.0	6.9	50.0	17.0	67.0	10.0	48.1	7.6	52.2	17.1	69.3	10.4	48.2
		20	13.4	68.8	17.8	86.6	13.2	49.0	15.5	71.6	18.0	89.6	13.6	49.2	16.5	74.4	18.3	92.7	13.9	49.3
		30																		

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

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WaterFurnace works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Please contact WaterFurnace at 1-888-929-2837 for latest design and specifications. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely WaterFurnace's opinion or commendation of its products. The latest version of this document is available at www.waterfurnace.com.

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

TruClimate 100
Reversible Chiller - 50Hz

WaterFurnace Commercial Solutions

090 Performance Data

090 - Heating Capacity Data

Source		ELT	Load Flow - 3.8 L/s						Load Flow - 5.7 L/s						Load Flow - 7.6 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC
0	5.7	15	20.6	89.0	15.8	73.2	5.6	-3.1	18.7	89.3	15.5	73.8	5.8	-3.1	17.8	89.6	15.1	74.4	5.9	-3.1
		25	30.4	85.4	20.6	64.8	4.1	-2.7	28.6	85.8	20.2	65.6	4.2	-2.7	27.7	86.1	19.7	66.4	4.4	-2.8
		40	45.1	81.8	25.5	56.3	3.2	-2.4	43.4	82.2	24.9	57.3	3.3	-2.4	42.6	82.7	24.4	58.3	3.4	-2.4
		50	54.9	78.2	30.3	47.9	2.6	-2.0	53.3	78.7	29.6	49.1	2.7	-2.0	52.5	79.2	29.0	50.2	2.7	-2.1
	7.6	15	20.8	92.2	15.9	76.3	5.8	-2.4	18.9	92.6	15.6	77.0	5.9	-2.4	17.9	92.9	15.3	77.6	6.1	-2.4
		25	30.5	88.1	20.8	67.4	4.2	-2.1	28.7	88.6	20.3	68.3	4.4	-2.1	27.8	89.0	19.9	69.1	4.5	-2.2
		40	45.3	84.1	25.6	58.5	3.3	-1.8	43.5	84.6	25.0	59.6	3.4	-1.9	42.7	85.1	24.4	60.6	3.5	-1.9
		50	55.0	80.0	30.4	49.6	2.6	-1.6	53.4	80.6	29.7	50.9	2.7	-1.6	52.5	81.2	29.0	52.1	2.8	-1.6
10	3.8	15	22.0	111.2	17.1	94.1	6.5	4.1	19.6	110.6	16.7	93.9	6.6	4.1	18.4	110.0	16.3	93.7	6.8	4.1
		25	31.6	104.7	21.9	82.8	4.8	4.8	29.4	104.6	21.4	83.2	4.9	4.8	28.3	104.6	20.8	83.7	5.0	4.8
		40	46.2	98.2	26.8	71.4	3.7	5.5	44.1	98.7	26.1	72.6	3.8	5.5	43.1	99.1	25.4	73.7	3.9	5.4
		50	55.7	91.7	31.6	60.1	2.9	6.2	53.9	92.7	30.8	61.9	3.0	6.1	52.9	93.7	30.0	63.7	3.1	6.0
	5.7	15	22.1	114.1	17.2	96.9	6.6	6.0	19.7	113.4	16.8	96.6	6.7	6.0	18.5	112.8	16.4	96.4	6.9	6.0
		25	31.7	107.3	22.1	85.2	4.9	6.4	29.5	107.2	21.5	85.7	5.0	6.4	28.4	107.2	21.0	86.3	5.1	6.4
		40	46.3	100.5	26.9	73.6	3.7	6.9	44.2	101.0	26.2	74.8	3.9	6.9	43.2	101.6	25.5	76.1	4.0	6.8
		50	55.9	93.6	31.8	61.9	2.9	7.4	54.0	94.8	30.9	63.9	3.1	7.3	53.0	96.0	30.1	66.0	3.2	7.2
	7.6	15	22.3	117.0	17.4	99.6	6.7	6.9	19.9	116.3	17.0	99.4	6.9	6.9	18.6	115.6	16.5	99.1	7.0	6.9
		25	31.9	109.9	22.2	87.7	4.9	7.3	29.6	109.9	21.6	88.2	5.1	7.2	28.4	109.9	21.1	88.8	5.2	7.2
		40	46.4	102.7	27.0	75.7	3.8	7.6	44.3	103.4	26.3	77.1	3.9	7.6	43.3	104.1	25.6	78.5	4.1	7.5
		50	56.0	95.6	31.9	63.7	3.0	8.0	54.1	97.0	31.0	66.0	3.1	7.9	53.1	98.4	30.2	68.2	3.3	7.9
20	3.8	15	23.6	136.6	18.5	118.1	7.4	12.6	20.6	135.2	18.0	117.2	7.5	12.7	19.2	133.8	17.6	116.2	7.6	12.7
		25	32.9	126.7	23.3	103.4	5.4	13.5	30.3	126.3	22.7	103.6	5.6	13.5	28.9	125.9	22.1	103.8	5.7	13.5
		40	47.3	116.8	28.2	88.7	4.1	14.4	44.9	117.4	27.4	90.1	4.3	14.4	43.7	118.0	26.6	91.5	4.4	14.3
		50	56.7	106.9	33.0	73.9	3.2	15.4	54.5	108.6	32.0	76.5	3.4	15.2	53.5	110.2	31.1	79.1	3.5	15.0
	5.7	15	23.7	139.2	18.6	120.5	7.5	15.0	20.7	137.6	18.2	119.5	7.6	15.0	19.3	136.1	17.7	118.4	7.7	15.1
		25	33.1	129.1	23.5	105.7	5.5	15.6	30.4	128.7	22.8	105.9	5.6	15.6	29.0	128.3	22.2	106.2	5.8	15.6
		40	47.5	119.1	28.3	90.8	4.2	16.2	45.0	119.9	27.5	92.3	4.4	16.1	43.8	120.6	26.7	93.9	4.5	16.1
		50	56.8	109.1	33.2	75.9	3.3	16.8	54.6	111.0	32.2	78.8	3.4	16.7	53.5	112.9	31.2	81.7	3.6	16.6
	7.6	15	23.9	141.7	18.8	123.0	7.5	16.1	20.8	140.0	18.3	121.8	7.7	16.2	19.3	138.3	17.8	120.5	7.8	16.2
		25	33.2	131.6	23.6	107.9	5.6	16.6	30.5	131.2	23.0	108.2	5.7	16.6	29.1	130.8	22.3	108.5	5.9	16.6
		40	47.6	121.4	28.5	92.9	4.3	17.1	45.1	122.3	27.7	94.6	4.4	17.0	43.9	123.2	26.8	96.4	4.6	17.0
		50	57.0	111.2	33.4	77.8	3.3	17.6	54.7	113.4	32.4	81.1	3.5	17.5	53.6	115.7	31.4	84.3	3.7	17.4
30	3.8	15	25.2	162.0	19.9	142.1	8.1	21.1	21.7	159.8	19.4	140.4	8.2	21.2	19.9	157.5	18.8	138.7	8.4	21.3
		25	34.3	148.8	24.7	124.0	6.0	22.2	31.2	148.0	24.0	124.0	6.2	22.2	29.6	147.2	23.3	124.0	6.3	22.2
		40	Operation not recommended.																	
		50																		
	5.7	15	25.3	164.3	20.1	144.2	8.2	24.0	21.8	161.8	19.5	142.3	8.3	24.1	20.0	159.3	19.0	140.3	8.4	24.1
		25	34.5	151.0	24.9	126.1	6.1	24.7	31.3	150.2	24.2	126.1	6.2	24.7	29.7	149.4	23.4	126.0	6.4	24.7
		40	Operation not recommended.																	
		50																		
	7.6	15	25.4	166.5	20.2	146.3	8.2	25.4	21.8	163.8	19.6	144.1	8.3	25.5	20.0	161.0	19.1	142.0	8.4	25.6
		25	34.6	153.3	25.1	128.2	6.1	26.0	31.4	152.5	24.3	128.1	6.3	26.0	29.8	151.7	23.6	128.1	6.4	26.0
		40	Operation not recommended.																	
		50																		

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

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090 Performance Data cont.

090 - Cooling Capacity Data

Source		ELT	Load Flow - 3.8 L/s						Load Flow - 5.7 L/s						Load Flow - 7.6 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC
10	3.8	10	4.1	94.0	15.3	109.2	21.0	16.8	5.9	98.7	15.6	114.2	21.7	17.2	6.8	103.4	15.8	119.2	22.3	17.5
		20	12.4	121.7	16.8	138.5	24.7	18.7	14.8	124.9	17.1	142.0	25.0	18.9	16.0	128.2	17.3	145.5	25.3	19.1
		30	20.6	149.4	18.3	167.7	27.8	20.5	23.7	151.2	18.6	169.8	27.8	20.6	25.2	153.0	18.8	171.8	27.8	20.8
	5.7	10	4.1	93.6	15.0	108.5	21.3	14.5	5.9	98.3	15.2	113.6	22.0	14.7	6.8	103.1	15.5	118.6	22.7	15.0
		20	12.6	117.6	16.3	133.8	24.7	15.6	15.0	120.8	16.5	137.2	25.1	15.7	16.1	124.0	16.6	140.7	25.4	15.9
		30	21.1	141.5	17.6	159.1	27.5	16.6	24.0	143.3	17.7	160.9	27.7	16.7	25.5	145.0	17.8	162.8	27.8	16.8
	7.6	10	4.2	93.1	14.7	107.8	21.7	13.4	5.9	98.0	14.9	112.9	22.4	13.5	6.8	102.8	15.2	118.0	23.1	13.7
		20	12.9	113.4	15.7	129.1	24.6	14.0	15.1	116.7	15.8	132.5	25.1	14.2	16.2	119.9	16.0	135.9	25.6	14.3
		30	21.6	133.7	16.8	150.5	27.2	14.7	24.3	135.3	16.8	152.1	27.5	14.8	25.7	137.0	16.7	153.7	27.9	14.8
20	3.8	10	4.6	86.3	18.9	105.2	15.6	26.6	6.2	90.6	19.2	109.8	16.1	26.9	7.0	94.9	19.4	114.3	16.7	27.2
		20	12.9	113.7	20.6	134.3	18.9	28.4	15.1	117.5	20.9	138.4	19.2	28.7	16.2	121.3	21.1	142.5	19.6	28.9
		30	21.2	141.2	22.2	163.4	21.7	30.2	24.0	144.5	22.5	167.0	21.9	30.5	25.4	147.8	22.8	170.6	22.1	30.7
	5.7	10	4.6	86.0	18.5	104.5	15.8	24.4	6.2	90.3	18.8	109.1	16.4	24.6	7.0	94.7	19.0	113.7	17.0	24.7
		20	13.0	111.2	20.0	131.1	19.0	25.5	15.2	114.8	20.2	135.0	19.4	25.6	16.3	118.5	20.4	138.9	19.8	25.8
		30	21.5	136.4	21.4	157.7	21.8	26.6	24.2	139.3	21.6	160.9	22.0	26.7	25.5	142.2	21.8	164.0	22.3	26.9
	7.6	10	4.6	85.7	18.2	103.8	16.1	23.3	6.2	90.1	18.4	108.4	16.7	23.4	7.0	94.5	18.6	113.1	17.3	23.5
		20	13.2	108.6	19.4	128.0	19.1	24.0	15.3	112.1	19.5	131.6	19.6	24.1	16.4	115.6	19.7	135.2	20.0	24.2
		30	21.8	131.5	20.6	152.1	21.8	24.8	24.4	134.1	20.7	154.8	22.1	24.8	25.7	136.7	20.8	157.4	22.5	24.9
30	3.8	10	5.1	78.6	22.6	101.1	11.9	36.3	6.6	82.5	22.8	105.3	12.4	36.6	7.3	86.4	23.0	109.5	12.8	36.9
		20	13.4	105.8	24.3	130.1	14.8	38.2	15.4	110.1	24.6	134.8	15.3	38.4	16.4	114.5	25.0	139.4	15.7	38.7
		30	Operation not recommended.																	
	5.7	10	5.1	78.4	22.1	100.5	12.1	34.2	6.6	82.3	22.3	104.6	12.6	34.4	7.3	86.3	22.5	108.8	13.1	34.5
		20	13.4	104.8	23.7	128.4	15.1	35.4	15.5	108.8	23.9	132.7	15.5	35.5	16.5	112.9	24.2	137.0	15.9	35.7
		30	Operation not recommended.																	
	7.6	10	5.1	78.2	21.6	99.8	12.3	33.1	6.6	82.2	21.8	104.0	12.8	33.3	7.3	86.1	22.0	108.1	13.3	33.4
		20	13.5	103.8	23.0	126.8	15.4	34.0	15.5	107.5	23.2	130.7	15.8	34.1	16.5	111.2	23.4	134.6	16.2	34.2
		30	Operation not recommended.																	
45	3.8	10	5.6	70.8	26.2	97.1	9.2	51.1	6.9	74.4	26.4	100.8	9.6	51.3	7.6	78.0	26.6	104.6	10.0	51.6
		20	13.9	97.8	28.1	125.9	11.9	52.9	15.7	102.7	28.4	131.2	12.3	53.2	16.6	107.6	28.8	136.4	12.8	53.5
		30	Operation not recommended.																	
	5.7	10	5.6	70.8	25.7	96.4	9.4	49.0	6.9	74.3	25.8	100.2	9.8	49.2	7.6	77.9	26.0	103.9	10.2	49.3
		20	13.8	98.4	27.4	125.7	12.3	50.3	15.7	102.8	27.7	130.5	12.7	50.5	16.6	107.3	27.9	135.2	13.1	50.6
		30	Operation not recommended.																	
	7.6	10	5.6	70.7	25.1	95.8	9.6	48.0	6.9	74.2	25.3	99.5	10.0	48.1	7.6	77.8	25.4	103.2	10.4	48.2
		20	13.8	99.0	26.6	125.6	12.7	48.9	15.7	102.9	26.9	129.8	13.1	49.1	16.7	106.9	27.1	134.0	13.5	49.2
		30	Operation not recommended.																	

10/7/14

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

TruClimate 100
Reversible Chiller - 50Hz

WaterFurnace Commercial Solutions

150 Performance Data

150 - Heating Capacity Data

Source		ELT	Load Flow - 6.3 L/s						Load Flow - 9.5 L/s						Load Flow - 12.6 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC	LLT ºC	HC kW	Power kW	HE kW	COP	LST ºC
0	9.5	15	20.2	137.4	25.1	112.4	5.5	-2.8	18.5	138.3	24.1	114.1	5.7	-2.9	17.6	139.1	23.2	115.9	6.0	-2.9
		25	29.9	128.9	32.0	96.9	4.0	-2.4	28.2	128.0	30.7	97.4	4.2	-2.4	27.4	127.2	29.4	97.8	4.3	-2.5
		40	44.6	120.4	38.9	81.5	3.1	-2.0	43.0	117.8	37.2	80.6	3.2	-2.0	42.2	115.2	35.6	79.7	3.2	-2.0
		50	54.2	111.9	45.9	66.0	2.4	-1.7	52.7	107.6	43.8	63.8	2.5	-1.6	52.0	103.3	41.7	61.6	2.5	-1.5
	12.6	15	20.5	144.5	25.9	118.6	5.6	-2.2	18.7	145.8	25.0	120.9	5.8	-2.3	17.8	147.2	24.1	123.1	6.1	-2.3
		25	30.1	134.6	32.7	102.0	4.1	-1.9	28.3	133.3	31.3	102.0	4.3	-1.9	27.5	131.9	29.9	102.0	4.4	-1.9
		40	44.7	124.8	39.4	85.4	3.2	-1.6	43.0	120.7	37.6	83.2	3.2	-1.6	42.2	116.6	35.7	80.9	3.3	-1.5
		50	54.3	115.0	46.2	68.8	2.5	-1.3	52.7	108.2	43.9	64.3	2.5	-1.2	51.9	101.4	41.5	59.8	2.4	-1.1
10	6.3	15	21.2	163.0	27.5	135.5	5.9	4.9	19.2	167.2	26.9	140.3	6.2	4.7	18.2	171.4	26.3	145.1	6.5	4.5
		25	30.9	156.1	34.6	121.6	4.5	5.4	29.0	158.9	33.5	125.4	4.7	5.3	28.1	161.7	32.5	129.2	5.0	5.1
		40	45.6	149.3	41.7	107.6	3.6	5.9	43.8	150.7	40.2	110.5	3.8	5.8	42.9	152.0	38.6	113.4	3.9	5.7
		50	55.4	142.5	48.8	93.7	2.9	6.5	53.6	142.4	46.8	95.6	3.0	6.4	52.7	142.3	44.8	97.5	3.2	6.3
	9.5	15	21.4	170.5	28.4	142.1	6.0	6.4	19.5	180.6	28.3	152.3	6.4	6.2	18.6	190.7	28.2	162.4	6.8	5.9
		25	31.1	162.5	35.4	127.1	4.6	6.8	29.2	168.8	34.6	134.2	4.9	6.6	28.3	175.1	33.7	141.3	5.2	6.5
		40	45.8	154.4	42.4	112.0	3.6	7.2	43.9	157.0	40.8	116.1	3.8	7.1	43.0	159.5	39.2	120.2	4.1	7.0
		50	55.5	146.4	49.4	97.0	3.0	7.6	53.6	145.1	47.1	98.1	3.1	7.5	52.7	143.9	44.8	99.1	3.2	7.5
	12.6	15	21.7	178.1	29.4	148.7	6.1	7.2	19.9	194.0	29.8	164.3	6.5	6.9	19.0	209.9	30.1	179.8	7.0	6.6
		25	31.4	168.8	36.3	132.6	4.7	7.5	29.5	178.6	35.6	143.0	5.0	7.3	28.6	188.4	35.0	153.5	5.4	7.1
		40	46.0	159.5	43.1	116.4	3.7	7.8	44.1	163.2	41.5	121.8	3.9	7.7	43.2	166.9	39.9	127.1	4.2	7.6
		50	55.7	150.3	50.0	100.2	3.0	8.1	53.7	147.9	47.4	100.5	3.1	8.1	52.7	145.4	44.7	100.7	3.3	8.1
20	6.3	15	22.4	195.6	30.7	164.8	6.4	13.8	20.1	203.7	30.5	173.2	6.7	13.5	19.0	211.8	30.3	181.5	7.0	13.1
		25	32.1	189.1	37.8	151.2	5.0	14.3	29.9	195.0	37.0	158.1	5.3	14.0	28.8	201.0	36.1	164.9	5.6	13.8
		40	46.9	182.6	44.9	137.7	4.1	14.8	44.7	186.4	43.4	143.0	4.3	14.6	43.6	190.2	41.9	148.3	4.5	14.4
		50	56.7	176.1	52.1	124.1	3.4	15.3	54.5	177.8	49.9	127.9	3.6	15.2	53.4	179.4	47.7	131.7	3.8	15.0
	9.5	15	22.7	203.6	31.8	171.8	6.4	15.7	20.6	222.9	32.5	190.4	6.9	15.2	19.6	242.2	33.2	209.0	7.3	14.8
		25	32.4	196.0	38.9	157.2	5.0	16.1	30.3	209.5	38.5	171.0	5.4	15.7	29.2	223.0	38.1	184.9	5.9	15.4
		40	47.1	188.4	45.9	142.6	4.1	16.4	44.9	196.1	44.4	151.7	4.4	16.2	43.8	203.7	42.9	160.8	4.7	16.0
		50	56.8	180.9	53.0	127.9	3.4	16.8	54.6	182.7	50.4	132.3	3.6	16.7	53.5	184.5	47.8	136.7	3.9	16.6
	12.6	15	23.0	211.7	32.9	178.9	6.4	16.6	21.1	242.2	34.5	207.7	7.0	16.1	20.2	272.7	36.2	236.5	7.5	15.5
		25	32.7	203.0	39.9	163.1	5.1	16.9	30.6	224.0	40.0	184.0	5.6	16.5	29.6	245.0	40.1	204.9	6.1	16.1
		40	47.3	194.3	46.9	147.4	4.1	17.2	45.2	205.8	45.4	160.3	4.5	17.0	44.1	217.2	44.0	173.3	4.9	16.7
		50	57.0	185.6	53.9	131.7	3.4	17.5	54.7	187.5	50.9	136.7	3.7	17.4	53.6	189.5	47.9	141.6	4.0	17.3
30	6.3	15	23.6	228.1	34.0	194.1	6.7	22.7	21.0	240.1	34.1	206.0	7.0	22.2	19.8	252.2	34.3	217.9	7.4	21.8
		25	33.4	222.0	41.1	180.9	5.4	23.2	30.8	231.1	40.4	190.7	5.7	22.8	29.5	240.2	39.7	200.5	6.0	22.4
		40	48.2	215.9	48.2	167.7	4.5	23.7	45.6	222.1	46.7	175.4	4.8	23.4	44.3	228.3	45.2	183.2	5.1	23.1
		50	Operation not recommended.																	
	9.5	15	23.9	236.7	35.2	201.6	6.7	24.9	21.6	265.3	36.7	228.6	7.2	24.3	20.6	293.8	38.3	255.6	7.7	23.6
		25	33.7	229.6	42.3	187.3	5.4	25.3	31.3	250.2	42.4	207.9	5.9	24.8	30.1	270.9	42.5	228.4	6.4	24.3
		40	48.4	222.5	49.4	173.1	4.5	25.7	45.9	235.2	48.0	187.2	4.9	25.3	44.7	247.9	46.6	201.3	5.3	25.0
		50	Operation not recommended.																	
	12.6	15	24.3	245.3	36.4	209.0	6.7	26.1	22.3	290.4	39.3	251.1	7.4	25.3	21.3	335.4	42.3	293.2	7.9	24.5
		25	34.0	237.2	43.5	193.7	5.5	26.3	31.8	269.3	44.3	225.0	6.1	25.7	30.7	301.5	45.2	256.3	6.7	25.2
		40	48.7	229.0	50.6	178.5	4.5	26.6	46.2	248.3	49.4	198.9	5.0	26.2	45.1	267.5	48.1	219.4	5.6	25.9
		50	Operation not recommended.																	

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

10/7/14

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150 Performance Data cont.

150 - Cooling Capacity Data

Source		ELT	Load Flow - 6.3 L/s						Load Flow - 9.5 L/s						Load Flow - 12.6 L/s					
EST ºC	Flow L/s	ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC	LLT ºC	TC kW	Power kW	HR kW	EER	LST ºC
10	6.3	10	4.3	151.6	24.76	176.3	20.9	16.7	5.8	166.3	25.8	192.1	22.0	17.3	6.6	181.0	26.8	207.9	23.0	17.9
		20	12.6	194.9	27.54	222.4	24.2	18.4	14.8	205.9	28.6	234.5	24.6	18.9	15.9	217.0	29.6	246.5	25.0	19.3
		30	21.0	238.2	30.31	268.5	26.8	20.1	23.8	245.5	31.3	276.9	26.7	20.5	25.2	252.9	32.4	285.2	26.7	20.8
	9.5	10	4.3	151.1	24.12	175.3	21.4	14.4	5.9	165.3	25.38	190.7	22.2	14.8	6.6	179.5	26.6	206.1	23.0	15.2
		20	12.8	189.4	26.27	215.7	24.6	15.4	15.0	198.1	27.5	225.6	24.6	15.7	16.1	206.8	28.7	235.4	24.6	15.9
		30	21.4	227.7	28.43	256.2	27.3	16.4	24.2	230.9	29.6	260.4	26.6	16.5	25.6	234.0	30.8	264.7	26.0	16.6
	12.6	10	4.3	150.7	23.49	174.2	21.9	13.3	5.9	164.4	25.0	189.3	22.5	13.6	6.6	178.0	26.4	204.4	23.0	13.9
		20	13.0	184.0	25.01	209.0	25.1	13.9	15.2	190.3	26.4	216.7	24.6	14.1	16.3	196.5	27.8	224.3	24.1	14.2
		30	21.8	217.3	26.54	243.8	27.9	14.6	24.6	216.2	27.8	244.0	26.5	14.6	25.9	215.1	29.1	244.2	25.2	14.6
20	6.3	10	4.8	138.5	31.00	169.5	15.2	26.4	6.2	150.4	31.9	182.2	16.1	26.9	6.9	162.2	32.8	195.0	16.9	27.4
		20	13.2	180.1	33.71	213.8	18.2	28.1	15.2	190.9	34.7	225.6	18.8	28.5	16.2	201.7	35.7	237.4	19.3	29.0
		30	21.6	221.7	36.41	258.1	20.8	29.8	24.2	231.4	37.5	268.9	21.0	30.2	25.4	241.1	38.7	279.8	21.3	30.6
	9.5	10	4.8	138.3	30.05	168.4	15.7	24.2	6.2	150.0	31.0	181.1	16.5	24.5	6.9	161.7	32.0	193.7	17.2	24.9
		20	13.3	177.2	32.18	209.3	18.8	25.2	15.3	186.8	33.3	220.0	19.2	25.5	16.3	196.4	34.3	230.7	19.5	25.8
		30	21.8	216.0	34.30	250.3	21.5	26.3	24.4	223.5	35.5	259.0	21.5	26.5	25.6	231.1	36.7	267.7	21.5	26.7
	12.6	10	4.8	138.2	29.10	167.3	16.2	23.2	6.2	149.7	30.2	179.9	16.9	23.4	7.0	161.2	31.2	192.4	17.6	23.6
		20	13.4	174.3	30.65	204.9	19.4	23.9	15.4	182.7	31.8	214.5	19.6	24.1	16.4	191.1	33.0	224.0	19.8	24.2
		30	22.1	210.3	32.20	242.5	22.3	24.6	24.6	215.7	33.4	249.1	22.0	24.7	25.8	221.0	34.7	255.7	21.8	24.8
30	6.3	10	5.3	125.4	37.24	162.6	11.5	36.1	6.6	134.4	38.0	172.4	12.1	36.5	7.3	143.4	38.8	182.2	12.6	36.9
		20	13.8	165.3	39.87	205.1	14.1	37.8	15.6	175.8	40.9	216.7	14.7	38.2	16.5	186.4	41.9	228.3	15.2	38.6
		30	Operation not recommended.																	
	9.5	10	5.3	125.6	35.98	161.5	11.9	34.0	6.6	134.7	36.7	171.4	12.5	34.3	7.3	143.9	37.4	181.3	13.1	34.5
		20	13.8	164.9	38.08	203.0	14.8	35.1	15.6	175.5	39.0	214.5	15.3	35.4	16.5	186.0	40.0	226.0	15.9	35.7
		30	Operation not recommended.																	
	12.6	10	5.2	125.7	34.71	160.4	12.4	33.0	6.6	135.1	35.4	170.4	13.0	33.2	7.3	144.4	36.0	180.4	13.7	33.4
		20	13.8	164.5	36.28	200.8	15.5	33.8	15.6	175.1	37.2	212.3	16.1	34.0	16.5	185.7	38.1	223.8	16.6	34.2
		30	Operation not recommended.																	
45	6.3	10	5.8	112.3	43.48	155.8	8.8	50.9	7.0	118.4	44.1	162.5	9.2	51.1	7.6	124.6	44.8	169.3	9.5	51.4
		20	14.3	150.5	46.04	196.5	11.2	52.4	16.0	160.8	47.0	207.8	11.7	52.9	16.8	171.1	48.0	219.1	12.2	53.3
		30	Operation not recommended.																	
	9.5	10	5.7	112.8	41.91	154.6	9.2	48.9	7.0	119.4	42.35	161.8	9.6	49.1	7.6	126.1	42.8	168.9	10.1	49.2
		20	14.2	152.6	43.98	196.6	11.8	49.9	15.9	164.1	44.8	208.9	12.5	50.2	16.7	175.6	45.7	221.3	13.1	50.5
		30	Operation not recommended.																	
	12.6	10	5.7	113.2	40.33	153.5	9.6	47.9	7.0	120.4	40.6	161.0	10.1	48.0	7.6	127.6	40.8	168.4	10.7	48.2
		20	14.2	154.8	41.92	196.7	12.6	48.7	15.8	167.5	42.6	210.1	13.4	49.0	16.6	180.2	43.3	223.5	14.2	49.2
		30	Operation not recommended.																	

10/7/14

Note: Operation in shaded areas require special attention to ensure adequate water temperature and flow rates are maintained. Operation outside the limits could result in lockout.

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Contractor: _____ P.O.: _____

Engineer: _____

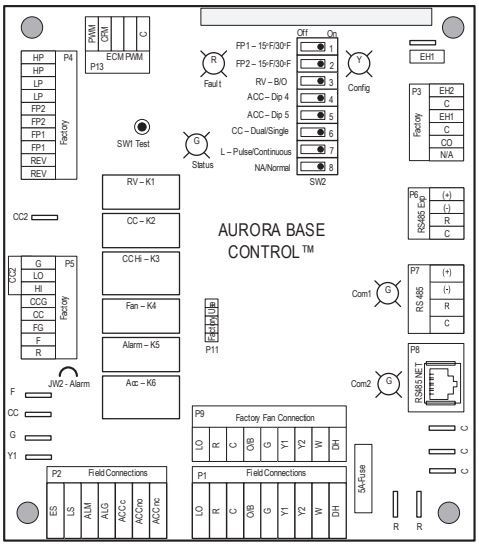
Project Name: _____ Unit Tag: _____

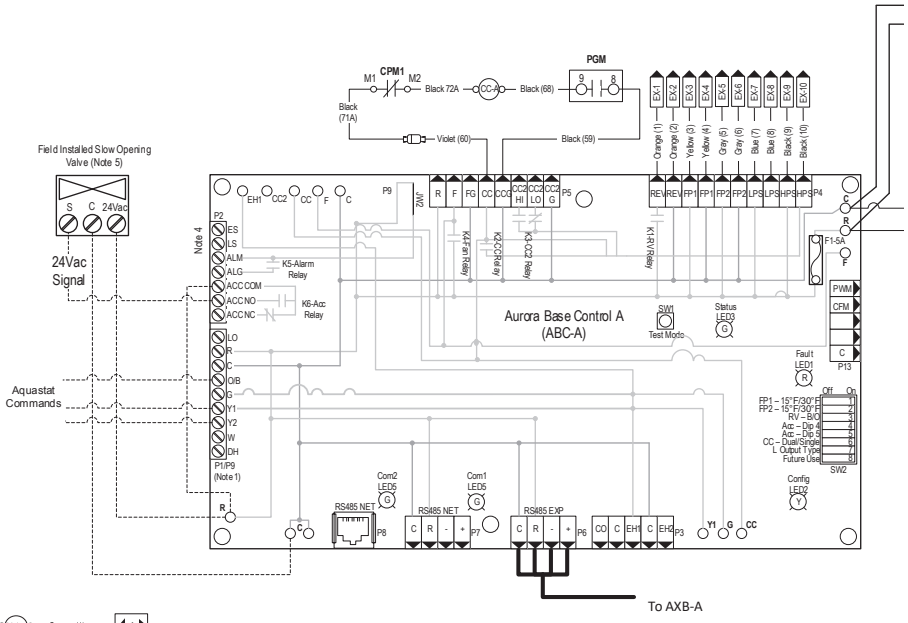
TruClimate 100
Reversible Chiller - 50Hz

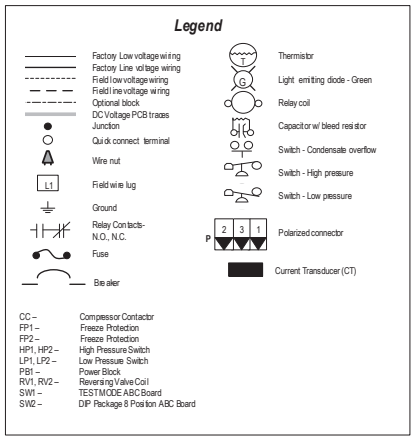
WaterFurnace Commercial Solutions

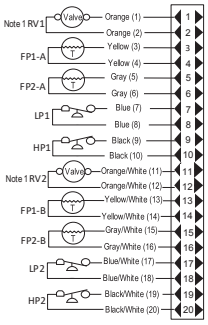
Wiring Schematics

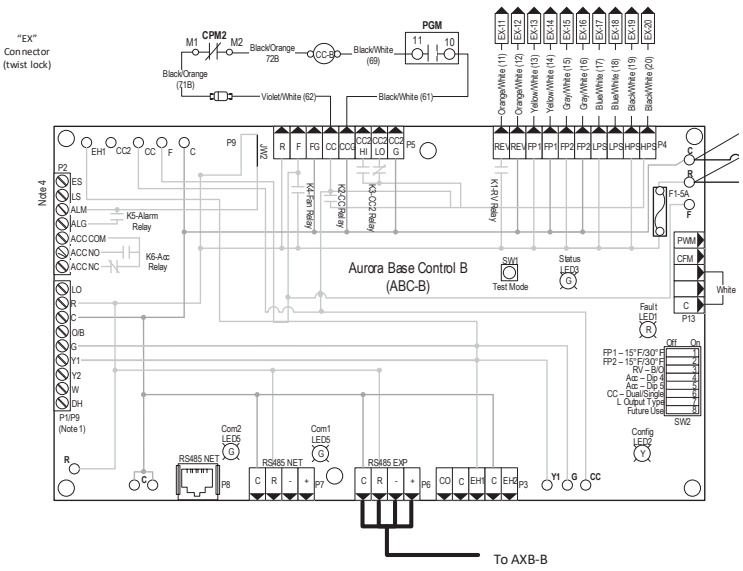
Reversible Chiller HydroLink2 Aurora 120-600











Notes

1 – Reversing Valve will be energized for heating mode.
2 – In Emergency Shutdown, line voltage is still present in control box. Emergency Switch is wired on low voltage circuit only.
3 – See additional schematic for HydroLink details.
4 – To activate ;"ES" and "LS" terminals must be connected to ground.
5 – Field wiring for slow opening valve or pump control relay. ABC SW2 must be set to "Water Valve slow opening".
The valve or pump may be wired to either ABC A or ABC B.

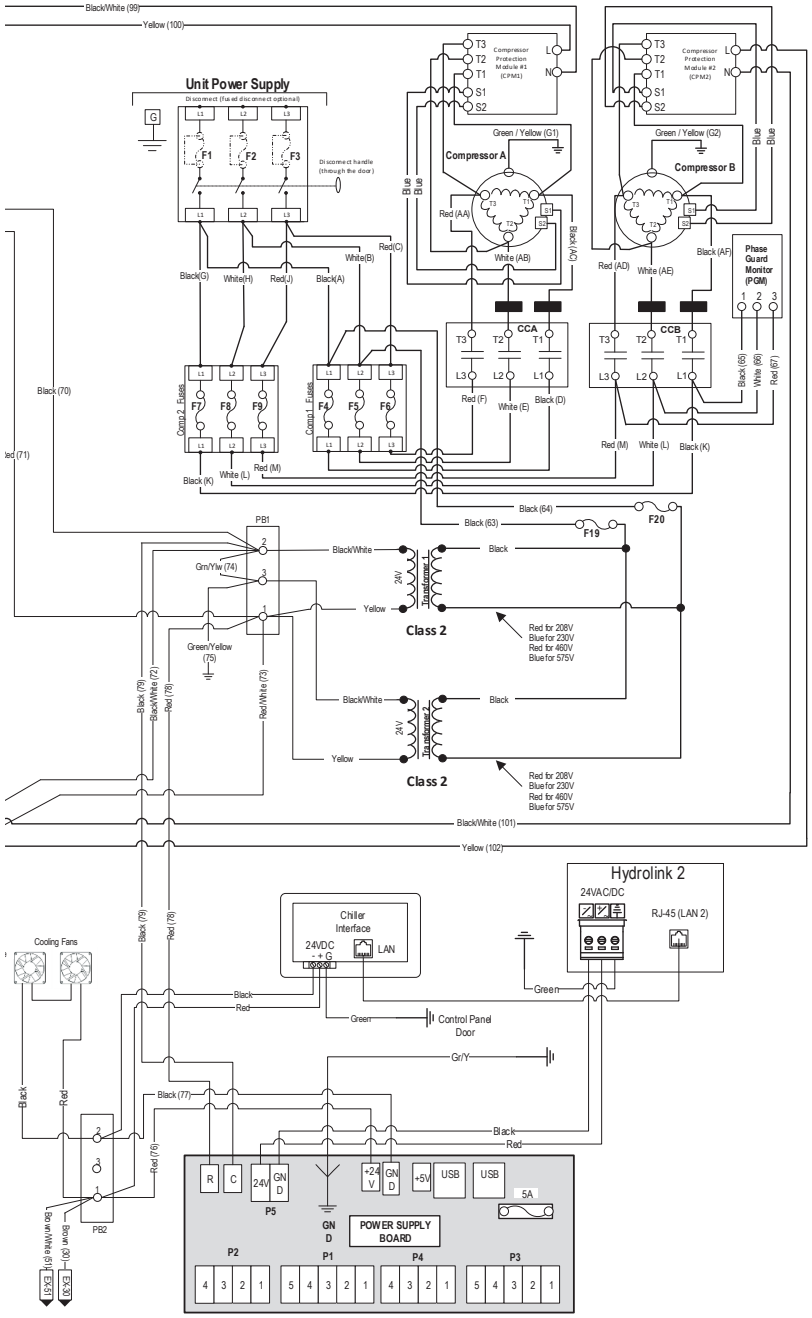
ABC SW2 Accessory Relay		
DESCRIPTION	**SW2-4**	**SW2-5**
Not Used	ON	ON
Cycle with Compressor	OFF	OFF
Water Valve Slow Opening	ON	OFF
Not Used	OFF	ON

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97P897-42

Wiring Schematics cont.

Reversible Chiller HydroLink2 Aurora 120-600



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Contractor: _____ P.O.: _____

Engineer: _____

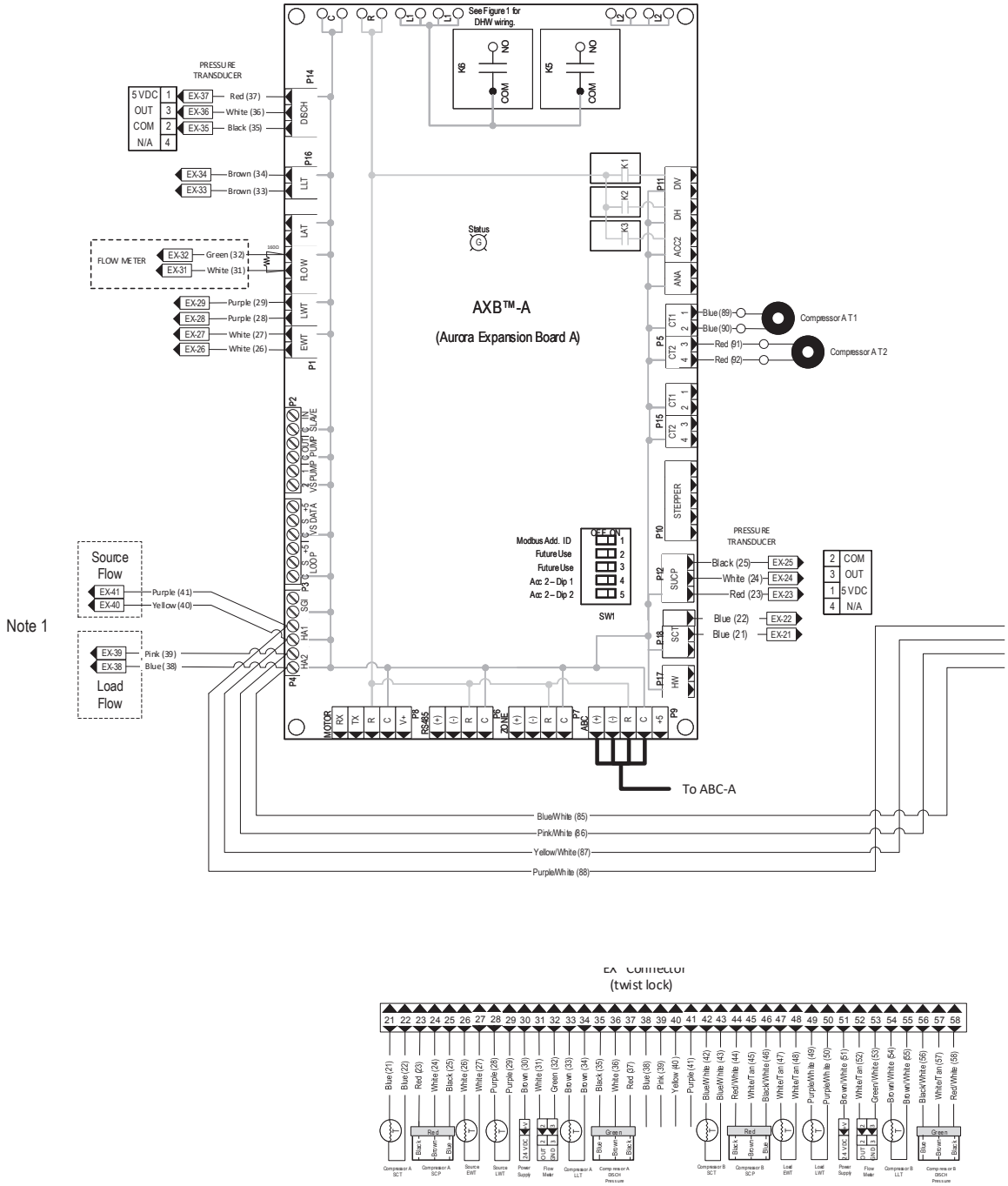
Project Name: _____ Unit Tag: _____

TruClimate 100
Reversible Chiller - 50Hz

WaterFurnace Commercial Solutions

Wiring Schematics cont.

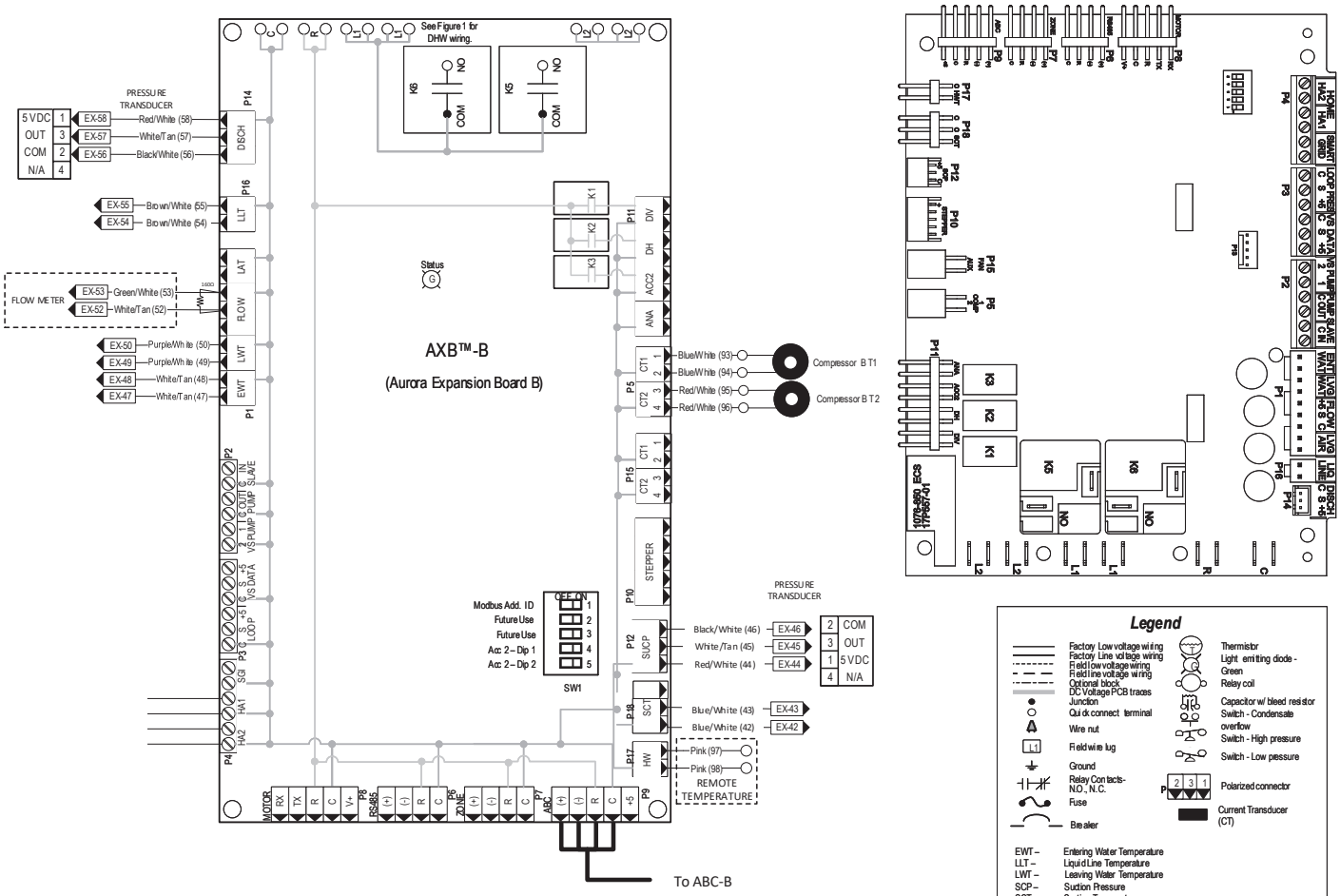
Reversible Chiller HydroLink2 Aurora 600 Series



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Wiring Schematics cont.

Reversible Chiller HydroLink2 Aurora 600 Series



Notes

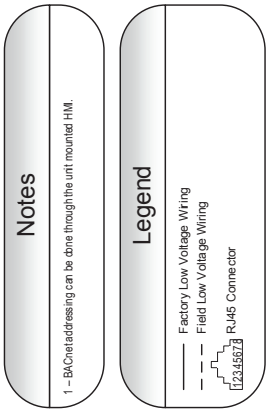
1 - A field installed flow switch is required for the load and source side and must be connected to AXB HA1 and HA2 for the unit to operate. HA1- Source and HA2 – Load.

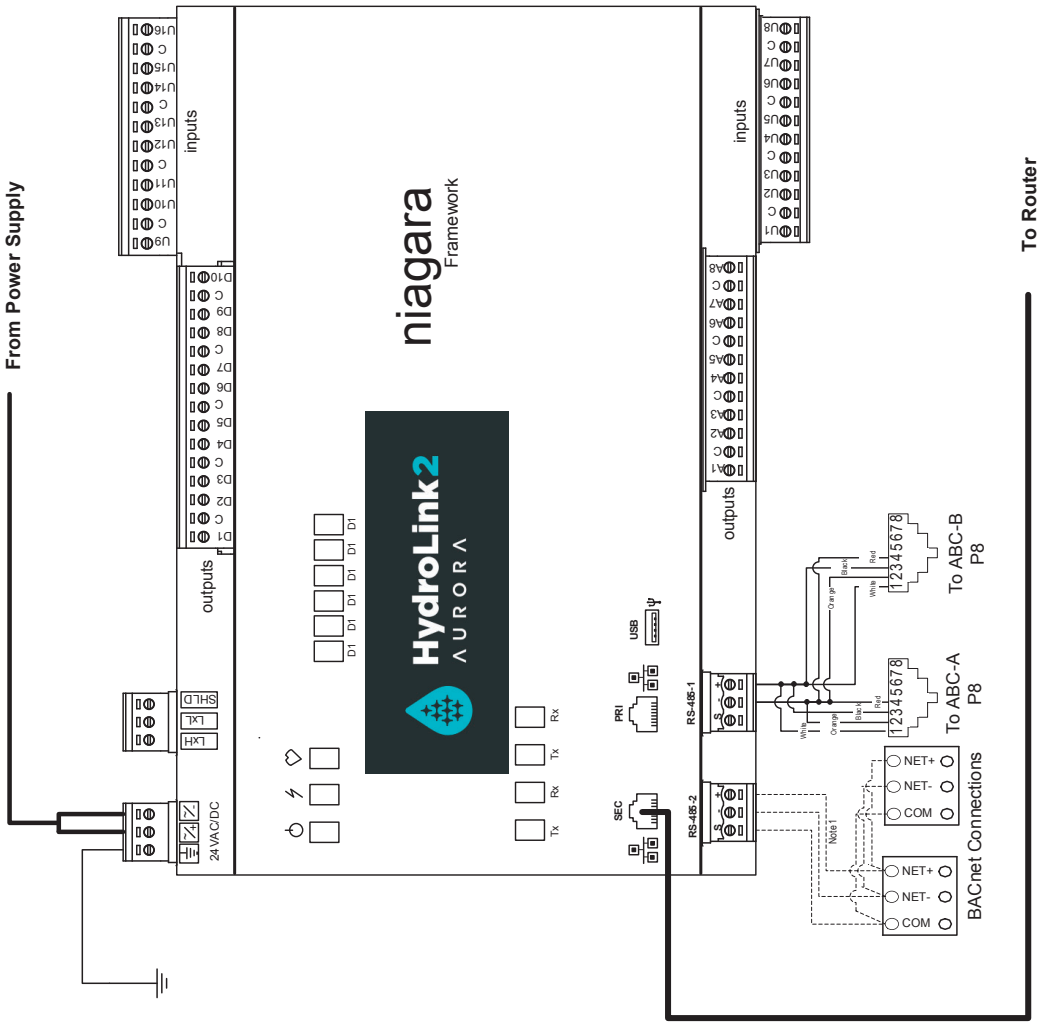
AXB Accessory 2 DIP Settings		
SW1-4	**SW1-5**	**DESCRIPTION**
ON	ON	Not Used
OFF	ON	Cycles with CC (Normal)
ON	OFF	Not Used
OFF	OFF	Not Used

…itions of each product at the time of order may be changed without notice. Please contact WaterFurnace at 1-888-929-2837 for latest design and …le under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely WaterFurnace's opinion or commendation of its products. The latest version of this document is available at www.waterfurnace.com.

Wiring Schematics cont.

HydroLink2 Aurora Control





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Engineering Guide Specifications

PART 1 - GENERAL

SUMMARY
The liquid source, water-to-water heat pump shall be a single packaged, reverse-cycle heating/cooling unit. Each unit shall contain microprocessor control for two hermetically sealed, scroll compressors with brazed plate heat exchangers and thermostatic expansion valves.

PERFORMANCE REQUIREMENTS
Fluid Temperature Performance:
Heat Pump shall be capable of continuous operation over the entire range of entering source-fluid temperature of -1°C – 43°C in cooling mode and -1°C – 32°C in heating mode.

Heat Pump shall be capable of continuous operation over the entire range of entering load conditions as indicated in the engineering performance tables.

SUBMITTALS
Product submittal data shall contain manufacturer's specifications for heat pumps showing dimensions, weights, capacities, performance ratings, electrical characteristics, gauges and finishes of materials and installation instructions.

Submit internal electrical wiring diagrams
Submit Control Diagrams and Specifications

QUALITY ASSURANCE
Liquid source, water-water heat pumps shall be tested, rated, and certified in accordance with the following standards.

- ASHRAE 15 for safety code for mechanical refrigeration.
- ASHRAE 147 for refrigerant leaks, recovery, and handling and storage requirements.
- ASHRAE 90.1 – minimum Energy Efficiency compliance for water-to-water heat pumps.
- Comply with NFPA 70 or National Electric Code (N.E.C)
- Comply with UL 1995 and be nationally recognized with ETL
- Tested in accordance with EN14511 13256-2

Each unit shall be run tested at the factory using water. Quality control system shall automatically perform via computer: triple leak check, pressure tests, evacuate and accurately charge system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail criteria. Units tested without water flow are not acceptable.

WARRANTY
Standard Warranty: The units shall be warranted by the manufacturer against defects in materials and workmanship for a period of 12 months from startup or 18 months from shipment.

Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of chillers that fails in materials or workmanship within specified warranty period.

Extended warranties include, but are not limited to, the following:
- Complete heat pump including refrigerant and oil charge.
- Complete compressor and drive assembly.
- Parts only.

PART 2 - PRODUCTS

WATER TO WATER HEAT PUMP EQUIPMENT
Heat pump equipment shall be factory assembled with two refrigerant circuits consisting of scroll compressors, brazed-plate heat exchangers for the evaporator and condenser, microprocessor controls, and safety devices such as refrigerant pressure switches. Units must be field installed with a minimum of a differential waterside pressure switch or flow proving switch on the outlet of the load and source piping.

Frame & Enclosure
Frame shall be constructed of 10 gauge welded steel with forklift pockets in the bottom channel and threaded weld nuts for lifting points in the top of the frame.

Enclosure shall be factory installed and constructed of heavy-gauge G60 galvanized steel coated with polyester powder coat paint. Paint shall be rated for 1,000 hour of salt spray using ASTM B117. Panels, other than control service door, shall be lined with 50.8mm inch thick, glass fiber glass insulation with an foil face, washable backing.

Compressor:
1. Hermetically sealed, scroll compressors with factory charged POE or PVE oil.
2. Suction gas cooled motors operate at 3500 rpm protected by internal overload device. Model sizes 150 protected by external compressor protection module.
3. Brazed connections to system piping utilizing braided stainless steel vibration absorbers on all suction and discharge piping to mitigate vibration.
4. Compressors can be operated separately to provide staged capacity for lighter load conditions.
5. Factory mounted with rubber isolation grommets.
6. Acoustically insulated sound blankets are factory installed around the compressor to reduce sound emanating from the compressor.

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Engineering Guide Specifications cont.

Heat Exchangers:

1. The water to refrigerant heat exchangers shall be dual circuit, copper-brazed 316 stainless steel channel plates, capable of withstanding 650 psig working pressure on the refrigerant side and 450 psig on the water side. Refrigerant circuits are separate with a common water supply. This provides optimal part load efficiency compared to using two single circuit heat exchangers. Heat exchangers are designed to work as an evaporator and condenser.
2. Heat exchangers are covered with 3/4" closed-cell insulation on sizes 120-240 and 1" closed-cell insulation on sizes 360-600.
3. Water line connections attached to the heat exchangers are groove type are factory installed with groove coupling and steel pipe nipple. Pipe nipple is insulated and comes with 1/4" NPT pressure/temperature port.

Potable Water Heat Exchangers:

1. The Potable Water option shall be equipped with manifolded double wall single circuit brazed plate heat exchangers. Condenser Inlet and Outlet pipes shall be made of 2 inch copper pipe TYPE L. Double Wall heat exchangers shall be insulated with 3/4" closed cell foam. Potable water condensers inlet and outlet pipes are equipped with 2 inch FNPT fittings. Inlet and Outlet pipes are equipped with 1/4" pressure/temperature ports.

Refrigerant Components:

1. Unit shall utilize R-410A refrigerant type. All system components shall be rated to appropriate UL standards to handle maximum system pressure.
2. Factory charged, sealed system contains optimal refrigerant quantity.
3. Each refrigerant circuit shall utilize a thermostatic expansion valve (TXV) with stainless steel sensing bulb and laser welded diaphragm. TXV will control adequate superheat over the stated operating range as indicated in submittal data.
4. Bidirectional, liquid line filter driers are to be factory installed to provide additional system cleanliness.
5. Factory installed service ports for high and low pressure readings.
6. Optional factory installed pressure gauges mounted below control panel aid in field diagnostics and reduces need for technician applied gauges.

Control Panel

1. Factory installed, wired, and functionally tested at factory before shipment.
2. Single-point power connection to non-fused, or fused rotary-type disconnect in control panel.
3. Factory installed, DIN mounted CUBEFuse with Class J rating wired for protection of each compressor.
4. Low voltage, emergency stop button factory wired and mounted to control panel service door.
5. Factory mounted class 2, control power transformer provides nominal 24 VAC low voltage power supply. Primary to transformer is protected by Class CC fuses.
6. High pressure cut out set at 600 PSIG with manual reset.
7. Low pressure cut out set at 40 PSIG with manual reset.
8. Unit shall have phase loss/reversal for compressor protection.

Controls:

1. The unit shall be controlled using a HydroLink2/Aurora microprocessor which sequences all functions and modes of operations.
2. Units shall be capable to communicate thru standard DDC protocols such as BACnet (MS/TP)
3. Standalone, non-communicating units are also available that will operate with thermostat, mechanical, or electronic signals. Setpoint or Aquastat mode is capable of controlling to leaving/entering load temperature.
4. The control system shall have the following hardware features:
   - Setpoint, aquastat or network control methods with adjustable PID parameters.
   - 3D color graphics for easier diagnostics
   - 10" color touch WiFi tablet user interface
   - 802.11g WiFi router for local wireless access.
   - BACnet (MSTP) communication
   - 8 Field defined user relay outputs (N.O.)
   - 2 Field defined analog outputs (0-10V)
   - 6 Field defined digital inputs (0-24VAC)
   - 2 Field defined pressure sensor (0-5V)
   - 2 Field defined current transducer inputs (0-100A)
5. The control system shall have the following functional programming features:
   - Compressor lead/lag control
   - Random start at power up
   - 5 minute Anti-short cycle compressor protection
   - 5 minute minimum compressor run time to ensure oil circulation
   - High and low pressure cutouts
   - Loss of charge protection
   - Slow opening water valve timing
   - Selectable Water coil freeze detection – Refrigerant Temp and Suction Saturation Temp
   - Selectable Water coil freeze detection – Internal HX Fluid Temp Sensing
   - Selectable Water coil freeze alarm –
   - Over/under voltage protection
   - Remote DIP switch override
   - Load shed

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Engineering Guide Specifications cont.

- Emergency shutdown
- Diagnostic LED's
- Test mode push button switch
- Fault Retry with fault history
- Source and load entering and leaving fluid temperatures
- Alarm output with optional E code pulsing
- 4 Accessory output relays with N.O. and N.C.
- Modbus communication
- Energy monitoring of current and power for each compressor
- Refrigerant monitoring of pressures and temperatures including superheat and subcooling
- Performance Monitoring including capacity and heat of extraction/rejection (optional with field installed flow meters)

Accessories:

1. Additional Items Not Listed Previously:
   - Compressor sound blankets to reduce sound power level of unit.
   - Flow switch to monitor the units presence of flow.
2. Flow Proving Switch
   - A flow proving switch shall be available utilizing high reliability flow sensing technology.
3. Water Connection Adaptor
   - Accessory adaptors shall be available to connect the Victaulic type fitting to a 2 in. [50.8 mm] IPT and to a 2 in. [50.8 mm] bolted flange. Accessory adaptors shall also be available to connect the Victaulic type fitting to a 2 in. MPT through a braided stainless steel flexible hose with a 400 psi burst rating and a 2 in. pipe union.
4. Differential Pressure Switch
5. Strainers
   - A strainer connection kit shall be available and includes a 2 in. [50.8 mm] Y-strainer with self-aligning screen and 1 in. [25.4 mm] blow-off port to reduce debris that will enter the heat exchanger. Strainers should be made of a brass body with a 316 stainless steel screen. Connection kit shall also include two 2 in. [50.8 mm] wrought copper tees with integral pressure/temperature port.
6. Vibration Isolators
   - Heavy duty mounting springs shall be available for corner mounting and 3 dBA noise reduction. Springs shall be field adjustable and load rated for application.

PART 3 - EXECUTION

CHILLER INSTALLATION

Install chillers on support structure indicated.

Equipment Mounting: Install chiller on concrete bases using elastomeric pads. Comply with requirements for vibration isolation devices specified in Division 23 Section "Vibration and Seismic Controls for HVAC Piping and Equipment."

- Minimum Deflection: 12mm.
- Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 450mm centers around the full perimeter of concrete base.
- For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
- Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
- Install anchor bolts to elevations required for proper attachment to supported equipment.

Equipment Mounting: Install chiller using elastomeric pads. Comply with requirements for vibration isolation devices specified in Division 23 Section "Vibration and Seismic Controls for HVAC Piping and Equipment."

Equipment Mounting: Install chiller on concrete bases. Comply with requirements for concrete base specified by contractor.

- Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 450mm centers around the full perimeter of concrete base.
- For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
- Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
- Install anchor bolts to elevations required for proper attachment to supported equipment.

Maintain manufacturer's recommended clearances for service and maintenance.

Charge chiller with refrigerant and fill with oil if not factory installed.

Install separate devices furnished by manufacturer and not factory installed.

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Engineering Guide Specifications cont.

CONNECTIONS

Comply with requirements for piping specified in Division 23 Section "Hydronic Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

Install piping adjacent to chiller to allow service and maintenance.

Evaporator Fluid Connections: Connect to evaporator inlet with shutoff valve, strainer, flexible connector, thermometer, and plugged tee with pressure gage. Connect to evaporator outlet with shutoff valve, balancing valve, flexible connector, flow switch, thermometer, plugged tee with shutoff valve and pressure gage, flow meter, and drain connection with valve. Make connections to chiller with a flange.

Condenser Fluid Connections: Connect to condenser inlet with shutoff valve, strainer, flexible connector, thermometer, and plugged tee with pressure gage. Connect to condenser outlet with shutoff valve, balancing valve, flexible connector, flow switch, thermometer, plugged tee with shutoff valve and pressure gage, flow meter, and drain connection with valve. Make connections to chiller with a flange.

Connect each chiller drain connection with a union and drain pipe, and extend pipe, full size of connection, to floor drain. Provide a shutoff valve at each connection.

STARTUP SERVICE

Engage a factory-authorized service representative to perform startup service.

- Complete installation and startup checks according to manufacturer's written instructions.
- Verify that refrigerant charge is sufficient and chiller has been leak tested.
- Verify that pumps are installed and functional.
- Verify that thermometers and gages are installed.
- Operate chiller for run-in period.
- Check bearing lubrication and oil levels.
- For chillers installed indoors, verify that refrigerant pressure relief device is vented outdoors.
- Verify proper motor rotation.
- Verify static deflection of vibration isolators, including deflection during chiller startup and shutdown.
- Verify and record performance of fluid flow and low-temperature interlocks for evaporator and condenser.
- Verify and record performance of chiller protection devices.
- Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assembly, installation, and connection.

Prepare test and inspection startup reports.

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

Revision Guide

Pages:	Description:	Date:	By:
7	Changed vibration isolation content	2 June 2023	MA
Cover	Naming Update	10 Feb 2022	JM
Misc	Updated nomenclature and paint specifications	10 Feb 2020	MA
Misc.	Updated to HydroLink2, updated product renders	20 Feb 2019	MA
All	Removed FX10 Control Option, Added HydroLink Aurora Controls	25 Aug 2016	MA
3	Added Energy Labelling	18 Mar 2016	MA
2	Inserted Updated MCS/KIWA Logo	14 Oct 2015	MA
All	First Published	06 Nov 2014	MA

CE

APPROVED PRODUCT MCS kiwa

All TruClimate 100 50Hz product is safety tested to CE standards and performance tested in accordance with standard EN 14511-2.

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