SPECIFICATION CATALOG

ENVISION™

GEOTHERMAL/WATER SOURCE
INDOOR SPLIT HEAT PUMP
2 TO 6 TONS SINGLE SPEED
2 TO 6 TONS DUAL CAPACITY

WaterFurnace®
Smarter from the Ground Up™

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ENVISION™

Envision Series splits are designed for indoor installations, and are connected to an indoor air handler via refrigerant lines and control wiring. Envision units utilize the ozone-safe R-410A refrigerant to meet the most stringent EPA requirements now and for many years to come. Easily accessible controls and connections for refrigerant piping and water piping make this unit simple to install in a wide variety of applications. Heavy gauge metal cabinets are coated with durable polyester powder coat paint for long lasting beauty and protection. The Envision Series split will provide exceptional performance and comfort for many years. And because there is no outdoor blower like ordinary air conditioners or heat pumps, the Envision is “whisper quiet”.

Envision Series units are performance-certified to AHRI ISO 13256-1 standards, are ETL safety listed, and are ENERGYSTAR® qualified.

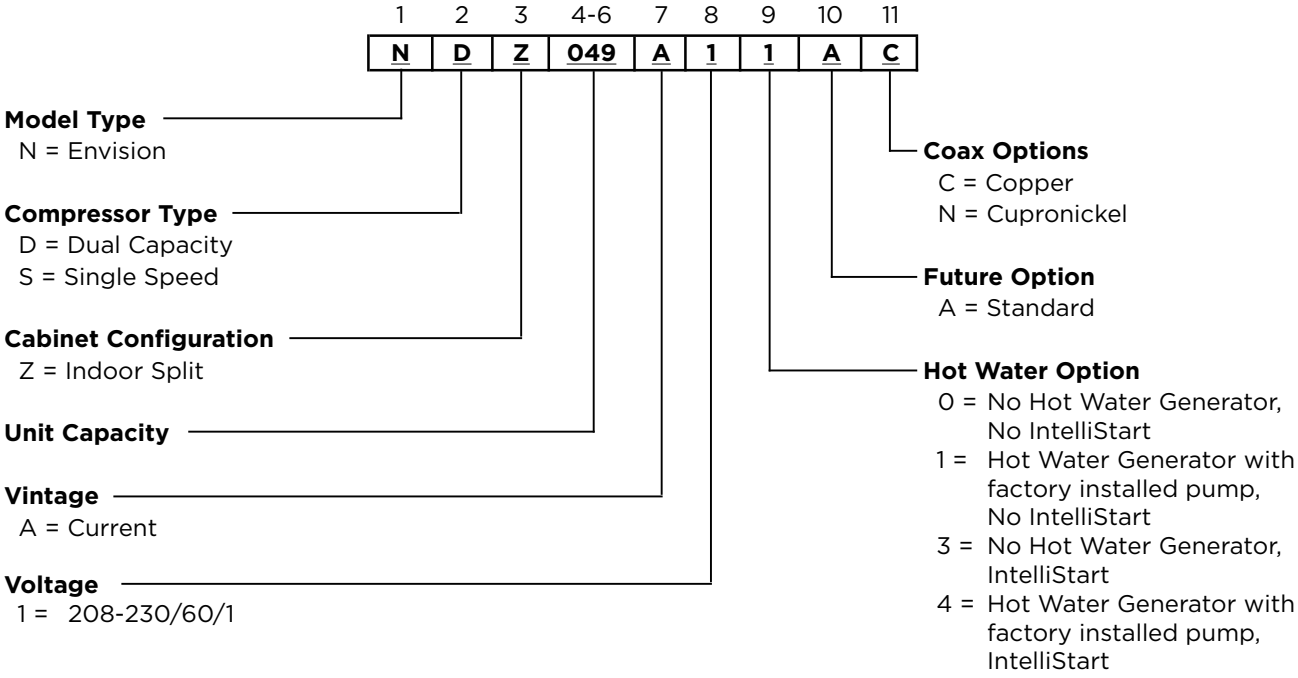
As a leader in the industry, WaterFurnace is dedicated to innovation, quality and customer satisfaction. In fact, every unit built is exposed to a wide range of quality control procedures throughout the assembly process and is then subjected to a rigorous battery of computerized run tests to certify that it meets or exceeds performance standards for efficiency and safety, and will perform flawlessly at startup. As further affirmation of our quality standards, each unit carries our exclusive Quality Assurance emblem, signed by the final test technician.

WaterFurnace International’s corporate headquarters and manufacturing facility is located in Fort Wayne, IN. A scenic three-acre pond located in front of the building serves as our geothermal heating and cooling source to comfort-condition our 110,000 square feet of manufacturing and office space. As a pioneer, and now a leader in the industry, the team of WaterFurnace engineers, customer support staff and skilled assembly technicians is dedicated to providing the finest comfort systems available.

By choosing or specifying WaterFurnace Envision Series products, you can be assured that your customer is investing in an exceptional comfort system and peace of mind for many years to come.

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

Model Nomenclature



AHRI Data

AHRI/ASHRAE/ISO 13256-1
English (IP) Units

Model	Capacity Modulation	Flow Rate		Water Loop Heat Pump				Ground Water Heat Pump				Energy Star Rated
				Cooling Brine EWT 86°F		Heating Brine EWT 68°F		Cooling EWT 59°F		Heating EWT 50°F		
		gpm	cfm	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	
026	Full	8	900	25,000	14.6	30,500	5.1	27,800	21.8	25,000	4.6	Yes
	Part	7	700	18,500	16.6	22,000	5.6	21,300	28.4	17,700	4.8	Yes
038	Full	9	1200	34,000	14.6	40,100	5.0	34,300	20.4	33,100	4.5	Yes
	Part	8	800	25,000	16.6	30,000	5.3	25,200	27.0	24,400	4.4	Yes
049	Full	12	1500	45,900	14.0	56,800	4.7	50,500	20.2	46,700	4.4	Yes
	Part	11	1300	35,000	16.2	43,000	5.5	37,300	25.8	33,000	4.7	Yes
064	Full	16	1800	56,300	14.7	67,100	4.6	63,800	19.2	55,800	4.3	Yes
	Part	14	1500	42,900	15.7	49,500	5.1	50,000	24.9	41,000	4.3	Yes
072	Full	18	1800	60,400	13.3	80,600	4.6	67,900	17.8	63,100	3.9	Yes
	Part	16	1600	49,700	14.6	60,200	4.8	57,200	22.8	48,400	4.0	Yes
022	Single	8	800	19,700	16.3	23,500	5.3	23,300	27.9	18,900	4.5	Yes
030	Single	8	1000	25,800	17.3	32,000	5.5	28,500	24.9	25,300	4.9	Yes
036	Single	9	1200	31,400	17.6	37,600	5.5	33,900	27.0	30,000	4.7	Yes
042	Single	10	1400	39,000	17.3	41,400	5.3	42,900	25.3	33,000	4.5	Yes
048	Single	12	1500	44,200	15.5	55,400	5.2	48,900	23.8	45,100	4.5	Yes
060	Single	15	1800	54,600	14.4	66,300	4.6	62,300	21.1	52,900	4.1	Yes
070	Single	18	1800	60,200	13.2	76,000	4.2	68,500	19.2	63,000	3.7	Yes

Model	Capacity Modulation	Ground Loop Heat Pump				Energy Star Rated
		Cooling Brine Full Load 77°F Part Load 68°F		Heating Brine Full Load 32°F Part Load 41°F		
		Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	
026	Full	26,200	17.0	19,500	3.9	Yes
	Part	21,000	24.5	16,200	4.4	Yes
038	Full	35,000	17.1	25,700	3.8	Yes
	Part	27,000	25.3	22,100	4.2	Yes
049	Full	47,700	16.1	37,000	3.8	Yes
	Part	38,000	22.9	30,500	4.3	Yes
064	Full	59,100	15.5	43,200	3.6	Yes
	Part	47,900	22.2	36,800	3.9	Yes
072	Full	62,700	15.0	50,300	3.4	Yes
	Part	53,800	20.0	42,800	3.8	Yes
022	Single	21,800	19.5	14,000	3.7	Yes
030	Single	26,800	19.8	19,700	4.0	Yes
036	Single	31,900	19.8	24,000	4.0	Yes
042	Single	39,900	19.9	25,300	3.7	Yes
048	Single	46,200	18.1	35,300	3.8	Yes
060	Single	57,000	17.0	44,500	3.6	Yes
070	Single	63,200	15.1	50,800	3.3	Yes

NOTES: Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature. 4/6/10
Heating capacities based upon 68°F DB, 59°F WB entering air temperature.
All ratings based upon operation at the lower voltage of dual voltage rated models.
Refer to the air handler compatibility table for matching air handler.

ENERGY STAR

AHRI CERTIFIED™ www.ahridirectory.org
Water Source HP
ANSI/AHRI/ASHRAE/ISO13256-1

Design Features

Application Flexibility

- Safe, efficient operation in a wide range of liquid temperatures (25°F to 110°F) and flow rates (as low as 1.5 GPM/ton in open loop applications when EWT >50°F).
- Easily accessible loop pump wiring.

Operating Efficiencies

- Environmentally friendly R-410A refrigerant.
- LED fault and status lights with memory for easy diagnostics.
- Accumulator on all models for compressor reliability.
- AHRI 13256-1 rating for heating COPs, cooling EERs and low water flow requirements.
- Optional hot water generator provides hot water at considerable savings while improving overall system efficiency.
- High-stability expansion valve delivers optimum refrigerant flow over a wide range of conditions.
- Efficient Copeland scroll compressors in all units.
- Oversized coaxial tube water-to-refrigerant heat exchanger operates at low liquid pressure drops.
- Convoluted copper water tube functions efficiently at low flow rates, and provides freeze-damage resistance.

Service Advantages

- Easily removable top, front and side access panels.
- Easily accessible thermal expansion valve.
- Brass, swivel-type water connections for ease of installation.
- High- and low-pressure service ports in refrigerant circuit.
- Swing-out control box providing easy access to all components.

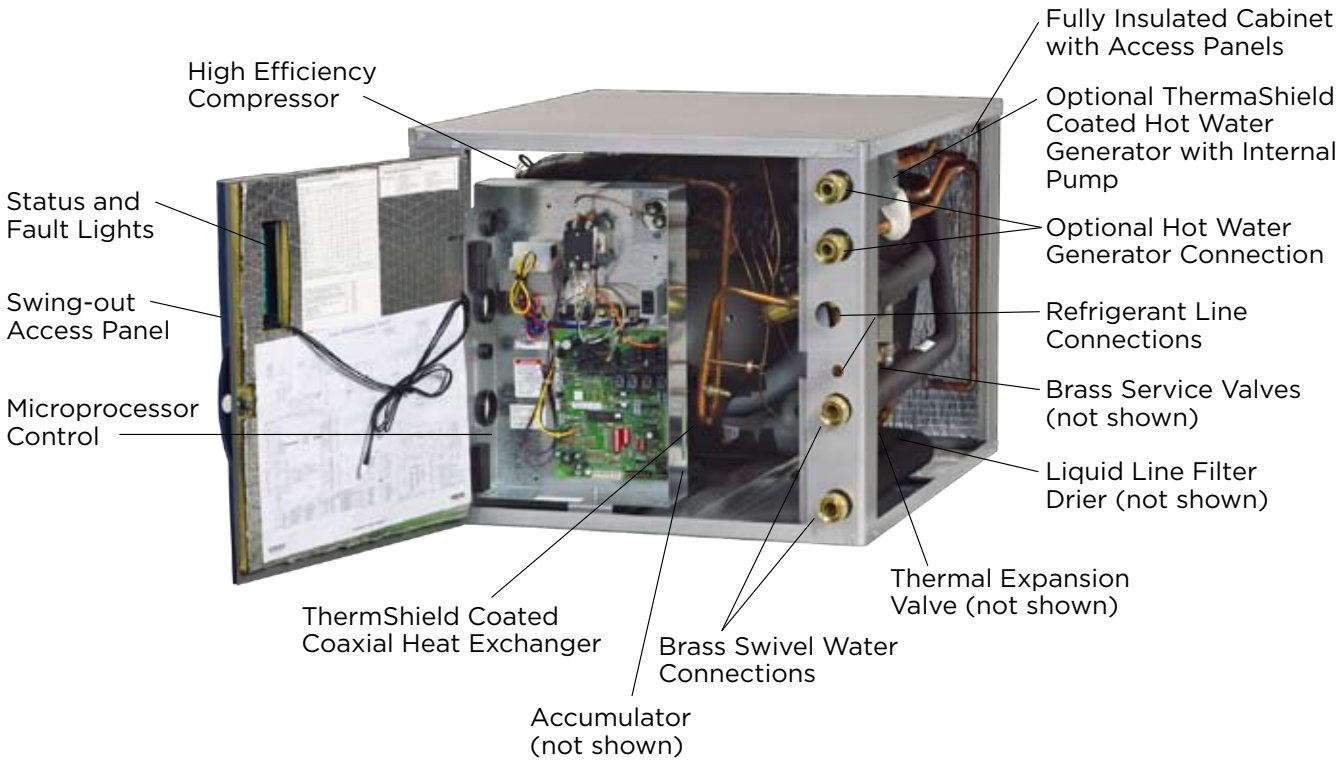
Factory Quality

- All units are manufactured on an automated testing assembly line. This assembly line features monitoring and assembly processes that lead the industry such as:
    - Component verification through bar codes.
    - Multiple automatic leak and pressure tests.
    - Performance of a water-based run test measuring both functionality and performance of the unit.
    - Database management of all run test parameters for service analysis.
    - Integrated fail safe system that prevents packaging of a failed unit.
- Heavy-gauge steel cabinets are painted with durable polyester powder coat paint for long lasting beauty and service.
- All refrigerant brazing is performed in a nitrogen atmosphere.
- All units are deep evacuated to less than 150 microns prior to refrigerant charging.
- All joints are helium leak-tested to insure an annual leak rate of less than 1/4 ounce.
- Refrigerant suction lines, hot water generator coil, and all water pipes are fully insulated to reduce condensation problems in low temperature operation.
- Noise reduction features: Double isolation mounted compressors, insulated cabinet using 1/2-inch coated glass fiber.
- Compressor sound blanket.
- Safety features include high- and low-pressure refrigerant controls to protect the compressor.
- Coaxial heat exchanger and optional hot water generator are ThermaShield coated.

Options and Accessories

- Optional ThermaShield coated hot water generator with internally mounted pump and water heater plumbing connector
- Electronic auto-changeover thermostat with 3-stage heat/2-stage cool and indicator LEDs
- Closed loop flow center and loop circulating kits
- Hose kits
- Additional accessory relay
- Mounting pad
- Well water kits
- IntelliStart compressor soft starter

Envision Indoor Split Features

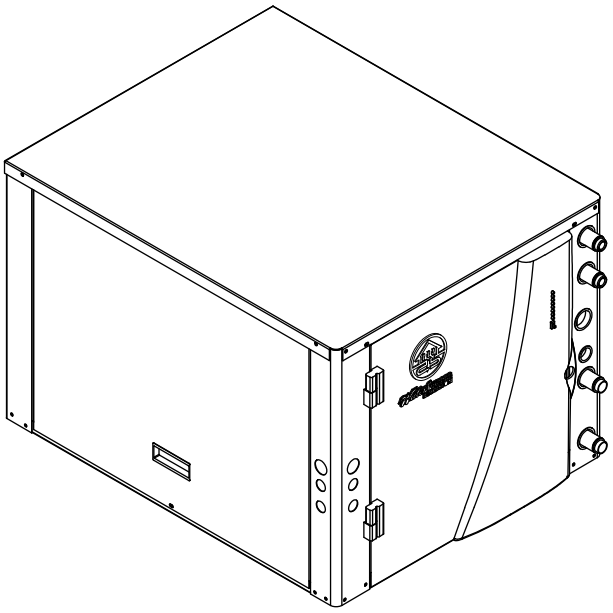


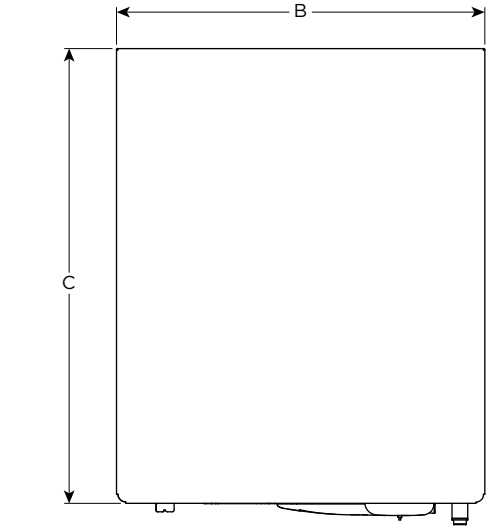
Physical Characteristics

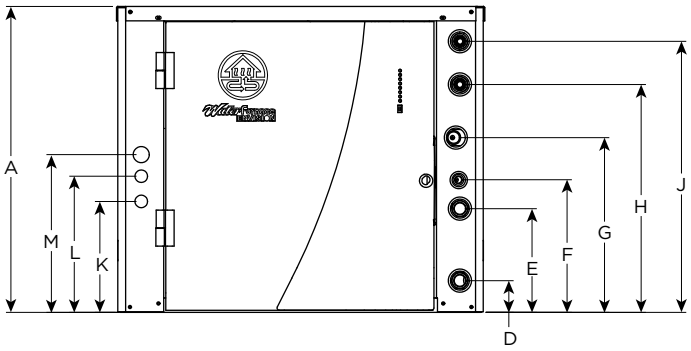
Model	022	030	036	042	048	060	070	026	038	049	064	72
Compressor (1 each)	Single Speed Scroll							Dual Capacity Scroll				
Factory Charge R410a, oz [kg]	56 [1.59]	56 [1.59]	56 [1.59]	74 [2.1]	90 [2.55]	92 [2.61]	108 [3.06]	52 [1.47]	56 [1.59]	90 [2.55]	92 [2.61]	104 [2.95]
Coax and Water Piping												
Water Connections Size - Swivel- in [mm]	1 [25.4]							1 [25.4]				
HWG Connection Size - Swivel - in [mm]	1 [25.4]							1 [25.4]				
Brass Service Valve - Liquid Line - in [mm]	3/8" [9.525]					1/2" [12.7]		3/8" [9.525]			1/2" [12.7]	
Brass Service Valve - Suction Line - in [mm]	5/8" [15.875]			3/4" [19.05]		7/8" [22.225]		5/8" [15.875]	3/4" [19.05]		7/8" [22.225]	
Coax and Piping Water Volume - gal [l]	0.7 [2.6]	1.0 [3.8]	1.3 [4.9]	1.3 [4.9]	1.6 [6.1]	1.6 [6.1]	2.3 [8.7]	0.7 [2.6]	1.3 [4.9]	1.6 [6.1]	1.6 [6.1]	2.3 [8.7]
Weight - Operating, lb [kg]	164 [74]	174 [79]	212 [96]	213 [97]	246 [112]	251 [114]	292 [132]	189 [186]	236 [107]	250 [113]	271 [123]	290 [132]
Weight - Packaged, lb [kg]	184 [83]	194 [88]	232 [105]	233 [106]	266 [121]	271 [123]	312 [142]	209 [95]	256 [116]	270 [122]	291 [132]	310 [141]

NOTES: All units have TXV expansion devices, and 1/2 in. [12.2 mm] and 3/4 in. [19.1 mm] electrical knockouts. 10/29/08
Brass service valves are sweat type valves.

Physical Dimensions







Model	Height	Width	Depth	Water In	Water Out	Service Valve		HWG In	HWG Out	Low Voltage	External Pump	Line Voltage
						Liquid	Gas					
	A	B	C	D	E	F	G	H	J	K	L	M
022-030	19.25	22.50	26.50	1.93	6.93	8.44	11.55	13.43	16.43	8.55	10.30	11.80
038-072	21.25	25.50	31.50	2.21	7.21	9.21	12.14	15.83	18.83	7.71	9.46	10.96

Dimensions are in inches.

Model Nomenclature - Envision Air Handler

1-3	4-6	7	8-9	10	11	12
NAH	036	A	00	0	1	R

Model Type
NAH = Envision Series Air Handler

Unit Capacity

Refrigerant Models	Nom. CFM
022 MBTUH	800
026 MBTUH	925
030 MBTUH	980
036 MBTUH	1225
042 MBTUH	1425
048 MBTUH	1625
060 MBTUH	1760
Hydronic Models	
026 MBTUH	925
036 MBTUH	1225
048 MBTUH	1625
060 MBTUH	1760

Vintage
A = Current

Air Coil
R = Refrigerant
H = Hydronic

Motor
1 = ECM 208-230/60/1

Disconnect
0 = No breaker installed
(only on 5kW & 10kW heaters)
1 = Breaker installed
(only on 15kW & 20kW heaters)

Electric Heat
00 = No electric heat
05 = 5 kW (available on 022-036 only)
10 = 10 kW (available on 030-060 only)
15 = 15 kW (available on 042-060 only)
20 = 20 kW (available on 060 only)

NOTE: Kit NAHBC must be ordered to field convert the NAH042-060 to bottomflow air discharge.

Air Handler Compatibility

Air Handler Sizing Selection

The Envision Air Handlers are designed for R-410A refrigerant and should be matched with Envision Split Series compressor section according to the table below.

Air Handler	Indoor Split Model (Single)	Indoor Split Model (Dual Capacity)	Outdoor Split Model (Dual Capacity)	Airflow (CFM)	Electric Heat (kW)
NAH022A***1R	NSZ022	-		800	5
NAH026A***1R	-	NDZ026	NDS026	925	5
NAH030A***1R	NSZ030	-	-	980	5, 10
NAH036A***1R	NSZ036	-	-	1225	5, 10
NAH036A***1R	-	NDZ038	NDS038	1225	5, 10
NAH042A***1R	NSZ042	-	-	1425	10, 15
NAH048A***1R	NSZ048	-	-	1625	10, 15
NAH048A***1R	-	NDZ049	NDS049	1625	10, 15
NAH060A***1R	NSZ060	-	-	1760	10, 15, 20
NAH060A***1R	-	NDZ064	NDS064	1760	10, 15, 20
NAH060A***1R	NSZ070	-	-	1760	10, 15, 20
NAH060A***1R	-	NDZ072	NDS072	1760	10, 15, 20

6/9/08

Model Nomenclature - Envision Coil

1-2	3	4	5-7	8
NR	A	C	026	C

Model Type
NR = Envision Refrigerant Coil
NH = Envision Hydronic Coil

Configuration
A = "A" Coil

Coil

Cabinet
C = Encased
U = Uncased

Capacity
Refrigerant Models
026 MBTUH
036 MBTUH
048 MBTUH
060 MBTUH
Hydronic Models
060 MBTUH

NOTE: All Refrigerant Coils include TXV.

Refrigerant Coil Compatibility

Encased/Uncased Coil	Indoor Split Model (Single)	Indoor Split Model (Dual Capacity)	Outdoor Split Model (Dual Capacity)	Recommended Airflow (CFM)
NRAC026*	NSZ022	-		800
NRAC026*	-	NDZ026	NDS026	925
NRAC026*	NSZ030	-	-	980
NRAC036*	NSZ036	-	-	1225
NRAC036*	-	NDZ038	NDS038	1225
NRAC048*	NSZ042	-	-	1425
NRAC048*	NSZ048	-	-	1625
NRAC048*	-	NDZ049	NDS049	1625
NRAC060*	NSZ060	-	-	1760
NRAC060*	-	NDZ064	NDS064	1760
NRAC060*	NSZ070	-	-	1760
NRAC060*	-	NDZ072	NDS072	1760

7/14/08

Air Handler Physical Data

Air Handler Model Number (Refrigerant)		NAH022	NAH026	NAH030	NAH036	NAH042	NAH048	NAH060
Evaporator Coil	Air Coil Total Face Area, ft2 [m2]	5.83 [0.54]						
	Tube outside diameter - in. [mm]	3/8 [9.52]						
	Number of rows	2				3		
	Fins per inch	12						
	Suction line connection - in. [mm] sweat	5/8 [15.87]				7/8 [22.22]		
	Liquid line connection - in. [mm] sweat	3/8 [9.52]						
Refrigerant		R-410a						
Nominal cooling capacity - tons [kW]		1.8 [6.44]	2.1 [7.59]	2.5 [8.79]	3 [10.55]	3.5 [12.30]	4 [14.06]	5 [17.58]
Condensate drain connection - (FPT) in. [mm]		3/4 [19.05]						
Blower Wheel Size (Dia x W), in. [mm]		11 x 10 [279 x 254]						
Blower motor type/speeds		ECM variable speed						
Blower motor output - hp [W]		1/2 [373]				1 [746]		
Filter Standard - 1" [51mm] MERV3 disposable, in. [mm]		20 x 24 [508 x 635]						
Electrical characteristics (60hz)		208/230 - 1ph						
Shipping weight - lbs. [kg]		215 [97.52]				220 [99.79]		
Operating weight - lbs. [kg]		195 [88.45]				200 [90.71]		

1/11/08

Line Set Sizes

Unit Size	Air Handler	20 feet		40 feet		60 feet		Factory Charge (oz.)	*Charge Amount with NAH Air Handler (oz.)
		Suction	Liquid	Suction	Liquid	Suction	Liquid		
022	NAH022	5/8" OD	3/8" OD	5/8" OD	3/8" OD	3/4" OD	3/8" OD	56	78
030	NAH030	5/8" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	3/8" OD	56	78
036	NAH036	5/8" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	1/2" OD	56	86
042	NAH042	3/4" OD	3/8" OD	3/4" OD	3/8" OD	7/8" OD	1/2" OD	74	99
048	NAH048	3/4" OD	3/8" OD	7/8" OD	3/8" OD	7/8" OD	1/2" OD	90	115
060	NAH060	7/8" OD	1/2" OD	7/8" OD	1/2" OD	1-1/8" OD	1/2" OD	92	112
070	NAH060	7/8" OD	1/2" OD	7/8" OD	1/2" OD	1-1/8" OD	1/2" OD	108	132
026	NAH026	5/8" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	1/2" OD	52	74
038	NAH036	3/4" OD	3/8" OD	3/4" OD	3/8" OD	3/4" OD	1/2" OD	56	86
049	NAH048	3/4" OD	3/8" OD	7/8" OD	3/8" OD	7/8" OD	1/2" OD	90	115
064	NAH060	7/8" OD	1/2" OD	7/8" OD	1/2" OD	1-1/8" OD	1/2" OD	92	112
072	NAH060	7/8" OD	1/2" OD	7/8" OD	1/2" OD	1-1/8" OD	1/2" OD	104	132

NOTES: * The "Charge Amount with NAH Air Handler" column is based on the charge amount for a NAH Air Handler+Compressor Section/Split. Additional charge will have to be added accordingly for line set length.
After Charge is added adjustments can be made to get appropriate subcooling and superheat.
Additional charge for R-410A is 0.50 oz. per ft. for 3/8 in. and 1.0 oz. per ft. for 1/2 in. tube.

4/6/10

Electrical Data

Model	Rated Voltage	Voltage Min/Max	Compressor				HWA Pump FLA	Ext Loop FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
			MCC	RLA	LRA	LRA*					
022	208-230/60/1	197/253	14.0	9.0	48.0	17.0	0.4	5.4	14.8	17.1	25
030	208-230/60/1	197/253	20.0	12.8	58.3	21.0	0.4	5.4	18.6	21.8	30
036	208-230/60/1	197/253	22.0	14.1	73.0	26.0	0.4	5.4	19.9	23.4	35
042	208-230/60/1	197/253	26.0	16.6	79.0	28.0	0.4	5.4	22.4	26.6	40
048	208-230/60/1	197/253	31.0	19.8	109.0	38.0	0.4	5.4	25.6	30.6	50
060	208-230/60/1	197/253	41.2	26.4	134.0	47.0	0.4	5.4	32.2	38.8	60
070	208-230/60/1	197/253	47.0	30.1	158.0	55.0	0.4	5.4	35.9	43.4	70
026	208-230/60/1	197/253	16.0	10.2	52.0	18.0	0.4	5.4	16.0	18.6	25
038	208-230/60/1	197/253	26.0	16.6	82.0	29.0	0.4	5.4	22.4	26.6	40
049	208-230/60/1	197/253	33.0	21.1	96.0	34.0	0.4	5.4	26.9	32.2	50
064	208-230/60/1	197/253	40.0	25.6	118.0	41.0	0.4	5.4	31.4	37.8	60
072	208-230/60/1	197/253	42.5	27.2	150.0	53.0	0.4	5.4	33.0	39.8	60

Rated voltage of 208-230/60/1
HACR circuit breaker in USA only
Min/Max Voltage of 197/253
All fuses Class RK-5
* With optional IntelliStart

5/6/09

Reference Calculations

Heating Calculations:	Cooling Calculations:
$LWT = EWT - \frac{HE}{GPM \times 500}$	$LWT = EWT + \frac{HR}{GPM \times 500}$
$LAT = EAT + \frac{HC}{CFM \times 1.08}$	$LAT\ (DB) = EAT\ (DB) - \frac{SC}{CFM \times 1.08}$
	$LC = TC - SC$
$TH = HC + HW$	$S/T = \frac{SC}{TC}$

Legend and Notes

ABBREVIATIONS AND DEFINITIONS:

CFM = airflow, cubic feet/minute
EWT = entering water temperature, Fahrenheit
GPM = water flow in gallons/minute
WPD = water pressure drop, PSI and feet of water
EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)
HC = air heating capacity, MBTUH
TC = total cooling capacity, MBTUH
SC = sensible cooling capacity, MBTUH
kW = total power unit input, kilowatts
HR = total heat of rejection, MBTUH
HE = total heat of extraction, MBTUH
HWC = hot water generator capacity, MBTUH
EER = Energy Efficient Ratio = BTU output/Watt input
COP = Coefficient of Performance = BTU output/BTU input
LWT = leaving water temperature, °F
LAT = leaving air temperature, °F
TH = total heating capacity, MBTUH
LC = latent cooling capacity, MBTUH
S/T = sensible to total cooling ratio

Hot water generator capacity based on 0.4 GPM flow per nominal unit ton at 90°F entering hot water temperature. Performance Data tables do not include water pumping watts and are based upon 15% (by volume) methanol antifreeze solution. Multiple Flow Rates (for EWT) are shown in the Performance Data tables. The lowest flow rate shown is used for geothermal open loop/well water systems with a minimum 50° F. The second flow rate shown is the minimum geothermal closed loop flow rate. The third flow rate shown is optimum for geothermal closed loop and the suggested flow rate for boiler tower applications. Interpolation between EWT, GPM and CFM data is permissible. Extrapolation for heating data down to 25°F is permissible. Catalog illustrations cover the general appearance of products at time of publication. We reserve the right to make changes in design and construction at any time without notice.

Operating Limits

Operating Limits	Cooling		Heating	
	(°F)	(°C)	(°F)	(°C)
Air Limits				
Min. Ambient Air	45	7.2	45	7.2
Rated Ambient Air	80	26.7	70	21.1
Max. Ambient Air	100	37.8	85	29.4
Min. Entering Air	50	10.0	40	4.4
Rated Entering Air db/wb	80.6/66.2	27/19	68	20.0
Max. Entering Air db/wb	110/83	43/28.3	80	26.7
Water Limits				
Min. Entering Water	30	-1.1	20	-6.7
Normal Entering Water	50-110	10-43.3	30-70	-1.1
Max. Entering Water	120	48.9	90	32.2

NOTE: Minimum/maximum limits are only for start-up conditions, and are meant for bringing the space up to occupancy temperature. Units are not designed to operate at the minimum/maximum conditions on a regular basis. The operating limits are dependant upon three primary factors: 1) water temperature, 2) return air temperature, and 3) ambient temperature. When any of the factors are at the minimum or maximum levels, the other two factors must be at the normal level for proper and reliable unit operation.

Operating Parameters

Single Speed Models - NSZ022 thru NSZ070 (with NAH Series Air Handler)

Cooling -- No Hot Water Generator									
Entering Water Temp °F	Water Flow GPM/Ton	NSZ022 thru NSZ060		NSZ070		NSZ022 thru NSZ070			
		Suction Pressure PSIG	Discharge Pressure PSIG	Suction Pressure PSIG	Discharge Pressure PSIG	Superheat	Subcooling	Water Temp Rise °F	Air Temp Drop °F DB
50	1.5	115-150	205-245	115-130	205-245	12-22	7-14	5-22	18-24
	3.0	110-145	200-235	110-125	200-235	14-26	6-12	8-12	18-24
70	1.5	125-160	260-300	125-160	275-300	8-14	8-12	5-19	18-22
	3.0	115-150	265-295	115-135	265-295	9-16	4-16	5-12	18-22
90	1.5	125-160	320-370	125-160	330-370	8-14	6-13	14-22	18-22
	3.0	120-150	305-355	120-150	325-365	9-16	4-16	5-12	18-22

Heating -- No Hot Water Generator									
Entering Water Temp °F	Water Flow GPM/Ton	NSZ022 thru NSZ060		NSZ070		NSZ022 thru NSZ070			
		Suction Pressure PSIG	Discharge Pressure PSIG	Suction Pressure PSIG	Discharge Pressure PSIG	Superheat	Subcooling	Water Temp Drop °F	Air Temp Rise °F DB
30	1.5	65-85	290-310	65-85	330-360	7-13	2-21	7-10	18-24
	3.0	70-90	265-330	70-90	335-365	6-12	2-21	3-7	22-26
50	1.5	95-120	320-345	95-120	395-430	6-12	2-21	5-11	21-34
	3.0	100-125	280-365	100-125	375-405	6-12	4-22	5-11	24-33
70	1.5	135-155	315-380	135-155	435-485	8-14	10-20	8-14	26-46
	3.0	135-156	315-395	135-155	440-490	8-14	10-20	3-10	25-48

NOTES: Cooling performance based on entering air temperatures of 80°F DB, 67°F WB.
Heating performance based on entering air temperatures of 70°DB.

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Operating Parameters cont.

NDZ026 thru NDZ072 (with NAH Series Air Handler)

First Stage Operation

Cooling -- No Hot Water Generator									
Entering Water Temp °F	Water Flow GPM/Ton	NDZ026 thru NDZ064		NDZ072		NDZ026 thru NDZ072			
		Suction Pressure PSIG	Discharge Pressure PSIG	Suction Pressure PSIG	Discharge Pressure PSIG	Superheat	Subcooling	Water Temp Rise °F	Air Temp Drop °F DB
50	1.5	130-150	193-230	130-150	200-245	8-16	7-14	7-20	18-24
	3.0	128-153	190-230	125-140	205-240	8-16	3-10	9-14	18-25
70	1.5	130-150	238-282	135-150	240-280	6-16	4-16	9-18	18-25
	3.0	130-155	238-262	125-145	245-270	6-18	5-11	5-10	18-24
90	1.5	133-148	308-340	130-155	300-365	7-16	6-18	4-11	19-25
	3.0	138-153	303-333	130-165	305-350	7-18	7-14	5-9	17-22

Heating -- No Hot Water Generator									
Entering Water Temp °F	Water Flow GPM/Ton	NDZ026 thru NDZ064		NDZ072		NDZ026 thru NDZ072			
		Suction Pressure PSIG	Discharge Pressure PSIG	Suction Pressure PSIG	Discharge Pressure PSIG	Superheat	Subcooling	Water Temp Drop °F	Air Temp Rise °F DB
30	1.5	78-100	275-325	85-105	325-385	6-11	4-16	2-8	20-29
	3.0	78-110	285-325	90-120	335-375	6-11	4-16	3-7	20-32
50	1.5	105-120	305-350	100-130	340-400	5-12	4-16	5-12	24-32
	3.0	110-125	305-355	110-125	345-395	9-15	2-14	4-9	20-34
70	1.5	140-155	305-355	130-165	370-430	5-12	2-14	8-12	24-39
	3.0	145-160	330-360	140-160	375-425	7-17	7-15	4-9	24-39

Second Stage Operation

Cooling -- No Hot Water Generator									
Entering Water Temp °F	Water Flow GPM/Ton	NDZ026 thru NDZ064		NDZ072		NDZ026 thru NDZ072			
		Suction Pressure PSIG	Discharge Pressure PSIG	Suction Pressure PSIG	Discharge Pressure PSIG	Superheat	Subcooling	Water Temp Rise °F	Air Temp Drop °F DB
50	1.5	120-140	200-245	105-150	210-270	7-17	6-14	7-16	19-26
	3.0	115-140	195-290	110-130	215-260	7-15	4-11	8-12	20-24
70	1.5	121-136	265-310	105-150	280-350	9-15	6-18	7-15	19-25
	3.0	123-139	265-310	110-140	285-320	10-16	8-16	8-12	18-24
90	1.5	122-140	310-360	115-140	325-385	8-14	6-18	10-16	18-24
	3.0	123-139	310-350	120-135	330-355	8-14	7-15	8-12	17-23

Heating -- No Hot Water Generator									
Entering Water Temp °F	Water Flow GPM/Ton	NDZ026 thru NDZ064		NDZ072		NDZ026 thru NDZ072			
		Suction Pressure PSIG	Discharge Pressure PSIG	Suction Pressure PSIG	Discharge Pressure PSIG	Superheat	Subcooling	Water Temp Drop °F	Air Temp Rise °F DB
30	1.5	72-89	295-350	70-100	320-370	7-18	10-20	4-13	18-24
	3.0	73-87	305-330	75-90	315-365	7-18	10-20	4-16	18-27
50	1.5	100-120	320-365	95-130	375-430	6-14	6-18	4-10	23-34
	3.0	105-120	355-365	100-125	370-420	6-14	6-18	4-9	20-37
70	1.5	142-158	360-380	130-165	400-470	6-12	4-15	6-15	28-38
	3.0	138-152	365-390	135-160	405-465	7-14	4-15	6-12	24-42

NOTES: Cooling performance based on entering air temperatures of 80°F DB, 67°F WB.
Heating performance based on entering air temperatures of 70°DB.

5/29/08

NSZ022 - Performance Data

700 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	3.0	0.9	2.2	Operation not recommended							Operation not recommended							
	4.5	1.8	4.2															
	6.0	2.9	6.8	600	12.1	1.19	8.1	88.7	2.99	1.6								
				700	12.3	1.20	8.2	86.3	3.00	1.5								
30	3.0	0.9	2.1	Operation not recommended							Operation not recommended							
	4.5	1.7	4.0	600	14.2	1.19	10.2	92.0	3.51	1.7	600	22.7	15.4	0.68	0.68	25.0	33.5	-
				700	14.5	1.20	10.4	89.2	3.55	1.6	700	23.1	16.8	0.73	0.71	25.5	32.4	-
	6.0	2.8	6.6	600	14.5	1.20	10.4	92.4	3.55	1.8	600	22.8	15.4	0.67	0.66	25.1	34.8	-
				700	14.7	1.21	10.6	89.5	3.57	1.6	700	23.4	16.8	0.72	0.69	25.8	33.9	-
40	3.0	0.9	2.0	Operation not recommended							Operation not recommended							
	4.5	1.7	3.9	600	16.8	1.21	12.7	95.9	4.07	1.9	600	22.5	14.7	0.65	0.68	24.8	33.0	-
				700	17.1	1.21	13.0	92.7	4.14	1.8	700	22.9	16.1	0.70	0.71	25.3	32.0	-
	6.0	2.8	6.4	600	17.1	1.22	12.9	96.4	4.09	2.0	600	22.7	14.7	0.65	0.66	24.9	34.3	-
				700	17.4	1.22	13.2	93.0	4.17	1.8	700	23.2	16.1	0.69	0.69	25.5	33.5	-
50	3.0	0.9	2.0	600	18.2	1.22	14.1	98.2	4.37	2.1	600	23.9	15.0	0.63	0.87	26.9	27.5	1.1
				700	18.6	1.22	14.4	94.6	4.45	2.0	700	24.4	16.4	0.67	0.90	27.5	27.0	1.2
	4.5	1.6	3.8	600	19.2	1.25	14.9	99.6	4.49	2.2	600	24.2	15.2	0.63	0.83	27.0	29.3	1.0
				700	19.5	1.25	15.3	95.8	4.57	2.0	700	24.7	16.6	0.67	0.86	27.6	28.7	1.1
	6.0	2.7	6.2	600	19.4	1.27	15.1	100.0	4.49	2.2	600	24.4	15.2	0.62	0.80	27.1	30.5	1.0
				700	19.9	1.26	15.6	96.3	4.63	2.1	700	24.9	16.6	0.67	0.83	27.7	29.8	1.1
60	3.0	0.8	1.9	600	20.6	1.26	16.3	101.8	4.78	2.4	600	22.2	14.4	0.65	0.89	25.2	24.9	1.3
				700	21.0	1.25	16.8	97.8	4.94	2.2	700	22.6	15.6	0.69	0.92	25.8	24.5	1.4
	4.5	1.6	3.7	600	21.5	1.29	17.2	103.3	4.91	2.4	600	22.4	14.5	0.65	0.84	25.3	26.6	1.2
				700	22.1	1.28	17.7	99.2	5.06	2.3	700	22.9	15.8	0.69	0.88	25.9	26.1	1.3
	6.0	2.6	6.0	600	21.9	1.30	17.5	103.8	4.92	2.5	600	22.6	14.5	0.64	0.82	25.4	27.6	1.1
				700	22.5	1.29	18.1	99.7	5.11	2.3	700	23.1	15.8	0.68	0.85	26.0	27.1	1.3
70	3.0	0.8	1.8	600	23.0	1.32	18.5	105.4	5.09	2.7	600	22.9	14.9	0.65	1.10	26.7	20.8	1.6
				700	23.5	1.30	19.1	101.1	5.31	2.5	700	23.4	16.1	0.69	1.15	27.3	20.4	1.7
	4.5	1.5	3.6	600	24.0	1.35	19.4	107.0	5.21	2.7	600	23.1	14.9	0.65	1.04	26.6	22.2	1.5
				700	24.7	1.33	20.2	102.7	5.44	2.5	700	23.6	16.3	0.69	1.08	27.3	21.8	1.7
	6.0	2.5	5.8	600	24.4	1.37	19.8	107.7	5.24	2.8	600	23.4	14.9	0.64	1.02	26.8	23.0	1.4
				700	25.1	1.34	20.5	103.2	5.48	2.6	700	23.8	16.3	0.68	1.05	27.4	22.7	1.6
80	3.0	0.8	1.8	600	25.0	1.37	20.3	108.6	5.36	3.0	600	21.0	13.9	0.66	1.15	24.9	18.3	2.0
				700	25.7	1.33	21.2	104.0	5.65	2.8	700	21.4	15.1	0.70	1.19	25.5	18.0	2.2
	4.5	1.5	3.4	600	26.1	1.40	21.3	110.2	5.47	3.1	600	21.2	14.0	0.66	1.09	24.9	19.4	1.9
				700	26.9	1.36	22.3	105.6	5.79	2.8	700	21.6	15.3	0.71	1.12	25.5	19.2	2.1
	6.0	2.4	5.6	600	26.5	1.41	21.7	110.9	5.50	3.2	600	21.4	14.0	0.66	1.06	25.0	20.3	1.8
				700	27.4	1.38	22.7	106.2	5.84	2.9	700	21.8	15.3	0.70	1.09	25.5	20.0	2.0
90	3.0	0.7	1.7	600	27.0	1.44	22.1	111.7	5.50	3.3	600	20.3	14.1	0.70	1.42	25.1	14.2	2.5
				700	27.9	1.40	23.2	107.0	5.86	3.1	700	20.7	15.3	0.74	1.47	25.7	14.1	2.7
	4.5	1.4	3.3	600	28.2	1.47	23.2	113.5	5.61	3.4	600	20.5	14.3	0.70	1.35	25.1	15.2	2.4
				700	29.2	1.42	24.4	108.6	6.02	3.2	700	20.9	15.5	0.74	1.39	25.6	15.1	2.6
	6.0	2.3	5.4	600	28.7	1.49	23.6	114.2	5.63	3.5	600	20.7	14.3	0.69	1.30	25.2	15.9	2.2
				700	29.7	1.44	24.8	109.3	6.05	3.3	700	21.1	15.5	0.74	1.35	25.7	15.6	2.4
100	3.0	0.7	1.7	Operation not recommended							Operation not recommended							
	4.5	1.4	3.2								600	18.8	13.3	0.71	1.42	23.6	13.2	2.9
											700	19.2	14.5	0.76	1.46	24.1	13.2	3.2
	6.0	2.2	5.2								600	19.0	13.3	0.70	1.37	23.7	13.8	2.7
											700	19.3	14.5	0.75	1.42	24.2	13.7	3.0
110	3.0	0.7	1.6								Operation not recommended							
	4.5	1.3	3.1								600	17.6	13.4	0.76	1.72	23.4	10.2	3.6
											700	17.9	14.6	0.81	1.77	24.0	10.1	3.9
	6.0	2.2	5.0								600	17.7	13.4	0.75	1.67	23.4	10.6	3.3
											700	18.1	14.6	0.80	1.72	24.0	10.5	3.7
120	3.0	0.7	1.5								Operation not recommended							
	4.5	1.3	2.9								600	16.3	13.0	0.79	1.95	23.0	8.4	4.3
											700	16.6	14.1	0.85	2.00	23.4	8.3	4.7
	6.0	2.1	4.8								600	16.4	13.0	0.79	1.89	22.9	8.7	4.0
											700	16.8	14.1	0.84	1.95	23.4	8.6	4.4

NSZ030 - Performance Data

900 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	4.0	1.5	3.5	Operation not recommended							Operation not recommended							
	6.0	3.1	7.2															
	8.0	5.2	12.1	700	16.6	1.52	11.4	92.0	3.19	2.2								
				900	16.9	1.56	11.6	87.4	3.18	1.9								
30	4.0	1.5	3.4	Operation not recommended							Operation not recommended							
	6.0	3.0	7.0	700	19.1	1.52	13.9	95.2	3.68	2.3	700	24.3	15.5	0.64	0.83	27.1	29.4	-
				900	19.5	1.55	14.2	90.0	3.69	2.1	900	24.9	17.4	0.70	0.89	28.0	27.9	-
	8.0	5.1	11.8	700	19.5	1.53	14.3	95.9	3.74	2.4	700	24.5	15.5	0.63	0.81	27.2	30.1	-
				900	19.9	1.56	14.5	90.5	3.73	2.2	900	25.3	17.3	0.68	0.86	28.3	29.4	-
40	4.0	1.4	3.3	Operation not recommended							Operation not recommended							
	6.0	2.9	6.8	700	22.3	1.57	17.0	99.5	4.17	2.6	700	26.3	16.8	0.64	0.90	29.4	29.0	-
				900	22.9	1.59	17.4	93.5	4.21	2.4	900	27.0	18.8	0.70	0.97	30.4	27.8	-
	8.0	4.9	11.4	700	22.9	1.59	17.4	100.2	4.22	2.7	700	26.5	16.7	0.63	0.89	29.6	29.9	-
				900	23.3	1.61	17.9	94.0	4.26	2.4	900	27.4	18.8	0.68	0.94	30.6	29.1	-
50	4.0	1.4	3.2	700	24.5	1.61	19.0	102.4	4.45	2.8	700	28.1	17.9	0.64	1.04	31.6	26.9	1.3
				900	25.0	1.63	19.5	95.7	4.51	2.6	900	28.9	20.2	0.70	1.11	32.7	26.0	1.4
	6.0	2.8	6.6	700	25.3	1.62	19.7	103.4	4.58	2.9	700	28.1	18.1	0.64	1.00	31.6	28.0	1.2
				900	25.9	1.63	20.3	96.6	4.65	2.6	900	29.0	20.3	0.70	1.07	32.6	27.1	1.3
	8.0	4.8	11.1	700	25.8	1.64	20.2	104.2	4.62	3.0	700	28.4	18.1	0.64	0.99	31.8	28.9	1.1
				900	26.5	1.65	20.8	97.2	4.71	2.7	900	29.3	20.3	0.69	1.04	32.9	28.1	1.3
60	4.0	1.4	3.1	700	27.4	1.68	21.7	106.3	4.79	3.1	700	27.4	17.6	0.64	1.15	31.3	23.9	1.6
				900	28.2	1.68	22.4	99.0	4.91	2.9	900	28.2	19.8	0.70	1.22	32.4	23.2	1.7
	6.0	2.8	6.4	700	28.4	1.70	22.6	107.5	4.90	3.2	700	27.5	17.7	0.65	1.10	31.2	24.9	1.5
				900	29.2	1.69	23.4	100.0	5.05	3.0	900	28.3	19.8	0.70	1.17	32.3	24.2	1.6
	8.0	4.6	10.7	700	28.9	1.72	23.1	108.3	4.94	3.3	700	27.8	17.7	0.64	1.08	31.5	25.7	1.4
				900	29.7	1.71	23.9	100.6	5.10	3.1	900	28.6	19.9	0.69	1.14	32.5	25.0	1.5
70	4.0	1.3	3.0	700	30.5	1.76	24.5	110.4	5.07	3.5	700	27.6	17.9	0.65	1.28	31.9	21.5	2.0
				900	31.4	1.76	25.4	102.3	5.24	3.3	900	28.4	20.1	0.71	1.35	33.0	21.0	2.1
	6.0	2.7	6.2	700	31.5	1.79	25.4	111.7	5.16	3.6	700	27.6	17.9	0.65	1.23	31.9	22.4	1.8
				900	32.5	1.77	26.5	103.4	5.38	3.4	900	28.5	20.1	0.70	1.30	32.9	21.9	2.0
	8.0	4.5	10.4	700	32.1	1.81	25.9	112.5	5.19	3.7	700	27.9	17.9	0.64	1.21	32.1	23.1	1.7
				900	33.1	1.79	27.0	104.0	5.41	3.4	900	28.8	20.1	0.70	1.27	33.1	22.6	1.9
80	4.0	1.3	2.9	700	33.0	1.84	26.7	113.6	5.24	4.0	700	26.4	17.7	0.67	1.43	31.3	18.4	2.4
				900	34.0	1.82	27.8	105.0	5.49	3.7	900	27.2	19.8	0.73	1.50	32.4	18.1	2.6
	6.0	2.6	5.9	700	34.2	1.87	27.8	115.2	5.35	4.1	700	26.5	17.7	0.67	1.38	31.2	19.2	2.3
				900	35.3	1.84	29.0	106.3	5.62	3.8	900	27.4	19.8	0.72	1.44	32.3	19.0	2.5
	8.0	4.3	10.0	700	34.7	1.90	28.2	115.9	5.35	4.2	700	26.8	17.7	0.66	1.35	31.4	19.9	2.1
				900	35.9	1.86	29.5	106.9	5.65	3.9	900	27.6	19.9	0.72	1.42	32.5	19.5	2.4
90	4.0	1.2	2.8	700	35.5	1.94	28.9	117.0	5.35	4.4	700	24.4	16.7	0.68	1.60	29.9	15.3	3.0
				900	36.8	1.90	30.3	107.8	5.67	4.1	900	25.2	18.7	0.74	1.66	30.9	15.2	3.2
	6.0	2.5	5.7	700	36.9	1.97	30.1	118.8	5.47	4.6	700	24.6	16.7	0.68	1.54	29.8	16.0	2.8
				900	38.2	1.93	31.6	109.3	5.80	4.2	900	25.4	18.7	0.74	1.60	30.8	15.9	3.1
	8.0	4.2	9.6	700	37.3	2.00	30.5	119.4	5.46	4.7	700	24.8	16.8	0.68	1.50	30.0	16.5	2.6
				900	38.8	1.95	32.1	109.9	5.82	4.4	900	25.6	18.8	0.73	1.57	31.0	16.3	2.9
100	4.0	1.2	2.7								Operation not recommended							
	6.0	2.4	5.5								700	23.5	16.7	0.71	1.73	29.4	13.5	3.5
											900	24.2	18.7	0.77	1.79	30.3	13.5	3.8
	8.0	4.0	9.3								700	23.7	16.8	0.71	1.70	29.5	14.0	3.3
											900	24.4	18.8	0.77	1.76	30.4	13.9	3.6
110	4.0	1.1	2.6								Operation not recommended							
	6.0	2.3	5.3								700	20.0	15.7	0.79	1.94	26.6	10.3	4.3
											900	20.6	17.5	0.85	1.99	27.4	10.3	4.6
	8.0	3.9	8.9								700	20.1	15.8	0.78	1.89	26.6	10.6	4.0
											900	20.8	17.6	0.84	1.95	27.5	10.7	4.4
120	4.0	1.1	2.5								Operation not recommended							
	6.0	2.2	5.1								700	19.4	15.2	0.78	2.18	26.8	8.9	5.1
											900	19.9	16.9	0.85	2.24	27.6	8.9	5.6
	8.0	3.7	8.6								700	19.5	15.3	0.78	2.13	26.7	9.1	4.8
											900	20.2	16.9	0.84	2.18	27.6	9.2	5.3

NSZ036 - Performance Data

1250 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	5.0	1.0	2.4	Operation not recommended							Operation not recommended							
	7.0	2.1	4.9															
	9.0	3.6	8.2	1050	20.5	1.81	14.3	88.0	3.31	2.6								
				1250	20.8	1.85	14.5	85.4	3.30	2.4								
30	5.0	1.0	2.3	Operation not recommended							Operation not recommended							
	7.0	2.1	4.7	1050	23.1	1.83	16.8	90.4	3.69	2.8	1050	27.3	17.6	0.65	1.02	30.7	26.7	-
				1250	23.6	1.87	17.2	87.5	3.70	2.6	1250	28.0	19.7	0.70	1.10	31.8	25.4	-
	9.0	3.5	8.0	1050	23.7	1.85	17.4	90.9	3.75	2.9	1050	27.5	17.6	0.64	1.00	30.9	27.5	-
				1250	24.1	1.89	17.7	87.9	3.74	2.6	1250	28.5	19.7	0.69	1.06	32.1	26.8	-
40	5.0	1.0	2.3	Operation not recommended							Operation not recommended							
	7.0	2.0	4.6	1050	27.3	1.89	20.9	94.1	4.24	3.2	1050	29.9	19.6	0.66	1.12	33.7	26.7	-
				1250	28.0	1.92	21.4	90.7	4.28	2.9	1250	30.7	21.9	0.71	1.20	34.8	25.6	-
	9.0	3.4	7.8	1050	28.0	1.91	21.5	94.7	4.29	3.2	1050	30.1	19.5	0.65	1.10	33.9	27.5	-
				1250	28.6	1.94	22.0	91.2	4.33	3.0	1250	31.2	21.9	0.70	1.16	35.1	26.8	-
50	5.0	1.0	2.2	1050	29.2	1.92	22.7	95.8	4.47	3.4	1050	32.2	21.1	0.66	1.29	36.6	25.0	1.5
				1250	29.9	1.93	23.3	92.1	4.53	3.2	1250	33.2	23.8	0.72	1.37	37.8	24.2	1.6
	7.0	1.9	4.5	1050	30.2	1.93	23.6	96.6	4.59	3.5	1050	32.3	21.3	0.66	1.24	36.5	26.1	1.4
				1250	30.9	1.94	24.3	92.9	4.67	3.2	1250	33.2	23.9	0.72	1.32	37.7	25.2	1.5
	9.0	3.3	7.5	1050	30.8	1.95	24.2	97.2	4.63	3.6	1050	32.6	21.3	0.65	1.21	36.7	26.9	1.3
				1250	31.6	1.96	24.9	93.4	4.73	3.3	1250	33.6	23.9	0.71	1.29	38.0	26.2	1.5
60	5.0	0.9	2.1	1050	33.4	1.99	26.6	99.5	4.92	3.8	1050	31.9	21.6	0.68	1.40	36.7	22.8	1.8
				1250	34.3	2.00	27.5	95.4	5.04	3.6	1250	32.9	24.3	0.74	1.49	38.0	22.1	1.9
	7.0	1.9	4.3	1050	34.6	2.01	27.7	100.5	5.03	4.0	1050	32.0	21.8	0.68	1.35	36.6	23.7	1.7
				1250	35.5	2.01	28.7	96.3	5.18	3.7	1250	33.0	24.4	0.74	1.43	37.9	23.1	1.9
	9.0	3.1	7.3	1050	35.2	2.04	28.3	101.1	5.07	4.1	1050	32.4	21.8	0.67	1.32	36.9	24.5	1.6
				1250	36.2	2.03	29.3	96.8	5.23	3.7	1250	33.4	24.4	0.73	1.40	38.1	23.9	1.8
70	5.0	0.9	2.1	1050	36.4	2.03	29.5	102.1	5.25	4.3	1050	32.4	22.5	0.69	1.55	37.7	20.8	2.3
				1250	37.5	2.02	30.6	97.7	5.43	4.0	1250	33.4	25.3	0.76	1.64	39.0	20.3	2.4
	7.0	1.8	4.2	1050	37.6	2.06	30.6	103.2	5.34	4.5	1050	32.5	22.6	0.70	1.50	37.6	21.7	2.1
				1250	38.8	2.04	31.8	98.7	5.57	4.1	1250	33.5	25.3	0.75	1.58	38.8	21.2	2.3
	9.0	3.0	7.0	1050	38.3	2.09	31.2	103.8	5.38	4.6	1050	32.8	22.6	0.69	1.47	37.8	22.4	2.0
				1250	39.5	2.06	32.4	99.2	5.60	4.2	1250	33.8	25.4	0.75	1.55	39.1	21.9	2.2
80	5.0	0.9	2.0	1050	40.2	2.11	33.0	105.4	5.57	4.8	1050	31.6	22.4	0.71	1.73	37.5	18.3	2.8
				1250	41.5	2.09	34.4	100.7	5.83	4.5	1250	32.6	25.1	0.77	1.81	38.7	18.0	3.0
	7.0	1.7	4.0	1050	41.6	2.15	34.3	106.7	5.68	5.0	1050	31.7	22.5	0.71	1.66	37.4	19.1	2.6
				1250	43.0	2.11	35.8	101.9	5.97	4.6	1250	32.7	25.1	0.77	1.74	38.6	18.8	2.9
	9.0	2.9	6.8	1050	42.3	2.18	34.8	107.3	5.69	5.1	1050	32.0	22.5	0.70	1.63	37.6	19.7	2.5
				1250	43.7	2.14	36.4	102.4	6.00	4.7	1250	33.0	25.2	0.76	1.71	38.8	19.4	2.7
90	5.0	0.8	1.9	1050	42.5	2.16	35.1	107.4	5.76	5.4	1050	29.6	21.8	0.74	2.05	36.6	14.4	3.5
				1250	44.0	2.11	36.8	102.6	6.10	5.0	1250	30.5	24.4	0.80	2.14	37.8	14.3	3.7
	7.0	1.7	3.9	1050	44.1	2.19	36.6	108.9	5.89	5.6	1050	29.8	21.8	0.73	1.97	36.5	15.1	3.3
				1250	45.7	2.14	38.4	103.8	6.24	5.2	1250	30.7	24.4	0.79	2.05	37.7	15.0	3.6
	9.0	2.8	6.6	1050	44.6	2.23	37.0	109.4	5.87	5.8	1050	30.1	21.9	0.73	1.93	36.7	15.6	3.1
				1250	46.3	2.17	38.9	104.3	6.26	5.3	1250	31.0	24.5	0.79	2.02	37.9	15.4	3.4
100	5.0	0.8	1.8	Operation not recommended							Operation not recommended							
	7.0	1.6	3.8								1050	29.0	21.7	0.75	2.06	36.0	14.1	4.1
											1250	29.9	24.2	0.81	2.13	37.1	14.0	4.4
	9.0	2.7	6.3								1050	29.2	21.8	0.75	2.01	36.1	14.5	3.8
											1250	30.2	24.3	0.81	2.08	37.3	14.5	4.2
110	5.0	0.8	1.8	Operation not recommended							Operation not recommended							
	7.0	1.6	3.6								1050	26.1	20.2	0.77	2.27	33.9	11.5	5.0
											1250	26.9	22.5	0.84	2.34	34.9	11.5	5.4
	9.0	2.6	6.1								1050	26.3	20.3	0.77	2.22	33.9	11.8	4.6
											1250	27.2	22.6	0.83	2.29	35.0	11.9	5.1
120	5.0	0.7	1.7								Operation not recommended							
	7.0	1.5	3.5								1050	24.5	19.9	0.81	2.55	33.2	9.6	6.0
											1250	25.2	22.1	0.88	2.61	34.1	9.6	6.5
	9.0	2.5	5.8								1050	24.6	20.0	0.81	2.49	33.1	9.9	5.5
											1250	25.5	22.2	0.87	2.55	34.2	10.0	6.2

NSZ042 - Performance Data

1350 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	5.0	0.8	1.9	Operation not recommended							Operation not recommended							
	8.0	2.3	5.3															
	11.0	4.4	10.3	1150	23.3	2.15	16.0	88.8	3.18	3.9								
				1350	23.6	2.13	16.3	86.2	3.25	3.6								
30	5.0	0.8	1.8	Operation not recommended							Operation not recommended							
	8.0	2.2	5.1	1150	27.1	2.19	19.7	91.8	3.63	4.2	1150	37.5	23.3	0.62	1.37	42.2	27.3	-
				1350	27.4	2.17	20.0	88.8	3.71	3.8	1350	39.3	26.2	0.67	1.45	44.3	27.0	-
	11.0	4.3	10.0	1150	27.5	2.19	20.0	92.1	3.68	4.3	1150	37.9	23.3	0.62	1.33	42.5	28.4	-
				1350	27.8	2.17	20.4	89.1	3.76	3.9	1350	39.7	26.2	0.66	1.41	44.5	28.1	-
40	5.0	0.8	1.8	Operation not recommended							Operation not recommended							
	8.0	2.1	4.9	1150	30.9	2.28	23.1	94.9	3.97	4.6	1150	39.1	24.9	0.64	1.46	44.1	26.8	-
				1350	31.3	2.24	23.7	91.5	4.10	4.2	1350	40.9	28.0	0.68	1.54	46.1	26.5	-
	11.0	4.2	9.7	1150	31.4	2.29	23.6	95.3	4.03	4.7	1150	39.5	24.9	0.63	1.42	44.4	27.8	-
				1350	31.9	2.25	24.2	91.9	4.16	4.3	1350	41.3	28.0	0.68	1.50	46.4	27.5	-
50	5.0	0.7	1.7	1150	33.2	2.29	25.4	96.7	4.25	5.0	1150	39.8	25.7	0.65	1.66	45.5	24.0	2.3
				1350	33.8	2.24	26.1	93.2	4.41	4.6	1350	41.5	28.9	0.70	1.74	47.4	23.8	2.4
	8.0	2.1	4.8	1150	34.6	2.34	26.6	97.8	4.32	5.1	1150	40.2	26.0	0.65	1.58	45.6	25.5	2.2
				1350	35.2	2.29	27.4	94.1	4.50	4.7	1350	41.9	29.2	0.70	1.66	47.6	25.2	2.3
	11.0	4.1	9.4	1150	35.3	2.36	27.2	98.4	4.38	5.3	1150	40.6	26.0	0.64	1.53	45.9	26.5	2.0
				1350	35.9	2.30	28.1	94.6	4.57	4.8	1350	42.3	29.2	0.69	1.61	47.8	26.2	2.2
60	5.0	0.7	1.7	1150	36.4	2.36	28.4	99.3	4.53	5.6	1150	39.7	26.4	0.66	1.82	45.9	21.8	2.8
				1350	37.1	2.29	29.3	95.5	4.74	5.1	1350	41.2	29.6	0.72	1.91	47.7	21.6	3.0
	8.0	2.0	4.6	1150	38.0	2.43	29.8	100.6	4.59	5.7	1150	40.2	26.6	0.66	1.73	46.1	23.2	2.6
				1350	38.9	2.35	30.8	96.6	4.84	5.3	1350	41.7	29.9	0.72	1.82	47.9	22.9	2.8
	11.0	3.9	9.1	1150	38.9	2.45	30.6	101.4	4.66	5.9	1150	40.6	26.6	0.66	1.68	46.3	24.1	2.4
				1350	39.8	2.37	31.7	97.3	4.92	5.4	1350	42.2	29.9	0.71	1.77	48.2	23.9	2.7
70	5.0	0.7	1.6	1150	39.5	2.43	31.2	101.8	4.76	6.2	1150	39.8	27.2	0.68	2.01	46.7	19.8	3.5
				1350	40.4	2.35	32.4	97.7	5.03	5.8	1350	41.3	30.6	0.74	2.11	48.5	19.6	3.7
	8.0	1.9	4.5	1150	41.4	2.52	32.8	103.3	4.82	6.4	1150	40.4	27.5	0.68	1.91	47.0	21.1	3.3
				1350	42.4	2.43	34.1	99.1	5.12	5.9	1350	41.9	30.9	0.74	2.00	48.7	20.9	3.6
	11.0	3.8	8.8	1150	42.5	2.55	33.8	104.2	4.89	6.6	1150	40.8	27.5	0.67	1.86	47.2	22.0	3.1
				1350	43.6	2.45	35.2	99.9	5.21	6.1	1350	42.3	30.9	0.73	1.94	49.0	21.8	3.4
80	5.0	0.7	1.6	1150	42.5	2.47	34.0	104.2	5.03	7.0	1150	38.3	26.6	0.69	2.24	46.0	17.1	4.5
				1350	43.6	2.37	35.5	99.9	5.38	6.5	1350	39.6	29.9	0.75	2.34	47.6	16.9	4.7
	8.0	1.9	4.3	1150	44.7	2.57	35.9	106.0	5.09	7.2	1150	39.0	26.9	0.69	2.12	46.3	18.4	4.2
				1350	45.9	2.46	37.5	101.5	5.47	6.7	1350	40.3	30.2	0.75	2.22	47.9	18.2	4.5
	11.0	3.7	8.5	1150	45.9	2.61	37.0	107.0	5.16	7.5	1150	39.4	26.9	0.68	2.06	46.5	19.1	3.9
				1350	47.3	2.49	38.8	102.4	5.56	6.9	1350	40.7	30.2	0.74	2.15	48.1	18.9	4.3
90	5.0	0.7	1.5	1150	45.3	2.52	36.7	106.5	5.27	7.9	1150	36.3	25.8	0.71	2.50	44.8	14.5	5.6
				1350	46.6	2.40	38.4	102.0	5.69	7.3	1350	37.4	29.0	0.78	2.61	46.3	14.3	5.9
	8.0	1.8	4.2	1150	47.8	2.64	38.8	108.5	5.31	8.1	1150	37.0	26.1	0.70	2.37	45.1	15.7	5.2
				1350	49.3	2.50	40.8	103.8	5.77	7.5	1350	38.2	29.3	0.77	2.46	46.6	15.5	5.7
	11.0	3.5	8.2	1150	49.3	2.68	40.1	109.7	5.38	8.4	1150	37.4	26.1	0.70	2.30	45.3	16.3	4.8
				1350	50.9	2.54	42.2	104.9	5.87	7.8	1350	38.6	29.3	0.76	2.39	46.7	16.1	5.4
100	5.0	0.6	1.5	Operation not recommended							Operation not recommended							
	8.0	1.7	4.0								1150	35.6	25.6	0.72	2.64	44.6	13.5	6.5
											1350	36.7	28.7	0.78	2.74	46.0	13.4	7.0
	11.0	3.4	7.9								1150	36.0	25.6	0.71	2.56	44.7	14.1	6.0
											1350	37.0	28.7	0.78	2.66	46.1	13.9	6.7
110	5.0	0.6	1.4								Operation not recommended							
	8.0	1.7	3.9								1150	32.5	23.7	0.73	2.94	42.5	11.1	7.9
											1350	33.3	26.6	0.80	3.05	43.7	10.9	8.6
	11.0	3.3	7.6								1150	32.8	23.7	0.72	2.86	42.6	11.5	7.4
											1350	33.7	26.6	0.79	2.96	43.8	11.4	8.2
120	5.0	0.6	1.3								Operation not recommended							
	8.0	1.6	3.7								1150	30.6	23.4	0.76	3.27	41.8	9.4	9.6
											1350	31.3	26.3	0.84	3.38	42.9	9.3	10.4
	11.0	3.2	7.3								1150	30.9	23.4	0.76	3.18	41.8	9.7	8.9
											1350	31.7	26.3	0.83	3.28	42.9	9.6	9.9

NSZ048 - Performance Data

1500 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	6.0	1.1	2.6	Operation not recommended							Operation not recommended							
	9.0	2.3	5.4															
	12.0	4.0	9.2	1300	29.9	2.76	20.5	91.3	3.18	5.1								
				1500	30.3	2.73	20.9	88.7	3.24	4.6								
30	6.0	1.1	2.5	Operation not recommended							Operation not recommended							
	9.0	2.3	5.3	1300	34.3	2.84	24.6	94.4	3.54	5.3	1300	44.7	28.0	0.63	1.62	50.2	27.6	-
				1500	34.7	2.81	25.1	91.4	3.61	4.9	1500	46.8	31.4	0.67	1.71	52.6	27.3	-
	12.0	3.9	9.0	1300	34.8	2.84	25.1	94.8	3.59	5.5	1300	45.1	28.0	0.62	1.57	50.5	28.7	-
				1500	35.2	2.81	25.6	91.7	3.67	5.0	1500	47.3	31.4	0.66	1.66	52.9	28.4	-
40	6.0	1.1	2.5	Operation not recommended							Operation not recommended							
	9.0	2.2	5.1	1300	39.4	2.96	29.3	98.1	3.90	5.9	1300	46.4	29.5	0.64	1.78	52.5	26.1	-
				1500	40.0	2.91	30.0	94.7	4.02	5.4	1500	48.5	33.2	0.68	1.88	54.9	25.8	-
	12.0	3.8	8.7	1300	40.1	2.97	30.0	98.6	3.95	6.1	1300	46.9	29.5	0.63	1.73	52.8	27.2	-
				1500	40.7	2.92	30.7	95.1	4.08	5.5	1500	49.0	33.2	0.68	1.82	55.2	26.9	-
50	6.0	1.0	2.4	1300	42.3	3.00	32.0	100.1	4.13	6.4	1300	47.4	30.7	0.65	2.07	54.5	22.9	2.7
				1500	42.9	2.93	32.9	96.5	4.29	5.9	1500	49.4	34.4	0.70	2.18	56.8	22.7	2.8
	9.0	2.1	4.9	1300	44.0	3.07	33.5	101.3	4.20	6.6	1300	47.9	31.0	0.65	1.97	54.6	24.3	2.5
				1500	44.7	3.00	34.5	97.6	4.37	6.0	1500	49.9	34.8	0.70	2.08	57.0	24.0	2.7
	12.0	3.7	8.4	1300	44.9	3.09	34.3	101.9	4.26	6.8	1300	48.4	31.0	0.64	1.92	54.9	25.3	2.3
				1500	45.6	3.01	35.4	98.2	4.44	6.2	1500	50.4	34.8	0.69	2.02	57.3	25.0	2.6
60	6.0	1.0	2.3	1300	46.5	3.09	35.9	103.1	4.41	7.1	1300	46.3	30.3	0.65	2.30	54.1	20.2	3.3
				1500	47.3	3.01	37.1	99.2	4.61	6.6	1500	48.1	34.0	0.71	2.41	56.3	19.9	3.5
	9.0	2.1	4.8	1300	48.5	3.18	37.7	104.6	4.47	7.4	1300	46.9	30.6	0.65	2.19	54.3	21.5	3.0
				1500	49.5	3.08	39.0	100.6	4.70	6.8	1500	48.7	34.4	0.71	2.29	56.5	21.2	3.3
	12.0	3.5	8.2	1300	49.6	3.21	38.7	105.4	4.53	7.6	1300	47.4	30.6	0.65	2.12	54.6	22.3	2.8
				1500	50.7	3.11	40.1	101.3	4.78	7.0	1500	49.2	34.4	0.70	2.23	56.8	22.1	3.1
70	6.0	1.0	2.2	1300	50.7	3.19	39.8	106.1	4.66	8.0	1300	46.1	30.6	0.66	2.57	54.9	17.9	4.1
				1500	51.8	3.08	41.3	102.0	4.92	7.4	1500	47.8	34.4	0.72	2.69	57.0	17.7	4.3
	9.0	2.0	4.6	1300	53.1	3.30	41.8	107.8	4.72	8.3	1300	46.8	31.0	0.66	2.44	55.1	19.2	3.8
				1500	54.3	3.18	43.5	103.5	5.01	7.6	1500	48.5	34.8	0.72	2.56	57.2	19.0	4.1
	12.0	3.4	7.9	1300	54.5	3.34	43.1	108.8	4.78	8.5	1300	47.3	31.0	0.65	2.37	55.4	19.9	3.5
				1500	55.8	3.21	44.8	104.4	5.09	7.9	1500	49.0	34.8	0.71	2.48	57.5	19.7	3.9
80	6.0	0.9	2.1	1300	54.0	3.27	42.9	108.5	4.85	9.0	1300	44.2	30.0	0.68	2.88	54.0	15.3	5.2
				1500	55.4	3.14	44.7	104.2	5.18	8.4	1500	45.7	33.7	0.74	3.01	55.9	15.2	5.5
	9.0	1.9	4.5	1300	56.8	3.40	45.2	110.5	4.90	9.3	1300	45.0	30.3	0.67	2.73	54.3	16.5	4.8
				1500	58.4	3.25	47.3	106.0	5.26	8.6	1500	46.5	34.0	0.73	2.85	56.2	16.3	5.2
	12.0	3.3	7.6	1300	58.5	3.45	46.7	111.6	4.97	9.6	1300	45.4	30.3	0.67	2.65	54.5	17.1	4.5
				1500	60.1	3.29	48.9	107.1	5.35	8.9	1500	47.0	34.0	0.72	2.77	56.4	17.0	5.0
90	6.0	0.9	2.1	1300	57.4	3.35	46.0	110.9	5.02	10.2	1300	41.2	28.6	0.69	3.22	52.2	12.8	6.5
				1500	59.1	3.19	48.2	106.5	5.42	9.4	1500	42.5	32.1	0.76	3.35	53.9	12.7	6.9
	9.0	1.9	4.3	1300	60.6	3.51	48.6	113.2	5.07	10.5	1300	42.1	28.9	0.69	3.04	52.5	13.8	6.0
				1500	62.4	3.33	51.1	108.5	5.50	9.7	1500	43.4	32.4	0.75	3.17	54.2	13.7	6.6
	12.0	3.2	7.4	1300	62.5	3.57	50.3	114.5	5.14	10.8	1300	42.5	28.9	0.68	2.95	52.6	14.4	5.6
				1500	64.4	3.38	52.9	109.8	5.59	10.0	1500	43.8	32.4	0.74	3.08	54.3	14.2	6.2
100	6.0	0.9	2.0								Operation not recommended							
	9.0	1.8	4.2								1300	40.6	28.5	0.70	3.41	52.3	11.9	7.5
											1500	41.8	32.0	0.77	3.54	53.9	11.8	8.1
	12.0	3.1	7.1								1300	41.0	28.5	0.69	3.31	52.3	12.4	7.0
											1500	42.2	32.0	0.76	3.44	53.9	12.3	7.7
110	6.0	0.8	1.9								Operation not recommended							
	9.0	1.7	4.0								1300	36.7	26.4	0.72	3.80	49.7	9.7	9.2
											1500	37.7	29.7	0.79	3.93	51.1	9.6	10.0
	12.0	3.0	6.8								1300	37.1	26.4	0.71	3.69	49.7	10.1	8.5
											1500	38.1	29.7	0.78	3.82	51.1	10.0	9.5
120	6.0	0.8	1.8								Operation not recommended							
	9.0	1.7	3.8								1300	34.8	25.9	0.74	4.24	49.2	8.2	11.1
											1500	35.6	29.1	0.82	4.38	50.5	8.1	12.0
	12.0	2.8	6.6								1300	35.1	25.9	0.74	4.11	49.2	8.5	10.3
											1500	36.0	29.1	0.81	4.25	50.5	8.5	11.5

NSZ060 - Performance Data

2000 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	9.0	2.5	5.7	Operation not recommended							Operation not recommended							
	12.0	4.0	9.2															
	15.0	5.9	13.5	1500	36.4	3.64	24.0	92.5	2.93	6.2								
				2000	37.1	3.71	24.5	87.2	2.93	5.7								
30	9.0	2.4	5.5	Operation not recommended							Operation not recommended							
	12.0	3.9	8.9	1500	41.0	3.65	28.6	95.3	3.30	6.7	1500	64.1	42.0	0.66	2.10	71.3	30.5	-
				2000	41.9	3.71	29.2	89.4	3.30	6.1	2000	62.1	43.3	0.70	2.54	70.8	24.4	-
	15.0	5.7	13.1	1500	42.3	3.74	29.6	96.1	3.32	6.9	1500	64.8	42.1	0.65	2.10	72.0	30.8	-
				2000	43.2	3.81	30.2	90.0	3.32	6.3	2000	63.1	42.8	0.68	2.38	71.2	26.6	-
40	9.0	2.3	5.3	Operation not recommended							Operation not recommended							
	12.0	3.7	8.7	1500	50.3	3.82	37.3	101.1	3.86	7.4	1500	73.4	47.4	0.65	2.40	81.6	30.6	-
				2000	51.5	3.90	38.2	93.8	3.87	6.8	2000	72.7	49.5	0.68	2.81	82.3	25.9	-
	15.0	5.5	12.7	1500	51.7	3.91	38.4	101.9	3.88	7.6	1500	74.1	47.6	0.64	2.39	82.3	31.0	-
				2000	52.7	3.97	39.2	94.4	3.89	6.9	2000	73.6	49.3	0.67	2.65	82.6	27.7	-
50	9.0	2.2	5.2	1500	54.1	3.96	40.6	103.4	4.00	8.0	1500	64.2	43.4	0.68	2.74	73.5	23.4	3.4
				2000	54.6	4.01	41.0	95.3	4.00	7.4	2000	64.4	45.0	0.70	3.06	74.8	21.0	3.6
	12.0	3.6	8.4	1500	54.6	3.95	41.2	103.7	4.05	8.2	1500	64.3	43.5	0.68	2.64	73.3	24.4	3.2
				2000	56.1	4.05	42.3	96.0	4.06	7.6	2000	64.4	45.5	0.71	3.00	74.6	21.4	3.4
	15.0	5.3	12.3	1500	56.0	4.03	42.3	104.6	4.07	8.5	1500	64.9	43.7	0.67	2.62	73.9	24.8	2.9
				2000	57.1	4.09	43.1	96.4	4.09	7.7	2000	65.0	45.5	0.70	2.86	74.8	22.7	3.3
60	9.0	2.2	5.0	1500	62.1	4.10	48.1	108.3	4.44	8.9	1500	69.9	46.2	0.66	3.04	80.3	23.0	4.1
				2000	63.1	4.13	49.0	99.2	4.48	8.3	2000	71.5	49.1	0.69	3.33	82.9	21.4	4.4
	12.0	3.5	8.1	1500	63.6	4.11	49.5	109.3	4.53	9.2	1500	70.1	46.4	0.66	2.93	80.1	23.9	3.8
				2000	64.5	4.17	50.3	99.9	4.53	8.5	2000	71.8	49.3	0.69	3.24	82.9	22.2	4.2
	15.0	5.2	11.9	1500	65.0	4.19	50.7	110.1	4.55	9.5	1500	70.8	46.7	0.66	2.91	80.7	24.4	3.6
				2000	66.3	4.24	51.9	100.7	4.59	8.7	2000	72.2	49.6	0.69	3.12	82.8	23.2	4.0
70	9.0	2.1	4.9	1500	65.4	4.26	50.9	110.4	4.50	10.1	1500	58.6	40.5	0.69	3.32	69.9	17.6	5.2
				2000	66.8	4.28	52.2	100.9	4.58	9.3	2000	61.2	44.0	0.72	3.58	73.4	17.1	5.5
	12.0	3.4	7.9	1500	67.7	4.30	53.1	111.8	4.62	10.4	1500	58.9	40.8	0.69	3.20	69.8	18.4	4.8
				2000	68.1	4.32	53.3	101.5	4.61	9.6	2000	61.8	44.0	0.71	3.44	73.5	17.9	5.2
	15.0	5.0	11.6	1500	69.0	4.37	54.1	112.6	4.63	10.7	1500	59.4	41.1	0.69	3.16	70.2	18.8	4.5
				2000	70.6	4.41	55.5	102.7	4.69	9.8	2000	61.8	44.5	0.72	3.34	73.2	18.5	5.0
80	9.0	2.0	4.7	1500	72.9	4.36	58.0	115.0	4.90	11.3	1500	65.4	44.6	0.68	3.81	78.4	17.2	6.5
				2000	74.2	4.37	59.3	104.4	4.98	10.5	2000	67.1	47.7	0.71	4.06	80.9	16.5	6.9
	12.0	3.3	7.6	1500	76.2	4.44	61.0	117.0	5.03	11.7	1500	65.8	45.0	0.68	3.66	78.2	18.0	6.1
				2000	76.8	4.39	61.8	105.6	5.13	10.8	2000	67.8	47.7	0.70	3.87	81.0	17.5	6.6
	15.0	4.8	11.2	1500	77.4	4.49	62.0	117.8	5.05	12.0	1500	66.4	45.4	0.68	3.60	78.7	18.4	5.7
				2000	78.9	4.53	63.5	106.5	5.11	11.1	2000	68.1	48.2	0.71	3.76	80.9	18.1	6.3
90	9.0	2.0	4.5	1500	75.0	4.52	59.5	116.3	4.86	12.7	1500	54.1	38.8	0.72	4.08	68.0	13.3	8.2
				2000	76.2	4.52	60.8	105.3	4.94	11.8	2000	54.5	40.8	0.75	4.32	69.3	12.6	8.7
	12.0	3.2	7.3	1500	78.9	4.63	63.1	118.7	5.00	13.1	1500	54.5	39.1	0.72	3.92	67.9	13.9	7.7
				2000	79.9	4.52	64.5	107.0	5.18	12.1	2000	55.1	40.8	0.74	4.09	69.0	13.5	8.3
	15.0	4.7	10.8	1500	80.0	4.68	64.0	119.4	5.01	13.5	1500	55.1	39.5	0.72	3.85	68.2	14.3	7.1
				2000	81.4	4.71	65.3	107.7	5.07	12.5	2000	55.6	41.2	0.74	3.97	69.2	14.0	7.9
100	9.0	1.9	4.4	Operation not recommended							Operation not recommended							
	12.0	3.1	7.1								1500	60.1	42.9	0.71	4.59	75.7	13.1	9.5
											2000	60.7	44.7	0.74	4.70	76.7	12.9	10.3
	15.0	4.5	10.4								1500	60.7	43.4	0.72	4.49	76.0	13.5	8.8
											2000	61.3	45.2	0.74	4.58	76.9	13.4	9.8
110	9.0	1.8	4.2								Operation not recommended							
	12.0	2.9	6.8								1500	47.9	35.7	0.75	4.95	64.8	9.7	11.6
											2000	48.4	37.2	0.77	5.00	65.4	9.7	12.6
	15.0	4.3	10.0								1500	48.4	36.2	0.75	4.82	64.8	10.0	10.8
											2000	48.9	37.7	0.77	4.87	65.5	10.0	12.0
120	9.0	1.7	4.0								Operation not recommended							
	12.0	2.8	6.5								1500	46.1	36.3	0.79	5.62	65.3	8.2	14.1
											2000	45.1	37.0	0.82	5.64	64.4	8.0	15.3
	15.0	4.2	9.6								1500	46.5	36.8	0.79	5.47	65.2	8.5	13.1
											2000	45.9	37.3	0.81	5.47	64.6	8.4	14.5

NSZ070 - Performance Data

2200 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	12.0	3.0	7.0	Operation not recommended							Operation not recommended							
	15.0	4.4	10.2															
	18.0	6.0	13.9	1700	43.8	4.87	27.1	93.8	2.63	7.5								
				2200	44.8	4.97	27.9	88.9	2.64	6.8								
30	12.0	3.0	6.8	Operation not recommended							Operation not recommended							
	15.0	4.3	9.9	1700	50.5	4.98	33.5	97.5	2.97	7.9	1700	58.9	36.9	0.63	2.39	67.1	24.7	-
				2200	51.7	5.09	34.3	91.8	2.98	7.3	2200	62.8	42.2	0.67	2.79	72.3	22.5	-
	18.0	5.8	13.5	1700	50.7	5.00	33.6	97.6	2.97	8.2	1700	59.3	36.5	0.62	2.38	67.4	24.9	-
				2200	51.9	5.11	34.5	91.8	2.98	7.4	2200	63.1	41.7	0.66	2.78	72.6	22.7	-
40	12.0	2.9	6.6	Operation not recommended							Operation not recommended							
	15.0	4.1	9.6	1700	58.9	5.20	41.1	102.1	3.32	8.8	1700	62.2	39.2	0.63	2.63	71.1	23.7	-
				2200	60.3	5.26	42.4	95.4	3.36	8.0	2200	66.0	44.8	0.68	3.03	76.3	21.8	-
	18.0	5.7	13.1	1700	59.3	5.23	41.4	102.3	3.32	9.0	1700	62.6	39.0	0.62	2.61	71.5	24.0	-
				2200	60.7	5.28	42.7	95.6	3.37	8.2	2200	66.5	44.6	0.67	3.01	76.7	22.1	-
50	12.0	2.8	6.4	1700	64.9	5.36	46.6	105.4	3.55	9.5	1700	65.2	41.2	0.63	3.01	75.4	21.6	3.6
				2200	66.5	5.38	48.1	98.0	3.62	8.8	2200	68.9	47.1	0.68	3.43	80.6	20.1	3.8
	15.0	4.0	9.3	1700	66.2	5.41	47.8	106.1	3.59	9.8	1700	65.5	41.4	0.63	2.92	75.5	22.4	3.4
				2200	67.9	5.42	49.4	98.6	3.67	9.0	2200	69.2	47.3	0.68	3.33	80.6	20.8	3.7
	18.0	5.5	12.7	1700	66.8	5.45	48.2	106.4	3.59	10.1	1700	66.1	41.6	0.63	2.89	76.0	22.9	3.1
				2200	68.5	5.45	49.9	98.8	3.68	9.2	2200	69.9	47.5	0.68	3.29	81.2	21.2	3.5
60	12.0	2.7	6.2	1700	71.9	5.57	52.9	109.2	3.78	10.6	1700	62.7	39.8	0.64	3.31	74.0	18.9	4.4
				2200	73.8	5.54	54.9	101.1	3.90	9.8	2200	66.0	45.6	0.69	3.72	78.7	17.7	4.7
	15.0	3.9	9.0	1700	74.0	5.65	54.8	110.3	3.84	11.0	1700	62.9	40.0	0.63	3.22	73.9	19.6	4.1
				2200	76.0	5.61	56.8	102.0	3.97	10.1	2200	66.3	45.7	0.69	3.62	78.6	18.3	4.5
	18.0	5.3	12.3	1700	74.9	5.70	55.5	110.8	3.85	11.3	1700	63.7	40.5	0.64	3.17	74.6	20.1	3.8
				2200	76.8	5.64	57.6	102.3	3.99	10.4	2200	67.1	46.3	0.69	3.57	79.3	18.8	4.2
70	12.0	2.6	6.0	1700	79.3	5.80	59.5	113.2	4.01	12.0	1700	62.5	40.4	0.65	3.69	75.1	16.9	5.5
				2200	81.4	5.72	61.9	104.3	4.17	11.1	2200	65.5	46.3	0.71	4.11	79.5	15.9	5.9
	15.0	3.8	8.7	1700	82.2	5.91	62.1	114.8	4.08	12.3	1700	62.7	40.5	0.65	3.59	74.9	17.5	5.2
				2200	84.4	5.81	64.6	105.5	4.26	11.4	2200	65.8	46.3	0.70	3.99	79.4	16.5	5.6
	18.0	5.1	11.9	1700	83.4	5.96	63.0	115.4	4.10	12.7	1700	63.6	41.4	0.65	3.53	75.7	18.0	4.8
				2200	85.6	5.85	65.7	106.0	4.29	11.7	2200	66.7	47.4	0.71	3.93	80.1	17.0	5.3
80	12.0	2.5	5.8	1700	84.7	6.03	64.2	116.2	4.12	13.4	1700	59.9	38.7	0.65	4.12	73.9	14.5	7.0
				2200	87.1	5.88	67.0	106.7	4.34	12.4	2200	62.6	44.3	0.71	4.53	78.0	13.8	7.4
	15.0	3.6	8.4	1700	88.6	6.16	67.6	118.3	4.22	13.9	1700	60.1	38.7	0.64	4.00	73.8	15.0	6.5
				2200	91.1	6.00	70.7	108.3	4.45	12.8	2200	62.8	44.3	0.71	4.40	77.8	14.3	7.1
	18.0	5.0	11.5	1700	90.0	6.22	68.8	119.0	4.24	14.3	1700	61.1	39.9	0.65	3.92	74.5	15.6	6.0
				2200	92.7	6.04	72.1	109.0	4.49	13.2	2200	63.9	45.7	0.72	4.31	78.6	14.8	6.7
90	12.0	2.4	5.6	1700	90.5	6.26	69.2	119.3	4.24	15.1	1700	55.0	35.9	0.65	4.57	70.6	12.0	8.8
				2200	93.2	6.06	72.5	109.2	4.51	14.0	2200	57.2	41.1	0.72	4.98	74.2	11.5	9.3
	15.0	3.5	8.1	1700	95.3	6.43	73.4	121.9	4.35	15.6	1700	55.2	35.8	0.65	4.45	70.3	12.4	8.2
				2200	98.2	6.20	77.1	111.3	4.64	14.4	2200	57.4	41.1	0.72	4.84	73.9	11.8	8.9
	18.0	4.8	11.1	1700	97.0	6.50	74.8	122.8	4.37	16.0	1700	56.3	37.3	0.66	4.35	71.1	12.9	7.6
				2200	100.1	6.26	78.8	112.1	4.69	14.9	2200	58.5	42.7	0.73	4.73	74.7	12.4	8.4
100	12.0	2.3	5.4	Operation not recommended							Operation not recommended							
	15.0	3.4	7.8								1700	53.6	35.4	0.66	5.01	70.7	10.7	10.2
											2200	55.5	40.6	0.73	5.39	73.9	10.3	11.0
	18.0	4.6	10.7								1700	54.7	37.1	0.68	4.88	71.4	11.2	9.4
											2200	56.7	42.6	0.75	5.24	74.6	10.8	10.5
110	12.0	2.2	5.2	Operation not recommended							Operation not recommended							
	15.0	3.3	7.5								1700	47.5	31.4	0.66	5.58	66.5	8.5	12.4
											2200	49.0	36.1	0.74	5.94	69.3	8.2	13.5
	18.0	4.4	10.2								1700	48.7	33.3	0.68	5.41	67.1	9.0	11.6
											2200	50.2	38.2	0.76	5.76	69.9	8.7	12.8
120	12.0	2.2	5.0	Operation not recommended							Operation not recommended							
	15.0	3.1	7.2								1700	45.1	31.8	0.71	6.27	66.5	7.2	15.0
											2200	46.4	36.5	0.79	6.60	68.9	7.0	16.3
	18.0	4.3	9.8								1700	46.3	34.0	0.73	6.06	67.0	7.6	14.0
											2200	47.6	39.0	0.82	6.38	69.4	7.5	15.5

NDZ026 High Speed - Performance Data

900 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	4.0	1.4	3.2	Operation not recommended							Operation not recommended							
	6.0	2.9	6.6															
	8.0	4.8	11.1	700	15.7	1.42	10.9	90.8	3.25	2.0								
				900	16.0	1.43	11.1	86.4	3.27	1.8								
30	4.0	1.4	3.2	Operation not recommended							Operation not recommended							
	6.0	2.8	6.4	700	18.1	1.46	13.1	93.9	3.63	2.2	700	26.1	17.2	0.66	0.94	29.3	27.9	-
				900	18.4	1.47	13.4	89.0	3.68	2.0	900	26.5	18.8	0.71	0.99	29.9	26.9	-
	8.0	4.7	10.8	700	18.4	1.47	13.4	94.4	3.68	2.2	700	26.2	17.2	0.66	0.91	29.3	28.9	-
				900	18.7	1.48	13.6	89.2	3.69	2.0	900	26.8	18.8	0.70	0.95	30.1	28.2	-
40	4.0	1.3	3.1	Operation not recommended							Operation not recommended							
	6.0	2.7	6.2	700	21.0	1.52	15.8	97.8	4.06	2.4	700	26.4	17.7	0.67	1.02	29.9	26.0	-
				900	21.4	1.52	16.2	92.0	4.13	2.2	900	26.9	19.3	0.72	1.07	30.6	25.2	-
	8.0	4.5	10.4	700	21.4	1.53	16.1	98.3	4.08	2.5	700	26.7	17.7	0.66	0.99	30.0	27.0	-
				900	21.8	1.53	16.5	92.4	4.16	2.3	900	27.2	19.3	0.71	1.03	30.8	26.4	-
50	4.0	1.3	3.0	700	22.7	1.55	17.4	100.0	4.28	2.6	700	26.3	17.9	0.68	1.19	30.3	22.2	1.2
				900	23.1	1.55	17.8	93.8	4.36	2.4	900	26.8	19.5	0.73	1.23	31.0	21.7	1.3
	6.0	2.6	6.0	700	23.8	1.59	18.4	101.5	4.40	2.7	700	26.5	18.1	0.68	1.13	30.4	23.6	1.1
				900	24.3	1.59	18.8	95.0	4.48	2.5	900	27.1	19.7	0.73	1.17	31.1	23.1	1.2
	8.0	4.4	10.1	700	24.2	1.61	18.7	101.9	4.40	2.8	700	26.8	18.1	0.67	1.09	30.5	24.6	1.0
				900	24.7	1.60	19.3	95.4	4.53	2.6	900	27.4	19.7	0.72	1.14	31.2	24.0	1.2
60	4.0	1.2	2.9	700	25.5	1.64	19.9	103.7	4.57	3.0	700	26.0	17.8	0.68	1.29	30.4	20.2	1.4
				900	26.1	1.62	20.6	96.8	4.72	2.7	900	26.5	19.3	0.73	1.34	31.0	19.8	1.5
	6.0	2.5	5.8	700	26.7	1.67	21.0	105.3	4.69	3.1	700	26.2	17.9	0.68	1.22	30.4	21.5	1.3
				900	27.4	1.66	21.7	98.2	4.84	2.8	900	26.8	19.5	0.73	1.27	31.1	21.1	1.5
	8.0	4.2	9.8	700	27.2	1.69	21.4	105.9	4.71	3.1	700	26.5	17.9	0.68	1.19	30.5	22.3	1.3
				900	27.8	1.67	22.1	98.6	4.89	2.9	900	27.0	19.5	0.72	1.23	31.2	21.9	1.4
70	4.0	1.2	2.8	700	28.5	1.72	22.6	107.6	4.84	3.3	700	25.6	17.7	0.69	1.43	30.5	17.9	1.8
				900	29.1	1.69	23.4	100.0	5.06	3.1	900	26.1	19.2	0.74	1.49	31.2	17.6	1.9
	6.0	2.4	5.6	700	29.7	1.76	23.7	109.3	4.96	3.4	700	25.8	17.8	0.69	1.35	30.5	19.1	1.7
				900	30.6	1.73	24.7	101.5	5.17	3.2	900	26.4	19.5	0.74	1.41	31.3	18.8	1.8
	8.0	4.1	9.5	700	30.3	1.78	24.2	110.0	4.99	3.5	700	26.1	17.8	0.68	1.32	30.6	19.8	1.5
				900	31.1	1.75	25.1	102.0	5.22	3.3	900	26.6	19.5	0.73	1.36	31.3	19.5	1.7
80	4.0	1.2	2.7	700	31.0	1.83	24.8	111.1	4.98	3.7	700	24.6	17.4	0.71	1.59	30.0	15.5	2.2
				900	31.9	1.78	25.9	102.9	5.26	3.5	900	25.1	18.9	0.75	1.64	30.7	15.3	2.4
	6.0	2.4	5.4	700	32.4	1.87	26.0	112.9	5.09	3.8	700	24.8	17.5	0.71	1.50	30.0	16.5	2.1
				900	33.5	1.82	27.3	104.4	5.39	3.6	900	25.4	19.1	0.75	1.55	30.7	16.4	2.3
	8.0	4.0	9.2	700	33.0	1.89	26.5	113.6	5.11	4.0	700	25.1	17.5	0.70	1.46	30.1	17.3	1.9
				900	34.0	1.84	27.8	105.0	5.43	3.7	900	25.6	19.1	0.75	1.51	30.7	17.0	2.1
90	4.0	1.1	2.6	700	33.7	1.94	27.1	114.6	5.10	4.2	700	23.3	16.8	0.72	1.75	29.3	13.3	2.8
				900	34.9	1.88	28.5	105.9	5.44	3.9	900	23.9	18.2	0.76	1.81	30.0	13.2	3.0
	6.0	2.3	5.2	700	35.2	1.98	28.4	116.6	5.20	4.3	700	23.5	17.0	0.72	1.66	29.2	14.2	2.6
				900	36.4	1.91	29.9	107.5	5.58	4.0	900	24.1	18.5	0.77	1.71	29.9	14.1	2.8
	8.0	3.8	8.8	700	35.8	2.01	28.9	117.3	5.22	4.4	700	23.9	17.0	0.71	1.60	29.3	14.9	2.4
				900	37.1	1.94	30.5	108.2	5.61	4.1	900	24.3	18.5	0.76	1.66	29.9	14.6	2.7
100	4.0	1.1	2.5								Operation not recommended							
	6.0	2.2	5.1								700	22.4	16.5	0.74	1.86	28.7	12.0	3.2
											900	22.8	17.9	0.78	1.91	29.4	11.9	3.5
	8.0	3.7	8.5								700	22.6	16.5	0.73	1.80	28.8	12.6	3.0
											900	23.0	17.9	0.78	1.86	29.4	12.4	3.3
110	4.0	1.0	2.4								Operation not recommended							
	6.0	2.1	4.9								700	20.5	15.5	0.76	2.06	27.5	10.0	3.9
											900	20.9	16.9	0.81	2.12	28.1	9.9	4.2
	8.0	3.5	8.2								700	20.7	15.5	0.75	2.00	27.5	10.4	3.6
											900	21.1	16.9	0.80	2.06	28.1	10.3	4.0
120	4.0	1.0	2.3								Operation not recommended							
	6.0	2.0	4.7								700	19.0	14.9	0.79	2.31	26.8	8.2	4.7
											900	19.3	16.2	0.84	2.37	27.4	8.2	5.1
	8.0	3.4	7.9								700	19.1	14.9	0.78	2.23	26.7	8.6	4.4
											900	19.5	16.2	0.83	2.30	27.4	8.5	4.8

NDZ026 Low Speed - Performance Data

700 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	3.0	0.8	1.9	Operation not recommended							Operation not recommended							
	5.0	2.0	4.7															
	7.0	3.7	8.7	500	11.3	1.10	7.5	90.9	3.01	1.7								
				700	11.4	1.11	7.7	85.1	3.03	1.5								
30	3.0	0.8	1.8	Operation not recommended							Operation not recommended							
	5.0	2.0	4.5	500	13.0	1.11	9.2	94.0	3.42	1.7	500	19.4	12.9	0.66	0.56	21.3	34.8	-
				700	13.2	1.12	9.4	87.5	3.46	1.5	700	19.7	14.1	0.71	0.59	21.7	33.5	-
	7.0	3.6	8.4	500	13.2	1.12	9.4	94.5	3.46	1.7	500	19.5	12.9	0.66	0.54	21.3	36.0	-
				700	13.4	1.13	9.6	87.7	3.48	1.6	700	20.0	14.1	0.70	0.57	21.9	35.1	-
40	3.0	0.8	1.8	Operation not recommended							Operation not recommended							
	5.0	1.9	4.4	500	15.3	1.12	11.5	98.3	4.00	1.7	500	20.1	13.4	0.67	0.61	22.2	32.8	-
				700	15.6	1.13	11.8	90.6	4.06	1.6	700	20.5	14.6	0.71	0.64	22.7	31.9	-
	7.0	3.5	8.2	500	15.6	1.13	11.7	98.8	4.02	1.8	500	20.3	13.4	0.66	0.59	22.3	34.1	-
				700	15.9	1.13	12.0	91.0	4.10	1.6	700	20.7	14.6	0.71	0.62	22.8	33.3	-
50	3.0	0.7	1.7	500	16.5	1.12	12.7	100.6	4.34	1.8	500	20.5	13.8	0.67	0.72	23.0	28.3	0.6
				700	16.9	1.12	13.1	92.3	4.42	1.7	700	20.9	15.0	0.72	0.75	23.5	27.8	0.7
	5.0	1.8	4.3	500	17.4	1.14	13.5	102.2	4.46	1.8	500	20.7	13.9	0.67	0.69	23.1	30.1	0.6
				700	17.7	1.14	13.8	93.4	4.54	1.7	700	21.1	15.2	0.72	0.72	23.6	29.5	0.6
	7.0	3.4	7.9	500	17.6	1.16	13.7	102.6	4.46	1.9	500	20.9	13.9	0.66	0.67	23.2	31.4	0.5
				700	18.0	1.15	14.1	93.9	4.60	1.7	700	21.4	15.2	0.71	0.70	23.7	30.7	0.6
60	3.0	0.7	1.7	500	18.7	1.14	14.8	104.6	4.82	1.9	500	19.8	13.5	0.68	0.82	22.6	24.3	0.9
				700	19.1	1.12	15.3	95.3	4.98	1.8	700	20.2	14.7	0.73	0.85	23.1	23.8	0.9
	5.0	1.8	4.1	500	19.6	1.16	15.6	106.3	4.95	2.0	500	20.0	13.7	0.68	0.77	22.7	25.9	0.8
				700	20.1	1.15	16.1	96.6	5.11	1.8	700	20.5	14.9	0.73	0.81	23.2	25.4	0.9
	7.0	3.3	7.6	500	19.9	1.18	15.9	106.9	4.96	2.1	500	20.2	13.7	0.67	0.75	22.8	26.9	0.7
				700	20.4	1.16	16.5	97.0	5.16	1.9	700	20.6	14.9	0.72	0.78	23.3	26.4	0.8
70	3.0	0.7	1.6	500	21.0	1.15	17.0	108.8	5.34	2.2	500	19.8	13.7	0.69	0.93	23.0	21.3	1.2
				700	21.5	1.13	17.6	98.4	5.58	2.0	700	20.2	14.9	0.74	0.97	23.5	20.9	1.2
	5.0	1.7	4.0	500	21.9	1.17	17.9	110.5	5.47	2.2	500	20.0	13.8	0.69	0.88	23.0	22.7	1.1
				700	22.6	1.16	18.6	99.8	5.71	2.1	700	20.5	15.1	0.74	0.92	23.6	22.3	1.2
	7.0	3.2	7.4	500	22.3	1.19	18.3	111.3	5.50	2.3	500	20.2	13.8	0.68	0.86	23.2	23.5	1.0
				700	22.9	1.17	18.9	100.3	5.76	2.1	700	20.6	15.1	0.73	0.89	23.7	23.2	1.1
80	3.0	0.7	1.6	500	22.8	1.18	18.7	112.2	5.65	2.4	500	18.7	13.2	0.71	1.07	22.4	17.5	1.6
				700	23.4	1.15	19.5	101.0	5.96	2.2	700	19.1	14.3	0.75	1.10	22.9	17.3	1.7
	5.0	1.7	3.9	500	23.8	1.21	19.7	114.0	5.77	2.5	500	18.9	13.3	0.71	1.01	22.3	18.7	1.5
				700	24.6	1.18	20.5	102.5	6.11	2.3	700	19.3	14.5	0.75	1.04	22.9	18.5	1.6
	7.0	3.1	7.1	500	24.2	1.22	20.0	114.8	5.80	2.6	500	19.1	13.3	0.70	0.98	22.4	19.5	1.4
				700	25.0	1.19	20.9	103.0	6.15	2.4	700	19.5	14.5	0.75	1.01	22.9	19.2	1.6
90	3.0	0.7	1.5	500	24.7	1.21	20.6	115.7	5.99	2.7	500	17.1	12.5	0.73	1.22	21.3	14.0	2.2
				700	25.5	1.17	21.5	103.8	6.38	2.5	700	17.5	13.5	0.77	1.26	21.8	13.9	2.3
	5.0	1.6	3.7	500	25.8	1.24	21.5	117.7	6.10	2.8	500	17.3	12.6	0.73	1.16	21.2	14.9	2.0
				700	26.7	1.19	22.6	105.3	6.54	2.6	700	17.6	13.7	0.78	1.19	21.7	14.9	2.2
	7.0	3.0	6.9	500	26.2	1.25	21.9	118.5	6.12	2.9	500	17.5	12.6	0.72	1.12	21.3	15.7	1.9
				700	27.2	1.21	23.0	105.9	6.59	2.7	700	17.8	13.7	0.77	1.16	21.7	15.4	2.1
100	3.0	0.6	1.5								Operation not recommended							
	5.0	1.6	3.6								500	16.7	12.5	0.75	1.32	21.2	12.6	2.6
											700	17.0	13.6	0.80	1.36	21.6	12.5	2.8
	7.0	2.9	6.6								500	16.9	12.5	0.74	1.28	21.2	13.2	2.4
											700	17.2	13.6	0.79	1.32	21.7	13.0	2.7
110	3.0	0.6	1.4								Operation not recommended							
	5.0	1.5	3.4								500	14.6	11.5	0.79	1.50	19.7	9.7	3.3
											700	14.9	12.5	0.84	1.54	20.2	9.7	3.6
	7.0	2.8	6.4								500	14.8	11.5	0.78	1.46	19.7	10.1	3.1
											700	15.1	12.5	0.83	1.50	20.2	10.0	3.4
120	3.0	0.6	1.3								Operation not recommended							
	5.0	1.4	3.3								500	14.0	11.4	0.82	1.71	19.8	8.2	4.1
											700	14.2	12.4	0.87	1.75	20.2	8.1	4.4
	7.0	2.7	6.1								500	14.1	11.4	0.81	1.65	19.7	8.5	3.8
											700	14.4	12.4	0.86	1.70	20.2	8.5	4.2

NDZ038 High Speed - Performance Data

1250 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	5.0	1.3	3.0	Operation not recommended							Operation not recommended							
	7.0	2.3	5.2															
	9.0	3.5	8.1	1050	22.1	2.12	14.9	89.5	3.06	2.8								
				1250	22.9	2.18	15.4	86.9	3.07	2.5								
30	5.0	1.2	2.9	Operation not recommended							Operation not recommended							
	7.0	2.2	5.1	1050	25.5	2.16	18.1	92.5	3.46	3.0	1050	34.5	20.5	0.59	1.47	39.5	23.5	-
				1250	26.2	2.23	18.7	89.4	3.46	2.8	1250	36.5	22.8	0.63	1.55	41.8	23.5	-
	9.0	3.4	7.9	1050	25.9	2.18	18.5	92.9	3.48	3.1	1050	34.7	22.5	0.65	1.42	39.6	24.4	-
				1250	26.8	2.25	19.1	89.8	3.49	2.8	1250	36.8	25.0	0.68	1.51	42.0	24.3	-
40	5.0	1.2	2.8	Operation not recommended							Operation not recommended							
	7.0	2.1	4.9	1050	29.8	2.29	22.0	96.3	3.81	3.4	1050	35.8	21.9	0.61	1.62	41.4	22.1	-
				1250	30.7	2.34	22.7	92.7	3.85	3.1	1250	37.8	24.4	0.65	1.70	43.6	22.2	-
	9.0	3.3	7.6	1050	30.4	2.31	22.5	96.8	3.85	3.5	1050	36.1	23.8	0.66	1.57	41.5	23.0	-
				1250	31.3	2.36	23.3	93.2	3.89	3.2	1250	38.2	26.4	0.69	1.67	43.8	22.9	-
50	5.0	1.2	2.7	1050	32.3	2.35	24.3	98.5	4.03	3.6	1050	36.0	22.8	0.63	1.92	42.6	18.8	1.7
				1250	33.2	2.38	25.1	94.6	4.10	3.4	1250	37.9	25.4	0.67	2.02	44.8	18.8	1.9
	7.0	2.1	4.8	1050	33.4	2.40	25.3	99.5	4.09	3.8	1050	36.8	23.1	0.63	1.81	43.0	20.4	1.6
				1250	34.5	2.43	26.2	95.6	4.16	3.5	1250	38.7	25.7	0.66	1.90	45.2	20.4	1.8
	9.0	3.2	7.4	1050	34.2	2.42	25.9	100.2	4.14	3.9	1050	37.2	24.7	0.66	1.76	43.2	21.1	1.5
				1250	35.3	2.45	26.9	96.1	4.21	3.5	1250	39.1	27.4	0.70	1.85	45.5	21.1	1.7
60	5.0	1.1	2.6	1050	35.6	2.46	27.2	101.4	4.24	4.1	1050	35.7	23.4	0.66	2.04	42.6	17.4	2.1
				1250	36.7	2.48	28.3	97.2	4.35	3.8	1250	37.4	26.0	0.70	2.14	44.7	17.5	2.2
	7.0	2.0	4.6	1050	37.2	2.53	28.6	102.8	4.31	4.2	1050	36.5	23.6	0.65	1.94	43.1	18.8	2.0
				1250	38.4	2.55	29.7	98.4	4.42	3.9	1250	38.2	26.2	0.69	2.02	45.1	18.9	2.1
	9.0	3.1	7.2	1050	38.1	2.56	29.4	103.6	4.36	4.4	1050	36.9	24.9	0.68	1.89	43.3	19.5	1.8
				1250	39.3	2.57	30.6	99.1	4.49	4.0	1250	38.7	27.6	0.71	1.98	45.4	19.5	2.0
70	5.0	1.1	2.5	1050	39.0	2.59	30.1	104.4	4.40	4.6	1050	35.6	24.2	0.68	2.24	43.3	15.9	2.6
				1250	40.3	2.59	31.5	99.9	4.56	4.3	1250	37.2	26.9	0.72	2.33	45.1	16.0	2.8
	7.0	1.9	4.5	1050	41.0	2.68	31.8	106.1	4.48	4.7	1050	36.5	24.5	0.67	2.15	43.9	17.0	2.4
				1250	42.3	2.68	33.2	101.3	4.63	4.4	1250	38.1	27.1	0.71	2.22	45.7	17.2	2.6
	9.0	3.0	6.9	1050	42.0	2.71	32.8	107.1	4.54	4.9	1050	36.9	25.4	0.69	2.09	44.1	17.6	2.3
				1250	43.5	2.70	34.3	102.2	4.72	4.5	1250	38.6	28.2	0.73	2.18	46.0	17.7	2.5
80	5.0	1.1	2.5	1050	41.5	2.70	32.3	106.6	4.50	5.2	1050	34.4	23.8	0.69	2.44	42.7	14.1	3.2
				1250	42.9	2.68	33.8	101.8	4.70	4.8	1250	35.7	26.5	0.74	2.51	44.3	14.2	3.4
	7.0	1.9	4.3	1050	43.9	2.81	34.3	108.7	4.58	5.3	1050	35.3	24.1	0.68	2.35	43.3	15.0	3.0
				1250	45.4	2.78	35.9	103.6	4.78	4.9	1250	36.7	26.8	0.73	2.42	45.0	15.2	3.3
	9.0	2.9	6.7	1050	45.1	2.84	35.4	109.8	4.65	5.5	1050	35.7	24.7	0.69	2.31	43.6	15.5	2.8
				1250	46.7	2.80	37.1	104.6	4.88	5.1	1250	37.2	27.4	0.74	2.37	45.3	15.6	3.1
90	5.0	1.0	2.4	1050	44.0	2.82	34.4	108.8	4.57	5.8	1050	32.5	23.2	0.71	2.63	41.4	12.3	4.0
				1250	45.6	2.78	36.1	103.8	4.81	5.3	1250	33.6	25.8	0.77	2.70	42.8	12.5	4.3
	7.0	1.8	4.2	1050	46.8	2.95	36.7	111.2	4.65	6.0	1050	33.4	23.5	0.70	2.56	42.1	13.1	3.8
				1250	48.4	2.90	38.6	105.9	4.90	5.5	1250	34.7	26.1	0.75	2.62	43.6	13.2	4.1
	9.0	2.8	6.5	1050	48.2	2.99	38.0	112.5	4.73	6.1	1050	33.8	23.7	0.70	2.51	42.4	13.4	3.5
				1250	49.9	2.92	40.0	107.0	5.01	5.7	1250	35.0	26.3	0.75	2.57	43.8	13.6	3.9
100	5.0	1.0	2.3	Operation not recommended							Operation not recommended							
	7.0	1.7	4.0								1050	32.2	23.3	0.72	2.85	41.9	11.3	4.7
											1250	33.3	25.9	0.78	2.90	43.1	11.5	5.0
	9.0	2.7	6.2								1050	32.6	23.2	0.71	2.80	42.1	11.6	4.3
											1250	33.6	25.7	0.76	2.85	43.3	11.8	4.8
110	5.0	1.0	2.2	Operation not recommended							Operation not recommended							
	7.0	1.7	3.9								1050	29.5	21.9	0.74	3.12	40.1	9.5	5.7
											1250	30.3	24.3	0.80	3.14	41.0	9.6	6.1
	9.0	2.6	6.0								1050	29.8	21.6	0.73	3.06	40.2	9.7	5.3
											1250	30.6	23.8	0.78	3.09	41.1	9.9	5.8
120	5.0	0.9	2.1	Operation not recommended							Operation not recommended							
	7.0	1.6	3.7								1050	27.7	21.4	0.77	3.48	39.6	8.0	6.8
											1250	28.3	23.9	0.84	3.48	40.2	8.2	7.4
	9.0	2.5	5.8								1050	28.0	20.9	0.75	3.42	39.6	8.2	6.3
											1250	28.6	23.0	0.81	3.43	40.3	8.3	7.0

NDZ038 Low Speed - Performance Data

1050 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	4.0	0.9	2.1	Operation not recommended							Operation not recommended							
	6.0	1.7	4.0															
	8.0	2.9	6.7	900	15.5	1.47	10.5	85.9	3.10	2.5								
				1050	16.1	1.50	11.0	84.2	3.15	2.2								
30	4.0	0.9	2.0	Operation not recommended							Operation not recommended							
	6.0	1.7	3.9	900	17.2	1.45	12.3	87.7	3.48	2.4	900	26.6	16.8	0.63	0.73	29.1	36.5	-
				1050	17.9	1.49	12.8	85.8	3.53	2.2	1050	27.3	18.6	0.68	0.74	29.8	36.8	-
	8.0	2.8	6.5	900	18.3	1.49	13.2	88.8	3.61	2.5	900	27.0	17.3	0.64	0.72	29.5	37.4	-
				1050	19.1	1.53	13.9	86.8	3.66	2.2	1050	27.8	19.1	0.69	0.74	30.3	37.7	-
40	4.0	0.8	1.9	Operation not recommended							Operation not recommended							
	6.0	1.6	3.8	900	20.3	1.48	15.3	90.9	4.03	2.5	900	27.7	18.0	0.65	0.79	30.4	35.1	-
				1050	21.0	1.51	15.9	88.6	4.09	2.3	1050	28.4	19.9	0.70	0.80	31.2	35.3	-
	8.0	2.7	6.3	900	21.4	1.51	16.3	92.0	4.15	2.6	900	28.1	18.5	0.66	0.78	30.8	35.9	-
				1050	22.2	1.54	16.9	89.5	4.21	2.3	1050	28.9	20.4	0.71	0.80	31.6	36.2	-
50	4.0	0.8	1.9	900	22.4	1.50	17.3	93.0	4.36	2.6	900	28.6	19.3	0.67	0.90	31.6	31.8	0.9
				1050	23.1	1.53	17.9	90.4	4.44	2.4	1050	29.4	21.3	0.73	0.92	32.5	32.1	1.0
	6.0	1.6	3.7	900	23.2	1.51	18.0	93.9	4.51	2.7	900	28.8	19.4	0.67	0.88	31.8	33.0	0.8
				1050	23.9	1.52	18.7	91.1	4.59	2.4	1050	29.6	21.5	0.72	0.89	32.7	33.2	0.9
	8.0	2.6	6.1	900	24.3	1.54	19.0	95.0	4.62	2.7	900	29.3	19.9	0.68	0.87	32.3	33.8	0.8
				1050	25.0	1.56	19.7	92.0	4.70	2.5	1050	30.1	22.0	0.73	0.88	33.1	34.1	0.9
60	4.0	0.8	1.8	900	25.3	1.53	20.0	96.0	4.83	2.8	900	27.4	18.6	0.68	1.00	30.9	27.3	1.2
				1050	25.9	1.54	20.6	92.8	4.91	2.6	1050	28.2	20.6	0.73	1.02	31.7	27.6	1.3
	6.0	1.5	3.6	900	26.3	1.53	21.1	97.0	5.03	2.9	900	27.7	18.7	0.67	0.98	31.0	28.3	1.1
				1050	26.9	1.54	21.6	93.7	5.12	2.7	1050	28.5	20.7	0.73	1.00	31.9	28.5	1.2
	8.0	2.5	5.9	900	27.2	1.57	21.8	98.0	5.09	3.0	900	28.1	19.2	0.68	0.97	31.5	29.0	1.1
				1050	27.8	1.57	22.4	94.5	5.18	2.7	1050	28.9	21.2	0.73	0.99	32.3	29.3	1.2
70	4.0	0.8	1.8	900	28.0	1.56	22.7	98.9	5.27	3.1	900	27.1	18.8	0.69	1.14	31.0	23.8	1.7
				1050	28.6	1.56	23.3	95.2	5.37	2.9	1050	27.8	20.8	0.75	1.16	31.8	24.0	1.8
	6.0	1.5	3.5	900	29.3	1.55	24.0	100.1	5.52	3.2	900	27.3	18.9	0.69	1.11	31.1	24.7	1.6
				1050	29.8	1.55	24.5	96.3	5.63	3.0	1050	28.1	21.0	0.75	1.13	32.0	24.9	1.7
	8.0	2.5	5.7	900	30.0	1.59	24.6	100.9	5.55	3.3	900	27.8	19.4	0.70	1.10	31.5	25.3	1.5
				1050	30.6	1.58	25.2	96.9	5.65	3.1	1050	28.6	21.5	0.75	1.12	32.4	25.5	1.6
80	4.0	0.7	1.7	900	30.7	1.59	25.3	101.6	5.66	3.5	900	26.1	18.4	0.71	1.30	30.5	20.1	2.3
				1050	31.1	1.58	25.7	97.4	5.77	3.3	1050	26.8	20.4	0.76	1.32	31.3	20.3	2.5
	6.0	1.4	3.3	900	32.2	1.58	26.8	103.1	5.97	3.6	900	26.3	18.6	0.71	1.26	30.6	20.8	2.2
				1050	32.6	1.57	27.2	98.7	6.09	3.3	1050	27.0	20.5	0.76	1.29	31.4	21.0	2.4
	8.0	2.4	5.5	900	32.6	1.61	27.1	103.6	5.93	3.7	900	26.7	19.0	0.71	1.25	31.0	21.4	2.0
				1050	33.0	1.60	27.5	99.1	6.05	3.4	1050	27.5	21.1	0.77	1.28	31.8	21.5	2.2
90	4.0	0.7	1.6	900	33.3	1.62	27.8	104.3	6.04	4.0	900	24.2	17.2	0.71	1.48	29.2	16.4	3.1
				1050	33.6	1.60	28.1	99.6	6.16	3.7	1050	24.8	19.1	0.77	1.50	30.0	16.5	3.3
	6.0	1.4	3.2	900	35.0	1.60	29.5	106.0	6.41	4.1	900	24.4	17.3	0.71	1.44	29.3	17.0	2.9
				1050	35.2	1.58	29.8	101.1	6.54	3.8	1050	25.1	19.2	0.77	1.47	30.1	17.1	3.1
	8.0	2.3	5.3	900	35.2	1.63	29.6	106.2	6.31	4.2	900	24.8	17.8	0.72	1.43	29.6	17.4	2.7
				1050	35.3	1.61	29.8	101.2	6.44	3.9	1050	25.5	19.7	0.77	1.45	30.4	17.5	3.0
100	4.0	0.7	1.6	Operation not recommended							Operation not recommended							
	6.0	1.3	3.1								900	23.5	17.6	0.75	1.64	29.1	14.3	3.8
											1050	24.2	19.5	0.81	1.67	29.9	14.4	4.1
	8.0	2.2	5.1								900	23.9	18.1	0.76	1.63	29.5	14.7	3.5
											1050	24.6	20.0	0.81	1.66	30.2	14.8	3.9
110	4.0	0.7	1.5								Operation not recommended							
	6.0	1.3	3.0								900	21.1	16.6	0.79	1.87	27.5	11.3	4.8
											1050	21.7	18.3	0.85	1.90	28.2	11.4	5.2
	8.0	2.1	4.9								900	21.4	17.0	0.79	1.85	27.8	11.6	4.4
											1050	22.0	18.8	0.85	1.89	28.5	11.7	4.9
120	4.0	0.6	1.5								Operation not recommended							
	6.0	1.2	2.9								900	20.0	16.4	0.82	2.12	27.2	9.4	5.9
											1050	20.5	18.2	0.88	2.16	27.9	9.5	6.4
	8.0	2.0	4.7								900	20.3	16.8	0.83	2.10	27.5	9.7	5.5
											1050	20.9	18.6	0.89	2.14	28.2	9.7	6.1

NDZ049 High Speed - Performance Data

1550 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	6.0	1.3	3.0	Operation not recommended							Operation not recommended							
	9.0	2.5	5.7															
	12.0	4.0	9.2	1350	30.7	2.74	21.3	91.0	3.28	5.2								
				1550	31.7	2.82	22.1	88.9	3.29	4.7								
30	6.0	1.2	2.9	Operation not recommended							Operation not recommended							
	9.0	2.4	5.5	1350	35.0	2.87	25.2	94.0	3.58	5.5	1350	46.3	28.5	0.62	1.90	52.8	24.4	-
				1550	36.1	2.96	26.0	91.5	3.57	5.1	1550	49.1	31.8	0.65	2.02	56.0	24.3	-
	12.0	3.9	8.9	1350	35.5	2.90	25.6	94.4	3.60	5.7	1350	46.8	28.5	0.61	1.81	53.0	25.9	-
				1550	36.7	2.99	26.5	91.9	3.60	5.2	1550	49.5	31.7	0.64	1.93	56.1	25.7	-
40	6.0	1.2	2.8	Operation not recommended							Operation not recommended							
	9.0	2.3	5.3	1350	39.9	3.00	29.7	97.4	3.90	6.1	1350	48.0	30.2	0.63	2.10	55.2	22.9	-
				1550	41.1	3.06	30.6	94.5	3.93	5.6	1550	50.8	33.6	0.66	2.22	58.4	22.9	-
	12.0	3.7	8.7	1350	40.6	3.03	30.3	97.9	3.93	6.3	1350	48.6	30.2	0.62	2.01	55.4	24.2	-
				1550	42.0	3.09	31.4	95.1	3.97	5.7	1550	51.2	33.6	0.66	2.13	58.5	24.1	-
50	6.0	1.2	2.7	1350	42.7	3.10	32.1	99.3	4.03	6.6	1350	48.6	31.0	0.64	2.50	57.2	19.4	2.9
				1550	44.1	3.14	33.3	96.3	4.11	6.1	1550	51.2	34.4	0.67	2.64	60.2	19.4	3.1
	9.0	2.2	5.2	1350	44.4	3.16	33.6	100.4	4.11	6.8	1350	49.2	31.4	0.64	2.35	57.2	21.0	2.7
				1550	45.6	3.21	34.7	97.3	4.17	6.2	1550	51.8	34.9	0.67	2.46	60.2	21.0	2.9
	12.0	3.6	8.4	1350	45.2	3.20	34.3	101.0	4.15	7.0	1350	49.7	31.5	0.63	2.26	57.4	22.0	2.5
				1550	46.7	3.24	35.7	97.9	4.23	6.4	1550	52.3	35.0	0.67	2.37	60.4	22.0	2.8
60	6.0	1.1	2.6	1350	46.6	3.23	35.6	102.0	4.23	7.4	1350	48.1	31.3	0.65	2.66	57.1	18.1	3.6
				1550	48.1	3.24	37.0	98.7	4.34	6.8	1550	50.4	34.7	0.69	2.78	59.9	18.2	3.8
	9.0	2.2	5.0	1350	48.7	3.31	37.4	103.4	4.31	7.6	1350	48.9	31.7	0.65	2.51	57.4	19.5	3.3
				1550	50.2	3.33	38.8	100.0	4.42	7.0	1550	51.2	35.2	0.69	2.62	60.2	19.6	3.6
	12.0	3.5	8.1	1350	49.8	3.35	38.4	104.2	4.36	7.8	1350	49.4	31.8	0.65	2.43	57.7	20.3	3.1
				1550	51.4	3.36	40.0	100.7	4.49	7.2	1550	51.8	35.4	0.68	2.54	60.4	20.4	3.4
70	6.0	1.1	2.5	1350	50.4	3.34	39.0	104.6	4.42	8.3	1350	47.8	31.9	0.67	2.91	57.7	16.4	4.5
				1550	52.0	3.33	40.6	101.1	4.57	7.7	1550	49.9	35.4	0.71	3.01	60.2	16.6	4.7
	9.0	2.1	4.9	1350	52.9	3.44	41.2	106.3	4.50	8.6	1350	48.8	32.3	0.66	2.77	58.3	17.7	4.2
				1550	54.6	3.43	42.8	102.6	4.66	7.9	1550	51.0	35.8	0.70	2.87	60.8	17.8	4.5
	12.0	3.4	7.9	1350	54.3	3.49	42.4	107.2	4.56	8.8	1350	49.3	32.5	0.66	2.69	58.5	18.3	3.9
				1550	56.0	3.47	44.2	103.5	4.73	8.1	1550	51.6	36.1	0.70	2.79	61.1	18.5	4.3
80	6.0	1.1	2.5	1350	53.5	3.52	41.5	106.7	4.45	9.3	1350	45.8	31.2	0.68	3.15	56.5	14.5	5.6
				1550	55.2	3.48	43.4	103.0	4.65	8.6	1550	47.7	34.6	0.73	3.24	58.7	14.7	6.0
	9.0	2.0	4.7	1350	56.5	3.65	44.0	108.7	4.54	9.6	1350	47.0	31.5	0.67	3.03	57.3	15.5	5.3
				1550	58.3	3.60	46.0	104.8	4.74	8.9	1550	48.9	34.9	0.71	3.11	59.5	15.7	5.7
	12.0	3.3	7.6	1350	58.1	3.69	45.5	109.8	4.62	9.9	1350	47.5	31.8	0.67	2.96	57.6	16.0	4.9
				1550	60.0	3.64	47.6	105.8	4.83	9.2	1550	49.4	35.3	0.71	3.04	59.8	16.2	5.4
90	6.0	1.0	2.4	1350	56.5	3.68	43.9	108.7	4.49	10.5	1350	43.0	29.9	0.70	3.38	54.6	12.7	7.1
				1550	58.4	3.61	46.1	104.9	4.74	9.7	1550	44.6	33.2	0.74	3.46	56.4	12.9	7.5
	9.0	2.0	4.5	1350	59.9	3.84	46.8	111.1	4.58	10.8	1350	44.3	30.2	0.68	3.29	55.5	13.5	6.6
				1550	61.9	3.76	49.1	107.0	4.83	10.0	1550	46.0	33.5	0.73	3.35	57.4	13.7	7.2
	12.0	3.2	7.3	1350	61.8	3.87	48.6	112.4	4.67	11.2	1350	44.8	30.5	0.68	3.22	55.8	13.9	6.1
				1550	63.9	3.80	50.9	108.2	4.92	10.3	1550	46.4	33.9	0.73	3.29	57.6	14.1	6.8
100	6.0	1.0	2.3								Operation not recommended							
	9.0	1.9	4.4								1350	42.3	29.6	0.70	3.65	54.8	11.6	8.2
											1550	43.7	32.7	0.75	3.70	56.3	11.8	8.9
	12.0	3.1	7.1								1350	42.8	29.9	0.70	3.59	55.0	11.9	7.6
											1550	44.1	33.2	0.75	3.64	56.5	12.1	8.5
110	6.0	1.0	2.2								Operation not recommended							
	9.0	1.8	4.2								1350	38.2	27.6	0.72	3.97	51.8	9.6	10.0
											1550	39.3	30.5	0.78	4.00	52.9	9.8	10.9
	12.0	2.9	6.8								1350	38.6	28.0	0.72	3.92	52.0	9.9	9.3
											1550	39.7	31.0	0.78	3.95	53.2	10.0	10.4
120	6.0	0.9	2.1								Operation not recommended							
	9.0	1.7	4.0								1350	35.5	26.4	0.74	4.42	50.6	8.0	12.1
											1550	36.3	29.2	0.80	4.42	51.4	8.2	13.2
	12.0	2.8	6.5								1350	35.8	26.9	0.75	4.37	50.8	8.2	11.3
											1550	36.6	29.7	0.81	4.37	51.6	8.4	12.5

NDZ049 Low Speed - Performance Data

1350 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	5.0	0.9	2.2	Operation not recommended							Operation not recommended							
	8.0	2.0	4.6															
	11.0	3.4	7.8	1150	22.2	2.05	15.2	87.9	3.17	4.1								
				1350	23.0	2.08	15.9	85.8	3.24	3.7								
30	5.0	0.9	2.1	Operation not recommended							Operation not recommended							
	8.0	1.9	4.4	1150	25.6	2.09	18.4	90.6	3.58	4.2	1150	35.0	20.6	0.59	1.18	39.1	29.7	-
				1350	26.3	2.10	19.2	88.1	3.67	3.8	1350	36.3	24.2	0.67	1.25	40.6	28.9	-
	11.0	3.3	7.6	1150	26.2	2.10	19.0	91.1	3.65	4.3	1150	35.1	20.5	0.58	1.10	38.9	31.9	-
				1350	27.1	2.13	19.8	88.6	3.73	3.9	1350	36.1	24.2	0.67	1.17	40.0	30.8	-
40	5.0	0.9	2.0	Operation not recommended							Operation not recommended							
	8.0	1.9	4.3	1150	29.3	2.16	21.9	93.6	3.97	4.5	1150	37.0	22.5	0.61	1.30	41.5	28.5	-
				1350	30.4	2.16	23.0	90.8	4.11	4.1	1350	38.3	26.5	0.69	1.37	42.9	27.9	-
	11.0	3.2	7.4	1150	30.3	2.18	22.9	94.4	4.07	4.6	1150	37.2	22.4	0.60	1.22	41.3	30.5	-
				1350	31.3	2.19	23.8	91.5	4.18	4.2	1350	38.2	26.4	0.69	1.29	42.6	29.7	-
50	5.0	0.9	2.0	1150	30.4	2.16	23.0	94.5	4.13	4.7	1150	37.8	24.0	0.64	1.68	43.5	22.5	1.6
				1350	31.4	2.16	24.0	91.5	4.26	4.3	1350	38.9	28.3	0.73	1.75	44.9	22.2	1.6
	8.0	1.8	4.2	1150	32.8	2.23	25.1	96.4	4.31	4.8	1150	38.6	24.1	0.62	1.45	43.5	26.5	1.4
				1350	34.0	2.21	26.4	93.3	4.50	4.4	1350	39.8	28.4	0.71	1.52	45.0	26.1	1.6
	11.0	3.1	7.2	1150	34.0	2.24	26.4	97.4	4.44	5.0	1150	38.8	24.1	0.62	1.37	43.5	28.4	1.3
				1350	35.1	2.24	27.5	94.1	4.59	4.5	1350	40.0	28.4	0.71	1.44	44.9	27.8	1.5
60	5.0	0.8	1.9	1150	33.2	2.24	25.6	96.7	4.34	5.1	1150	37.6	24.0	0.64	1.81	43.7	20.8	2.2
				1350	34.4	2.23	26.8	93.6	4.53	4.8	1350	38.8	28.2	0.73	1.89	45.2	20.5	2.3
	8.0	1.8	4.0	1150	35.9	2.30	28.1	98.9	4.58	5.3	1150	38.2	24.1	0.63	1.61	43.7	23.8	2.0
				1350	37.3	2.27	29.6	95.6	4.82	4.9	1350	39.4	28.4	0.72	1.68	45.1	23.4	2.2
	11.0	3.0	6.9	1150	37.5	2.32	29.5	100.2	4.74	5.5	1150	38.6	24.2	0.63	1.52	43.8	25.3	1.9
				1350	38.8	2.29	31.0	96.6	4.96	5.0	1350	39.8	28.5	0.72	1.59	45.2	25.0	2.1
70	5.0	0.8	1.8	1150	35.9	2.32	28.0	98.9	4.54	5.7	1150	37.8	25.2	0.67	1.99	44.6	19.0	3.1
				1350	37.3	2.29	29.5	95.6	4.77	5.3	1350	39.0	29.6	0.76	2.09	46.1	18.7	3.3
	8.0	1.7	3.9	1150	39.0	2.36	30.9	101.4	4.84	5.9	1150	38.2	25.4	0.67	1.81	44.3	21.1	2.9
				1350	40.5	2.32	32.6	97.8	5.12	5.4	1350	39.4	29.9	0.76	1.89	45.8	20.9	3.1
	11.0	2.9	6.7	1150	40.7	2.39	32.6	102.8	5.00	6.1	1150	38.8	25.6	0.66	1.73	44.7	22.5	2.7
				1350	42.3	2.33	34.3	99.0	5.31	5.6	1350	40.0	30.0	0.75	1.79	46.1	22.3	3.0
80	5.0	0.8	1.8	1150	38.1	2.38	30.0	100.7	4.70	6.4	1150	36.6	24.1	0.66	2.17	44.0	16.8	4.3
				1350	39.6	2.34	31.6	97.2	4.97	5.9	1350	37.7	28.3	0.75	2.27	45.5	16.6	4.5
	8.0	1.6	3.8	1150	41.4	2.40	33.2	103.3	5.05	6.6	1150	36.8	24.4	0.66	2.02	43.7	18.2	4.0
				1350	43.1	2.34	35.1	99.5	5.39	6.1	1350	37.9	28.7	0.76	2.10	45.0	18.0	4.3
	11.0	2.8	6.5	1150	43.5	2.43	35.2	105.0	5.25	6.8	1150	37.6	24.6	0.65	1.93	44.2	19.5	3.7
				1350	45.3	2.36	37.2	101.0	5.61	6.2	1350	38.8	28.9	0.74	2.01	45.6	19.3	4.1
90	5.0	0.7	1.7	1150	40.2	2.43	31.9	102.4	4.85	7.1	1150	34.5	22.2	0.64	2.38	42.6	14.5	5.7
				1350	41.8	2.38	33.7	98.7	5.16	6.6	1350	35.6	26.1	0.73	2.47	44.0	14.4	6.0
	8.0	1.6	3.6	1150	43.7	2.44	35.4	105.2	5.25	7.3	1150	34.5	22.5	0.65	2.25	42.2	15.3	5.3
				1350	45.5	2.36	37.5	101.2	5.65	6.8	1350	35.5	26.4	0.75	2.34	43.4	15.2	5.8
	11.0	2.7	6.2	1150	46.1	2.47	37.7	107.1	5.48	7.5	1150	35.5	22.7	0.64	2.16	42.8	16.4	4.9
				1350	48.1	2.39	39.9	103.0	5.90	7.0	1350	36.6	26.7	0.73	2.25	44.3	16.2	5.5
100	5.0	0.7	1.7	Operation not recommended							Operation not recommended							
	8.0	1.5	3.5								1150	32.9	23.1	0.70	2.53	41.5	13.0	6.9
											1350	33.9	27.2	0.80	2.63	42.9	12.9	7.5
	11.0	2.6	6.0								1150	34.1	23.5	0.69	2.44	42.4	14.0	6.4
											1350	35.1	27.6	0.79	2.55	43.8	13.8	7.1
110	5.0	0.7	1.6								Operation not recommended							
	8.0	1.5	3.4								1150	29.5	21.8	0.74	2.82	39.1	10.5	8.7
											1350	30.5	25.6	0.84	2.94	40.5	10.4	9.5
	11.0	2.5	5.8								1150	30.9	22.2	0.72	2.73	40.2	11.3	8.1
											1350	31.8	26.0	0.82	2.85	41.5	11.1	9.0
120	5.0	0.7	1.5								Operation not recommended							
	8.0	1.4	3.3								1150	27.2	21.2	0.78	3.15	38.0	8.6	10.8
											1350	28.2	24.9	0.89	3.29	39.4	8.6	11.7
	11.0	2.4	5.6								1150	28.8	21.6	0.75	3.06	39.2	9.4	10.1
											1350	29.5	25.4	0.86	3.21	40.5	9.2	11.2

NDZ064 High Speed - Performance Data

1800 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	8.0	1.8	4.2	Operation not recommended							Operation not recommended							
	12.0	3.8	8.8															
	16.0	6.5	15.1	1500	38.2	3.68	25.7	93.6	3.04	6.0								
				1800	39.2	3.85	26.0	90.1	2.98	5.4								
30	8.0	1.8	4.1	Operation not recommended							Operation not recommended							
	12.0	3.7	8.6	1500	44.1	3.69	31.5	97.2	3.50	6.3	1500	57.9	37.0	0.64	2.32	65.8	24.9	-
				1800	45.3	3.93	31.9	93.3	3.38	5.8	1800	58.4	40.3	0.69	2.47	66.8	23.7	-
	16.0	6.4	14.7	1500	44.7	3.79	31.8	97.6	3.46	6.5	1500	58.5	37.4	0.64	2.28	66.3	25.6	-
				1800	45.8	3.97	32.2	93.5	3.38	5.9	1800	58.9	40.6	0.69	2.43	67.2	24.3	-
40	8.0	1.7	4.0	Operation not recommended							Operation not recommended							
	12.0	3.6	8.3	1500	50.7	3.94	37.3	101.3	3.77	7.0	1500	60.2	38.0	0.63	2.67	69.3	22.5	-
				1800	51.9	4.11	37.9	96.7	3.70	6.4	1800	61.1	41.4	0.68	2.83	70.7	21.6	-
	16.0	6.2	14.2	1500	51.5	4.01	37.8	101.8	3.76	7.2	1500	60.8	38.4	0.63	2.62	69.7	23.2	-
				1800	52.7	4.15	38.5	97.1	3.72	6.5	1800	61.6	41.7	0.68	2.79	71.1	22.1	-
50	8.0	1.7	3.8	1500	54.1	4.10	40.1	103.4	3.87	7.5	1500	61.1	38.3	0.63	3.12	71.8	19.6	3.4
				1800	55.3	4.23	40.8	98.4	3.83	7.0	1800	62.4	41.7	0.67	3.32	73.7	18.8	3.6
	12.0	3.5	8.1	1500	57.2	4.18	43.0	105.3	4.01	7.8	1500	61.8	38.7	0.63	3.06	72.2	20.2	3.2
				1800	58.4	4.29	43.8	100.0	3.99	7.1	1800	63.0	42.1	0.67	3.25	74.1	19.4	3.5
	16.0	6.0	13.8	1500	58.2	4.23	43.8	105.9	4.03	8.0	1500	62.4	39.1	0.63	3.00	72.6	20.8	3.0
				1800	59.4	4.33	44.7	100.6	4.02	7.3	1800	63.6	42.4	0.67	3.19	74.5	19.9	3.3
60	8.0	1.6	3.7	1500	60.7	4.38	45.7	107.5	4.06	8.5	1500	59.7	38.0	0.64	3.37	71.2	17.7	4.2
				1800	62.0	4.46	46.8	101.9	4.08	7.8	1800	61.2	41.3	0.67	3.58	73.5	17.1	4.4
	12.0	3.4	7.8	1500	63.5	4.46	48.3	109.2	4.18	8.7	1500	60.3	38.3	0.64	3.30	71.6	18.3	3.9
				1800	64.8	4.51	49.4	103.4	4.21	8.0	1800	61.9	41.7	0.67	3.51	73.9	17.7	4.2
	16.0	5.8	13.4	1500	64.8	4.51	49.5	110.0	4.22	9.0	1500	60.9	38.7	0.64	3.24	72.0	18.8	3.6
				1800	66.3	4.56	50.8	104.1	4.27	8.2	1800	62.5	42.1	0.67	3.45	74.3	18.1	4.0
70	8.0	1.6	3.6	1500	67.3	4.69	51.3	111.6	4.20	9.5	1500	60.2	38.3	0.64	3.74	73.0	16.1	5.2
				1800	68.8	4.72	52.7	105.4	4.28	8.8	1800	62.1	41.6	0.67	3.99	75.7	15.6	5.5
	12.0	3.3	7.5	1500	69.8	4.76	53.6	113.1	4.30	9.8	1500	60.8	38.7	0.64	3.67	73.4	16.6	4.9
				1800	71.4	4.77	55.1	106.7	4.38	9.0	1800	62.8	42.0	0.67	3.90	76.1	16.1	5.3
	16.0	5.6	12.9	1500	71.6	4.82	55.1	114.2	4.36	10.1	1500	61.4	39.1	0.64	3.61	73.7	17.0	4.5
				1800	73.3	4.82	56.8	107.7	4.46	9.3	1800	63.4	42.5	0.67	3.84	76.5	16.5	5.0
80	8.0	1.5	3.5	1500	74.0	5.00	56.9	115.7	4.34	10.7	1500	56.7	37.0	0.65	4.06	70.6	14.0	6.6
				1800	75.7	4.97	58.7	108.9	4.46	9.9	1800	58.8	40.2	0.68	4.33	73.6	13.6	7.0
	12.0	3.2	7.3	1500	75.7	5.06	58.5	116.8	4.39	11.0	1500	57.3	37.3	0.65	3.98	70.9	14.4	6.2
				1800	77.5	5.01	60.4	109.9	4.54	10.2	1800	59.4	40.6	0.68	4.24	73.9	14.0	6.7
	16.0	5.4	12.5	1500	78.0	5.12	60.6	118.2	4.46	11.4	1500	57.9	37.8	0.65	3.91	71.2	14.8	5.7
				1800	80.0	5.06	62.7	111.1	4.63	10.5	1800	60.1	41.0	0.68	4.17	74.3	14.4	6.4
90	8.0	1.4	3.3	1500	80.7	5.34	62.5	119.8	4.43	12.0	1500	52.2	35.7	0.68	4.35	67.0	12.0	8.3
				1800	82.6	5.26	64.7	112.5	4.60	11.1	1800	54.5	38.7	0.71	4.64	70.3	11.8	8.8
	12.0	3.0	7.0	1500	81.8	5.40	63.3	120.5	4.44	12.4	1500	52.8	36.0	0.68	4.27	67.4	12.4	7.7
				1800	83.8	5.29	65.8	113.1	4.65	11.5	1800	55.0	39.1	0.71	4.54	70.5	12.1	8.4
	16.0	5.2	12.0	1500	84.6	5.47	65.9	122.2	4.53	12.8	1500	53.3	36.4	0.68	4.19	67.6	12.7	7.2
				1800	86.8	5.34	68.6	114.6	4.76	11.8	1800	55.6	39.5	0.71	4.47	70.9	12.4	8.0
100	8.0	1.4	3.2	Operation not recommended							Operation not recommended							
	12.0	2.9	6.8								1500	51.3	35.1	0.68	4.71	67.4	10.9	9.6
											1800	53.7	38.1	0.71	5.02	70.9	10.7	10.4
	16.0	5.0	11.6								1500	51.8	35.5	0.68	4.63	67.6	11.2	8.9
											1800	54.3	38.5	0.71	4.94	71.1	11.0	9.9
110	8.0	1.3	3.1	Operation not recommended							Operation not recommended							
	12.0	2.8	6.5								1500	45.4	32.1	0.71	5.04	62.6	9.0	11.8
											1800	47.8	34.8	0.73	5.38	66.2	8.9	12.8
	16.0	4.8	11.2								1500	45.8	32.4	0.71	4.95	62.7	9.2	10.9
											1800	48.2	35.2	0.73	5.29	66.3	9.1	12.1
120	8.0	1.3	3.0	Operation not recommended							Operation not recommended							
	12.0	2.7	6.3								1500	44.2	32.6	0.74	5.56	63.1	7.9	14.2
											1800	46.7	35.4	0.76	5.94	67.0	7.9	15.4
	16.0	4.6	10.7								1500	44.6	33.0	0.74	5.46	63.2	8.2	13.2
											1800	47.1	35.8	0.76	5.84	67.1	8.1	14.7

NDZ064 Low Speed - Performance Data

1500 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	6.0	1.0	2.4	Operation not recommended							Operation not recommended							
	10.0	2.7	6.2															
	14.0	5.1	11.8	1250	25.8	2.66	16.8	89.1	2.85	4.9								
				1500	26.7	2.69	17.5	86.5	2.91	4.4								
30	6.0	1.0	2.3	Operation not recommended							Operation not recommended							
	10.0	2.6	6.0	1250	30.0	2.74	20.6	92.2	3.21	4.9	1250	45.9	27.0	0.59	1.42	50.8	32.2	-
				1500	31.0	2.77	21.6	89.2	3.28	4.5	1500	47.3	30.8	0.65	1.49	52.4	31.7	-
	14.0	5.0	11.5	1250	31.0	2.74	21.7	93.0	3.32	5.1	1250	46.0	26.9	0.59	1.39	50.8	33.1	-
				1500	32.1	2.77	22.6	89.8	3.39	4.6	1500	47.2	30.7	0.65	1.47	52.2	32.2	-
40	6.0	1.0	2.3	Operation not recommended							Operation not recommended							
	10.0	2.5	5.9	1250	35.4	2.83	25.7	96.2	3.66	5.2	1250	47.3	27.7	0.59	1.56	52.6	30.2	-
				1500	36.3	2.84	26.6	92.4	3.75	4.8	1500	48.7	31.5	0.65	1.64	54.3	29.7	-
	14.0	4.8	11.1	1250	36.5	2.84	26.8	97.0	3.76	5.4	1250	47.4	27.6	0.58	1.53	52.6	31.0	-
				1500	37.5	2.85	27.8	93.1	3.85	4.9	1500	48.7	31.4	0.65	1.61	54.2	30.3	-
50	6.0	0.9	2.2	1250	39.8	2.88	30.0	99.5	4.05	5.5	1250	48.4	28.0	0.58	1.81	54.6	26.7	1.8
				1500	40.9	2.88	31.0	95.2	4.16	5.1	1500	49.8	31.8	0.64	1.91	56.3	26.1	1.9
	10.0	2.5	5.7	1250	40.4	2.93	30.4	99.9	4.04	5.7	1250	48.5	28.3	0.58	1.75	54.5	27.8	1.7
				1500	41.3	2.91	31.4	95.5	4.16	5.2	1500	50.0	32.1	0.64	1.83	56.2	27.3	1.8
	14.0	4.7	10.8	1250	41.6	2.95	31.6	100.8	4.14	5.8	1250	48.7	28.3	0.58	1.71	54.5	28.4	1.5
				1500	42.6	2.93	32.6	96.3	4.26	5.3	1500	50.1	32.1	0.64	1.80	56.2	27.9	1.7
60	6.0	0.9	2.1	1250	44.3	2.97	34.1	102.8	4.37	6.0	1250	46.7	27.4	0.59	2.02	53.6	23.1	2.5
				1500	45.2	2.95	35.2	97.9	4.50	5.6	1500	48.1	31.0	0.64	2.12	55.3	22.7	2.7
	10.0	2.4	5.5	1250	45.7	3.02	35.3	103.8	4.42	6.2	1250	46.9	27.7	0.59	1.96	53.6	23.9	2.4
				1500	46.4	2.98	36.2	98.6	4.56	5.7	1500	48.3	31.3	0.65	2.05	55.3	23.6	2.5
	14.0	4.5	10.4	1250	46.8	3.05	36.3	104.6	4.49	6.4	1250	47.1	27.7	0.59	1.92	53.6	24.5	2.2
				1500	47.5	3.01	37.2	99.3	4.63	5.9	1500	48.5	31.3	0.65	2.01	55.3	24.2	2.4
70	6.0	0.9	2.0	1250	48.7	3.07	38.2	106.0	4.65	6.7	1250	45.9	27.8	0.61	2.29	53.7	20.1	3.6
				1500	49.5	3.01	39.2	100.5	4.81	6.2	1500	47.3	31.1	0.66	2.38	55.4	19.9	3.8
	10.0	2.3	5.3	1250	50.7	3.12	40.1	107.6	4.77	6.9	1250	46.1	28.0	0.61	2.22	53.7	20.8	3.3
				1500	51.3	3.05	40.9	101.7	4.93	6.4	1500	47.6	31.5	0.66	2.32	55.5	20.5	3.6
	14.0	4.4	10.1	1250	51.7	3.15	40.9	108.3	4.81	7.1	1250	46.4	28.1	0.61	2.17	53.8	21.4	3.1
				1500	52.2	3.08	41.7	102.3	4.97	6.5	1500	47.8	31.6	0.66	2.27	55.6	21.1	3.4
80	6.0	0.9	2.0	1250	52.8	3.16	42.0	109.1	4.89	7.4	1250	43.9	26.8	0.61	2.58	52.7	17.0	4.9
				1500	53.2	3.09	42.7	102.9	5.05	6.9	1500	45.2	29.9	0.66	2.67	54.3	16.9	5.2
	10.0	2.2	5.1	1250	55.7	3.21	44.8	111.3	5.09	7.7	1250	44.2	27.0	0.61	2.52	52.8	17.6	4.6
				1500	56.0	3.12	45.4	104.6	5.27	7.1	1500	45.6	30.3	0.66	2.62	54.5	17.4	5.0
	14.0	4.2	9.8	1250	56.4	3.25	45.3	111.8	5.08	7.9	1250	44.5	27.2	0.61	2.48	53.0	18.0	4.3
				1500	56.6	3.16	45.8	104.9	5.25	7.3	1500	45.9	30.5	0.66	2.57	54.7	17.9	4.7
90	6.0	0.8	1.9	1250	56.7	3.25	45.6	112.0	5.11	8.3	1250	40.6	25.4	0.63	2.92	50.6	13.9	6.6
				1500	56.9	3.17	46.1	105.1	5.26	7.7	1500	41.8	28.2	0.67	3.00	52.1	13.9	7.0
	10.0	2.1	5.0	1250	60.6	3.30	49.3	114.9	5.37	8.6	1250	41.1	25.7	0.62	2.85	50.8	14.4	6.1
				1500	60.6	3.18	49.7	107.4	5.57	8.0	1500	42.3	28.6	0.68	2.95	52.4	14.3	6.6
	14.0	4.1	9.4	1250	61.0	3.36	49.5	115.2	5.32	8.8	1250	41.4	25.9	0.63	2.82	51.0	14.7	5.7
				1500	60.8	3.24	49.8	107.5	5.51	8.2	1500	42.7	28.8	0.67	2.90	52.6	14.7	6.3
100	6.0	0.8	1.8	Operation not recommended							Operation not recommended							
	10.0	2.1	4.8								1250	39.4	25.7	0.65	3.26	50.5	12.1	8.0
											1500	40.6	28.5	0.70	3.34	52.0	12.1	8.6
	14.0	3.9	9.1								1250	39.8	26.1	0.66	3.21	50.7	12.4	7.4
											1500	41.0	28.8	0.70	3.29	52.3	12.5	8.2
110	6.0	0.8	1.8								Operation not recommended							
	10.0	2.0	4.6								1250	35.4	24.3	0.69	3.69	48.0	9.6	10.1
											1500	36.6	26.7	0.73	3.77	49.4	9.7	10.9
	14.0	3.8	8.7								1250	35.9	24.7	0.69	3.64	48.3	9.9	9.4
											1500	37.0	27.1	0.73	3.71	49.7	10.0	10.4
120	6.0	0.7	1.7								Operation not recommended							
	10.0	1.9	4.4								1250	33.1	24.4	0.74	4.19	47.4	7.9	12.5
											1500	34.2	26.6	0.78	4.23	48.6	8.1	13.5
	14.0	3.6	8.4								1250	33.7	24.9	0.74	4.14	47.8	8.1	11.6
											1500	34.7	27.1	0.78	4.18	49.0	8.3	12.9

NDZ072 High Speed - Performance Data

2200 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	12.0	3.3	7.6	Operation not recommended							Operation not recommended							
	15.0	4.6	10.7															
	18.0	6.2	14.3	1850	44.0	4.15	29.9	92.0	3.11	7.7								
				2200	45.7	4.41	30.6	89.2	3.03	6.9								
30	12.0	3.2	7.4	Operation not recommended							Operation not recommended							
	15.0	4.5	10.4	1850	51.0	4.31	36.3	95.5	3.47	8.1	1850	63.3	38.6	0.61	2.51	71.9	25.2	-
				2200	52.8	4.58	37.2	92.2	3.38	7.4	2200	64.5	42.0	0.65	2.67	73.6	24.2	-
	18.0	6.0	13.9	1850	51.5	4.35	36.6	95.8	3.47	8.3	1850	63.9	39.3	0.61	2.47	72.4	25.9	-
				2200	53.4	4.63	37.6	92.5	3.38	7.6	2200	65.1	42.3	0.65	2.62	74.1	24.8	-
40	12.0	3.1	7.1	Operation not recommended							Operation not recommended							
	15.0	4.4	10.1	1850	59.2	4.57	43.6	99.6	3.79	8.9	1850	65.8	41.1	0.62	3.03	76.2	21.7	-
				2200	61.2	4.79	44.9	95.8	3.74	8.2	2200	67.1	44.7	0.67	3.22	78.1	20.8	-
	18.0	5.8	13.5	1850	60.0	4.63	44.2	100.0	3.80	9.2	1850	66.5	41.9	0.63	2.98	76.7	22.3	-
				2200	62.1	4.84	45.6	96.1	3.76	8.4	2200	67.8	45.1	0.66	3.17	78.6	21.4	-
50	12.0	3.0	6.9	1850	63.0	4.77	46.7	101.5	3.87	9.6	1850	67.0	42.8	0.64	3.68	79.6	18.2	3.8
				2200	65.1	4.94	48.3	97.4	3.87	8.9	2200	68.4	46.5	0.68	3.91	81.8	17.5	4.0
	15.0	4.2	9.8	1850	66.5	4.86	50.0	103.3	4.02	9.9	1850	67.7	43.2	0.64	3.61	80.0	18.8	3.5
				2200	68.7	5.02	51.6	98.9	4.02	9.1	2200	69.1	47.0	0.68	3.83	82.1	18.0	3.8
	18.0	5.7	13.1	1850	67.7	4.92	51.0	103.9	4.04	10.2	1850	68.4	44.1	0.64	3.55	80.5	19.3	3.3
				2200	70.0	5.07	52.7	99.4	4.05	9.4	2200	69.8	47.4	0.68	3.77	82.6	18.5	3.7
60	12.0	2.9	6.7	1850	70.8	5.08	53.5	105.4	4.09	10.8	1850	65.8	42.8	0.65	3.91	79.2	16.8	4.6
				2200	73.1	5.18	55.4	100.8	4.14	10.0	2200	67.2	46.3	0.69	4.16	81.4	16.2	4.9
	15.0	4.1	9.5	1850	74.0	5.17	56.3	107.0	4.20	11.2	1850	66.5	43.3	0.65	3.83	79.6	17.4	4.3
				2200	76.4	5.25	58.4	102.1	4.26	10.3	2200	67.8	46.8	0.69	4.07	81.7	16.7	4.7
	18.0	5.5	12.7	1850	75.6	5.23	57.8	107.8	4.24	11.5	1850	67.2	43.9	0.65	3.77	80.1	17.9	4.0
				2200	78.1	5.30	60.0	102.9	4.32	10.5	2200	68.6	47.3	0.69	4.01	82.2	17.1	4.5
70	12.0	2.8	6.5	1850	78.7	5.39	60.3	109.4	4.28	12.2	1850	65.8	43.7	0.66	4.35	80.7	15.1	5.8
				2200	81.2	5.43	62.7	104.2	4.38	11.2	2200	67.2	47.0	0.70	4.63	83.0	14.5	6.2
	15.0	4.0	9.1	1850	81.5	5.48	62.8	110.8	4.36	12.5	1850	66.4	44.1	0.66	4.26	81.0	15.6	5.4
				2200	84.1	5.49	65.4	105.4	4.49	11.6	2200	67.8	47.4	0.70	4.53	83.3	15.0	5.9
	18.0	5.3	12.2	1850	83.6	5.55	64.7	111.8	4.42	12.9	1850	67.2	44.6	0.66	4.19	81.5	16.0	5.0
				2200	86.4	5.55	67.5	106.4	4.56	11.9	2200	68.5	48.0	0.70	4.46	83.8	15.4	5.6
80	12.0	2.7	6.3	1850	85.7	5.75	66.1	112.9	4.36	13.7	1850	62.9	42.5	0.68	4.68	78.9	13.5	7.3
				2200	88.5	5.71	69.0	107.2	4.54	12.7	2200	64.3	45.9	0.72	4.98	81.2	12.9	7.8
	15.0	3.8	8.8	1850	87.7	5.83	67.8	113.9	4.41	14.1	1850	63.6	42.9	0.68	4.58	79.2	13.9	6.9
				2200	90.5	5.75	70.9	108.1	4.61	13.0	2200	64.9	46.4	0.71	4.87	81.5	13.3	7.4
	18.0	5.1	11.8	1850	90.4	5.91	70.2	115.2	4.48	14.5	1850	64.3	43.6	0.68	4.50	79.6	14.3	6.4
				2200	93.4	5.82	73.5	109.3	4.71	13.4	2200	65.6	46.9	0.71	4.79	81.9	13.7	7.1
90	12.0	2.6	6.0	1850	92.8	6.12	71.9	116.4	4.44	15.4	1850	58.8	40.4	0.69	4.89	75.5	12.0	9.2
				2200	95.8	6.00	75.4	110.3	4.68	14.2	2200	60.1	43.9	0.73	5.21	77.8	11.5	9.8
	15.0	3.7	8.5	1850	94.1	6.19	73.0	117.1	4.45	15.8	1850	59.4	40.8	0.69	4.79	75.7	12.4	8.6
				2200	97.1	6.03	76.6	110.9	4.72	14.7	2200	60.6	44.3	0.73	5.10	78.0	11.9	9.3
	18.0	4.9	11.4	1850	97.3	6.27	75.9	118.7	4.54	16.3	1850	60.1	41.6	0.69	4.71	76.1	12.8	8.0
				2200	100.5	6.09	79.7	112.3	4.84	15.1	2200	61.3	44.7	0.73	5.02	78.4	12.2	8.9
100	12.0	2.5	5.8	Operation not recommended							Operation not recommended							
	15.0	3.6	8.2								1850	57.0	40.2	0.71	5.28	75.0	10.8	10.7
											2200	58.1	43.4	0.75	5.62	77.3	10.3	11.6
	18.0	4.8	11.0								1850	57.6	40.8	0.71	5.19	75.3	11.1	9.9
											2200	58.8	43.9	0.75	5.52	77.6	10.6	11.0
110	12.0	2.4	5.6								Operation not recommended							
	15.0	3.4	7.9	Operation not recommended							1850	50.8	37.2	0.73	5.52	69.7	9.2	13.1
											2200	51.9	40.0	0.77	5.87	71.9	8.8	14.2
	18.0	4.6	10.6								1850	51.4	37.6	0.73	5.43	69.9	9.5	12.2
											2200	52.5	40.4	0.77	5.77	72.2	9.1	13.5
120	12.0	2.3	5.4								Operation not recommended							
	15.0	3.3	7.6								1850	48.2	36.1	0.75	6.06	68.8	8.0	15.8
											2200	49.1	39.0	0.79	6.45	71.1	7.6	17.2
	18.0	4.4	10.2								1850	48.7	36.5	0.75	5.96	69.0	8.2	14.7
											2200	49.7	39.2	0.79	6.32	71.2	7.9	16.3

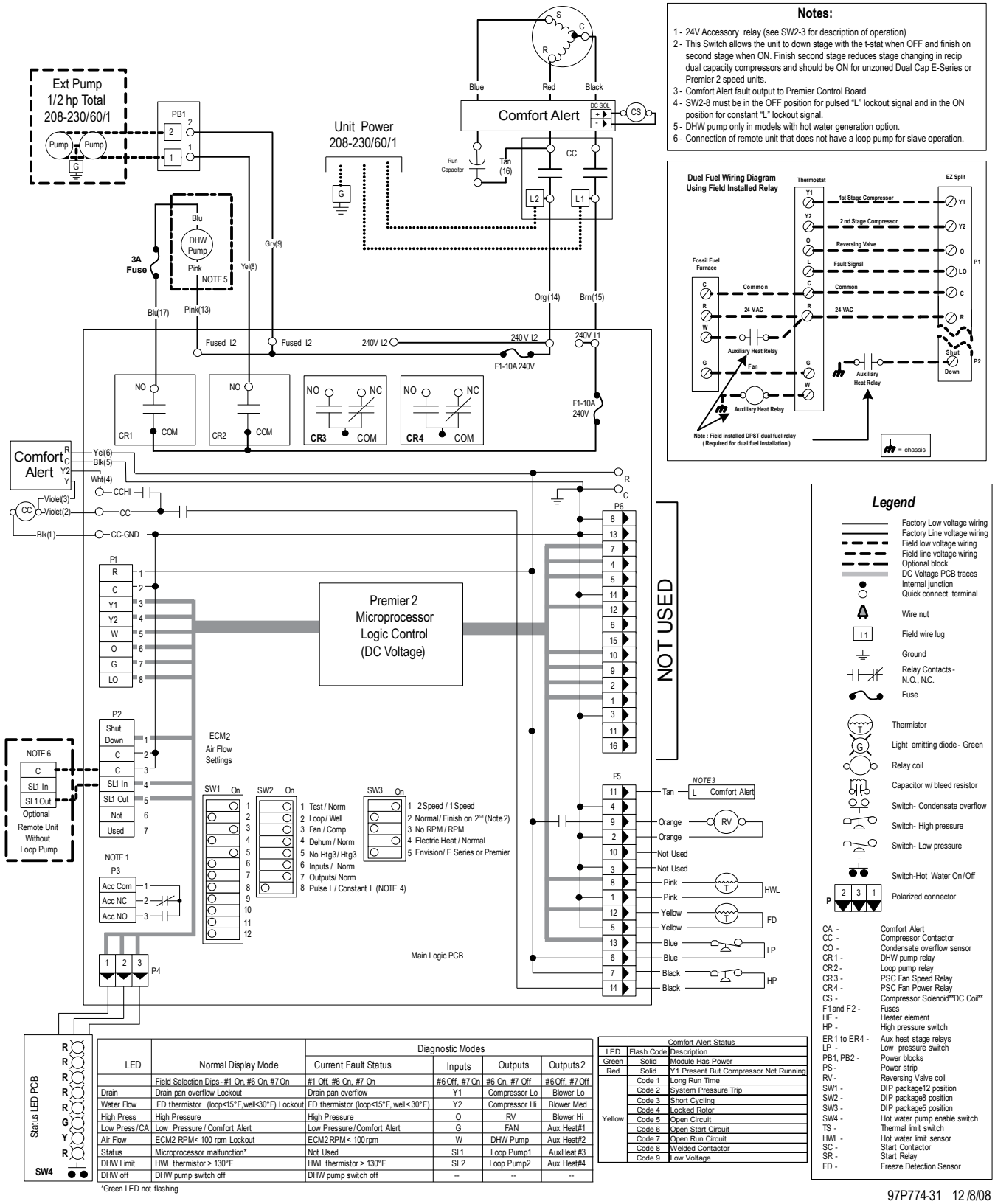
NDZ072 Low Speed - Performance Data

1700 CFM Rated Airflow

EWT °F	Flow gpm	WPD		HEATING - EAT 70°F							COOLING - EAT 80/67 °F							
		PSI	FT	Airflow cfm	HC kBtuh	Power kW	HE kBtuh	LAT °F	COP	HWC kBtuh	Airflow cfm	TC kBtuh	SC kBtuh	S/T Ratio	Power kW	HR kBtuh	EER	HWC kBtuh
20	10.0	2.3	5.4	Operation not recommended							Operation not recommended							
	13.0	3.6	8.2															
	16.0	5.0	11.6	1400	31.5	3.37	20.0	90.8	2.74	5.8								
				1700	33.0	3.41	21.4	88.0	2.84	5.3								
30	10.0	2.3	5.3	Operation not recommended							Operation not recommended							
	13.0	3.5	8.0	1400	35.2	3.39	23.6	93.3	3.04	5.9	1400	49.5	30.2	0.61	1.79	55.6	27.6	-
				1700	36.9	3.43	25.2	90.1	3.15	5.4	1700	51.2	34.7	0.68	1.91	57.7	26.8	-
	16.0	4.9	11.3	1400	36.7	3.39	25.2	94.3	3.17	6.1	1400	49.5	30.2	0.61	1.72	55.4	28.7	-
				1700	38.5	3.43	26.7	90.9	3.28	5.5	1700	51.0	34.7	0.68	1.85	57.3	27.6	-
40	10.0	2.2	5.1	Operation not recommended							Operation not recommended							
	13.0	3.4	7.8	1400	41.4	3.49	29.5	97.4	3.47	6.3	1400	51.7	32.0	0.62	1.97	58.4	26.3	-
				1700	43.2	3.50	31.2	93.5	3.62	5.8	1700	53.4	36.6	0.68	2.08	60.5	25.6	-
	16.0	4.7	11.0	1400	42.8	3.50	30.9	98.3	3.59	6.5	1400	51.8	32.0	0.62	1.91	58.3	27.2	-
				1700	44.7	3.51	32.7	94.4	3.73	5.9	1700	53.4	36.5	0.68	2.03	60.3	26.4	-
50	10.0	2.1	4.9	1400	46.2	3.53	34.2	100.6	3.84	6.6	1400	53.6	33.4	0.62	2.27	61.3	23.6	2.0
				1700	48.3	3.49	36.4	96.3	4.05	6.1	1700	55.2	37.9	0.69	2.38	63.4	23.2	2.1
	13.0	3.3	7.5	1400	46.9	3.57	34.8	101.0	3.85	6.8	1400	53.7	33.7	0.63	2.19	61.2	24.5	1.9
				1700	48.8	3.55	36.7	96.6	4.03	6.3	1700	55.4	38.3	0.69	2.31	63.2	24.0	2.0
	16.0	4.6	10.6	1400	48.3	3.59	36.1	101.9	3.94	7.0	1400	53.9	33.7	0.63	2.13	61.1	25.3	1.8
				1700	50.4	3.57	38.2	97.4	4.13	6.4	1700	55.5	38.3	0.69	2.25	63.2	24.7	1.9
60	10.0	2.1	4.8	1400	51.4	3.64	39.0	104.0	4.13	7.3	1400	52.0	33.0	0.63	2.49	60.5	20.9	2.9
				1700	53.6	3.57	41.4	99.2	4.40	6.7	1700	53.6	37.3	0.70	2.60	62.5	20.6	3.0
	13.0	3.2	7.3	1400	52.9	3.68	40.3	105.0	4.21	7.5	1400	52.3	33.3	0.64	2.41	60.5	21.7	2.7
				1700	55.0	3.62	42.6	99.9	4.45	6.9	1700	53.8	37.7	0.70	2.52	62.4	21.3	2.9
	16.0	4.4	10.3	1400	54.1	3.72	41.4	105.8	4.26	7.7	1400	52.5	33.4	0.64	2.37	60.5	22.2	2.5
				1700	56.2	3.65	43.8	100.6	4.51	7.1	1700	54.1	37.8	0.70	2.47	62.5	21.9	2.7
70	10.0	2.0	4.6	1400	56.7	3.77	43.8	107.5	4.40	8.0	1400	51.7	33.5	0.65	2.79	61.2	18.5	4.0
				1700	59.0	3.66	46.5	102.1	4.72	7.4	1700	53.2	37.7	0.71	2.89	63.0	18.4	4.3
	13.0	3.0	7.0	1400	58.9	3.81	45.8	108.9	4.52	8.3	1400	52.0	33.9	0.65	2.70	61.2	19.3	3.8
				1700	61.2	3.70	48.5	103.3	4.84	7.7	1700	53.5	38.1	0.71	2.80	63.0	19.1	4.1
	16.0	4.3	9.9	1400	59.9	3.87	46.7	109.6	4.54	8.5	1400	52.3	34.1	0.65	2.66	61.3	19.6	3.5
				1700	62.2	3.76	49.4	103.9	4.86	7.9	1700	53.9	38.3	0.71	2.75	63.3	19.6	3.9
80	10.0	1.9	4.5	1400	61.1	3.87	47.9	110.4	4.63	9.0	1400	49.3	32.7	0.66	3.10	59.9	15.9	5.6
				1700	63.3	3.73	50.6	104.5	4.97	8.3	1700	50.8	36.6	0.72	3.19	61.7	15.9	5.9
	13.0	2.9	6.8	1400	64.3	3.92	50.9	112.5	4.81	9.2	1400	49.7	33.1	0.67	3.02	60.0	16.4	5.2
				1700	66.6	3.76	53.8	106.3	5.19	8.5	1700	51.2	37.0	0.72	3.11	61.8	16.4	5.6
	16.0	4.2	9.6	1400	65.0	3.97	51.5	113.0	4.80	9.5	1400	50.1	33.3	0.67	2.98	60.2	16.8	4.8
				1700	67.3	3.82	54.2	106.6	5.16	8.8	1700	51.6	37.3	0.72	3.06	62.1	16.9	5.3
90	10.0	1.9	4.3	1400	65.6	3.99	52.0	113.4	4.82	10.0	1400	45.5	31.1	0.68	3.45	57.3	13.2	7.4
				1700	67.8	3.82	54.7	106.9	5.20	9.3	1700	46.9	34.5	0.74	3.52	58.9	13.3	7.9
	13.0	2.8	6.6	1400	69.8	4.04	56.0	116.2	5.07	10.3	1400	46.0	31.4	0.68	3.38	57.5	13.6	6.9
				1700	72.2	3.84	59.1	109.3	5.51	9.6	1700	47.4	35.0	0.74	3.45	59.2	13.7	7.5
	16.0	4.0	9.3	1400	70.3	4.10	56.3	116.5	5.03	10.6	1400	46.5	31.7	0.68	3.32	57.8	14.0	6.4
				1700	72.5	3.91	59.1	109.5	5.43	9.9	1700	47.9	35.2	0.74	3.40	59.5	14.1	7.2
100	10.0	1.8	4.2	Operation not recommended							Operation not recommended							
	13.0	2.7	6.3								1400	44.1	31.3	0.71	3.82	57.1	11.6	9.0
											1700	45.5	34.7	0.76	3.86	58.7	11.8	9.8
	16.0	3.9	8.9								1400	44.7	31.7	0.71	3.76	57.5	11.9	8.4
											1700	46.0	35.1	0.76	3.81	59.0	12.1	9.3
110	10.0	1.7	4.0	Operation not recommended							Operation not recommended							
	13.0	2.6	6.1								1400	39.2	29.4	0.75	4.26	53.7	9.2	11.4
											1700	40.5	32.4	0.80	4.28	55.1	9.5	12.4
	16.0	3.7	8.6								1400	39.9	29.8	0.75	4.21	54.2	9.5	10.6
											1700	41.0	32.8	0.80	4.23	55.4	9.7	11.8
120	10.0	1.7	3.8								Operation not recommended							
	13.0	2.5	5.8								1400	36.6	28.6	0.78	4.81	53.0	7.6	14.1
											1700	38.0	31.4	0.83	4.79	54.3	7.9	15.3
	16.0	3.6	8.2								1400	37.4	29.1	0.78	4.73	53.5	7.9	13.1
											1700	38.4	31.9	0.83	4.72	54.5	8.1	14.6

Wiring Schematics

Dual Capacity Split Wiring Schematic - 208-230/60/1



LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs 2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Compressor Lo	Blower Lo	
Water Flow	FD thermistor (loop<15°F, well<30°F) Lockout	FD thermistor (loop<15°F, well < 30°F)	Y2	Compressor Hi	Blower Med
High Press	High Pressure	High Pressure	O	RV	Blower Hi
Low Press / CA	Low Pressure / Comfort Alert	Low Pressure / Comfort Alert	G	FAN	Aux Heat#1
Air Flow	ECM2 RPM< 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat#2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump1	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	SL2	Loop Pump2	Aux Heat#4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing

Comfort Alert Status		
LED	Flash Code	Description
Green	Solid	Module Has Power
Red	Solid	Y1 Present But Compressor Not Running
Yellow	Code 1	Long Run Time
	Code 2	System Pressure Trip
	Code 3	Short Cycling
	Code 4	Locked Rotor
	Code 5	Open Circuit
	Code 6	Open Start Circuit
	Code 7	Open Run Circuit
	Code 8	Welded Contactor
	Code 9	Low Voltage

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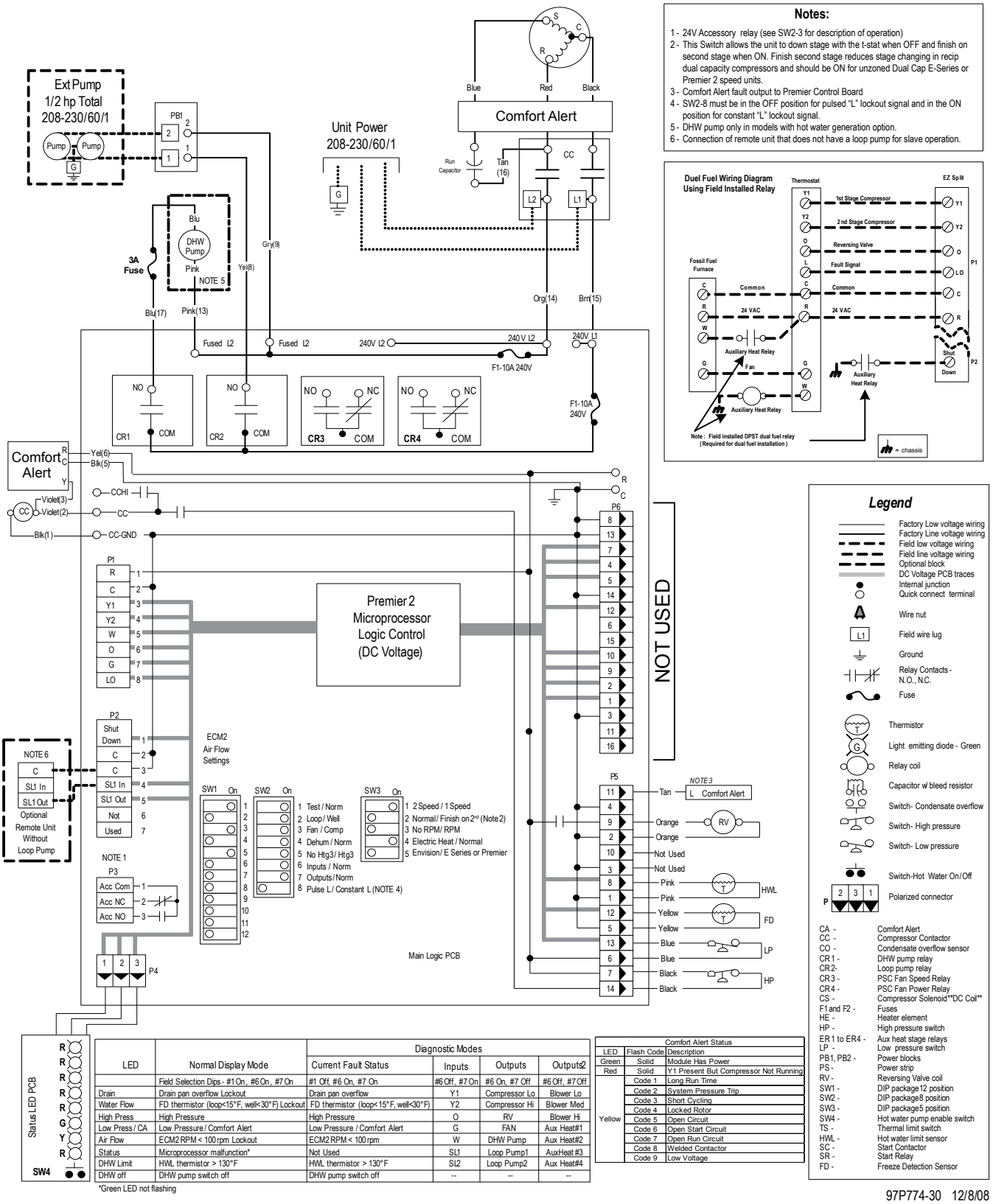
Wiring Schematics cont.

Single Speed Split Wiring Schematic - 208-230/60/1



Notes:

1 - 24V Accessory relay (see SW2-3 for description of operation)
2 - This Switch allows the unit to down stage with the t-stat when OFF and finish on second stage when ON. Finish second stage reduces stage changing in recip dual capacity compressors and should be ON for unzoned Dual Cap E-Series or Premier 2 speed units.
3 - Comfort Alert fault output to Premier Control Board
4 - SW2-8 must be in the OFF position for pulsed "L" lockout signal and in the ON position for constant "L" lockout signal.
5 - DHW pump only in models with hot water generation option.
6 - Connection of remote unit that does not have a loop pump for slave operation.

CA -	Comfort Alert
CC -	Compressor Contactor
CO -	Condensate overflow sensor
CR1 -	DHW pump relay
CR2-	Loop pump relay
CR3 -	PSC Fan Speed Relay
CR4 -	PSC Fan Power Relay
CS -	Compressor Solenoid**DC Coil**
F1 and F2 -	Fuses
HE -	Heater element
HP -	High pressure switch
ER1 to ER4 -	Aux heat stage relays
LP -	Low pressure switch
PB1, PB2 -	Power blocks
PS -	Power strip
RV -	Reversing Valve coil
SW1 -	DIP package12 position
SW2 -	DIP package8 position
SW3 -	DIP package5 position
SW4 -	Hot water pump enable switch
TS -	Thermal limit switch
HWL -	Hot water limit sensor
SC -	Start Contactor
SR -	Start Relay
FD -	Freeze Detection Sensor

LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On , #6 On , #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow Lockout	Drain pan overflow	Y1	Compressor Lo	Blower Lo
Water Flow	FD thermistor (loop<15°F, well<30°F) Lockout	FD thermistor (loop<15°F, well<30°F)	Y2	Compressor Hi	Blower Med
High Press	High Pressure	High Pressure	O	RV	Blower Hi
Low Press / CA	Low Pressure / Comfort Alert	Low Pressure / Comfort Alert	G	FAN	Aux Heat#1
Air Flow	ECM2 RPM < 100 rpm Lockout	ECM2 RPM < 100 rpm	W	DHW Pump	Aux Heat#2
Status	Microprocessor malfunction*	Not Used	SL1	Loop Pump1	AuxHeat #3
DHW Limit	HWL thermistor > 130°F	HWL thermistor > 130°F	SL2	Loop Pump2	Aux Heat#4
DHW off	DHW pump switch off	DHW pump switch off	--	--	--

*Green LED not flashing

Comfort Alert Status		
LED	Flash Code	Description
Green	Solid	Module Has Power
Red	Solid	Y1 Present But Compressor Not Running
Yellow	Code 1	Long Run Time
	Code 2	System Pressure Trip
	Code 3	Short Cycling
	Code 4	Locked Rotor
	Code 5	Open Circuit
	Code 6	Open Start Circuit
	Code 7	Open Run Circuit
	Code 8	Welded Contactor
	Code 9	Low Voltage

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Microprocessor Control

Startup

The unit will not operate until all the inputs and safety controls are checked for normal conditions. At first power-up, a four-minute delay is employed before the compressor is energized.

Component Sequencing Delays

Components are sequenced and delayed for optimum space conditioning performance.

Accessory Relay

An accessory relay on the control board allows for field connection of solenoid valves, electronic air cleaners, etc. The accessory relay has a normally open output and a normally closed output.

Short Cycle Protection

The control employs a minimum "off" time of four minutes to provide for short cycle protection of the compressor.

Shutdown Mode

A 24VAC common signal to the “shutdown” input on the control board puts the unit into shutdown mode. Compressor, hot water pump and blower operation are suspended.

Safety Controls

The Envision control receives separate signals for a high pressure switch for safety, a low pressure switch to prevent loss of charge damage, and a low suction temperature thermistor for freeze detection. Upon a continuous 30-second measurement of the fault (immediate for high pressure), compressor operation is suspended, the appropriate lockout LED begins flashing. (Refer to the "Fault Retry" section below.)

Testing

The Envision control allows service personnel to shorten most timing delays for faster diagnostics. (Refer to the Field Selection DIP switch SW2-1.)

Fault Retry

All faults are retried twice before finally locking the unit out. An output signal is made available for a fault LED at the thermostat. The “fault retry” feature is designed to prevent nuisance service calls.

Diagnostics

The Envision control board allows all inputs and outputs to be displayed on the LEDs for fast and simple control board diagnosis. (Refer to the Field Selection DIP Switch SW2-1.)

Hot Water High Limit (Domestic Hot Water Option)

This mode occurs when the hot water input temperature is at or above 130°F for 30 continuous seconds. The DHW limit status LED on the unit illuminates and the hot water pump de-energizes. Hot water pump operations resume on the next compressor cycle or after 15 minutes of continuous compressor operation during the current thermostat demand cycle.

Hot Water Justification

Since compressor hot gas temperature is dependant on loop temperature in cooling mode, loop temperatures may be too low to allow proper heating of water. The control will monitor water and refrigerant temperatures to determine if conditions are satisfactory for heating water. The DHW limit status LED on the unit illuminates when conditions are not favorable for heating water.

Heating Operation

Heat, 1st Stage (Y1)

The blower motor is started immediately, the loop pump is energized 5 seconds after the “Y1” input is received, and the compressor is energized on low capacity 10 seconds after the “Y1” input. The hot water pump is cycled 30 seconds after the “Y1” input.

Heat, 2nd Stage (Y1,Y2) Single-Speed Units

The hot water pump is de-energized, which directs all heat to satisfying the thermostat, and the blower changes to high speed 15 seconds after the “Y2” input (ECM only).

Heat, 2nd Stage (Y1,Y2) Dual Capacity Units

The second stage compressor will be activated 5 seconds after receiving a “Y2” input as long as the minimum first stage compressor run time of 1 minute has expired. The ECM blower changes from medium to high speed 15 seconds after the “Y2” input.

The Comfort Alert will delay the second stage compressor until 5 seconds after it receives a “Y2” from the board.

Microprocessor Control cont.

Heat, 3rd Stage (Y1,Y2,W) Single-Speed Units

The first stage of resistance heat is energized 10 seconds after “W” input, and with continuous 3rd stage demand, the additional stages of resistance heat engage 90 seconds after the first stage.

Heat, 3rd Stage (Y1,Y2,W) Dual Capacity Units

The hot water pump is de-energized which directs all heat to satisfy the thermostat. The 1st stage of resistance heat is energized 10 seconds after “W” input, and with continuous 3rd stage demand, the additional stages of resistance heat engage 90 seconds after the first stage.

Emergency Heat (W only)

The blower is started on high speed, and the first stage of resistance heat is energized 10 seconds after the "W" input. Continuing demand will engage the additional stages of resistance heat 90 seconds after the first stage.

Cooling Operation

In all cooling operations, the reversing valve directly tracks the “O” input. Thus, anytime the “O” input is present, the reversing valve will be energized.

Cool, 1st Stage (Y1,O)

The blower motor and hot water pump are started immediately, the loop pump(s) is energized 5 seconds after the “Y1” input is received. The compressor will be energized (on low capacity for Dual Capacity units) 10 seconds after the “Y1” input. The ECM blower will operate at 85% of medium speed if in dehumidification mode.

Cool, 2nd Stage (Y1, Y2, O) Single Speed Units

The blower changes to high speed (85% of high speed if in dehumidification mode) 15 seconds after the “Y2” input (ECM only).

Cool, 2nd Stage (Y1, Y2, O) Dual Capacity Units

The second stage compressor will be activated 5 seconds after receiving a “Y2” input as long as the minimum first stage compressor run time of 1 minute has expired. The ECM blower changes to high speed 15 seconds after the “Y2” input (85% of high speed if in dehumidification mode). The Comfort Alert will delay the second stage compressor until 5 seconds after it receives a “Y2” from the board.

Blower (G only)

The blower starts and operates on low speed.

Lockout Conditions

During lockout mode, the appropriate unit and thermostat lockout LEDs will illuminate. The compressor, loop pump, hot water pump, and accessory outputs are de-energized. The blower will continue to run on low speed. If the thermostat calls for heating, emergency heat operation will occur.

Comfort Alert lockouts cannot be reset at the thermostat. All other lockout modes can be reset at the thermostat after turning the unit off, then on, which restores normal operation but keeps the unit lockout LED illuminated. Interruption of power to the unit will reset a lockout without a waiting period and clear all lockout LEDs.

High Pressure

This lockout mode occurs when the normally closed safety switch is opened momentarily (set at 600 PSI).

Low Pressure

This lockout mode occurs when the normally closed low pressure switch is opened for 30 continuous seconds (set at 40 PSI). A low pressure fault may also be indicated when a Comfort Alert lockout has occurred.

Freeze Detection (Water Flow)

This lockout mode occurs when the freeze detection thermistor temperature is at or below the selected point (well 30°F or loop 15°F) for 30 continuous seconds.

Microprocessor Control cont.

Compressor Monitoring/Comfort Alert

The Comfort Alert displays abnormal compressor conditions through a unique flash code and communicates the conditions to the heat pump microprocessor control. The heat pump microprocessor will determine which fault to act on and ignore. Fault codes 2 (system pressure), 4 (locked rotor), 6 (open start circuit), and 7 (open run circuit) will result in a lockout. All other fault codes are passive. All compressor alerts are displayed on the module by flashing the yellow Alert LED a specific number of times consecutively followed by a pause, and then repeated. The number of consecutive flashes or "Flash Code" correlates to a specific abnormal condition. The red "TRIP" LED means there is a thermostat demand signal "Y" present but the compressor is not running. The green "POWER" LED means the module has power.

Green "POWER" LED - module has power
Red "TRIP" LED - Thermostat "Y" demand signal is present, but the compressor is not running.

Comfort Alert Flash Codes		
Yellow "ALERT" LED	**LED Description**	**Cause**
Flash Code 1	Long Run Time	Eighteen consecutive hours of compressor run time
Flash Code 2	System Pressure Trip	Not applicable
Flash Code 3	Short Cycling	Compressor run time of less than 3 minutes on 4 consecutive cycles
Flash Code 4	Locked Rotor	Four consecutive compressor protector trips indicating compressor won't start
Flash Code 5	Open Circuit	"Y" thermostat demand signal with no compressor current
Flash Code 6	Open Start Circuit	"Y" thermostat demand signal with no current in the start circuit
Flash Code 7	Open Run Circuit	"Y" thermostat demand signal with no current in the run circuit
Flash Code 8	Welded Contactor	Current detected with no "Y" thermostat demand signal present
Flash Code 9	Low Voltage	Less than 17 VAC detected in control circuit

* Flash code number corresponds to a number of LED flashes, followed by a pause and then repeated.

* TRIP and ALERT LEDs flashing at the same time indicates control circuit voltage is too low for operation.

* Reset ALERT flash code by removing 24 VAC power from module.

* Last ALERT flash code is displayed for 1 minute after module is powered on.

Resetting Comfort Alert Codes

Alert codes can be reset manually by cycling power off and on to the Comfort Alert module. Alert codes will reset automatically if conditions return to normal.

Flash Code Number	LED Description	Automatic Reset of Alert Codes
Flash Code 1	Long Run Time	Thirty "alert free" on and off cycles to reset automatically
Flash Code 2	System Pressure Trip	Not applicable
Flash Code 3	Short Cycling	Four "alert free" on and off cycles to reset automatically
Flash Code 4	Locked Rotor	Four "alert free" on and off cycles to reset automatically
Flash Code 5	Open Circuit	One "alert free" on and off cycles to reset automatically
Flash Code 6	Open Start Circuit	One "alert free" on and off cycles to reset automatically
Flash Code 7	Open Run Circuit	One "alert free" on and off cycles to reset automatically
Flash Code 8	Welded Contactor	One "alert free" on and off cycles to reset automatically
Flash Code 9	Low Voltage	Resets when voltage rises above 19 VAC

* Reset ALERT flash code by removing 24 VAC power from module.

Microprocessor Control cont.

Thermostat Displays

Fault Flash

When using a TA32W01 or TP32W02 thermostat and SW2-8 is in the pulsing “L” position, FaultFlash will enable a user to view the thermostat and count the fault indicator flashes to determine the lockout condition the unit is experiencing.

ComforTalk

When using a TP32U03, 04 or 05 thermostat and SW2-8 is in the pulsing “L” position, ComforTalk will enable the user to view the thermostat and determine the fault. The thermostat can be configured to show either lockout text or lockout codes.

The LED board on the front of the unit will display all lockouts. The Low Pressure LED will flash for a low pressure condition or a Comfort Alert fault. If the low pressure lockout was caused by Comfort Alert codes 4, 6 or 7, then the Comfort Alert will be flashing. If no Comfort Alert code is visible, then it is a low pressure lockout.

The following tables show the codes that will be displayed on the different ComforTalk and FaultFlash thermostats.

FaultFlash Thermostats

TA32W01 and TP32W02 Thermostats	
Thermostat Display Lockout Code	Lockout Description
2 Flashes	High Pressure Fault
3 Flashes	Low Pressure Fault
4 Flashes	Not Applicable
5 Flashes	Water Flow Fault
6 Flashes	Not Applicable
7 Flashes	Condensate Fault
8 Flashes	Voltage out of Range
9 Flashes	RPM Fault
10 Flashes	Comfort Alert Compressor Module Fault

Lockout code 10 - see Comfort Alert module to determine the specific flash code for compressor abnormalities.

ComforTalk Thermostats

TP32U03, TP32U04 and TP32U05 Thermostats	
Thermostat Display Lockout Code	Lockout Description
"High Pressure" or "E2"	High Pressure Fault
"Low Pressure" or "E3"	Low Pressure Fault
"E4"	Not Applicable
"Water Flow" or "E5"	Water Flow Fault
"E6"	Not Applicable
"Condensate" or "E7"	Condensate Fault
"Voltage Range" or "E8"	Voltage out of Range
"RPM" or "E9"	RPM Fault
"Comfort Alert" or "E10"	Comfort Alert Compressor Module Fault

These thermostats can be configured to display the lockout condition "text" or error number.

* A slow flash of 1 second on and off means the heat pump microprocessor SW2-1 is configured for "Test Mode" or thermostat is miswired.

Lockout code 10 - see Comfort Alert module to determine the specific flash code for compressor abnormalities.

Thermostat Wiring

Single and Dual Capacity Wiring Diagram

Field low voltage point to point wiring:

From Thermostat	To Air Handler	To Compressor Section
C	C	C
R	R	R
G	G	
O	O	O
Y1	Y1	Y1
Y2	Y2	Y2
W2	W	
L		L

Air Handler transformer must be 75VA.

5/29/08

Engineering Guide Specifications

General

The geothermal heating/cooling units shall be reverse cycle split system configuration designed for use with DX heating and cooling coils. Units shall be AHRI/ISO Standard 13256-1 performance certified and listed by a nationally recognized safety-testing laboratory or agency, such as ETL Testing Laboratory. Each unit shall be computer run-tested at the factory using water and performance verified. Each unit shall be mounted on a pallet and stretch-wrapped for shipping protection. The geothermal units shall be designed to operate with entering liquid temperature between 25°F and 110°F as manufactured by WaterFurnace International, of Fort Wayne, Indiana.

Casing and Cabinet

The cabinet shall be fabricated from heavy-gauge steel and finished with corrosion-resistant epoxy/polyester powder coating. The interior shall be insulated with 1/2 in. thick, multi-density, coated glass fiber. The cabinet shall have three access panels for ease of installation and servicing. The internal layout shall provide for major component servicing through front service panel in restricted access installations.

Refrigerant Circuit

All units shall contain an environmentally friendly R-410A sealed refrigerant circuit including a hermetic motor-compressor, thermostatic expansion valve, reversing valve, coaxial tube water-to-refrigerant heat exchanger, and service ports. Compressors shall be high-efficiency scroll dual capacity or single speed type designed for heat pump duty and mounted on double, rubber vibration isolators on a metal core. Compressor motors shall be heat pump rated single-phase PSC with internal overload protection. The coaxial water-to-refrigerant heat exchanger shall be designed for low water pressure drop and constructed of a convoluted copper (cupronickel optional) inner tube and a steel outer tube. The bidirectional thermostatic expansion valve shall provide proper superheat over the entire liquid temperature range with minimal “hunting.” The refrigerant suction lines shall be insulated to prevent condensation at low liquid temperatures. An optional ThermaShield coated hot water generator coil shall be provided with integral internal pump and limit controls.

Electrical

The microprocessor control shall provide operational sequencing, high and low-pressure switch monitoring, thermistor based freeze detection temperature limit, current sensing compressor monitoring, compressor lockout mode control and hot water generator and loop pump control. A removable terminal connector with screw terminals shall be provided for field control wiring on the board. The control shall provide water valve control, test mode, diagnostic mode, short cycle protection, random startup, pump slaving, fault LEDs, status LEDs, and intelligent fault retry.

Quick attach wiring harnesses shall be employed throughout to aid in troubleshooting or parts replacement. Line voltage box lugs shall be provided for both field power wiring connections for unit and the fused external loop pumps. All units shall have knockouts for entrance of low and line voltage wiring.

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 208/60/1 units. IntelliStart is available as a factory option or field retrofit kit for all Envision™ Split units.

Piping

Supply and return water as well as hot water generator connections shall be 1 in. FPT brass swivel fittings which provide a union and eliminate the need for backup wrenches or sealants when making field connections. All water piping shall be insulated to prevent condensation at low entering liquid temperatures.

Accessories and Options

Hot Water Generator

An optional hot water generator coil shall be provided with integral factory-mounted internal pump. The coil shall be of convoluted double construction and suitable for potable water. Limit controls shall monitor the compressor hot gas temperature and hot water temperature and disable operation during low compressor hot gas temperatures to prevent thermosiphoning from the water heater and limit high water temperatures to prevent scalding.

Thermostat (field-installed)

A multi-stage auto-changeover electronic digital thermostat shall be provided. The thermostat shall offer three heating and two cooling stages with precise temperature control. An OFF-HEAT-AUTO-COOL-EMERG system switch, OFF-AUTO blower switch, and indicating LEDs shall be provided. The thermostat shall display in °F or °C. An optional remote outdoor sensor shall be available.

Flow Center (field installed)

A self contained Flow Center shall provide all pumping, flushing and filling operations needed for residential geothermal earth loops up to 20 gpm. Two corrosion resistant composite 3-way valves shall be employed for loop valving. The flow center shall provide 1 in. FPT or special 'GL' composite union fittings for easy adaptation to connection options. The flow controller shall be encased in a corrosion proof polystyrene case and fully insulated with urethane foam to prevent condensation.

Notes

Notes

Manufactured by
WaterFurnace International, Inc.
9000 Conservation Way
Fort Wayne, IN 46809
www.waterfurnace.com

Product:	**Envision NSZ/NDZ**
Type:	Geothermal/Water Source Indoor Split Heat Pump
Size:	2-6 Tons Single Speed 2-6 Tons Dual Capacity
Document:	Specification Catalog

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