Geothermal Heat Pump with Water Heating for Radiant Floor Applications Product Data

- **R-410A Refrigerant**
- **3 - 6 Tons**

XL Series T2GY

022-1852-02

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XL Series T2GY

General Information

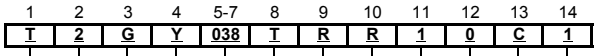
With the XL Series T2GY, you'll provide superior comfort, incredible performance and energy savings. Integrating the comfort of a radiant floor heating system with the advantages of geothermal technology, the XL Series T2GY provides forced air heating and cooling to ducted zones while providing hot water to radiant floor zones. The XL Series T2GY is the geothermal equivalent of a boiler, furnace and air conditioner— a three-in-one unit.

The XL Series T2GY line is available in four dual capacity sizes (3 to 6 tons) with Copeland Ultra Tech two-stage scroll compressors.

The XL Series T2GY utilize ozone-safe R-410A refrigerant to meet the most stringent EPA requirements. Coated air coils add durability and longer life. ECM blowers are used to increase comfort and efficiency. A sophisticated microprocessor control sequences all components during operation for optimum performance, and provides easy-to-use troubleshooting features with fault lights and on-board diagnostics. An Emerson Comfort Alert is also included to monitor compressor operation and faults. Unit configurations include vertical top or rear discharge (left or right return). Heavy-gauge metal cabinets are fully insulated and coated with an attractive and durable white paint for long lasting protection.

XL Series T2GY products are performance-certified to AHRI ISO 13256-1 standards, are ETL listed, and are ENERGYSTAR® qualified.

Model Nomenclature



Brand
T = Trane

Compressor Type
2 = Two-Stage Compression

Product Category
G = Geothermal

Product Type
Y = Premium Packages System (Water to Air plus Hot Water)

Nominal BTU's
Thousands of BTU's
038
049
064
072

Discharge Air Configuration
T = Top (Vertical)
R = Rear (Vertical 049-072 Only)

Return Air Configuration
L = Left Painted
R = Right Painted

Blower Motor Options
1 = ECM Blower
2 = Oversized ECM Blower Option (038 & 049 Only)

Coax Options
C = Copper
N = Cupronickel

Hot Water Options
0 = No Hot Water, No GeoStart
2 = Hot Water Generator Without factory installed pump (038-072 Only), No GeoStart
3 = No Hot Water, GeoStart
5 = Hot Water Generator Without factory installed pump (038-072 Only), GeoStart

Voltage/Frequency/Phases
1 = 208-230/60/1

Heating and/or Cooling
R = Heating and Cooling

Notes:
The factory installed Hot Water option (hot water generator) does not include factory mounted circulating pump or temperature control.
DPK5 (ordered seperately) includes field installed circulator, hot water tank adapter, temperature limit and installation instructions.

AHRI Data

ECM Motor

AHRI/ASHRAE/ISO 13256-1

English (IP) Units

Model	Capacity Modulation	Flow Rate		Ground Water Heat Pump				Ground Loop Heat Pump			
				Cooling EWT 59°F		Heating EWT 50°F		Full Load 77°F Part Load 68°F		Full Load 32°F Part Load 41°F	
		gpm	cfm	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/ W	Capacity Btuh	COP
038	Full	9.0	1200	36,500	19.3	30,500	4.5	35,200	18.2	24,400	3.9
	Part	8.0	1000	26,900	27.3	21,800	4.9	26,000	23.3	19,600	4.4
049	Full	12.0	1500	44,200	21.7	38,600	4.4	43,800	16.3	33,400	3.6
	Part	11.0	1300	36,800	24.8	31,800	4.6	35,500	21.3	28,100	4.1
064	Full	16.0	1800	64,100	18.5	52,800	4.0	59,400	15.1	41,300	3.4
	Part	14.0	1500	47,500	23.9	37,300	4.2	45,300	20.4	32,400	3.8
072	Full	18.0	2000	73,000	18.5	63,400	4.1	69,100	14.7	49,100	3.6
	Part	16.0	1500	55,600	23.7	46,300	4.2	54,400	19.8	40,700	3.8

10/19/2011

Cooling capacities based upon 80.6°F DB, 66.2°F WB entering air temperature

Heating capacities based upon 68°F DB, 59°F WB entering air temperature

All ratings based upon 208V operation

Energy Star Compliance Table

Model	Tier 1		Tier 2		Tier 3	
	Ground Water	Ground Loop	Ground Water	Ground Loop	Ground Water	Ground Loop
038	Yes	Yes	Yes	Yes	Yes	Yes
049	Yes	Yes	Yes	Yes	Yes	Yes
064	Yes	Yes	Yes	Yes	Yes	Yes
072	Yes	Yes	Yes	Yes	Yes	Yes

10/19/11

Energy Star Rating Criteria

In order for water-source heat pumps to be Energy Star rated they must meet or exceed the minimum efficiency requirements listed below. Please note there are 3 Tier levels that dictate minimum efficiency for water source heat pumps. Only one tier level is active at a given moment.

Tier 1: 12/1/2009 – 12/31/2010

Water-to-Air	EER	COP
Ground Loop	14.1	3.3
Ground Water	16.2	3.6
Water-to-Water		
Ground Loop	15.1	3.0
Ground Water	19.1	3.4

Tier 2: 1/1/2011 – 12/31/2011

Water-to-Air	EER	COP
Ground Loop	16.1	3.5
Ground Water	18.2	3.8
Water-to-Water		
Ground Loop	15.1	3.0
Ground Water	19.1	3.4

Tier 3: 1/1/2012 – No Effective End Date Published

Water-to-Air	EER	COP
Ground Loop	17.1	3.6
Ground Water	21.1	4.1
Water-to-Water		
Ground Loop	16.1	3.1
Ground Water	20.1	3.5

AHRI Data cont.

The performance standard AHRI/ASHRAE/ISO 13256-1 became effective January 1, 2000 and replaces ARI Standards 320, 325, and 330. This new standard has three major categories: Water Loop (comparable to ARI 320), Ground Water (ARI 325), and Ground Loop (ARI 330). Although these standards are similar there are some differences:

Unit of Measure: The Cooling COP

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

Water Conditions Differences

Entering water temperatures have changed to reflect the centigrade temperature scale. For instance the water loop heating test is performed with 68°F (20°C) water rounded down from the old 70°F (21.1°C).

Air Conditions Differences

Entering air temperatures have also changed (rounded down) to reflect the centigrade temperature scale. For instance the cooling tests are performed with 80.6°F (27°C) dry bulb and 66.2°F (19°C) wet bulb entering air instead of the traditional 80°F (26.7°C) DB and 67°F (19.4°C) WB entering air temperatures. 80.6/66.2 data may be converted to 80/67 using the entering air correction table. This represents a significantly lower relative humidity than the old 80/67 of 50% and will result in lower latent capacities.

Pump Power Correction Calculation

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

- Pump power correction = (gpm x 0.0631) x (Press Drop x 2990) / 300
  Where 'gpm' is waterflow in gpm and 'Press Drop' is the pressure drop through the unit heat exchanger at rated water flow in feet of head.

Blower Power Correction Calculation

Blower power is corrected to zero external static pressure using the following equation. The nominal airflow is rated at a specific external static pressure. This effectively reduces the power consumption of the unit and increases cooling capacity but decreases heating capacity. These Watts are significant enough in most cases to increase EER and COPs fairly dramatically over ARI 320, 325, and 330 ratings.

- Blower Power Correction = (cfm x 0.472) x (esp x 249) / 300
  Where 'cfm' is airflow in cfm and 'esp' is the external static pressure at rated airflow in inches of water gauge.

ISO Capacity and Efficiency Calculations

The following equations illustrate cooling calculations:

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

The following equations illustrate heating calculations:

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

Comparison of Test Conditions

	ARI 320	ISO/AHRI 13256-1 WLHP	ARI 325	ISO/AHRI 13256-1 GWHP	ARI 330	ISO/AHRI 13256-1 GLHP
Cooling						
Entering Air - DB/WB °F	80/67	80.6/66.2	80/67	80.6/66.2	80/67	80.6/66.2
Entering Water - °F	85	86	50/70	59	77	77
Fluid Flow Rate	*	**	**	**	**	**
Heating						
Entering Air - DB/WB °F	70	68	70	68	70	68
Entering Water - °F	70	68	50/70	50	32	32
Fluid Flow Rate	*	**	**	**	**	**

Note *: Flow rate is set by 10°F rise in standard cooling test
Part load entering water conditions not shown.
Note **: Flow rate is specified by the manufacturer
WLHP = Water Loop Heat Pump; GWHP = Ground Water Heat Pump; GLHP = Ground Loop Heat Pump

Conversions:

Airflow (lps) = CFM x 0.472;
ESP (Pascals) = ESP (in wg) x 249;
WaterFlow (lps) = GPM x 0.0631;
Press Drop (Pascals) = Press Drop (ft hd) x 2990

Unit Features

① **COMPRESSOR:** Two Stage Scroll in Dual Capacity Units mounted on double isolation plates

② **CONTROLS:** Comfort Alert control module detects and displays compressor abnormalities for easier service diagnostics.

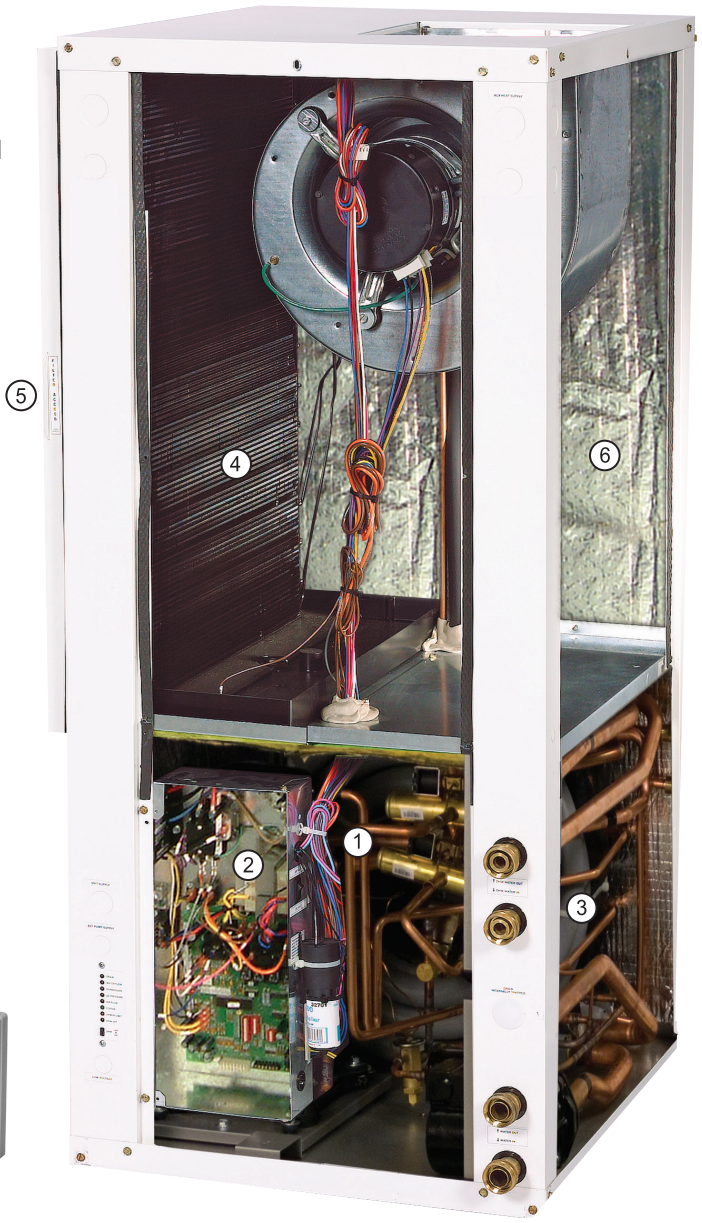
③ **HEAT EXCHANGER:** Standard copper (optional cupronickel)

④ **AIR COIL:** Electrocoated for added protection

⑤ **FILTER:** 2 in. [51 mm] Pleated MERV11 Standard

⑥ **INSULATION:** Foil lined

⑦ **GEOSTART™:** Optional single phase soft starter



Design Features

Unit Features

- Two Stage Scroll Compressors in dual capacity units.
  - Modulating, switches from low to high without delay.
  - 67% capacity first stage.
  - Sizes 038, 049, 064, 072.
- Comfort Alert Control Module.
  - Monitors compressor operation for easier service diagnostics.
- Foil lined cleanable insulation.
- Double isolation mounted compressors.
- Electro-coated air coil.
- Optional hot water generator (without factory installed pump) can generate heated water at considerable savings.
- Insulated source coaxial heat exchangers.

Application Flexibility

- Safe, efficient operation in a wide range of liquid temperatures (20°F to 120°F) and flow rates (as low as 1.5 GPM/ton in open loop applications when EWT >50°F).
- Top or rear air discharge for upflow installations in vertical units.
- True left or right return air locations—units include filter rack/duct collar.
- Variable-speed ECM2 blowers permit various duct applications.
- Narrow cabinet for easy movement through doorways.
- Internally trapped condensate piping for neat, compact installation.
- Optional field-installed auxiliary electric heater.
- Corner-located electrical box for field wiring from two sides.
- Fuse-protected loop pump power block for easy wiring.
- Loop pump slaving feature allows multiple units to share one flow center.
- Field-selectable freeze detection limit setting for well or closed loop systems.
- Relays to control field-mounted air dampers.

Operating Efficiencies

- AHRI/ISO 13256-1 rating for heating COPs, cooling EERs and low water flow requirements.
- High-stability expansion valve delivers optimum refrigerant flow over a wide range of conditions and provides bidirectional operation.
- Efficient scroll compressors operate quietly.
- Oversized coaxial tube water-to-refrigerant heat exchanger operates at low liquid pressure drops.
- Convoluted copper water tube functions efficiently at low flow rates.
- Oversized rifled copper tube/lanced aluminum fin air-to-refrigerant heat exchanger provides high efficiencies at low-face velocity.
- Large, low-RPM blowers with variable-speed motors provide quiet and efficient air movement with high static capability.
- Utilizes the ozone-friendly R-410A refrigerant which produces higher efficiencies and warmer discharge air temperatures.

Service Advantages

- Removable panels: three for the compressor compartment and two for the air handling compartment to provide quick access to all internal components with ductwork in place.
- Easily accessible thermal expansion valve.
- Brass, swivel-type water connections for quick connection union, and elimination of wrenches and sealants during installation.
- Insulated divider and separate air handling/compressor access panels permit service testing without air bypass.
- Designed for front access in tight applications.
- LED fault and status lights with memory for easy diagnostics.
- Detachable thermostat connection strip for wiring convenience.
- Hot water pump shut-off switch for easy startup and service.
- Control box and blower motors have quick-attach wiring plugs for easy removal.
- Internal drop-out blower with permanently-lubricated ball bearing motor.
- High- and low-pressure service ports in refrigerant circuit.
- Blower and transformer powered from auxiliary heat supply (when installed) to provide emergency heat with open compressor circuit breaker.

Product Quality

- Heavy-gauge steel cabinets are painted with durable powder coat paint for long lasting beauty and service.
- Source coaxial heat exchanger, refrigerant suction lines, hot water generator coil, and source water pipes are fully insulated to reduce condensation problems in low temperature operation.
- Electro-coated air coils for extended life.
- Noise reduction features include double isolation mounted compressors and soft starting blower motors; insulated compressor compartment; interior cabinet insulation using 1/2-inch coated glass fiber. All units include compressor blanket for quiet operation.
- Safety features include high- and low-pressure refrigerant controls to protect the compressor; condensate overflow protection; freeze detection limit sensor to safeguard the coaxial heat exchanger; blower start detection; Comfort Alert compressor monitoring; fault lockout enables emergency heat and prevents compressor operation until thermostat or circuit breaker is reset.

Design Features cont.

Microprocessor Benefits
- Digital auto-changeover thermostat with 3-stage heating/2-stage cooling holds precise temperature and provides varying blower speed control.
- Component sequencing delays for quiet startup, shut-down, and timed staging of auxiliary electric heat.
- ECM2 blower speed control provides higher supply air temperature in heating, better dehumidification in cooling, and quiet operation at reduced airflows in all modes.

Options & Accessories
- Cupronickel heat exchangers for open loop applications
- Optional hot water generator without factory mounted pump
- Optional oversized ECM blower motor for high static applications on 038 to 049 models
- Electronic auto-changeover thermostat with 3-stage heating/2-stage cooling
- 24 volt 1-inch electronic air cleaner
- Closed loop flow center
- Auxiliary electric heater
- Hose kits
- Rear discharge
- GeoStart™ soft starter

Manufacturing Quality
- All units are computer run-tested, with conditioned source water, in all modes to insure efficiency and reliability.
- 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 ensure an annual leak rate of less than 1/4 ounce.
- All major components bar coded. Eliminating possibility of mis-matched parts built into unit.
- All assembly technicians thoroughly trained in proper quality procedures.

Application Information

XL Series T2GY units provide ducted heating and cooling, and hot water to radiant floor applications.

Most XL Series T2GY applications use multiple thermostats for heating. One or more thermostats may be dedicated to the forced air zone(s) while separate thermostats are used in the radiant floor zones. The microprocessor control in the unit allows for priority selection for either radiant or forced air zones, depending on the size, location and use of each zone.

Although the unit does not heat air and water simultaneously, the comfort "system" should be designed and controlled so that both functions occur simultaneously. This is achieved using a holding tank (buffer tank) for hot water. The buffer tank acts as a storage device for water heated using the XL Series T2GY unit. Warm water can be drawn from the buffer tank during forced air heating operation. At some point, the unit will need to switch from forced air heating mode to water heating mode when the temperature of the buffer tank drops below the setpoint. This switchover will occur either before or after the ducted zones are satisfied in heating, depending on the prioritization.

Typical water temperatures in radiant floor heating systems are around 100-105º F (38-40º C). Heat pumps using R-410A refrigerant are not designed to produce water above 130° F (54° C). The system efficiency decreases as the temperature difference (TD) between the heat source (generally the earth loop) and the supply water (the distribution system) increases. The heating capacity of the heat pump also decreases as the temperature difference increases.

When designing radiant floor distribution systems, the temperature limits of the geothermal system must be a major consideration. In new construction, the distribution system can easily be designed with the temperature limits in mind. In retrofits, care must be taken to address the operating temperature limits of the existing distribution system.

Figure 2: Air Flow for Ducted Zones, and Water Flow for Radiant Zones

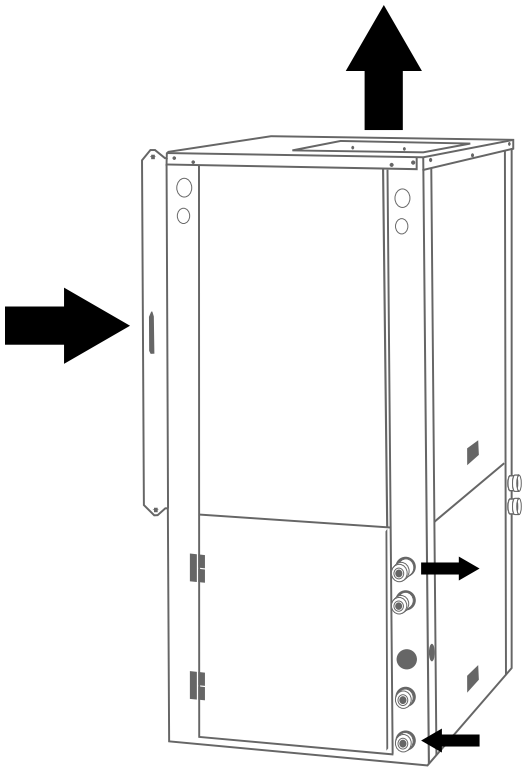


Figure 1: Radiant Floor Heating

Application Information cont.

Radiant Floor Heating

Radiant floor heating has been the system of choice in many parts of Europe for some time. Manufacturers have developed tubing designed for installation in concrete floors and built-up wood floors. Floor heating systems have several benefits in residential, commercial and industrial heating applications. In a building with a radiant floor heating system, the entire floor acts as a heat source for the room.

In residential applications, occupants in a space feel comfortable with lower air temperatures if their feet are warm. Typically the space will feel comfortable with air temperatures as low as 65° F (18° C). Since the heat loss of a building is directly related to the temperature difference between the inside and outside, a lower temperature difference means the heat loss is lower. Air temperatures in a room with a forced air heating system tend to be warmer near the ceiling than the floor. The hot air rises and creates a greater pressure imbalance between the inside and outside. The building's infiltration increases, resulting in a higher heat loss. Air temperatures in a room with floor heating tend to be warmer at the floor than the ceiling, helping cut down on infiltration in the building. The energy savings in a building with floor heating can range from 20-40% over traditional forced air systems.

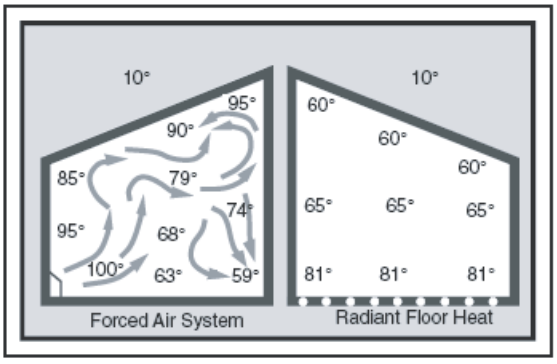
Temperatures in a forced air system tend to be more uneven than in a radiant floor heating system. The air temperatures in a forced air system tend to be much higher than with radiant floor heating, making the temperature difference between inside and outside higher, which results in a higher BTU requirement.

Hydronic/geothermal systems can be used very effectively in new installations, as well as in many retrofit applications. Efficient systems can be built for residential, commercial and industrial applications.

To make a system as efficient as possible, it is important to follow good design criteria. Some of the factors to consider are listed below:

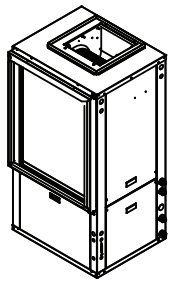
- An accurate heat loss and heat gain calculation must be done to size the system to operate efficiently.
- The system must meet the application requirements. In other words, the design of the system must take into consideration the type of distribution system and the needs of the customer.
- The components of the system must be designed to work together. The loop must be designed to work with the heat pumps, the pumping system must work efficiently with the earth loop and the heat distribution, and the distribution system must be chosen to work efficiently with the water temperatures available from the equipment.
- The system must be controlled to operate as efficiently as possible. It is important to operate the system to take variations in the building loads into account. For example, the heat loss of the building is reduced when the outdoor temperature climbs, and the temperature of the water circulated through the distribution system can be lowered, allowing the heat pumps to operate more efficiently.
- Modulating the various components of a system to meet the varying requirements of a building can significantly improve the efficiency of a system. Variable-speed pumps, for example, can greatly increase the overall efficiency of a system.
- The cost-effectiveness of the system must be considered. Regardless of the application, the design must take into account operating costs, installation costs and future repair/maintenance.

Figure 3 - Air Temperature Variations

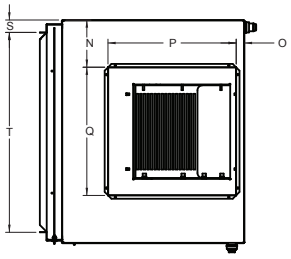


Dimensional Data

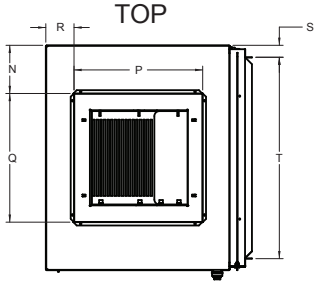
Top Air Discharge



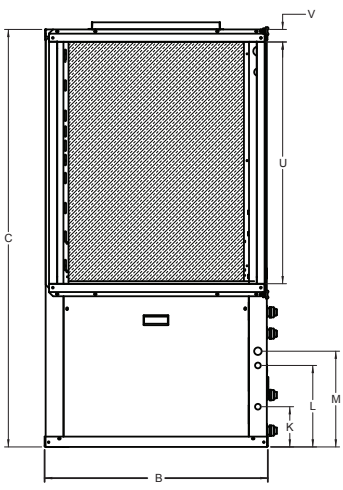
TOP

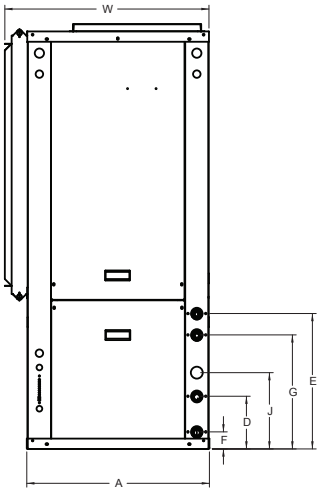


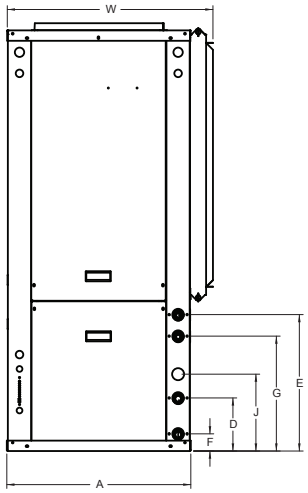
TOP



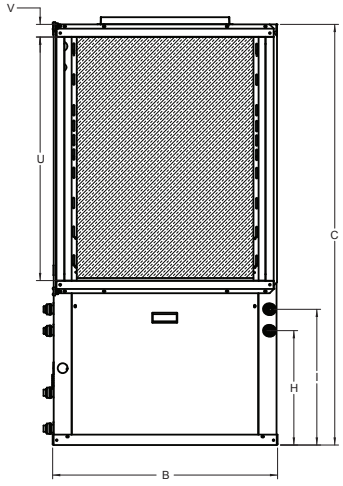
LEFT RETURN







RIGHT RETURN



LEFT FRONT FRONT RIGHT

Vertical Topflow Model		Overall Cabinet			Water Connections										Electrical Connections		
		A	B	C	D	E	F	G	H	I	J	Loop	Hydronic	HWG	K 1/2" cond	L 1/2" cond	M 3/4" cond
		Width	Depth	Height	Loop In	Hydronic Out	Hydronic In	Loop Out	HWG In	HWG Out	Cond-ensate	Water FPT	Water FPT	Sweat (I.D.)	Low Votage	Ext Pump	Power Supply
038	in.	25.6	31.6	50.4	7.3	18.9	2.3	15.9	13.6	16.6	10.6	1" Swivel	1" Swivel	1/2" Female	5.0	10.8	16.4
	cm.	65.0	80.3	128.0	18.5	48.0	5.8	40.4	34.5	42.2	26.9				12.7	27.3	41.7
049	in.	25.6	31.6	54.4	7.3	18.9	2.3	15.9	15.9	18.9	10.6	1" Swivel	1" Swivel	1/2" Female	6.5	12.2	17.9
	cm.	65.0	80.3	138.2	18.5	48.0	5.8	40.4	40.4	48.0	26.9				16.5	31.0	45.5
064	in.	25.6	31.6	58.4	7.3	18.9	2.3	15.9	15.9	18.9	10.6	1" Swivel	1" Swivel	1/2" Female	6.5	12.2	17.9
	cm.	65.0	80.3	148.3	18.5	48.0	5.8	40.4	40.4	48.0	26.9				16.5	31.0	45.5
072	in.	25.6	31.6	58.4	7.3	18.9	2.3	15.9	15.9	18.9	10.6	1" Swivel	1" Swivel	1/2" Female	6.5	12.2	17.9
	cm.	65.0	80.3	148.3	18.5	48.0	5.8	40.4	40.4	48.0	26.9				16.5	31.0	45.5

Vertical Topflow Model		Discharge Connection duct flange installed (±0.10 in)					Return Connection using std deluxe filter rack (±0.10 in)					Misc	
		N	O	P	Q	R	S	T	U	V	W	X	Y
				Supply Width	Supply Depth			Return Depth	Return Height				
038	in.	6.9	1.1	18.0	18.0	3.8	1.7	28.1	26.0	2.0	28.7	1.0	2.1
	cm.	17.5	2.8	45.7	45.7	9.7	4.3	71.4	66.0	5.1	72.9	2.5	5.3
049	in.	6.9	1.1	18.0	18.0	3.8	1.7	28.1	30.0	2.0	28.7	1.0	2.1
	cm.	17.5	2.8	45.7	45.7	9.7	4.3	71.4	76.2	5.1	72.9	2.5	5.3
064	in.	6.9	1.1	18.0	18.0	3.8	1.7	28.1	34.0	2.0	28.7	1.0	2.1
	cm.	17.5	2.8	45.7	45.7	9.7	4.3	71.4	86.4	5.1	72.9	2.5	5.3
072	in.	6.9	1.1	18.0	18.0	3.8	1.7	28.1	34.0	2.0	28.7	1.0	2.1
	cm.	17.5	2.8	45.7	45.7	9.7	4.3	71.4	86.4	5.1	72.9	2.5	5.3

Condensate is 3/4" PVC female glue socket and is switchable from side to front 3/29/11

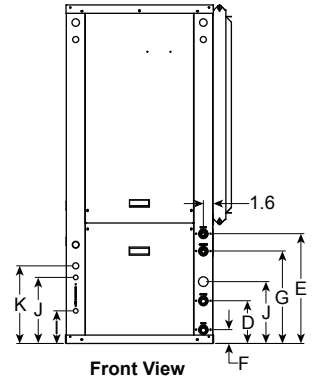
Unit shipped with deluxe 2" (field adjustable to 1") duct collar/filter rack extending from unit 3.25" and is suitable for duct connection.

Discharge flange is field installed and extends 1" [25.4mm] from cabinet

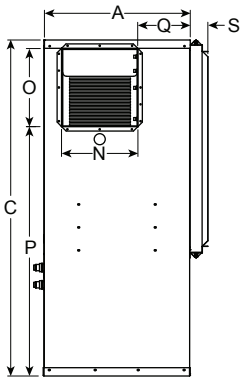
Water connections extend 1.2" [30.5mm] beyond front of cabinet.

Dimensional Data cont.

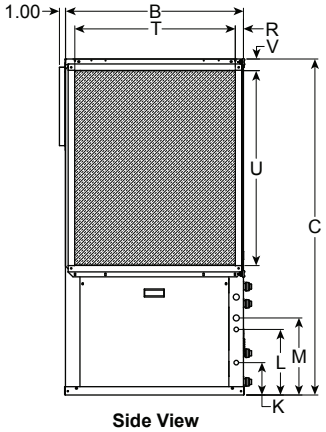
Rear Air Discharge



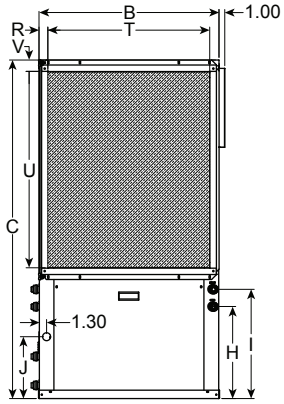
Front View
Right Return



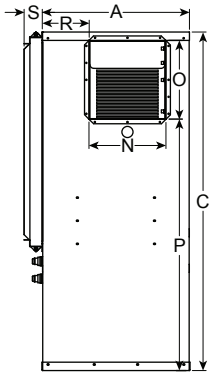
Rear View
Left Return



Side View
Left Return



Side View
Right Return



Rear View
Right Return

Vertical Rear Discharge Model		Overall Cabinet			Water Connections										Electrical Connections		
		A	B	C	D	E	F	G	H	I	J	Loop	Hydronic	HWG	K 1/2" cond	L 1/2" cond	M 3/4" cond
		Width	Depth	Height	Loop In	Hydronic Out	Hydronic In	Loop Out	HWG In	HWG Out	Cond-ensate	Water FPT	Water FPT	Sweat (I.D.)	Low Votage	Ext Pump	Power Supply
049	in.	25.6	31.6	54.4	7.3	18.9	2.3	15.9	15.9	18.9	10.6	1" Swivel	1" Swivel	1/2" Female	6.5	12.2	17.9
	cm.	65.0	80.3	138.2	18.5	48.0	5.8	40.4	40.4	48.0	26.9				16.5	31.0	45.5
064	in.	25.6	31.6	58.4	7.3	18.9	2.3	15.9	15.9	18.9	10.6	1" Swivel	1" Swivel	1/2" Female	6.5	12.2	17.9
	cm.	65.0	80.3	148.3	18.5	48.0	5.8	40.4	40.4	48.0	26.9				16.5	31.0	45.5
072	in.	25.6	31.6	58.4	7.3	18.9	2.3	15.9	15.9	18.9	10.6	1" Swivel	1" Swivel	1/2" Female	6.5	12.2	17.9
	cm.	65.0	80.3	148.3	18.5	48.0	5.8	40.4	40.4	48.0	26.9				16.5	31.0	45.5

Vertical Rear Discharge Model		Discharge Connection duct flange installed (±0.10 in)					Return Connection using std deluxe filter rack (±0.10 in)					Misc	
		N	O	P Supply Width	Q Supply Depth	R	S	T Return Depth	U Return Height	V	W	X	Y
049	in.	39.4	9.1	13.3	13.6	8.1	1.7	28.1	30.0	1.5	28.7	1.0	2.1
	cm.	100.1	23.1	33.8	34.5	20.6	4.3	71.4	76.2	3.8	72.9	2.5	5.3
064	in.	43.4	9.1	13.3	13.6	8.1	1.7	28.1	34.0	1.5	28.7	1.0	2.1
	cm.	110.2	23.1	33.8	34.5	20.6	4.3	71.4	86.4	3.8	72.9	2.5	5.3
072	in.	43.4	9.1	13.3	13.6	8.1	1.7	28.1	34.0	1.5	28.7	1.0	2.1
	cm.	110.2	23.1	33.8	34.5	20.6	4.3	71.4	86.4	3.8	72.9	2.5	5.3

Condensate is 3/4" PVC female glue socket and is switchable from side to front 3/29/11

Unit shipped with deluxe 2" (field adjustable to 1") duct collar/filter rack extending from unit 3.25" and is suitable for duct connection.

Discharge flange is field installed and extends 1" [25.4mm] from cabinet

Water connections extend 1.2" [30.5mm] beyond front of cabinet

Physical Data

Model	038	049	064	072
Compressor (1 each)	Scroll			
Factory Charge R-410A, oz [kg]	102 [2.89]	111 [3.14]	128 [3.62]	128 [3.62]
ECM Blower Motor & Blower				
Blower Motor Type/Speeds	ECM Variable Speed			
Blower Motor- hp [W]	1/2 [373]	1/2 [373]	1 [746]	1 [746]
Blower Wheel Size (Dia x W), in. [mm]	11 x 10 [279 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]
Coax and Water Piping				
Loop Water Connections Size - Swivel - in [mm]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Hydronic Water Connections Size - Swivel - in [mm]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
HWG Connection Size - Female Sweat (I.D.) - in [mm]	1/2 [12.7]	1/2 [12.7]	1/2 [12.7]	1/2 [12.7]
Coax & Piping Water Volume - gal [l]	1.3 [4.9]	1.6 [6.1]	1.6 [6.1]	1.6 [6.1]
Vertical				
Air Coil Dimensions (H x W), in. [mm]	28 x 25 [711 x 635]	32 x 25 [813 x 635]	36 x 25 [914 x 635]	36 x 25 [914 x 635]
Air Coil Total Face Area, ft^2 [m^2]	4.9 [0.451]	5.6 [0.570]	6.3 [0.641]	6.3 [0.641]
Air Coil Tube Size, in [mm]	3/8 [9.5]	3/8 [9.5]	3/8 [9.5]	3/8 [9.5]
Air Coil Number of rows	3	3	4	4
Filter Standard - 2 in. [51mm] Pleated MERV11 Disposable, in [mm]	28 x 30 [712 x 762]	32 x 30 [813 x 762]	36 x 30 [914 x 762]	36 x 30 [914 x 762]
Weight - Operating, lb [kg]	425	530	540	540
Weight - Packaged, lb [kg]	445	550	560	560

3/23/11

Electrical Data

Model	Rated Voltage	Voltage Min/Max	Compressor				Int Pump FLA	Ext Loop FLA	Fan Motor FLA	Total Unit FLA	Min Circ Amp	Max Fuse/ HACR
			MCC	RLA	LRA	LRA**						
038	208-230/60/1	197/254	26.0	16.6	82.0	29.0	1.07	5.4	4.0	27.1	31.2	45
038*	208-230/60/1	197/254	26.0	16.6	82.0	29.0	1.07	5.4	7.0	30.1	34.0	50
049	208-230/60/1	197/254	33.0	21.1	96.0	34.0	1.07	5.4	4.0	31.6	36.8	50
049*	208-230/60/1	197/254	33.0	21.1	96.0	34.0	1.07	5.4	7.0	34.6	39.8	60
064	208-230/60/1	197/254	40.0	25.6	118.0	41.0	1.07	5.4	7.0	39.1	45.5	70
072	208-230/60/1	197/254	42.5	27.2	150.0	53.0	1.07	5.4	7.0	40.7	47.5	70

*with optional 1 HP ECM2 motor
** with optional GeoStart
Rated Voltage of 208-230/60/1
HACR circuit breaker in USA only
Local electrical codes take precedence over any wiring recommendations

Min/Max voltage of 197/254 6/17/08
All Fuses Class RK-5

Auxiliary Heat

Auxiliary Heat Electrical Data

Model	Supply Circuit	Heater Amps		Min Circuit Amp		Max Fuse (USA)		Max Fuse (CAN)		Max CKT BRK	
		208 V	240 V	208 V	240 V	208 V	240 V	208 V	240 V	208 V	240 V
EAL(H)10	Single	34.7	40	53.3	60	60	60	60	60	60	60
EAL(H)15	Single	52.0	60	75	85	80	90	80	90	70	100
	L1/L2	34.7	40	53.3	60	60	60	60	60	60	60
	L3/L4	17.3	20	21.7	25	25	25	25	25	20	30
EAL(H)20	Single	69.3	80	96.7	110	100	110	100	110	100	100
	L1/L2	34.7	40	53.3	60	60	60	60	60	60	60
	L3/L4	34.7	40	43.3	50	45	50	45	50	40	50

All heaters rated single phase 60 cycle and include unit fan load
All fuses type "D" time delay (or HACR circuit breaker in USA)
Vertical rear discharge models use the horizontal (EALH) auxiliary heat kit.

Auxiliary Heat Ratings

Model	KW		Stages	BTU/HR		Min CFM	Model Series Compatibility			
	208V	230V		208V	230V		038	049	064	072
EAL(H)10	7.2	9.6	2	24,600	32,700	1100	•	•	•	•
EAL(H)15	10.8	14.4	3	36,900	49,100	1250	•	•	•	•
EAL(H)20	14.4	19.2	4	49,200	65,500	1500		•	•	•

Notes: High blower tap setting must be above the minimum CFM for the heater selected.

Blower Performance Data

MODEL	MAX ESP	AIR FLOW DIP SWITCH SETTINGS											
		1	2	3	4	5	6	7	8	9	10	11	12
038	**0.50**	650	750 L	850	1000	**1100 M**	**1200**	**1300 H**	**1400**	**1500**			
038 w/1hp*	**0.75**	800 L	1000	**1100 M**	**1300 H**	**1500**	**1600**	1800					
049	**0.50**	650	800 L	900	1050	1150	**1250**	**1350 M**	**1450**	**1550 H**			
049 w/1hp*	**0.75**	800 L	900	1000	1200	**1400 M**	**1600 H**	**1700**	**1850**	2000	2200	2300	2400
064	**0.75**	800	950 L	1100	1300	**1500 M**	**1750**	**1950 H**	**2100**	**2300**			
072	**0.75**	800	950	1100 L	1300	**1500**	**1750 M**	**1950**	**2100 H**	**2300**			

Factory settings are at recommended L-M-H DIP switch locations

M-H settings MUST be located within boldface CFM range

Lowest and Highest DIP switch settings are assumed to be L and H respectively

CFM is controlled within ±5% up to the maximum ESP

Max ESP includes allowance for wet coil and standard filter

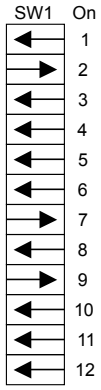
3/18/08

A 12-position DIP switch package on the *2GY control allows the airflow levels to be set for Low, Medium and High speed when using the ECM2 blower motor.

Only three of the DIP switches can be in the “On” position. The first “On” switch (the lowest position number) determines the “Low Speed Fan” setting. The second “On” switch determines the “Medium Speed Fan” setting, and the third “On” switch determines the “High Speed Fan” setting.

The example to the right shows SW1 on the *2GY control board configured for the following 049 airflow settings:

Low Speed Blower: 800 CFM
Medium Speed Blower: 1350 CFM
High Speed Blower: 1550 CFM



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

Notes:

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.

Reference Calculations

Heating Calculations:

$$LWT = EWT - \frac{HE}{GPM \times 500}$$

$$LAT = EAT + \frac{HC}{CFM \times 1.08}$$

$$TH = HC + HW$$

Cooling Calculations:

$$LWT = EWT + \frac{HR}{GPM \times 500}$$

$$LAT\ (DB) = EAT\ (DB) - \frac{SC}{CFM \times 1.08}$$

$$LC = TC - SC$$

$$S/T = \frac{SC}{TC}$$

Legend and Notes

ABBREVIATIONS AND DEFINITIONS

CFM = airflow, cubic feet/minute
COP = coefficient of performance
= (btu output/btu input)
= [HC/(kw x 3.413)]
EAT = entering air temperature °F
EER = energy efficiency ratio
= btu output / watt input
ELT = entering load fluid temperature to heat pump
EST = entering source fluid temperature to heat pump
EWT = entering water temperature (source) to heat pump
FT HD = pressure drop in feet of head
GPM = gallons per minute
HC = total heating capacity in MBTUH
HE = heat extracted in MBTUH
HR = heat rejected in MBTUH
KW = kilowatts
LAT = leaving air temperature °F
LC = latent cooling capacity in MBTUH
LGPM = load flow in gallons per minute
LLT = leaving load fluid temperature from heat pump
LST = leaving source fluid temperature from heat pump
LWPD = load coax water pressure drop
LWT = leaving water temperature °F
PSI = pressure drop in pounds per square inch
S/T = sensible to total cooling ratio
SC = sensible cooling capacity in MBTUH
SWPD = source coax water pressure drop
TC = total cooling capacity in MBTUH
TH = total heating capacity in MBTUH
WPD = water pressure drop in PSI, feet of water

Notes to Performance Data Tables

The following notes apply to all Performance Data tables:

- Performance ratings are based on 80ºF DB / 67ºF WB EAT for cooling and 70ºF DB EAT for heating.
- Three flow rates are shown for each unit. The lowest flow rate shown is used for geothermal open loop/well water systems with a minimum of 50ºF EWT. The middle flow rate shown is the minimum geothermal closed loop flow rate. The highest flow rate shown is optimum for geothermal closed loop systems and the suggested flow rate for boiler/tower applications.
- The hot water generator numbers are based on a flow rate of 0.4 GPM/ton of rated capacity with an EWT of 90ºF.
- Entering water temperatures below 40ºF assumes 15% antifreeze solution.
- For non-standard EAT conditions, apply the appropriate Correction Factors table(s).
- Interpolation between EWT, GPM and CFM data is permissible, extrapolation is not.
- Pumping power is not included in the Performance Data tables nor are calculations for AHRI/ISO 13256-1.

Correction Factor Tables

Air Flow Corrections (Dual Capacity Part Load)

Airflow		Cooling				Heating		
CFM Per Ton of Clg	% of Nominal	Total Cap	Sens Cap	Power	Heat of Rej	Htg Cap	Power	Heat of Ext
240	60	0.922	0.778	0.956	0.924	0.943	1.239	0.879
275	69	0.944	0.830	0.962	0.944	0.958	1.161	0.914
300	75	0.957	0.866	0.968	0.958	0.968	1.115	0.937
325	81	0.970	0.900	0.974	0.970	0.977	1.075	0.956
350	88	0.982	0.933	0.981	0.980	0.985	1.042	0.972
375	94	0.991	0.968	0.991	0.991	0.993	1.018	0.988
400	100	1.000	1.000	1.000	1.000	1.000	1.000	1.000
425	106	1.007	1.033	1.011	1.008	1.007	0.990	1.010
450	113	1.013	1.065	1.023	1.015	1.012	0.987	1.018
475	119	1.017	1.099	1.037	1.022	1.018	0.984	1.025
500	125	1.020	1.132	1.052	1.027	1.022	0.982	1.031
520	130	1.022	1.159	1.064	1.030	1.025	0.979	1.034

5/30/06

Air Flow Corrections (Dual Capacity Full Load & Single Speed)

Airflow		Cooling				Heating		
CFM Per Ton of Clg	% of Nominal	Total Cap	Sens Cap	Power	Heat of Rej	Htg Cap	Power	Heat of Ext
240	60	0.922	0.786	0.910	0.920	0.943	1.150	0.893
275	69	0.944	0.827	0.924	0.940	0.958	1.105	0.922
300	75	0.959	0.860	0.937	0.955	0.968	1.078	0.942
325	81	0.971	0.894	0.950	0.967	0.977	1.053	0.959
350	88	0.982	0.929	0.964	0.978	0.985	1.031	0.973
375	94	0.992	0.965	0.982	0.990	0.993	1.014	0.988
400	100	1.000	1.000	1.000	1.000	1.000	1.000	1.000
425	106	1.007	1.034	1.020	1.010	1.007	0.990	1.011
450	113	1.012	1.065	1.042	1.018	1.013	0.983	1.020
475	119	1.017	1.093	1.066	1.026	1.018	0.980	1.028
500	125	1.019	1.117	1.092	1.033	1.023	0.978	1.034
520	130	1.020	1.132	1.113	1.038	1.026	0.975	1.038

5/30/06

Cooling Capacity Corrections (Dual Capacity Full & Part Load)

Entering Air WB °F	Total Clg Cap	Sensible Cooling Capacity Multipliers - Entering DB °F										Power Input	Heat of Rejection
		60	65	70	75	80	80.6	85	90	95	100		
55	0.898	0.723	0.866	1.048	1.185	*	*	*	*	*	*	0.985	0.913
60	0.912		0.632	0.880	1.078	1.244	1.260	*	*	*	*	0.994	0.927
65	0.967			0.694	0.881	1.079	1.085	1.270	*	*	*	0.997	0.972
66.2	0.983			0.655	0.842	1.040	1.060	1.232	*	*	*	0.999	0.986
67	**1.000**			0.616	0.806	**1.000**	1.023	1.193	1.330	*	*	**1.000**	**1.000**
70	1.053				0.693	0.879	0.900	1.075	1.250	1.404	*	1.003	1.044
75	1.168					0.687	0.715	0.875	1.040	1.261	1.476	1.007	1.141

11/10/09

NOTE: *Sensible capacity equals total capacity at conditions shown.

Heating Capacity Corrections (Dual Capacity Full & Part Load)

Ent Air DB °F	Heating Corrections		
	Htg Cap	Power	Heat of Ext
45	1.062	0.739	1.158
50	1.050	0.790	1.130
55	1.037	0.842	1.096
60	1.025	0.893	1.064
65	1.012	0.945	1.030
68	1.005	0.976	1.012
70	**1.000**	**1.000**	**1.000**
75	0.987	1.048	0.970
80	0.975	1.099	0.930

11/10/09

Performance Data
T2GY038 Low Speed - Performance Data

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	15.1	1.60	9.6	85.5	2.75	2.4								
				1050	15.7	1.65	10.1	83.8	2.80	2.2								
30	4.0	0.9	2.0	Operation not recommended							Operation not recommended							
	6.0	1.7	3.9	900	16.8	1.58	11.4	87.3	3.12	2.3	900	25.5	15.0	0.59	0.93	28.6	27.5	-
				1050	17.5	1.62	12.0	85.4	3.17	2.1	1050	26.2	16.6	0.63	0.94	29.4	27.7	-
	8.0	2.8	6.5	900	17.9	1.62	12.3	88.4	3.24	2.4	900	25.9	15.4	0.59	0.92	29.0	28.2	-
				1050	18.6	1.66	12.9	86.4	3.29	2.2	1050	26.6	17.0	0.64	0.94	29.8	28.4	-
40	4.0	0.8	1.9	Operation not recommended							Operation not recommended							
	6.0	1.6	3.8	900	20.6	1.59	15.2	91.2	3.80	2.5	900	27.6	16.5	0.60	1.02	31.1	27.1	-
				1050	21.4	1.62	15.8	88.8	3.86	2.3	1050	28.4	18.3	0.65	1.04	31.9	27.3	-
	8.0	2.7	6.3	900	21.8	1.63	16.2	92.4	3.91	2.6	900	28.0	17.0	0.60	1.01	31.5	27.8	-
				1050	22.5	1.66	16.8	89.8	3.97	2.4	1050	28.8	18.8	0.65	1.03	32.3	28.0	-
50	4.0	0.8	1.9	900	23.1	1.60	17.7	93.8	4.24	2.6	900	29.9	17.6	0.59	1.17	33.9	25.6	0.9
				1050	23.8	1.62	18.3	91.0	4.31	2.4	1050	30.7	19.5	0.63	1.19	34.8	25.8	1.0
	6.0	1.6	3.7	900	23.9	1.60	18.5	94.6	4.38	2.7	900	30.2	17.7	0.59	1.14	34.0	26.5	0.9
				1050	24.7	1.62	19.1	91.7	4.46	2.5	1050	31.0	19.6	0.63	1.16	34.9	26.7	1.0
	8.0	2.6	6.1	900	25.1	1.64	19.5	95.8	4.48	2.8	900	30.6	18.2	0.59	1.13	34.5	27.2	0.8
				1050	25.8	1.66	20.1	92.8	4.56	2.5	1050	31.5	20.1	0.64	1.15	35.4	27.4	0.9
60	4.0	0.8	1.8	900	26.6	1.65	21.0	97.4	4.74	2.9	900	28.3	18.5	0.65	1.29	32.7	21.9	1.3
				1050	27.3	1.66	21.6	94.1	4.82	2.6	1050	29.1	20.4	0.70	1.31	33.5	22.1	1.3
	6.0	1.5	3.6	900	27.7	1.65	22.1	98.5	4.93	3.0	900	28.5	18.6	0.65	1.26	32.8	22.7	1.2
				1050	28.3	1.65	22.7	95.0	5.02	2.7	1050	29.3	20.6	0.70	1.28	33.7	22.9	1.3
	8.0	2.5	5.9	900	28.7	1.68	22.9	99.5	4.99	3.0	900	29.0	19.0	0.66	1.24	33.3	23.3	1.1
				1050	29.3	1.69	23.5	95.8	5.08	2.8	1050	29.8	21.1	0.71	1.27	34.1	23.5	1.2
70	4.0	0.8	1.8	900	30.3	1.70	24.5	101.2	5.22	3.2	900	27.7	19.3	0.70	1.44	32.6	19.2	1.7
				1050	30.9	1.70	25.1	97.2	5.32	2.9	1050	28.5	21.3	0.75	1.47	33.5	19.3	1.8
	6.0	1.5	3.5	900	31.6	1.69	25.8	102.5	5.47	3.3	900	28.0	19.4	0.69	1.41	32.8	19.9	1.6
				1050	32.2	1.69	26.4	98.4	5.58	3.0	1050	28.7	21.5	0.75	1.43	33.6	20.0	1.8
	8.0	2.5	5.7	900	32.4	1.73	26.5	103.4	5.50	3.4	900	28.4	19.9	0.70	1.39	33.2	20.4	1.5
				1050	33.0	1.73	27.1	99.1	5.60	3.1	1050	29.2	22.0	0.75	1.42	34.1	20.5	1.7
80	4.0	0.7	1.7	900	33.4	1.73	27.5	104.3	5.66	3.6	900	27.3	19.2	0.70	1.62	32.8	16.8	2.4
				1050	33.8	1.72	28.0	99.8	5.77	3.3	1050	28.0	21.2	0.76	1.66	33.7	16.9	2.6
	6.0	1.4	3.3	900	35.0	1.72	29.1	106.0	5.97	3.7	900	27.5	19.3	0.70	1.58	32.9	17.4	2.3
				1050	35.4	1.70	29.6	101.2	6.09	3.4	1050	28.3	21.4	0.76	1.61	33.8	17.5	2.5
	8.0	2.4	5.5	900	35.5	1.75	29.5	106.5	5.93	3.8	900	28.0	19.8	0.71	1.57	33.3	17.8	2.1
				1050	35.8	1.74	29.9	101.6	6.05	3.5	1050	28.7	21.9	0.76	1.60	34.2	18.0	2.3
90	4.0	0.7	1.6	900	36.6	1.77	30.5	107.6	6.06	4.0	900	25.0	18.8	0.75	1.82	31.3	13.7	3.2
				1050	36.9	1.75	30.9	102.5	6.18	3.7	1050	25.7	20.8	0.81	1.86	32.1	13.9	3.4
	6.0	1.4	3.2	900	38.5	1.75	32.5	109.6	6.42	4.2	900	25.3	18.9	0.75	1.77	31.3	14.2	3.0
				1050	38.7	1.73	32.8	104.1	6.56	3.8	1050	26.0	21.0	0.81	1.81	32.1	14.4	3.3
	8.0	2.3	5.3	900	38.6	1.79	32.5	109.7	6.33	4.3	900	25.7	19.4	0.76	1.76	31.7	14.6	2.8
				1050	38.8	1.76	32.8	104.2	6.46	4.0	1050	26.4	21.5	0.81	1.79	32.5	14.7	3.1
100	4.0	0.7	1.6	Operation not recommended							Operation not recommended							
	6.0	1.3	3.1								900	24.5	18.7	0.76	2.00	31.3	12.3	3.9
											1050	25.2	20.7	0.82	2.04	32.1	12.4	4.2
	8.0	2.2	5.1								900	24.9	19.2	0.77	1.98	31.7	12.6	3.6
											1050	25.6	21.2	0.83	2.02	32.5	12.7	4.0
110	4.0	0.7	1.5	Operation not recommended							Operation not recommended							
	6.0	1.3	3.0								900	22.0	17.7	0.80	2.23	29.6	9.9	5.0
											1050	22.6	19.6	0.87	2.28	30.4	9.9	5.4
	8.0	2.1	4.9								900	22.4	18.2	0.81	2.22	29.9	10.1	4.6
											1050	23.0	20.1	0.87	2.26	30.7	10.2	5.1
120	4.0	0.6	1.5	Operation not recommended							Operation not recommended							
	6.0	1.2	2.9								900	20.1	17.0	0.85	2.51	28.7	8.0	5.9
											1050	20.7	18.8	0.91	2.56	29.4	8.1	6.4
	8.0	2.0	4.7								900	20.4	17.4	0.85	2.49	28.9	8.2	5.5
											1050	21.0	19.3	0.92	2.54	29.7	8.3	6.1

038LOW 2/21/2011

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY038 High Speed - Performance Data

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	22.5	2.07	15.4	86.6	3.18	2.5								
30	5.0	1.2	2.9	Operation not recommended							Operation not recommended							
	7.0	2.2	5.1	1050	25.3	2.05	18.3	92.3	3.61	2.9	1050	37.0	20.8	0.56	1.57	42.4	23.6	-
				1250	26.1	2.12	18.9	89.3	3.61	2.7	1250	39.1	23.2	0.59	1.66	44.8	23.6	-
	9.0	3.4	7.9	1050	25.8	2.08	18.7	92.7	3.64	3.0	1050	37.3	22.9	0.62	1.52	42.5	24.5	-
				1250	26.6	2.14	19.3	89.7	3.64	2.8	1250	39.5	25.5	0.65	1.62	45.0	24.4	-
40	5.0	1.2	2.8	Operation not recommended							Operation not recommended							
	7.0	2.1	4.9	1050	29.8	2.19	22.4	96.3	3.99	3.4	1050	39.0	22.9	0.59	1.72	44.9	22.6	-
				1250	30.7	2.24	23.1	92.8	4.03	3.1	1250	41.1	25.4	0.62	1.81	47.3	22.6	-
	9.0	3.3	7.6	1050	30.4	2.21	22.9	96.8	4.03	3.5	1050	39.3	24.8	0.63	1.68	45.0	23.5	-
				1250	31.4	2.26	23.7	93.3	4.07	3.1	1250	41.5	27.6	0.66	1.77	47.6	23.4	-
50	5.0	1.2	2.7	1050	32.5	2.27	24.7	98.6	4.19	3.6	1050	40.6	25.0	0.62	2.03	47.6	20.0	1.7
				1250	33.4	2.30	25.6	94.8	4.26	3.3	1250	42.7	27.8	0.65	2.14	50.0	20.0	1.8
	7.0	2.1	4.8	1050	33.7	2.32	25.7	99.7	4.25	3.7	1050	41.5	25.3	0.61	1.92	48.0	21.6	1.6
				1250	34.7	2.35	26.7	95.7	4.33	3.4	1250	43.6	28.1	0.64	2.01	50.5	21.7	1.8
	9.0	3.2	7.4	1050	34.4	2.34	26.4	100.4	4.30	3.8	1050	41.9	27.0	0.64	1.87	48.3	22.4	1.5
				1250	35.5	2.38	27.4	96.3	4.38	3.5	1250	44.1	30.0	0.68	1.96	50.8	22.5	1.7
60	5.0	1.1	2.6	1050	36.3	2.38	28.2	102.0	4.46	4.1	1050	38.5	24.5	0.64	2.16	45.9	17.8	2.1
				1250	37.5	2.40	29.3	97.8	4.58	3.8	1250	40.4	27.3	0.68	2.26	48.1	17.9	2.2
	7.0	2.0	4.6	1050	37.9	2.45	29.6	103.5	4.53	4.2	1050	39.4	24.8	0.63	2.06	46.4	19.2	2.0
				1250	39.2	2.47	30.7	99.0	4.65	3.9	1250	41.3	27.5	0.67	2.14	48.6	19.3	2.1
	9.0	3.1	7.2	1050	38.9	2.48	30.4	104.3	4.60	4.3	1050	39.8	26.2	0.66	2.01	46.6	19.8	1.8
				1250	40.1	2.49	31.6	99.7	4.73	4.0	1250	41.7	29.0	0.70	2.10	48.9	19.9	2.0
70	5.0	1.1	2.5	1050	40.4	2.52	31.8	105.6	4.70	4.7	1050	37.7	24.8	0.66	2.35	45.7	16.0	2.6
				1250	41.7	2.52	33.2	100.9	4.86	4.3	1250	39.3	27.6	0.70	2.44	47.7	16.1	2.8
	7.0	1.9	4.5	1050	42.4	2.60	33.6	107.4	4.79	4.8	1050	38.7	25.1	0.65	2.25	46.3	17.2	2.4
				1250	43.8	2.60	34.9	102.5	4.94	4.4	1250	40.3	27.8	0.69	2.33	48.3	17.3	2.6
	9.0	3.0	6.9	1050	43.5	2.63	34.5	108.4	4.85	5.0	1050	39.0	26.1	0.67	2.19	46.5	17.8	2.3
				1250	45.0	2.62	36.1	103.3	5.04	4.6	1250	40.8	28.9	0.71	2.28	48.6	17.9	2.5
80	5.0	1.1	2.5	1050	43.3	2.65	34.2	108.2	4.79	5.2	1050	36.8	25.2	0.68	2.56	45.6	14.4	3.2
				1250	44.8	2.63	35.8	103.2	4.99	4.8	1250	38.3	28.0	0.73	2.64	47.3	14.5	3.4
	7.0	1.9	4.3	1050	45.8	2.75	36.4	110.4	4.87	5.3	1050	37.9	25.5	0.67	2.47	46.3	15.3	3.0
				1250	47.3	2.73	38.0	105.1	5.09	4.9	1250	39.4	28.3	0.72	2.55	48.1	15.5	3.3
	9.0	2.9	6.7	1050	47.1	2.79	37.6	111.5	4.95	5.5	1050	38.3	26.1	0.68	2.42	46.5	15.8	2.8
				1250	48.7	2.75	39.3	106.1	5.19	5.1	1250	39.8	29.0	0.73	2.49	48.4	16.0	3.1
90	5.0	1.0	2.4	1050	46.5	2.79	36.9	111.0	4.88	5.9	1050	34.1	24.4	0.72	2.79	43.6	12.2	4.0
				1250	48.1	2.75	38.7	105.6	5.13	5.4	1250	35.3	27.1	0.77	2.85	45.0	12.4	4.3
	7.0	1.8	4.2	1050	49.4	2.92	39.4	113.6	4.96	6.0	1050	35.1	24.7	0.70	2.71	44.3	13.0	3.7
				1250	51.1	2.87	41.4	107.9	5.23	5.6	1250	36.4	27.4	0.75	2.77	45.9	13.1	4.1
	9.0	2.8	6.5	1050	50.9	2.96	40.8	114.9	5.04	6.2	1050	35.5	24.9	0.70	2.66	44.6	13.3	3.5
				1250	52.7	2.89	42.8	109.0	5.35	5.8	1250	36.8	27.6	0.75	2.72	46.1	13.5	3.9
100	5.0	1.0	2.3	Operation not recommended							Operation not recommended							
	7.0	1.7	4.0								1050	34.3	24.8	0.72	2.98	44.5	11.5	4.6
											1250	35.4	27.6	0.78	3.02	45.7	11.7	5.0
	9.0	2.7	6.2								1050	34.7	24.8	0.71	2.92	44.7	11.9	4.4
											1250	35.8	27.4	0.76	2.97	45.9	12.1	4.8
110	5.0	1.0	2.2	Operation not recommended							Operation not recommended							
	7.0	1.7	3.9								1050	31.5	23.7	0.75	3.22	42.5	9.8	5.6
											1250	32.4	26.3	0.81	3.24	43.4	10.0	6.1
	9.0	2.6	6.0								1050	31.8	23.4	0.73	3.16	42.6	10.1	5.2
											1250	32.7	25.8	0.79	3.19	43.6	10.2	5.8
120	5.0	0.9	2.1	Operation not recommended							Operation not recommended							
	7.0	1.6	3.7								1050	29.4	23.1	0.78	3.61	41.8	8.2	6.8
											1250	30.1	25.7	0.85	3.61	42.4	8.4	7.4
	9.0	2.5	5.8								1050	29.7	22.5	0.76	3.55	41.9	8.4	6.3
											1250	30.4	24.8	0.82	3.56	42.6	8.5	7.0

038HIGH 2/21/2011

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY038 Water Heating Data

			SOURCE 5.0 GPM						SWPD		HWC	SOURCE 7.0 GPM						SWPD		HWC	SOURCE 9.0 GPM						SWPD		HWC
ELT	EST	LGPM	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh
80	30	5.0	Operation Not Recommended																										
		7.0	88.0	25.8	1.99	19.0	3.8	22.2	1.1	2.5	2.8	88.2	26.5	2.00	19.7	3.9	23.8	2.3	5.2	2.8	88.4	27.1	2.01	20.3	4.0	25.4	3.4	7.9	2.9
		9.0	85.7	25.8	1.96	19.1	3.9	22.1	1.1	2.5	2.6	85.9	26.4	1.97	19.7	3.9	23.7	2.3	5.2	2.7	86.0	27.1	1.97	20.3	4.0	25.3	3.4	7.9	2.8
80	40	5.0	Operation Not Recommended																										
		7.0	89.5	30.5	2.06	23.5	4.3	30.3	1.1	2.5	3.1	89.7	31.4	2.07	24.3	4.4	32.3	2.2	5.1	3.2	90.0	32.2	2.08	25.1	4.5	34.4	3.3	7.7	3.3
		9.0	86.8	30.6	2.03	23.7	4.4	30.2	1.1	2.5	3.0	87.0	31.4	2.04	24.4	4.5	32.3	2.2	5.1	3.1	87.1	32.2	2.04	25.2	4.6	34.4	3.3	7.7	3.1
80	50	5.0	94.0	34.9	2.16	27.6	4.7	38.6	1.1	2.4	3.6	94.4	36.1	2.18	28.6	4.8	41.0	2.2	5.0	3.7	94.9	37.3	2.20	29.7	5.0	43.4	3.3	7.5	3.8
		7.0	90.9	35.2	2.13	27.9	4.8	38.5	1.1	2.4	3.5	91.3	36.2	2.15	28.9	4.9	40.9	2.2	5.0	3.6	91.6	37.3	2.16	29.9	5.1	43.4	3.3	7.5	3.7
		9.0	87.9	35.5	2.11	28.3	4.9	38.3	1.1	2.4	3.4	88.1	36.4	2.11	29.2	5.1	40.8	2.2	5.0	3.4	88.3	37.2	2.11	30.0	5.2	43.3	3.3	7.5	3.5
80	60	5.0	95.8	39.5	2.23	31.9	5.2	46.9	1.0	2.4	4.1	96.3	40.9	2.26	33.2	5.3	49.6	2.1	4.9	4.2	96.9	42.3	2.29	34.5	5.4	52.3	3.2	7.3	4.3
		7.0	92.4	39.9	2.21	32.4	5.3	46.7	1.0	2.4	4.0	92.8	41.1	2.22	33.5	5.4	49.5	2.1	4.9	4.1	93.2	42.3	2.23	34.7	5.6	52.3	3.2	7.3	4.1
		9.0	89.0	40.4	2.19	32.9	5.4	46.4	1.0	2.4	3.8	89.2	41.3	2.18	33.9	5.5	49.3	2.1	4.9	3.9	89.4	42.3	2.18	34.9	5.7	52.2	3.2	7.3	4.0
80	70	5.0	97.6	44.0	2.30	36.1	5.6	55.1	1.0	2.3	4.7	98.3	45.7	2.33	37.7	5.7	58.2	2.1	4.7	4.8	98.9	47.3	2.37	39.2	5.9	61.3	3.1	7.2	4.9
		7.0	93.8	44.6	2.28	36.8	5.7	54.8	1.0	2.3	4.6	94.3	46.0	2.29	38.2	5.9	58.0	2.1	4.7	4.7	94.7	47.4	2.31	39.5	6.0	61.2	3.1	7.2	4.7
		9.0	90.0	45.2	2.26	37.5	5.9	54.5	1.0	2.3	4.4	90.3	46.3	2.26	38.6	6.0	57.9	2.1	4.7	4.5	90.5	47.4	2.25	39.7	6.2	61.2	3.1	7.2	4.6
100	30	5.0	Operation Not Recommended																										
		7.0	107.8	25.1	2.58	16.3	2.9	23.3	1.1	2.5	2.7	108.0	25.6	2.58	16.8	2.9	24.7	2.3	5.2	2.7	108.1	26.1	2.58	17.3	3.0	26.2	3.4	7.9	2.8
		9.0	105.6	25.0	2.53	16.3	2.9	23.3	1.1	2.5	2.6	105.7	25.5	2.54	16.9	2.9	24.7	2.3	5.2	2.6	105.8	26.1	2.54	17.4	3.0	26.1	3.4	7.9	2.7
100	40	5.0	Operation Not Recommended																										
		7.0	109.1	29.4	2.64	20.3	3.3	31.6	1.1	2.5	3.0	109.3	30.0	2.65	21.0	3.3	33.4	2.2	5.1	3.1	109.5	30.7	2.66	21.6	3.4	35.2	3.3	7.7	3.1
		9.0	106.5	29.4	2.60	20.5	3.3	31.5	1.1	2.5	2.9	106.7	30.0	2.60	21.1	3.4	33.4	2.2	5.1	3.0	106.8	30.7	2.61	21.8	3.4	35.2	3.3	7.7	3.0
100	50	5.0	113.4	33.5	2.75	24.1	3.6	40.1	1.1	2.4	3.5	113.7	34.4	2.77	24.9	3.6	42.2	2.2	5.0	3.5	114.1	35.2	2.78	25.7	3.7	44.3	3.3	7.5	3.6
		7.0	110.5	33.6	2.71	24.4	3.6	39.9	1.1	2.4	3.4	110.7	34.4	2.72	25.2	3.7	42.1	2.2	5.0	3.4	111.0	35.2	2.73	25.9	3.8	44.2	3.3	7.5	3.5
		9.0	107.5	33.8	2.67	24.7	3.7	39.8	1.1	2.4	3.2	107.7	34.5	2.67	25.4	3.8	42.0	2.2	5.0	3.3	107.8	35.2	2.67	26.1	3.9	44.2	3.3	7.5	3.3
100	60	5.0	115.1	37.7	2.82	28.1	3.9	48.4	1.0	2.4	3.9	115.5	38.7	2.84	29.0	4.0	50.9	2.1	4.9	4.0	115.9	39.7	2.86	30.0	4.1	53.3	3.2	7.3	2.8
		7.0	111.8	37.9	2.77	28.5	4.0	48.3	1.0	2.4	3.8	112.1	38.9	2.79	29.3	4.1	50.8	2.1	4.9	3.8	112.4	39.8	2.80	30.2	4.2	53.3	3.2	7.3	2.7
		9.0	108.5	38.2	2.73	28.9	4.1	48.1	1.0	2.4	3.6	108.7	39.0	2.73	29.7	4.2	50.7	2.1	4.9	3.7	108.8	39.8	2.74	30.5	4.3	53.2	3.2	7.3	3.8
100	70	5.0	116.7	41.8	2.88	32.0	4.3	56.8	1.0	2.3	4.5	117.2	43.1	2.91	33.1	4.3	59.6	2.1	4.7	4.6	117.7	44.3	2.94	34.2	4.4	62.4	3.1	7.2	4.6
		7.0	113.1	42.2	2.84	32.5	4.4	56.6	1.0	2.3	4.3	113.4	43.3	2.85	33.5	4.4	59.5	2.1	4.7	4.4	113.8	44.3	2.87	34.5	4.5	62.3	3.1	7.2	4.4
		9.0	109.5	42.6	2.80	33.0	4.5	56.4	1.0	2.3	4.1	109.7	43.5	2.80	33.9	4.6	59.3	2.1	4.7	4.2	109.9	44.4	2.80	34.8	4.6	62.3	3.1	7.2	4.3
120	30	5.0	Operation Not Recommended																										
		7.0	127.6	24.3	3.17	13.5	2.3	24.4	1.1	2.5	2.6	127.7	24.7	3.16	13.9	2.3	25.6	2.3	5.2	2.6	127.8	25.1	3.16	14.3	2.3	26.7	3.4	7.9	2.7
		9.0	125.4	24.2	3.11	13.6	2.3	24.4	1.1	2.5	2.5	125.5	24.6	3.11	14.0	2.3	25.5	2.3	5.2	2.5	125.6	25.1	3.12	14.4	2.4	26.7	3.4	7.9	2.6
120	40	5.0	Operation Not Recommended																										
		7.0	128.8	28.2	3.23	17.2	2.6	32.9	1.1	2.5	2.9	128.9	28.7	3.23	17.7	2.6	34.4	2.2	5.1	2.9	129.1	29.2	3.23	18.1	2.6	36.0	3.3	7.7	3.0
		9.0	126.3	28.1	3.17	17.3	2.6	32.9	1.1	2.5	2.8	126.4	28.6	3.17	17.8	2.6	34.4	2.2	5.1	2.8	126.5	29.2	3.18	18.3	2.7	35.9	3.3	7.7	2.9
120	50	5.0	132.8	32.1	3.34	20.7	2.8	41.5	1.1	2.4	3.3	133.1	32.6	3.35	21.2	2.9	43.3	2.2	5.0	3.4	133.3	33.2	3.36	21.7	2.9	45.2	3.3	7.5	3.4
		7.0	130.0	32.1	3.28	20.9	2.9	41.4	1.1	2.4	3.2	130.2	32.6	3.29	21.4	2.9	43.3	2.2	5.0	3.2	130.3	33.2	3.30	22.0	3.0	45.1	3.3	7.5	3.3
		9.0	127.1	32.1	3.22	21.1	2.9	41.3	1.1	2.4	3.0	127.3	32.7	3.23	21.6	3.0	43.2	2.2	5.0	3.1	127.4	33.2	3.23	22.2	3.0	45.1	3.3	7.5	3.1
120	60	5.0	134.4	35.9	3.40	24.3	3.1	50.0	1.0	2.4	3.8	134.6	36.5	3.42	24.9	3.1	52.1	2.1	4.9	3.8	134.9	37.2	3.43	25.5	3.2	54.3	3.2	7.3	2.6
		7.0	131.2	36.0	3.34	24.6	3.2	49.9	1.0	2.4	3.6	131.4	36.6	3.35	25.2	3.2	52.0	2.1	4.9	3.6	131.6	37.3	3.36	25.8	3.2	54.3	3.2	7.3	2.5
		9.0	128.0	36.0	3.28	24.8	3.2	49.8	1.0	2.4	3.4	128.1	36.7	3.29	25.5	3.3	51.9	2.1	4.9	3.5	128.3	37.3	3.29	26.1	3.3	54.2	3.2	7.3	3.5
120	70	5.0	135.9	39.7	3.46	27.9	3.4	58.5	1.0	2.3	4.3	136.2	40.5	3.49	28.6	3.4	60.9	2.1	4.7	4.3	136.5	41.2	3.51	29.2	3.4	63.3	3.1	7.2	4.3
		7.0	132.4	39.8	3.40	28.2	3.4	58.4	1.0	2.3	4.1	132.6	40.6	3.42	28.9	3.5	60.8	2.1	4.7	4.1	132.8	41.3	3.43	29.6	3.5	63.2	3.1	7.2	4.1
		9.0	128.9	40.0	3.34	28.6	3.5	58.2	1.0	2.3	3.9	129.0	40.7	3.34	29.3	3.6	60.7	2.1	4.7	3.9	129.2	41.4	3.35	30.0	3.6	63.1	3.1	7.2	4.0

*Water heating mode only allows high compressor capacity operation.

038WHD

ELT = entering load fluid temperature to heat pump
LLT = leaving load fluid temperature from heat pump
LGPM = load flow in gallons per minute
LWPD = load coax water pressure drop
EST = entering source fluid temperature to heat pump
LST = leaving source fluid temperature from heat pump
HWC = desuperheater capacity

SWPD = source coax water pressure drop
PSI = pressure drop in pounds per square inch
FT HD = pressure drop in feet of head
KW = kilowatts
HE = heat extracted in BTUH
HC = total heating capacity in BTUH
COP = coefficient of performance [HC/(KW x 3.413)]

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY049 Low Speed - Performance Data

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	1.1	2.5	Operation not recommended							Operation not recommended							
	8.0	2.0	4.6															
	11.0	3.4	7.8	1150	22.0	2.06	15.0	87.7	3.13	4.1								
				1350	22.8	2.09	15.7	85.6	3.20	3.7								
30	5.0	1.1	2.5	Operation not recommended							Operation not recommended							
	8.0	2.0	4.6	1150	25.2	2.18	17.8	90.3	3.40	4.2	1150	34.8	20.8	0.60	1.25	39.1	27.8	-
				1350	26.0	2.19	18.5	87.8	3.48	3.8	1350	36.0	24.5	0.68	1.33	40.6	27.1	-
	11.0	3.4	7.8	1150	25.9	2.19	18.4	90.8	3.46	4.3	1150	34.9	20.7	0.59	1.17	38.9	29.8	-
				1350	26.8	2.23	19.2	88.4	3.53	3.9	1350	35.8	24.4	0.68	1.24	40.0	28.8	-
40	5.0	1.1	2.5	Operation not recommended							Operation not recommended							
	8.0	1.9	4.3	1150	29.6	2.24	21.9	93.8	3.87	4.5	1150	37.2	23.5	0.63	1.39	41.9	26.7	-
				1350	30.6	2.24	23.0	91.0	4.01	4.2	1350	38.4	27.6	0.72	1.47	43.4	26.1	-
	11.0	3.2	7.4	1150	30.6	2.25	22.9	94.6	3.97	4.7	1150	37.3	23.4	0.63	1.31	41.8	28.6	-
				1350	31.6	2.27	23.9	91.7	4.08	4.2	1350	38.4	27.6	0.72	1.38	43.1	27.8	-
50	5.0	1.1	2.5	1150	30.8	2.24	23.2	94.8	4.04	4.8	1150	39.3	26.5	0.68	1.80	45.4	21.8	1.6
				1350	31.8	2.24	24.2	91.8	4.17	4.4	1350	40.5	31.3	0.77	1.88	46.9	21.5	1.7
	8.0	1.8	4.2	1150	33.2	2.31	25.3	96.7	4.21	4.9	1150	40.1	26.7	0.66	1.56	45.5	25.7	1.5
				1350	34.5	2.29	26.6	93.6	4.40	4.5	1350	41.4	31.4	0.76	1.64	46.9	25.2	1.6
	11.0	3.1	7.1	1150	34.5	2.32	26.5	97.8	4.35	5.1	1150	40.4	26.7	0.66	1.47	45.4	27.4	1.4
				1350	35.6	2.32	27.7	94.4	4.49	4.6	1350	41.6	31.4	0.75	1.55	46.9	26.9	1.5
60	5.0	1.0	2.3	1150	34.2	2.34	26.2	97.5	4.29	5.2	1150	37.1	25.4	0.68	1.96	43.8	19.0	2.3
				1350	35.4	2.32	27.5	94.3	4.47	4.8	1350	38.3	30.0	0.78	2.04	45.3	18.7	2.4
	8.0	1.8	4.0	1150	37.0	2.40	28.8	99.8	4.52	5.4	1150	37.8	25.6	0.68	1.74	43.7	21.7	2.1
				1350	38.4	2.37	30.3	96.3	4.76	5.0	1350	38.9	30.2	0.77	1.82	45.1	21.4	2.3
	11.0	3.0	6.9	1150	38.6	2.42	30.3	101.0	4.67	5.5	1150	38.2	25.7	0.67	1.65	43.8	23.1	1.9
				1350	39.9	2.39	31.8	97.4	4.90	5.1	1350	39.3	30.2	0.77	1.72	45.2	22.8	2.2
70	5.0	1.0	2.3	1150	37.6	2.41	29.4	100.3	4.57	5.8	1150	36.2	25.5	0.71	2.16	43.5	16.7	3.0
				1350	39.1	2.38	31.0	96.8	4.81	5.4	1350	37.3	30.0	0.80	2.26	45.0	16.5	3.1
	8.0	1.7	3.9	1150	40.8	2.45	32.5	102.9	4.88	6.0	1150	36.5	25.8	0.70	1.96	43.2	18.7	2.8
				1350	42.4	2.41	34.2	99.1	5.16	5.5	1350	37.7	30.3	0.80	2.04	44.6	18.4	3.0
	11.0	2.9	6.7	1150	42.7	2.48	34.2	104.4	5.04	6.1	1150	37.2	25.9	0.70	1.87	43.5	19.9	2.6
				1350	44.3	2.43	36.0	100.4	5.35	5.7	1350	38.3	30.4	0.79	1.94	44.9	19.7	2.8
80	5.0	0.9	2.1	1150	40.0	2.48	31.5	102.2	4.73	6.5	1150	35.6	25.7	0.72	2.35	43.7	15.2	4.2
				1350	41.5	2.44	33.2	98.5	5.00	6.0	1350	36.8	30.2	0.82	2.45	45.1	15.0	4.4
	8.0	1.6	3.8	1150	43.4	2.51	34.9	105.0	5.08	6.7	1150	35.8	26.0	0.73	2.18	43.3	16.4	3.9
				1350	45.2	2.44	36.8	101.0	5.42	6.1	1350	36.9	30.6	0.83	2.27	44.7	16.3	4.2
	11.0	2.8	6.5	1150	45.6	2.53	37.0	106.7	5.28	6.9	1150	36.6	26.2	0.72	2.09	43.8	17.5	3.6
				1350	47.4	2.46	39.0	102.5	5.64	6.3	1350	37.8	30.8	0.82	2.18	45.2	17.4	4.0
90	5.0	0.9	2.1	1150	42.4	2.53	33.8	104.2	4.91	7.2	1150	32.9	24.2	0.73	2.56	41.7	12.8	5.4
				1350	44.1	2.48	35.6	100.2	5.22	6.7	1350	34.0	28.4	0.84	2.67	43.1	12.7	5.7
	8.0	1.6	3.7	1150	46.1	2.55	37.4	107.1	5.31	7.4	1150	32.9	24.5	0.74	2.43	41.2	13.5	5.0
				1350	48.0	2.46	39.6	102.9	5.72	6.9	1350	33.9	28.8	0.85	2.52	42.5	13.4	5.5
	11.0	2.8	6.5	1150	48.7	2.57	39.9	109.2	5.54	7.7	1150	33.9	24.7	0.73	2.33	41.8	14.5	4.7
				1350	50.7	2.49	42.2	104.8	5.97	7.1	1350	34.9	29.1	0.83	2.43	43.2	14.4	5.2
100	5.0	0.9	2.1	Operation not recommended							Operation not recommended							
	8.0	1.5	3.5								1150	31.5	24.6	0.78	2.72	40.8	11.6	6.6
											1350	32.5	29.0	0.89	2.83	42.1	11.5	7.2
	11.0	2.6	6.0								1150	32.7	24.9	0.76	2.63	41.7	12.5	6.2
											1350	33.7	29.3	0.87	2.74	43.0	12.3	6.8
110	5.0	0.9	2.1								Operation not recommended							
	8.0	1.5	3.4								1150	28.2	23.0	0.82	3.02	38.5	9.3	8.4
											1350	29.2	27.1	0.93	3.15	39.9	9.3	9.1
	11.0	2.5	5.8								1150	29.6	23.4	0.79	2.93	39.6	10.1	7.8
											1350	30.4	27.5	0.90	3.06	40.8	10.0	8.6
120	5.0	0.8	1.8								Operation not recommended							
	8.0	1.4	3.2								1150	25.5	22.1	0.86	3.36	37.0	7.6	10.2
											1350	26.4	26.0	0.98	3.51	38.4	7.5	11.0
	11.0	2.4	5.6								1150	27.0	22.6	0.84	3.26	38.1	8.3	9.4
											1350	27.7	26.5	0.96	3.42	39.4	8.1	10.5

049LOW 2/21/2011

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY049 High Speed - Performance Data

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	27.5	2.53	18.8	88.9	3.18	4.7								
				1550	28.4	2.61	19.5	87.0	3.18	4.2								
30	6.0	1.2	2.9	Operation not recommended							Operation not recommended							
	9.0	2.4	5.5	1350	31.0	2.49	22.5	91.2	3.64	4.9	1350	39.9	26.3	0.66	1.75	45.9	22.8	-
				1550	31.9	2.57	23.2	89.1	3.64	4.5	1550	42.4	29.3	0.69	1.87	48.7	22.7	-
	12.0	3.9	8.9	1350	31.5	2.52	22.9	91.6	3.66	5.0	1350	40.4	26.3	0.65	1.67	46.1	24.2	-
				1550	32.5	2.60	23.6	89.4	3.67	4.6	1550	42.7	29.2	0.68	1.78	48.8	24.0	-
40	6.0	1.2	2.8	Operation not recommended							Operation not recommended							
	9.0	2.3	5.3	1350	36.8	2.69	27.6	95.2	4.01	5.6	1350	42.4	29.9	0.70	1.92	49.0	22.1	-
				1550	37.9	2.75	28.5	92.6	4.04	5.2	1550	44.9	33.2	0.74	2.03	51.8	22.1	-
	12.0	3.7	8.6	1350	37.5	2.72	28.2	95.7	4.04	5.8	1350	42.9	29.9	0.70	1.84	49.2	23.4	-
				1550	38.7	2.77	29.2	93.1	4.09	5.3	1550	45.2	33.2	0.73	1.95	51.9	23.2	-
50	6.0	1.2	2.7	1350	39.6	2.77	30.1	97.1	4.18	6.1	1350	44.9	33.3	0.74	2.29	52.7	19.6	2.7
				1550	40.8	2.81	31.3	94.4	4.26	5.6	1550	47.3	37.0	0.78	2.41	55.5	19.6	2.9
	9.0	2.2	5.2	1350	41.1	2.83	31.5	98.2	4.26	6.3	1350	45.4	33.8	0.74	2.14	52.8	21.2	2.5
				1550	42.3	2.87	32.5	95.3	4.32	5.8	1550	47.9	37.6	0.79	2.25	55.6	21.3	2.7
	12.0	3.6	8.4	1350	41.9	2.86	32.2	98.8	4.30	6.5	1350	45.9	33.9	0.74	2.06	53.0	22.3	2.3
				1550	43.3	2.90	33.4	95.9	4.38	5.9	1550	48.3	37.7	0.78	2.17	55.7	22.2	2.6
60	6.0	1.1	2.6	1350	43.7	2.85	33.9	99.9	4.49	6.9	1350	42.9	32.2	0.75	2.39	51.1	17.9	3.2
				1550	45.0	2.86	35.3	96.9	4.61	6.4	1550	45.0	35.7	0.79	2.50	53.5	18.0	3.4
	9.0	2.2	5.0	1350	45.6	2.92	35.7	101.3	4.58	7.1	1350	43.6	32.6	0.75	2.26	51.3	19.3	3.0
				1550	47.0	2.94	37.0	98.1	4.69	6.6	1550	45.7	36.2	0.79	2.36	53.8	19.4	3.2
	12.0	3.5	8.1	1350	46.7	2.96	36.6	102.0	4.63	7.3	1350	44.1	32.8	0.74	2.19	51.5	20.1	2.7
				1550	48.2	2.97	38.1	98.8	4.76	6.7	1550	46.2	36.4	0.79	2.29	54.0	20.2	3.1
70	6.0	1.1	2.5	1350	48.0	2.96	37.9	102.9	4.75	7.9	1350	42.0	33.1	0.79	2.68	51.1	15.7	3.9
				1550	49.5	2.95	39.4	99.5	4.91	7.3	1550	43.8	36.8	0.84	2.78	53.3	15.8	4.2
	9.0	2.1	4.8	1350	50.3	3.05	39.9	104.5	4.84	8.1	1350	42.9	33.5	0.78	2.55	51.6	16.8	3.7
				1550	51.9	3.04	41.5	101.0	5.00	7.5	1550	44.8	37.2	0.83	2.65	53.8	16.9	4.0
	12.0	3.4	7.8	1350	51.6	3.09	41.1	105.4	4.90	8.4	1350	43.3	33.7	0.78	2.48	51.8	17.5	3.4
				1550	53.3	3.07	42.8	101.8	5.09	7.7	1550	45.3	37.5	0.83	2.58	54.1	17.6	3.8
80	6.0	1.1	2.5	1350	50.1	3.03	39.7	104.3	4.84	8.7	1350	41.3	32.6	0.79	2.86	51.0	14.5	5.1
				1550	51.7	3.00	41.5	100.9	5.06	8.1	1550	43.0	36.1	0.84	2.94	53.0	14.6	5.4
	9.0	2.0	4.7	1350	52.9	3.14	42.1	106.3	4.93	9.0	1350	42.4	32.9	0.78	2.75	51.7	15.4	4.7
				1550	54.6	3.10	44.0	102.6	5.16	8.3	1550	44.1	36.5	0.83	2.83	53.7	15.6	5.1
	12.0	3.3	7.6	1350	54.4	3.18	43.5	107.3	5.01	9.3	1350	42.8	33.2	0.78	2.68	52.0	16.0	4.4
				1550	56.2	3.14	45.5	103.6	5.25	8.6	1550	44.5	36.9	0.83	2.76	54.0	16.1	4.9
90	6.0	1.0	2.4	1350	52.3	3.11	41.7	105.9	4.94	9.7	1350	38.5	29.9	0.78	2.99	48.7	12.9	6.3
				1550	54.1	3.05	43.7	102.3	5.21	9.0	1550	39.9	33.1	0.83	3.06	50.3	13.0	6.7
	9.0	2.0	4.5	1350	55.6	3.24	44.5	108.1	5.03	10.0	1350	39.6	30.2	0.76	2.91	49.6	13.6	5.9
				1550	57.4	3.17	46.6	104.3	5.31	9.3	1550	41.1	33.4	0.81	2.97	51.3	13.9	6.4
	12.0	3.2	7.3	1350	57.3	3.27	46.1	109.3	5.13	10.3	1350	40.1	30.4	0.76	2.85	49.8	14.1	5.5
				1550	59.2	3.21	48.3	105.4	5.41	9.6	1550	41.5	33.8	0.81	2.91	51.4	14.3	6.1
100	6.0	1.0	2.3	Operation not recommended							Operation not recommended							
	9.0	1.9	4.3								1350	38.6	30.9	0.80	3.38	50.2	11.4	7.5
											1550	39.9	34.2	0.86	3.43	51.6	11.7	8.1
	12.0	3.1	7.0								1350	39.1	31.2	0.80	3.32	50.4	11.7	7.0
											1550	40.3	34.6	0.86	3.37	51.8	12.0	7.7
110	6.0	1.0	2.2	Operation not recommended							Operation not recommended							
	9.0	1.8	4.2								1350	35.7	28.4	0.80	3.77	48.5	9.5	9.3
											1550	36.7	31.4	0.86	3.80	49.6	9.7	10.1
	12.0	2.9	6.8								1350	36.0	28.8	0.80	3.72	48.7	9.7	8.7
											1550	37.0	31.9	0.86	3.75	49.8	9.9	9.6
120	6.0	0.9	2.1								Operation not recommended							
	9.0	1.7	4.0								1350	33.0	27.6	0.84	4.19	47.3	7.9	11.3
											1550	33.8	30.4	0.90	4.18	48.1	8.1	12.2
	12.0	2.8	6.5								1350	33.3	28.0	0.84	4.15	47.5	8.0	10.5
											1550	34.1	31.0	0.91	4.14	48.2	8.2	11.6

049HIGH

2/21/2011

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY049 Water Heating Data

			SOURCE 6.0 GPM						SWPD		HWC	SOURCE 9.0 GPM						SWPD		HWC	SOURCE 12.0 GPM						SWPD		HWC
ELT	EST	LGPM	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh
80	30	6.0	Operation Not Recommended																										
		9.0	88.0	32.1	2.54	23.5	3.7	21.9	1.2	2.8	4.6	88.3	33.1	2.56	24.4	3.8	23.8	2.7	6.2	4.7	88.5	34.0	2.57	25.2	3.9	25.7	4.2	9.7	4.8
		12.0	85.3	32.1	2.49	23.6	3.8	21.9	1.2	2.8	4.4	85.5	33.0	2.50	24.5	3.9	23.8	2.7	6.2	4.5	85.7	33.9	2.51	25.4	4.0	25.6	4.2	9.7	4.6
80	40	6.0	Operation Not Recommended																										
		9.0	89.3	37.0	2.58	28.2	4.2	30.3	1.2	2.7	5.3	89.6	38.2	2.59	29.4	4.3	32.6	2.6	6.1	5.4	89.9	39.4	2.60	30.5	4.4	34.9	4.1	9.4	5.5
		12.0	86.2	37.0	2.52	28.4	4.3	30.2	1.2	2.7	5.1	86.4	38.2	2.52	29.6	4.4	32.5	2.6	6.1	5.2	86.6	39.4	2.53	30.7	4.6	34.9	4.1	9.4	5.3
80	50	6.0	94.0	41.9	2.68	32.8	4.6	38.7	1.2	2.7	6.1	94.5	43.4	2.70	34.2	4.7	41.4	2.6	5.9	6.3	94.9	44.8	2.72	35.6	4.8	44.1	4.0	9.1	6.4
		9.0	90.5	41.9	2.61	33.0	4.7	38.7	1.2	2.7	5.9	90.8	43.4	2.62	34.4	4.8	41.3	2.6	5.9	6.0	91.2	44.8	2.64	35.8	5.0	44.0	4.0	9.1	6.2
		12.0	87.0	41.9	2.54	33.2	4.8	38.6	1.2	2.7	5.7	87.2	43.3	2.55	34.6	5.0	41.3	2.6	5.9	5.8	87.5	44.8	2.56	36.1	5.1	44.0	4.0	9.1	5.9
80	60	6.0	95.6	46.8	2.72	37.5	5.0	47.1	1.1	2.6	7.0	96.2	48.5	2.74	39.2	5.2	50.2	2.5	5.7	7.1	96.7	50.2	2.76	40.8	5.3	53.2	3.8	8.8	7.3
		9.0	91.7	46.8	2.64	37.8	5.2	47.0	1.1	2.6	6.7	92.1	48.5	2.66	39.4	5.3	50.1	2.5	5.7	6.9	92.6	50.2	2.67	41.1	5.5	53.1	3.8	8.8	7.0
		12.0	87.8	46.8	2.56	38.0	5.3	46.9	1.1	2.6	6.5	88.1	48.5	2.57	39.7	5.5	50.0	2.5	5.7	6.6	88.4	50.2	2.58	41.4	5.7	53.1	3.8	8.8	6.7
80	70	6.0	97.2	51.7	2.76	42.2	5.5	55.5	1.1	2.5	8.0	97.9	53.6	2.79	44.1	5.6	58.9	2.4	5.5	8.2	98.5	55.6	2.81	46.0	5.8	62.3	3.7	8.5	8.3
		9.0	92.9	51.7	2.68	42.5	5.7	55.4	1.1	2.5	7.7	93.4	53.6	2.69	44.5	5.8	58.8	2.4	5.5	7.9	93.9	55.6	2.70	46.4	6.0	62.3	3.7	8.5	8.0
		12.0	88.6	51.7	2.59	42.8	5.8	55.3	1.1	2.5	7.4	88.9	53.7	2.59	44.8	6.1	58.7	2.4	5.5	7.6	89.3	55.7	2.60	46.8	6.3	62.2	3.7	8.5	7.7
100	30	6.0	Operation Not Recommended																										
		9.0	107.8	31.1	3.25	20.0	2.8	23.1	1.2	2.8	4.4	108.1	32.3	3.30	21.0	2.9	24.7	2.7	6.2	4.5	108.4	33.4	3.36	22.0	2.9	26.3	4.2	9.7	4.7
		12.0	105.2	31.2	3.20	20.2	2.9	23.0	1.2	2.8	4.3	105.3	31.9	3.20	21.0	2.9	24.7	2.7	6.2	4.3	105.4	32.7	3.21	21.7	3.0	26.4	4.2	9.7	4.4
100	40	6.0	Operation Not Recommended																										
		9.0	108.9	35.6	3.28	24.4	3.2	31.6	1.2	2.7	5.1	109.3	36.9	3.32	25.6	3.3	33.6	2.6	6.1	5.2	109.6	38.3	3.37	26.8	3.3	35.5	4.1	9.4	5.3
		12.0	105.9	35.7	3.21	24.7	3.3	31.5	1.2	2.7	4.9	106.1	36.7	3.22	25.7	3.3	33.5	2.6	6.1	5.0	106.3	37.7	3.23	26.7	3.4	35.6	4.1	9.4	5.0
100	50	6.0	113.4	40.1	3.39	28.5	3.5	40.2	1.2	2.7	5.9	113.9	41.7	3.45	30.0	3.5	42.5	2.6	5.9	6.0	114.5	43.4	3.51	31.4	3.6	44.8	4.0	9.1	6.2
		9.0	110.0	40.1	3.31	28.9	3.6	40.1	1.2	2.7	5.7	110.4	41.6	3.34	30.2	3.6	42.4	2.6	5.9	5.8	110.8	43.1	3.38	31.5	3.7	44.7	4.0	9.1	5.9
		12.0	106.7	40.2	3.23	29.2	3.6	40.0	1.2	2.7	5.5	106.9	41.5	3.24	30.4	3.8	42.3	2.6	5.9	5.5	107.1	42.7	3.25	31.6	3.9	44.7	4.0	9.1	5.6
100	60	6.0	114.9	44.6	3.42	32.9	3.8	48.7	1.1	2.6	6.7	115.4	46.3	3.47	34.5	3.9	51.3	2.5	5.7	6.8	116.0	48.0	3.52	36.0	4.0	54.0	3.8	8.8	7.0
		9.0	111.2	44.7	3.34	33.3	3.9	48.6	1.1	2.6	6.4	111.6	46.3	3.36	34.8	4.0	51.3	2.5	5.7	6.6	112.0	47.9	3.39	36.3	4.1	53.9	3.8	8.8	6.7
		12.0	107.5	44.8	3.25	33.7	4.0	48.4	1.1	2.6	6.2	107.7	46.3	3.26	35.1	4.2	51.2	2.5	5.7	6.3	108.0	47.7	3.26	36.6	4.3	53.9	3.8	8.8	6.4
100	70	6.0	116.4	49.1	3.46	37.3	4.2	57.2	1.1	2.5	7.6	117.0	50.9	3.49	38.9	4.3	60.2	2.4	5.5	7.7	117.5	52.6	3.53	40.6	4.4	63.2	3.7	8.5	7.9
		9.0	112.3	49.2	3.36	37.7	4.3	57.0	1.1	2.5	7.3	112.7	50.9	3.38	39.4	4.4	60.1	2.4	5.5	7.5	113.2	52.7	3.40	41.1	4.5	63.2	3.7	8.5	7.6
		12.0	108.2	49.3	3.27	38.2	4.4	56.9	1.1	2.5	7.1	108.5	51.0	3.27	39.9	4.6	60.0	2.4	5.5	7.2	108.8	52.8	3.28	41.6	4.7	63.1	3.7	8.5	7.3
120	30	6.0	Operation Not Recommended																										
		9.0	127.5	30.0	3.96	16.5	2.2	24.3	1.2	2.8	4.3	127.9	31.5	4.05	17.6	2.3	25.6	2.7	6.2	4.4	128.3	32.9	4.14	18.7	2.3	26.8	4.2	9.7	4.6
		12.0	125.0	30.2	3.90	16.9	2.3	24.2	1.2	2.8	4.1	125.1	30.8	3.91	17.5	2.3	25.5	2.7	6.2	4.2	125.2	31.4	3.91	18.0	2.3	26.9	4.2	9.7	4.2
120	40	6.0	Operation Not Recommended																										
		9.0	128.5	34.2	3.99	20.6	2.5	32.9	1.2	2.7	4.9	128.9	35.7	4.06	21.8	2.6	34.5	2.6	6.1	5.0	129.4	37.1	4.13	23.0	2.6	36.2	4.1	9.4	5.2
		12.0	125.7	34.4	3.91	21.1	2.6	32.8	1.2	2.7	4.7	125.9	35.2	3.92	21.8	2.6	34.5	2.6	6.1	4.8	126.0	36.0	3.92	22.6	2.7	36.2	4.1	9.4	4.8
120	50	6.0	132.7	38.2	4.09	24.2	2.7	41.7	1.2	2.7	5.6	133.4	40.1	4.20	25.8	2.8	43.6	2.6	5.9	5.8	134.0	42.0	4.31	27.3	2.9	45.4	4.0	9.1	6.0
		9.0	129.6	38.4	4.01	24.7	2.8	41.5	1.2	2.7	5.4	130.0	39.8	4.06	26.0	2.9	43.5	2.6	5.9	5.5	130.4	41.3	4.12	27.2	2.9	45.5	4.0	9.1	5.7
		12.0	126.4	38.6	3.92	25.2	2.9	41.3	1.2	2.7	5.2	126.6	39.6	3.93	26.2	3.0	43.4	2.6	5.9	5.3	126.8	40.6	3.94	27.2	3.0	45.5	4.0	9.1	5.4
120	60	6.0	134.1	42.4	4.13	28.3	3.0	50.3	1.1	2.6	6.3	134.7	44.1	4.20	29.8	3.1	52.5	2.5	5.7	6.5	135.3	45.8	4.28	31.2	3.1	54.8	3.8	8.8	6.6
		9.0	130.6	42.6	4.03	28.8	3.1	50.1	1.1	2.6	6.1	131.0	44.0	4.07	30.2	3.2	52.4	2.5	5.7	6.2	131.4	45.5	4.11	31.5	3.2	54.7	3.8	8.8	6.3
		12.0	127.1	42.8	3.93	29.4	3.2	49.9	1.1	2.6	5.9	127.3	44.0	3.94	30.6	3.3	52.3	2.5	5.7	6.0	127.5	45.2	3.95	31.8	3.4	54.7	3.8	8.8	6.1
120	70	6.0	135.5	46.5	4.16	32.3	3.3	58.9	1.1	2.5	7.2	136.0	48.1	4.20	33.8	3.4	61.4	2.4	5.5	7.3	136.6	49.7	4.24	35.2	3.4	64.0	3.7	8.5	7.4
		9.0	131.7	46.7	4.05	32.9	3.4	58.7	1.1	2.5	7.0	132.0	48.2	4.08	34.3	3.5	61.3	2.4	5.5	7.1	132.4	49.7	4.10	35.8	3.6	63.9	3.7	8.5	7.2
		12.0	127.8	47.0	3.94	33.5	3.5	58.5	1.1	2.5	6.7	128.1	48.4	3.95	34.9	3.6	61.1	2.4	5.5	6.8	128.3	49.8	3.96	36.3	3.7	63.8	3.7	8.5	6.9

*Water heating mode only allows high compressor capacity operation.

049WHD

ELT = entering load fluid temperature to heat pump
LLT = leaving load fluid temperature from heat pump
LGPM = load flow in gallons per minute
LWPD = load coax water pressure drop
EST = entering source fluid temperature to heat pump
LST = leaving source fluid temperature from heat pump
HWC = desuperheater capacity

SWPD = source coax water pressure drop
PSI = pressure drop in pounds per square inch
FT HD = pressure drop in feet of head
KW = kilowatts
HE = heat extracted in BTUH
HC = total heating capacity in BTUH
COP = coefficient of performance [HC/(KW x 3.413)]

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY064 Low Speed - Performance Data

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	1.2	2.8	Operation not recommended							Operation not recommended							
	10.0	2.7	6.2															
	14.0	5.1	11.8	1250	24.6	2.71	15.3	88.2	2.65	4.6								
				1500	25.4	2.75	16.0	85.7	2.71	4.2								
30	6.0	1.2	2.8	Operation not recommended							Operation not recommended							
	10.0	2.6	6.0	1250	28.1	2.77	18.6	90.8	2.97	4.6	1250	46.5	29.6	0.64	1.55	51.8	29.9	-
				1500	29.1	2.81	19.5	88.0	3.04	4.2	1500	47.9	33.8	0.70	1.62	53.4	29.5	-
	14.0	5.0	11.5	1250	29.1	2.77	19.6	91.6	3.08	4.7	1250	46.6	29.5	0.63	1.52	51.8	30.8	-
				1500	30.1	2.81	20.5	88.6	3.14	4.3	1500	47.8	33.7	0.70	1.60	53.3	29.9	-
40	6.0	1.2	2.8	Operation not recommended							Operation not recommended							
	10.0	2.5	5.8	1250	34.3	2.89	24.4	95.4	3.48	5.1	1250	48.9	31.5	0.64	1.74	54.8	28.0	-
				1500	35.2	2.90	25.4	91.8	3.57	4.6	1500	50.3	35.8	0.71	1.82	56.5	27.6	-
	14.0	4.8	11.1	1250	35.4	2.90	25.5	96.2	3.58	5.2	1250	49.0	31.4	0.64	1.70	54.8	28.7	-
				1500	36.4	2.90	26.4	92.4	3.67	4.8	1500	50.3	35.7	0.71	1.79	56.4	28.1	-
50	6.0	1.2	2.8	1250	38.7	2.92	28.7	98.7	3.88	5.3	1250	51.5	33.4	0.65	2.06	58.5	25.0	1.9
				1500	39.8	2.92	29.8	94.5	3.98	4.9	1500	53.0	37.9	0.72	2.17	60.4	24.4	2.0
	10.0	2.5	5.8	1250	39.3	2.98	29.1	99.1	3.87	5.5	1250	51.7	33.7	0.65	1.98	58.4	26.1	1.8
				1500	40.2	2.96	30.1	94.8	3.98	5.1	1500	53.2	38.2	0.72	2.08	60.2	25.6	1.9
	14.0	4.7	10.8	1250	40.5	3.00	30.3	100.0	3.96	5.7	1250	51.8	33.7	0.65	1.94	58.4	26.6	1.6
				1500	41.4	2.98	31.2	95.6	4.07	5.2	1500	53.3	38.2	0.72	2.04	60.3	26.2	1.8
60	6.0	1.1	2.5	1250	43.8	3.02	33.5	102.4	4.25	6.0	1250	48.8	32.4	0.66	2.26	56.6	21.6	2.6
				1500	44.7	2.99	34.5	97.6	4.38	5.5	1500	50.3	36.5	0.73	2.37	58.4	21.2	2.8
	10.0	2.4	5.5	1250	45.1	3.07	34.7	103.4	4.31	6.1	1250	49.0	32.7	0.67	2.19	56.5	22.4	2.5
				1500	45.9	3.03	35.5	98.3	4.44	5.7	1500	50.5	36.9	0.73	2.29	58.3	22.1	2.7
	14.0	4.5	10.4	1250	46.2	3.10	35.6	104.2	4.37	6.3	1250	49.3	32.7	0.66	2.15	56.6	22.9	2.3
				1500	46.9	3.06	36.5	99.0	4.50	5.8	1500	50.7	37.0	0.73	2.25	58.4	22.6	2.5
70	6.0	1.1	2.5	1250	49.1	3.12	38.4	106.4	4.61	6.7	1250	47.3	32.2	0.68	2.54	56.0	18.6	3.7
				1500	49.9	3.07	39.4	100.8	4.77	6.2	1500	48.8	36.1	0.74	2.65	57.8	18.4	3.9
	10.0	2.3	5.3	1250	51.2	3.17	40.3	107.9	4.73	7.0	1250	47.6	32.5	0.68	2.47	56.1	19.3	3.4
				1500	51.7	3.10	41.1	101.9	4.89	6.4	1500	49.1	36.5	0.74	2.58	57.9	19.1	3.7
	14.0	4.4	10.1	1250	52.1	3.21	41.2	108.6	4.76	7.2	1250	47.9	32.6	0.68	2.42	56.2	19.8	3.2
				1500	52.7	3.14	42.0	102.5	4.92	6.6	1500	49.4	36.7	0.74	2.52	58.0	19.6	3.5
80	6.0	1.0	2.3	1250	52.8	3.19	41.9	109.1	4.85	7.4	1250	46.0	32.1	0.70	2.85	55.7	16.1	5.1
				1500	53.3	3.12	42.6	102.9	5.00	6.9	1500	47.4	35.8	0.76	2.95	57.4	16.1	5.4
	10.0	2.2	5.1	1250	55.7	3.24	44.7	111.3	5.04	7.7	1250	46.4	32.4	0.70	2.78	55.8	16.7	4.8
				1500	56.0	3.15	45.3	104.6	5.22	7.1	1500	47.8	36.2	0.76	2.89	57.6	16.5	5.2
	14.0	4.2	9.7	1250	56.4	3.28	45.2	111.8	5.04	7.9	1250	46.7	32.6	0.70	2.73	56.0	17.1	4.4
				1500	56.6	3.19	45.7	105.0	5.20	7.3	1500	48.1	36.4	0.76	2.83	57.8	17.0	4.9
90	6.0	1.0	2.3	1250	56.7	3.26	45.6	112.0	5.10	8.3	1250	42.3	30.5	0.72	3.17	53.1	13.3	6.8
				1500	56.9	3.17	46.0	105.1	5.25	7.7	1500	43.6	33.8	0.78	3.26	54.7	13.4	7.2
	10.0	2.1	4.8	1250	60.5	3.31	49.2	114.8	5.36	8.6	1250	42.8	30.8	0.72	3.10	53.3	13.8	6.4
				1500	60.5	3.19	49.7	107.4	5.56	7.9	1500	44.0	34.3	0.78	3.21	55.0	13.7	6.9
	14.0	4.1	9.5	1250	60.9	3.36	49.5	115.1	5.31	8.8	1250	43.1	31.1	0.72	3.06	53.5	14.1	5.9
				1500	60.8	3.24	49.7	107.5	5.50	8.2	1500	44.5	34.6	0.78	3.15	55.3	14.1	6.6
100	6.0	1.0	2.3	Operation not recommended							Operation not recommended							
	10.0	2.1	4.8								1250	40.9	30.5	0.75	3.52	52.9	11.6	8.3
											1500	42.1	33.8	0.80	3.61	54.4	11.7	8.9
	14.0	3.9	9.1								1250	41.3	30.9	0.75	3.47	53.1	11.9	7.7
											1500	42.6	34.2	0.80	3.56	54.7	12.0	8.5
110	6.0	1.0	2.3	Operation not recommended							Operation not recommended							
	10.0	2.0	4.6								1250	36.7	28.9	0.79	3.94	50.1	9.3	10.4
											1500	37.8	31.7	0.84	4.02	51.5	9.4	11.3
	14.0	3.8	8.7								1250	37.1	29.4	0.79	3.88	50.4	9.6	9.7
											1500	38.3	32.2	0.84	3.96	51.8	9.7	10.7
120	6.0	0.9	2.1	Operation not recommended							Operation not recommended							
	10.0	1.9	4.4								1250	33.3	27.6	0.83	4.43	48.5	7.5	12.6
											1500	34.4	30.1	0.88	4.48	49.7	7.7	13.6
	14.0	3.6	8.4								1250	33.9	28.2	0.83	4.38	48.8	7.7	11.7
											1500	34.9	30.6	0.88	4.43	50.0	7.9	12.9

064LOW 2/21/2011

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY064 High Speed - Performance Data

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	2.0	4.6	Operation not recommended							Operation not recommended							
	12.0	3.9	9.0															
	16.0	6.5	15.1	1500	36.5	3.46	24.7	92.5	3.10	5.7								
				1800	37.4	3.62	25.1	89.2	3.03	5.2								
30	8.0	2.0	4.6	Operation not recommended							Operation not recommended							
	12.0	3.9	9.0	1500	42.6	3.56	30.4	96.3	3.50	6.1	1500	63.2	40.7	0.64	2.69	72.4	23.5	-
				1800	43.7	3.79	30.8	92.5	3.38	5.6	1800	63.8	44.4	0.70	2.85	73.5	22.4	-
	16.0	6.5	15.0	1500	43.2	3.65	30.7	96.6	3.46	6.3	1500	63.9	41.1	0.64	2.64	72.9	24.2	-
				1800	44.2	3.82	31.2	92.7	3.39	5.7	1800	64.3	44.7	0.70	2.81	73.9	22.9	-
40	8.0	1.9	4.4	Operation not recommended							Operation not recommended							
	12.0	3.7	8.5	1500	50.1	3.82	37.1	100.9	3.85	6.9	1500	66.0	42.4	0.64	2.93	76.0	22.5	-
				1800	51.3	3.98	37.7	96.4	3.77	6.3	1800	67.0	46.2	0.69	3.11	77.6	21.5	-
	16.0	6.2	14.2	1500	50.9	3.89	37.6	101.4	3.84	7.1	1500	66.7	42.9	0.64	2.88	76.6	23.1	-
				1800	52.0	4.02	38.3	96.8	3.79	6.5	1800	67.6	46.6	0.69	3.06	78.1	22.1	-
50	8.0	1.8	4.2	1500	53.3	3.97	39.8	102.9	3.93	7.4	1500	68.1	43.7	0.64	3.31	79.4	20.6	3.8
				1800	54.5	4.10	40.5	98.0	3.90	6.9	1800	69.5	47.5	0.68	3.52	81.5	19.8	4.0
	12.0	3.6	8.3	1500	56.4	4.05	42.6	104.8	4.08	7.7	1500	68.8	44.1	0.64	3.24	79.9	21.2	3.6
				1800	57.6	4.15	43.4	99.6	4.07	7.1	1800	70.2	48.0	0.68	3.44	81.9	20.4	3.9
	16.0	6.0	13.8	1500	57.4	4.10	43.4	105.4	4.11	7.9	1500	69.5	44.6	0.64	3.18	80.4	21.8	3.3
				1800	58.6	4.20	44.3	100.1	4.09	7.2	1800	70.9	48.4	0.68	3.38	82.4	21.0	3.7
60	8.0	1.8	4.2	1500	60.0	4.25	45.5	107.0	4.14	8.3	1500	65.9	43.0	0.65	3.51	77.9	18.8	4.6
				1800	61.3	4.32	46.5	101.5	4.16	7.7	1800	67.6	46.7	0.69	3.73	80.4	18.1	4.9
	12.0	3.5	8.1	1500	62.7	4.32	48.0	108.7	4.26	8.6	1500	66.6	43.4	0.65	3.44	78.3	19.4	4.3
				1800	64.1	4.37	49.1	103.0	4.29	7.9	1800	68.3	47.1	0.69	3.65	80.8	18.7	4.7
	16.0	5.8	13.3	1500	64.1	4.37	49.2	109.5	4.30	8.9	1500	67.3	43.8	0.65	3.38	78.8	19.9	4.0
				1800	65.5	4.42	50.4	103.7	4.35	8.1	1800	69.0	47.6	0.69	3.59	81.2	19.2	4.4
70	8.0	1.7	3.9	1500	66.5	4.52	51.1	111.1	4.32	9.4	1500	64.8	42.9	0.66	3.82	77.9	17.0	5.6
				1800	68.0	4.54	52.5	105.0	4.39	8.7	1800	66.8	46.6	0.70	4.07	80.7	16.4	6.0
	12.0	3.4	7.8	1500	69.0	4.58	53.4	112.6	4.41	9.7	1500	65.4	43.3	0.66	3.75	78.2	17.5	5.3
				1800	70.5	4.59	54.9	106.3	4.50	8.9	1800	67.6	47.0	0.70	3.98	81.2	17.0	5.7
	16.0	5.6	12.9	1500	70.7	4.64	54.9	113.7	4.47	10.0	1500	66.1	43.7	0.66	3.68	78.7	17.9	4.9
				1800	72.4	4.64	56.6	107.2	4.58	9.2	1800	68.2	47.5	0.70	3.92	81.6	17.4	5.4
80	8.0	1.6	3.7	1500	71.6	4.74	55.4	114.2	4.42	10.3	1500	62.7	42.1	0.67	4.15	76.8	15.1	7.3
				1800	73.2	4.72	57.1	107.7	4.55	9.6	1800	65.0	45.7	0.70	4.42	80.1	14.7	7.7
	12.0	3.3	7.6	1500	73.3	4.80	56.9	115.2	4.47	10.7	1500	63.3	42.4	0.67	4.07	77.2	15.6	6.8
				1800	75.0	4.75	58.8	108.6	4.63	9.9	1800	65.6	46.1	0.70	4.33	80.4	15.2	7.4
	16.0	5.4	12.5	1500	75.5	4.86	58.9	116.6	4.55	11.0	1500	63.9	42.9	0.67	4.00	77.6	16.0	6.3
				1800	77.4	4.80	61.0	109.8	4.72	10.1	1800	66.3	46.6	0.70	4.26	80.8	15.6	7.0
90	8.0	1.6	3.7	1500	76.6	4.98	59.6	117.3	4.51	11.4	1500	58.3	40.2	0.69	4.47	73.5	13.0	9.3
				1800	78.4	4.91	61.7	110.4	4.69	10.5	1800	60.9	43.7	0.72	4.76	77.1	12.8	9.8
	12.0	3.2	7.4	1500	77.6	5.03	60.4	117.9	4.52	11.7	1500	59.0	40.5	0.69	4.38	73.9	13.5	8.6
				1800	79.6	4.93	62.7	110.9	4.73	10.9	1800	61.4	44.1	0.72	4.66	77.3	13.2	9.4
	16.0	5.2	12.0	1500	80.3	5.10	62.9	119.6	4.62	12.1	1500	59.5	41.0	0.69	4.31	74.2	13.8	8.0
				1800	82.4	4.98	65.4	112.4	4.85	11.2	1800	62.1	44.5	0.72	4.59	77.8	13.5	8.9
100	8.0	1.5	3.5	Operation not recommended							Operation not recommended							
	12.0	3.0	6.9								1500	56.3	39.7	0.70	4.82	72.8	11.7	10.5
											1800	59.0	43.1	0.73	5.14	76.5	11.5	11.4
	16.0	5.0	11.6								1500	56.9	40.1	0.71	4.74	73.0	12.0	9.8
											1800	59.6	43.6	0.73	5.05	76.8	11.8	10.9
110	8.0	1.5	3.5	Operation not recommended							Operation not recommended							
	12.0	2.9	6.7								1500	50.8	37.3	0.74	5.21	68.6	9.8	13.6
											1800	53.5	40.5	0.76	5.55	72.5	9.6	14.8
	16.0	4.8	11.1								1500	51.3	37.7	0.74	5.11	68.7	10.0	12.7
											1800	54.0	41.0	0.76	5.46	72.6	9.9	14.1
120	8.0	1.4	3.2								Operation not recommended							
	12.0	2.7	6.2								1500	46.7	35.6	0.76	5.75	66.3	8.1	16.5
											1800	49.5	38.7	0.78	6.14	70.4	8.1	17.9
	16.0	4.6	10.7								1500	47.2	36.0	0.76	5.64	66.4	8.4	15.3
											1800	49.9	39.1	0.78	6.03	70.5	8.3	17.0

064HIGH 2/21/2011

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY064 Water Heating Data

			SOURCE 8.0 GPM						SWPD		HWC	SOURCE 12.0 GPM						SWPD		HWC	SOURCE 16.0 GPM						SWPD		HWC
ELT	EST	LGPM	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh
80	30	8.0	Operation Not Recommended																										
		12.0	88.1	43.3	3.57	31.1	3.6	22.0	2.0	4.6	5.7	88.4	44.7	3.58	32.4	3.7	23.8	4.5	10.4	5.8	88.6	46.0	3.59	33.8	3.8	25.6	7.0	16.2	5.9
		16.0	85.4	43.2	3.49	31.3	3.6	21.9	2.0	4.6	5.5	85.6	44.6	3.50	32.7	3.7	23.8	4.5	10.4	5.6	85.8	46.0	3.51	34.0	3.8	25.6	7.0	16.2	5.7
80	40	8.0	Operation Not Recommended																										
		12.0	89.5	50.5	3.65	38.0	4.1	30.2	1.9	4.4	6.4	89.9	52.6	3.67	40.1	4.2	32.4	4.4	10.1	6.6	90.3	54.8	3.69	42.2	4.3	34.7	6.8	15.7	6.7
		16.0	86.3	50.5	3.55	38.4	4.2	30.1	1.9	4.4	6.2	86.6	52.7	3.57	40.5	4.3	32.4	4.4	10.1	6.3	86.8	54.8	3.59	42.5	4.5	34.7	6.8	15.7	6.5
80	50	8.0	94.3	57.4	3.85	44.2	4.4	38.6	1.9	4.3	7.5	95.1	60.4	3.88	47.2	4.6	41.2	4.2	9.8	7.6	95.9	63.5	3.91	50.1	4.8	43.7	6.6	15.2	7.8
		12.0	90.8	57.6	3.73	44.9	4.5	38.4	1.9	4.3	7.2	91.3	60.6	3.76	47.7	4.7	41.1	4.2	9.8	7.4	91.9	63.5	3.79	50.6	4.9	43.7	6.6	15.2	7.5
		16.0	87.2	57.8	3.61	45.5	4.7	38.3	1.9	4.3	6.9	87.6	60.7	3.64	48.3	4.9	40.9	4.2	9.8	7.1	87.9	63.6	3.67	51.0	5.1	43.6	6.6	15.2	7.2
80	60	8.0	96.1	64.4	3.95	50.9	4.8	46.9	1.8	4.1	8.4	97.1	68.3	3.99	54.7	5.0	49.8	4.1	9.4	8.6	98.1	72.2	4.03	58.5	5.2	52.7	6.4	14.8	8.8
		12.0	92.1	64.8	3.81	51.8	5.0	46.7	1.8	4.1	8.1	92.8	68.5	3.85	55.4	5.2	49.6	4.1	9.4	8.3	93.5	72.3	3.89	59.0	5.4	52.6	6.4	14.8	8.5
		16.0	88.1	65.2	3.67	52.7	5.2	46.4	1.8	4.1	7.8	88.6	68.8	3.71	56.1	5.4	49.5	4.1	9.4	8.0	89.0	72.3	3.75	59.5	5.7	52.6	6.4	14.8	8.1
80	70	8.0	97.8	71.4	4.05	57.5	5.2	55.2	1.7	3.9	9.5	99.0	76.1	4.10	62.1	5.4	58.4	4.0	9.1	9.7	100.2	80.9	4.15	66.8	5.7	61.7	6.2	14.3	9.9
		12.0	93.5	71.9	3.89	58.7	5.4	54.9	1.7	3.9	9.2	94.3	76.5	3.94	63.0	5.7	58.2	4.0	9.1	9.4	95.2	81.0	3.99	67.4	6.0	61.6	6.2	14.3	9.5
		16.0	89.1	72.5	3.73	59.8	5.7	54.6	1.7	3.9	8.8	89.6	76.8	3.78	63.9	6.0	58.0	4.0	9.1	9.0	90.1	81.1	3.83	68.0	6.2	61.5	6.2	14.3	9.2
100	30	8.0	Operation Not Recommended																										
		12.0	107.9	42.3	4.56	26.7	2.7	23.1	2.0	4.6	5.6	108.1	43.4	4.57	27.8	2.8	24.8	4.5	10.4	5.6	108.4	44.5	4.58	28.9	2.8	26.4	7.0	16.2	5.7
		16.0	105.3	42.3	4.48	27.0	2.8	23.0	2.0	4.6	5.4	105.4	43.4	4.49	28.1	2.8	24.7	4.5	10.4	5.4	105.6	44.5	4.50	29.2	2.9	26.4	7.0	16.2	5.5
100	40	8.0	Operation Not Recommended																										
		12.0	109.2	48.9	4.62	33.1	3.1	31.5	1.9	4.4	6.2	109.5	50.7	4.64	34.8	3.2	33.4	4.4	10.1	6.3	109.8	52.4	4.67	36.5	3.3	35.4	6.8	15.7	6.4
		16.0	106.1	49.0	4.49	33.6	3.2	31.3	1.9	4.4	6.0	106.3	50.7	4.52	35.3	3.3	33.4	4.4	10.1	6.1	106.6	52.5	4.55	37.0	3.4	35.4	6.8	15.7	6.2
100	50	8.0	113.8	55.4	4.84	38.9	3.4	40.0	1.9	4.3	7.2	114.4	57.8	4.86	41.2	3.5	42.3	4.2	9.8	7.3	115.0	60.2	4.89	43.5	3.6	44.6	6.6	15.2	7.4
		12.0	110.4	55.5	4.67	39.6	3.5	39.8	1.9	4.3	6.9	110.9	57.9	4.71	41.8	3.6	42.1	4.2	9.8	7.0	111.3	60.4	4.75	44.1	3.7	44.5	6.6	15.2	7.1
		16.0	107.0	55.6	4.51	40.2	3.6	39.6	1.9	4.3	6.7	107.3	58.1	4.56	42.5	3.7	42.0	4.2	9.8	6.8	107.6	60.5	4.61	44.8	3.8	44.4	6.6	15.2	6.9
100	60	8.0	115.5	62.0	4.94	45.1	3.7	48.4	1.8	4.1	8.1	116.2	65.0	4.96	48.0	3.8	51.0	4.1	9.4	8.2	117.0	68.0	4.99	50.9	4.0	53.6	6.4	14.8	8.3
		12.0	111.6	62.1	4.73	46.0	3.8	48.2	1.8	4.1	7.8	112.2	65.2	4.78	48.9	4.0	50.8	4.1	9.4	7.9	112.8	68.3	4.83	51.8	4.1	53.5	6.4	14.8	8.0
		16.0	107.8	62.3	4.52	46.8	4.0	47.9	1.8	4.1	7.5	108.2	65.4	4.60	49.7	4.2	50.7	4.1	9.4	7.6	108.6	68.6	4.67	52.6	4.3	53.4	6.4	14.8	7.7
100	70	8.0	117.1	68.5	5.03	51.3	4.0	56.8	1.7	3.9	9.1	118.0	72.1	5.07	54.9	4.2	59.7	4.0	9.1	9.2	118.9	75.8	5.10	58.4	4.4	62.7	6.2	14.3	9.3
		12.0	112.9	68.7	4.79	52.4	4.2	56.5	1.7	3.9	8.8	113.6	72.4	4.85	55.9	4.4	59.5	4.0	9.1	8.9	114.3	76.2	4.92	59.4	4.5	62.6	6.2	14.3	9.0
		16.0	108.6	68.9	4.54	53.4	4.5	56.2	1.7	3.9	8.4	109.1	72.7	4.64	56.9	4.6	59.3	4.0	9.1	8.5	109.6	76.6	4.73	60.4	4.7	62.4	6.2	14.3	8.7
120	30	8.0	Operation Not Recommended																										
		12.0	127.7	41.3	5.56	22.3	2.2	24.2	2.0	4.6	5.4	127.9	42.2	5.57	23.2	2.2	25.6	4.5	10.4	5.5	128.1	43.0	5.58	24.0	2.3	26.9	7.0	16.2	5.5
		16.0	125.2	41.4	5.47	22.8	2.2	24.1	2.0	4.6	5.2	125.3	42.2	5.48	23.5	2.3	25.5	4.5	10.4	5.3	125.4	43.0	5.48	24.3	2.3	26.9	7.0	16.2	5.3
120	40	8.0	Operation Not Recommended																										
		12.0	128.9	47.3	5.59	28.3	2.5	32.7	1.9	4.4	6.0	129.1	48.7	5.61	29.6	2.5	34.4	4.4	10.1	6.1	129.4	50.1	5.64	30.9	2.6	36.1	6.8	15.7	6.1
		16.0	125.9	47.4	5.44	28.8	2.6	32.6	1.9	4.4	5.8	126.1	48.8	5.48	30.1	2.6	34.3	4.4	10.1	5.9	126.3	50.3	5.52	31.4	2.7	36.1	6.8	15.7	5.9
120	50	8.0	133.4	53.4	5.83	33.5	2.7	41.4	1.9	4.3	7.0	133.8	55.1	5.84	35.2	2.8	43.4	4.2	9.8	7.0	134.2	56.8	5.86	36.8	2.8	45.4	6.6	15.2	7.0
		12.0	130.0	53.4	5.62	34.2	2.8	41.2	1.9	4.3	6.7	130.4	55.3	5.66	36.0	2.9	43.2	4.2	9.8	6.7	130.7	57.2	5.71	37.7	2.9	45.3	6.6	15.2	6.8
		16.0	126.7	53.4	5.41	34.9	2.9	41.0	1.9	4.3	6.4	126.9	55.5	5.48	36.7	3.0	43.1	4.2	9.8	6.5	127.2	57.5	5.56	38.6	3.0	45.2	6.6	15.2	6.5
120	60	8.0	134.9	59.6	5.92	39.3	2.9	49.9	1.8	4.1	7.8	135.4	61.6	5.94	41.4	3.0	52.2	4.1	9.4	7.8	135.9	63.7	5.95	43.4	3.1	54.6	6.4	14.8	7.7
		12.0	131.2	59.5	5.65	40.2	3.1	49.6	1.8	4.1	7.5	131.6	61.9	5.71	42.4	3.2	52.0	4.1	9.4	7.5	132.0	64.3	5.77	44.5	3.3	54.4	6.4	14.8	7.5
		16.0	127.4	59.3	5.38	41.0	3.2	49.4	1.8	4.1	7.1	127.8	62.1	5.49	43.3	3.3	51.8	4.1	9.4	7.2	128.1	64.8	5.60	45.7	3.4	54.3	6.4	14.8	7.3
120	70	8.0	136.4	65.7	6.02	45.2	3.2	58.4	1.7	3.9	8.8	137.0	68.1	6.03	47.6	3.3	61.0	4.0	9.1	8.7	137.6	70.6	6.05	50.0	3.4	63.6	6.2	14.3	8.6
		12.0	132.3	65.5	5.68	46.1	3.4	58.1	1.7	3.9	8.3	132.8	68.4	5.76	48.8	3.5	60.7	4.0	9.1	8.4	133.3	71.3	5.84	51.4	3.6	63.4	6.2	14.3	8.4
		16.0	128.2	65.3	5.35	47.1	3.6	57.9	1.7	3.9	7.9	128.6	68.7	5.49	49.9	3.7	60.5	4.0	9.1	8.0	129.0	72.0	5.64	52.8	3.7	63.2	6.2	14.3	8.1

*Water heating mode only allows high compressor capacity operation.

064WHD

ELT = entering load fluid temperature to heat pump
LLT = leaving load fluid temperature from heat pump
LGPM = load flow in gallons per minute
LWPD = load coax water pressure drop
EST = entering source fluid temperature to heat pump
LST = leaving source fluid temperature from heat pump
HWC = desuperheater capacity

SWPD = source coax water pressure drop
PSI = pressure drop in pounds per square inch
FT HD = pressure drop in feet of head
KW = kilowatts
HE = heat extracted in BTUH
HC = total heating capacity in BTUH
COP = coefficient of performance [HC/(KW x 3.413)]

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY072 Low Speed - Performance Data

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	2.7	6.2	Operation not recommended							Operation not recommended							
	13.0	3.6	8.2															
	16.0	6.6	15.2	1400	32.4	3.36	21.0	91.4	2.83	5.9								
				1700	33.2	3.50	21.3	88.1	2.78	5.3								
30	10.0	2.6	6.0	Operation not recommended							Operation not recommended							
	13.0	3.4	7.8	1400	36.2	3.38	24.7	93.9	3.14	5.5	1400	55.1	33.7	0.61	1.82	61.3	30.3	-
				1700	38.0	3.42	26.3	90.7	3.25	5.0	1700	57.0	38.7	0.68	1.94	63.6	29.4	-
	16.0	6.5	15.0	1400	37.8	3.38	26.2	95.0	3.28	5.7	1400	55.2	33.6	0.61	1.75	61.2	31.6	-
				1700	36.0	3.54	23.9	89.6	2.98	5.1	1700	55.4	36.9	0.67	2.34	63.3	23.7	-
40	10.0	2.6	6.0	Operation not recommended							Operation not recommended							
	13.0	3.4	7.7	1400	42.6	3.48	30.7	98.1	3.58	6.5	1400	57.7	35.7	0.62	2.00	64.5	28.9	-
				1700	44.4	3.49	32.5	94.2	3.73	5.9	1700	59.5	40.8	0.68	2.12	66.7	28.1	-
	16.0	6.3	14.5	1400	44.1	3.49	32.1	99.1	3.70	6.7	1400	57.8	35.6	0.62	1.93	64.4	29.9	-
				1700	46.0	3.50	34.1	95.1	3.85	6.1	1700	59.5	40.7	0.68	2.06	66.5	28.9	-
50	10.0	2.5	5.8	1400	47.6	3.52	35.6	101.5	3.96	6.8	1400	59.7	37.3	0.62	2.30	67.6	25.9	2.3
				1700	49.7	3.48	37.8	97.1	4.18	6.3	1700	61.6	42.2	0.69	2.42	69.8	25.4	2.4
	13.0	3.3	7.6	1400	48.3	3.56	36.1	101.9	3.98	7.0	1400	59.9	37.6	0.63	2.22	67.5	26.9	2.1
				1700	50.2	3.54	38.2	97.4	4.16	6.4	1700	61.7	42.7	0.69	2.34	69.7	26.4	2.3
	16.0	6.1	14.1	1400	49.7	3.58	37.5	102.9	4.07	7.2	1400	60.0	37.6	0.63	2.16	67.4	27.7	2.0
				1700	52.6	3.80	39.6	98.6	4.05	6.6	1700	61.8	41.7	0.68	2.80	71.3	22.0	2.2
60	10.0	2.4	5.5	1400	52.9	3.63	40.5	105.0	4.27	7.5	1400	58.0	36.8	0.63	2.53	66.6	22.9	3.2
				1700	55.1	3.56	43.0	100.0	4.54	6.9	1700	59.7	41.5	0.70	2.64	68.7	22.6	3.4
	13.0	3.2	7.3	1400	54.4	3.67	41.9	106.0	4.34	7.7	1400	58.2	37.1	0.64	2.45	66.6	23.8	3.0
				1700	56.5	3.61	44.2	100.8	4.60	7.1	1700	60.0	42.0	0.70	2.56	68.7	23.4	3.2
	16.0	5.9	13.6	1400	55.6	3.71	43.0	106.8	4.40	7.9	1400	58.5	37.2	0.64	2.40	66.7	24.4	2.8
				1700	57.9	3.64	45.4	101.5	4.66	7.3	1700	60.3	42.1	0.70	2.50	68.8	24.1	3.1
70	10.0	2.3	5.3	1400	58.4	3.76	45.5	108.6	4.54	8.3	1400	57.6	37.3	0.65	2.83	67.2	20.4	4.4
				1700	60.7	3.65	48.3	103.1	4.87	7.7	1700	59.2	42.0	0.71	2.94	69.3	20.2	4.6
	13.0	3.0	6.9	1400	60.6	3.80	47.6	110.1	4.67	8.5	1400	57.9	37.8	0.65	2.74	67.3	21.2	4.1
				1700	62.9	3.69	50.3	104.3	5.00	7.9	1700	59.6	42.5	0.71	2.85	69.3	20.9	4.4
	16.0	5.8	13.4	1400	61.7	3.86	48.5	110.8	4.69	8.8	1400	58.2	38.0	0.65	2.70	67.5	21.6	3.8
				1700	66.5	4.04	52.7	106.2	4.83	8.1	1700	58.3	41.5	0.71	3.34	69.7	17.5	4.2
80	10.0	2.2	5.1	1400	62.9	3.86	49.7	111.6	4.77	9.2	1400	54.9	36.5	0.66	3.15	65.7	17.4	6.2
				1700	65.2	3.72	52.5	105.5	5.13	8.5	1700	56.6	40.8	0.72	3.24	67.7	17.5	6.6
	13.0	2.9	6.8	1400	66.2	3.91	52.8	113.8	4.97	9.5	1400	55.4	36.9	0.67	3.07	65.9	18.0	5.8
				1700	68.5	3.75	55.8	107.3	5.36	8.8	1700	57.0	41.3	0.72	3.16	67.8	18.0	6.3
	16.0	5.6	12.9	1400	66.9	3.96	53.4	114.3	4.95	9.8	1400	55.8	37.1	0.67	3.02	66.1	18.5	5.4
				1700	69.2	3.81	56.2	107.7	5.32	9.1	1700	57.5	41.5	0.72	3.11	68.1	18.5	6.0
90	10.0	2.1	4.8	1400	67.5	3.97	53.9	114.6	4.98	10.3	1400	50.7	34.7	0.68	3.50	62.7	14.5	8.0
				1700	69.7	3.81	56.7	108.0	5.37	9.5	1700	52.3	38.5	0.74	3.57	64.5	14.6	8.5
	13.0	2.7	6.2	1400	71.9	4.03	58.1	117.5	5.23	10.6	1400	51.2	35.0	0.68	3.43	62.9	14.9	7.5
				1700	74.3	3.83	61.2	110.4	5.69	9.8	1700	52.8	39.0	0.74	3.50	64.8	15.1	8.1
	16.0	5.4	12.5	1400	72.3	4.08	58.4	117.8	5.19	11.0	1400	51.8	35.3	0.68	3.37	63.3	15.3	6.9
				1700	76.3	4.26	61.8	111.6	5.25	10.2	1700	51.7	39.3	0.76	4.03	65.5	12.8	7.7
100	10.0	2.0	4.6	Operation not recommended							Operation not recommended							
	13.0	2.7	6.3								1400	49.1	34.9	0.71	3.87	62.4	12.7	10.0
											1700	50.7	38.7	0.76	3.92	64.1	12.9	10.9
	16.0	5.2	12.0								1400	49.8	35.3	0.71	3.82	62.8	13.0	9.3
											1700	51.3	39.1	0.76	3.86	64.5	13.3	10.4
110	10.0	2.0	4.6	Operation not recommended							Operation not recommended							
	13.0	2.6	6.0								1400	43.7	32.7	0.75	4.33	58.4	10.1	12.7
											1700	45.2	36.1	0.80	4.35	60.0	10.4	13.8
	16.0	5.0	11.5								1400	44.4	33.2	0.75	4.27	59.0	10.4	11.8
											1700	45.6	36.6	0.80	4.94	62.5	9.2	13.1
120	10.0	1.8	4.2	Operation not recommended							Operation not recommended							
	13.0	2.5	5.8								1400	40.8	31.9	0.78	4.88	57.5	8.4	15.8
											1700	42.3	34.9	0.83	4.86	58.9	8.7	17.1
	16.0	4.8	11.1								1400	41.7	32.5	0.78	4.80	58.0	8.7	14.6
											1700	42.3	35.3	0.83	5.45	60.9	7.8	16.3

072LOW 2/21/2011

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY072 High Speed - Performance Data

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	3.9	9.0	Operation not recommended							Operation not recommended							
	15.0	5.8	13.4															
	18.0	8.2	18.9	1850	45.2	4.40	30.2	92.6	3.01	7.9								
				2200	46.9	4.68	30.9	89.7	2.93	7.1								
30	12.0	3.9	9.0	Operation not recommended							Operation not recommended							
	15.0	5.7	13.1	1850	52.3	4.56	36.7	96.2	3.36	8.3	1850	68.5	44.3	0.65	3.82	81.5	18.0	-
				2200	54.1	4.85	37.6	92.8	3.27	7.6	2200	69.8	48.3	0.69	4.05	83.6	17.2	-
	18.0	8.1	18.7	1850	52.7	4.60	37.0	96.4	3.36	8.5	1850	69.2	45.1	0.65	3.75	82.0	18.5	-
				2200	54.7	4.90	37.9	93.0	3.27	7.7	2200	70.5	48.6	0.69	3.99	84.1	17.7	-
40	12.0	3.7	8.5	Operation not recommended							Operation not recommended							
	15.0	5.5	12.7	1850	61.2	4.88	44.5	100.6	3.68	9.2	1850	72.5	46.7	0.64	4.09	86.5	17.7	-
				2200	63.3	5.11	45.8	96.6	3.63	8.4	2200	73.9	50.7	0.69	4.34	88.8	17.0	-
	18.0	7.9	18.2	1850	62.0	4.93	45.2	101.0	3.69	9.5	1850	73.3	47.5	0.65	4.02	87.0	18.2	-
				2200	64.2	5.16	46.6	97.0	3.65	8.6	2200	74.7	51.1	0.68	4.28	89.3	17.5	-
50	12.0	3.6	8.3	1850	64.8	5.07	47.5	102.4	3.75	9.9	1850	75.4	48.2	0.64	4.51	90.8	16.7	4.3
				2200	67.0	5.25	49.1	98.2	3.74	9.2	2200	77.0	52.3	0.68	4.79	93.3	16.1	4.5
	15.0	5.3	12.2	1850	68.4	5.16	50.8	104.2	3.88	10.2	1850	76.2	48.7	0.64	4.41	91.3	17.3	4.0
				2200	70.7	5.33	52.5	99.7	3.89	9.4	2200	77.7	52.9	0.68	4.69	93.7	16.6	4.3
	18.0	7.6	17.5	1850	69.6	5.22	51.8	104.9	3.91	10.5	1850	77.0	49.6	0.64	4.34	91.8	17.7	3.7
				2200	71.9	5.38	53.6	100.3	3.92	9.6	2200	78.5	53.4	0.68	4.62	94.3	17.0	4.1
60	12.0	3.5	8.1	1850	72.9	5.42	54.4	106.5	3.94	11.1	1850	74.0	48.2	0.65	4.75	90.2	15.6	5.2
				2200	75.2	5.53	56.4	101.7	3.99	10.3	2200	75.5	52.1	0.69	5.05	92.7	14.9	5.5
	15.0	5.2	12.0	1850	76.1	5.51	57.3	108.1	4.05	11.5	1850	74.7	48.7	0.65	4.65	90.6	16.1	4.9
				2200	78.6	5.60	59.5	103.1	4.11	10.6	2200	76.2	52.7	0.69	4.95	93.1	15.4	5.3
	18.0	7.4	17.1	1850	77.8	5.58	58.8	108.9	4.09	11.8	1850	75.5	49.5	0.66	4.57	91.1	16.5	4.5
				2200	80.4	5.66	61.1	103.8	4.16	10.9	2200	77.0	53.2	0.69	4.87	93.6	15.8	5.0
70	12.0	3.4	7.8	1850	81.1	5.78	61.3	110.6	4.11	12.5	1850	74.1	49.0	0.66	5.13	91.7	14.4	6.6
				2200	83.6	5.82	63.8	105.2	4.21	11.6	2200	75.7	52.7	0.70	5.46	94.3	13.9	6.9
	15.0	5.0	11.5	1850	83.9	5.87	63.9	112.0	4.19	12.9	1850	74.9	49.5	0.66	5.03	92.0	14.9	6.1
				2200	86.6	5.89	66.5	106.4	4.31	11.9	2200	76.4	53.2	0.70	5.34	94.6	14.3	6.6
	18.0	7.1	16.4	1850	86.1	5.95	65.8	113.1	4.24	13.3	1850	75.7	50.1	0.66	4.94	92.5	15.3	5.7
				2200	88.9	5.95	68.6	107.4	4.38	12.3	2200	77.2	53.9	0.70	5.26	95.2	14.7	6.3
80	12.0	3.3	7.6	1850	87.0	6.10	66.2	113.5	4.18	13.9	1850	71.6	47.9	0.67	5.45	90.2	13.1	8.4
				2200	89.8	6.06	69.1	107.8	4.34	12.8	2200	73.1	51.8	0.71	5.80	92.9	12.6	8.9
	15.0	4.9	11.3	1850	89.1	6.19	67.9	114.6	4.22	14.3	1850	72.3	48.4	0.67	5.34	90.5	13.6	7.8
				2200	91.9	6.10	71.1	108.7	4.41	13.2	2200	73.8	52.2	0.71	5.68	93.2	13.0	8.4
	18.0	6.9	15.9	1850	91.8	6.27	70.4	115.9	4.29	14.7	1850	73.1	49.1	0.67	5.25	91.0	13.9	7.2
				2200	94.8	6.17	73.8	109.9	4.50	13.6	2200	74.6	52.8	0.71	5.59	93.7	13.4	8.0
90	12.0	3.2	7.4	1850	93.1	6.45	71.1	116.6	4.23	15.4	1850	66.7	45.7	0.68	5.76	86.4	11.6	10.5
				2200	96.2	6.32	74.6	110.5	4.46	14.3	2200	68.1	49.6	0.73	6.13	89.0	11.1	11.1
	15.0	4.7	10.8	1850	94.4	6.52	72.2	117.3	4.25	15.9	1850	67.4	46.1	0.68	5.64	86.6	12.0	9.8
				2200	97.5	6.35	75.8	111.0	4.50	14.7	2200	68.8	50.1	0.73	6.00	89.2	11.4	10.6
	18.0	6.6	15.2	1850	97.7	6.61	75.1	118.9	4.33	16.4	1850	68.1	47.0	0.69	5.55	87.0	12.3	9.1
				2200	100.9	6.42	79.0	112.5	4.61	15.2	2200	69.5	50.6	0.73	5.90	89.6	11.8	10.1
100	12.0	3.0	6.9	Operation not recommended							Operation not recommended							
	15.0	4.4	10.1								1850	65.4	45.7	0.70	6.14	86.3	10.6	12.2
											2200	66.7	49.5	0.74	6.54	89.0	10.2	13.2
	18.0	6.4	14.8								1850	66.1	46.4	0.70	6.04	86.7	10.9	11.3
											2200	67.5	49.9	0.74	6.43	89.4	10.5	12.5
110	12.0	2.9	6.7	Operation not recommended							Operation not recommended							
	15.0	4.3	9.9								1850	59.3	43.4	0.73	6.57	81.7	9.0	14.9
											2200	60.5	46.7	0.77	6.99	84.4	8.7	16.1
	18.0	6.1	14.1								1850	60.0	43.8	0.73	6.45	82.0	9.3	13.8
											2200	61.2	47.1	0.77	6.86	84.6	8.9	15.3
120	12.0	2.7	6.2								Operation not recommended							
	15.0	4.1	9.5								1850	55.2	41.6	0.75	7.12	79.5	7.8	18.0
											2200	56.4	44.9	0.80	7.58	82.2	7.4	19.5
	18.0	6.2	14.3								1850	55.9	42.1	0.75	7.01	79.8	8.0	16.7
											2200	57.0	45.3	0.79	7.44	82.4	7.7	18.5

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IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

T2GY072 Water Heating Data

			SOURCE 12.0 GPM						SWPD		HWC	SOURCE 15.0 GPM						SWPD		HWC	SOURCE 18.0 GPM						SWPD		HWC
ELT	EST	LGPM	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh	LLT	HC	KW	HE	COP	LST	PSI	FT HD	kBtuh
80	30	12.0	Operation Not Recommended																										
		15.0	87.3	52.9	4.07	39.0	3.8	23.3	4.0	9.2	7.7	87.5	53.8	4.08	39.9	3.9	24.3	6.2	14.2	7.9	87.6	54.7	4.10	40.7	3.9	25.3	8.3	19.2	8.1
		18.0	85.9	52.9	4.03	39.1	3.8	23.3	4.0	9.2	7.4	86.0	53.8	4.04	40.0	3.9	24.3	6.2	14.2	7.6	86.1	54.7	4.05	40.9	4.0	25.3	8.3	19.2	7.7
80	40	12.0	Operation Not Recommended																										
		15.0	88.6	61.8	4.20	47.4	4.3	31.9	3.9	9.0	8.6	88.7	63.0	4.22	48.6	4.4	33.1	6.0	13.8	8.8	88.9	64.2	4.24	49.7	4.4	34.5	8.1	18.6	9.0
		18.0	86.9	61.8	4.16	47.6	4.4	31.8	3.9	9.0	8.3	87.0	63.0	4.17	48.7	4.4	33.1	6.0	13.8	8.5	87.1	64.2	4.19	49.9	4.5	34.5	8.1	18.6	8.6
80	50	12.0	91.8	70.7	4.38	55.7	4.7	40.4	3.8	8.7	10.0	92.0	72.2	4.41	57.1	4.8	42.0	5.8	13.3	10.2	92.3	73.7	4.44	58.6	4.9	43.5	7.8	18.0	10.4
		15.0	89.8	70.6	4.33	55.9	4.8	40.4	3.8	8.7	9.6	90.0	72.2	4.36	57.3	4.9	41.9	5.8	13.3	9.8	90.2	73.7	4.39	58.7	4.9	43.5	7.8	18.0	10.0
		18.0	87.8	70.6	4.28	56.0	4.8	40.4	3.8	8.7	9.2	88.0	72.2	4.31	57.5	4.9	41.9	5.8	13.3	9.4	88.2	73.7	4.33	58.9	5.0	43.5	7.8	18.0	9.6
80	60	12.0	93.3	79.5	4.52	64.1	5.2	49.0	3.6	8.4	11.3	93.6	81.4	4.55	65.8	5.2	50.7	5.6	12.9	11.5	93.9	83.2	4.59	67.6	5.3	52.5	7.6	17.4	11.7
		15.0	91.0	79.5	4.46	64.3	5.2	49.0	3.6	8.4	10.8	91.3	81.3	4.49	66.0	5.3	50.7	5.6	12.9	11.1	91.6	83.2	4.53	67.7	5.4	52.5	7.6	17.4	11.3
		18.0	88.8	79.5	4.40	64.5	5.3	48.9	3.6	8.4	10.4	89.0	81.3	4.44	66.2	5.4	50.7	5.6	12.9	10.6	89.2	83.1	4.47	67.9	5.4	52.5	7.6	17.4	10.9
80	70	12.0	94.7	88.4	4.65	72.6	5.6	57.5	3.5	8.1	12.7	95.1	90.6	4.69	74.6	5.7	59.5	5.4	12.5	13.0	95.5	92.7	4.73	76.5	5.7	61.5	7.3	16.9	13.2
		15.0	92.3	88.4	4.59	72.7	5.6	57.5	3.5	8.1	12.2	92.6	90.5	4.63	74.7	5.7	59.5	5.4	12.5	12.5	92.9	92.7	4.67	76.7	5.8	61.5	7.3	16.9	12.7
		18.0	89.8	88.4	4.53	72.9	5.7	57.5	3.5	8.1	11.8	90.1	90.5	4.57	74.9	5.8	59.5	5.4	12.5	12.0	90.3	92.6	4.61	76.9	5.9	61.5	7.3	16.9	12.3
100	30	12.0	Operation Not Recommended																										
		15.0	107.1	51.1	5.13	33.6	2.9	24.2	4.0	9.2	7.5	107.2	51.8	5.13	34.3	3.0	25.2	6.2	14.2	7.6	107.3	52.6	5.13	35.0	3.0	26.1	8.3	19.2	7.7
		18.0	105.7	51.1	5.08	33.7	2.9	24.2	4.0	9.2	7.2	105.8	51.8	5.08	34.4	3.0	25.1	6.2	14.2	7.3	105.8	52.5	5.09	35.2	3.0	26.1	8.3	19.2	7.4
100	40	12.0	Operation Not Recommended																										
		15.0	108.2	59.2	5.24	41.4	3.3	32.9	3.9	9.0	8.3	108.4	60.2	5.25	42.3	3.4	34.0	6.0	13.8	8.4	108.5	61.2	5.26	43.2	3.4	35.2	8.1	18.6	8.5
		18.0	106.6	59.2	5.18	41.5	3.3	32.9	3.9	9.0	7.9	106.7	60.2	5.19	42.5	3.4	34.0	6.0	13.8	8.1	106.8	61.2	5.21	43.4	3.4	35.2	8.1	18.6	8.2
100	50	12.0	111.2	67.4	5.41	48.9	3.6	41.6	3.8	8.7	9.5	111.4	68.6	5.43	50.0	3.7	43.0	5.8	13.3	9.7	111.6	69.8	5.45	51.2	3.8	44.3	7.8	18.0	9.8
		15.0	109.4	67.4	5.35	49.1	3.7	41.6	3.8	8.7	9.2	109.5	68.6	5.37	50.3	3.7	42.9	5.8	13.3	9.3	109.7	69.8	5.39	51.4	3.8	44.3	7.8	18.0	9.5
		18.0	107.5	67.4	5.29	49.3	3.7	41.5	3.8	8.7	8.8	107.6	68.6	5.30	50.5	3.8	42.9	5.8	13.3	9.0	107.8	69.8	5.32	51.7	3.8	44.3	7.8	18.0	9.1
100	60	12.0	112.6	75.5	5.53	56.6	4.0	50.3	3.6	8.4	10.7	112.8	77.0	5.56	58.0	4.1	51.8	5.6	12.9	10.9	113.1	78.4	5.59	59.3	4.1	53.4	7.6	17.4	11.0
		15.0	110.5	75.5	5.46	56.9	4.1	50.2	3.6	8.4	10.3	110.7	77.0	5.49	58.2	4.1	51.8	5.6	12.9	10.5	110.9	78.4	5.51	59.6	4.2	53.4	7.6	17.4	10.6
		18.0	108.4	75.5	5.39	57.1	4.1	50.2	3.6	8.4	9.9	108.6	77.0	5.42	58.5	4.2	51.8	5.6	12.9	10.1	108.7	78.5	5.44	59.9	4.2	53.3	7.6	17.4	10.2
100	70	12.0	113.9	83.7	5.65	64.4	4.3	58.9	3.5	8.1	12.0	114.2	85.3	5.69	65.9	4.4	60.7	5.4	12.5	12.2	114.5	87.0	5.72	67.5	4.5	62.5	7.3	16.9	12.4
		15.0	111.6	83.7	5.57	64.6	4.4	58.9	3.5	8.1	11.6	111.9	85.4	5.61	66.2	4.5	60.7	5.4	12.5	11.8	112.1	87.1	5.64	67.8	4.5	62.5	7.3	16.9	12.0
		18.0	109.3	83.7	5.50	64.9	4.5	58.8	3.5	8.1	11.1	109.5	85.4	5.53	66.5	4.5	60.6	5.4	12.5	11.3	109.7	87.1	5.56	68.2	4.6	62.4	7.3	16.9	11.5
120	30	12.0	Operation Not Recommended																										
		15.0	126.9	49.3	6.18	28.2	2.3	25.2	4.0	9.2	7.2	126.9	49.8	6.18	28.8	2.4	25.9	6.2	14.2	7.3	127.0	50.4	6.17	29.3	2.4	26.6	8.3	19.2	7.4
		18.0	125.5	49.2	6.12	28.3	2.4	25.1	4.0	9.2	6.9	125.5	49.8	6.12	28.9	2.4	25.9	6.2	14.2	7.0	125.6	50.3	6.13	29.4	2.4	26.6	8.3	19.2	7.1
120	40	12.0	Operation Not Recommended																										
		15.0	127.9	56.7	6.27	35.3	2.6	33.9	3.9	9.0	7.9	128.0	57.4	6.28	36.0	2.7	34.9	6.0	13.8	8.0	128.1	58.2	6.28	36.7	2.7	35.9	8.1	18.6	8.1
		18.0	126.3	56.6	6.21	35.5	2.7	33.9	3.9	9.0	7.6	126.4	57.4	6.21	36.2	2.7	34.9	6.0	13.8	7.7	126.5	58.2	6.22	36.9	2.7	35.9	8.1	18.6	7.8
120	50	12.0	130.7	64.1	6.44	42.1	2.9	42.8	3.8	8.7	9.1	130.8	65.0	6.45	43.0	3.0	43.9	5.8	13.3	9.2	131.0	65.9	6.46	43.8	3.0	45.1	7.8	18.0	9.3
		15.0	128.9	64.1	6.37	42.4	2.9	42.7	3.8	8.7	8.7	129.0	65.0	6.38	43.3	3.0	43.9	5.8	13.3	8.8	129.2	65.9	6.39	44.1	3.0	45.1	7.8	18.0	8.9
		18.0	127.1	64.1	6.29	42.6	3.0	42.7	3.8	8.7	8.4	127.2	65.0	6.30	43.5	3.0	43.9	5.8	13.3	8.5	127.3	66.0	6.31	44.4	3.1	45.1	7.8	18.0	8.6
120	60	12.0	131.9	71.5	6.55	49.1	3.2	51.6	3.6	8.4	10.1	132.1	72.5	6.57	50.1	3.2	52.9	5.6	12.9	10.2	132.3	73.6	6.58	51.1	3.3	54.3	7.6	17.4	10.4
		15.0	129.9	71.5	6.46	49.5	3.2	51.5	3.6	8.4	9.7	130.1	72.6	6.48	50.5	3.3	52.8	5.6	12.9	9.9	130.2	73.7	6.50	51.5	3.3	54.3	7.6	17.4	10.0
		18.0	127.9	71.5	6.38	49.8	3.3	51.5	3.6	8.4	9.4	128.1	72.7	6.39	50.9	3.3	52.8	5.6	12.9	9.5	128.2	73.8	6.41	52.0	3.4	54.2	7.6	17.4	9.6
120	70	12.0	133.1	78.9	6.65	56.2	3.5	60.4	3.5	8.1	11.3	133.3	80.1	6.68	57.3	3.5	61.8	5.4	12.5	11.5	133.5	81.3	6.71	58.4	3.6	63.3	7.3	16.9	11.6
		15.0	131.0	78.9	6.56	56.5	3.5	60.3	3.5	8.1	10.9	131.1	80.2	6.58	57.7	3.6	61.8	5.4	12.5	11.1	131.3	81.5	6.60	58.9	3.6	63.2	7.3	16.9	11.2
		18.0	128.8	79.0	6.47	56.9	3.6	60.2	3.5	8.1	10.5	128.9	80.3	6.48	58.2	3.6	61.7	5.4	12.5	10.7	129.1	81.7	6.50	59.5	3.7	63.2	7.3	16.9	10.8

*Water heating mode only allows high compressor capacity operation.

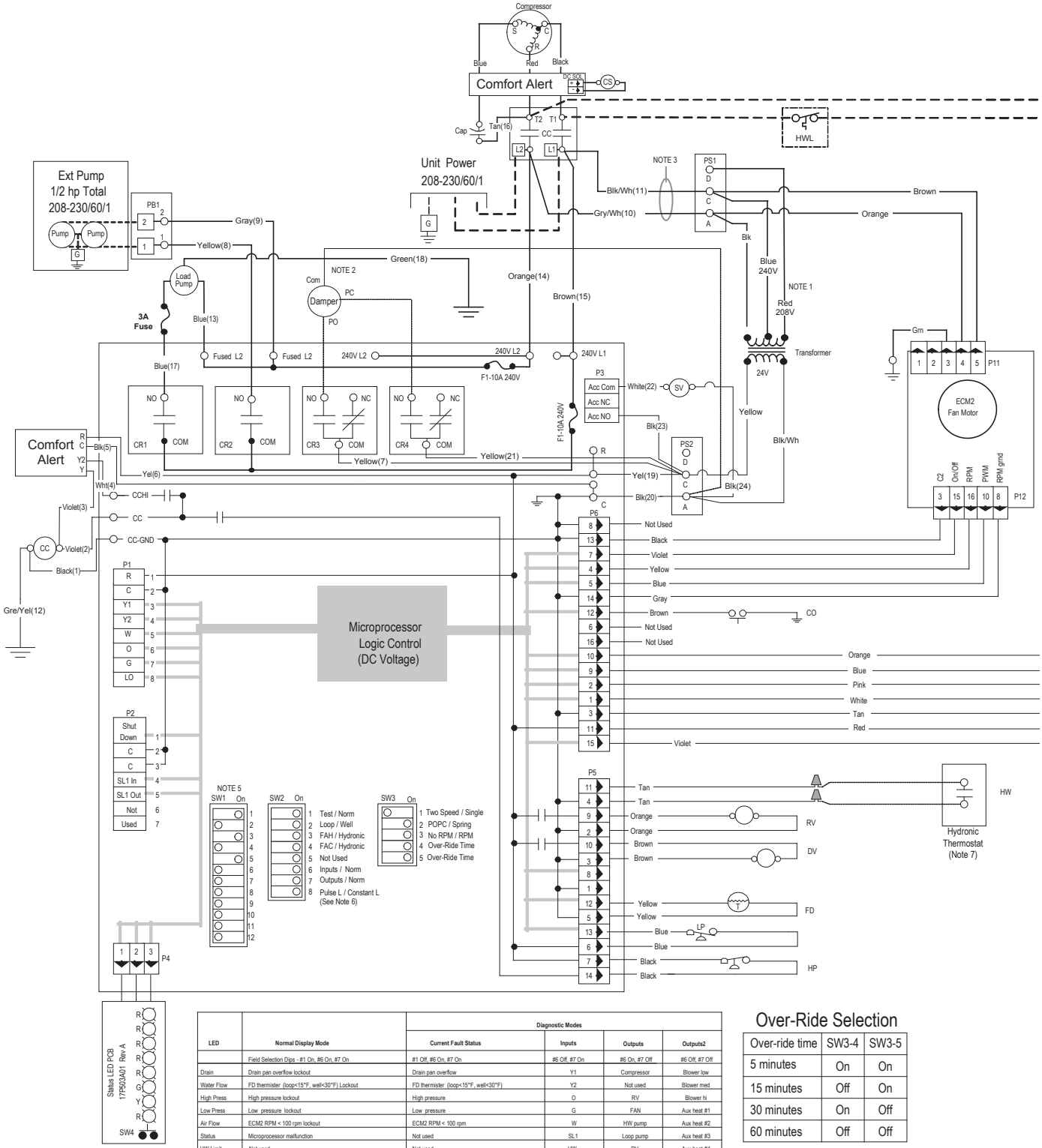
072WHD

ELT = entering load fluid temperature to heat pump
LLT = leaving load fluid temperature from heat pump
LGPM = load flow in gallons per minute
LWPD = load coax water pressure drop
EST = entering source fluid temperature to heat pump
LST = leaving source fluid temperature from heat pump
HWC = desuperheater capacity

SWPD = source coax water pressure drop
PSI = pressure drop in pounds per square inch
FT HD = pressure drop in feet of head
KW = kilowatts
HE = heat extracted in BTUH
HC = total heating capacity in BTUH
COP = coefficient of performance [HC/(KW x 3.413)]

IMPORTANT NOTE: Refer to Notes to Performance Tables for additional information.

Wiring Schematic



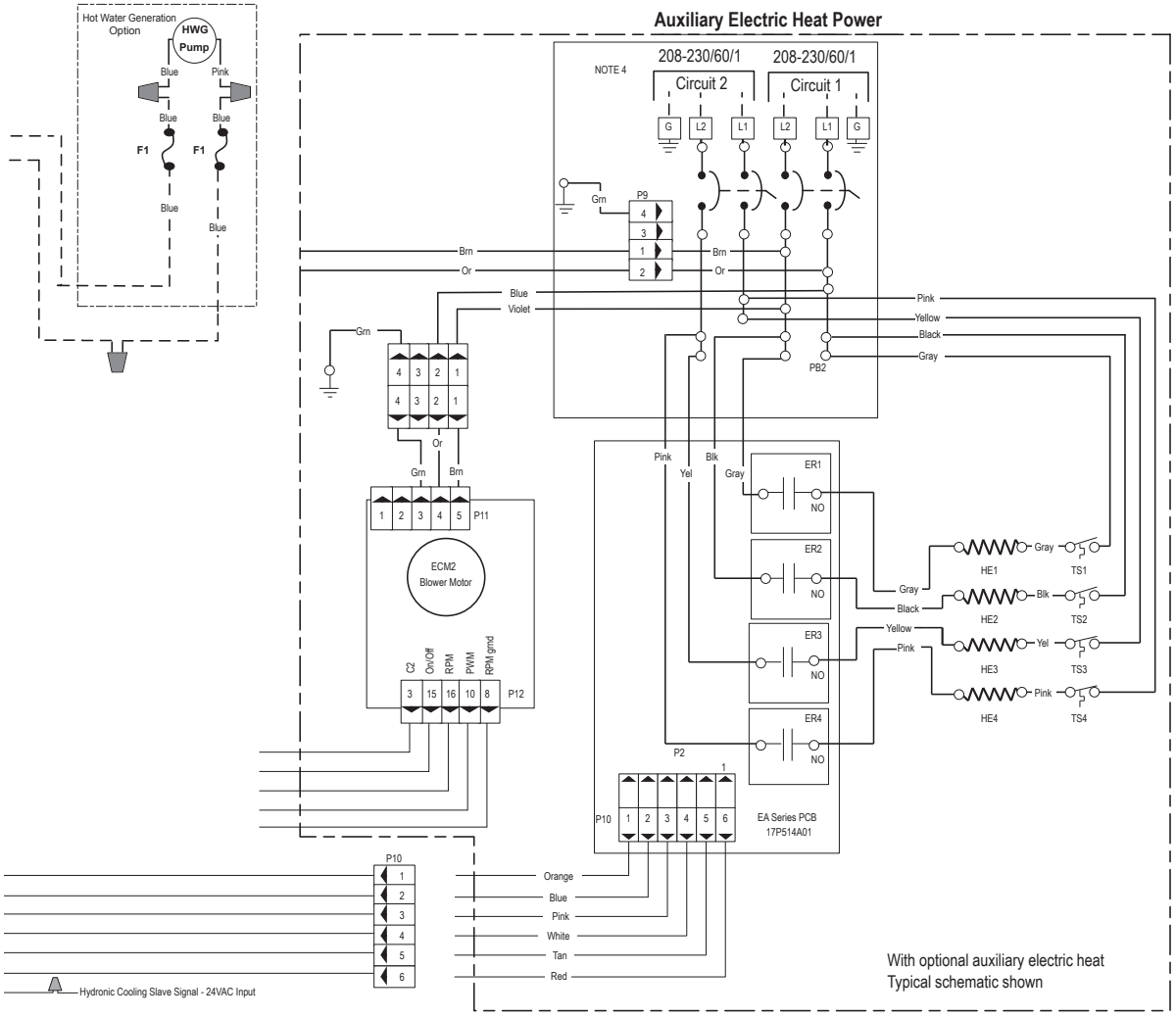
LED	Normal Display Mode	Diagnostic Modes			
		Current Fault Status	Inputs	Outputs	Outputs2
	Field Selection Dips - #1 On, #6 On, #7 On	#1 Off, #6 On, #7 On	#6 Off, #7 On	#6 On, #7 Off	#6 Off, #7 Off
Drain	Drain pan overflow lockout	Drain pan overflow	Y1	Compressor	Blower low
Water Flow	FD thermister (loop<15°F, well<30°F) Lockout	FD thermister (loop<15°F, well<30°F)	Y2	Not used	Blower med
High Press	High pressure lockout	High pressure	O	RV	Blower hi
Low Press	Low pressure lockout	Low pressure	G	FAN	Aux heat #1
Air Flow	ECM2 RPM < 100 rpm lockout	ECM2 RPM < 100 rpm	W	HW pump	Aux heat #2
Status	Microprocessor malfunction	Not used	SL1	Loop pump	Aux heat #3
HW Limit	Not used	Not used	HW	DV	Aux heat #4
HW off	Hot-water disable	HW off	HW off	HW off	HW off

Over-Ride Selection

Over-ride time	SW3-4	SW3-5
5 minutes	On	On
15 minutes	Off	On
30 minutes	On	Off
60 minutes	Off	Off

Wiring Schematic cont.

208-230/60/1 ECM cont.



Legend

- Breaker
- Factory Low voltage wiring
- Factory Line voltage wiring
- Field low voltage wiring
- Field line voltage wiring
- Optional block
- DC Voltage PCB traces
- Internal junction
- Quick connect terminal
- Wire nut
- Field wire lug
- Ground
- Relay Contacts- N.O., N.C.
- Fuse
- Thermistor
- Light emitting diode - Green
- Relay coil
- Capacitor w/ bleed resistor
- Switch - Condensate overflow
- Switch - High pressure
- Switch - Low pressure
- Switch -Hot Water On/Off
- Polarized connector

CC -	Compressor Contactor
CO -	Condensate overflow sensor
CR1 -	DHW pump relay
CR2-	Loop pump relay
CR3 -	PSC Blower Speed Relay
CR4 -	PSC Blower Power Relay
CS -	Compressor Solenoid
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
PR -	Pump Relay
PS -	Power strip
RV -	Reversing Valve coil
SW1 -	DIP package 12 position
SW2 -	DIP package 8 position
SW3 -	DIP package 5 position
SW4 -	Hot water pump enable switch
TS -	Thermal limit switch
HWL -	Hot water limit sensor
WCL -	Water Coil Limit Sensor

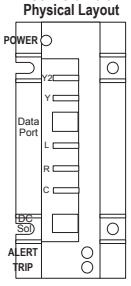
Operation Logic Data

Operation Logic Table	Heating				Cooling		Hot Water Mode
	STG1	STG2	STG3	EMERG	STG1	STG2	
Compressor	On	On	On	Off	On	On	Stg 2 On
Reversing Valve	Off	Off	Off	Off	On	On	Off
Loop Pump	On	On	On	Off	On	On	On
Load Pump	Off	Off	Off	Off	Off	Off	On
Aux Heater	Off	Off	Staged	Staged	Off	Off	Off
Acc Relay	On	On	On	Off	On	On	Off
Diverting Valve	Off	Off	Off	Off	Off	Off	On
ECM Speed	On	On	On	On	On	On	Off
T-Stat Signal	Y1	Y1, Y2	Y1, Y2, W	W	Y1, O	Y1, Y2, O	HW
Damper	Off	Off	Off	On	Off	Off	Off
Auxiliary 1 - Out	On	On	On	Off	On	On	On

Notes

1 - Switch blue and red wires for 208V operation.
2 - Typical hook-up shown for power open - power closed damper shown.
3 - The blk/wh and gray/wh wires are removed when Aux Heat is installed
4 - Use the manufacturer's part number 19P592-01 (jumper bar assembly) when single source power is required.
5 - Air Flow Configuration Example: SW1 configured for dip 1 as low, dip 3 as medium, and dip 5 as high speed ECM2 blower.
6 - SW2-8 must be in the OFF position for pulsed "L" lockout signal and in the ON position for constant "L" lockout signal.
7 - A hydronic input will generate a Y2 compressor call so that compressor only operates in high capacity.

Comfort Alert Physical Layout



Comfort Alert Status		
LED	Flash Code	Description
Green	Solid	Module Has Power
Red	Solid	Y1 Present But Compressor Not Running
Yellow	Code 1	Not Applicable
	Code 2	Not Applicable
	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

97P789-01 12/05/11

Microprocessor Control Features

The XL Series T2GY control system is a microprocessor-based printed circuit board conveniently located in the unit control box for accessibility. The microprocessor control is specifically designed for the XL Series T2GY heat pumps which integrate the ECM2 blower motor. All ECM2 airflow selections are conveniently configured on the control via DIP switches. The microprocessor provides control of the entire unit as well as outputs for status modes, faults, and diagnostics. LEDs are located on the front of the unit for quick inspection without removing any access panels.

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

The accessory relay will be used to control a refrigerant solenoid valve. The accessory relay will turn on when the control is operating in forced air heating, forced air cooling and when there is no active thermostat input. The relay will be off when operating in hot water mode.

Short Cycle Protection

The control employs a minimum “off” time of four minutes and a minimum “on” time of two minutes to provide for short cycle protection of the compressor.

Loop Pump Slaving Signals

A signal between multiple XL Series T2GY control boards at the inputs and outputs (SL1-In and Out) will provide for remote control of the loop pump on any unit.

Condensate Overflow Protection

The XL Series T2GY control board incorporates an impedance sensing liquid sensor at the top of the drain pan. Upon a continuous 30-second sensing of the condensate, compressor operation is suspended (see Fault Retry), the condensate overflow lockout LED begins flashing, and an output signal (LO) is made available for connection to a “fault” LED at the thermostat.

Shutdown Input

A simple grounded 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 XL Series T2GY 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 sensing. Upon a continuous 30-second measurement of the fault (immediate for high pressure), compressor operation is suspended (see Fault Retry), the appropriate lockout LED begins flashing, and an output signal (LO) is made available for connection to a “fault” LED at the thermostat.

Testing

The XL Series T2GY control allows service personnel to shorten most timing delays for faster diagnostics.

Fault Retry

All faults (except for low RPM fault with the ECM2 blower motor) are retried twice before finally locking the unit out. The “Fault Retry” feature is designed to prevent nuisance service calls.

Diagnostics

The XL Series T2GY control board allows all inputs and outputs to be displayed on the LEDs for fast and simple control board diagnosis.

Resistance Heat Control

The electric heat control module contains the appropriate high-voltage control relays. Control signals energize the relays in the proper sequence, and the LED display board indicates which stages are energized.

Hot Water Disable Switch

The switch on the LED status display will be used by the control to disable the “HW” input and to open the damper connected to CR3 and/or CR4.

ECM2 Airflow Selection DIP Switches (SW1)

A 12-position DIP switch package on the XL Series T2GY control allows the airflow levels to be set for low, medium and high speed when using the ECM2 blower motor (see Blower Performance table).

Only three of the DIP switches can be in the “On” position. The first “On” switch (the lowest position number) determines the “Low Speed Blower” setting. The second “On” switch determines the “Medium Speed Blower” setting, and the third “On” switch determines the “High Speed Blower” setting.

Microprocessor Control

Heating Operation

Heat, 1st Stage (Y1)

The blower motor is started on low speed immediately (PSC ON), 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 blower is switched to medium speed 15 seconds after “Y1” 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.

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

The 1st stage of resistance heat is energized 10 seconds after “W” input, and with continuous 3rd stage demand, the second stage of resistance heat engages after 5 minutes.

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 sequentially every 2 minutes.

Cool, 1st Stage (Y1,O)

The blower motor is 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 shift from low to medium speed 15 seconds after the “Y1” input.

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

Hydronic Cooling Slave Signal (24 vac input on P6-pin 15 violet wire)

The XL Series T2GY control board must be operating in cooling mode (Y1 and O inputs) or the cooling slave signal is ignored. When “Y1”, and “O” inputs have been received and a cooling slave input from heating/cooling thermostat located in a hydronic heated/force air cooled zone are received the control will activate CR3 relay to open damper(s) which will allow for cooling to occur in zone. When cooling slave input (24VAC) signal is removed the control will turn off the CR3 relay output, if spring damper operation is selected, or active, the CR4 output if POPC damper operation is selected. This will close field installed damper(s) located in ductwork.

Hot Water Operation

After a hot water input is received, the diverting valve, loop pump and hot water pump are turned on. Five seconds after hot water input is received the compressor is activated in second stage. *Hydronic Mode Operation with Hydronic Priority Setting:* If the control receives a demand to heat the space (Y1) from the thermostat during water heating mode operation, the control will engage the first stage auxiliary heat output. The second stage will be energized at five (5) minutes, following the first stage. The third and fourth stages of auxiliary heat will not operate during this mode.

Blower (G only)

The blower starts on low speed (PSC ON). Regardless of blower input “G” from thermostat, the blower will remain on low speed for 30 seconds at the end of each heating, cooling or emergency heat cycle.

Note: Blower speed can change automatically only with an ECM Motor.

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. Unless the lockout is caused by an ECM2 low RPM fault, the blower will continue to run on low speed. If the thermostat calls for heating, emergency heat operation will occur.

Comfort Alert faults 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 and Comfort Alert faults.

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.

Low Source Water Temperature Limit (Water Flow)

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

Condensate Overflow

This lockout mode occurs when the condensate overflow level has been reached for 30 continuous seconds.

Blower RPM

The control board monitors blower RPM to sense operation. This lockout mode occurs if the blower RPM falls below the low RPM limit (100 RPM) for 30 continuous seconds (ECM only).

Microprocessor Control cont.

Hydronic Operation

SW4 (Status Board Switch)

In the OFF position, the hydronic mode is disabled. The switch must be in the ON mode to enable the hydronic mode. NOTE: If the status board is not connected to the main control board, the hydronic mode is enabled.

SW3 (4 and 5 Override Switches)

These DIP switches configure the time that the unit will run in the current mode of operation if it is not the priority mode (SW2 #3 FAH/Hydronics) of operation selected. Example: If the unit is operating in hydronic mode, forced air heat (SW2 #3 is OFF) is the priority. A Y1 call from the FAH zone is present at the MCB. When SW3 numbers 4 and 5 are both in the ON position, the unit will operate in the hydronic mode for five minutes. If the hydronic call is not satisfied within the five minutes, the unit will switch to FAH mode. When FAH is satisfied, the unit will switch back to hydronic. (See Override Selection DIP Switches table.)

Compressor Monitoring/Comfort Alert

The Comfort Alert displays abnormal compressor conditions through a unique flash code displayed on the module. All 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. Comfort Alert will not be displayed at the thermostat or on the unit LED status board (only displayed on the Comfort Alert module).

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	Not applicable
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	Not applicable
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

Microprocessor Control cont.

Thermostat Displays

When using a fault monitor thermostat and SW2-8 is in the pulsing “L” position (off), the system monitor will enable a user to view the thermostat and count the fault indicator flashes to determine the lockout condition the unit is experiencing.

When using an A/TCONT802 or 803 thermostat and SW2-8 is in the pulsing “L” position (off), the system monitor will enable the user to view the thermostat and determine the fault. SW2-8 in the "on" position will send a constant signal to the fault indicator in the event of a system lockout condition. 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 table shows the codes that will be displayed when the System Monitor (L) is connected to the F terminal of an A/TCONT802 or 803 Comfort Control.

A/TCONT802 or 803 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.

Microprocessor Control Operation cont.

Airflow Selection DIP Switches (SW1)

See Blower Speed section.

Factory Setup DIP Switches (SW2)				
DIP Switch Number		**Description**	**OFF Position**	**ON Position**
SW2-	1	**Service Test Mode** Allows field selection of “NORMAL” or “TEST” operational modes. Test mode accelerates most timing functions 16 times to allow faster troubleshooting. Test mode also allows viewing the “CURRENT” status of the fault inputs on the LED display.	Test Mode	Normal Speed Operation
SW2-	2	**Low Source Water Temperature Limit** Allows field selection of low source water thermistor fault sensing for well water (30°F) or antifreeze protected (15°F) earth loops.	Low Loop Water Temperature Sensing Set at 15°F	Low Well Water Temperature Sensing Set at 30°F
SW2-	3	**Forced Air Heating/Hydronic Heating** This switch allows field selection of “Heating Forced Air Priority” or “Hydronic Priority”.	Forced Air Heating Priority	Hydronic Heating Priority
SW2-	4	**Forced Air Cooling/Hydronic Heating** This switch allows field selection of “Cooling Forced Air Priority” or “Hydronic Priority”.	Forced Air Cooling Priority	Hydronic Heating Priority
SW2-	5	**Not Used**	N/A	N/A
SW2-	6	**Dianostics Inputs** Allows viewing the inputs from the thermostat to the control board such as Y1, Y2, O, G, W, HW, SL1-In, on the LED display..	Inputs	Normal
SW2-	7	**Dianostics Outputs** Allows viewing the outputs from the control board such as compressor, diverting valve, reversing valve, blower, hot water pump and loop pump on the LED display.	Outputs	Normal
SW2-	8	**Thermostat Selection** Configures the control for a pulsed lockout signal (ComforTalk and FaultFlash thermostats) or continuous lockout signal (standard thermostat).	Pulse “L” Signal	Continuous “L” Signal

Factory Setup DIP Switches (SW3)				
DIP Switch Number		**Description**	**OFF Position**	**ON Position**
SW3-	1	**Dual Capacity/Single Speed** Configures the control for single speed compressor operation or dual capacity operation.	Dual Capacity Operation	Single Speed Operation
SW3-	2	**POPC/Spring** This switch allows field selection of “Power Open, Power Closed” dampers or “Power Open, Spring Close” dampers.	Power Open, Power Close	Power Open, Spring Close
SW3-	3	**No RPM/RPM** Configures the control to monitor the RPM output of an ECM/ECM2 blower motor. When using Itellizone of a PSC motor, the control should be configured for “NO RPM” sensing.	PSC Blower/RPM Monitoring Disable	ECM-ECM2 Blower/ RPM Enabled
SW3-	4	**Override Time** Configures the control override timings when switching from forced air mode to hydronic mode or vice versa.	See Override Selection table below for timings	See Override Selection table below for timings
SW3-	5	**Override Time** Configures the control override timings when switching from forced air mode to hydronic mode or vice versa.	See Override Selection table below for timings	See Override Selection table below for timings

Over-Ride Selection

Over-ride time	SW3-4	SW3-5
5 minutes	On	On
10 minutes	Off	On
30 minutes	On	Off
60 minutes	Off	Off

Operation Logic

	Heating				Cooling		Hot Water Mode
	STG1	STG2	STG3	EMERG	STG1	STG2	
Compressor	On	On	On	Off	On	On	Stg 2 On
Reversing Valve	Off	Off	Off	Off	On	On	Off
Loop Pump	On	On	On	Off	On	On	On
Load Pump	Off	Off	Off	Off	Off	Off	On
Aux Heater	Off	Off	Staged	Staged	Off	Off	Off
Acc Relay	On	On	On	Off	On	On	Off
Diverting Valve	Off	Off	Off	Off	Off	Off	On
ECM Speed	On	On	On	On	On	On	Off
T-Stat Signal	Y1	Y1, Y2	Y1, Y2, W	W	Y1, O	Y1, Y2, O	HW
Damper	Off	Off	Off	On	Off	Off	Off
Auxiliary 1 - Out	On	On	On	Off	On	On	On

Pressure Drop

Model	gpm	Pressure Drop (psi)				
		30°F	50°F	70°F	90°F	110°F
038 full load	5	1.2	1.2	1.1	1.0	1.0
	7	2.2	2.1	1.9	1.8	1.7
	9	3.4	3.2	3.0	2.8	2.6
	11	4.9	4.6	4.3	4.0	3.7
038 part load	4	0.9	0.8	0.8	0.7	0.7
	6	1.7	1.6	1.5	1.4	1.3
	8	2.8	2.6	2.5	2.3	2.1
	10	4.2	3.9	3.7	3.4	3.2
049 full load	6	1.2	1.2	1.1	1.0	1.0
	9	2.4	2.2	2.1	2.0	1.8
	12	3.9	3.6	3.4	3.2	2.9
	15	5.7	5.3	5.0	4.7	4.3
049 part load	5	1.1	1.1	1.0	0.9	0.9
	8	2.0	1.8	1.7	1.6	1.5
	11	3.4	3.1	2.9	2.8	2.5
	14	5.0	4.7	4.4	4.1	3.8
064 full load	8	2.0	1.8	1.7	1.6	1.5
	12	3.6	3.3	3.2	3.0	2.6
	16	6.5	6.0	5.6	5.2	4.8
	20	9.7	9.1	8.5	8.0	7.4
064 part load	6	1.2	1.2	1.1	1.0	1.0
	10	2.6	2.5	2.3	2.1	2.0
	14	5.0	4.7	4.4	4.1	3.8
	18	8.1	7.6	7.1	6.6	6.1
072 full load	12	3.6	3.3	3.2	3.0	2.6
	15	5.7	5.3	5.0	4.7	4.3
	18	8.1	7.6	7.1	6.6	6.1
	21	10.8	10.1	9.5	8.9	8.2
072 part load	10	2.6	2.5	2.3	2.1	2.0
	13	4.1	4.0	3.7	3.4	3.3
	16	6.5	6.0	5.8	5.4	5.0
	19	8.9	8.4	7.9	7.4	6.9

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Engineering Guide Specifications

Integrally mounted ComfortAlert compressor sensing module shall provide monitoring for open start, open run, locked rotor, welded contactor and short cycle conditions.

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

> ***Optional GeoStart™ (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. GeoStart shall reduce normal starting current by 60% on 208/60/1 units.

Piping

Source and load supply and return water connections shall be 1 in. [25.4 mm] FPT brass swivel fittings, which provide a union and eliminate the need for pipe wrenches and sealants when making field connections. Hot water generator connections shall be 1/2 in. [12.7 mm] female sweat type. All source water piping shall be insulated to prevent condensation at low liquid temperatures, on the vertical upflow units, the condensate connection shall be a 3/4 in. [19.1 mm] PVC socket with internally-trapped hose that can be routed to front or side locations.

Options and Accessories

Cupronickel Heat Exchanger

An optional cupronickel water-to-refrigerant heat exchanger shall be provided.

Hot Water Generator

An optional heat reclaiming hot water generator coil of vented double-wall copper construction suitable for potable water shall be provided. The coil shall be factory mounted inside the unit. An internal pump is not included. Order DPK5 for field installed pump and temperature limit.

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.

Earth Loop Flow Center (field-installed)

A self-contained module shall provide all liquid flow, fill and connection requirements for ground source closed loop systems up to 20 GPM. The pumps shall be wired to a power block located in the nearest unit. The heat pump units shall contain low voltage pump slaving control so that two units may share one flow center.

Auxiliary Heater (field-installed)

An electric resistance heater shall provide supplemental and/or emergency heating capability. Vertical units shall have the control box and resistance heater coil assembly mounted internally. A low voltage plug shall be provided in each unit for quick auxiliary heat connection. The heater shall operate in sequenced stages as controlled by the unit's microprocessor. The heater shall feed line voltage power to the unit blower and transformer to provide emergency heat capability in the event of an open compressor circuit breaker.

Engineering Guide Specifications - cont.

General

XL Series T2GY units shall be floor mounted type with horizontal air inlet and vertical up flow or back flow air discharge. Reverse cycle operation shall provide heating or cooling in the forced air mode. The unit shall also be capable of heating water for hydronic applications when the unit is not in the forced air mode. 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. Each unit shall be mounted on a pallet for shipping. The geothermal units shall be designed to operate with entering liquid temperature between 20°F and 120°F [-6.7°C - 48.9°C].

Refrigerant Circuit

All units shall contain a sealed refrigerant circuit including: a hermetic motor-compressor, bidirectional thermal expansion valve, finned tube air-to-refrigerant heat exchanger, solenoid valve, diverting valve, check valve, reversing valve, source coaxial tube water-to-refrigerant heat exchanger, load coaxial tube refrigerant-to-water heat exchanger, optional hot water generator coil, and service ports.

Compressors shall be high efficiency dual capacity scroll type designed for heat pump duty and mounted on vibration isolators. Compressor motors shall be single-phase PSC with overload protection. The electro-coated finned tube coil shall be sized for low-face velocity and constructed of lanced aluminum fins bonded to rifled copper tubes in a staggered pattern not less than three rows deep.

The source coaxial tube refrigerant-to-water heat exchanger and optional hot water generator shall be insulated to prevent condensation.

Casing and Cabinet

The cabinet shall be fabricated from heavy-gauge galvanized steel and finished with corrosion-resistant powder coating. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. The interior shall be insulated with 1/2-inch thick, multi-density, cleanable aluminum foil coated glass fiber with edges sealed or tucked under flanges to prevent the introduction of glass fibers into the discharge air. Standard cabinet panel insulation must meet NFPA 90A requirements, air erosion and mold growth limits of UL-181, stringent fungal resistance test per ASTM-C1071 and ASTM G21, and shall meet zero level bacteria growth per ASTM G22. Unit insulation must meet these stringent requirements or unit(s) will not be accepted.

Two blower and three compressor compartment access panels shall be 'lift-out' removable with supply and return ductwork in place. The internal component layout shall provide for service access from the front side for restricted installations.

A duct collar shall be provided on the supply air opening. Standard size 2 in. [51 mm] MERV11 pleated filters shall be provided with each unit. Vertical units shall have a return air filter rack/duct collar. The units shall have a removable insulated divider panel between the air handling section and the compressor section to minimize the transmission of compressor noise and to permit operational service testing without air bypass. Units shall be supplied with left or right horizontal air inlet and top or rear vertical air discharge.

The compressor shall be double isolation mounted using selected durometer grommets to provide vibration free compressor mounting.

The drain pan shall be of plastic construction to inhibit corrosion and bacterial growth. Drain outlet shall be located on pan as to allow complete and unobstructed drainage of condensate. The unit as standard will be supplied with solid-state electronic condensate overflow protection. Mechanical float switches WILL NOT be accepted. Units shall be furnished with a PVC slip condensate drain connection and an internal factory installed condensate trap.

Blower Motor and Assembly

The blower shall be a direct drive centrifugal type with a dynamically balanced wheel. The housing and wheel shall be designed for quiet low outlet velocity operation. Tight blower housing geometry shall not be permitted. The blower housing shall be removable from the unit without disconnecting the supply air ductwork for servicing of the blower motor. The blower motor shall be a variable-speed ECM2 type. The ECM2 blower motor shall be soft starting, shall maintain constant CFM over its operating static range, and shall provide 12 CFM settings. The blower motor shall be isolated from the housing by rubber grommets. The motor shall be permanently lubricated and have thermal overload protection. ECM2 motors shall be long-life ball bearing type.

Electrical

A control box shall be located within the unit compressor compartment and shall contain a 75VA transformer, 24 Volt activated, 2 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation. Electro-mechanical operation WILL NOT be accepted. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 Volt and provide heating or cooling as required by the remote thermostat/sensor. The controller shall also be capable of operating the unit in a hydronic heating mode with input from an external thermostat. A microprocessor-based controller that interfaces with a multi-stage electronic thermostat to monitor and control unit operation shall be provided. The control shall provide operational sequencing, blower speed control, blower failure high and low pressure switch monitoring, low source water temperature limit, condensate overflow sensing, auxiliary heat staging, lockout mode control, hot water and loop pump control, LED status and fault indicators, fault memory, field selectable options, and accessory output. An

Notes

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