



ENVISION™

NSKW 06 TO 17 kW

Geothermal Hydronic Heat Pump - 50 Hz

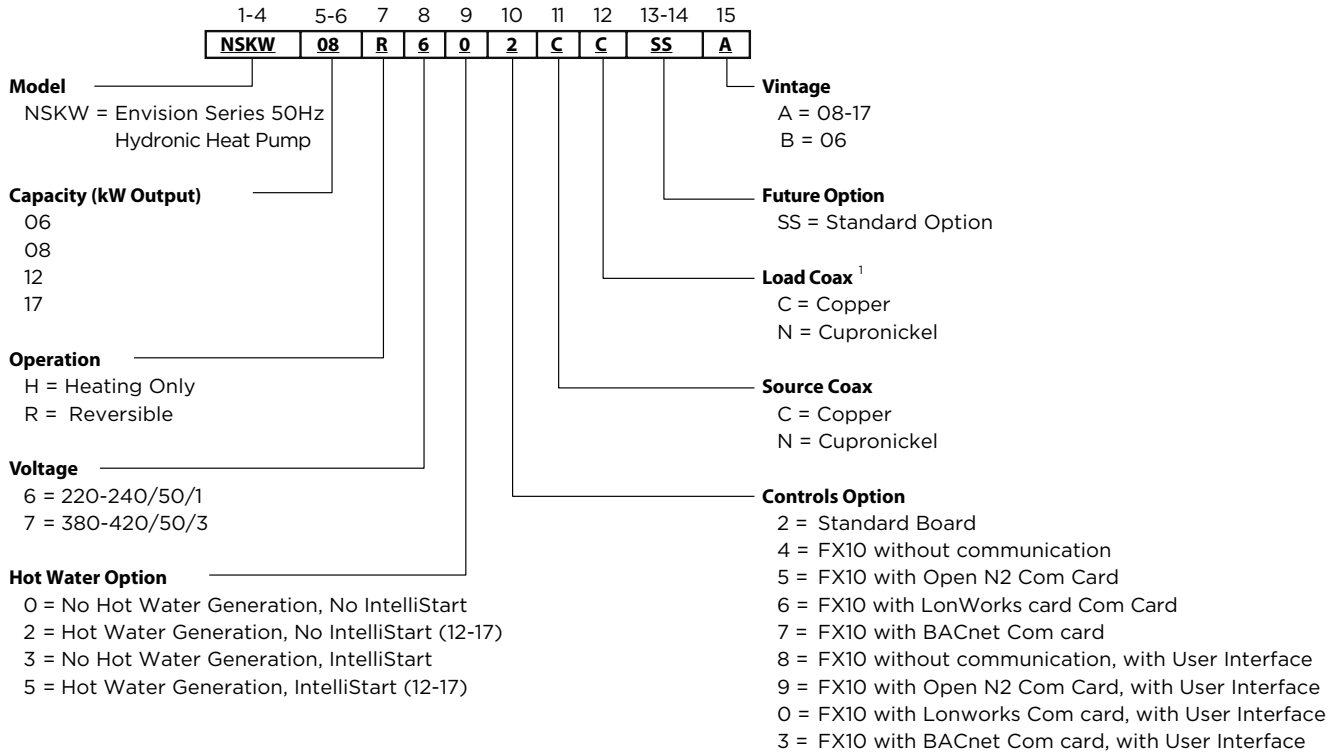


Submittal Data
English Language
IP/Metric Units
SD1066WN 03/16

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



Model Nomenclature



NOTES: Hot Water Generation (HWG) only available on NSKW12-17 and requires a field installed external pump
¹ - 06 heating only models are available only with copper double wall vented load coax.

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++	A++	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 Envision Series NSKW product is safety tested to CE standards and performance tested in accordance with standard BS EN 14511-2.

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NSKW HYDRONIC
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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 = run 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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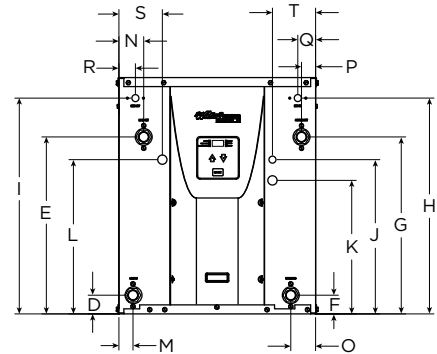
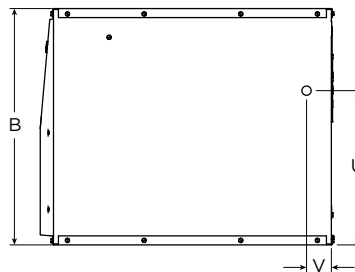
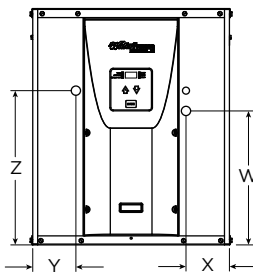
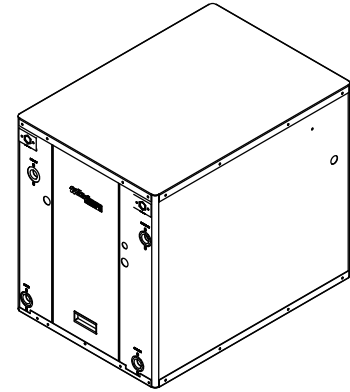
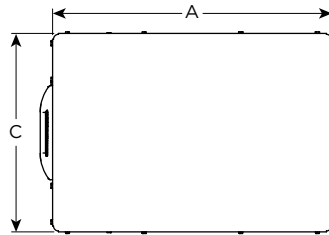
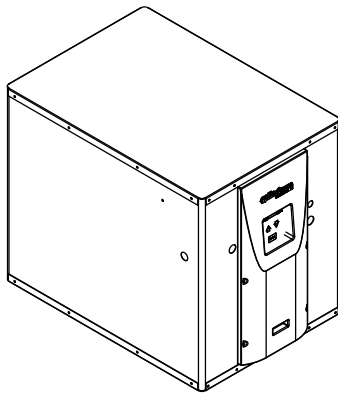
Engineer: _____

Project Name: _____ Unit Tag: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



Dimensional Data



NOTE: Plastic front panel extends 3.56 cm beyond front of cabinet.

8/09/13

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	Low Voltage	Ext Pump	Power Supply	
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	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

NOTE: Plastic front panel extends 3.56 cm beyond front of cabinet.

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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

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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

Reference Calculations

Heating Calculations: $LWT = EWT - \frac{HE}{L/s \times 4.2^*}$	Cooling Calculations: $LWT = EWT + \frac{HR}{L/s \times 4.2^*}$
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NOTE: * When using water. Use 4.1 for 15% methanol/water or Environol solution.

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.
- Entering water temperatures below 5°C assumes 15% antifreeze solution.
- Interpolation between ELT, EST, and L/s 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 - °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.

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

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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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Contractor: _____ P.O.: _____

Engineer: _____

Project Name: _____ Unit Tag: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



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: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



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: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



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: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



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: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



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: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



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: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



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																			

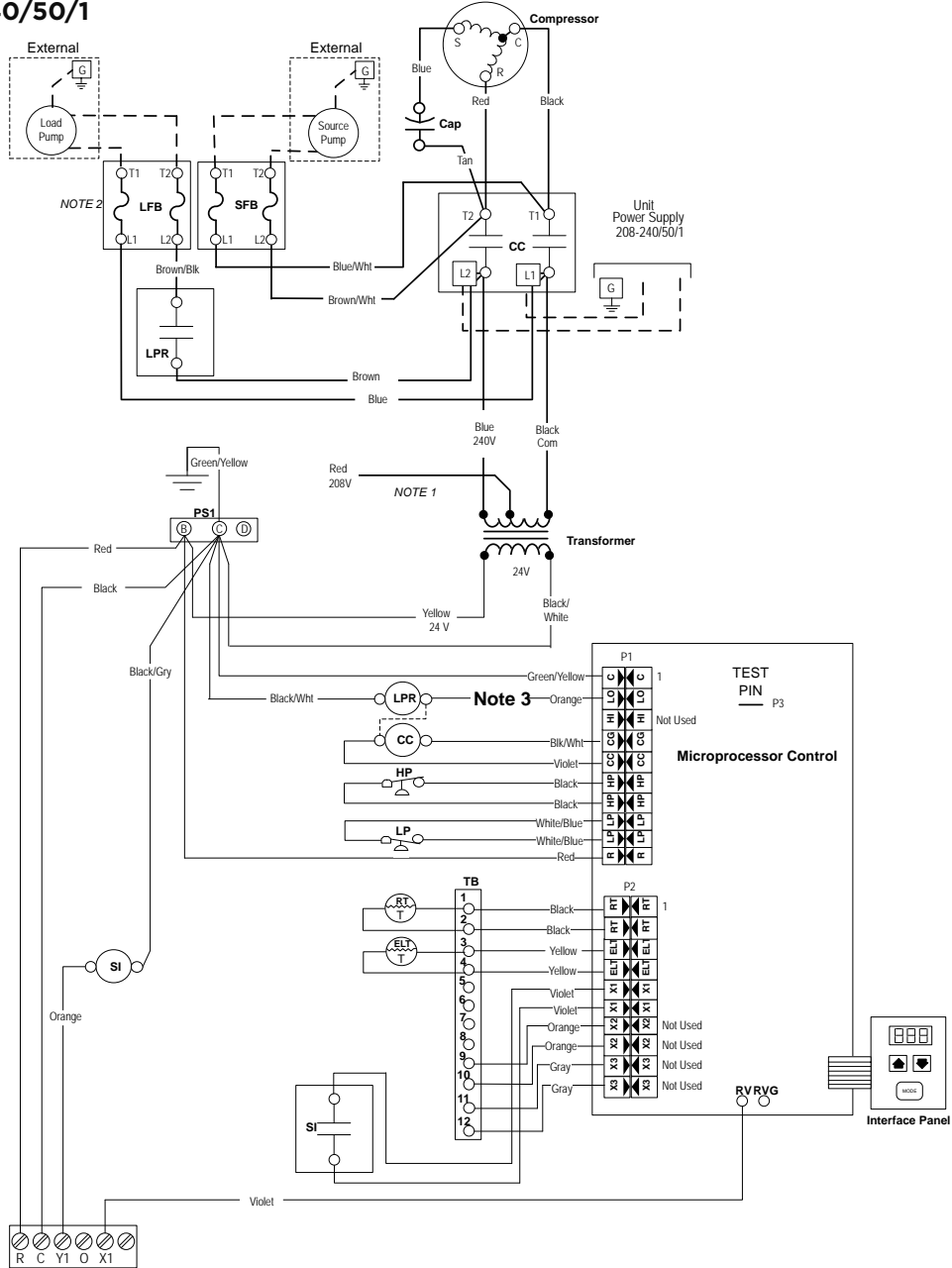
3/14/12

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

Wiring Schematics

Heating Only - 240/50/1



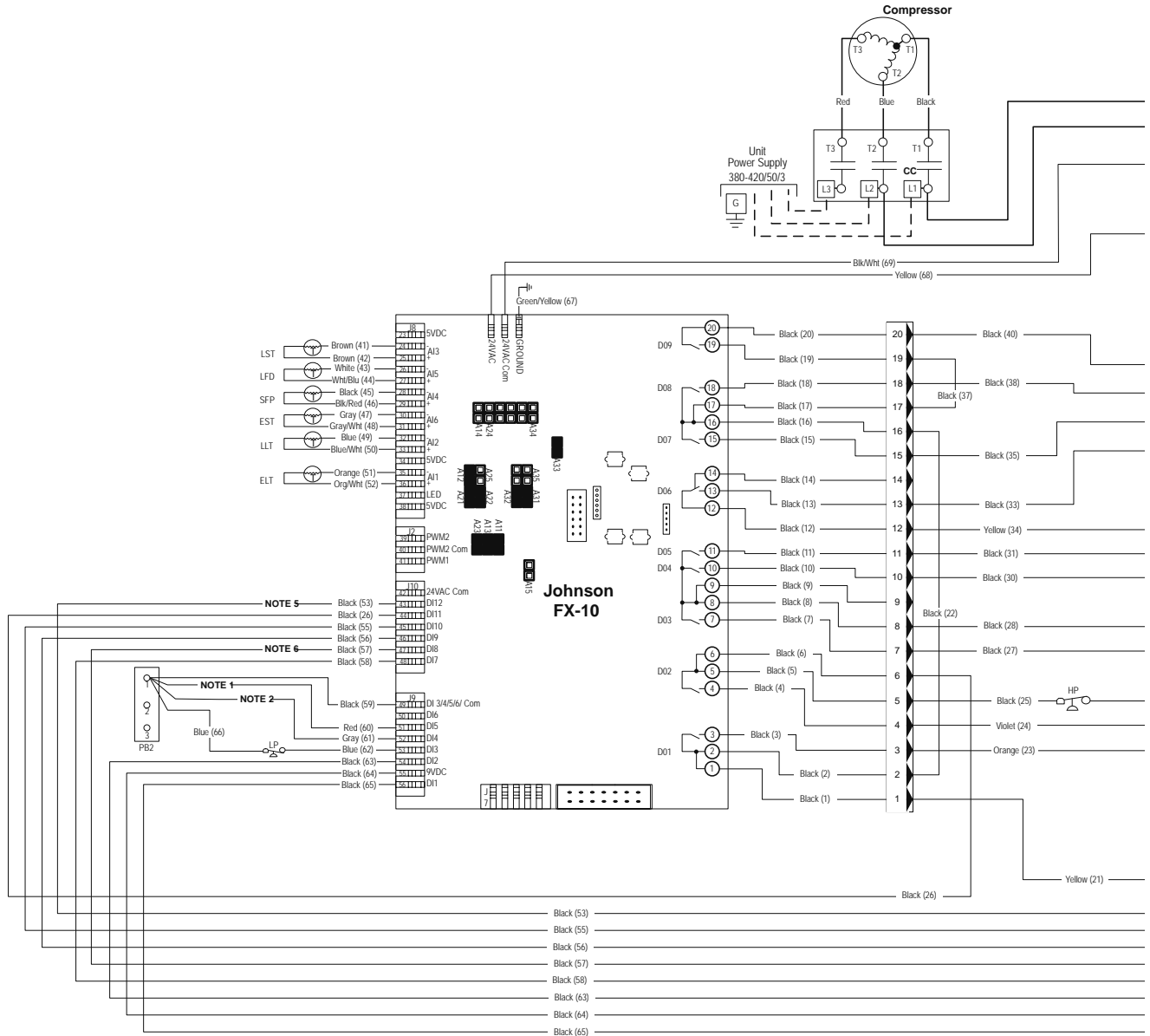
Legend			
	Factory low voltage wiring		Field wire lug
	Factory line voltage wiring		Ground
	Field low voltage wiring		Relay Contacts - N.O., N.C.
	Field line voltage wiring		Polarized connector
	Optional block		Switch - High pressure
	Quick connect terminal		Switch - Low pressure
	Screw terminal - field connection		Relay coil
	Fuse		Capacitor
	CC - Compressor contactor		Thermistor
	RV - Reversing Valve output		
	ELT - Entering Load Side Water Temperature		
	LP - Low pressure switch		
	HP - High pressure switch		
	LPR - Load Pump Relay		
	RT - Refrigerant Liquid line Temperature		
	SI - Slave Input relay		
	RC - Reversing Valve Coil		
	LFB - Load Pump Fuse Block		
	SFB - Source Pump Fuse Block		

Notes:
 1. Taped and wire tied off
 2. 3AG 10 Amp fuse
 3. For cycle load pump with a geo storage tank. Remove the orange wire from the LPR relay coil and install a jumper between the LPR relay coil and the comp contactor coil as shown in the schematic above.

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

Wiring Schematics cont.

Reversible - 380-420/50/3



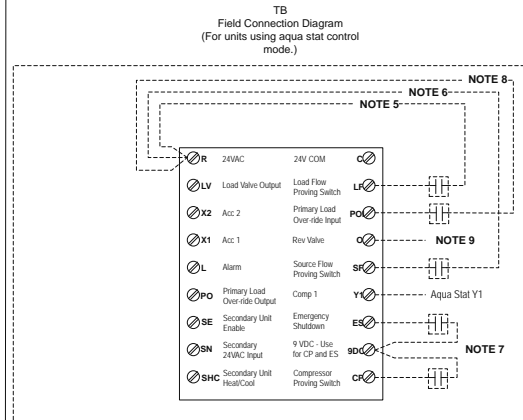
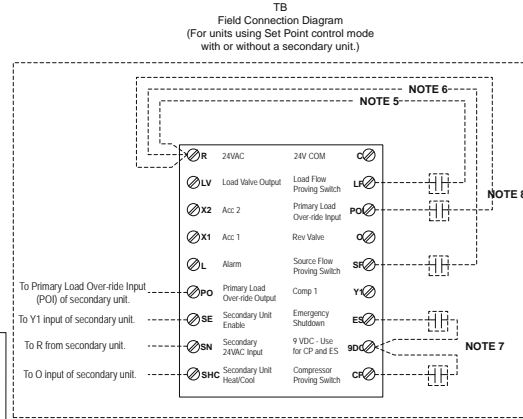
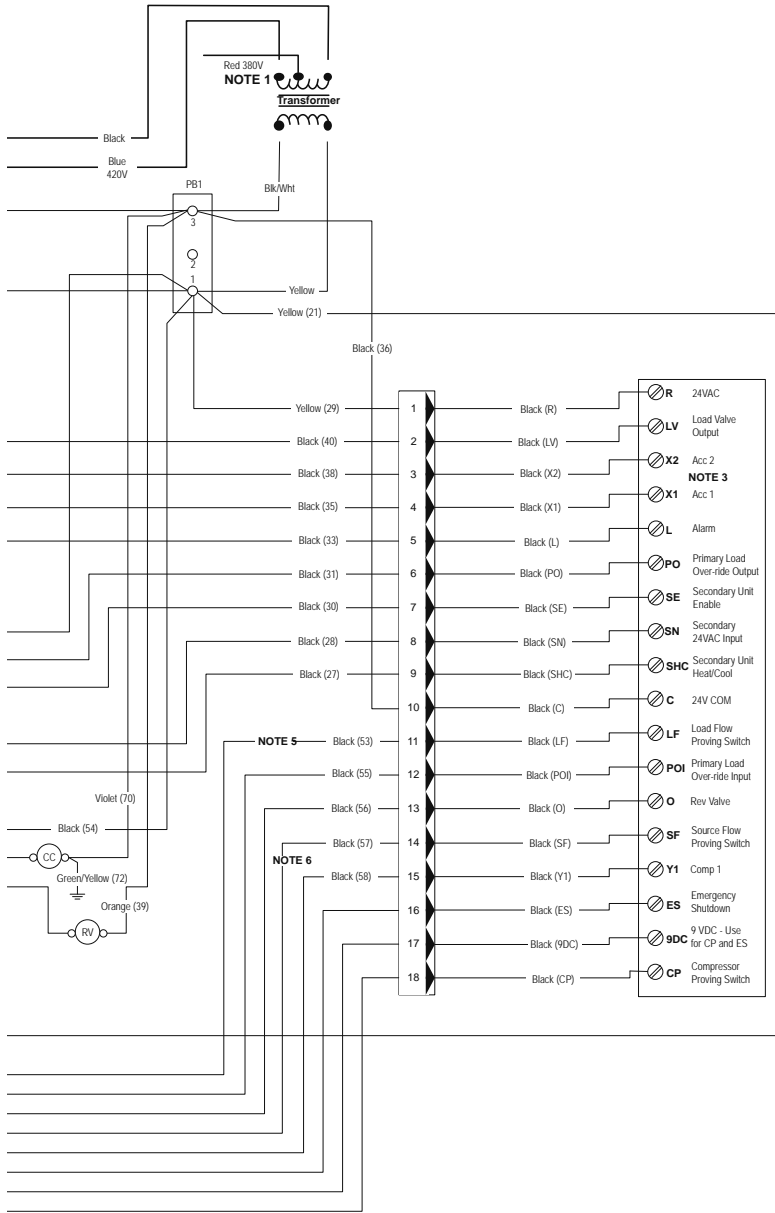
Legend			
Factory low voltage wiring	Internal junction	Switch - High pressure	CC - Compressor contactor
Factory line voltage wiring	Field wire lug	Switch - Low pressure	CP - Compressor Proving
Field low voltage wiring	Ground	Open Jumper	ELT - Entering Load Water Temp
Field line voltage wiring	Relay Contacts- N.O., N.C.	Closed Jumper	ES - Emergency Shutdown
Optional block	Thermistor	Polarized connector	EST - Entering Source Water Temp
Field Zone Sensor Wiring	Relay coil		LFD - Load Freeze Detection
			LFS - Load Flow Proving Switch
			LLT - Leaving Load Water Temp
			LP - Low pressure switch
			LST - Leaving Source Water Temp
			RV - Reversing Valve coil
			SFP - Source Freeze Protection
			SFS - Source Flow Proving Switch
			TB - Terminal Board
			Notes:
			1 - Switch Blue and Red wires for 380V operation
			2 - Disconnect for -9 degree C load side freeze detection
			3 - Disconnect for -9 degree C source side freeze detection
			4 - Acc 1 and ACC 2 outputs are cycled with the compressor.
			5 - R, C, Y1, and O inputs are for use with an aqua stat.
			6 - If no flow proving switch is being used on the load side, the LF terminal on the terminal board must be jumpered to the R terminal for the unit to operate.
			7 - If no flow proving switch is being used on the source side, the SF terminal on the terminal board must be jumpered to the R terminal for the unit to operate.
			8 - A closed contact will enable the emergency shutdown input (ES) and the compressor proving input (CP).
			9 - Primary over-ride input (POI) on a primary unit must be wired to R through anomaly open contact. If the POI input is on a secondary unit connect the Primary Over-ride output (PO) from the primary unit to the POI terminal on the secondary unit.
			10 - Apply 24VAC to the O terminal for cooling.

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

Wiring Schematics cont.

Reversible - 380-420/50/3 cont.



Contractor: _____ P.O.: _____

Engineer: _____

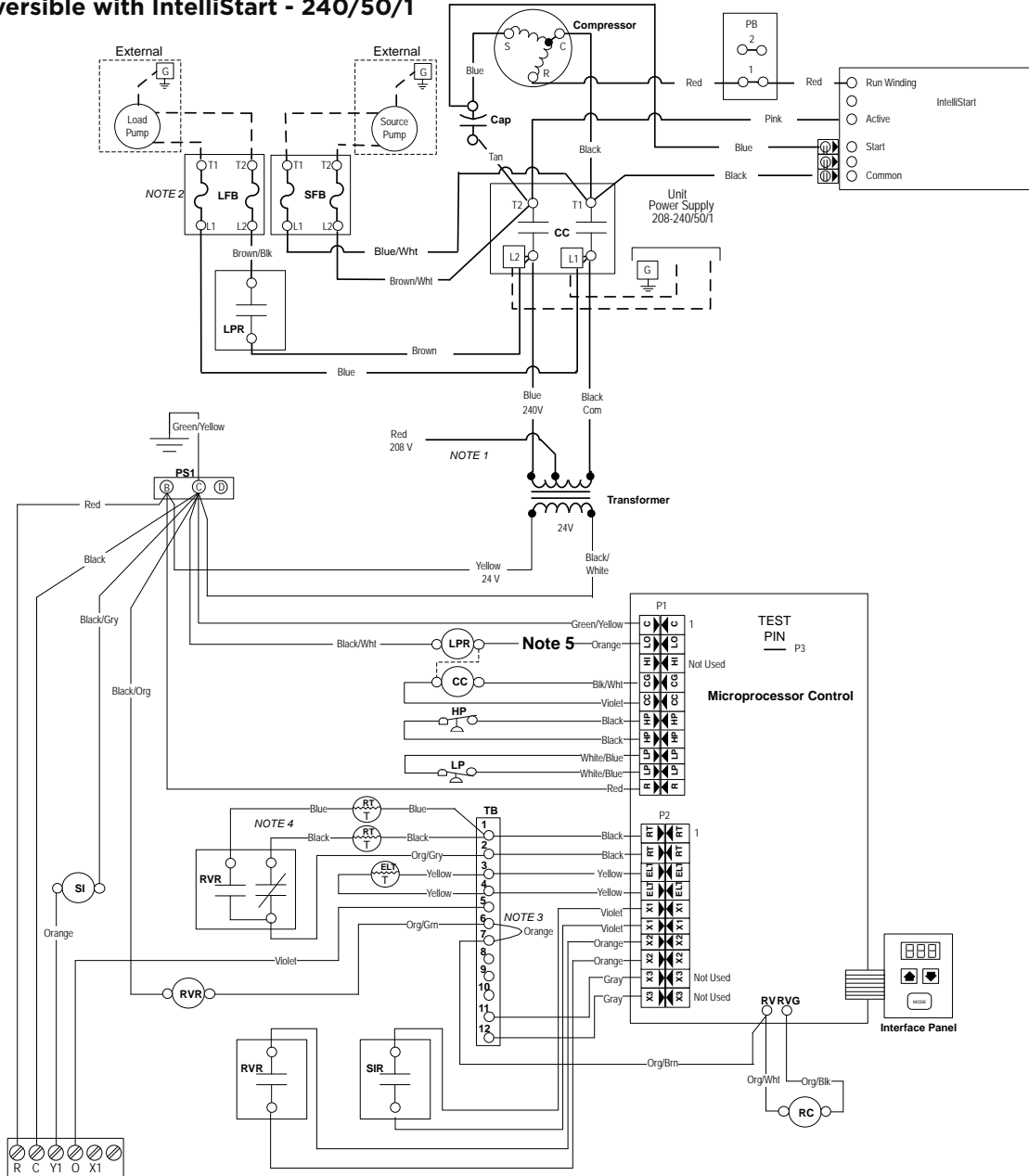
Project Name: _____ Unit Tag: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



Wiring Schematics cont.

NSKW Reversible with IntelliStart - 240/50/1



Legend			
Factory low voltage wiring	Factory line voltage wiring	Field low voltage wiring	Field line voltage wiring
Optional block	Quick connect terminal	Screw terminal - field connection	Fuse
L1 - Field wire lug	Ground	Relay Contacts - N.O., N.C.	Polarized connector
CC - Compressor Contactor	RV - Reversing Valve Output	ELT - Entering Load Side Water Temperature	HP - High Pressure Switch
LP - Low Pressure Switch	LPR - Load Pump Relay Contacts	RT - Refrigerant Liquid Line Temperature	SIR - Slave Input Relay
RC - Reversing Valve Coil	LFB - Load Pump Fuse Block	SFB - Source Pump Fuse Block	RVR - Reversing Valve Relay
SI - Switch - High pressure	SII - Switch - Low pressure	R - Relay coil	C - Capacitor
T - Thermistor	Notes: 1. Taped and wire tied off 2. 3AG 10 Amp fuse 3. Move jumper wire to 5 and 6 for reversible secondary unit 4. Black Thermistor - Source Coax Blue Thermistor - Load Coax 5. For cycle load pump with a geo storage tank. Remove the orange wire from the LPR relay coil and install a jumper between the LPR relay coil and the comp contactor coil as shown in the schematic above.		

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NSKW HYDRONIC
06 to 17 kW - 50 Hz



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 opposite end of 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, 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 NSKW06.

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. 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 exchanger 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 4489 kPa working refrigerant pressure and 3108 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 4135 kPa working refrigerant pressure and 3101 kPa working water pressure. Water lines shall also be of cupronickel construction.

Option: Hot Water Generator (available on NSKW08-17) Internal double wall vented hot water generator coil refrigerant to water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 4489 kPa working refrigerant pressure and 3108 kPa working water pressure.

Option: Vented double wall water-to-refrigerant heat exchange (available on NSKW06) Internal vented double wall water-to-refrigerant coaxial heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 4489 kPa working refrigerant pressure and 3108 kPa water pressure.

Piping and Connections

Supply and return water connections shall be 1 in. [25.4 mm] for the NSKW06-08, 1 1/4 in. [31.75 mm] for the NSKW12-17, and all hot water generator water connections shall be 1/2 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 with a built-in circuit breaker, 24 volt activated compressor contactor, 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.

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Engineer: _____

Project Name: _____ Unit Tag: _____

NSKW HYDRONIC
06 to 17 kW - 50 Hz



Engineering Guide Specifications cont.

A standard microprocessor-based controller that interfaces with an electronic thermostat to monitor and control unit operation shall be provided. The control shall provide operational sequencing, high and low pressure switch monitoring, freeze detection, hot water limit thermistor sensing, lockout mode control, hot water and loop pump control, LED status and fault indicators, fault memory, field selectable options and accessory output. The control shall provide fault retry three times before locking out to limit nuisance trips. Anti short-cycle protection shall be integral to 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.

Option: A FX10 microprocessor-based controller that interfaces with an electronic thermostat to monitor and control unit operation. The control shall provide operational sequencing, high, low, and loss of charge pressure monitoring, freeze detection, lockout mode control, fault memory, field selectable options and accessory output. The control shall communicate all mode, status, fault and lockout codes to the front end system for fast and accurate equipment diagnosis. The control shall provide fault retry three times before locking out to limit nuisance trips.

Optional FX10 microprocessor control communication protocols: N2, LonWorks, BACnet

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 60% on 230/50/1 units.