



Versatec *Ultra*

NSKW

**GEOHERMAL HYDRONIC HEAT PUMP
1.5 TO 6 TONS**



Submittal Data
English Language
IP/Metric Units
SD2566WN 07/16

Contractor: _____ P.O.: _____

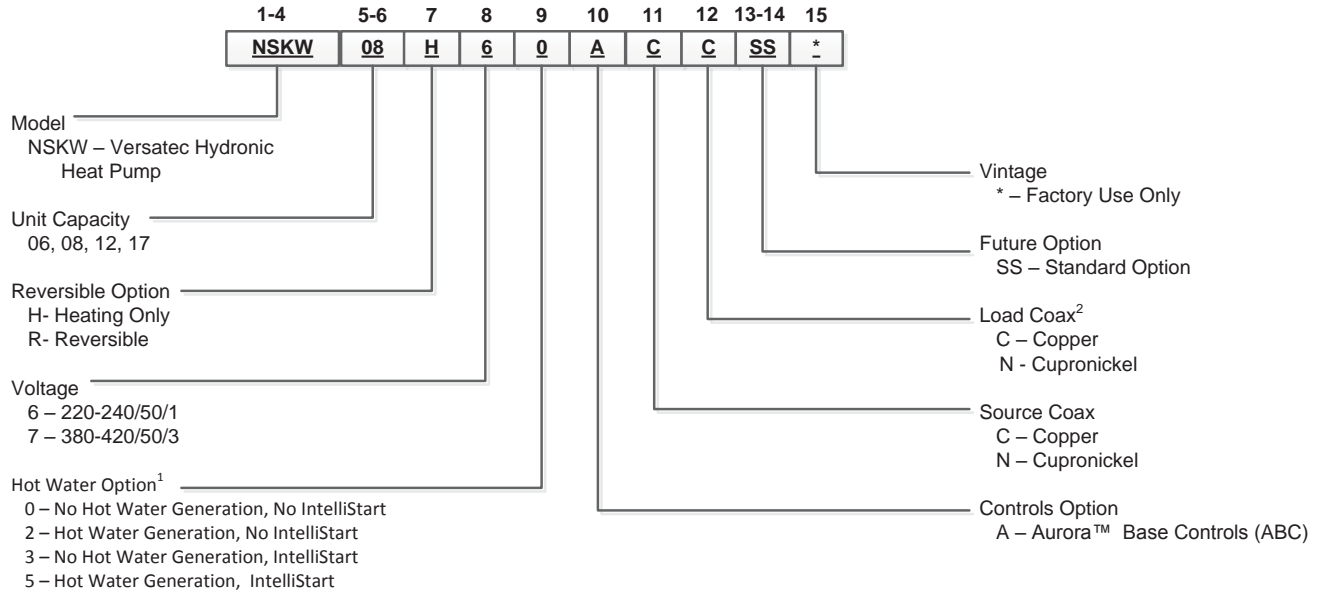
Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



Model Nomenclature



Rev.: 15 June 2016

NOTES: 1 – Available on 08, 12, 17 only. Hot water generator requires field installed external pump kit.
2 – NSKW06 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.

Energy Labelling

Supplier	WaterFurnace International, Inc.								
	NSKW06		NSKW08		NSKW12		NSKW17		
Model	-		-		-		-		
Model hot water heater	-		-		-		-		
Temperature application	°C	35	55	35	55	35	55	35	55
Declared load profile for water heating	-		-		-		-		
Seasonal space heating energy efficiency class, average climate	A++		A++		A++		A++		
Water heating energy efficiency class, average climate	-		-		-		-		
Rated heat output (Pdesignh), average climate	kW	6		8		12		17	
Annual energy consumption space heating, average climate	kWh	2,860	3,432	3,689	4,543	4,920	6,343	7,985	9,656
Annual energy consumption water heating, average climate	kWh	-		-		-		-	
Seasonal space heating energy efficiency, average climate	%	160	119	178	132	187	137	164	126
Water heating energy efficiency, average climate	%	-		-		-		-	
Sound power level LWA indoors	dB	57		57		61		63	
Rated heat output (Pdesignh), cold climate	kW	6		8		12		17	
Rated heat output (Pdesignh), warm climate	kW	6		8		12		17	
Sound power level LWA outdoors dB	dB	-		-		-		-	

3/18/2016



All Versatec Ultra NSKW product is safety tested to CE standards and performance tested in accordance with standard BS 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.

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**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



BS EN 14511-2 Performance Ratings

Heating Performance

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
06	5.80	3.80	1.53	7.30	4.80	1.52	5.50	2.90	1.90	6.60	4.30	1.54	7.10	3.70	1.92
08	8.30	4.20	1.98	10.6	5.30	2.00	8.00	3.20	2.50	9.50	4.80	1.98	10.2	4.10	2.49
12	11.6	4.20	2.80	14.4	5.30	2.72	11.3	3.20	3.53	13.3	4.80	2.77	14.2	4.10	3.46
17	16.6	3.70	4.49	21.4	4.70	4.55	15.9	2.90	5.50	19.0	4.30	4.42	20.4	3.70	5.51

All ratings based upon 220V operation

All ratings based on new heat pump with clean heat exchangers

9/26/11

Cooling Performance

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
06	4.00	2.80	1.43	5.90	4.10	1.44	8.10	5.60	1.45
08	6.10	3.00	2.03	9.00	4.40	2.05	12.4	6.00	2.07
12	8.20	2.90	2.82	12.0	4.30	2.80	16.6	5.80	2.86
17	11.2	2.60	4.30	16.4	3.80	4.32	22.7	5.20	4.37

All ratings based upon 220V operation

All ratings based on new heat pump with clean heat exchangers

9/26/11

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 = rated load amps
 TC = total cooling capacity in kW
 W = Watt

CONVERSIONS:

$x^{\circ}\text{F} = (x - 32)/1.8^{\circ}\text{C}$
 1 bar = 100 kPa
 1 gpm = 0.0631 L/s

1 US Gallon = 3.785412 L
 1 Btu/h = 0.29037 W

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**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



NSKW06 - Performance Data

Heating

Source		Load Flow - 0.25 L/s							Load Flow - 0.35 L/s							Load Flow - 0.45 L/s						
EST °C	Flow L/s	ELT °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C		
0	0.25	15	20.5	5.73	1.01	4.72	5.67	-4.5	18.9	5.74	0.99	4.75	5.78	-4.5	18.0	5.76	0.98	4.78	5.90	-4.6		
		25	30.3	5.54	1.31	4.22	4.22	-4.0	28.8	5.55	1.29	4.26	4.31	-4.1	27.9	5.56	1.26	4.30	4.40	-4.1		
		40	45.0	5.25	1.76	3.48	2.97	-3.3	43.6	5.26	1.73	3.53	3.04	-3.4	42.8	5.27	1.70	3.57	3.11	-3.4		
		50	54.8	5.05	2.06	2.99	2.45	-2.8	53.4	5.06	2.02	3.04	2.50	-2.9	52.7	5.08	1.99	3.09	2.56	-2.9		
	0.35	15	20.7	5.95	1.02	4.93	5.85	-3.4	19.1	5.96	1.00	4.96	5.96	-3.4	18.2	5.98	0.98	5.00	6.08	-3.4		
		25	30.5	5.72	1.32	4.40	4.33	-3.0	28.9	5.74	1.30	4.44	4.43	-3.0	28.0	5.75	1.27	4.48	4.52	-3.0		
		40	45.1	5.39	1.77	3.61	3.04	-2.5	43.7	5.40	1.74	3.66	3.10	-2.5	42.9	5.41	1.71	3.71	3.17	-2.5		
		50	54.9	5.16	2.08	3.09	2.49	-2.1	53.5	5.18	2.04	3.14	2.54	-2.1	52.7	5.19	2.00	3.19	2.60	-2.2		
	0.45	15	20.9	6.17	1.02	5.14	6.02	-2.7	19.2	6.18	1.01	5.18	6.14	-2.7	18.3	6.20	0.99	5.21	6.26	-2.8		
		25	30.6	5.91	1.33	4.58	4.45	-2.4	29.0	5.93	1.31	4.62	4.54	-2.4	28.1	5.94	1.28	4.66	4.64	-2.5		
		40	45.3	5.53	1.79	3.74	3.10	-2.0	43.8	5.54	1.75	3.79	3.16	-2.0	42.9	5.56	1.72	3.84	3.23	-2.0		
		50	55.0	5.27	2.09	3.18	2.52	-1.7	53.6	5.29	2.05	3.24	2.58	-1.7	52.8	5.30	2.01	3.29	2.64	-1.7		
10	0.25	15	22.1	7.28	1.04	6.24	6.99	3.9	20.1	7.29	1.01	6.28	7.20	3.9	19.0	7.31	0.99	6.33	7.41	3.8		
		25	31.9	7.10	1.35	5.75	5.25	4.4	30.0	7.12	1.32	5.80	5.40	4.3	28.9	7.14	1.28	5.85	5.56	4.3		
		40	46.7	6.84	1.82	5.02	3.75	5.1	44.8	6.86	1.78	5.08	3.86	5.0	43.7	6.88	1.73	5.15	3.98	5.0		
		50	56.5	6.67	2.14	4.53	3.12	5.6	54.7	6.69	2.08	4.60	3.21	5.5	53.6	6.70	2.02	4.68	3.31	5.4		
	0.35	15	22.4	7.56	1.05	6.51	7.21	5.5	20.3	7.57	1.02	6.55	7.42	5.4	19.1	7.59	0.99	6.60	7.65	5.4		
		25	32.2	7.34	1.36	5.98	5.39	5.8	30.1	7.36	1.33	6.04	5.55	5.8	29.0	7.38	1.29	6.09	5.71	5.8		
		40	46.9	7.03	1.83	5.19	3.83	6.4	44.9	7.04	1.79	5.26	3.94	6.3	43.8	7.06	1.74	5.32	4.06	6.3		
		50	56.6	6.81	2.15	4.67	3.17	6.7	54.8	6.83	2.09	4.74	3.26	6.7	53.7	6.85	2.04	4.81	3.36	6.6		
	0.45	15	22.6	7.83	1.05	6.78	7.43	6.3	20.5	7.85	1.03	6.83	7.64	6.3	19.3	7.87	1.00	6.87	7.87	6.3		
		25	32.4	7.59	1.37	6.21	5.53	6.6	30.3	7.60	1.34	6.27	5.69	6.6	29.1	7.62	1.30	6.32	5.86	6.6		
		40	47.0	7.21	1.85	5.36	3.91	7.1	45.0	7.23	1.80	5.43	4.02	7.1	43.9	7.25	1.75	5.50	4.14	7.0		
		50	56.8	6.96	2.16	4.80	3.22	7.4	54.9	6.98	2.11	4.87	3.31	7.4	53.8	7.00	2.05	4.95	3.41	7.3		
20	0.25	15	23.6	8.82	1.08	7.73	8.15	12.5	21.2	8.84	1.05	7.78	8.38	12.4	19.8	8.86	1.03	7.83	8.64	12.4		
		25	33.4	8.62	1.40	7.22	6.15	13.0	31.0	8.64	1.36	7.28	6.33	12.9	29.7	8.66	1.33	7.33	6.53	12.8		
		40	48.1	8.32	1.88	6.44	4.43	13.7	45.8	8.34	1.83	6.51	4.56	13.6	44.5	8.36	1.78	6.58	4.70	13.6		
		50	57.9	8.12	2.19	5.92	3.70	14.2	55.7	8.14	2.14	6.00	3.81	14.1	54.4	8.16	2.08	6.08	3.92	14.1		
	0.35	15	23.9	9.15	1.09	8.06	8.39	14.4	21.4	9.17	1.06	8.11	8.64	14.3	20.0	9.19	1.03	8.16	8.90	14.3		
		25	33.7	8.90	1.41	7.49	6.32	14.8	31.2	8.92	1.37	7.55	6.50	14.7	29.8	8.95	1.34	7.61	6.70	14.7		
		40	48.3	8.53	1.89	6.64	4.52	15.4	46.0	8.56	1.84	6.72	4.65	15.3	44.6	8.58	1.79	6.79	4.79	15.3		
		50	58.1	8.29	2.21	6.08	3.75	15.8	55.8	8.31	2.15	6.16	3.86	15.7	54.5	8.33	2.09	6.24	3.98	15.7		
	0.45	15	24.2	9.48	1.10	8.38	8.64	15.5	21.6	9.50	1.07	8.44	8.89	15.4	20.2	9.53	1.04	8.49	9.16	15.4		
		25	34.0	9.19	1.42	7.77	6.48	15.8	31.4	9.21	1.38	7.83	6.67	15.8	30.0	9.23	1.34	7.89	6.87	15.7		
		40	48.5	8.75	1.90	6.85	4.60	16.3	46.1	8.77	1.85	6.92	4.74	16.2	44.8	8.79	1.80	6.99	4.88	16.2		
		50	58.3	8.46	2.22	6.23	3.80	16.6	55.9	8.48	2.17	6.31	3.92	16.6	54.6	8.50	2.11	6.39	4.03	16.5		
30	0.25	15	24.5	9.70	1.14	8.56	8.49	21.7	21.8	9.72	1.11	8.61	8.74	21.6	20.3	9.75	1.08	8.66	9.00	21.5		
		25	34.3	9.54	1.46	8.07	6.52	22.1	31.7	9.56	1.42	8.14	6.71	22.1	30.2	9.58	1.39	8.20	6.91	22.0		
		40	49.1	9.30	1.94	7.35	4.78	22.8	46.5	9.32	1.89	7.43	4.92	22.8	45.1	9.34	1.84	7.50	5.07	22.7		
		50	Operation not recommended																			
	0.35	15	24.8	10.06	1.15	8.91	8.75	23.8	22.0	10.09	1.12	8.97	9.01	23.8	20.5	10.11	1.09	9.02	9.28	23.7		
		25	34.6	9.85	1.47	8.38	6.69	24.2	31.9	9.88	1.43	8.44	6.89	24.1	30.4	9.90	1.40	8.51	7.09	24.1		
		40	49.3	9.54	1.96	7.58	4.87	24.7	46.7	9.56	1.91	7.65	5.01	24.7	45.2	9.58	1.86	7.73	5.17	24.6		
		50	Operation not recommended																			
	0.45	15	25.2	10.43	1.16	9.27	9.01	25.0	22.3	10.45	1.13	9.33	9.27	24.9	20.7	10.48	1.10	9.38	9.55	24.9		
		25	34.9	10.17	1.48	8.68	6.86	25.3	32.1	10.19	1.44	8.75	7.06	25.3	30.5	10.22	1.41	8.81	7.27	25.2		
		40	49.5	9.78	1.97	7.81	4.96	25.8	46.8	9.80	1.92	7.88	5.11	25.7	45.3	9.82	1.87	7.96	5.26	25.7		
		50	Operation not recommended																			

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Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



NSKW06 - Performance Data cont.

Cooling

Source		Load Flow - 0.25 L/s							Load Flow - 0.35 L/s							Load Flow - 0.45 L/s						
EST °C	Flow L/s	ELT °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C		
0	0.25	10	3.9	6.24	0.78	7.02	7.99	6.8	5.5	6.44	0.78	7.22	8.20	7.0	6.4	6.64	0.79	7.42	8.41	7.2		
		20	11.7	8.46	0.81	9.27	10.42	9.0	13.9	8.73	0.82	9.54	10.69	9.3	15.1	9.00	0.82	9.82	10.97	9.6		
		30	19.6	10.68	0.84	11.52	12.66	11.2	22.3	11.02	0.85	11.86	13.00	11.6	23.8	11.36	0.85	12.21	13.34	11.9		
		45	31.3	14.01	0.89	14.90	15.74	14.5	34.9	14.45	0.89	15.35	16.16	15.0	36.9	14.90	0.90	15.80	16.57	15.4		
	0.35	10	3.8	6.32	0.75	7.07	8.42	4.9	5.5	6.53	0.75	7.28	8.65	5.1	6.4	6.73	0.76	7.49	8.87	5.2		
		20	11.6	8.57	0.78	9.35	11.01	6.5	13.8	8.85	0.78	9.63	11.30	6.7	15.1	9.12	0.79	9.91	11.59	6.9		
		30	19.4	10.82	0.81	11.63	13.41	8.1	22.2	11.17	0.81	11.98	13.77	8.3	23.8	11.52	0.82	12.33	14.12	8.6		
		45	31.1	14.20	0.85	15.05	16.72	10.5	34.8	14.65	0.85	15.51	17.16	10.8	36.8	15.11	0.86	15.97	17.61	11.1		
	0.45	10	3.7	6.41	0.72	7.13	8.89	3.9	5.4	6.61	0.72	7.34	9.13	4.0	6.3	6.82	0.73	7.55	9.36	4.1		
		20	11.5	8.69	0.75	9.44	11.65	5.1	13.7	8.97	0.75	9.72	11.96	5.3	15.0	9.25	0.75	10.00	12.27	5.4		
		30	19.3	10.97	0.77	11.74	14.23	6.4	22.1	11.32	0.78	12.10	14.61	6.6	23.7	11.67	0.78	12.45	14.98	6.7		
		45	31.0	14.40	0.81	15.20	17.79	8.2	34.6	14.85	0.81	15.67	18.27	8.5	36.7	15.31	0.82	16.13	18.74	8.7		
10	0.25	10	4.0	6.18	1.00	7.18	6.17	17.0	5.6	6.37	1.01	7.38	6.33	17.2	6.4	6.57	1.01	7.58	6.50	17.4		
		20	11.7	8.49	1.05	9.54	8.13	19.3	13.9	8.77	1.05	9.82	8.34	19.6	15.1	9.04	1.06	10.09	8.56	19.8		
		30	19.5	10.81	1.09	11.90	9.93	21.6	22.2	11.16	1.09	12.25	10.19	22.0	23.8	11.50	1.10	12.60	10.45	22.3		
		45	31.1	14.29	1.16	15.45	12.37	25.1	34.7	14.75	1.16	15.91	12.70	25.5	36.8	15.20	1.17	16.37	13.02	26.0		
	0.35	10	3.9	6.26	0.96	7.22	6.50	15.0	5.5	6.46	0.97	7.43	6.68	15.2	6.4	6.66	0.97	7.63	6.85	15.3		
		20	11.6	8.61	1.00	9.62	8.59	16.7	13.8	8.89	1.01	9.89	8.82	16.9	15.0	9.16	1.01	10.17	9.05	17.1		
		30	19.3	10.96	1.04	12.01	10.51	18.4	22.1	11.31	1.05	12.36	10.79	18.6	23.7	11.66	1.05	12.72	11.07	18.9		
		45	30.9	14.49	1.10	15.59	13.13	20.9	34.6	14.95	1.11	16.06	13.49	21.2	36.6	15.42	1.11	16.53	13.83	21.5		
	0.45	10	3.8	6.35	0.92	7.27	6.87	13.9	5.4	6.55	0.93	7.48	7.05	14.1	6.3	6.75	0.93	7.69	7.23	14.2		
		20	11.5	8.73	0.96	9.69	9.09	15.3	13.7	9.01	0.97	9.97	9.33	15.4	15.0	9.29	0.97	10.26	9.57	15.6		
		30	19.2	11.11	1.00	12.11	11.15	16.6	22.0	11.47	1.00	12.47	11.45	16.8	23.6	11.82	1.01	12.83	11.75	17.0		
		45	30.7	14.69	1.05	15.74	13.98	18.5	34.4	15.16	1.06	16.21	14.35	18.8	36.5	15.63	1.06	16.69	14.72	19.0		
20	0.25	10	4.4	5.79	1.21	7.00	4.77	26.8	5.8	5.97	1.22	7.19	4.90	27.0	6.7	6.16	1.23	7.38	5.02	27.2		
		20	12.2	7.97	1.27	9.24	6.29	29.0	14.3	8.22	1.27	9.50	6.46	29.3	15.4	8.48	1.28	9.76	6.63	29.5		
		30	20.1	10.16	1.32	11.48	7.69	31.2	22.7	10.48	1.33	11.81	7.90	31.5	24.1	10.80	1.33	12.14	8.10	31.8		
		45	Operation not recommended																			
	0.35	10	4.3	5.85	1.17	7.02	5.02	24.9	5.8	6.04	1.17	7.21	5.15	25.0	6.6	6.23	1.18	7.41	5.28	25.2		
		20	12.1	8.06	1.22	9.27	6.63	26.5	13.9	8.69	1.23	9.92	7.07	26.9	15.4	8.57	1.23	9.80	6.98	26.8		
		30	20.0	10.26	1.26	11.53	8.12	28.0	22.1	11.35	1.29	12.64	8.82	28.8	24.1	10.92	1.28	12.19	8.55	28.5		
		45	Operation not recommended																			
	0.45	10	4.2	5.92	1.12	7.04	5.29	23.8	5.7	6.11	1.13	7.24	5.43	23.9	6.6	6.30	1.13	7.43	5.57	24.0		
		20	12.1	8.15	1.16	9.31	7.00	25.0	14.1	8.41	1.17	9.58	7.18	25.2	15.3	8.67	1.18	9.84	7.37	25.3		
		30	19.9	10.37	1.21	11.58	8.59	26.3	22.5	10.70	1.21	11.92	8.81	26.5	24.0	11.03	1.22	12.25	9.04	26.6		
		45	31.6	13.71	1.27	14.98	10.76	28.1	35.1	14.14	1.28	15.42	11.05	28.4	37.1	14.58	1.29	15.87	11.33	28.6		
30	0.25	10	5.0	5.15	1.48	6.63	3.48	36.5	6.3	5.31	1.49	6.80	3.57	36.6	7.0	5.48	1.49	6.97	3.66	36.8		
		20	13.1	7.09	1.54	8.63	4.61	38.4	14.7	7.65	1.56	9.21	4.91	39.0	15.9	7.54	1.55	9.10	4.85	38.9		
		30	21.2	9.03	1.60	10.63	5.65	40.4	23.0	9.99	1.63	11.61	6.14	41.3	24.8	9.61	1.61	11.22	5.95	40.9		
		45	Operation not recommended																			
	0.35	10	4.9	5.21	1.42	6.63	3.66	34.6	6.3	5.37	1.43	6.80	3.76	34.7	7.0	5.54	1.44	6.98	3.85	34.9		
		20	13.0	7.18	1.48	8.66	4.86	36.0	14.6	7.75	1.49	9.25	5.19	36.4	15.9	7.64	1.49	9.13	5.12	36.4		
		30	21.1	9.16	1.53	10.69	5.99	37.5	22.9	10.14	1.56	11.69	6.51	38.1	24.7	9.75	1.55	11.29	6.30	37.9		
		45	Operation not recommended																			
	0.45	10	4.9	5.26	1.37	6.63	3.85	33.6	6.2	5.43	1.37	6.81	3.96	33.7	7.0	5.60	1.38	6.98	4.06	33.8		
		20	12.9	7.28	1.41	8.69	5.15	34.7	14.5	7.86	1.43	9.29	5.50	35.0	15.8	7.74	1.43	9.17	5.42	35.0		
		30	20.9	9.29	1.46	10.75	6.35	35.8	22.8	10.28	1.49	11.77	6.92	36.4	24.6	9.89	1.48	11.36	6.69	36.2		
		45	Operation not recommended																			
45	0.25	10	5.8	4.27	1.80	6.07	2.38	50.9	6.9	4.41	1.81	6.22	2.44	51.1	7.5	4.55	1.82	6.36	2.50	51.2		
		20	14.1	6.09	1.86	7.95	3.27	52.8	15.4	6.59	1.88	8.47	3.50	53.3	16.5	6.47	1.88	8.35	3.44	53.2		
		30	Operation not recommended																			
		45	Operation not recommended																			
	0.35	10	5.8	4.32	1.73	6.05	2.50	49.2	6.9	4.46	1.74	6.20	2.57	49.3	7.5	4.60	1.75	6.34	2.63	49.4		
		20	14.0	6.15	1.79	7.94	3.44	50.5	15.4	6.66	1.81	8.47	3.68	50.9	16.5	6.54	1.81	8.35	3.62	50.8		
		30	Operation not recommended																			
		45	Operation not recommended																			
	0.45	10	5.7	4.37	1.66	6.03	2.63	48.3	6.9	4.51	1.67	6.18	2.70	48.3	7.5	4.65	1.68	6.32	2.77	48.4		
		20	13.9	6.22	1.72	7.94	3.62	49.3	15.3	6.73	1.74	8.47	3.88	49.6	16.4	6.61	1.74	8.35	3.81	49.5		
		30	Operation not recommended																			
		45	Operation not recommended																			

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



NSKW08 - Performance Data

Heating

Source		Load Flow - 0.30 L/s							Load Flow - 0.50 L/s					Load Flow - 0.65 L/s								
EST °C	Flow L/s	ELT °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C		
0	0.30	15	21.7	8.41	1.34	7.07	6.29	-5.6	19.0	8.43	1.31	7.12	6.43	-5.7	18.1	8.45	1.29	7.16	6.54	-5.7		
		25	31.4	8.12	1.75	6.37	4.64	-5.1	28.9	8.14	1.71	6.43	4.75	-5.1	28.0	8.16	1.69	6.47	4.84	-5.1		
		40	46.1	7.68	2.36	5.32	3.25	-4.2	43.7	7.70	2.31	5.39	3.33	-4.3	42.8	7.72	2.27	5.44	3.39	-4.3		
		50	55.9	7.39	2.77	4.61	2.66	-3.7	53.5	7.41	2.71	4.70	2.73	-3.7	52.7	7.42	2.67	4.76	2.78	-3.8		
	0.50	15	22.0	8.78	1.35	7.43	6.51	-3.5	19.2	8.80	1.32	7.48	6.66	-3.6	18.2	8.82	1.30	7.52	6.77	-3.6		
		25	31.7	8.43	1.76	6.67	4.79	-3.2	29.0	8.46	1.72	6.73	4.90	-3.2	28.1	8.48	1.70	6.78	4.99	-3.2		
		40	46.3	7.92	2.38	5.54	3.33	-2.6	43.8	7.94	2.33	5.61	3.41	-2.7	42.9	7.96	2.29	5.67	3.47	-2.7		
		50	56.0	7.57	2.79	4.78	2.71	-2.3	53.6	7.59	2.73	4.86	2.78	-2.3	52.8	7.61	2.69	4.92	2.83	-2.3		
	0.65	15	22.2	9.05	1.36	7.70	6.68	-2.8	19.3	9.08	1.33	7.75	6.83	-2.8	18.3	9.10	1.31	7.79	6.95	-2.9		
		25	31.9	8.67	1.77	6.90	4.90	-2.5	29.1	8.70	1.73	6.96	5.01	-2.5	28.2	8.71	1.71	7.01	5.10	-2.6		
		40	46.4	8.10	2.39	5.70	3.38	-2.1	43.9	8.12	2.34	5.78	3.47	-2.1	43.0	8.14	2.30	5.83	3.53	-2.1		
		50	56.1	7.71	2.81	4.90	2.75	-1.8	53.7	7.73	2.75	4.99	2.82	-1.8	52.8	7.75	2.70	5.05	2.87	-1.8		
10	0.30	15	23.7	10.68	1.45	9.23	7.35	2.5	20.2	10.71	1.41	9.30	7.60	2.4	19.0	10.73	1.38	9.36	7.80	2.4		
		25	33.5	10.41	1.86	8.56	5.61	3.0	30.1	10.44	1.80	8.64	5.80	3.0	28.9	10.47	1.76	8.71	5.95	2.9		
		40	48.1	10.02	2.46	7.55	4.06	3.9	44.9	10.05	2.39	7.65	4.20	3.8	43.8	10.07	2.34	7.73	4.31	3.7		
		50	57.9	9.75	2.87	6.88	3.40	4.4	54.8	9.78	2.78	7.00	3.51	4.3	53.7	9.80	2.72	7.08	3.60	4.2		
	0.50	15	24.1	11.15	1.46	9.68	7.62	5.3	20.5	11.18	1.42	9.76	7.87	5.2	19.2	11.20	1.39	9.82	8.08	5.2		
		25	33.8	10.82	1.87	8.95	5.78	5.6	30.3	10.85	1.82	9.03	5.98	5.6	29.1	10.87	1.77	9.10	6.13	5.6		
		40	48.4	10.32	2.48	7.84	4.16	6.2	45.1	10.35	2.41	7.95	4.30	6.1	43.9	10.38	2.35	8.02	4.41	6.1		
		50	58.1	10.00	2.89	7.11	3.46	6.5	54.9	10.02	2.80	7.22	3.58	6.5	53.8	10.05	2.74	7.31	3.67	6.4		
	0.65	15	24.3	11.50	1.47	10.03	7.81	6.2	20.6	11.53	1.43	10.10	8.08	6.2	19.3	11.56	1.40	10.16	8.28	6.2		
		25	34.0	11.12	1.88	9.24	5.91	6.5	30.4	11.15	1.83	9.33	6.11	6.5	29.2	11.18	1.78	9.39	6.27	6.5		
		40	48.6	10.56	2.50	8.06	4.23	7.0	45.2	10.59	2.42	8.16	4.37	6.9	44.0	10.61	2.37	8.24	4.48	6.9		
		50	58.3	10.18	2.91	7.27	3.50	7.3	55.0	10.21	2.82	7.39	3.62	7.2	53.8	10.23	2.75	7.48	3.71	7.2		
20	0.30	15	25.5	12.94	1.51	11.43	8.57	10.7	21.3	12.98	1.47	11.51	8.86	10.6	19.9	13.01	1.43	11.57	9.08	10.6		
		25	35.3	12.64	1.92	10.71	6.58	11.3	31.2	12.67	1.86	10.81	6.80	11.2	29.8	12.70	1.82	10.88	6.97	11.2		
		40	49.9	12.18	2.54	9.64	4.80	12.2	46.0	12.21	2.46	9.75	4.96	12.1	44.6	12.24	2.40	9.83	5.09	12.0		
		50	59.7	11.87	2.95	8.92	4.03	12.7	55.8	11.91	2.86	9.05	4.16	12.6	54.5	11.93	2.79	9.14	4.27	12.6		
	0.50	15	26.0	13.50	1.52	11.97	8.87	14.2	21.6	13.54	1.48	12.06	9.17	14.1	20.1	13.56	1.44	12.12	9.40	14.1		
		25	35.7	13.11	1.94	11.18	6.77	14.5	31.4	13.15	1.88	11.27	7.00	14.5	29.9	13.18	1.83	11.34	7.18	14.5		
		40	50.2	12.54	2.56	9.98	4.90	15.1	46.1	12.57	2.48	10.09	5.07	15.1	44.7	12.60	2.42	10.18	5.20	15.0		
		50	59.9	12.16	2.97	9.19	4.09	15.5	55.9	12.19	2.88	9.31	4.23	15.5	54.6	12.22	2.82	9.40	4.34	15.4		
	0.65	15	26.3	13.91	1.53	12.38	9.09	15.4	21.8	13.95	1.49	12.47	9.40	15.3	20.2	13.98	1.45	12.53	9.64	15.3		
		25	36.0	13.47	1.95	11.53	6.92	15.7	31.6	13.51	1.89	11.62	7.15	15.6	30.1	13.54	1.85	11.69	7.34	15.6		
		40	50.4	12.81	2.57	10.24	4.98	16.2	46.3	12.85	2.49	10.35	5.15	16.1	44.8	12.87	2.44	10.44	5.28	16.1		
		50	60.1	12.37	2.99	9.38	4.14	16.5	56.1	12.40	2.90	9.50	4.28	16.4	54.7	12.43	2.83	9.60	4.39	16.4		
30	0.30	15	26.6	14.23	1.59	12.64	8.93	19.7	22.0	14.27	1.55	12.73	9.23	19.7	20.4	14.31	1.51	12.80	9.47	19.6		
		25	36.4	13.98	2.01	11.98	6.97	20.3	31.8	14.02	1.95	12.08	7.20	20.2	30.3	14.05	1.90	12.15	7.39	20.1		
		40	Operation not recommended																			
		50	Operation not recommended																			
	0.50	15	27.1	14.85	1.61	13.24	9.25	23.5	22.3	14.89	1.56	13.33	9.56	23.5	20.6	14.92	1.52	13.40	9.80	23.5		
		25	36.8	14.51	2.02	12.49	7.17	23.9	32.1	14.55	1.96	12.59	7.42	23.9	30.5	14.58	1.92	12.67	7.61	23.8		
		40	51.4	14.01	2.65	11.36	5.29	24.5	46.9	14.05	2.57	11.48	5.47	24.4	45.3	14.08	2.51	11.57	5.61	24.4		
		50	Operation not recommended																			
	0.65	15	27.4	15.31	1.61	13.69	9.48	24.9	22.5	15.35	1.57	13.78	9.80	24.8	20.8	15.38	1.53	13.85	10.05	24.8		
		25	37.1	14.91	2.03	12.87	7.33	25.2	32.3	14.95	1.97	12.98	7.57	25.1	30.6	14.98	1.93	13.05	7.77	25.1		
		40	51.6	14.31	2.66	11.65	5.37	25.6	47.0	14.35	2.58	11.77	5.55	25.6	45.4	14.38	2.52	11.86	5.70	25.6		
		50	Operation not recommended																			

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



NSKW08 - Performance Data cont.

Cooling

Source		Load Flow - 0.30 L/s							Load Flow - 0.50 L/s							Load Flow - 0.65 L/s						
EST °C	Flow L/s	ELT °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C		
0	0.30	10	2.3	9.47	1.10	10.57	8.58	8.6	5.2	9.81	1.11	10.92	8.84	8.9	6.2	10.07	1.11	11.19	9.04	9.1		
		20	10.0	12.27	1.12	13.40	10.92	10.9	13.8	12.72	1.13	13.85	11.25	11.3	15.1	13.06	1.14	14.19	11.50	11.5		
		30	17.7	15.08	1.15	16.22	13.16	13.2	22.4	15.63	1.15	16.78	13.57	13.6	24.0	16.04	1.16	17.20	13.86	14.0		
		45	29.3	19.29	1.18	20.46	16.39	16.6	35.2	19.99	1.18	21.17	16.89	17.2	37.3	20.52	1.19	21.71	17.26	17.6		
	0.50	10	2.2	9.62	1.05	10.67	9.12	5.2	5.1	9.97	1.06	11.03	9.39	5.4	6.2	10.23	1.07	11.30	9.60	5.5		
		20	9.9	12.47	1.07	13.54	11.63	6.6	13.7	12.92	1.08	14.00	11.98	6.8	15.0	13.26	1.08	14.35	12.24	7.0		
		30	17.5	15.32	1.09	16.41	14.06	8.0	22.3	15.88	1.10	16.97	14.48	8.3	23.9	16.30	1.10	17.40	14.80	8.5		
		45	29.1	19.59	1.12	20.71	17.56	10.1	35.1	20.31	1.12	21.43	18.09	10.5	37.2	20.84	1.13	21.97	18.49	10.7		
	0.65	10	2.1	9.73	1.02	10.75	9.55	4.0	5.1	10.08	1.02	11.11	9.84	4.2	6.1	10.35	1.03	11.38	10.06	4.3		
		20	9.7	12.61	1.03	13.65	12.21	5.1	13.6	13.07	1.04	14.11	12.58	5.3	15.0	13.42	1.04	14.46	12.86	5.4		
		30	17.4	15.50	1.05	16.54	14.79	6.2	22.2	16.06	1.05	17.12	15.24	6.4	23.8	16.49	1.06	17.54	15.57	6.6		
		45	28.9	19.82	1.07	20.89	18.52	7.8	35.0	20.55	1.08	21.62	19.09	8.1	37.1	21.09	1.08	22.17	19.51	8.3		
10	0.30	10	2.4	9.37	1.41	10.79	6.63	18.8	5.3	9.72	1.42	11.14	6.83	19.1	6.3	9.97	1.43	11.40	6.98	19.3		
		20	10.0	12.32	1.45	13.77	8.51	21.2	13.8	12.77	1.46	14.22	8.77	21.6	15.1	13.10	1.46	14.57	8.97	21.8		
		30	17.6	15.26	1.48	16.74	10.32	23.6	22.3	15.82	1.49	17.31	10.63	24.1	23.9	16.24	1.49	17.73	10.86	24.4		
		45	29.0	19.68	1.53	21.21	12.87	27.2	35.0	20.40	1.54	21.94	13.27	27.8	37.1	20.94	1.54	22.48	13.56	28.3		
	0.50	10	2.3	9.52	1.35	10.87	7.04	15.3	5.2	9.87	1.36	11.23	7.26	15.5	6.2	10.13	1.37	11.50	7.41	15.6		
		20	9.8	12.51	1.38	13.89	9.07	16.8	13.7	12.97	1.39	14.36	9.34	17.0	15.0	13.31	1.39	14.71	9.55	17.2		
		30	17.4	15.51	1.41	16.91	11.01	18.3	22.2	16.07	1.42	17.49	11.35	18.5	23.8	16.50	1.42	17.92	11.60	18.7		
		45	28.7	19.99	1.45	21.44	13.80	20.5	34.9	20.72	1.46	22.18	14.22	20.8	37.0	21.27	1.46	22.73	14.53	21.1		
	0.65	10	2.2	9.63	1.31	10.94	7.38	14.1	5.1	9.98	1.31	11.30	7.60	14.2	6.2	10.25	1.32	11.57	7.77	14.3		
		20	9.7	12.66	1.33	13.99	9.52	15.2	13.6	13.12	1.34	14.46	9.81	15.4	14.9	13.47	1.34	14.81	10.03	15.6		
		30	17.2	15.69	1.35	17.04	11.59	16.4	22.1	16.26	1.36	17.62	11.94	16.6	23.7	16.69	1.37	18.06	12.20	16.8		
		45	28.6	20.23	1.39	21.62	14.55	18.1	34.8	20.96	1.40	22.36	15.00	18.4	36.9	21.52	1.40	22.92	15.33	18.6		
20	0.30	10	2.9	8.78	1.71	10.50	5.12	28.5	5.6	9.10	1.72	10.83	5.28	28.8	6.5	9.34	1.73	11.07	5.39	29.0		
		20	10.6	11.56	1.75	13.31	6.59	30.8	14.2	11.98	1.76	13.74	6.79	31.2	15.4	12.30	1.77	14.07	6.94	31.4		
		30	18.3	14.33	1.79	16.13	7.99	33.1	22.8	14.86	1.80	16.66	8.24	33.5	24.3	15.25	1.81	17.06	8.42	33.9		
		45	Operation not recommended																			
	0.50	10	2.8	8.90	1.64	10.54	5.43	25.1	5.5	9.22	1.65	10.87	5.59	25.3	6.4	9.47	1.66	11.12	5.72	25.4		
		20	10.5	11.70	1.67	13.38	7.00	26.5	13.8	12.61	1.69	14.30	7.47	27.0	15.3	12.45	1.69	14.14	7.37	26.9		
		30	18.2	14.51	1.71	16.21	8.50	27.9	22.2	16.00	1.73	17.73	9.26	28.6	24.2	15.43	1.72	17.16	8.95	28.4		
		45	Operation not recommended																			
	0.65	10	2.7	8.99	1.58	10.57	5.68	24.0	5.5	9.32	1.59	10.91	5.85	24.1	6.4	9.56	1.60	11.16	5.98	24.2		
		20	10.4	11.81	1.61	13.43	7.33	25.0	14.0	12.24	1.62	13.87	7.55	25.2	15.3	12.57	1.63	14.20	7.72	25.3		
		30	18.1	14.64	1.64	16.28	8.92	26.1	22.6	15.17	1.65	16.82	9.19	26.3	24.2	15.57	1.66	17.23	9.39	26.5		
		45	29.7	18.87	1.68	20.56	11.20	27.7	35.5	19.56	1.69	21.26	11.55	28.0	37.5	20.08	1.70	21.78	11.80	28.2		
30	0.30	10	3.6	7.81	2.09	9.90	3.74	38.1	6.0	8.10	2.10	10.20	3.85	38.3	6.9	8.31	2.11	10.42	3.94	38.5		
		20	11.6	10.27	2.13	12.40	4.82	40.1	14.6	11.07	2.15	13.22	5.15	40.7	15.9	10.93	2.15	13.08	5.08	40.6		
		30	19.7	12.73	2.17	14.90	5.86	42.1	23.2	14.04	2.20	16.24	6.39	43.2	24.9	13.54	2.19	15.73	6.17	42.8		
		45	Operation not recommended																			
	0.50	10	3.6	7.91	2.00	9.91	3.96	34.8	6.0	8.20	2.01	10.21	4.08	35.0	6.8	8.42	2.02	10.44	4.17	35.1		
		20	11.5	10.43	2.03	12.46	5.13	36.1	14.5	11.24	2.05	13.29	5.48	36.5	15.8	11.09	2.05	13.14	5.40	36.4		
		30	19.5	12.94	2.07	15.00	6.26	37.3	23.0	14.28	2.09	16.36	6.83	38.0	24.8	13.76	2.09	15.85	6.59	37.7		
		45	Operation not recommended																			
	0.65	10	3.5	7.99	1.93	9.92	4.14	33.7	6.0	8.28	1.94	10.22	4.27	33.8	6.8	8.50	1.95	10.45	4.36	33.9		
		20	11.4	10.54	1.96	12.50	5.38	34.7	14.5	11.37	1.97	13.34	5.76	35.0	15.8	11.21	1.98	13.19	5.67	35.0		
		30	19.4	13.09	1.99	15.08	6.59	35.7	23.0	14.45	2.01	16.46	7.20	36.2	24.8	13.93	2.01	15.94	6.94	36.0		
		45	Operation not recommended																			
45	0.30	10	4.7	6.49	2.54	9.03	2.55	52.3	6.7	6.72	2.55	9.28	2.63	52.5	7.4	6.90	2.57	9.47	2.69	52.7		
		20	12.8	8.80	2.58	11.38	3.41	54.3	15.4	9.52	2.60	12.12	3.66	54.9	16.5	9.36	2.60	11.97	3.60	54.7		
		30	Operation not recommended																			
		45	Operation not recommended																			
	0.50	10	4.7	6.57	2.43	9.00	2.70	49.4	6.7	6.81	2.44	9.25	2.79	49.5	7.4	6.99	2.45	9.44	2.85	49.6		
		20	12.8	8.91	2.46	11.37	3.62	50.5	15.3	9.64	2.48	12.12	3.88	50.9	16.4	9.48	2.49	11.97	3.81	50.8		
		30	Operation not recommended																			
		45	Operation not recommended																			
	0.65	10	4.6	6.63	2.35	8.98	2.83	48.4	6.6	6.87	2.36	9.23	2.91	48.5	7.4	7.06	2.37	9.42	2.98	48.5		
		20	12.7	8.99	2.38	11.37	3.78	49.3	15.3	9.73	2.40	12.13	4.05	49.6	16.4	9.57	2.40	11.97	3.98	49.5		
		30	Operation not recommended																			
		45	Operation not recommended																			

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



NSKW12 - Performance Data

Heating

Source		Load Flow - 0.50 L/s							Load Flow - 0.75 L/s					Load Flow - 1.00 L/s							
EST °C	Flow L/s	ELT °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	
0	0.50	15	20.4	11.27	1.63	9.64	6.90	-4.6	18.6	11.30	1.61	9.70	7.04	-4.6	17.7	11.33	1.58	9.75	7.18	-4.6	
		25	30.3	11.10	2.27	8.84	4.90	-4.2	28.5	11.13	2.23	8.90	5.00	-4.2	27.7	11.16	2.19	8.97	5.11	-4.3	
		40	45.2	10.85	3.22	7.63	3.37	-3.6	43.5	10.87	3.16	7.72	3.44	-3.7	42.6	10.90	3.10	7.80	3.52	-3.7	
		50	55.1	10.68	3.85	6.82	2.77	-3.2	53.4	10.70	3.78	6.92	2.83	-3.3	52.6	10.73	3.70	7.03	2.90	-3.3	
	0.75	15	20.6	11.71	1.64	10.06	7.12	-3.2	18.7	11.74	1.62	10.12	7.26	-3.2	17.8	11.77	1.59	10.18	7.40	-3.2	
		25	30.5	11.48	2.28	9.20	5.03	-2.9	28.7	11.51	2.24	9.27	5.13	-2.9	27.7	11.54	2.20	9.34	5.24	-3.0	
		40	45.3	11.14	3.24	7.90	3.44	-2.5	43.5	11.17	3.18	7.99	3.51	-2.5	42.7	11.19	3.12	8.08	3.59	-2.6	
		50	55.2	10.91	3.88	7.03	2.81	-2.2	53.5	10.94	3.80	7.14	2.88	-2.3	52.6	10.96	3.73	7.24	2.94	-2.3	
	1.00	15	20.8	12.14	1.66	10.48	7.33	-2.5	18.9	12.17	1.63	10.54	7.48	-2.5	17.9	12.20	1.60	10.60	7.62	-2.5	
		25	30.6	11.85	2.30	9.56	5.16	-2.3	28.8	11.88	2.26	9.63	5.27	-2.3	27.8	11.91	2.21	9.70	5.38	-2.3	
		40	45.4	11.43	3.26	8.17	3.51	-1.9	43.6	11.46	3.20	8.26	3.58	-2.0	42.7	11.49	3.14	8.35	3.66	-2.0	
		50	55.3	11.14	3.90	7.24	2.86	-1.7	53.5	11.17	3.83	7.35	2.92	-1.7	52.7	11.20	3.75	7.45	2.99	-1.8	
10	0.50	15	22.0	14.32	1.68	12.64	8.51	3.8	19.7	14.35	1.64	12.72	8.76	3.8	18.5	14.39	1.59	12.79	9.03	3.8	
		25	31.9	14.07	2.33	11.74	6.04	4.3	29.6	14.11	2.27	11.84	6.22	4.2	28.4	14.14	2.21	11.93	6.41	4.2	
		40	46.7	13.70	3.30	10.40	4.15	4.9	44.5	13.73	3.21	10.52	4.27	4.9	43.4	13.77	3.13	10.64	4.40	4.8	
		50	56.6	13.45	3.95	9.51	3.41	5.4	54.4	13.49	3.84	9.64	3.51	5.3	53.3	13.52	3.74	9.78	3.61	5.2	
	0.75	15	22.3	14.87	1.69	13.17	8.78	5.7	19.8	14.90	1.65	13.25	9.04	5.7	18.6	14.94	1.61	13.34	9.31	5.7	
		25	32.1	14.55	2.34	12.20	6.21	6.0	29.7	14.58	2.28	12.30	6.39	6.0	28.6	14.62	2.22	12.40	6.58	6.0	
		40	46.9	14.07	3.32	10.75	4.24	6.5	44.6	14.10	3.23	10.87	4.36	6.5	43.4	14.14	3.15	10.99	4.49	6.4	
		50	56.7	13.75	3.97	9.78	3.46	6.8	54.5	13.78	3.87	9.91	3.56	6.8	53.4	13.82	3.76	10.05	3.67	6.7	
	1.00	15	22.5	15.42	1.70	13.71	9.04	6.7	20.0	15.46	1.66	13.79	9.31	6.6	18.8	15.49	1.62	13.88	9.59	6.6	
		25	32.3	15.02	2.36	12.66	6.37	6.9	29.9	15.06	2.30	12.76	6.55	6.9	28.7	15.10	2.24	12.86	6.75	6.9	
		40	47.0	14.43	3.34	11.09	4.32	7.3	44.7	14.47	3.25	11.22	4.45	7.3	43.5	14.51	3.17	11.34	4.58	7.2	
		50	56.8	14.04	4.00	10.05	3.51	7.5	54.6	14.08	3.89	10.19	3.62	7.5	53.4	14.11	3.79	10.32	3.73	7.5	
20	0.50	15	23.5	17.35	1.75	15.60	9.92	12.4	20.7	17.39	1.70	15.69	10.21	12.3	19.3	17.44	1.66	15.78	10.52	12.3	
		25	33.3	17.07	2.41	14.66	7.09	12.8	30.6	17.11	2.35	14.77	7.30	12.8	29.2	17.16	2.28	14.87	7.52	12.7	
		40	48.1	16.66	3.40	13.26	4.90	13.5	45.4	16.70	3.31	13.39	5.05	13.5	44.1	16.74	3.22	13.52	5.20	13.4	
		50	58.0	16.38	4.05	12.32	4.04	14.0	55.3	16.42	3.95	12.47	4.16	13.9	54.0	16.46	3.84	12.62	4.28	13.8	
	0.75	15	23.8	18.00	1.76	16.24	10.22	14.7	20.9	18.05	1.72	16.33	10.52	14.7	19.4	18.09	1.67	16.42	10.84	14.7	
		25	33.6	17.63	2.42	15.21	7.28	15.1	30.7	17.68	2.36	15.32	7.49	15.0	29.3	17.72	2.30	15.43	7.71	15.0	
		40	48.3	17.09	3.42	13.67	5.00	15.6	45.6	17.13	3.33	13.80	5.15	15.5	44.2	17.17	3.24	13.93	5.30	15.5	
		50	58.2	16.72	4.08	12.64	4.10	15.9	55.5	16.76	3.97	12.79	4.22	15.8	54.1	16.80	3.87	12.93	4.34	15.8	
	1.00	15	24.1	18.65	1.77	16.88	10.52	15.9	21.1	18.70	1.73	16.97	10.83	15.9	19.6	18.75	1.68	17.07	11.16	15.8	
		25	33.9	18.20	2.44	15.76	7.46	16.2	30.9	18.24	2.38	15.87	7.68	16.1	29.5	18.29	2.31	15.98	7.91	16.1	
		40	48.5	17.52	3.44	14.08	5.09	16.6	45.7	17.56	3.35	14.21	5.24	16.5	44.3	17.60	3.26	14.34	5.40	16.5	
		50	58.3	17.06	4.11	12.95	4.15	16.8	55.6	17.10	4.00	13.10	4.28	16.8	54.2	17.15	3.89	13.25	4.40	16.8	
30	0.50	15	24.3	19.08	1.85	17.24	10.34	21.6	21.2	19.13	1.80	17.33	10.64	21.5	19.7	19.18	1.75	17.43	10.96	21.5	
		25	34.2	18.90	2.51	16.38	7.52	22.0	31.2	18.94	2.45	16.49	7.74	22.0	29.6	18.99	2.38	16.61	7.97	21.9	
		40	49.1	18.61	3.52	15.10	5.29	22.6	46.1	18.66	3.42	15.24	5.45	22.6	44.6	18.71	3.33	15.37	5.61	22.5	
		50	Operation not recommended																		
	0.75	15	24.7	19.80	1.86	17.94	10.66	24.2	21.5	19.85	1.81	18.04	10.97	24.1	19.9	19.90	1.76	18.14	11.30	24.1	
		25	34.5	19.52	2.53	16.99	7.71	24.5	31.4	19.57	2.46	17.10	7.94	24.4	29.8	19.62	2.40	17.22	8.18	24.4	
		40	49.3	19.09	3.54	15.55	5.39	24.9	46.2	19.14	3.45	15.69	5.55	24.9	44.7	19.19	3.36	15.83	5.72	24.9	
		50	Operation not recommended																		
	1.00	15	25.0	20.52	1.87	18.65	10.97	25.5	21.7	20.57	1.82	18.75	11.29	25.4	20.0	20.62	1.77	18.85	11.63	25.4	
		25	34.8	20.14	2.55	17.59	7.91	25.7	31.6	20.19	2.48	17.71	8.14	25.7	29.9	20.24	2.41	17.83	8.38	25.7	
		40	49.5	19.57	3.56	16.01	5.49	26.1	46.4	19.62	3.47	16.15	5.65	26.1	44.8	19.67	3.38	16.29	5.82	26.0	
		50	Operation not recommended																		

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



NSKW12 - Performance Data cont.

Cooling

Source		Load Flow - 0.50 L/s							Load Flow - 0.75 L/s							Load Flow - 1.00 L/s						
EST °C	Flow L/s	ELT °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C		
0	0.50	10	3.9	12.47	1.53	14.00	8.17	6.8	5.8	12.87	1.54	14.41	8.38	7.0	6.8	13.27	1.54	14.81	8.60	7.2		
		20	11.7	17.01	1.57	18.58	10.81	9.1	14.3	17.55	1.58	19.13	11.10	9.3	15.6	18.09	1.59	19.68	11.38	9.6		
		30	19.5	21.54	1.62	23.16	13.30	11.3	22.8	22.22	1.63	23.85	13.66	11.6	24.4	22.91	1.64	24.55	14.01	12.0		
		45	31.2	28.33	1.69	30.02	16.78	14.6	35.5	29.24	1.70	30.93	17.23	15.1	37.6	30.14	1.71	31.85	17.68	15.5		
	0.75	10	3.8	12.65	1.47	14.12	8.61	4.6	5.8	13.05	1.48	14.53	8.84	4.7	6.7	13.45	1.48	14.94	9.07	4.9		
		20	11.6	17.24	1.51	18.75	11.42	6.1	14.2	17.79	1.52	19.31	11.73	6.3	15.5	18.34	1.52	19.87	12.03	6.5		
		30	19.3	21.84	1.55	23.39	14.08	7.6	22.7	22.53	1.56	24.09	14.46	7.8	24.3	23.23	1.57	24.80	14.83	8.1		
		45	31.0	28.73	1.61	30.34	17.83	9.9	35.4	29.64	1.62	31.26	18.30	10.2	37.5	30.56	1.63	32.19	18.78	10.5		
	1.00	10	3.7	12.82	1.41	14.23	9.09	3.5	5.7	13.23	1.42	14.65	9.33	3.6	6.7	13.64	1.42	15.06	9.57	3.7		
		20	11.5	17.48	1.45	18.92	12.09	4.6	14.1	18.03	1.45	19.49	12.41	4.8	15.5	18.59	1.46	20.05	12.73	4.9		
		30	19.2	22.13	1.48	23.62	14.94	5.8	22.6	22.84	1.49	24.33	15.34	5.9	24.3	23.55	1.50	25.04	15.74	6.1		
		45	30.8	29.12	1.53	30.65	18.98	7.5	35.2	30.05	1.54	31.59	19.48	7.7	37.4	30.98	1.55	32.53	19.98	7.9		
10	0.50	10	4.0	12.35	1.96	14.31	6.31	17.0	5.9	12.74	1.97	14.71	6.48	17.2	6.8	13.14	1.98	15.12	6.64	17.4		
		20	11.7	17.08	2.03	19.11	8.43	19.3	14.3	17.63	2.04	19.66	8.66	19.6	15.6	18.17	2.05	20.22	8.88	19.9		
		30	19.4	21.81	2.09	23.91	10.43	21.7	22.7	22.51	2.10	24.61	10.71	22.0	24.3	23.21	2.11	25.32	10.98	22.4		
		45	30.9	28.91	2.19	31.10	13.19	25.2	35.3	29.83	2.20	32.04	13.54	25.6	37.5	30.76	2.21	32.97	13.89	26.1		
	0.75	10	3.9	12.52	1.88	14.41	6.65	14.7	5.8	12.92	1.89	14.81	6.83	14.8	6.8	13.32	1.90	15.22	7.00	15.0		
		20	11.6	17.32	1.94	19.26	8.91	16.3	14.2	17.87	1.95	19.82	9.15	16.4	15.5	18.42	1.96	20.39	9.39	16.6		
		30	19.2	22.12	2.00	24.12	11.04	17.8	22.6	22.82	2.01	24.84	11.34	18.1	24.3	23.53	2.02	25.55	11.63	18.3		
		45	30.7	29.31	2.09	31.41	14.01	20.2	35.2	30.25	2.10	32.35	14.38	20.5	37.4	31.18	2.11	33.30	14.75	20.8		
	1.00	10	3.8	12.69	1.81	14.50	7.02	13.5	5.7	13.10	1.82	14.92	7.21	13.6	6.7	13.50	1.83	15.33	7.39	13.7		
		20	11.4	17.56	1.86	19.42	9.43	14.7	14.1	18.12	1.87	19.99	9.69	14.9	15.4	18.68	1.88	20.56	9.94	15.0		
		30	19.1	22.42	1.91	24.33	11.71	15.9	22.5	23.13	1.92	25.06	12.03	16.1	24.2	23.85	1.93	25.78	12.34	16.3		
		45	30.5	29.71	1.99	31.71	14.91	17.7	35.0	30.66	2.00	32.67	15.31	18.0	37.3	31.61	2.01	33.62	15.70	18.2		
20	0.50	10	4.4	11.57	2.37	13.95	4.87	26.8	6.1	11.94	2.39	14.33	5.01	27.0	7.0	12.31	2.40	14.71	5.13	27.2		
		20	12.2	16.03	2.45	18.48	6.53	29.0	14.6	16.54	2.47	19.01	6.70	29.3	15.8	17.05	2.48	19.53	6.88	29.5		
		30	20.0	20.49	2.54	23.02	8.08	31.2	23.1	21.14	2.55	23.69	8.29	31.6	24.7	21.79	2.56	24.35	8.51	31.9		
		45	Operation not recommended																			
	0.75	10	4.3	11.71	2.28	13.99	5.13	24.5	6.1	12.08	2.29	14.38	5.27	24.7	7.0	12.46	2.31	14.76	5.40	24.8		
		20	12.1	16.21	2.36	18.56	6.88	26.0	14.3	17.50	2.38	19.88	7.35	26.5	15.8	17.24	2.38	19.62	7.25	26.4		
		30	19.9	20.70	2.43	23.13	8.53	27.5	22.5	22.91	2.46	25.37	9.30	28.3	24.6	22.02	2.45	24.48	8.98	28.0		
		45	Operation not recommended																			
	1.00	10	4.2	11.84	2.19	14.04	5.40	23.4	6.0	12.22	2.20	14.42	5.55	23.5	6.9	12.60	2.21	14.81	5.69	23.6		
		20	12.0	16.38	2.26	18.64	7.26	24.5	14.5	16.90	2.27	19.17	7.46	24.7	15.7	17.43	2.28	19.71	7.65	24.8		
		30	19.8	20.92	2.32	23.24	9.02	25.7	23.0	21.59	2.33	23.92	9.26	25.8	24.6	22.25	2.34	24.60	9.50	26.0		
		45	31.5	27.73	2.42	30.14	11.48	27.4	35.7	28.61	2.43	31.04	11.78	27.6	37.8	29.50	2.44	31.94	12.09	27.8		
30	0.50	10	5.0	10.30	2.89	13.19	3.56	36.4	6.5	10.62	2.91	13.53	3.65	36.6	7.3	10.95	2.92	13.88	3.75	36.8		
		20	13.0	14.26	2.98	17.24	4.78	38.4	15.0	15.39	3.01	18.41	5.11	39.0	16.3	15.17	3.01	18.18	5.03	38.9		
		30	21.1	18.22	3.07	21.29	5.93	40.4	23.4	20.16	3.12	23.28	6.47	41.4	25.3	19.38	3.10	22.48	6.25	41.0		
		45	Operation not recommended																			
	0.75	10	4.9	10.41	2.78	13.20	3.74	34.3	6.5	10.74	2.80	13.54	3.84	34.4	7.3	11.08	2.81	13.89	3.94	34.5		
		20	13.0	14.45	2.86	17.31	5.05	35.6	14.9	15.60	2.89	18.49	5.40	36.0	16.3	15.37	2.89	18.26	5.32	35.9		
		30	21.0	18.48	2.94	21.42	6.29	37.0	23.3	20.46	2.98	23.44	6.87	37.6	25.2	19.66	2.97	22.63	6.62	37.4		
		45	Operation not recommended																			
	1.00	10	4.9	10.53	2.67	13.20	3.94	33.2	6.5	10.86	2.69	13.55	4.04	33.3	7.3	11.20	2.70	13.90	4.15	33.4		
		20	12.9	14.64	2.74	17.38	5.34	34.2	14.9	15.81	2.77	18.58	5.72	34.5	16.2	15.57	2.77	18.34	5.62	34.5		
		30	20.9	18.75	2.81	21.56	6.67	35.3	23.2	20.76	2.85	23.60	7.29	35.8	25.1	19.94	2.84	22.78	7.03	35.6		
		45	Operation not recommended																			
45	0.50	10	5.8	8.55	3.52	12.06	2.43	50.9	7.1	8.82	3.54	12.35	2.49	51.0	7.8	9.09	3.55	12.64	2.56	51.2		
		20	14.0	12.24	3.61	15.85	3.39	52.7	15.7	13.27	3.64	16.91	3.65	53.2	16.8	13.02	3.64	16.67	3.57	53.1		
		30	Operation not recommended																			
		45	Operation not recommended																			
	0.75	10	5.8	8.64	3.38	12.02	2.55	48.9	7.1	8.92	3.40	12.32	2.62	49.0	7.8	9.19	3.42	12.61	2.69	49.1		
		20	14.0	12.37	3.47	15.84	3.57	50.2	15.6	13.41	3.50	16.91	3.83	50.5	16.8	13.16	3.50	16.67	3.76	50.4		
		30	Operation not recommended																			
		45	Operation not recommended																			
	1.00	10	5.7	8.74	3.25	11.99	2.69	47.9	7.1	9.02	3.26	12.28	2.76	48.0	7.7	9.30	3.28	12.58	2.83	48.1		
		20	13.9	12.50	3.33	15.83	3.75	48.9	15.6	13.55	3.36	16.91	4.03	49.1	16.8	13.30	3.36	16.67	3.95	49.1		
		30	Operation not recommended																			
		45	Operation not recommended																			

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



NSKW17 - Performance Data

Heating

Source		Load Flow - 0.60 L/s							Load Flow - 0.90 L/s					Load Flow - 1.20 L/s							
EST °C	Flow L/s	ELT °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	LLT °C	HC kW	Power kW	HE kW	COP	LST °C	
0	0.60	15	21.4	16.08	3.01	13.07	5.34	-5.2	19.3	16.12	2.96	13.16	5.44	-5.2	18.2	16.16	2.91	13.25	5.55	-5.3	
		25	31.3	15.76	3.85	11.92	4.10	-4.7	29.2	15.80	3.78	12.02	4.18	-4.8	28.1	15.84	3.71	12.13	4.27	-4.8	
		40	46.1	15.28	5.09	10.19	3.00	-4.0	44.1	15.32	5.00	10.32	3.07	-4.1	43.0	15.36	4.90	10.46	3.13	-4.2	
		50	55.9	14.97	5.93	9.04	2.53	-3.6	54.0	15.00	5.81	9.19	2.58	-3.6	53.0	15.04	5.70	9.34	2.64	-3.7	
	0.90	15	21.6	16.70	3.03	13.66	5.51	-3.6	19.4	16.74	2.98	13.76	5.61	-3.6	18.3	16.78	2.93	13.85	5.73	-3.7	
		25	31.5	16.30	3.87	12.42	4.21	-3.3	29.3	16.34	3.80	12.54	4.30	-3.3	28.2	16.38	3.73	12.65	4.39	-3.3	
		40	46.2	15.69	5.13	10.57	3.06	-2.8	44.2	15.73	5.03	10.70	3.13	-2.8	43.1	15.77	4.93	10.84	3.20	-2.9	
		50	56.1	15.29	5.96	9.33	2.56	-2.5	54.1	15.33	5.85	9.48	2.62	-2.5	53.0	15.37	5.73	9.64	2.68	-2.5	
	1.20	15	21.9	17.31	3.05	14.26	5.67	-2.8	19.6	17.36	3.00	14.35	5.78	-2.8	18.5	17.40	2.95	14.45	5.90	-2.9	
		25	31.7	16.83	3.90	12.93	4.32	-2.6	29.5	16.87	3.83	13.05	4.41	-2.6	28.4	16.91	3.76	13.16	4.50	-2.6	
		40	46.4	16.10	5.16	10.95	3.12	-2.2	44.3	16.15	5.06	11.08	3.19	-2.2	43.2	16.19	4.96	11.22	3.26	-2.2	
		50	56.2	15.62	6.00	9.62	2.60	-1.9	54.1	15.66	5.89	9.78	2.66	-1.9	53.1	15.70	5.77	9.93	2.72	-2.0	
10	0.60	15	23.6	21.22	3.10	18.12	6.84	2.6	20.8	21.28	3.02	18.26	7.04	2.6	19.3	21.33	2.94	18.39	7.26	2.5	
		25	33.4	20.68	3.95	16.73	5.23	3.2	30.6	20.73	3.85	16.88	5.39	3.1	29.2	20.78	3.74	17.04	5.55	3.1	
		40	48.1	19.85	5.22	14.63	3.80	4.1	45.4	19.90	5.09	14.82	3.91	4.0	44.1	19.95	4.95	15.00	4.03	3.9	
		50	57.8	19.31	6.07	13.23	3.18	4.6	55.2	19.35	5.91	13.44	3.27	4.5	53.9	19.40	5.76	13.65	3.37	4.5	
	0.90	15	24.0	22.04	3.12	18.92	7.06	4.9	21.0	22.09	3.04	19.05	7.27	4.8	19.5	22.15	2.96	19.19	7.48	4.8	
		25	33.7	21.38	3.98	17.40	5.38	5.3	30.8	21.43	3.87	17.56	5.53	5.2	29.4	21.49	3.77	17.72	5.70	5.2	
		40	48.3	20.39	5.26	15.13	3.88	5.9	45.5	20.44	5.12	15.32	3.99	5.8	44.2	20.49	4.98	15.51	4.11	5.8	
		50	58.0	19.73	6.11	13.62	3.23	6.3	55.4	19.78	5.95	13.83	3.32	6.3	54.0	19.83	5.79	14.04	3.42	6.2	
	1.20	15	24.3	22.85	3.14	19.71	7.27	6.0	21.2	22.91	3.06	19.85	7.48	6.0	19.7	22.97	2.98	19.99	7.71	5.9	
		25	34.0	22.08	4.00	18.08	5.52	6.3	31.0	22.14	3.90	18.24	5.68	6.3	29.5	22.19	3.79	18.40	5.85	6.3	
		40	48.5	20.92	5.29	15.63	3.96	6.8	45.7	20.98	5.15	15.82	4.07	6.8	44.3	21.03	5.01	16.01	4.19	6.7	
		50	58.2	20.15	6.15	14.00	3.28	7.2	55.5	20.20	5.99	14.21	3.37	7.1	54.1	20.25	5.83	14.43	3.48	7.1	
20	0.60	15	25.5	25.72	3.23	22.49	7.97	10.9	22.0	25.78	3.14	22.64	8.21	10.8	20.3	25.85	3.06	22.79	8.45	10.7	
		25	35.2	25.08	4.09	21.00	6.14	11.5	31.8	25.15	3.98	21.17	6.32	11.4	30.1	25.21	3.87	21.34	6.51	11.3	
		40	49.8	24.14	5.38	18.76	4.49	12.4	46.6	24.20	5.24	18.96	4.62	12.3	44.9	24.26	5.10	19.16	4.76	12.2	
		50	59.6	23.50	6.24	17.27	3.77	13.0	56.4	23.56	6.08	17.49	3.88	12.9	54.8	23.62	5.91	17.71	4.00	12.8	
	0.90	15	25.8	26.68	3.25	23.44	8.22	13.6	22.2	26.75	3.16	23.59	8.46	13.6	20.5	26.82	3.08	23.74	8.71	13.6	
		25	35.5	25.92	4.11	21.80	6.30	14.1	32.0	25.98	4.01	21.97	6.49	14.0	30.3	26.05	3.90	22.15	6.68	14.0	
		40	50.1	24.76	5.41	19.35	4.57	14.8	46.7	24.83	5.27	19.55	4.71	14.7	45.1	24.89	5.13	19.76	4.85	14.6	
		50	59.8	23.99	6.28	17.72	3.82	15.2	56.5	24.05	6.12	17.94	3.93	15.1	54.9	24.12	5.95	18.16	4.05	15.1	
	1.20	15	26.2	27.65	3.27	24.38	8.46	15.0	22.5	27.72	3.18	24.54	8.71	15.0	20.6	27.79	3.10	24.69	8.97	15.0	
		25	35.9	26.75	4.14	22.61	6.46	15.4	32.3	26.81	4.03	22.78	6.65	15.4	30.5	26.88	3.93	22.96	6.85	15.3	
		40	50.3	25.39	5.45	19.94	4.66	15.9	46.9	25.45	5.31	20.15	4.80	15.9	45.2	25.52	5.16	20.35	4.94	15.9	
		50	60.0	24.48	6.32	18.16	3.87	16.3	56.7	24.55	6.16	18.39	3.99	16.3	55.0	24.61	5.99	18.62	4.11	16.2	
30	0.60	15	26.5	28.29	3.40	24.89	8.31	19.9	22.7	28.36	3.31	25.05	8.56	19.8	20.8	28.43	3.23	25.21	8.81	19.8	
		25	36.3	27.76	4.27	23.49	6.50	20.5	32.5	27.83	4.16	23.67	6.69	20.4	30.7	27.90	4.05	23.85	6.89	20.3	
		40	Operation not recommended																		
		50	Operation not recommended																		
	0.90	15	26.9	29.35	3.43	25.93	8.57	23.0	23.0	29.43	3.34	26.09	8.82	22.9	21.0	29.50	3.25	26.25	9.08	22.9	
		25	36.7	28.68	4.30	24.38	6.67	23.4	32.8	28.75	4.19	24.56	6.87	23.3	30.9	28.82	4.07	24.75	7.07	23.3	
		40	51.2	27.67	5.61	22.06	4.93	24.0	47.5	27.74	5.46	22.28	5.08	24.0	45.7	27.81	5.32	22.49	5.23	23.9	
		50	Operation not recommended																		
	1.20	15	27.4	30.42	3.45	26.97	8.82	24.5	23.3	30.49	3.36	27.13	9.08	24.5	21.2	30.57	3.27	27.30	9.35	24.5	
		25	37.0	29.60	4.33	25.27	6.84	24.9	33.0	29.67	4.21	25.46	7.04	24.8	31.0	29.75	4.10	25.64	7.25	24.8	
		40	51.5	28.37	5.65	22.72	5.02	25.4	47.7	28.44	5.50	22.94	5.17	25.3	45.8	28.51	5.35	23.16	5.33	25.3	
		50	Operation not recommended																		

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



NSKW17 - Performance Data cont.

Cooling

Source		Load Flow - 0.60 L/s							Load Flow - 0.90 L/s							Load Flow - 1.20 L/s						
EST °C	Flow L/s	ELT °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C	LLT °C	TC kW	Power kW	HR kW	EER W/W	LST °C		
0	0.60	10	3.0	17.15	2.35	19.50	7.31	7.9	5.2	17.70	2.36	20.06	7.50	8.2	6.3	18.25	2.37	20.62	7.69	8.4		
		20	10.5	23.40	2.42	25.82	9.66	10.5	13.5	24.15	2.44	26.58	9.91	10.8	14.9	24.90	2.45	27.34	10.17	11.1		
		30	17.9	29.65	2.50	32.15	11.86	13.1	21.7	30.60	2.51	33.11	12.18	13.5	23.6	31.54	2.52	34.07	12.50	13.8		
		45	29.1	39.03	2.61	41.64	14.94	16.9	34.1	40.27	2.63	42.90	15.34	17.4	36.6	41.52	2.64	44.16	15.73	17.9		
	0.90	10	2.9	17.39	2.26	19.65	7.70	5.3	5.1	17.94	2.27	20.21	7.91	5.5	6.2	18.50	2.28	20.78	8.11	5.6		
		20	10.4	23.73	2.33	26.05	10.20	7.1	13.4	24.48	2.34	26.82	10.48	7.3	14.9	25.24	2.35	27.59	10.75	7.5		
		30	17.8	30.06	2.39	32.46	12.56	8.8	21.6	31.02	2.40	33.43	12.90	9.1	23.5	31.98	2.42	34.40	13.23	9.3		
		45	28.9	39.57	2.49	42.06	15.87	11.4	33.9	40.83	2.51	43.34	16.29	11.7	36.4	42.09	2.52	44.61	16.71	12.1		
	1.20	10	2.8	17.63	2.17	19.80	8.13	4.0	5.1	18.19	2.18	20.37	8.35	4.1	6.2	18.75	2.19	20.94	8.56	4.3		
		20	10.2	24.05	2.23	26.28	10.80	5.3	13.3	24.82	2.24	27.06	11.09	5.5	14.8	25.59	2.25	27.84	11.37	5.7		
		30	17.6	30.47	2.29	32.76	13.33	6.7	21.5	31.45	2.30	33.74	13.69	6.9	23.4	32.42	2.31	34.73	14.04	7.1		
		45	28.7	40.11	2.38	42.48	16.89	8.6	33.8	41.39	2.39	43.78	17.34	8.9	36.3	42.67	2.40	45.07	17.79	9.2		
10	0.60	10	3.1	16.98	3.01	19.99	5.64	18.1	5.3	17.52	3.03	20.55	5.79	18.4	6.3	18.07	3.04	21.11	5.94	18.6		
		20	10.4	23.51	3.12	26.63	7.54	20.8	13.4	24.26	3.14	27.39	7.74	21.1	14.9	25.01	3.15	28.16	7.94	21.4		
		30	17.8	30.03	3.23	33.26	9.30	23.5	21.6	30.99	3.25	34.24	9.55	23.9	23.5	31.95	3.26	35.21	9.80	24.3		
		45	28.8	39.82	3.39	43.21	11.74	27.6	33.9	41.09	3.41	44.50	12.05	28.1	36.4	42.36	3.43	45.79	12.36	28.6		
	0.90	10	3.0	17.22	2.89	20.11	5.95	15.5	5.2	17.77	2.91	20.68	6.11	15.6	6.3	18.32	2.92	21.24	6.26	15.8		
		20	10.3	23.83	2.99	26.83	7.96	17.3	13.3	24.59	3.01	27.60	8.18	17.5	14.8	25.36	3.02	28.38	8.39	17.7		
		30	17.6	30.45	3.09	33.54	9.85	19.1	21.5	31.42	3.11	34.53	10.11	19.4	23.4	32.39	3.12	35.52	10.37	19.6		
		45	28.6	40.37	3.24	43.61	12.47	21.8	33.7	41.66	3.26	44.92	12.80	22.2	36.3	42.95	3.27	46.22	13.13	22.5		
	1.20	10	2.9	17.45	2.78	20.23	6.28	14.1	5.1	18.01	2.79	20.80	6.45	14.2	6.2	18.57	2.81	21.37	6.61	14.3		
		20	10.2	24.16	2.87	27.03	8.43	15.5	13.2	24.93	2.88	27.81	8.65	15.7	14.8	25.70	2.90	28.60	8.88	15.8		
		30	17.5	30.87	2.95	33.82	10.45	16.9	21.4	31.85	2.97	34.82	10.73	17.1	23.3	32.84	2.98	35.82	11.01	17.3		
		45	28.4	40.93	3.08	44.01	13.27	18.9	33.6	42.23	3.10	45.33	13.62	19.2	36.2	43.54	3.12	46.65	13.97	19.5		
20	0.60	10	3.5	15.91	3.65	19.56	4.36	28.0	5.6	16.42	3.67	20.09	4.48	28.2	6.6	16.93	3.69	20.61	4.59	28.4		
		20	11.0	22.06	3.78	25.84	5.83	30.5	13.8	22.76	3.80	26.56	5.99	30.8	15.2	23.47	3.82	27.29	6.14	31.1		
		30	18.5	28.20	3.91	32.12	7.21	33.1	22.1	29.10	3.93	33.04	7.40	33.4	23.9	30.00	3.95	33.96	7.59	33.8		
		45	Operation not recommended																			
	0.90	10	3.5	16.10	3.51	19.61	4.59	25.3	5.5	16.61	3.53	20.14	4.71	25.5	6.5	17.13	3.54	20.67	4.83	25.6		
		20	10.9	22.30	3.63	25.93	6.15	27.0	13.5	24.08	3.67	27.75	6.57	27.5	15.2	23.72	3.66	27.39	6.47	27.4		
		30	18.4	28.50	3.75	32.25	7.61	28.7	21.5	31.55	3.81	35.35	8.29	29.6	23.8	30.32	3.78	34.11	8.01	29.2		
		45	Operation not recommended																			
	1.20	10	3.4	16.29	3.37	19.65	4.83	24.0	5.4	16.81	3.39	20.19	4.96	24.1	6.5	17.33	3.40	20.73	5.09	24.2		
		20	10.8	22.54	3.47	26.02	6.49	25.3	13.7	23.26	3.49	26.76	6.66	25.4	15.1	23.98	3.51	27.49	6.83	25.6		
		30	18.3	28.80	3.58	32.38	8.04	26.6	21.9	29.72	3.60	33.32	8.26	26.8	23.8	30.64	3.62	34.26	8.47	27.0		
		45	29.5	38.19	3.74	41.93	10.21	28.5	34.3	39.41	3.76	43.17	10.49	28.8	36.7	40.63	3.78	44.40	10.76	29.0		
30	0.60	10	4.2	14.16	4.45	18.61	3.18	37.6	6.0	14.61	4.47	19.08	3.27	37.8	6.9	15.06	4.49	19.56	3.35	37.9		
		20	12.0	19.62	4.59	24.22	4.27	39.8	14.3	21.19	4.64	25.83	4.56	40.5	15.8	20.87	4.64	25.51	4.50	40.4		
		30	19.8	25.09	4.74	29.82	5.29	42.1	22.5	27.77	4.81	32.58	5.77	43.2	24.6	26.69	4.79	31.47	5.58	42.8		
		45	Operation not recommended																			
	0.90	10	4.2	14.32	4.28	18.60	3.35	35.0	6.0	14.77	4.30	19.07	3.44	35.2	6.9	15.23	4.32	19.55	3.52	35.3		
		20	11.9	19.88	4.41	24.29	4.51	36.6	14.2	21.47	4.45	25.93	4.82	37.0	15.7	21.15	4.45	25.60	4.75	36.9		
		30	19.7	25.45	4.54	29.98	5.61	38.1	22.4	28.17	4.60	32.78	6.12	38.9	24.5	27.07	4.58	31.65	5.91	38.6		
		45	Operation not recommended																			
	1.20	10	4.1	14.48	4.11	18.58	3.52	33.8	6.0	14.94	4.13	19.07	3.62	33.9	6.9	15.40	4.15	19.55	3.71	34.0		
		20	11.8	20.14	4.22	24.36	4.77	35.0	14.1	21.76	4.26	26.02	5.11	35.3	15.6	21.43	4.26	25.69	5.03	35.2		
		30	19.5	25.81	4.33	30.14	5.95	36.1	22.3	28.58	4.39	32.98	6.50	36.7	24.4	27.46	4.38	31.84	6.27	36.5		
		45	Operation not recommended																			
45	0.60	10	5.2	11.75	5.41	17.16	2.17	52.0	6.7	12.13	5.43	17.56	2.23	52.1	7.5	12.50	5.46	17.96	2.29	52.3		
		20	13.2	16.85	5.56	22.40	3.03	54.1	15.1	18.26	5.61	23.87	3.26	54.7	16.4	17.92	5.61	23.53	3.19	54.6		
		30	Operation not recommended																			
		45	Operation not recommended																			
	0.90	10	5.2	11.88	5.20	17.08	2.29	49.6	6.7	12.26	5.23	17.49	2.35	49.7	7.4	12.64	5.25	17.89	2.41	49.8		
		20	13.1	17.03	5.34	22.37	3.19	51.1	15.0	18.46	5.39	23.85	3.42	51.5	16.3	18.11	5.40	23.51	3.36	51.4		
		30	Operation not recommended																			
		45	Operation not recommended																			
	1.20	10	5.1	12.02	4.99	17.01	2.41	48.5	6.6	12.40	5.02	17.42	2.47	48.5	7.4	12.78	5.04	17.82	2.53	48.6		
		20	13.0	17.21	5.13	22.34	3.35	49.5	14.9	18.65	5.18	23.83	3.60	49.8	16.3	18.31	5.18	23.49	3.53	49.8		
		30	Operation not recommended																			
		45	Operation not recommended																			

3/14/12

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Contractor: _____ P.O.: _____

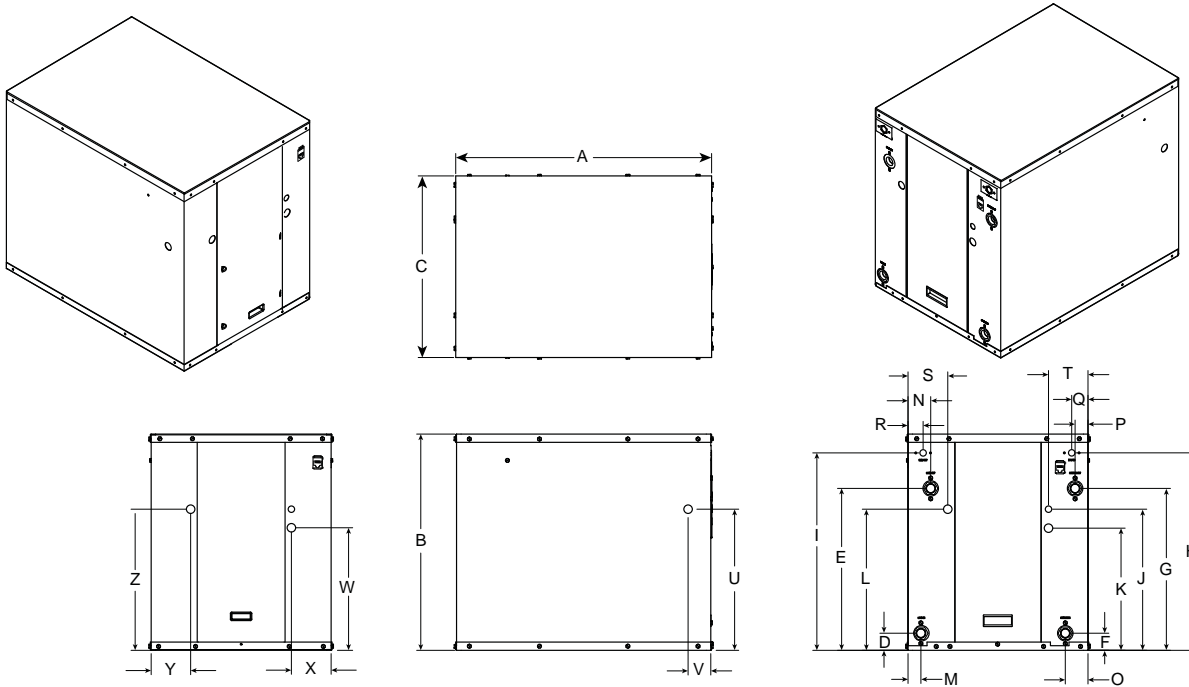
Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



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	3/4 in. cond	3/4 in. cond	
06	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
08	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
12	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
17	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	
06	cm.	6.1	6.1	6.1	-	-	8.9	7.4	37.8	6.6	5.3	4.4	7.4	10.4	
08	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
12	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
17	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

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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



Physical Data

Model	06	08	12	17
Compressor (1 each)	Scroll			
Factory Charge R410A, oz [kg]	58 [1.64]	70 [1.98]	68 [1.93]	110 [3.12]
Coax & Piping Water Volume - gal [l]*	0.89 [3.38]	1.0 [3.94]	1.4 [5.25]	1.6 [6.13]
Weight - Operating, lb [kg]	225 [102.1]	290 [131.5]	325 [147.4]	345 [156.5]
Weight - Packaged, lb [kg]	247 [112.0]	305 [138.3]	340 [154.2]	360 [163.3]

Note: * Source or load side only

3/25/15

Electrical Data

Model	Rated Voltage	Voltage Min/Max	Compressor				Load Pump FLA	Source Pump FLA	Total Unit FLA	Min Circ Amp	Max Fuse/HACR
			MCC	RLA	LRA	LRA*					
06	220-240/50/1	198/264	17.5	11.2	60.0	24.0	1.5	4.5	17.2	20.0	30
	380-420/50/3	342/462	6.5	4.2	28.0	16.8	-	-	4.2	5.3	6
08	220-240/50/1	198/264	27.0	17.3	97.0	34.0	1.5	4.5	23.3	27.6	40
	380-420/50/3	342/462	10.0	6.4	45.0	27.0	-	-	6.4	8.0	10
12	220-240/50/1	198/264	31.5	20.2	126.0	44.0	1.5	4.5	26.2	31.2	50
	380-420/50/3	342/462	12.1	7.8	51.5	31.0	-	-	7.8	9.8	15
17	220-240/50/1	198/264	45.0	29.0	130.0	46.0	1.5	4.5	35.0	42.3	70
	380-420/50/3	342/462	19.0	12.2	87.0	52.0	-	-	12.2	15.3	25

1/15/15

Notes:

* - With optional IntelliStart, Type D MCB recommended

Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
HYDRONIC 1.5 TO 6 TONS**



Pressure Drop

Model	L/s	Pressure Drop (kPa)				
		0°C	15°C	25°C	35°C	50°C
06	0.25	6.2	4.8	4.1	3.4	2.8
	0.35	13.8	13.1	12.4	11.7	10.3
	0.45	22.1	20.7	20.0	19.3	17.9
	0.55	30.3	29.0	27.6	26.2	25.5
08	0.30	6.2	4.1	3.9	3.7	3.4
	0.45	15.9	14.1	13.4	12.8	12.1
	0.65	25.5	24.1	23.0	21.9	20.7
	0.80	34.5	32.4	30.3	29.0	27.6
12	0.50	11.7	9.7	9.4	9.2	9.0
	0.75	24.8	23.4	22.0	20.5	19.0
	1.00	38.6	37.2	34.5	31.7	29.0
	1.20	57.2	55.8	52.4	49.6	46.9
17	0.60	22.1	20.7	19.5	18.3	17.2
	0.90	37.9	36.5	35.2	33.5	32.1
	1.20	54.5	52.4	50.3	48.7	46.9
	1.50	79.3	77.9	75.8	74.5	72.4

2/14/12

Vented Only Load Side

Model	L/S	Pressure Drop (kPa)			
		15°C	25°C	35°C	50°C
06H	0.25	8.9	8.7	8.5	8.3
	0.35	20.3	19.6	18.9	18.3
	0.45	31.7	30.5	29.4	28.3
	0.55	46.1	44.8	44.1	42.7

NOTES: Temperatures are Entering Water Temperatures. 7/12/16
Double wall vented coax for heating potable water

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 - °C		26.7	-1.1	10.0	32.2	-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.

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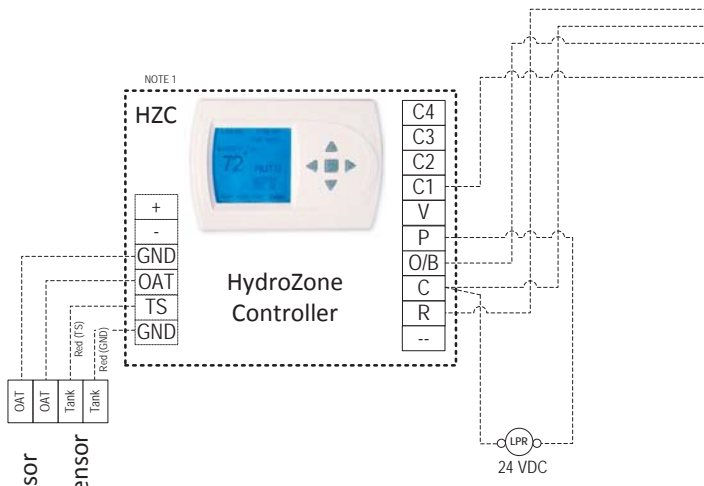
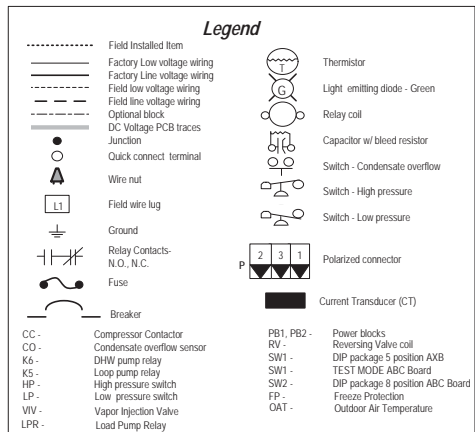
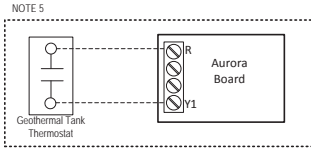
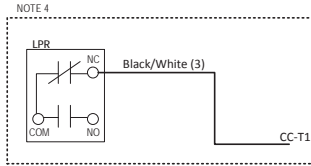
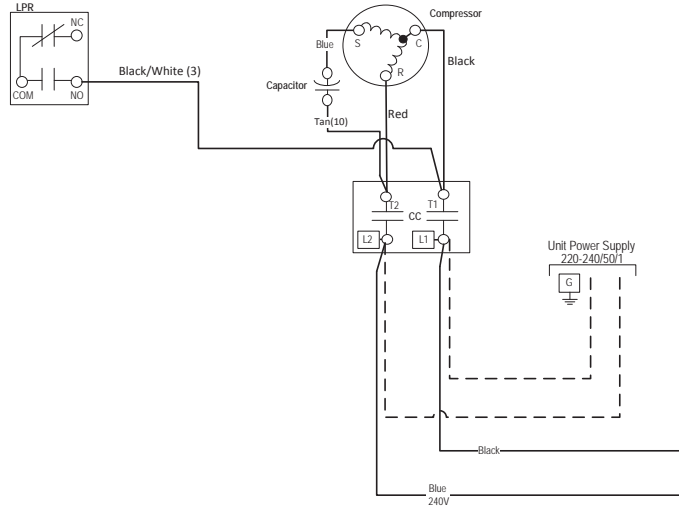
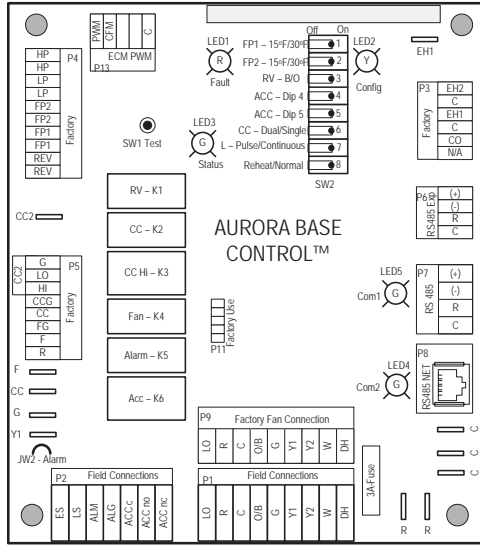
Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
 HYDRONIC 1.5 TO 6 TONS**



Wiring Schematics

Aurora Water-Water - 220-240/50/1



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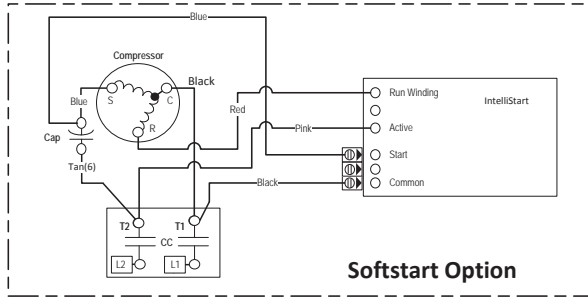
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 Engineer: _____
 Project Name: _____ Unit Tag: _____

**VERSATEC ULTRA NSKW
 HYDRONIC 1.5 TO 6 TONS**

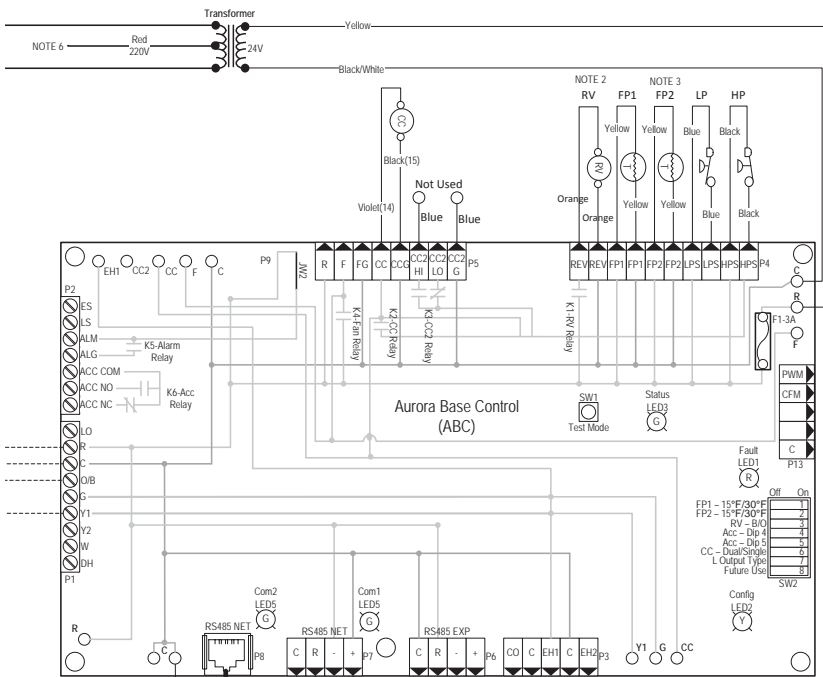


Wiring Schematics - cont.

Aurora Water-Water - 220-240/50/1



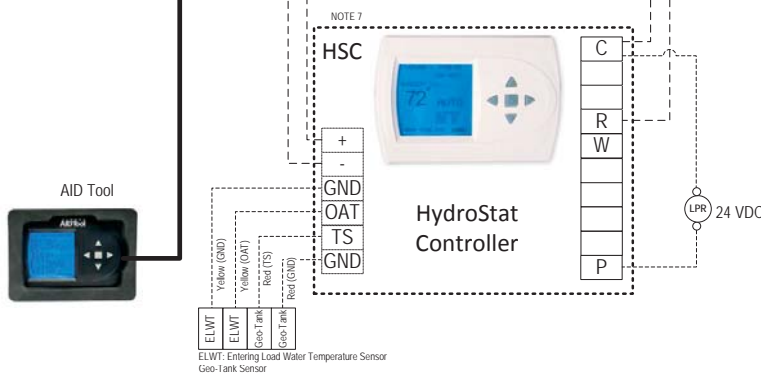
- Notes**
- 1 - HydroZone controller is an optional field installed accessory.
 - 2 - Reversing Valve wires not installed on heating only option
 - 3 - FP2 is replaced with a resistor on heating only option
 - 4 - Move black/white(3) wire when HydroZone or HydroStat is not used for pump control to LPR-NC and CC-T1
 - 5 - When Geothermal Storage Tank is wired directly to the Aurora Board
 - 6 - Switch blue and red wire for 220V operation.
 - 7 - 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 (LED3, Yellow)	
Status LED (LED1, Green)	Fast Flash	No Software Override	OFF
Configuration LED (LED2, Yellow)	Fast Flash	DIP Switch Override	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		



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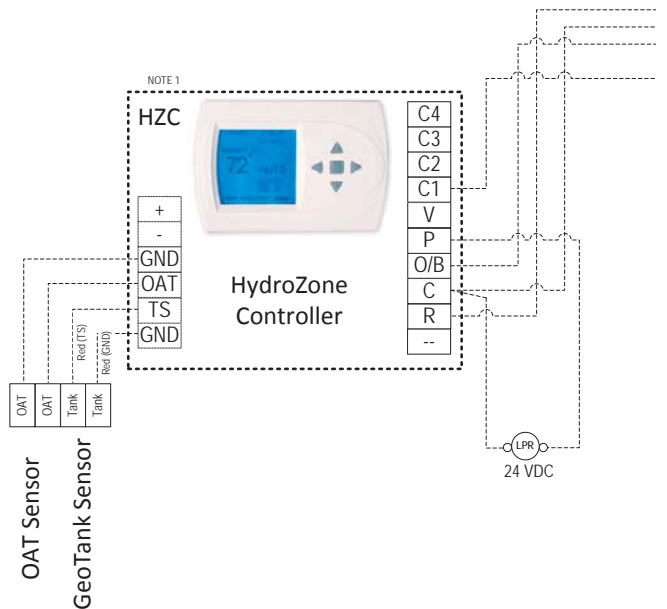
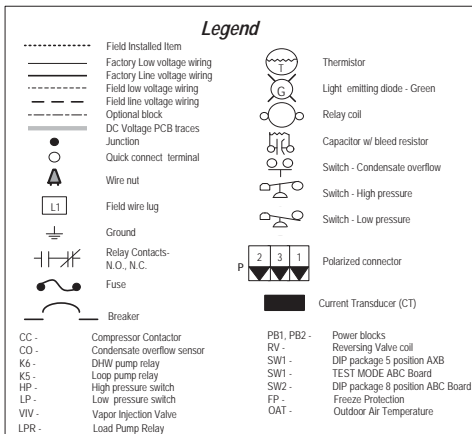
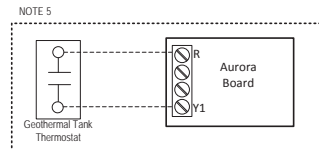
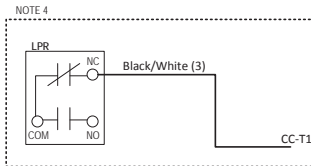
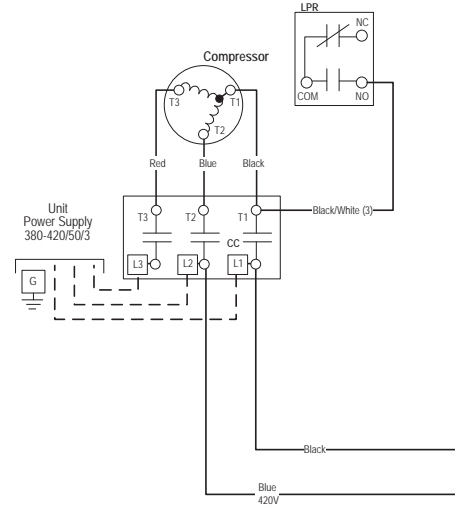
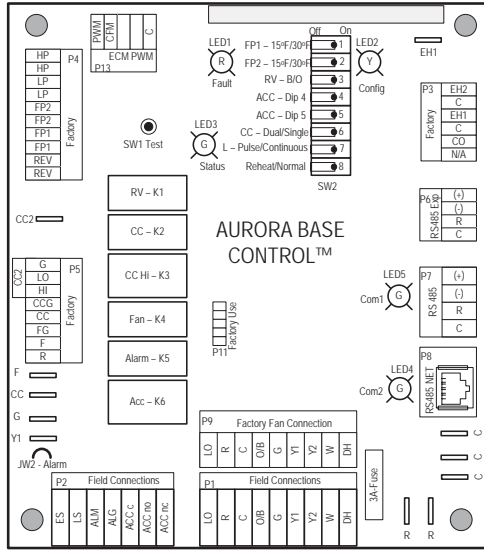
Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

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 HYDRONIC 1.5 TO 6 TONS**



Wiring Schematics

Aurora Water-Water - 380-420/50/3



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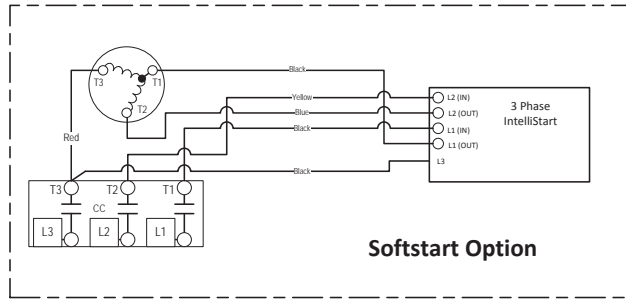
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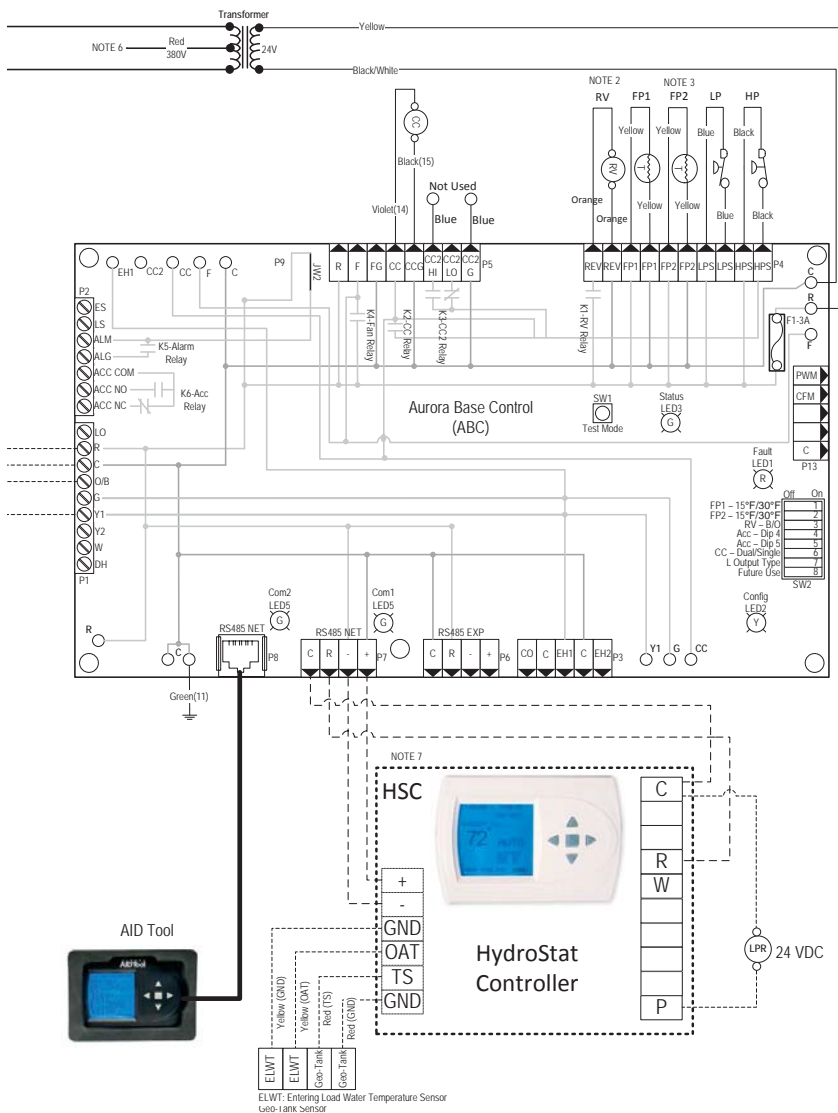


Wiring Schematics

Aurora Water-Water - 380-420/50/3



- Notes**
- 1 - HydroZone controller is an optional field installed accessory.
 - 2 - Reversing Valve wires not installed on heating only option.
 - 3 - FP2 is replaced with a resistor on heating only option.
 - 4 - Move black/white(3) wire when HydroZone or HydroStat is not used for pump control to LPR-NC and CC-T1.
 - 5 - When Geothermal Storage Tank is wired directly to the Aurora Board.
 - 6 - Switch blue and red wires for 380V operation.
 - 7 - HydroStat communicating controller is an optional field installed accessory.



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 (LED3, Yellow)	
Status LED (LED1, Green)	Fast Flash	No Software Override	OFF
Configuration LED (LED2, Yellow)	Fast Flash	DIP Switch Override	Slow 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
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	80 seconds	80 seconds

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VERSATEC ULTRA NSKW HYDRONIC 1.5 TO 6 TONS



Engineering Guide Specifications

General

The water-to-water heat pump shall be a single packaged unit that is certified under the Microgeneration Certification Scheme (MCS) and evaluated to relevant European safety directives. The heat pump, as manufactured by WaterFurnace International, Fort Wayne, Indiana, shall be designed to operate with source liquid temperatures between 0°C and 45°C in cooling, and between 0°C and 30°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 1.3 cm 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 06.

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 08-17) - 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 06) - 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 06 and 08, 1 ¼ in. [31.75 mm] for the 12 and 17, 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 or 3 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.

An Aurora, a microprocessor-based controller, interfaces with an 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, 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.

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 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%.

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Revision Guide

Pages:	Description:	Date:	By:
All	NSKW Commercial Guide Creation	28 June 2016	JM