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# **Cypress Series**

**GEOTHERMAL HEAT PUMPS WITH  
WATER HEATING FOR RADIANT FLOOR APPLICATIONS  
3 TO 6 TONS**

Submittal Data  
English Language  
IP/Metric Units  
SD1300YQ 02/11



Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

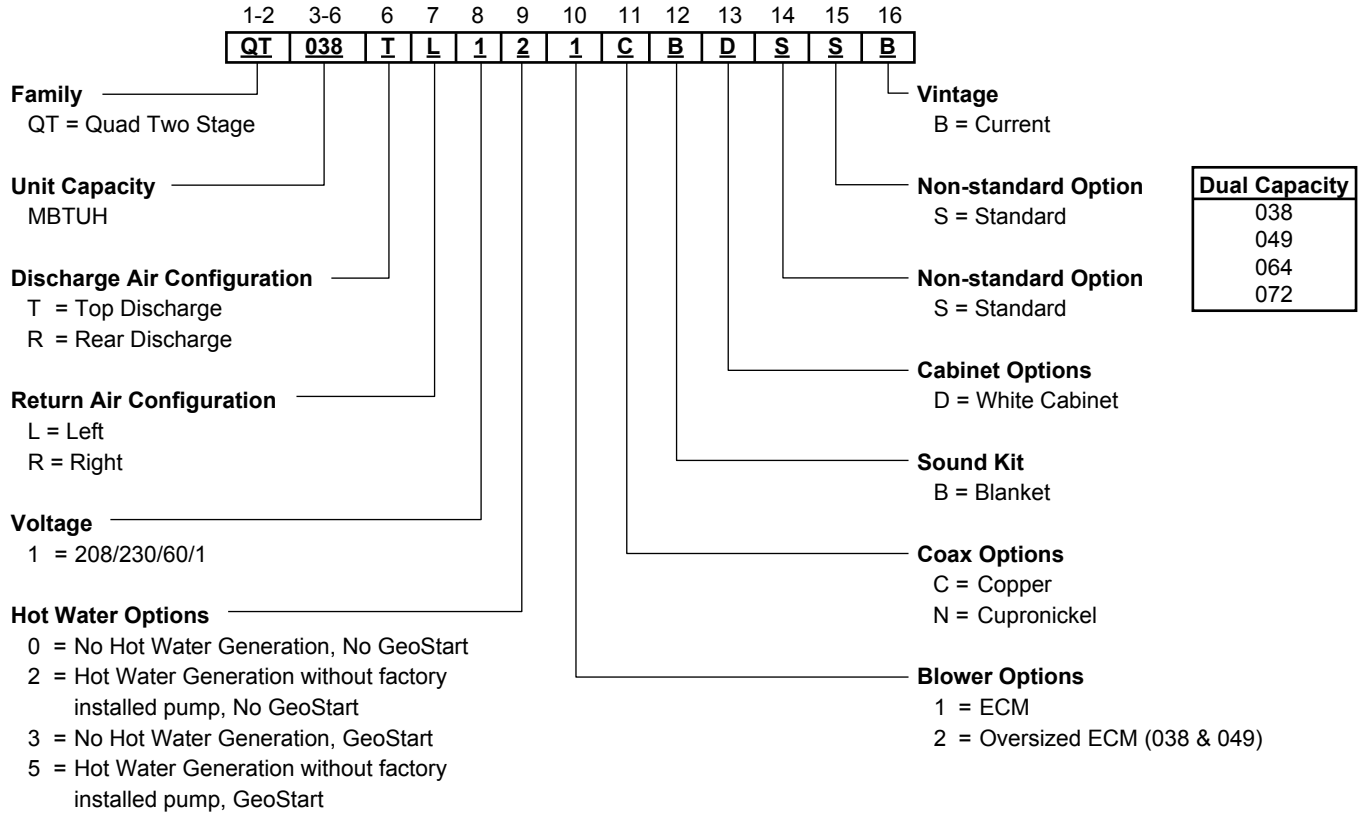
Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_

Cypress Series  
3 - 6 Tons 60Hz



# Model Nomenclature



**NOTE:** The factory installed Hot Water option (desuperheater) does not include a factory mounted circulating pump or temperature control. Kit DPK5 (ordered separately) includes field installed circulator, hot water tank adaptor, temperature limit, and installation instructions.

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**Cypress Series**  
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# 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<br>EWT 59°F    |               | Heating<br>EWT 50°F |     | Cooling Brine<br>Full Load 77°F<br>Part Load 68°F |               | Heating Brine<br>Full Load 32°F<br>Part Load 41°F |     |
|       |                     | gpm       | cfm  | Capacity<br>Btuh       | EER<br>Btuh/W | Capacity<br>Btuh    | COP | Capacity<br>Btuh                                  | EER<br>Btuh/W | Capacity<br>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                 | 17.4          | 63,400              | 4.0 | 69,100  | 14.7          | 49,100  | 3.6 |
|       | Part                | 16.0      | 1500 | 55,600                 | 22.2          | 46,300              | 4.1 | 54,400  | 19.8          | 40,700  | 3.8 |

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 operation at the lower voltage of dual voltage rated models.  
 Refer to the air handler compatibility table for matching air handler.

11/19/10

## Energy Star Compliance Table

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

11/12/10

## 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

|                       |            |            |
|-----------------------|------------|------------|
| <b>Water-to-Air</b>   | <b>EER</b> | <b>COP</b> |
| Ground Loop           | 14.1       | 3.3        |
| Ground Water          | 16.2       | 3.6        |
| <b>Water-to-Water</b> |            |            |
| Ground Loop           | 15.1       | 3.0        |
| Ground Water          | 19.1       | 3.4        |

### Tier 2: 1/1/2011 – 12/31/2011

|                       |            |            |
|-----------------------|------------|------------|
| <b>Water-to-Air</b>   | <b>EER</b> | <b>COP</b> |
| Ground Loop           | 16.1       | 3.5        |
| Ground Water          | 18.2       | 3.8        |
| <b>Water-to-Water</b> |            |            |
| Ground Loop           | 15.1       | 3.0        |
| Ground Water          | 19.1       | 3.4        |

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

|                       |            |            |
|-----------------------|------------|------------|
| <b>Water-to-Air</b>   | <b>EER</b> | <b>COP</b> |
| Ground Loop           | 17.1       | 3.6        |
| Ground Water          | 21.1       | 4.1        |
| <b>Water-to-Water</b> |            |            |
| Ground Loop           | 16.1       | 3.1        |
| Ground Water          | 20.1       | 3.5        |



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## 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<br>13256-1<br>WLHP | ARI 325 | ISO/AHRI<br>13256-1<br>GWHP | ARI 330 | ISO/AHRI<br>13256-1<br>GLHP |
|-------------------------|---------|-----------------------------|---------|-----------------------------|---------|-----------------------------|
| <b>Cooling</b>          |         |                             |         |                             |         |                             |
| 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         | *       | **                          | **      | **                          | **      | **                          |
| <b>Heating</b>          |         |                             |         |                             |         |                             |
| 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;

WaterFlow (lps) = GPM x 0.0631;

ESP (Pascals) = ESP (in wg) x 249;

Press Drop (Pascals) = Press Drop (ft hd) x 2990

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## Operating Limits

| Operating Limits         | Cooling   |         | Heating |      |
|--------------------------|-----------|---------|---------|------|
|                          | (°F)      | (°C)    | (°F)    | (°C) |
| <b>Air Limits</b>        |           |         |         |      |
| 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 |
| <b>Water Limits</b>      |           |         |         |      |
| Min. Entering Water      | 30        | -1.1    | 20      | -6.7 |
| Normal Entering Water    | 50-110    | 10-43.3 | 30-70   | -1.1 |
| Max. Entering Water      | 120       | 48.9    | 90      | 32.2 |

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

## 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<br>L | 850       | 1000      | 1100<br>M | 1200      | 1300<br>H | 1400 | 1500      |      |      |      |
| 038<br>w/1hp* | 0.75    | 800<br>L                     | 1000     | 1100<br>M | 1300<br>H | 1500      | 1600      | 1800      |      |           |      |      |      |
| 049           | 0.50    | 650                          | 800<br>L | 900       | 1050      | 1150      | 1250      | 1350<br>M | 1450 | 1550<br>H |      |      |      |
| 049<br>w/1hp* | 0.75    | 800<br>L                     | 900      | 1000      | 1200      | 1400<br>M | 1600<br>H | 1700      | 1850 | 2000      | 2200 | 2300 | 2400 |
| 064           | 0.75    | 800                          | 950<br>L | 1100      | 1300      | 1500<br>M | 1750      | 1950<br>H | 2100 | 2300      |      |      |      |
| 072           | 0.75    | 800                          | 950<br>L | 1100      | 1300      | 1500<br>M | 1750      | 1950<br>H | 2100 | 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

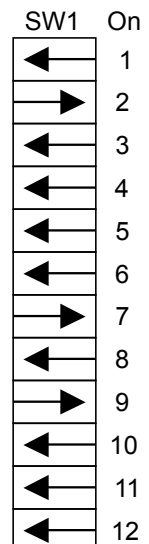
3/18/08

A 12-position DIP switch package on the QT Series 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 Blower" setting. The second "On" switch determines the "Medium Speed Blower" setting, and the third "On" switch determines the "High Speed Blower" setting.

The example to the right shows SW1 on the QT Series control board configured for the following 049 airflow settings:

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



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**Cypress Series**  
**3 - 6 Tons 60Hz**



# Physical Data

| Model  | 038                 | 049                 | 064                 | 072                 |
|--|---------------------|---------------------|---------------------|---------------------|
| Compressor (1 each)  | Copeland Scroll     |                     |                     |                     |
| Factory Charge R410a, oz [kg]                                  | 90 [2.55]           | 111 [3.14]          | 128 [3.62]          | 128 [3.62]          |
| <b>ECM Blower Motor &amp; Blower</b>                           | ECM Variable Speed  |                     |                     |                     |
| 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] |
| <b>Coax and Water Piping</b>                                   | ECM Variable Speed  |                     |                     |                     |
| 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]           |
| <b>Vertical</b>  | ECM Variable Speed  |                     |                     |                     |
| 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, ft2 [m2]                             | 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" [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                 |

12/15/10

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Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_

**Cypress Series**  
**3 - 6 Tons 60Hz**



## Electrical Data

| Model | Rated Voltage | Voltage Min/Max | Compressor |      |       |       | Int Pump FLA | Ext Loop FLA | Blower Motor FLA | Total Unit FLA | Min Circ Amp | Max Fuse calc | 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         | 47.8          | 45            |
| 038*  | 208-230/60/1  | 197/254         | 26.0       | 16.6 | 82.0  | 29.0  | 1.07         | 5.4          | 7.0              | 30.1           | 34.2         | 50.8          | 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         | 57.9          | 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         | 60.9          | 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         | 71.2          | 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         | 74.7          | 70            |

Rated Voltage of 208-230/60/1.

HACR circuit breaker in USA only.

Local electrical codes overrule any wiring recommendations.

\* With optional 1 HP ECM2 motor

\*\*With optional GeoStart

Min/Max Voltage of 197/254.

All fuses Class RK-5.

5/7/09

## 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 | QT 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.

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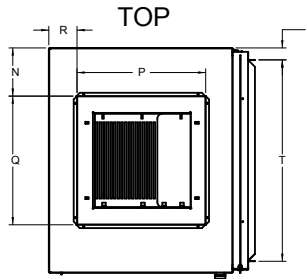
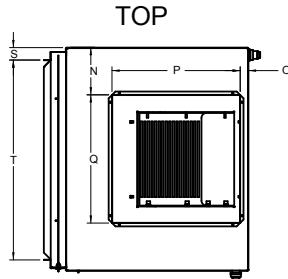
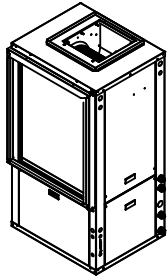
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3 - 6 Tons 60Hz

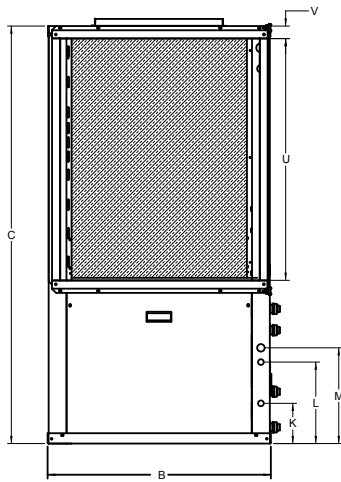


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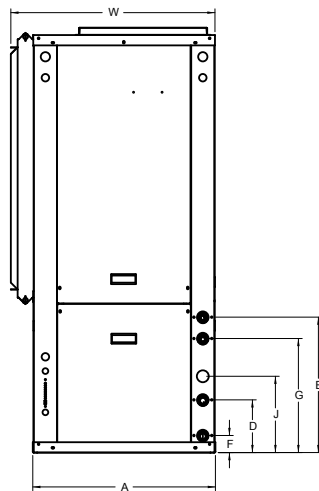
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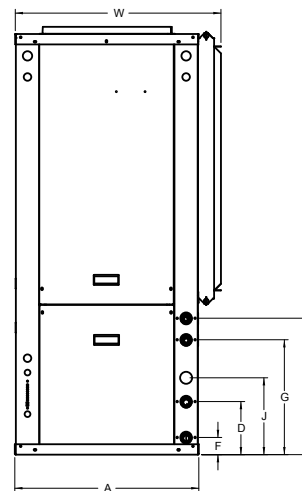
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LEFT

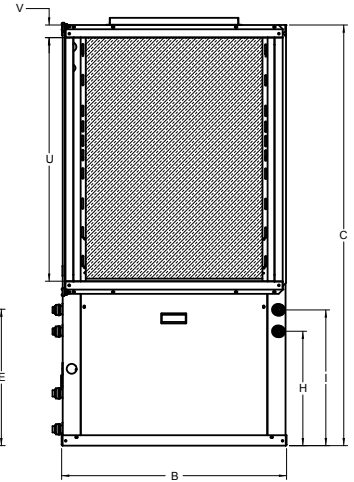


FRONT



FRONT

## RIGHT RETURN



RIGHT

8/13/08

| Vertical Topflow Model | Overall Cabinet |       |        | Water Connections |              |             |          |        |         |            |           |           | Electrical Connections |                |          | Discharge Connection<br>duct flange installed (±0.10 in) |              |              |              |              | Return Connection<br>using std deluxe filter rack (±0.10 in) |              |              |               |              |               |      |
|------------------------|-----------------|-------|--------|-------------------|--------------|-------------|----------|--------|---------|------------|-----------|-----------|------------------------|----------------|----------|--|--------------|--------------|--------------|--------------|--|--------------|--------------|---------------|--------------|---------------|------|
|                        | A               | B     | C      | D                 | E            | F           | G        | H      | I       | J          | Loop      | Hydronic  | HWG                    | K              | L        | M  | N            | O            | P            | Q            | R  | S            | T            | U             | V            | W             |      |
|                        | Width           | Depth | Height | Loop In           | Hydronic Out | Hydronic In | Loop Out | HWG In | HWG Out | Condensate | Water FPT | Water FPT | Sweat (I.D.)           | Low Voltage    | Ext Pump | Power Supply   | Supply Width | Supply Depth | Supply Width | Supply Depth | Supply Width   | Supply Depth | Return Depth | Return Height | Return Depth | Return Height |      |
| 038                    | in.             | 25.6  | 31.3   | 58.5              | 7.4          | 19.0        | 2.4      | 16.0   | 13.5    | 16.5       | 10.7      | 1" Swivel | 1" Swivel              | 1/2 in. Female | 5.6      | 11.4   | 13.4         | 6.9          | 1.1          | 18.0         | 18.0   | 3.9          | 1.7          | 28.1          | 34.0         | 1.7           | 28.7 |
|                        | cm.             | 65.0  | 79.5   | 148.6             | 18.8         | 48.3        | 6.1      | 40.6   | 40.4    | 48.0       | 27.2      |           |                        |                | 14.2     | 29.0   | 34.0         | 17.5         | 2.8          | 45.7         | 45.7   | 9.9          | 4.3          | 71.4          | 86.4         | 4.3           | 72.9 |
| 049                    | in.             | 25.6  | 31.3   | 58.5              | 7.4          | 19.0        | 2.4      | 16.0   | 15.9    | 18.9       | 10.7      | 1" Swivel | 1" Swivel              | 1/2 in. Female | 5.6      | 11.4   | 13.4         | 6.9          | 1.1          | 18.0         | 18.0   | 3.9          | 1.7          | 28.1          | 34.0         | 1.7           | 28.7 |
|                        | cm.             | 65.0  | 79.5   | 148.6             | 18.8         | 48.3        | 6.1      | 40.6   | 40.4    | 48.0       | 27.2      |           |                        |                | 14.2     | 29.0   | 34.0         | 17.5         | 2.8          | 45.7         | 45.7   | 9.9          | 4.3          | 71.4          | 86.4         | 4.3           | 72.9 |
| 064                    | in.             | 25.6  | 31.3   | 58.5              | 7.4          | 19.0        | 2.4      | 16.0   | 15.9    | 18.9       | 10.7      | 1" Swivel | 1" Swivel              | 1/2 in. Female | 5.6      | 11.4   | 13.4         | 6.9          | 1.1          | 18.0         | 18.0   | 3.9          | 1.7          | 28.1          | 34.0         | 1.7           | 28.7 |
|                        | cm.             | 65.0  | 79.5   | 148.6             | 18.8         | 48.3        | 6.1      | 40.6   | 40.4    | 48.0       | 27.2      |           |                        |                | 14.2     | 29.0   | 34.0         | 17.5         | 2.8          | 45.7         | 45.7   | 9.9          | 4.3          | 71.4          | 86.4         | 4.3           | 72.9 |
| 072                    | in.             | 25.6  | 31.3   | 58.5              | 7.4          | 19.0        | 2.4      | 16.0   | 15.9    | 18.9       | 10.7      | 1" Swivel | 1" Swivel              | 1/2 in. Female | 5.6      | 11.4   | 13.4         | 6.9          | 1.1          | 18.0         | 18.0   | 3.9          | 1.7          | 28.1          | 34.0         | 1.7           | 28.7 |
|                        | cm.             | 65.0  | 79.5   | 148.6             | 18.8         | 48.3        | 6.1      | 40.6   | 40.4    | 48.0       | 27.2      |           |                        |                | 14.2     | 29.0   | 34.0         | 17.5         | 2.8          | 45.7         | 45.7   | 9.9          | 4.3          | 71.4          | 86.4         | 4.3           | 72.9 |

Condensate is 3/4" PVC female glue socket and is switchable from side to front.  
Unit shipped with deluxe 1" (field adjustable to 2" duct collar/filter rack extending from unit 3.25" and is suitable for duct connection.  
Discharge flange is installed and extends 1" [25.4 mm] from cabinet.

12/15/10

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Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

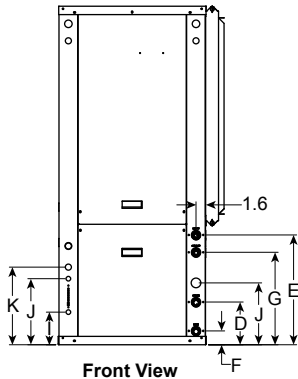
Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_

**Cypress Series**  
**3 - 6 Tons 60Hz**

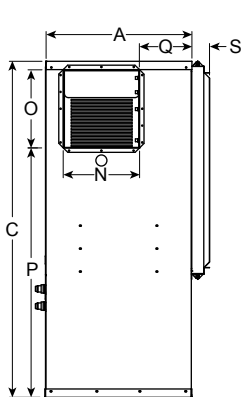


# Dimensional Data cont.

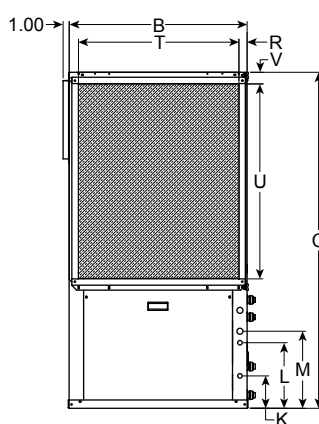
## Rear Air Discharge



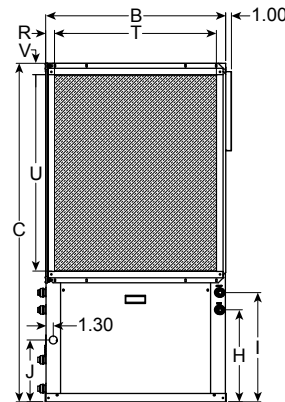
**Front View  
Right Return**



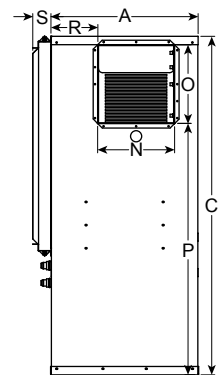
**Rear View  
Left Return**



**Side View  
Left Return**



**Side View  
Right Return**



**Rear View  
Right Return**

12/7/09

| Vertical Rear Discharge Model | Overall Cabinet |       |        | Water Connections |              |             |          |        |         |            |           |           |              |                |
|-------------------------------|-----------------|-------|--------|-------------------|--------------|-------------|----------|--------|---------|------------|-----------|-----------|--------------|----------------|
|                               | A               | B     | C      | D                 | E            | F           | G        | H      | I       | J          | Loop      | Hydronic  | HWG          |                |
|                               | Width           | Depth | Height | Loop In           | Hydronic Out | Hydronic In | Loop Out | HWG In | HWG Out | Condensate | Water FPT | Water FPT | Sweat (I.D.) |                |
| 038                           | in.             | 25.6  | 31.6   | 50.4              | 2.3          | 18.9        | 2.3      | 7.3    | 13.6    | 16.6       | 10.6      | 1" Swivel | 1" Swivel    | 1/2 in. Female |
|                               | cm.             | 65.0  | 80.3   | 128.0             | 5.8          | 48.0        | 5.8      | 18.5   | 34.5    | 42.2       | 26.9      |           |              |                |
| 049                           | in.             | 25.6  | 31.6   | 54.4              | 2.3          | 18.9        | 2.3      | 7.3    | 15.9    | 48.9       | 10.6      | 1" Swivel | 1" Swivel    | 1/2 in. Female |
|                               | cm.             | 65.0  | 80.3   | 138.2             | 5.8          | 48.0        | 5.8      | 18.5   | 40.4    | 124.2      | 26.9      |           |              |                |
| 064                           | in.             | 25.6  | 31.6   | 58.4              | 2.3          | 18.9        | 2.3      | 7.3    | 15.9    | 18.9       | 10.6      | 1" Swivel | 1" Swivel    | 1/2 in. Female |
|                               | cm.             | 65.0  | 80.3   | 148.3             | 5.8          | 48.0        | 5.8      | 18.5   | 40.4    | 48.0       | 26.9      |           |              |                |
| 072                           | in.             | 25.6  | 31.6   | 58.4              | 2.3          | 18.9        | 2.3      | 7.3    | 15.9    | 18.9       | 10.6      | 1" Swivel | 1" Swivel    | 1/2 in. Female |
|                               | cm.             | 65.0  | 80.3   | 148.3             | 5.8          | 48.0        | 5.8      | 18.5   | 40.4    | 48.0       | 26.9      |           |              |                |

| Vertical Rear Discharge Model | Electrical Connections |           |           | Discharge Connection duct flange installed (±0.10 in) |      |      |       |      |      | Return Connection using std deluxe filter rack (±0.10 in) |      |      |             |
|-------------------------------|------------------------|-----------|-----------|---|------|------|-------|------|------|---|------|------|-------------|
|                               | K                      | L         | M         | N   | O    | P    | Q     | R    | S    | T   | U    | V    |             |
|                               | 1/2" cond              | 1/2" cond | 3/4" cond |   |      |      |       |      |      |   |      |      | Low Voltage |
| 038                           | in.                    | 8.0       | 11.3      | 12.8  | 13.3 | 13.6 | 43.4  | 9.1  | 8.1  | 2.2   | 28.1 | 26.0 | 2.0         |
|                               | cm.                    | 20.3      | 28.7      | 32.5  | 33.8 | 34.5 | 110.2 | 23.1 | 20.6 | 5.6   | 71.4 | 66.0 | 5.1         |
| 049                           | in.                    | 8.0       | 11.3      | 12.8  | 13.3 | 13.6 | 43.4  | 9.1  | 8.1  | 2.2   | 28.1 | 30.0 | 2.0         |
|                               | cm.                    | 20.3      | 28.7      | 32.5  | 33.8 | 34.5 | 110.2 | 23.1 | 20.6 | 5.6   | 71.4 | 76.2 | 5.1         |
| 064                           | in.                    | 8.0       | 11.3      | 12.8  | 13.3 | 13.6 | 43.4  | 9.1  | 8.1  | 2.2   | 28.1 | 34.0 | 2.0         |
|                               | cm.                    | 20.3      | 28.7      | 32.5  | 33.8 | 34.5 | 110.2 | 23.1 | 20.6 | 5.6   | 71.4 | 86.4 | 5.1         |
| 072                           | in.                    | 8.0       | 11.3      | 12.8  | 13.3 | 13.6 | 43.4  | 9.1  | 8.1  | 2.2   | 28.1 | 34.0 | 2.0         |
|                               | cm.                    | 20.3      | 28.7      | 32.5  | 33.8 | 34.5 | 110.2 | 23.1 | 20.6 | 5.6   | 71.4 | 86.4 | 5.1         |

12/15/10

Condensate is 3/4 in. PVC female glue socket and is switchable from side to front  
 Unit shipped with deluxe 2 in. (field adjustable to 1 in.) duct collar/filter rack extending from unit 3.25 in. and is suitable for duct connection.  
 Discharge flange is field installed and extends 1 in. [25.4 mm] from cabinet  
 Decorative molding and water connections extend 1.2 in. [30.5 mm] beyond front of cabinet.

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Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

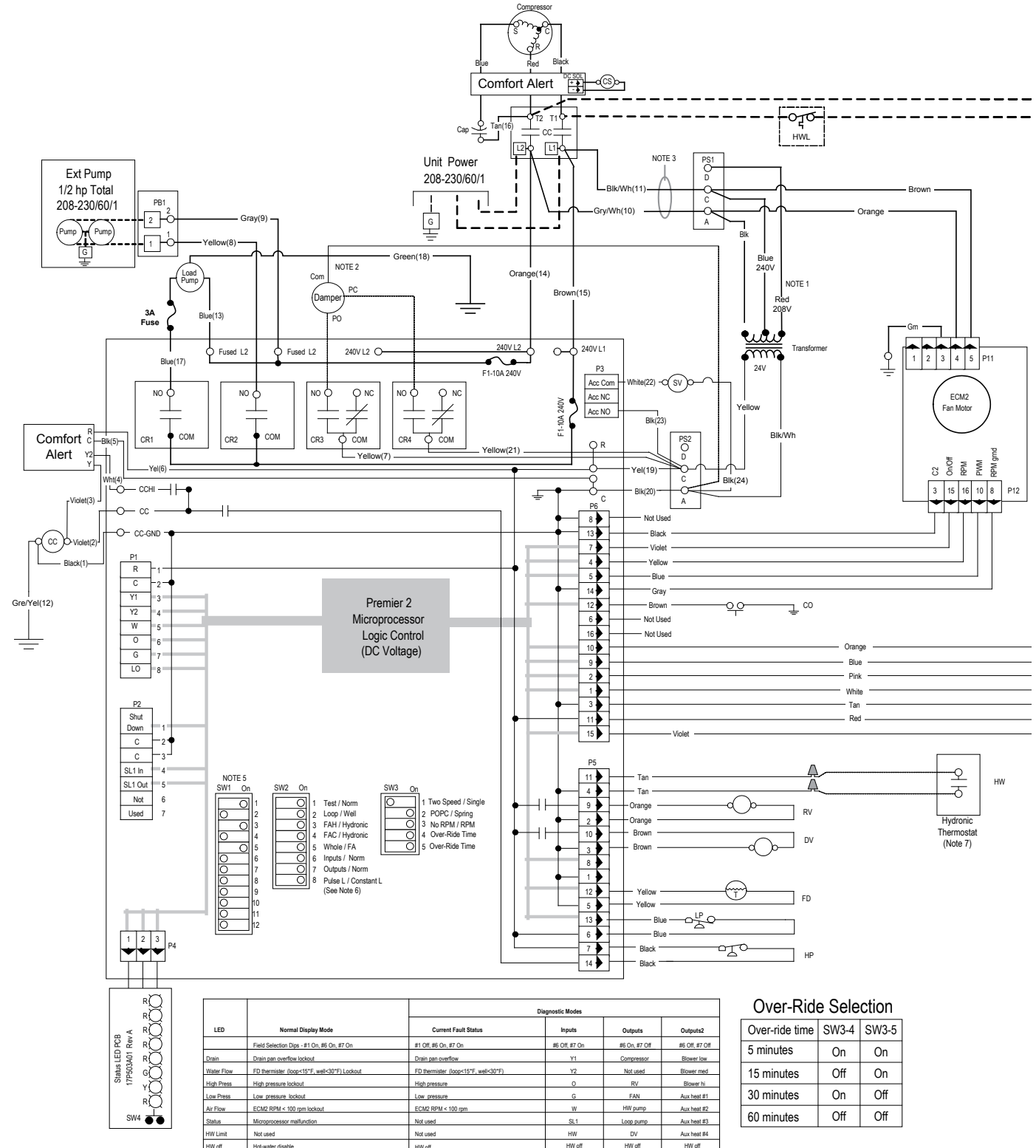
Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_

**Cypress Series**  
**3 - 6 Tons 60Hz**



# Wiring Schematic



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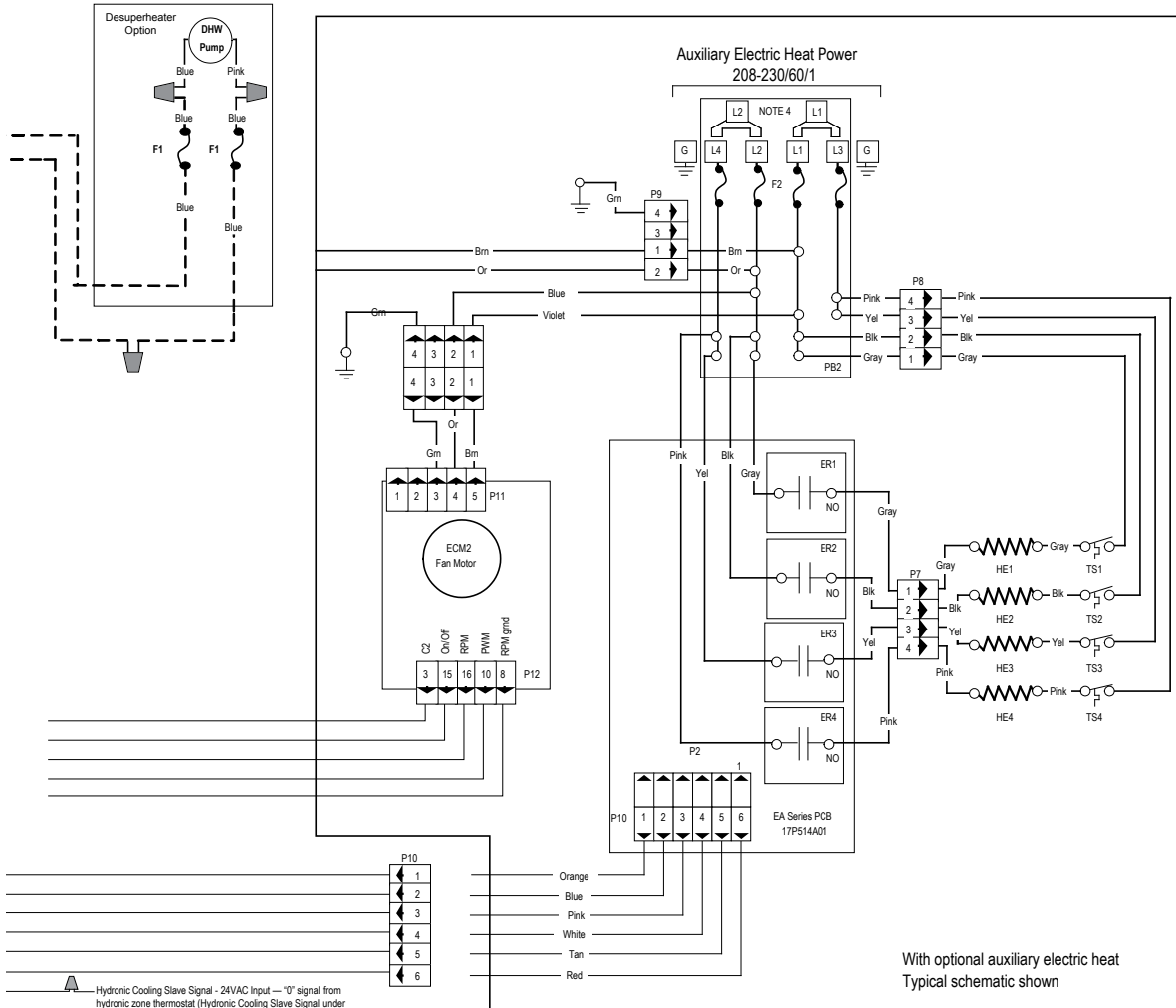
Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# Wiring Schematic cont.



With optional auxiliary electric heat  
Typical schematic shown

Hydronic Cooling Slave Signal - 24VAC Input - "0" signal from hydronic zone thermostat (Hydronic Cooling Slave Signal under the Microprocessor Control Operation section)

### Legend

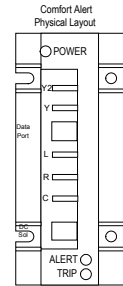
|  |                             |  |                              |
|--|-----------------------------|--|------------------------------|
|  | Factory Low voltage wiring  |  | Thermistor                   |
|  | Factory Line voltage wiring |  | Light emitting diode - Green |
|  | Field low voltage wiring    |  | Relay coil                   |
|  | Field line voltage wiring   |  | Capacitor w/ bleed resistor  |
|  | Optional block              |  | Switch - Condensate overflow |
|  | DC Voltage PCB traces       |  | Switch - High pressure       |
|  | Internal junction           |  | Switch - Low pressure        |
|  | Quick connect terminal      |  | Switch - Hot Water On/Off    |
|  | Wire nut                    |  | Polarized connector          |
|  | Field wire lug              |  |                              |
|  | Ground                      |  |                              |
|  | Relay Contacts - N.O., N.C. |  |                              |
|  | Fuse                        |  |                              |
|  | 24 vac coil                 |  |                              |

|                                 |                                   |
|---------------------------------|-----------------------------------|
| CS - Compressor Solenoid        | LP - Low pressure switch          |
| CC - Compressor Contactor       | PB1 - Power block                 |
| CO - Condensate overflow sensor | PS1, PS2 - Power strips           |
| CR1 - HW pump relay             | RV - Reversing Valve coil         |
| CR2 - Loop pump relay           | SW1 - DIP package 12 position     |
| CR3 - Damper relay              | SW2 - DIP package 6 position      |
| CR4 - Damper relay              | SW3 - DIP package 5 position      |
| DV - Diverting Valve            | SW4 - Hot water enable switch     |
| F1 and F2 - Fuses               | SWA - Hot Water Temperature Limit |
| FD - Freeze Detection sensor    | HWL - Hot Water Temperature Limit |
| HP - High pressure switch       |                                   |

### 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
- Switch blue and red wires for 208V operation.
  - Typical hook-up shown for power open - power closed damper shown.
  - The blk/wh and gray/wh wires are removed when Aux Heat is installed
  - Buss lugs L1 and L2 can be removed and dual power wire sets connected directly to box lugs L1, L2, and L3, L4.
  - Air Flow Configuration Example: SW1 configured for dip 1 as low, dip 3 as medium, and dip 5 as high speed ECM2 fan.
  - SW2-8 must be in the OFF position for pulsed "L" lockout signal and in th ON position for constant "L" lockout signal.
  - A hydronic input will generate a Y2 compressor call so that compressor only operates in high capacity.

### 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                           |

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Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_

**Cypress Series**  
**3 - 6 Tons 60Hz**



# Pressure Drop

| Model                    | GPM | Pressure Drop (psi) |      |      |      |       |
|--------------------------|-----|---------------------|------|------|------|-------|
|                          |     | 30°F                | 50°F | 70°F | 90°F | 110°F |
| <b>038<br/>full load</b> | 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   |
| <b>038<br/>part load</b> | 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   |
| <b>049<br/>full load</b> | 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   |
| <b>049<br/>part load</b> | 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   |
| <b>064<br/>full load</b> | 8   | 2.0                 | 1.8  | 1.7  | 1.6  | 1.5   |
|                          | 12  | 3.9                 | 3.6  | 3.4  | 3.2  | 2.9   |
|                          | 16  | 6.5                 | 6.0  | 5.6  | 5.2  | 4.8   |
|                          | 20  | 9.7                 | 9.1  | 8.5  | 8.0  | 7.4   |
| <b>064<br/>part load</b> | 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   |
| <b>072<br/>full load</b> | 12  | 3.9                 | 3.6  | 3.4  | 3.2  | 2.9   |
|                          | 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   |
| <b>072<br/>part load</b> | 10  | 2.6                 | 2.5  | 2.3  | 2.1  | 2.0   |
|                          | 13  | 3.4                 | 3.3  | 3.0  | 2.7  | 2.6   |
|                          | 16  | 6.5                 | 6.1  | 5.8  | 5.4  | 5.0   |
|                          | 19  | 8.9                 | 8.4  | 7.9  | 7.4  | 6.9   |

4/9/08

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Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# 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

| 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             |

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

11/10/09

## Heating Capacity Corrections

| 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

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Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



## Antifreeze Correction

| Antifreeze Type   | Antifreeze % by wt | Cooling Capacity | Heating Capacity | Pressure Drop |
|-------------------|--------------------|------------------|------------------|---------------|
| EWT - degF [DegC] |                    | 90 [32.2]        | 30 [-1.1]        | 30 [-1.1]     |
| Water             | 0                  | 1.000            | 1.000            | 1.000         |
| Ethylene Glycol   | 10                 | 0.991            | 0.973            | 1.075         |
|                   | 20                 | 0.979            | 0.943            | 1.163         |
|                   | 30                 | 0.965            | 0.917            | 1.225         |
|                   | 40                 | 0.955            | 0.890            | 1.324         |
|                   | 50                 | 0.943            | 0.865            | 1.419         |
| Propylene Glycol  | 10                 | 0.981            | 0.958            | 1.130         |
|                   | 20                 | 0.969            | 0.913            | 1.270         |
|                   | 30                 | 0.950            | 0.854            | 1.433         |
|                   | 40                 | 0.937            | 0.813            | 1.614         |
|                   | 50                 | 0.922            | 0.770            | 1.816         |
| Ethanol           | 10                 | 0.991            | 0.927            | 1.242         |
|                   | 20                 | 0.972            | 0.887            | 1.343         |
|                   | 30                 | 0.947            | 0.856            | 1.383         |
|                   | 40                 | 0.930            | 0.815            | 1.523         |
|                   | 50                 | 0.911            | 0.779            | 1.639         |
| Methanol          | 10                 | 0.986            | 0.957            | 1.127         |
|                   | 20                 | 0.970            | 0.924            | 1.197         |
|                   | 30                 | 0.951            | 0.895            | 1.235         |
|                   | 40                 | 0.936            | 0.863            | 1.323         |
|                   | 50                 | 0.920            | 0.833            | 1.399         |

**Warning:**  
Gray area represents antifreeze concentrations greater than 35% by weight and should be avoided due to the extreme performance penalty they represent.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT038 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 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 8.0      | 2.9 | 6.7 | 900                       | 15.1                      | 1.60     | 9.6      | 85.5   | 2.75 | 2.4       | Operation not recommended |                           |          |           |          |          |      |           |
|        |          |     |     | 1050                      | 15.7                      | 1.65     | 10.1     | 83.8   | 2.80 | 2.2       | Operation not recommended |                           |          |           |          |          |      |           |
| 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                      | 1.87     | 0.76     | 2.00   | 31.3 | 12.3      | 3.9                       | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1050                      | 25.2                      | 2.07     | 0.82     | 2.04   | 32.1 | 12.4      | 4.2                       | Operation not recommended |          |           |          |          |      |           |
|        | 8.0      | 2.2 | 5.1 | 900                       | 24.9                      | 1.92     | 0.77     | 1.98   | 31.7 | 12.6      | 3.6                       | Operation not recommended |          |           |          |          |      |           |
| 1050   |          |     |     | 25.6                      | 2.12                      | 0.83     | 2.02     | 32.5   | 12.7 | 4.0       | Operation not recommended |                           |          |           |          |          |      |           |
| 110    | 4.0      | 0.7 | 1.5 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 6.0      | 1.3 | 3.0 | 900                       | 22.0                      | 1.77     | 0.80     | 2.23   | 29.6 | 9.9       | 5.0                       | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1050                      | 22.6                      | 1.96     | 0.87     | 2.28   | 30.4 | 9.9       | 5.4                       | Operation not recommended |          |           |          |          |      |           |
|        | 8.0      | 2.1 | 4.9 | 900                       | 22.4                      | 1.82     | 0.81     | 2.22   | 29.9 | 10.1      | 4.6                       | Operation not recommended |          |           |          |          |      |           |
| 1050   |          |     |     | 23.0                      | 2.01                      | 0.87     | 2.26     | 30.7   | 10.2 | 5.1       | Operation not recommended |                           |          |           |          |          |      |           |
| 120    | 4.0      | 0.6 | 1.5 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 6.0      | 1.2 | 2.9 | 900                       | 20.1                      | 1.70     | 0.85     | 2.51   | 28.7 | 8.0       | 5.9                       | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1050                      | 20.7                      | 1.88     | 0.91     | 2.56   | 29.4 | 8.1       | 6.4                       | Operation not recommended |          |           |          |          |      |           |
|        | 8.0      | 2.0 | 4.7 | 900                       | 20.4                      | 1.74     | 0.85     | 2.49   | 28.9 | 8.2       | 5.5                       | Operation not recommended |          |           |          |          |      |           |
| 1050   |          |     |     | 21.0                      | 1.93                      | 0.92     | 2.54     | 29.7   | 8.3  | 6.1       | Operation not recommended |                           |          |           |          |          |      |           |

Performance capacities shown in thousands of Btuh.

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Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT038 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 | Operation not recommended |          |          |                           |        |      |           | Operation not recommended |          |          |           |          |          |      |           |     |  |  |
|                           | 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 |  |  |
|                           |          |     |     | 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 |  |  |
|                           |          |     |     | 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 |  |  |
|                           | 9.0      | 2.6 | 6.0 | Operation not recommended |          |          |                           |        |      |           | Operation not recommended |          |          |           |          |          |      |           |     |  |  |
| Operation not recommended |          |     |     |                           |          |          | Operation not recommended |        |      |           |                           |          |          |           |          |          |      |           |     |  |  |
| 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 |  |  |
|                           |          |     |     | 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 |  |  |

Performance capacities shown in thousands of Btuh.

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT038 Water Heating Data

| ELT | EST | LGPM | SOURCE 5.0 GPM            |      |      |      |     |      | SWPD |       | HWC<br>kBtu/h | SOURCE 7.0 GPM |      |      |      |     |      | SWPD |       | HWC<br>kBtu/h | SOURCE 9.0 GPM |      |      |      |     |      | SWPD |       | HWC<br>kBtu/h |
|-----|-----|------|---------------------------|------|------|------|-----|------|------|-------|---------------|----------------|------|------|------|-----|------|------|-------|---------------|----------------|------|------|------|-----|------|------|-------|---------------|
|     |     |      | LLT                       | HC   | KW   | HE   | COP | LST  | PSI  | FT HD |               | LLT            | HC   | KW   | HE   | COP | LST  | PSI  | FT HD |               | LLT            | HC   | KW   | HE   | COP | LST  | PSI  | FT HD |               |
| 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 | 25.7 | 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 | 29.2 | 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.

ELT = entering load fluid temperature to heat pump  
 LLT = leaving load fluid temperature from heat pump  
 LGPM = load flow in gallons per minute  
 LWPDP = load coax water pressure drop  
 EST = entering source fluid temperature to heat pump  
 LST = leaving source fluid temperature from heat pump  
 HWC = hot water generator 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 Btu/h  
 HC = total heating capacity in Btu/h  
 COP = coefficient of performance [HC/(KW x 3.413)]

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT049 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      | 0.9 | 2.2 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 8.0      | 2.0 | 4.6 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 11.0     | 3.4 | 7.8 | 1150                      | 22.0                      | 2.06     | 15.0     | 87.7   | 3.13 | 4.1       | Operation not recommended |                           |          |           |          |          |      |           |
|        |          |     |     | 1350                      | 22.8                      | 2.09     | 15.7     | 85.6   | 3.20 | 3.7       | Operation not recommended |                           |          |           |          |          |      |           |
| 30     | 5.0      | 0.9 | 2.1 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 8.0      | 1.9 | 4.4 | 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     | 3.3 | 7.6 | 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 | 0.9 | 2.0                       | 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      | 0.9 | 2.0 | 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 | 7.2 | 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      | 0.8 | 1.9 | 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      | 0.8 | 1.8 | 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      | 0.8 | 1.8 | 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      | 0.7 | 1.7 | 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 | 3.6 | 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     | 2.7 | 6.2 | 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      | 0.7 | 1.7 | 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                       | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1350                      | 32.5                      | 29.0     | 0.89     | 2.83   | 42.1 | 11.5      | 7.2                       | Operation not recommended |          |           |          |          |      |           |
|        | 11.0     | 2.6 | 6.0 | 1150                      | 32.7                      | 24.9     | 0.76     | 2.63   | 41.7 | 12.5      | 6.2                       | Operation not recommended |          |           |          |          |      |           |
| 1350   |          |     |     | 33.7                      | 29.3                      | 0.87     | 2.74     | 43.0   | 12.3 | 6.8       | Operation not recommended |                           |          |           |          |          |      |           |
| 110    | 5.0      | 0.7 | 1.6 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 8.0      | 1.5 | 3.4 | 1150                      | 28.2                      | 23.0     | 0.82     | 3.02   | 38.5 | 9.3       | 8.4                       | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1350                      | 29.2                      | 27.1     | 0.93     | 3.15   | 39.9 | 9.3       | 9.1                       | Operation not recommended |          |           |          |          |      |           |
|        | 11.0     | 2.5 | 5.8 | 1150                      | 29.6                      | 23.4     | 0.79     | 2.93   | 39.6 | 10.1      | 7.8                       | Operation not recommended |          |           |          |          |      |           |
| 1350   |          |     |     | 30.4                      | 27.5                      | 0.90     | 3.06     | 40.8   | 10.0 | 8.6       | Operation not recommended |                           |          |           |          |          |      |           |
| 120    | 5.0      | 0.7 | 1.5 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 8.0      | 1.4 | 3.3 | 1150                      | 25.5                      | 22.1     | 0.86     | 3.36   | 37.0 | 7.6       | 10.2                      | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1350                      | 26.4                      | 26.0     | 0.98     | 3.51   | 38.4 | 7.5       | 11.0                      | Operation not recommended |          |           |          |          |      |           |
|        | 11.0     | 2.4 | 5.6 | 1150                      | 27.0                      | 22.6     | 0.84     | 3.26   | 38.1 | 8.3       | 9.4                       | Operation not recommended |          |           |          |          |      |           |
| 1350   |          |     |     | 27.7                      | 26.5                      | 0.96     | 3.42     | 39.4   | 8.1  | 10.5      | Operation not recommended |                           |          |           |          |          |      |           |

Performance capacities shown in thousands of Btuh.

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT049 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 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 12.0     | 4.0 | 9.2 | 1350                      | 27.5                      | 2.53     | 18.8     | 88.9   | 3.18 | 4.7       | Operation not recommended |                           |          |           |          |          |      |           |
|        |          |     |     | 1550                      | 28.4                      | 2.61     | 19.5     | 87.0   | 3.18 | 4.2       | Operation not recommended |                           |          |           |          |          |      |           |
| 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 | 8.7 | 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 | 4.9 | 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 | 7.9 | 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 | 4.4 | 1350                      | 38.6                      | 30.9     | 0.80     | 3.38   | 50.2 | 11.4      | 7.5                       | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1550                      | 39.9                      | 34.2     | 0.86     | 3.43   | 51.6 | 11.7      | 8.1                       | Operation not recommended |          |           |          |          |      |           |
|        | 12.0     | 3.1 | 7.1 | 1350                      | 39.1                      | 31.2     | 0.80     | 3.32   | 50.4 | 11.7      | 7.0                       | Operation not recommended |          |           |          |          |      |           |
| 1550   |          |     |     | 40.3                      | 34.6                      | 0.86     | 3.37     | 51.8   | 12.0 | 7.7       | Operation not recommended |                           |          |           |          |          |      |           |
| 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                       | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1550                      | 36.7                      | 31.4     | 0.86     | 3.80   | 49.6 | 9.7       | 10.1                      | Operation not recommended |          |           |          |          |      |           |
|        | 12.0     | 2.9 | 6.8 | 1350                      | 36.0                      | 28.8     | 0.80     | 3.72   | 48.7 | 9.7       | 8.7                       | Operation not recommended |          |           |          |          |      |           |
| 1550   |          |     |     | 37.0                      | 31.9                      | 0.86     | 3.75     | 49.8   | 9.9  | 9.6       | Operation not recommended |                           |          |           |          |          |      |           |
| 120    | 6.0      | 0.9 | 2.1 | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 9.0      | 1.7 | 4.0 | 1350                      | 33.0                      | 27.6     | 0.84     | 4.19   | 47.3 | 7.9       | 11.3                      | Operation not recommended |          |           |          |          |      |           |
|        |          |     |     | 1550                      | 33.8                      | 30.4     | 0.90     | 4.18   | 48.1 | 8.1       | 12.2                      | Operation not recommended |          |           |          |          |      |           |
|        | 12.0     | 2.8 | 6.5 | 1350                      | 33.3                      | 28.0     | 0.84     | 4.15   | 47.5 | 8.0       | 10.5                      | Operation not recommended |          |           |          |          |      |           |
| 1550   |          |     |     | 34.1                      | 31.0                      | 0.91     | 4.14     | 48.2   | 8.2  | 11.6      | Operation not recommended |                           |          |           |          |          |      |           |

Performance capacities shown in thousands of Btuh.

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT049 Water Heating Data

| ELT | EST | LGPM | SOURCE 6.0 GPM            |      |      |      |     |      | SWPD |          | HWC<br>kBtu/h | SOURCE 9.0 GPM |      |      |      |     |      | SWPD |          | HWC<br>kBtu/h | SOURCE 12.0 GPM |      |      |      |     |      | SWPD |          | HWC<br>kBtu/h |
|-----|-----|------|---------------------------|------|------|------|-----|------|------|----------|---------------|----------------|------|------|------|-----|------|------|----------|---------------|-----------------|------|------|------|-----|------|------|----------|---------------|
|     |     |      | LLT                       | HC   | KW   | HE   | COP | LST  | PSI  | FT<br>HD |               | LLT            | HC   | KW   | HE   | COP | LST  | PSI  | FT<br>HD |               | LLT             | HC   | KW   | HE   | COP | LST  | PSI  | FT<br>HD |               |
| 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      | 8.0           |
|     |     | 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.

ELT = entering load fluid temperature to heat pump  
 LLT = leaving load fluid temperature from heat pump  
 LGPM = load flow in gallons per minute  
 LHPD = load coax water pressure drop  
 EST = entering source fluid temperature to heat pump  
 LST = leaving source fluid temperature from heat pump  
 HWC = hot water generator 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 Btu/h  
 HC = total heating capacity in Btu/h  
 COP = coefficient of performance [HC/(kW x 3.413)]

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT064 Low Speed - Performance Data

| EWT °F                    | Flow gpm | WPD |      | HEATING - EAT 70°F        |                           |          |                           |        |      |            | COOLING - EAT 80/67 °F    |                           |           |           |          |           |      |            |
|---------------------------|----------|-----|------|---------------------------|---------------------------|----------|---------------------------|--------|------|------------|---------------------------|---------------------------|-----------|-----------|----------|-----------|------|------------|
|                           |          | PSI | FT   | Airflow cfm               | HC kBtu/h                 | Power kW | HE kBtu/h                 | LAT °F | COP  | HWC kBtu/h | Airflow cfm               | TC kBtu/h                 | SC kBtu/h | S/T Ratio | Power kW | HR kBtu/h | EER  | HWC kBtu/h |
| 20                        | 6.0      | 1.0 | 2.4  | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
|                           | 10.0     | 2.7 | 6.2  | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
|                           | 14.0     | 5.1 | 11.8 | 1250                      | 24.6                      | 2.71     | 15.3                      | 88.2   | 2.65 | 4.6        | Operation not recommended |                           |           |           |          |           |      |            |
|                           |          |     |      | 1500                      | 25.4                      | 2.75     | 16.0                      | 85.7   | 2.71 | 4.2        | Operation not recommended |                           |           |           |          |           |      |            |
| 30                        | 6.0      | 1.0 | 2.3  | 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 | 1.0  | 2.3                       | Operation not recommended |          |                           |        |      |            |                           | Operation not recommended |           |           |          |           |      |            |
| 10.0                      |          | 2.5 | 5.9  | 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 | 0.9  | 2.2                       | 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       |
|                           | 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 | 5.7  | 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      | 0.9 | 2.1  | 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      | 0.9 | 2.0  | 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      | 0.9 | 2.0  | 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 | 9.8  | 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      | 0.8 | 1.9  | 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 | 5.0  | 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 | 9.4  | 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      | 0.8 | 1.8  | 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                       | Operation not recommended |           |           |          |           |      |            |
|                           |          |     |      | 1500                      | 42.1                      | 33.8     | 0.80                      | 3.61   | 54.4 | 11.7       | 8.9                       | Operation not recommended |           |           |          |           |      |            |
|                           | 14.0     | 3.9 | 9.1  | 1250                      | 41.3                      | 30.9     | 0.75                      | 3.47   | 53.1 | 11.9       | 7.7                       | Operation not recommended |           |           |          |           |      |            |
| 1500                      |          |     |      | 42.6                      | 34.2                      | 0.80     | 3.56                      | 54.7   | 12.0 | 8.5        | Operation not recommended |                           |           |           |          |           |      |            |
| 110                       | 6.0      | 0.8 | 1.8  | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
|                           | 10.0     | 2.0 | 4.6  | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
|                           |          |     |      | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
|                           | 14.0     | 3.8 | 8.7  | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
| Operation not recommended |          |     |      |                           |                           |          | Operation not recommended |        |      |            |                           |                           |           |           |          |           |      |            |
| 120                       | 6.0      | 0.7 | 1.7  | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
|                           | 10.0     | 1.9 | 4.4  | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
|                           |          |     |      | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
|                           | 14.0     | 3.6 | 8.4  | Operation not recommended |                           |          |                           |        |      |            | Operation not recommended |                           |           |           |          |           |      |            |
| Operation not recommended |          |     |      |                           |                           |          | Operation not recommended |        |      |            |                           |                           |           |           |          |           |      |            |

Performance capacities shown in thousands of Btu/h.

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT064 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      | 1.8 | 4.2  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 12.0     | 3.8 | 8.8  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 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      | 1.8 | 4.1  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 12.0     | 3.7 | 8.6  | 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 | -         |      |  |  |
|        |          |     |      | 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      | 1.7 | 4.0  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 12.0     | 3.6 | 8.3  | 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 | -         |      |  |  |
|        |          |     |      | 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      | 1.7 | 3.8  | 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     | 3.5 | 8.1  | 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       |      |  |  |
|        |          |     |      | 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       |      |  |  |
| 60     | 8.0      | 1.6 | 3.7  | 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     | 3.4 | 7.8  | 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       |      |  |  |
|        |          |     |      | 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       |      |  |  |
| 70     | 8.0      | 1.6 | 3.6  | 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     | 3.3 | 7.5  | 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       |      |  |  |
|        |          |     |      | 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       |      |  |  |
| 80     | 8.0      | 1.5 | 3.5  | 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     | 3.2 | 7.3  | 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       |      |  |  |
|        |          |     |      | 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       |      |  |  |
| 90     | 8.0      | 1.4 | 3.3  | 1500                      | 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       |      |  |  |
|        |          |     |      | 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       |      |  |  |
|        | 12.0     | 3.0 | 7.0  | 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       |      |  |  |
|        |          |     |      | 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       |      |  |  |
| 100    | 8.0      | 1.3 | 3.1  | 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       |      |  |  |
|        | 12.0     | 2.7 | 6.3  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
| 110    | 8.0      | 1.4 | 3.2  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 12.0     | 2.9 | 6.8  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 16.0     | 5.0 | 11.6 | 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 |  |  |
| 120    | 8.0      | 1.3 | 3.1  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 12.0     | 2.8 | 6.5  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 16.0     | 4.8 | 11.2 | 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 |  |  |
| 120    | 8.0      | 1.3 | 3.0  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 12.0     | 2.7 | 6.3  | Operation not recommended |          |          |          |        |      |           | Operation not recommended |          |          |           |          |          |      |           |      |  |  |
|        | 16.0     | 4.6 | 10.7 | 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 |  |  |
|        |          |     | 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      |      |  |  |

Performance capacities shown in thousands of Btuh.

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT064 Water Heating Data

| ELT | EST | LGPM | SOURCE 8.0 GPM            |      |      |      |     | SWPD |     | HWC<br>kBtu/h | SOURCE 12.0 GPM |       |      |      |      | SWPD |      | HWC<br>kBtu/h | SOURCE 16.0 GPM |          |       |      |      | SWPD |     | HWC<br>kBtu/h |     |      |          |
|-----|-----|------|---------------------------|------|------|------|-----|------|-----|---------------|-----------------|-------|------|------|------|------|------|---------------|-----------------|----------|-------|------|------|------|-----|---------------|-----|------|----------|
|     |     |      | LLT                       | HC   | KW   | HE   | COP | LST  | PSI |               | FT<br>HD        | LLT   | HC   | KW   | HE   | COP  | LST  |               | PSI             | FT<br>HD | LLT   | HC   | KW   | HE   | COP |               | LST | PSI  | FT<br>HD |
| 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.

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 = hot water generator 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 Btu/h  
 HC = total heating capacity in Btu/h  
 COP = coefficient of performance [HC/(kW x 3.413)]

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT072 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     | 2.3  | 5.4  | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 13.0     | 3.6  | 8.2  | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 16.0     | 5.0  | 11.6 | 1400                      | 32.4                      | 3.36     | 21.0     | 91.4   | 2.83 | 5.9       | Operation not recommended |                           |          |           |          |          |      |           |
|        |          |      |      | 1700                      | 33.2                      | 3.50     | 21.3     | 88.1   | 2.78 | 5.3       | Operation not recommended |                           |          |           |          |          |      |           |
| 30     | 10.0     | 2.3  | 5.3  | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 13.0     | 3.5  | 8.0  | 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     | 4.9  | 11.3 | 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 | 2.2  | 5.1                       | Operation not recommended |          |          |        |      |           |                           | Operation not recommended |          |           |          |          |      |           |
| 13.0   |          | 3.4  | 7.8  | 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   |          | 4.7  | 11.0 | 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     | 2.1  | 4.9  | 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  | 7.5  | 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     | 4.6  | 10.6 | 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     | 2.1  | 4.8  | 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     | 4.4  | 10.3 | 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     | 2.0  | 4.6  | 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  | 7.0  | 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     | 4.3  | 9.9  | 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     | 1.9  | 4.5  | 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     | 4.2  | 9.6  | 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     | 1.9  | 4.3  | 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     | 2.8  | 6.6  | 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     | 4.0  | 9.3  | 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     | 1.8  | 4.2  | 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     | 3.9  | 8.9  | 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     | 1.7  | 4.0  | Operation not recommended |                           |          |          |        |      |           | Operation not recommended |                           |          |           |          |          |      |           |
|        | 13.0     | 2.6  | 6.1  | 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     | 3.7  | 8.6  | 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     | 1.7  | 3.8  | 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     | 3.6  | 8.2  | 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      |                           |                           |          |           |          |          |      |           |

Performance capacities shown in thousands of Btuh.

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT072 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     | 3.3  | 7.6  | Operation not recommended |                           |          |          |        |       | Operation not recommended |                           |                           |          |           |          |          |      |           |
|        | 15.0     | 4.6  | 10.7 | Operation not recommended |                           |          |          |        |       | Operation not recommended |                           |                           |          |           |          |          |      |           |
|        | 18.0     | 6.2  | 14.3 | 1850                      | 45.2                      | 4.40     | 30.2     | 92.6   | 3.01  | 7.9                       | Operation not recommended |                           |          |           |          |          |      |           |
|        |          |      |      | 2200                      | 46.9                      | 4.68     | 30.9     | 89.7   | 2.93  | 7.1                       | Operation not recommended |                           |          |           |          |          |      |           |
| 30     | 12.0     | 3.2  | 7.4  | Operation not recommended |                           |          |          |        |       | Operation not recommended |                           |                           |          |           |          |          |      |           |
|        | 15.0     | 4.5  | 10.4 | 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     | 6.0  | 13.9 | 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 | 3.1  | 7.1                       | Operation not recommended |          |          |        |       |                           | Operation not recommended |                           |          |           |          |          |      |           |
| 15.0   |          | 4.4  | 10.1 | 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   |          | 5.8  | 13.5 | 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 | 3.0  | 6.9                       | 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      |
|        | 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     | 4.2  | 9.8  | 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     | 5.7  | 13.1 | 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     | 2.9  | 6.7  | 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     | 4.1  | 9.5  | 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     | 5.5  | 12.7 | 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     | 2.8  | 6.5  | 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     | 4.0  | 9.1  | 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     | 5.3  | 12.2 | 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     | 2.7  | 6.3  | 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     | 3.8  | 8.8  | 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     | 5.1  | 11.8 | 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     | 2.6  | 6.0  | 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     | 3.7  | 8.5  | 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     | 4.9  | 11.4 | 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     | 2.5  | 5.8  | Operation not recommended |                           |          |          |        |       | Operation not recommended |                           |                           |          |           |          |          |      |           |
|        | 15.0     | 3.6  | 8.2  | 1850                      | 65.4                      | 45.7     | 0.70     | 6.14   | 86.3  | 10.6                      | 12.2                      | Operation not recommended |          |           |          |          |      |           |
|        |          |      |      | 2200                      | 66.7                      | 49.5     | 0.74     | 6.54   | 89.0  | 10.2                      | 13.2                      | Operation not recommended |          |           |          |          |      |           |
|        | 18.0     | 4.8  | 11.0 | 1850                      | 66.1                      | 46.4     | 0.70     | 6.04   | 86.7  | 10.9                      | 11.3                      | Operation not recommended |          |           |          |          |      |           |
| 2200   |          |      |      | 67.5                      | 49.9                      | 0.74     | 6.43     | 89.4   | 10.5  | 12.5                      | Operation not recommended |                           |          |           |          |          |      |           |
| 110    | 12.0     | 2.4  | 5.6  | Operation not recommended |                           |          |          |        |       | Operation not recommended |                           |                           |          |           |          |          |      |           |
|        | 15.0     | 3.4  | 7.9  | 1850                      | 59.3                      | 43.4     | 0.73     | 6.57   | 81.7  | 9.0                       | 14.9                      | Operation not recommended |          |           |          |          |      |           |
|        |          |      |      | 2200                      | 60.5                      | 46.7     | 0.77     | 6.99   | 84.4  | 8.7                       | 16.1                      | Operation not recommended |          |           |          |          |      |           |
|        | 18.0     | 4.6  | 10.6 | 1850                      | 60.0                      | 43.8     | 0.73     | 6.45   | 82.0  | 9.3                       | 13.8                      | Operation not recommended |          |           |          |          |      |           |
| 2200   |          |      |      | 61.2                      | 47.1                      | 0.77     | 6.86     | 84.6   | 8.9   | 15.3                      | Operation not recommended |                           |          |           |          |          |      |           |
| 120    | 12.0     | 2.3  | 5.4  | Operation not recommended |                           |          |          |        |       | Operation not recommended |                           |                           |          |           |          |          |      |           |
|        | 15.0     | 3.3  | 7.6  | 1850                      | 55.2                      | 41.6     | 0.75     | 7.12   | 79.5  | 7.8                       | 18.0                      | Operation not recommended |          |           |          |          |      |           |
|        |          |      |      | 2200                      | 56.4                      | 44.9     | 0.80     | 7.58   | 82.2  | 7.4                       | 19.5                      | Operation not recommended |          |           |          |          |      |           |
|        | 18.0     | 4.4  | 10.2 | 1850                      | 55.9                      | 42.1     | 0.75     | 7.01   | 79.8  | 8.0                       | 16.7                      | Operation not recommended |          |           |          |          |      |           |
| 2200   |          |      |      | 57.0                      | 45.3                      | 0.79     | 7.44     | 82.4   | 7.7   | 18.5                      | Operation not recommended |                           |          |           |          |          |      |           |

Performance capacities shown in thousands of Btuh.

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# QT072 Water Heating Data

| ELT | EST | LGPM | SOURCE 12.0 GPM           |      |      |      |     |      | SWPD |          |      | HWC<br>kBtu/h | SOURCE 15.0 GPM |      |      |     |      |     | SWPD     |      |       | HWC<br>kBtu/h | SOURCE 18.0 GPM |      |     |      |     |          | SWPD |  |  | HWC<br>kBtu/h |
|-----|-----|------|---------------------------|------|------|------|-----|------|------|----------|------|---------------|-----------------|------|------|-----|------|-----|----------|------|-------|---------------|-----------------|------|-----|------|-----|----------|------|--|--|---------------|
|     |     |      | LLT                       | HC   | KW   | HE   | COP | LST  | PSI  | FT<br>HD | LLT  |               | HC              | KW   | HE   | COP | LST  | PSI | FT<br>HD | LLT  | HC    |               | KW              | HE   | COP | LST  | PSI | FT<br>HD |      |  |  |               |
| 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.

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 = hot water generator 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 Btu/h  
 HC = total heating capacity in Btu/h  
 COP = coefficient of performance [HC/(KW x 3.413)]

The manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



# Engineering Guide Specifications

## General

QT Series units shall be floor mounted type with horizontal air inlet and vertical up 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.

All units shall have the source coaxial tube refrigerant-to-water heat exchanger and optional hot water generator ThermaShield™ coated.

## 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 1 in. [25 mm] MERV 7 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 vertical air discharge.

The compressor shall be double isolation mounted using selected durometer grommets to provide vibration free compressor mounting. The compressor mounting bracket shall be acoustically deadened galvanized steel to prevent vibration transmission to the cabinet.

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 manufacturer works continually to improve its products. As a result, the design and specifications of each product at the time of order may be changed without notice. Purchaser's approval of this data set signifies that the equipment is acceptable under the provisions of the job specification. Statements and other information contained herein are not express warranties and do not form the basis of any bargain between the parties, but are merely the manufacturer's opinion or commendation of its products.

Contractor: \_\_\_\_\_ P.O.: \_\_\_\_\_

Engineer: \_\_\_\_\_

Project Name: \_\_\_\_\_ Unit Tag: \_\_\_\_\_



## Engineering Guide Specifications cont.

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. The Lockout signal output shall have a pulsed option so that DDC systems can read specific lockout conditions from the control. An 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 (and optional hot water generator 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. 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 ¾ 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.

#### Electronic Air Cleaner (field-installed)

A 1 in. [25 mm] electronic air cleaner, cleanable 97% efficiency at 0.3 microns and larger, shall be provided in lieu of the standard throwaway filter. The initial pressure drop across the filter shall not exceed 0.2 in. w.g. at 300 fpm force velocity.

#### Electrostatic Air Cleaner (field-installed)

A 1 in. [25 mm] electrostatic air cleaner, cleanable 90% efficiency, shall be provided in lieu of the standard throwaway filter. The initial pressure drop across the filter shall not exceed 0.15 in. w.g. at 300 fpm force velocity.

#### 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.