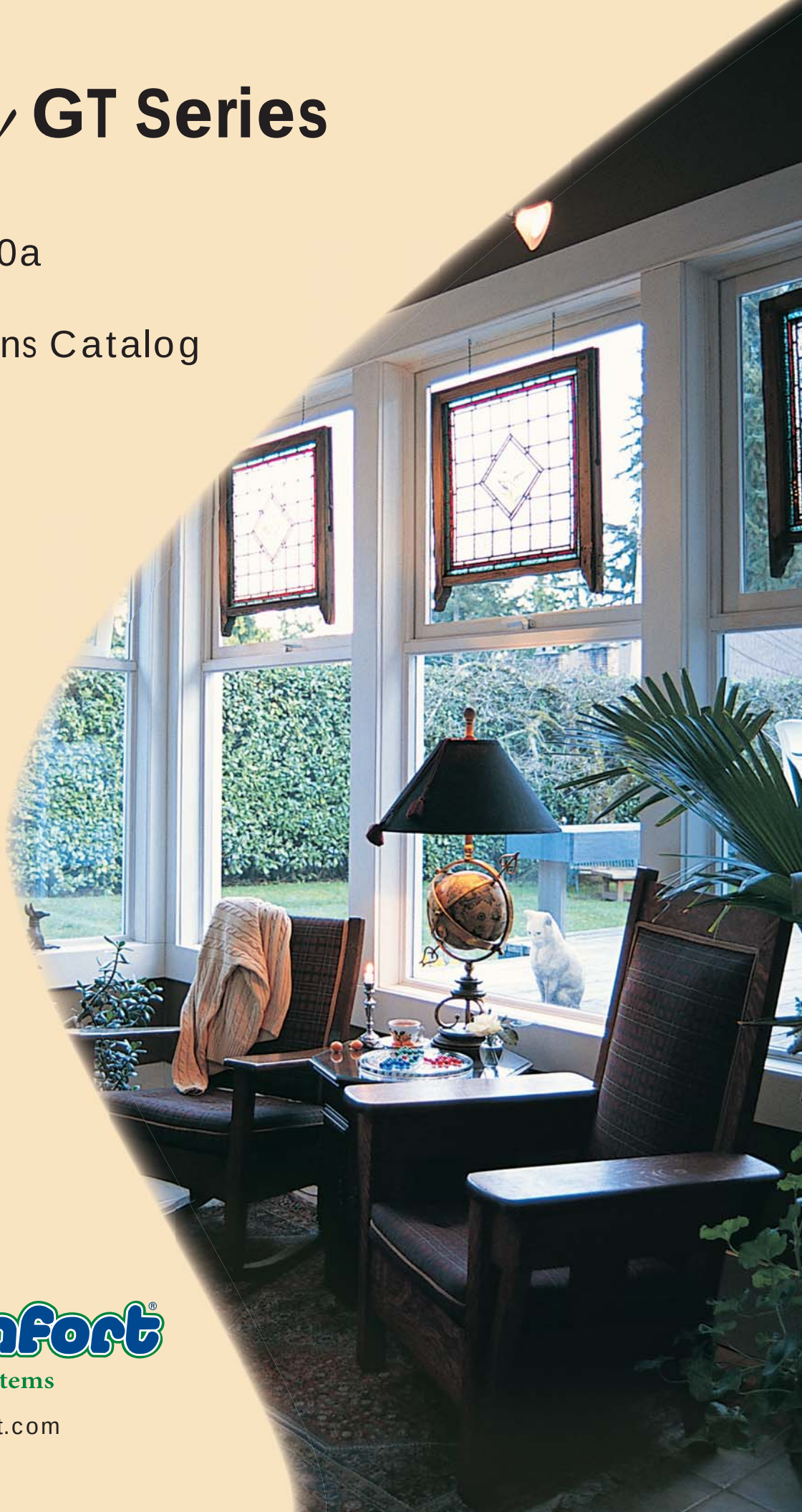
Serenity GT Series

Two-Stage, R-410a
Combination
Unit Specifications Catalog



GeoComfort®
Geothermal Systems

www.geocomfort.com

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Product Introduction & Unit Features

The GT Series product line is a highly efficient, reliable and quiet operating, year-round comfort solution for your home or business. GT series combination units are a unique blend of forced air heating and cooling, and hydronic heating. Two-stage compressor and variable speed ECM fan are standard in all combination units.

The GT Series line provides exceptional operating efficiency throughout a wide range of entering water temperatures between 25°F to 110°F. The flexibility of the combination unit includes the ability to heat and cool the air like other geothermal systems, but also heat water for hydronic applications such as radiant floor heating. The two stage compressor and variable speed fan allow the unit to match the building loads more closely, providing exceptional comfort.

The GT Series is manufactured in the heart of America. Pride in workmanship has been deeply embedded in the culture of our company. Every department places a high value on integrity and complete customer satisfaction. “World Class Service – Hometown Values” is far more than a slogan, it’s a way of life.

The GT Series comes standard with powder coated steel cabinet designed for long life and extraordinary beauty. The cabinet is bolted together, rather than using screws for unmatched integral strength. The cabinet is also insulated with 3/8” insulation (foil faced) for quiet operation and easy clean up. Another noise reduction feature is rubber mounted Scroll compressors, and rubber mounted blowers. The features work in concert to reduce vibration, which reduces noise.

All Coaxial Heat Exchangers are insulated to reduce corrosion, but also avoid condensation problems at low temperatures. Specially coated air coils add durability and longer equipment life. Additionally, the air coils are oversized providing high efficiencies at low face velocity. The Bidirectional Expansion Valve delivers optimum refrigerant flow over a wide range of conditions and provides bidirectional operation without troublesome check valves.

Unit Features at a Glance

- Combination Forced Air Heating/ Cooling and Hydronic Heating Operating Modes
- Non-Ozone Depleting R-410A Refrigerant
- Appliance White Powder Coated Steel Construction
- Cabinet Bolted Together
- All Panels Removable for Easy Service
- Coated Air Coils For Extended Life
- Bidirectional Expansion Valve
- ECM Blower Motors
- Corrosion-Proof, Stainless Steel, Drain Pan
- ETL Certified to UL & CSA Standards
- AHRI Certified to ISO Standards
- Copper Coaxial Water Heat Exchanger
- Flow Switch Protected
- Fault Retry To Eliminate Nuisance Service Calls
- High Efficiency Copeland UltraTech Two-Stage Scroll Compressor
- 10 Year Limited Warranty

Optional features

- Cupro-nickel heat exchanger
- Hot Water Generator (Desuperheater)
- Field installed internal electric heat
- Extended warranty

Unit Performance:
AHRI Data - Forced Air Operation

Ground Loop Heat Pump

Model	Capacity	Heating		Cooling	
		Btu/hr	COP	Btu/hr	EER
GT024	Full Load	22,200	3.7	29,000	16.0
	Part Load	16,500	4.2	21,500	20.0
GT036	Full Load	31,400	3.6	39,400	18.0
	Part Load	20,900	4.5	26,300	24.0
GT048	Full Load	45,600	3.5	57,200	17.6
	Part Load	30,300	4.3	37,900	23.8
GT060	Full Load	52,200	3.5	65,400	17.4
	Part Load	36,500	4.3	45,700	23.6

Note:
Rated in accordance with ISO Standard 13256-1 which includes Pump Penalties.
Heating capacities based on 68.0°F DB, 59.0°F WB entering air temperature.
Cooling capacities based on 80.6°F DB, 66.2°F WB entering air temperature.
Entering water temperatures Full Load: 32°F heating / 77°F cooling.
Entering water temperatures Part Load: 41°F heating / 68°F cooling.

Ground Water Heat Pump

Model	Capacity	Heating		Cooling	
		Btu/hr	COP	Btu/hr	EER
GT024	Full Load	25,500	4.1	30,400	18.4
	Part Load	18,900	4.8	22,500	23.0
GT036	Full Load	36,100	4.1	41,300	20.7
	Part Load	24,000	5.2	27,600	27.6
GT048	Full Load	52,400	4.0	60,000	20.2
	Part Load	34,800	4.9	39,700	27.4
GT060	Full Load	60,000	4.0	68,600	20.0
	Part Load	41,900	4.9	47,900	27.1

Note:
Rated in accordance with ISO Standard 13256-1 which includes Pump Penalties.
Heating capacities based on 68.0°F DB, 59.0°F WB entering air temperature.
Cooling capacities based on 80.6°F DB, 66.2°F WB entering air temperature.
Entering water temperatures: 50°F heating / 59°F cooling.

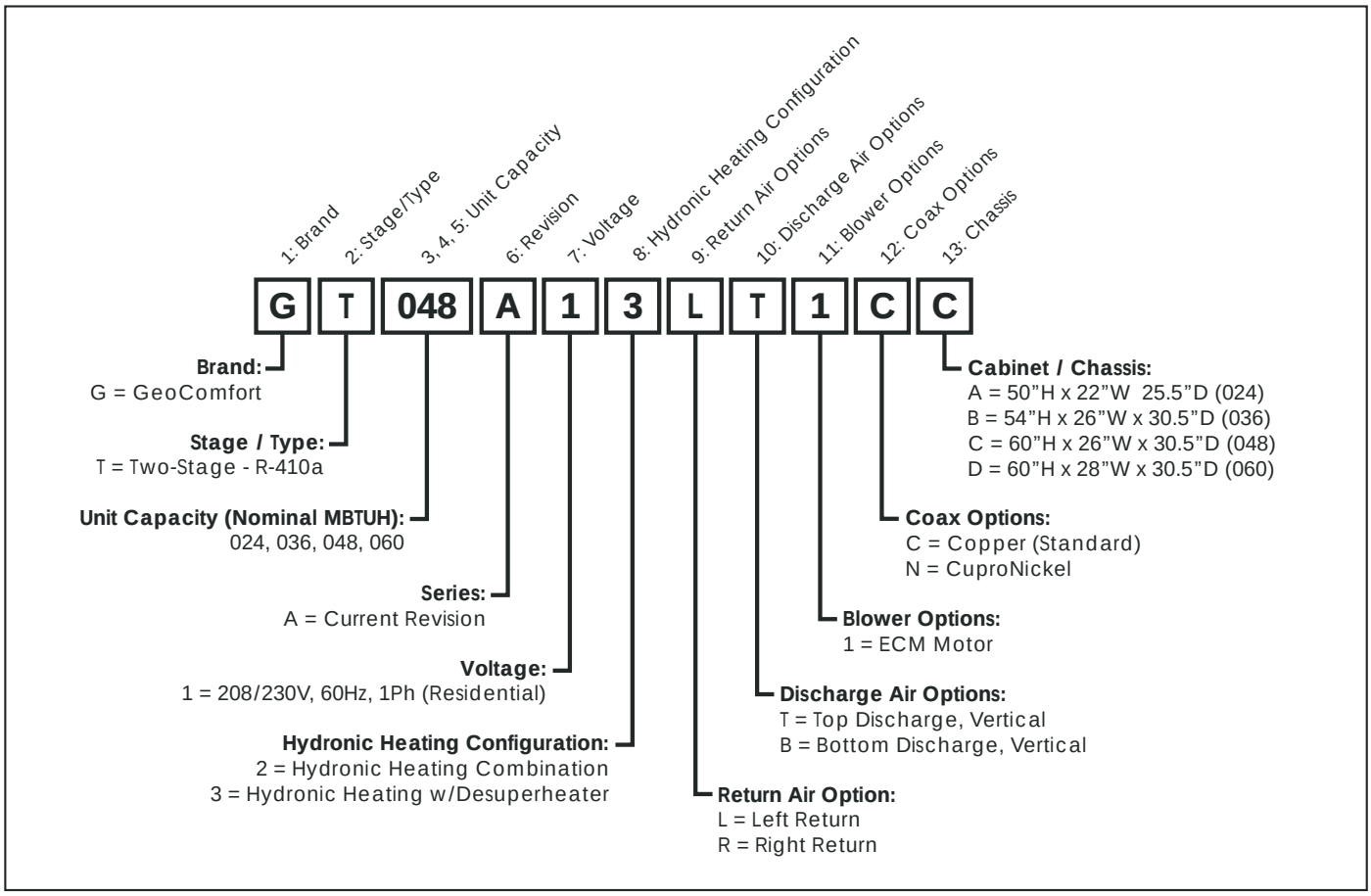
Unit Performance:
AHRI Data - Hydronic Operation

Ground Loop Heat Pump

Model	Capacity	Heating	
		Btu/hr	COP
GT024	Nominal	21,000	3.7
GT036	Nominal	31,600	3.7
GT048	Nominal	44,700	3.6
GT060	Nominal	50,000	3.5

Notes:
Rated in accordance with ISO Standard 13256-2 which includes Pump Penalties.
Heating capacities based on 32°F EST & 104°F ELT.
Entering load temperature over 120°F heating is not permissible.
Floor heating is most generally designed for 85°F entering load temperature.

Unit Nomenclature:
Vertical Cabinets



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Glossary

Glossary of Terms

CFM = Airflow, Cubic Feet/Minute	HR = Total Heat Of Rejection, Btu/hr
COP = Coefficient of Performance = BTU Output / BTU Input	KW = Total Power Unit Input, Kilowatts
DH = Desuperheater Capacity, Btu/hr	LAT = Leaving Air Temperature, Fahrenheit
EAT = Entering Air Temperature, Fahrenheit (Dry Bulb/Wet Bulb)	LC = Latent Cooling Capacity, Btu/hr
EER = Energy Efficiency Ratio = BTU output/Watts input	SC = Sensible Cooling Capacity, Btu/hr
EWT = Entering Source Water Temperature, Fahrenheit	LWT = Leaving Source Water Temperature, Fahrenheit
ELT = Entering Load Water Temperature, Fahrenheit	LLT = Leaving Load Water Temperature, Fahrenheit
GPM = Water Flow, Gallons Per Minute	TC = Total Cooling Capacity, Btu/hr
HC = Total Heating Capacity, Btu/hr	WPD = Water Pressure Drop, PSI & Feet of Water
HE = Total Heat Of Extraction, Btu/hr	

Calculations, Water Flow Selection, & Performance Notes

Heating & Cooling Calculations

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

Water Flow Selection

Proper flow rate is crucial for reliable operation of geothermal heat pumps. The performance data shows three flow rates for each entering water temperature (EWT column). The general “rule of thumb” when selecting flow rates is the following:

Top flow rate: Open loop systems (1.5 to 2.0 gpm per ton)
Middle flow rate: Minimum closed loop system flow rate (2.25 to 2.50 gpm/ton)
Bottom flow rate: Nominal (optimum) closed loop system flow rate (3.0 gpm/ton)

Although the “rule of thumb” is adequate in most areas of North America, it is important to consider the application type before applying this “rule of thumb.” Antifreeze is generally required for all closed loop (geothermal) applications. Extreme Southern U.S. locations are the only exception. Open loop (well water) systems cannot use antifreeze, and must have enough flow rate in order to avoid freezing conditions at the Leaving Source Water Temperature (LWT) connection.

Calculations must be made for all systems without antifreeze to determine if the top flow rate is adequate to prevent LWT at or near freezing conditions. The following steps should taken in making this calculation:

Determine minimum EWT based upon your geographical area.
Go to the performance data table for the heat pump model selected and look up the the Heat of Extraction (HE) at the “rule of thumb” water flow rate (GPM) and at the design Entering Air Temperature (EAT).

Performance Data Application Notes

Performance data for combo units are based upon the following operation modes:

- Heating forced air low capacity: Compressor part load operation, fan (air coil is condenser; source water coil is evaporator)
- Heating forced air high capacity: Compressor full load operation, fan (air coil is condenser; source water coil is evaporator)
- Heating hydronic mode high capacity: Compressor full load operation, hot water direction (reversing) valve, hot water 3-way valve (load water coil is condenser; source water coil is evaporator)
- Cooling forced air low capacity: Compressor part load operation, fan, reversing valve (source water coil is condenser; air coil is evaporator)
- Cooling forced air high capacity: Compressor full load operation, fan, reversing valve (source water coil is condenser; air coil is evaporator)

Combo unit operation modes allow hydronic heating in full load compressor operation only. Chilled water operation is not available. Forced air modes are exactly the same as water-to-air (non-combo) units.

Calculate the temperature difference (TD) based upon the HE and GPM of the model (step 4).
TD = HE / (GPM x 500).
Calculate the LWT (step 6).
LWT = EWT - TD.

If the LWT is below 35-38°F, there is potential for freezing conditions if the flow rate or water temperature is less than ideal conditions, and the flow rate must be increased.

Forced Air Operation
Example 1:
EWT = 50°F.
Model GT036, high capacity. Flow rate = 5 GPM. HE = 26,700 Btuh.
TD = 26,700 / (5 x 500) = 10.7°F
LWT = 50 - 10.7 = 39.3°F
Water flow rate should be adequate under these conditions.

Example 2:
EWT = 40°F.
Model GT036, high capacity. Flow rate = 5 GPM. HE = 22,900 Btuh.
TD = 22,900 / (5 x 500) = 9.2°F
LWT = 40 - 9.2 = 30.8°F
Water flow rate must be increased.

Hydronic Operation
Example 1:
EWT = 50°F.
Model GT036, heating. Flow rate = 5 GPM. HE = 26,800 Btuh.
TD = 26,800 / (5 x 500) = 10.7°F
LWT = 50 - 10.7 = 39.3°F
Water flow rate should be adequate under these conditions.

Example 2:
EWT = 40°F.
Model GT036, heating. Flow rate = 5 GPM. HE = 23,000 Btuh.
TD = 23,000 / (5 x 500) = 9.2°F
LWT = 40 - 9.2 = 30.8°F
Water flow rate must be increased.

GT024 Performance Data:
2.0 Ton, 900 CFM, Forced Air, High Capacity Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	3.9	1.4	3.2	60	21.7	15.5	82.3	1.77	3.58	19.0	15.6	79.5	1.75	2.7	3.62
				70	21.0	14.6	91.6	1.87	3.30	18.3	14.7	88.8	1.83	2.8	3.36
				80	20.4	13.8	101.0	1.96	3.05	17.5	13.8	98.0	1.92	2.9	3.11
	5.4	2.6	6.0	60	22.3	16.2	83.0	1.79	3.65	19.5	16.2	80.1	1.75	2.8	3.73
				70	21.7	15.2	92.3	1.89	3.37	18.8	15.3	89.1	1.85	2.9	3.44
				80	21.1	14.3	101.7	1.98	3.12	18.1	14.4	98.7	1.94	3.0	3.19
	7.0	4.1	9.6	60	22.6	16.5	83.3	1.79	3.70	19.8	16.6	80.4	1.75	2.8	3.78
				70	22.0	15.6	92.6	1.89	3.42	19.1	13.4	89.6	1.85	2.9	3.49
				80	21.4	14.6	102.0	1.98	3.17	18.4	14.7	98.9	1.94	3.0	3.23
50	3.9	1.3	3.0	60	28.0	21.7	88.8	1.86	4.42	24.5	21.9	85.2	1.80	3.5	4.57
				70	27.2	20.4	98.0	1.96	4.07	23.6	20.6	94.3	1.90	3.6	4.20
				80	26.3	19.2	107.0	2.05	3.75	22.6	19.4	103.2	1.99	3.7	3.86
	5.4	2.4	5.5	60	29.2	22.7	90.0	1.89	4.52	25.6	23.0	86.3	1.83	3.6	4.67
				70	28.2	21.5	99.1	1.99	4.15	24.5	21.7	95.2	1.93	3.7	4.29
				80	27.3	20.1	108.1	2.10	3.82	23.5	20.4	104.2	2.03	3.8	3.95
	7.0	3.9	8.9	60	29.8	23.3	90.7	1.90	4.59	26.1	23.5	86.8	1.83	3.7	4.76
				70	28.8	22.0	99.7	2.00	4.22	25.0	22.3	95.7	1.94	3.8	4.36
				80	27.9	20.7	108.7	2.10	3.88	23.9	20.9	104.6	2.04	3.9	4.01
70	3.9	1.3	3.0	60	34.1	27.4	95.1	1.97	5.06	29.8	27.7	90.7	1.88	4.2	5.30
				70	32.9	25.8	103.8	2.08	4.64	28.5	26.2	99.4	1.99	4.3	4.85
				80	31.7	24.2	112.6	2.18	4.26	27.2	24.6	108.0	2.08	4.4	4.45
	5.4	2.3	5.3	60	35.8	28.8	96.8	2.03	5.16	31.3	29.3	92.2	1.94	4.5	5.41
				70	34.5	27.2	105.5	2.14	4.73	30.0	27.6	100.8	2.04	4.6	4.95
				80	33.3	25.6	114.2	2.25	4.33	28.6	26.0	109.4	2.15	4.7	4.54
	7.0	3.7	8.5	60	36.8	29.7	97.8	2.06	5.24	32.2	30.2	93.1	1.95	4.6	5.51
				70	35.4	28.1	106.5	2.16	4.80	30.7	28.5	101.6	2.06	4.7	5.04
				80	34.1	26.4	115.1	2.27	4.40	29.3	26.8	110.2	2.16	4.8	4.62
90	3.9	1.2	2.8	60	39.3	32.3	100.4	1.96	5.88	34.4	32.9	95.4	1.95	4.9	5.91
				70	37.9	30.4	108.9	2.22	5.01	32.8	31.0	103.8	2.05	5.0	5.40
				80	36.4	28.6	117.4	2.28	4.68	31.3	29.1	112.2	2.16	5.1	4.94
	5.4	2.1	4.9	60	41.5	34.2	102.7	2.15	5.66	36.4	34.9	97.4	2.02	5.2	6.02
				70	40.0	32.3	111.2	2.26	5.18	34.7	33.0	105.7	2.13	5.3	5.50
				80	38.5	30.4	119.6	2.38	4.74	33.1	31.0	114.0	2.24	5.4	5.03
	7.0	3.4	7.9	60	42.9	35.4	104.2	2.18	5.76	37.6	36.2	98.7	2.05	5.3	6.14
				70	41.3	33.4	112.5	2.30	5.27	35.8	34.2	106.9	2.16	5.5	5.60
				80	39.7	31.4	120.8	2.41	4.82	34.1	32.1	115.1	2.27	5.6	5.12

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT024 Performance Data:
2.0 Ton, 500 CFM, Forced Air, Low Capacity Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	2.2	0.9	2.1	60	14.9	10.7	87.7	0.98	4.47	13.1	10.7	84.2	0.97	1.9	4.53
				70	14.5	10.1	96.9	1.03	4.12	12.6	10.2	93.3	1.01	1.9	4.20
				80	14.1	9.5	106.0	1.08	3.81	12.1	9.5	102.4	1.06	2.0	3.89
	3.1	1.7	3.9	60	15.4	10.5	88.5	0.99	4.56	13.5	11.2	85.0	0.97	1.9	4.66
				70	15.0	10.5	97.7	1.04	4.21	13.0	10.6	94.1	1.02	2.0	4.30
				80	14.6	9.9	107.0	1.09	3.90	12.5	9.9	103.2	1.07	2.0	3.99
	4.0	2.7	6.2	60	15.6	11.4	88.9	0.99	4.62	13.7	11.5	85.3	0.97	1.9	4.73
				70	15.2	10.8	98.1	1.04	4.28	13.2	9.3	94.4	1.02	2.0	4.36
				80	14.8	10.1	107.4	1.09	3.96	12.7	10.2	103.5	1.07	2.1	4.04
50	2.2	0.8	1.9	60	19.3	15.0	95.8	1.03	5.53	16.9	15.1	91.3	0.99	2.4	5.72
				70	18.8	14.1	104.7	1.08	5.09	16.3	14.2	100.1	1.05	2.5	5.25
				80	18.1	13.3	113.5	1.13	4.69	15.6	13.4	108.8	1.10	2.5	4.83
	3.1	1.6	3.6	60	20.1	15.7	97.3	1.05	5.65	17.6	15.9	92.7	1.01	2.5	5.84
				70	19.5	14.8	106.1	1.10	5.19	16.9	14.9	101.3	1.06	2.6	5.36
				80	18.9	13.9	114.9	1.16	4.78	16.2	14.1	110.0	1.12	2.6	4.94
	4.0	2.5	5.8	60	20.6	16.1	98.1	1.05	5.74	18.0	16.2	93.3	1.01	2.6	5.95
				70	19.9	15.2	106.8	1.11	5.28	17.3	15.4	102.0	1.07	2.6	5.45
				80	19.2	14.3	115.6	1.16	4.85	16.5	14.4	110.6	1.12	2.7	5.01
70	2.2	0.8	1.9	60	23.5	18.9	103.6	1.09	6.32	20.6	19.1	98.1	1.04	2.9	6.63
				70	22.7	17.8	112.0	1.15	5.80	19.7	18.0	106.5	1.10	3.0	6.07
				80	21.8	16.7	120.5	1.20	5.32	18.8	17.0	114.8	1.15	3.1	5.57
	3.1	1.5	3.5	60	24.7	19.9	105.7	1.12	6.45	21.6	20.2	100.0	1.07	3.1	6.77
				70	23.8	18.8	114.1	1.18	5.91	20.7	19.1	108.3	1.13	3.1	6.19
				80	22.9	17.6	122.5	1.24	5.41	19.7	17.9	116.5	1.18	3.2	5.68
	4.0	2.4	5.5	60	25.4	20.5	107.0	1.13	6.55	22.2	20.9	101.1	1.08	3.2	6.89
				70	24.4	19.4	115.3	1.19	6.00	21.2	19.7	109.3	1.14	3.2	6.30
				80	23.5	18.2	123.6	1.25	5.50	20.2	18.5	117.5	1.19	3.3	5.78
90	2.2	0.8	1.8	60	27.1	22.3	110.2	1.08	7.35	23.7	22.7	104.0	1.08	3.4	7.39
				70	26.1	21.0	118.4	1.22	6.26	22.7	21.4	112.0	1.13	3.5	6.75
				80	25.1	19.7	126.5	1.26	5.85	21.6	20.1	120.0	1.19	3.5	6.18
	3.1	1.4	3.2	60	28.7	23.6	113.1	1.19	7.07	25.1	24.1	106.5	1.12	3.6	7.53
				70	27.6	22.3	121.1	1.25	6.48	24.0	22.7	114.4	1.18	3.7	6.88
				80	26.5	20.9	129.1	1.31	5.92	22.8	21.4	122.2	1.24	3.7	6.29
	4.0	2.2	5.1	60	29.6	24.4	114.8	1.21	7.20	25.9	25.0	108.0	1.13	3.7	7.68
				70	28.5	23.1	122.8	1.27	6.59	24.7	23.6	115.8	1.19	3.8	7.00
				80	27.4	21.7	130.7	1.33	6.03	23.5	22.2	123.6	1.25	3.8	6.40

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT024 Performance Data:
2.0 Ton, High Capacity Hydronic Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	ELT	HC	KW	HE	LWT	COP	HC	KW	HE	LWT	DH	COP
30	3.9	1.4	3.2	85	21.6	1.73	15.5	96.1	3.66	18.9	1.71	15.5	94.7	2.7	3.69
				95	21.0	1.82	14.6	105.8	3.38	18.2	1.79	14.7	104.4	2.8	3.43
				110	20.3	1.91	13.8	120.5	3.12	17.5	1.88	13.8	119.0	2.9	3.17
	5.4	2.6	6.0	85	22.3	1.75	16.2	93.2	3.74	19.5	1.71	16.2	92.2	2.8	3.81
				95	21.7	1.84	15.2	103.0	3.45	18.8	1.81	15.3	101.9	2.9	3.51
				110	21.1	1.93	14.3	117.7	3.19	18.1	1.90	14.4	116.7	3.0	3.26
	7.0	4.1	9.6	85	22.6	1.75	16.5	91.4	3.79	19.7	1.71	16.6	90.6	2.8	3.86
				95	22.0	1.84	15.6	101.3	3.50	19.1	1.81	13.4	100.4	2.9	3.56
				110	21.4	1.93	14.6	116.1	3.24	18.4	1.90	14.7	115.2	3.0	3.30
50	3.9	1.3	3.0	85	28.0	1.81	21.7	99.4	4.52	24.5	1.76	21.9	97.6	3.5	4.66
				95	27.1	1.91	20.4	108.9	4.17	23.5	1.85	20.6	107.1	3.6	4.29
				110	26.2	2.00	19.2	123.5	3.84	22.5	1.95	19.4	121.6	3.7	3.94
	5.4	2.4	5.5	85	29.1	1.85	22.7	95.7	4.63	25.5	1.79	22.9	94.4	3.6	4.77
				95	28.2	1.94	21.4	105.4	4.25	24.5	1.89	21.6	104.0	3.7	4.38
				110	27.3	2.04	20.1	120.0	3.91	23.4	1.98	20.3	118.6	3.8	4.03
	7.0	3.9	8.9	85	29.7	1.86	23.3	93.5	4.70	26.0	1.79	23.5	92.4	3.7	4.86
				95	28.8	1.95	22.0	103.2	4.32	25.0	1.90	22.2	102.1	3.8	4.45
				110	27.8	2.05	20.6	117.9	3.97	23.9	1.99	20.9	116.8	3.9	4.09
70	3.9	1.3	3.0	85	34.0	1.93	27.3	102.5	5.18	29.8	1.84	27.7	100.3	4.2	5.41
				95	32.8	2.03	25.8	111.9	4.75	28.5	1.94	26.1	109.6	4.3	4.95
				110	31.6	2.12	24.2	126.2	4.36	27.2	2.04	24.6	124.0	4.4	4.54
	5.4	2.3	5.3	85	35.7	1.98	28.8	98.1	5.28	31.3	1.90	29.3	96.5	4.4	5.52
				95	34.5	2.09	27.2	107.7	4.84	29.9	2.00	27.6	106.0	4.6	5.05
				110	33.2	2.19	25.5	122.2	4.43	28.5	2.10	25.9	120.5	4.7	4.63
	7.0	3.7	8.5	85	36.7	2.01	29.7	95.5	5.36	32.1	1.91	30.2	94.2	4.6	5.62
				95	35.4	2.11	28.0	105.1	4.91	30.7	2.01	28.5	103.8	4.7	5.14
				110	34.0	2.22	26.3	119.7	4.50	29.3	2.12	26.8	118.4	4.8	4.71
90	3.9	1.2	2.8	85	39.2	1.91	32.2	105.2	6.02	34.3	1.91	32.8	102.6	4.9	6.03
				95	37.8	2.16	30.4	114.4	5.12	32.8	2.01	31.0	111.8	5.0	5.51
				110	36.3	2.22	28.5	128.7	4.79	31.2	2.11	29.1	126.1	5.1	5.04
	5.4	2.1	4.9	85	41.5	2.10	34.2	100.2	5.79	36.3	1.98	34.8	98.3	5.2	6.14
				95	39.9	2.21	32.2	109.7	5.30	34.7	2.09	32.9	107.7	5.3	5.61
				110	38.4	2.32	30.3	124.1	4.85	33.0	2.19	30.9	122.1	5.4	5.13
	7.0	3.4	7.9	85	42.8	2.13	35.4	97.2	5.89	37.5	2.00	36.1	95.7	5.3	6.27
				95	41.2	2.24	33.4	106.8	5.39	35.8	2.11	34.1	105.2	5.4	5.72
				110	39.6	2.35	31.4	121.3	4.93	34.0	2.22	32.1	119.7	5.6	5.23

Notes:
1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between EWT & GPM data is permissible.
3. See Flow Rate Selection on page 6 for proper application.
4. EWT (Entering Water Temperature) is also called EST (Entering Source Temperature).
5. Load flow rate is the same as the source flow rate at each of the three flow selections.

GT024 Performance Data:
2.0 Ton, 900 CFM, Forced Air, High Capacity Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	3.9	1.3	3.1	75/63	28.0	19.6	33.0	1.44	19.5	28.0	19.6	33.0	1.41	2.4	19.9
				80/67	30.4	20.4	35.1	1.47	20.7	30.4	20.4	35.1	1.44	2.4	21.2
				85/71	32.9	21.2	37.2	1.50	21.9	32.9	21.2	37.2	1.47	2.5	22.4
	5.4	2.4	5.5	75/63	28.3	19.8	33.1	1.37	20.6	28.3	19.8	33.1	1.35	2.2	20.9
				80/67	30.7	20.6	35.2	1.40	21.9	30.7	20.6	35.2	1.38	2.3	22.2
				85/71	33.2	21.4	37.3	1.43	23.2	33.2	21.4	37.3	1.41	2.4	23.5
	7.0	3.9	8.9	75/63	28.6	19.8	33.3	1.33	21.5	28.6	19.8	33.3	1.33	2.1	21.5
				80/67	31.1	20.6	35.4	1.36	22.8	31.1	20.8	35.4	1.35	2.2	22.9
				85/71	33.6	21.4	37.5	1.39	24.2	33.6	21.4	37.6	1.38	2.2	24.3
70	3.9	1.3	3.0	75/63	26.3	19.2	32.1	1.73	15.2	26.4	19.3	32.2	1.69	3.4	15.7
				80/67	28.5	20.0	34.1	1.77	16.1	28.7	20.1	34.2	1.72	3.5	16.7
				85/71	30.8	20.8	36.2	1.80	17.2	31.0	20.9	36.3	1.76	3.6	17.6
	5.4	2.3	5.3	75/63	26.7	19.4	32.2	1.64	16.2	26.8	19.5	32.3	1.62	3.3	16.6
				80/67	29.0	20.2	34.3	1.68	17.3	29.2	20.3	34.4	1.65	3.4	17.6
				85/71	31.3	21.0	36.4	1.71	18.3	31.5	21.1	36.5	1.68	3.5	18.7
	7.0	3.7	8.5	75/63	26.9	19.4	32.4	1.59	16.9	27.1	19.5	32.5	1.59	3.1	17.1
				80/67	29.3	20.2	34.5	1.63	18.0	29.5	20.3	34.6	1.62	3.2	18.2
				85/71	31.6	21.0	36.5	1.66	19.0	31.8	21.1	36.7	1.65	3.3	19.3
90	3.9	1.2	2.8	75/63	23.9	18.4	30.9	2.14	11.2	24.1	18.6	31.0	2.07	4.5	11.7
				80/67	26.0	19.2	32.9	2.18	11.9	26.2	19.3	33.0	2.12	4.6	12.4
				85/71	28.1	20.0	34.9	2.21	12.7	28.3	20.1	35.0	2.15	4.7	13.2
	5.4	2.1	4.9	75/63	24.4	18.6	31.1	2.01	12.1	24.6	18.7	31.2	1.97	4.3	12.5
				80/67	26.5	19.4	33.0	2.06	12.9	26.8	19.5	33.2	2.01	4.4	13.3
				85/71	28.6	20.2	35.0	2.09	13.7	28.9	20.3	35.2	2.05	4.5	14.1
	7.0	3.4	7.9	75/63	24.7	18.6	31.1	1.96	12.6	24.9	18.7	31.4	1.93	4.1	12.9
				80/67	26.8	19.4	33.1	2.00	13.4	27.1	19.5	33.4	1.97	4.3	13.7
				85/71	28.9	20.2	35.1	2.04	14.2	29.2	20.3	35.4	2.01	4.4	14.5
110	3.9	1.2	2.7	75/63	20.9	17.3	29.4	2.66	7.8	21.2	17.4	29.5	2.58	5.5	8.2
				80/67	22.6	18.0	31.3	2.70	8.4	23.0	18.1	31.4	2.63	5.7	8.8
				85/71	24.5	18.7	33.2	2.76	8.9	24.9	18.9	33.3	2.67	5.9	9.3
	5.4	2.1	4.9	75/63	21.4	17.4	29.5	2.49	8.6	21.7	17.6	29.7	2.45	5.4	8.9
				80/67	23.3	18.1	31.4	2.55	9.1	23.7	18.3	31.6	2.49	5.5	9.5
				85/71	25.1	18.9	33.3	2.62	9.6	25.5	19.0	33.5	2.54	5.6	10.1
	7.0	3.4	7.8	75/63	21.6	17.4	29.5	2.44	8.9	22.0	17.6	29.8	2.40	5.1	9.1
				80/67	23.5	18.1	31.4	2.47	9.5	23.9	18.3	31.7	2.46	5.3	9.7
				85/71	25.4	18.9	33.3	2.52	10.1	25.8	19.0	33.6	2.49	5.5	10.4

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT024 Performance Data:
2.0 Ton, 500 CFM, Forced Air, Low Capacity Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	2.2	0.9	2.0	75/63	19.3	13.5	22.8	0.74	26.0	19.3	13.5	22.8	0.73	1.6	26.5
				80/67	21.0	14.1	24.2	0.76	27.6	21.0	14.1	24.2	0.74	1.7	28.2
				85/71	22.7	14.6	25.7	0.78	29.2	22.7	14.7	25.7	0.76	1.7	29.8
	3.1	1.6	3.6	75/63	19.5	13.6	22.8	0.71	27.5	19.5	13.7	22.8	0.70	1.5	27.9
				80/67	21.2	14.2	24.3	0.73	29.2	21.2	14.2	24.3	0.72	1.6	29.6
				85/71	22.9	14.7	25.7	0.74	31.0	22.9	14.8	25.7	0.73	1.6	31.3
	4.0	2.5	5.8	75/63	19.7	13.6	23.0	0.69	28.6	19.7	13.7	23.0	0.69	1.5	28.7
				80/67	21.4	14.2	24.4	0.70	30.5	21.4	14.2	24.4	0.70	1.5	30.6
				85/71	23.2	14.7	25.9	0.72	32.2	23.2	14.8	25.9	0.71	1.5	32.5
70	2.2	0.8	1.9	75/63	18.1	13.3	22.2	0.89	20.3	18.2	13.3	22.2	0.87	2.3	20.9
				80/67	19.7	13.8	23.6	0.92	21.5	19.8	13.9	22.3	0.89	2.4	22.3
				85/71	21.3	14.3	25.0	0.93	22.9	21.4	14.4	25.0	0.91	2.5	23.5
	3.1	1.5	3.5	75/63	18.4	13.4	22.2	0.85	21.6	18.5	13.5	22.3	0.84	2.3	22.1
				80/67	20.0	13.9	23.7	0.87	23.0	20.1	14.0	23.8	0.86	2.3	23.5
				85/71	21.6	14.5	25.1	0.89	24.4	21.7	14.6	25.2	0.87	2.4	25.0
	4.0	2.4	5.5	75/63	18.6	13.4	22.4	0.83	22.5	18.7	13.5	22.4	0.82	2.1	22.8
				80/67	20.2	13.9	23.8	0.84	24.0	20.3	14.0	23.9	0.84	2.2	24.2
				85/71	21.8	14.5	25.2	0.86	25.4	21.9	14.6	25.3	0.85	2.3	25.7
90	2.2	0.8	1.8	75/63	16.5	12.7	21.3	1.11	14.9	16.7	12.8	21.4	1.07	3.1	15.5
				80/67	17.9	13.2	22.7	1.13	15.9	18.1	13.3	22.8	1.09	3.2	16.5
				85/71	19.4	13.8	24.1	1.15	16.9	19.6	13.9	24.2	1.12	3.3	17.5
	3.1	1.4	3.2	75/63	16.8	12.8	21.4	1.04	16.2	17.0	12.9	21.6	1.02	3.0	16.7
				80/67	18.3	13.4	22.8	1.07	17.2	18.5	13.5	22.9	1.04	3.1	17.8
				85/71	19.8	13.9	24.1	1.08	18.3	20.0	14.0	24.3	1.06	3.1	18.8
	4.0	2.2	5.2	75/63	17.0	12.8	21.5	0.01	16.8	17.2	12.9	21.6	1.00	2.9	17.2
				80/67	18.5	13.4	22.8	0.03	17.9	18.7	13.5	23.0	1.02	2.9	18.3
				85/71	20.0	13.9	24.2	0.06	18.9	20.2	14.0	24.4	1.04	3.0	19.4
110	2.2	0.8	1.7	75/63	14.4	11.9	20.3	1.38	10.4	14.6	12.0	10.4	1.34	3.8	10.9
				80/67	15.6	12.4	21.6	1.40	11.2	15.9	12.5	21.7	1.36	3.9	11.7
				85/71	16.9	12.9	22.9	1.43	11.8	17.2	13.0	23.0	1.38	4.0	12.4
	3.1	1.4	3.2	75/63	14.7	12.0	20.4	1.29	11.4	15.0	12.1	20.5	1.27	3.7	11.8
				80/67	16.1	12.5	21.6	1.32	12.2	16.3	12.6	21.8	1.29	3.8	12.7
				85/71	17.3	13.0	23.0	1.35	12.8	17.6	13.1	23.1	1.31	3.9	13.4
	4.0	2.2	5.1	75/63	14.9	12.0	20.4	1.26	11.8	15.2	12.1	20.6	1.24	3.5	12.2
				80/67	16.2	12.5	21.6	1.28	12.7	16.5	12.6	21.9	1.28	3.7	12.9
				85/71	17.5	13.0	23.0	1.30	13.4	17.8	13.1	23.2	1.29	3.8	13.8

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT036 Performance Data:
3.0 Ton, 1300 CFM, Forced Air, High Capacity Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	5.0	1.8	4.2	60	30.0	21.6	81.4	2.46	3.58	26.3	21.6	78.7	2.43	3.7	3.62
				70	29.2	20.3	90.8	2.59	3.30	25.3	20.4	88.0	2.55	3.9	3.36
				80	28.3	19.1	100.1	2.72	3.05	24.3	19.2	97.3	2.66	4.0	3.11
	7.0	3.4	7.8	60	31.0	22.5	82.1	2.49	3.65	27.1	22.5	79.3	2.43	3.9	3.73
				70	30.1	21.1	91.4	2.62	3.37	26.1	21.3	88.6	2.56	4.0	3.44
				80	29.3	19.9	100.9	2.75	3.12	25.2	20.0	97.9	2.69	4.1	3.19
	9.0	5.4	12.5	60	31.4	22.9	82.3	2.48	3.70	27.5	23.0	79.6	2.43	3.9	3.78
				70	30.5	21.6	91.8	2.62	3.42	26.5	18.6	88.9	2.56	4.0	3.49
				80	29.7	20.3	101.2	2.75	3.17	25.5	20.4	98.2	2.69	4.2	3.23
50	5.0	1.7	3.9	60	38.9	30.1	87.7	2.58	4.42	34.0	30.4	84.2	2.49	4.8	4.57
				70	37.7	28.4	96.9	2.72	4.07	32.7	28.6	93.3	2.63	5.0	4.20
				80	36.4	26.7	105.9	2.85	3.75	31.3	26.9	102.3	2.76	5.1	3.86
	7.0	3.1	7.2	60	40.5	31.5	88.9	2.63	4.52	35.5	31.9	85.3	2.54	5.0	4.67
				70	39.5	29.8	97.9	2.77	4.15	34.0	30.0	94.2	2.68	5.2	4.29
				80	37.9	27.9	107.0	2.91	3.82	32.6	28.3	103.2	2.81	5.3	3.95
	9.0	5.0	11.6	60	41.3	32.4	89.4	2.64	4.59	36.2	32.7	85.8	2.54	5.1	4.76
				70	40.0	30.5	98.5	2.78	4.22	34.7	30.9	94.7	2.69	5.3	4.36
				80	38.7	28.7	107.5	2.92	3.88	33.2	29.0	103.7	2.82	5.4	4.01
70	5.0	1.7	3.9	60	47.3	38.0	93.7	2.74	5.06	41.4	38.5	89.5	2.61	5.9	5.30
				70	45.6	35.8	102.5	2.88	4.64	39.6	36.3	98.2	2.76	6.0	4.85
				80	43.9	33.6	111.3	3.02	4.26	37.8	34.2	106.9	2.89	6.2	4.45
	7.0	3.0	6.9	60	49.7	40.0	95.4	2.82	5.16	43.5	40.7	91.0	2.69	6.2	5.41
				70	47.9	37.8	104.1	2.97	4.73	41.6	38.3	99.6	2.84	6.3	4.95
				80	46.1	35.5	112.9	3.12	4.33	39.7	36.0	108.3	2.98	6.5	4.54
	9.0	4.8	11.1	60	51.0	41.3	96.3	2.85	5.24	44.7	42.0	91.8	2.71	6.4	5.51
				70	49.2	38.9	105.0	3.00	4.80	42.7	39.6	100.4	2.86	6.5	5.04
				80	47.3	36.6	113.7	3.15	4.40	40.7	37.2	109.0	3.00	6.6	4.62
90	5.0	1.6	3.6	60	54.5	44.8	98.8	2.72	5.88	47.7	45.7	94.0	2.70	6.8	5.91
				70	52.5	42.2	107.4	3.07	5.01	45.6	43.0	102.5	2.85	6.9	5.40
				80	50.5	39.7	116.0	3.16	4.68	43.4	40.4	110.9	3.00	7.1	4.94
	7.0	2.8	6.4	60	57.6	47.5	101.1	2.98	5.66	50.5	48.4	95.9	2.80	7.2	6.02
				70	55.5	44.8	109.6	3.14	5.18	48.2	45.7	104.3	2.96	7.3	5.50
				80	53.4	42.1	118.0	3.30	4.74	45.9	43.0	112.7	3.11	7.5	5.03
	9.0	4.4	10.3	60	59.6	49.2	102.4	3.03	5.76	52.2	50.2	97.1	2.84	7.4	6.14
				70	57.3	46.4	110.8	3.19	5.27	49.7	47.4	105.4	3.00	7.6	5.60
				80	55.0	43.6	119.2	3.35	4.82	47.3	44.6	113.7	3.15	7.7	5.12

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT036 Performance Data:
3.0 Ton, 900 CFM, Forced Air, Low Capacity Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	2.8	1.2	2.7	60	20.1	14.4	80.6	1.31	4.47	17.6	14.4	78.1	1.30	2.5	4.53
				70	19.5	13.6	90.1	1.38	4.12	16.9	13.6	87.4	1.36	2.6	4.20
				80	18.9	12.8	99.4	1.45	3.81	16.2	12.8	96.7	1.42	2.7	3.89
	3.9	2.2	5.0	60	20.7	15.0	81.3	1.33	4.56	18.1	15.0	78.6	1.30	2.6	4.66
				70	20.1	14.1	90.7	1.40	4.21	17.4	14.2	87.9	1.37	2.7	4.30
				80	19.6	13.3	100.1	1.47	3.90	16.8	13.4	97.3	1.44	2.7	3.99
	5.0	3.5	8.1	60	20.9	15.3	81.5	1.33	4.62	18.3	15.4	78.9	1.30	2.6	4.73
				70	20.4	14.5	91.0	1.40	4.28	17.7	12.4	88.2	1.37	2.7	4.36
				80	19.8	13.6	100.4	1.47	3.96	17.1	13.6	97.5	1.44	2.8	4.04
50	2.8	1.1	2.5	60	26.0	20.1	86.7	1.38	5.53	22.7	20.3	83.4	1.33	3.2	5.72
				70	25.2	18.9	95.9	1.45	5.09	21.8	19.1	92.5	1.40	3.3	5.25
				80	24.3	17.8	105.0	1.52	4.69	20.9	18.0	101.5	1.48	3.4	4.83
	3.9	2.0	4.7	60	27.1	21.1	87.8	1.40	5.65	23.7	21.3	84.4	1.36	3.4	5.84
				70	26.2	19.9	96.9	1.48	5.19	22.7	20.1	93.4	1.43	3.5	5.36
				80	25.3	18.7	106.0	1.55	4.78	21.8	18.9	102.4	1.50	3.6	4.94
	5.0	3.3	7.6	60	27.6	21.6	88.4	1.41	5.74	24.2	21.8	84.9	1.36	3.4	5.95
				70	26.7	20.4	97.5	1.48	5.28	23.2	20.6	93.9	1.44	3.5	5.45
				80	25.8	19.2	106.0	1.56	4.85	22.2	19.4	102.8	1.51	3.6	5.01
70	2.8	1.1	2.5	60	31.6	25.4	92.5	1.46	6.32	27.6	25.7	88.4	1.40	3.9	6.63
				70	30.5	23.9	101.3	1.54	5.80	26.4	24.2	97.2	1.47	4.0	6.07
				80	29.3	22.5	110.2	1.61	5.32	25.2	22.8	105.9	1.55	4.1	5.57
	3.9	2.0	4.5	60	33.2	26.7	94.1	1.51	6.45	29.0	27.2	89.9	1.44	4.1	6.77
				70	32.0	25.2	102.9	1.59	5.91	27.8	25.6	98.6	1.51	4.2	6.19
				80	30.8	23.7	111.7	1.67	5.41	26.5	24.1	107.2	1.59	4.3	5.68
	5.0	3.1	7.2	60	34.1	27.6	95.0	1.52	6.55	29.8	28.0	90.7	1.45	4.2	6.89
				70	32.8	26.0	103.8	1.60	6.00	28.5	26.4	99.3	1.53	4.3	6.30
				80	31.6	24.4	112.5	1.68	5.50	27.2	24.9	107.9	1.60	4.4	5.78
90	2.8	1.0	2.3	60	36.4	29.9	97.5	1.45	7.35	31.9	30.5	92.8	1.44	4.5	7.39
				70	35.1	28.2	106.1	1.64	6.26	30.4	28.7	101.3	1.52	4.6	6.75
				80	33.7	26.5	114.7	1.69	5.85	29.0	27.0	109.8	1.60	4.7	6.18
	3.9	1.8	4.1	60	38.5	31.7	99.6	1.59	7.07	33.7	32.3	94.7	1.50	4.8	7.53
				70	37.1	29.9	108.1	1.68	6.48	32.2	30.5	103.1	1.58	4.9	6.88
				80	35.6	28.1	116.6	1.76	5.92	30.6	28.7	111.5	1.66	5.0	6.29
	5.0	2.9	6.7	60	39.8	32.8	100.9	1.62	7.20	34.8	33.5	95.8	1.52	5.0	7.68
				70	38.3	31.0	109.4	1.70	6.59	33.2	31.7	104.2	1.60	5.1	7.00
				80	36.7	29.1	117.8	1.79	6.03	31.6	29.8	112.5	1.68	5.2	6.40

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT036 Performance Data:
3.0 Ton, High Capacity Hydronic Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	ELT	HC	KW	HE	LWT	COP	HC	KW	HE	LWT	DH	COP
30	5.0	1.8	4.2	85	30.0	2.40	21.5	97.0	3.66	26.3	2.38	21.6	95.5	3.7	3.69
				95	29.2	2.53	20.3	106.7	3.38	25.3	2.49	20.4	105.1	3.9	3.43
				110	28.3	2.65	19.1	121.3	3.12	24.3	2.61	19.1	119.7	4.0	3.17
	7.0	3.4	7.8	85	30.9	2.43	22.5	93.8	3.74	27.1	2.38	22.5	92.7	3.9	3.81
				95	30.1	2.56	21.1	103.6	3.45	26.1	2.51	21.3	102.5	4.0	3.51
				110	29.3	2.69	19.9	118.4	3.19	25.2	2.63	20.0	117.2	4.1	3.26
	9.0	5.4	12.5	85	31.3	2.43	22.9	92.0	3.79	27.4	2.38	23.0	91.1	3.9	3.86
				95	30.5	2.56	21.6	101.8	3.50	26.5	2.51	18.6	100.9	4.0	3.56
				110	29.7	2.68	20.3	116.6	3.24	25.5	2.64	20.4	115.7	4.2	3.30
50	5.0	1.7	3.9	85	38.8	2.52	30.1	100.5	4.52	34.0	2.44	30.4	98.6	4.8	4.66
				95	37.7	2.65	28.3	110.1	4.17	32.7	2.58	28.6	108.1	5.0	4.29
				110	36.4	2.78	26.7	124.5	3.84	31.3	2.71	26.9	122.5	5.1	3.94
	7.0	3.1	7.2	85	40.5	2.57	31.5	96.6	4.63	35.4	2.49	31.9	95.1	5.0	4.77
				95	39.2	2.70	29.8	106.2	4.25	34.0	2.62	30.0	104.7	5.2	4.38
				110	37.9	2.84	27.9	120.8	3.91	32.6	2.76	28.3	119.3	5.3	4.03
	9.0	5.0	11.6	85	41.3	2.58	32.4	94.2	4.70	36.2	2.49	32.6	93.0	5.1	4.86
				95	40.0	2.71	30.5	103.9	4.32	34.7	2.63	30.9	102.7	5.3	4.45
				110	38.6	2.85	28.7	118.6	3.97	33.2	2.77	29.0	117.4	5.4	4.09
70	5.0	1.7	3.9	85	47.3	2.68	38.0	103.9	5.18	41.4	2.56	38.5	101.5	5.9	5.41
				95	45.6	2.81	35.8	113.2	4.75	39.6	2.70	36.3	110.8	6.0	4.95
				110	43.9	2.95	33.6	127.5	4.36	37.7	2.83	34.2	125.1	6.2	4.54
	7.0	3.0	6.9	85	49.6	2.75	40.0	99.2	5.28	43.5	2.63	40.7	97.4	6.2	5.52
				95	47.9	2.90	37.7	108.7	4.84	41.5	2.78	38.3	106.9	6.3	5.05
				110	46.1	3.05	35.4	123.2	4.43	39.6	2.92	36.0	121.3	6.5	4.63
	9.0	4.8	11.1	85	51.0	2.79	41.2	96.3	5.36	44.6	2.66	41.9	94.9	6.3	5.62
				95	49.1	2.93	38.9	105.9	4.91	42.6	2.80	39.6	104.5	6.5	5.14
				110	47.3	3.08	36.6	120.5	4.50	40.6	2.94	37.2	119.0	6.6	4.71
90	5.0	1.6	3.6	85	54.5	2.65	44.8	106.8	6.02	47.7	2.65	45.6	104.1	6.8	6.03
				95	52.5	3.00	42.2	116.0	5.12	45.5	2.79	43.0	113.2	6.9	5.51
				110	50.5	3.09	39.7	130.2	4.79	43.4	2.93	40.4	127.3	7.1	5.04
	7.0	2.8	6.4	85	57.6	2.91	47.5	101.5	5.79	50.4	2.75	48.4	99.4	7.2	6.14
				95	55.5	3.07	44.8	110.9	5.30	48.2	2.90	45.7	108.8	7.3	5.61
				110	53.3	3.22	42.1	125.2	4.85	45.8	3.04	42.9	123.1	7.5	5.13
	9.0	4.4	10.3	85	59.5	2.96	49.1	98.2	5.89	52.1	2.78	50.2	96.6	7.4	6.27
				95	57.3	3.11	46.4	107.7	5.39	49.7	2.94	47.4	106.0	7.6	5.72
				110	55.0	3.27	43.6	122.2	4.93	47.3	3.08	44.5	120.5	7.7	5.23

Notes:
1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between EWT & GPM data is permissible.
3. See Flow Rate Selection on page 6 for proper application.
4. EWT (Entering Water Temperature) is also called EST (Entering Source Temperature).
5. Load flow rate is the same as the source flow rate at each of the three flow selections.

GT036 Performance Data:
3.0 Ton, 1300 CFM, Forced Air, High Capacity Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	5.0	1.7	4.0	75/63	38.9	27.2	45.8	1.99	19.5	38.9	27.2	45.8	1.96	3.3	19.9
				80/67	42.2	28.3	48.7	2.04	20.7	42.2	28.3	48.7	1.99	3.4	21.2
				85/71	45.6	29.4	51.6	2.08	21.9	45.6	29.5	51.6	2.04	3.4	22.4
	7.0	3.1	7.2	75/63	39.3	27.4	45.9	1.91	20.6	39.3	27.5	45.9	1.88	3.1	20.9
				80/67	42.6	28.5	48.8	1.95	21.9	42.6	28.6	48.9	1.92	3.2	22.2
				85/71	46.1	29.7	51.8	1.98	23.2	46.1	29.7	51.8	1.96	3.3	23.5
	9.0	5.0	11.6	75/63	39.7	27.4	46.2	1.85	21.5	39.7	27.5	46.2	1.84	3.0	21.5
				80/67	43.1	28.5	49.1	1.89	22.8	43.1	28.6	49.1	1.88	3.0	22.9
				85/71	46.6	29.7	52.0	1.93	24.2	46.6	29.7	52.1	1.91	3.1	24.3
70	5.0	1.7	3.9	75/63	36.5	26.7	44.6	2.40	15.2	36.7	26.7	44.6	2.34	4.7	15.7
				80/67	39.6	27.7	47.4	2.45	16.1	39.8	27.9	47.5	2.39	4.9	16.7
				85/71	42.8	28.9	50.3	2.49	17.2	43.0	29.0	50.3	2.44	5.0	17.6
	7.0	3.0	6.9	75/63	37.0	26.9	44.7	2.28	16.2	37.2	27.1	44.9	2.24	4.6	16.6
				80/67	40.2	28.1	47.6	2.33	17.3	40.5	28.2	47.8	2.30	4.7	17.6
				85/71	43.4	29.2	50.5	2.38	18.3	43.7	29.3	50.7	2.33	4.8	18.7
	9.0	4.8	11.1	75/63	37.3	26.9	45.0	2.21	16.9	37.6	27.1	45.1	2.20	4.3	17.1
				80/67	40.6	28.1	47.8	2.26	18.0	40.9	28.2	48.0	2.25	4.5	18.2
				85/71	43.8	29.2	50.7	2.30	19.0	44.1	29.3	50.9	2.28	4.6	19.3
90	5.0	1.6	3.6	75/63	33.2	25.6	42.9	2.96	11.2	33.5	25.8	43.0	2.87	6.2	11.7
				80/67	36.1	26.6	45.6	3.02	11.9	36.4	26.8	45.8	2.94	6.4	12.4
				85/71	38.9	27.7	48.4	3.07	12.7	39.3	27.9	48.6	2.99	6.5	13.2
	7.0	2.8	6.4	75/63	33.8	25.8	43.1	2.79	12.1	34.1	26.0	43.4	2.73	6.0	12.5
				80/67	36.8	26.9	45.8	2.86	12.9	37.1	27.1	46.1	2.78	6.1	13.3
				85/71	39.8	28.0	48.6	2.90	13.7	40.1	28.2	48.9	2.85	6.3	14.1
	9.0	4.5	10.3	75/63	34.2	25.8	43.2	2.72	12.6	34.6	26.0	43.5	2.68	5.7	12.9
				80/67	37.2	26.9	45.9	2.77	13.4	37.5	27.1	46.3	2.74	5.9	13.7
				85/71	40.2	28.0	48.7	2.83	14.2	40.5	28.2	49.1	2.79	6.1	14.5
110	5.0	1.5	3.5	75/63	28.9	24.0	40.8	3.69	7.8	29.4	24.2	40.9	3.58	7.7	8.2
				80/67	31.4	24.9	43.4	3.74	8.4	31.9	25.1	43.6	3.64	7.9	8.8
				85/71	34.0	25.9	46.0	3.84	8.9	34.6	26.2	46.2	3.70	8.1	9.3
	7.0	2.8	6.4	75/63	29.7	24.2	41.0	3.46	8.6	30.2	24.4	41.2	3.40	7.4	8.9
				80/67	32.3	25.2	43.5	3.53	9.1	32.8	25.4	43.8	3.45	7.7	9.5
				85/71	34.9	26.2	46.2	3.63	9.6	35.5	26.4	46.5	3.52	7.8	10.1
	9.0	4.4	10.1	75/63	30.0	24.2	41.0	3.38	8.9	30.5	24.4	41.3	3.33	7.1	9.1
				80/67	32.6	25.2	43.5	3.43	9.5	33.2	25.4	44.0	3.42	7.3	9.7
				85/71	35.2	26.2	46.2	3.49	10.1	35.8	26.4	46.6	3.46	7.6	10.4

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT036 Performance Data:
3.0 Ton, 900 CFM, Forced Air, Low Capacity Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	2.8	1.1	2.6	75/63	25.9	18.1	30.6	1.00	26.0	25.9	18.2	30.6	0.98	2.2	26.5
				80/67	28.2	18.9	32.5	1.02	27.6	28.2	18.9	32.5	1.00	2.2	28.2
				85/71	30.4	19.6	34.5	1.04	29.2	30.4	19.7	34.5	1.02	2.3	29.8
	3.9	2.0	4.7	75/63	26.2	18.3	30.7	0.95	27.5	26.2	18.3	30.7	0.94	2.1	27.9
				80/67	28.5	19.0	32.6	0.97	29.2	28.5	19.1	32.6	0.96	2.1	29.6
				85/71	30.8	19.8	34.6	0.99	31.0	30.8	19.8	34.6	0.98	2.2	31.3
	5.0	3.3	7.6	75/63	26.5	18.3	30.8	0.93	28.6	26.5	18.3	30.8	0.92	2.0	28.7
				80/67	28.8	19.0	32.8	0.94	30.5	28.8	19.1	32.8	0.94	2.0	30.6
				85/71	31.1	19.8	34.7	0.97	32.2	31.1	19.8	34.8	0.96	2.1	32.5
70	2.8	1.1	2.5	75/63	24.3	17.8	29.7	1.20	20.3	24.5	17.8	29.8	1.17	3.1	20.5
				80/67	26.4	18.5	31.6	1.23	21.5	26.6	18.6	31.7	1.19	3.3	22.3
				85/71	28.6	19.3	33.5	1.25	22.9	28.7	19.3	33.6	1.22	3.4	23.5
	3.9	2.0	4.5	75/63	24.7	18.0	29.9	1.14	21.6	24.9	18.1	30.0	1.12	3.0	22.1
				80/67	26.9	18.7	31.8	1.17	23.0	27.0	18.8	31.9	1.15	3.1	23.5
				85/71	29.0	19.5	33.7	1.19	24.4	29.2	19.6	33.8	1.17	3.2	25.0
	5.0	3.1	7.2	75/63	24.9	18.0	30.0	1.11	22.5	25.1	18.1	30.1	1.10	2.9	22.8
				80/67	27.1	18.7	31.9	1.13	24.0	27.3	18.8	32.1	1.13	3.0	24.2
				85/71	29.3	19.5	33.8	1.15	25.4	29.4	19.6	34.0	1.14	3.1	25.7
90	2.8	1.0	2.3	75/63	22.2	17.1	28.6	1.48	14.9	22.4	17.2	28.7	1.44	4.2	15.5
				80/67	24.1	17.8	30.4	1.51	15.9	24.3	17.9	30.6	1.47	4.3	16.5
				85/71	26.0	18.5	32.3	1.54	16.9	26.3	18.6	32.4	1.50	4.4	17.5
	3.9	1.8	4.2	75/63	22.6	17.2	28.8	1.40	16.2	22.8	17.4	28.9	1.37	4.0	16.7
				80/67	24.6	18.0	30.6	1.43	17.2	24.8	18.1	30.8	1.39	4.1	17.8
				85/71	26.5	18.7	32.4	1.45	18.3	26.8	18.8	32.6	1.43	4.2	18.8
	5.0	2.9	6.7	75/63	22.8	17.2	28.8	1.36	16.8	23.1	17.4	29.1	1.34	3.8	17.2
				80/67	24.8	18.0	30.7	1.39	17.9	25.1	18.1	30.9	1.37	3.9	18.3
				85/71	26.8	18.7	32.5	1.42	18.9	27.1	18.8	32.8	1.40	4.1	19.4
110	2.8	1.0	2.3	75/63	19.3	16.0	27.2	1.85	10.4	19.6	16.1	27.3	1.79	5.1	10.9
				80/67	21.0	16.6	29.0	1.87	11.2	21.3	16.8	29.1	1.82	5.3	11.7
				85/71	22.7	17.3	30.7	1.92	11.8	23.1	17.5	30.8	1.86	5.4	12.4
	3.9	1.8	4.1	75/63	19.8	16.2	27.3	1.73	11.4	20.1	16.3	27.5	1.70	5.0	11.8
				80/67	21.6	16.8	29.1	1.77	12.2	21.9	16.9	29.3	1.73	5.1	12.7
				85/71	23.3	17.5	30.8	1.82	12.8	23.7	17.6	31.0	1.76	5.2	13.4
	5.0	2.8	6.6	75/63	20.0	16.2	27.3	1.69	11.8	20.3	16.3	27.6	1.67	4.7	12.2
				80/67	21.8	16.8	29.1	1.72	12.7	22.1	16.9	29.4	1.71	4.9	12.9
				85/71	23.5	17.5	30.8	1.75	13.4	23.9	17.6	31.1	1.73	5.1	13.8

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT048 Performance Data:
4.0 Ton, 1700 CFM, Forced Air, High Capacity Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	6.7	2.2	5.0	60	43.6	31.3	83.8	3.68	3.48	38.2	31.4	80.8	3.63	5.4	3.52
				70	42.4	29.5	93.1	3.87	3.21	36.8	29.7	90.0	3.80	5.6	3.27
				80	41.1	27.8	102.4	4.06	2.97	35.3	27.8	99.2	3.98	5.8	3.03
	9.3	4.0	9.3	60	45.0	32.7	84.5	3.71	3.55	39.4	32.7	81.4	3.63	5.6	3.63
				70	43.7	30.7	93.8	3.91	3.28	38.0	30.9	90.7	3.83	5.8	3.35
				80	42.5	28.9	103.2	4.11	3.03	36.6	29.1	99.9	4.02	6.0	3.10
	12.0	6.5	15.0	60	45.6	33.3	84.8	3.71	3.60	39.9	33.5	81.7	3.63	5.7	3.68
				70	44.4	31.4	94.2	3.91	3.33	38.5	27.0	91.0	3.83	5.7	3.39
				80	43.2	29.5	103.5	4.10	3.08	37.1	29.7	100.2	4.03	6.1	3.14
50	6.7	2.0	4.7	60	56.5	43.8	90.8	3.85	4.30	49.4	44.1	86.9	3.72	7.0	4.45
				70	54.8	41.2	99.8	4.06	3.96	47.5	41.6	95.9	3.93	7.2	4.09
				80	52.9	38.8	108.8	4.25	3.65	45.5	39.1	104.8	4.13	7.4	3.75
	9.3	3.7	8.6	60	58.9	45.8	92.1	3.93	4.39	51.5	46.3	88.1	3.80	7.3	4.54
				70	56.9	43.3	101.0	4.13	4.03	49.4	43.6	96.9	4.00	7.5	4.17
				80	55.1	40.6	110.0	4.35	3.71	47.4	41.1	105.8	4.20	7.7	3.84
	12.0	6.0	14.0	60	60.1	47.0	92.7	3.94	4.46	52.6	47.4	88.6	3.80	7.5	4.63
				70	58.1	44.4	101.7	4.15	4.10	50.4	44.9	97.5	4.02	7.7	4.24
				80	56.2	41.7	110.6	4.36	3.77	48.3	42.2	106.3	4.22	7.9	3.90
70	6.7	2.0	4.7	60	68.7	55.2	97.4	4.09	4.92	60.2	55.9	92.8	3.91	8.6	5.16
				70	66.3	52.0	106.1	4.31	4.51	57.5	52.7	101.3	4.12	8.8	4.72
				80	63.8	48.9	114.8	4.52	4.14	54.9	49.7	109.9	4.32	9.0	4.33
	9.3	3.6	8.3	60	72.1	58.1	99.3	4.21	5.02	63.2	59.1	94.4	4.02	9.0	5.26
				70	69.6	54.8	107.9	4.43	4.60	60.4	55.7	102.9	4.24	9.2	4.81
				80	67.0	51.5	116.5	4.67	4.21	57.6	52.4	111.4	4.45	9.4	4.42
	12.0	5.8	13.3	60	74.1	60.0	100.4	4.26	5.09	64.9	60.9	95.3	4.05	9.2	5.36
				70	71.4	56.5	108.9	4.49	4.67	62.0	57.5	103.8	4.27	9.4	4.90
				80	68.7	53.1	117.4	4.71	4.28	59.1	54.1	112.2	4.48	9.7	4.49
90	6.7	1.9	4.3	60	79.2	65.1	103.1	4.06	5.72	69.4	66.3	97.8	4.04	9.9	5.75
				70	76.3	61.3	111.6	4.59	4.87	66.2	62.5	106.1	4.26	10.1	5.25
				80	73.4	57.6	120.0	4.73	4.55	63.1	58.7	114.3	4.47	10.3	4.80
	9.3	3.3	7.7	60	83.7	69.0	105.6	4.46	5.50	73.3	70.4	99.9	4.19	10.4	5.86
				70	80.7	65.1	113.9	4.70	5.04	70.0	66.5	108.1	4.42	10.7	5.35
				80	77.5	61.2	122.2	4.93	4.61	66.6	62.4	116.3	4.64	10.9	4.89
	12.0	5.3	12.3	60	86.5	71.4	107.1	4.53	5.60	75.8	72.9	101.3	4.25	10.8	5.97
				70	83.2	67.4	115.3	4.76	5.12	72.2	68.9	109.3	4.48	11.0	5.45
				80	79.9	63.4	123.5	5.00	4.69	68.7	64.7	117.4	4.70	11.2	4.98

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT048 Performance Data:
4.0 Ton, 1100 CFM, Forced Air, Low Capacity Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	3.9	1.4	3.2	60	29.0	20.8	84.4	1.98	4.28	25.4	20.8	81.3	1.96	3.6	4.33
				70	28.1	19.6	93.7	2.09	3.94	24.4	19.7	90.6	2.05	3.7	4.02
				80	27.3	18.4	102.9	2.19	3.64	23.4	18.5	99.7	2.15	3.8	3.72
	5.4	2.6	6.0	60	29.8	21.7	85.1	2.01	4.36	26.1	21.7	82.0	1.96	3.7	4.46
				70	29.0	20.4	94.4	2.11	4.03	25.2	20.5	91.2	2.07	3.8	4.11
				80	28.2	19.2	103.8	2.22	3.73	24.3	19.3	100.4	2.17	4.0	3.81
	7.0	4.1	9.6	60	30.2	22.1	85.4	2.00	4.42	26.5	22.2	82.3	1.96	3.8	4.52
				70	29.4	20.9	94.8	2.11	4.09	25.5	17.9	91.5	2.07	3.9	4.17
				80	28.6	19.6	104.1	2.22	3.79	24.6	19.7	100.7	2.17	4.0	3.86
50	3.9	1.3	3.0	60	37.5	29.0	91.5	2.08	5.28	37.5	29.3	87.6	2.01	4.7	5.46
				70	36.3	27.3	100.6	2.19	4.86	36.0	27.6	96.5	2.12	4.8	5.02
				80	35.1	25.7	109.6	2.30	4.48	34.5	25.9	105.4	2.23	4.9	4.61
	5.4	2.4	5.5	60	39.1	30.4	92.9	2.12	5.40	34.2	30.7	88.8	2.05	4.9	5.58
				70	37.8	28.7	101.8	2.23	4.96	32.8	29.0	97.6	2.16	5.0	5.13
				80	36.5	26.9	110.8	2.35	4.56	31.4	27.2	106.4	2.27	5.1	4.72
	7.0	3.9	8.9	60	39.8	31.2	93.5	2.13	5.48	34.9	31.5	89.4	2.05	5.0	5.69
				70	38.6	29.4	102.5	2.24	5.04	33.5	29.8	98.2	2.17	5.1	5.21
				80	37.3	27.7	111.4	2.36	4.63	32.0	28.0	107.0	2.28	5.2	4.79
70	3.9	1.3	3.0	60	45.6	36.6	98.4	2.21	6.04	39.9	37.1	93.6	2.11	5.7	6.33
				70	44.0	34.5	107.0	2.33	5.54	38.2	35.0	102.1	2.22	5.8	5.80
				80	42.3	32.4	115.6	2.44	5.09	36.4	32.9	110.6	2.33	5.9	5.32
	5.4	2.3	5.3	60	47.9	38.6	100.3	2.28	6.16	41.9	39.2	95.3	2.17	6.0	6.46
				70	46.2	36.4	108.9	2.39	5.65	40.1	36.9	103.7	2.29	6.1	5.92
				80	44.5	34.2	117.4	2.52	5.17	3802	34.7	112.2	2.40	6.2	5.43
	7.0	3.7	8.5	60	49.2	39.8	101.4	2.30	6.26	43.0	40.4	96.2	2.19	6.1	6.58
				70	47.4	37.5	109.9	2.42	5.73	41.1	38.1	104.6	2.31	6.3	6.02
				80	45.6	35.3	118.4	2.54	5.26	39.2	35.9	113.0	2.42	6.4	5.52
90	3.9	1.2	2.8	60	52.6	43.2	104.2	2.19	7.02	46.0	44.0	98.7	2.18	6.5	7.06
				70	50.6	40.7	112.6	2.48	5.98	43.9	41.5	107.0	2.30	6.7	6.45
				80	48.7	38.2	121.0	2.55	5.59	41.8	39.0	115.2	2.42	6.8	5.90
	5.4	2.1	4.9	60	55.5	45.8	106.8	2.41	6.76	48.6	46.7	100.9	2.26	6.9	7.19
				70	53.5	43.2	115.1	2.54	6.19	46.4	44.1	109.1	2.39	7.1	6.57
				80	51.4	40.6	123.3	2.66	5.66	44.2	41.4	117.2	2.51	7.2	6.01
	7.0	3.4	7.9	60	57.4	47.4	108.3	2.45	6.88	50.3	48.4	102.3	2.29	7.1	7.34
				70	55.2	44.7	116.5	2.57	6.29	47.9	45.7	110.3	2.42	7.3	6.69
				80	53.0	42.0	124.6	2.70	5.76	45.6	42.9	118.4	2.54	7.4	6.12

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT048 Performance Data:
4.0 Ton, High Capacity Hydronic Heating

EWT	GPM	WPD		Heating Only						Heating with Desuperheater					
		PSI	FT	ELT	HC	KW	HE	LWT	COP	HC	KW	HE	LWT	DH	COP
30	6.7	2.2	5.0	85	43.6	3.59	31.3	98.1	3.56	38.2	3.56	31.4	96.4	5.4	3.59
				95	42.4	3.78	29.5	107.7	3.28	36.8	3.72	29.6	106.0	5.6	3.33
				110	41.0	3.96	27.8	122.3	3.03	35.3	3.90	27.8	120.6	5.8	3.09
	9.3	4.0	9.3	85	44.9	3.63	32.6	94.6	3.63	39.3	3.56	32.7	93.4	5.6	3.70
				95	43.7	3.82	30.7	104.4	3.35	37.9	3.75	30.9	103.1	5.8	3.41
				110	42.5	4.01	28.9	119.1	3.10	36.5	3.93	29.0	117.8	6.0	3.17
	12.0	6.5	15.0	85	45.5	3.62	33.2	92.6	3.68	39.8	3.56	33.4	91.6	5.7	3.75
				95	44.3	3.82	31.4	102.4	3.40	38.5	3.75	27.0	101.4	5.9	3.46
				110	43.1	4.01	29.5	117.2	3.15	37.1	3.94	29.6	116.2	6.1	3.20
50	6.7	2.0	4.7	85	56.4	3.76	43.7	101.9	4.40	49.4	3.65	44.1	99.8	7.0	4.53
				95	54.7	3.96	41.2	111.4	4.05	47.5	3.85	41.5	109.2	7.2	4.17
				110	52.9	4.15	38.7	125.8	3.73	45.4	4.05	39.1	123.6	7.4	3.83
	9.3	3.7	8.6	85	58.8	3.83	45.8	97.6	4.50	51.5	3.72	46.3	96.0	7.3	4.63
				95	56.9	4.04	43.2	107.2	4.13	49.3	3.91	43.6	105.6	7.5	4.26
				110	55.0	4.24	40.5	121.8	3.80	47.3	4.12	41.0	120.1	7.7	3.92
	12.0	6.1	14.0	85	60.0	3.85	47.0	95.0	4.57	52.5	3.72	47.4	93.8	7.5	4.72
				95	58.1	4.05	44.3	104.7	4.20	50.4	3.93	44.8	103.4	7.7	4.33
				110	56.1	4.26	41.6	119.3	3.86	48.2	4.13	42.1	118.0	7.9	3.98
70	6.7	2.0	4.7	85	68.6	4.00	55.2	105.6	5.03	60.1	3.83	55.9	103.0	8.5	5.26
				95	66.2	4.20	52.0	114.8	4.62	57.4	4.03	52.7	112.2	8.8	4.81
				110	63.8	4.41	48.8	129.1	4.24	54.8	4.23	49.6	126.4	9.0	4.42
	9.3	3.6	8.3	85	72.1	4.11	58.1	100.5	5.13	63.1	3.94	59.0	98.5	9.0	5.37
				95	69.5	4.33	54.8	109.9	4.71	60.3	4.15	55.6	107.9	9.2	4.91
				110	67.0	4.56	51.5	124.4	4.31	57.6	4.36	52.3	122.3	9.4	4.50
	12.0	5.8	13.3	85	74.0	4.16	59.9	97.3	5.21	64.8	3.97	60.9	95.8	9.2	5.47
				95	71.3	4.38	56.5	106.9	4.78	61.9	4.18	57.4	105.3	9.4	5.00
				110	68.7	4.60	53.1	121.4	4.38	59.0	4.39	54.0	119.8	9.6	4.58
90	6.7	1.9	4.3	85	79.1	3.96	65.0	108.7	5.85	69.3	3.96	66.3	105.8	9.9	5.86
				95	76.2	4.48	61.2	117.8	4.98	66.1	4.17	62.5	114.8	10.1	5.36
				110	73.3	4.61	57.6	132.0	4.66	63.0	4.38	58.7	128.9	10.3	4.90
	9.3	3.3	7.7	85	83.6	4.35	68.9	102.9	5.63	73.2	4.10	70.3	100.7	10.4	5.97
				95	80.6	4.58	65.0	112.3	5.15	69.9	4.33	66.4	110.0	10.7	5.46
				110	77.4	4.81	61.1	126.6	4.72	66.6	4.55	62.3	124.3	10.9	4.99
	12.0	5.3	12.3	85	86.4	4.42	71.3	99.4	5.73	75.7	4.16	72.9	97.6	10.8	6.09
				95	83.2	4.65	67.3	108.9	5.24	72.2	4.39	68.8	107.0	11.0	5.56
				110	79.9	4.88	63.3	123.3	4.80	68.7	4.61	64.7	121.4	11.2	5.08

Notes:
1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between EWT & GPM data is permissible.
3. See Flow Rate Selection on page 6 for proper application.
4. EWT (Entering Water Temperature) is also called EST (Entering Source Temperature).
5. Load flow rate is the same as the source flow rate at each of the three flow selections.

GT048 Performance Data:
4.0 Ton, 1700 CFM, Forced Air, High Capacity Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	6.7	2.1	4.8	75/63	56.5	39.5	66.5	2.96	19.1	56.5	39.5	66.5	2.91	4.5	19.4
				80/67	61.3	41.1	70.8	3.03	20.2	61.3	41.2	70.7	2.96	4.6	20.7
				85/71	66.2	42.7	75.0	3.09	21.4	66.2	42.8	75.0	3.03	4.7	21.9
	9.3	3.7	8.6	75/63	57.0	39.8	66.7	2.83	20.2	57.0	39.9	66.7	2.79	4.5	20.4
				80/67	61.9	41.4	70.9	2.89	21.4	61.9	41.5	71.0	2.85	4.6	21.7
				85/71	66.9	43.1	75.2	2.95	22.7	66.9	43.1	75.2	2.91	4.8	23.0
	12.0	6.0	14.0	75/63	57.6	39.8	67.1	2.75	21.0	57.6	39.9	67.1	2.74	4.3	21.1
				80/67	62.6	41.4	71.4	2.80	22.3	62.6	41.5	71.4	2.79	4.4	22.4
				85/71	67.6	43.1	75.6	2.86	23.6	67.6	43.1	75.7	2.84	4.5	23.8
70	6.7	2.0	4.7	75/63	53.0	38.3	64.7	3.56	14.9	53.3	38.8	64.8	3.48	6.8	15.3
				80/67	57.5	40.3	68.8	3.65	15.8	57.8	40.5	68.9	3.54	7.1	16.3
				85/71	62.2	41.9	73.0	3.70	16.8	62.5	42.1	73.1	3.63	7.3	17.2
	9.3	3.6	8.3	75/63	53.8	39.1	65.0	3.39	15.9	54.1	39.3	65.2	3.33	6.6	16.2
				80/67	58.4	40.7	69.1	3.46	16.9	58.8	40.9	69.4	3.41	6.8	17.2
				85/71	63.1	42.4	73.3	3.53	17.9	63.5	42.6	73.6	3.46	7.0	18.3
	12.0	5.8	13.3	75/63	54.2	39.1	65.3	3.29	16.5	54.6	39.3	65.5	3.27	6.3	16.7
				80/67	59.0	40.7	69.5	3.35	17.6	59.4	40.9	69.7	3.34	6.5	17.8
				85/71	63.7	42.4	73.6	3.42	18.6	64.0	42.6	73.9	3.39	6.7	18.9
90	6.7	1.9	4.3	75/63	48.2	37.1	62.3	4.40	10.9	48.7	37.4	62.5	4.27	9.0	11.4
				80/67	52.4	38.6	66.2	4.49	11.7	52.9	39.0	66.5	4.36	9.3	12.1
				85/71	56.6	40.3	70.3	4.56	12.4	57.1	40.5	70.6	4.44	9.5	12.9
	9.3	3.3	7.7	75/63	49.1	37.5	62.6	4.14	11.9	49.6	37.8	63.0	4.06	8.7	12.2
				80/67	53.4	39.1	66.6	4.25	12.6	53.9	39.3	66.9	4.14	8.9	13.0
				85/71	57.7	40.6	70.5	4.31	13.4	58.3	40.9	71.0	4.23	9.2	13.8
	12.0	5.4	12.4	75/63	49.7	37.5	62.7	4.04	12.3	50.2	37.8	63.2	3.99	8.3	12.6
				80/67	54.0	39.1	66.7	4.11	13.1	54.5	39.3	67.3	4.07	8.6	13.4
				85/71	58.3	40.6	70.8	4.21	13.9	58.9	40.9	71.4	4.14	8.8	14.2
110	6.7	1.8	4.2	75/63	42.0	34.8	59.3	5.49	7.7	42.7	35.1	59.5	5.33	11.1	8.0
				80/67	45.6	36.2	63.1	5.56	8.2	46.4	36.5	63.3	5.41	11.5	8.6
				85/71	49.4	37.6	66.8	5.70	8.7	50.2	38.0	67.1	5.50	11.8	9.1
	9.3	3.3	7.7	75/63	43.1	35.2	59.5	5.13	8.4	43.8	35.5	59.8	5.06	10.8	8.7
				80/67	46.9	36.6	63.2	5.25	8.9	47.7	36.9	63.7	5.13	11.1	9.3
				85/71	50.6	38.1	67.1	5.39	9.4	41.5	38.4	67.5	5.23	11.4	9.8
	12.0	5.3	12.1	75/63	43.5	35.2	59.5	5.03	8.7	44.3	35.5	60.1	4.95	10.3	8.9
				80/67	47.4	36.6	63.2	5.09	9.3	48.2	36.9	63.9	5.08	10.7	9.5
				85/71	51.1	38.1	67.1	5.19	9.8	52.0	38.4	67.8	5.13	11.0	10.1

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT048 Performance Data:
4.0 Ton, 1100 CFM, Forced Air, Low Capacity Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	3.9	1.3	3.1	75/63	37.5	26.2	44.1	1.45	25.8	37.5	26.2	44.1	1.43	3.2	26.3
				80/67	40.7	27.3	47.0	1.49	27.4	40.7	27.3	46.9	1.45	3.2	28.0
				85/71	43.9	28.3	49.7	1.52	29.0	43.9	28.4	49.8	1.48	3.3	29.6
	5.4	2.4	5.5	75/63	37.8	26.4	44.3	1.39	27.3	37.8	26.5	44.3	1.37	3.0	27.6
				80/67	41.1	27.5	47.0	1.42	29.0	41.1	27.5	47.1	1.40	3.1	29.4
				85/71	44.4	28.6	49.9	1.45	30.7	44.4	28.6	49.9	1.43	3.2	31.1
	7.0	3.9	8.9	75/63	38.2	26.4	44.5	1.35	28.4	38.2	26.5	44.5	1.34	2.8	28.5
				80/67	41.6	27.5	47.3	1.38	30.2	41.6	27.5	47.4	1.37	2.9	30.3
				85/71	44.9	28.6	50.1	1.40	31.9	44.9	28.6	50.2	1.39	3.0	32.2
70	3.9	1.3	3.0	75/63	35.1	25.7	42.9	1.75	20.1	35.3	25.8	43.0	1.71	4.5	20.7
				80/67	38.2	26.7	45.6	1.79	21.3	38.4	26.8	45.7	1.74	4.7	22.1
				85/71	41.2	27.8	48.4	1.82	22.7	41.5	27.9	48.5	1.78	4.8	23.3
	5.4	2.3	5.3	75/63	35.7	26.0	43.1	1.66	21.5	35.9	26.1	43.3	1.63	4.4	22.0
				80/67	38.8	27.0	45.9	1.70	22.8	39.0	27.2	46.0	1.67	4.5	23.3
				85/71	41.9	28.1	48.7	1.73	24.2	42.1	28.2	48.8	1.70	4.6	24.8
	7.0	3.7	8.5	75/63	36.0	26.0	43.3	1.61	22.3	36.2	26.1	43.5	1.60	4.2	22.6
				80/67	39.2	27.0	46.1	1.65	23.8	39.4	27.2	46.3	1.64	4.3	24.0
				85/71	42.2	28.1	48.8	1.68	25.2	42.5	28.2	49.1	1.66	4.5	25.5
90	3.9	1.2	2.8	75/63	32.0	24.6	41.3	2.16	14.8	32.3	24.8	41.5	2.09	6.0	15.4
				80/67	34.8	25.6	43.9	2.20	15.8	35.1	25.8	44.1	2.14	6.2	16.4
				85/71	37.5	26.7	46.6	2.24	16.8	37.9	26.8	46.8	2.18	6.3	17.4
	5.4	2.1	4.9	75/63	32.6	24.9	41.6	2.03	16.0	32.9	25.1	41.8	1.99	5.8	16.5
				80/67	35.5	26.0	44.2	2.08	17.0	35.8	26.1	44.4	2.03	5.9	17.6
				85/71	38.3	27.0	46.8	2.11	17.1	38.7	27.2	47.1	2.08	6.1	18.6
	7.0	3.4	7.9	75/63	33.0	24.9	41.6	1.98	16.6	33.3	25.1	41.9	1.96	5.5	17.0
				80/67	35.8	26.0	44.3	2.02	17.8	36.2	26.1	44.6	2.00	5.7	18.1
				85/71	38.7	27.0	47.0	2.06	18.7	39.1	27.2	47.4	2.03	5.8	19.2
110	3.9	1.2	2.7	75/63	27.9	23.1	39.3	2.69	10.4	28.4	23.3	39.5	2.61	7.4	10.9
				80/67	30.3	24.0	41.9	2.73	11.1	30.8	24.2	42.0	2.66	7.6	11.6
				85/71	32.7	24.9	44.3	2.80	11.7	33.3	25.2	44.5	2.70	7.8	12.3
	5.4	2.1	4.9	75/63	28.6	23.3	39.5	2.52	11.3	29.1	23.5	39.7	2.48	7.2	11.7
				80/67	31.3	24.3	41.9	2.58	12.1	31.7	24.4	42.2	2.52	7.4	12.6
				85/71	33.6	25.3	44.5	2.65	12.7	34.2	25.5	44.8	2.57	7.5	13.3
	7.0	3.4	7.8	75/63	28.9	23.3	39.5	2.47	11.7	29.4	23.5	39.8	2.43	6.8	12.1
				80/67	31.4	24.3	41.9	2.50	12.6	32.0	24.4	42.4	2.49	7.1	12.8
				85/71	33.9	25.3	44.5	2.55	13.3	34.5	25.5	45.0	2.52	7.3	13.7

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT060 Performance Data:
5.0 Ton, 2100 CFM, Forced Air, High Capacity Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	8.3	2.2	5.1	60	49.9	35.8	82.0	4.21	3.48	43.7	35.9	79.3	4.16	6.2	3.52
				70	48.5	33.7	91.4	4.43	3.21	42.1	33.9	88.6	4.35	6.4	3.27
				80	47.0	31.8	100.7	4.65	2.97	40.4	31.8	97.8	4.55	6.6	3.03
	11.7	4.1	9.6	60	51.5	37.4	82.7	4.25	3.55	45.1	37.5	79.9	4.16	6.4	3.63
				70	50.0	35.1	92.1	4.48	3.28	43.4	35.4	89.1	4.38	6.6	3.35
				80	48.7	33.0	101.5	4.70	3.03	41.8	33.2	98.4	4.60	6.8	3.10
	15.0	6.7	15.4	60	52.1	38.1	83.0	4.25	3.60	45.6	38.3	80.1	4.16	6.5	3.68
				70	50.8	36.0	92.4	4.47	3.33	44.0	30.9	89.4	4.38	6.7	3.39
				80	49.4	33.7	101.8	4.70	3.08	42.4	33.9	98.7	4.61	6.9	3.14
50	8.3	2.1	4.8	60	64.6	50.1	88.5	4.41	4.30	56.6	50.5	84.9	4.26	8.0	4.45
				70	62.7	47.1	97.6	4.64	3.96	54.4	47.6	94.0	4.50	8.3	4.09
				80	60.5	44.3	106.7	4.87	3.65	52.0	44.8	102.9	4.73	8.5	3.75
	11.7	3.8	8.9	60	67.3	52.4	89.7	4.49	4.39	59.0	53.0	86.0	4.35	8.4	4.54
				70	65.1	49.5	98.7	4.73	4.03	56.5	49.9	94.9	4.57	8.6	4.17
				80	63.0	46.4	107.8	4.97	3.71	54.2	47.0	103.9	4.81	8.8	3.84
	15.0	6.2	14.4	60	68.7	53.8	90.3	4.51	4.46	60.2	54.3	86.5	4.35	8.6	4.63
				70	66.5	50.8	99.3	4.75	4.10	57.7	51.3	95.4	4.60	8.8	4.24
				80	64.3	47.7	108.3	4.99	3.77	55.2	48.3	104.4	4.83	9.0	3.90
70	8.3	2.1	4.8	60	78.6	63.2	94.7	4.68	4.92	68.8	64.0	90.3	4.47	9.8	5.16
				70	75.8	59.5	103.4	4.93	4.51	65.8	60.3	99.0	4.71	10.0	4.72
				80	73.0	55.9	112.2	5.17	4.14	62.8	56.8	107.7	4.95	10.3	4.33
	11.7	3.7	8.5	60	82.6	66.5	96.4	4.82	5.02	72.3	67.6	91.9	4.60	10.3	5.26
				70	79.6	62.8	105.1	5.07	4.60	69.1	63.7	100.5	4.85	10.5	4.81
				80	76.7	58.9	113.8	5.34	4.21	65.9	59.9	109.1	5.09	10.8	4.42
	15.0	5.9	13.7	60	84.8	68.6	97.4	4.88	5.09	74.2	69.7	92.7	4.64	10.6	5.36
				70	81.7	64.7	106.0	5.13	4.67	70.9	65.8	101.3	4.89	10.8	4.90
				80	78.6	60.8	114.7	5.39	4.28	67.6	61.9	109.8	5.13	11.0	4.49
90	8.3	1.9	4.4	60	90.6	74.5	100.0	4.65	5.72	79.4	75.9	95.0	4.62	11.3	5.75
				70	87.3	70.1	108.5	5.26	4.87	75.8	71.5	103.4	4.87	11.5	5.25
				80	83.9	66.0	117.0	5.41	4.55	72.2	67.2	111.8	5.12	11.8	4.80
	11.7	3.4	7.9	60	95.8	78.9	102.2	5.10	5.50	83.9	80.5	97.0	4.80	11.9	5.86
				70	92.3	74.5	110.7	5.37	5.04	80.1	76.0	105.3	5.06	12.2	5.35
				80	88.7	70.0	119.1	5.64	4.61	76.2	71.4	113.6	5.31	12.5	4.89
	15.0	5.5	12.6	60	99.0	81.7	103.7	5.18	5.60	86.7	83.5	98.2	4.86	12.3	5.97
				70	95.2	77.1	112.0	5.45	5.12	82.7	78.8	106.4	5.12	12.6	5.45
				80	91.5	72.5	120.3	5.72	4.69	78.6	74.1	114.7	5.38	12.8	4.98

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT060 Performance Data:
5.0 Ton, 1300 CFM, Forced Air, Low Capacity Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	EAT	HC	HE	LAT	KW	COP	HC	HE	LAT	KW	DH	COP
30	5.6	1.4	3.3	60	34.9	25.1	84.9	2.39	4.28	30.6	25.1	81.8	2.37	4.3	4.33
				70	33.9	23.6	94.2	2.52	3.94	29.4	23.7	91.0	2.48	4.5	4.02
				80	32.9	22.2	103.4	2.64	3.64	28.2	22.3	100.1	2.59	4.6	3.72
	7.8	2.7	6.2	60	36.0	26.1	85.6	2.42	4.36	31.5	26.2	82.4	2.37	4.5	4.46
				70	35.0	24.6	94.9	2.55	4.03	30.4	24.7	91.6	2.49	4.6	4.11
				80	34.0	23.1	104.2	2.68	3.73	39.3	23.2	100.8	2.62	4.8	3.81
	10.0	4.3	10.0	60	36.4	26.6	86.0	2.42	4.42	31.9	26.8	82.7	2.36	4.5	4.52
				70	35.5	25.2	95.3	2.55	4.09	30.8	21.6	91.9	2.49	4.7	4.17
				80	34.5	23.6	104.6	2.67	3.79	29.7	23.7	101.1	2.62	4.8	3.86
50	5.6	1.3	3.1	60	45.2	35.0	92.2	2.51	5.28	39.5	35.3	88.2	2.42	5.6	5.46
				70	43.8	33.0	101.2	2.64	4.86	38.0	33.2	97.1	2.56	5.8	5.02
				80	42.3	31.0	110.2	2.77	4.48	36.4	31.3	105.9	2.69	5.9	4.61
	7.8	2.5	5.8	60	47.1	36.7	93.5	2.56	5.40	41.2	37.1	89.4	2.47	5.9	5.58
				70	45.5	34.6	102.4	2.69	4.96	39.5	34.9	98.1	2.60	6.0	5.13
				80	44.1	32.5	111.4	2.83	4.56	37.9	32.9	107.0	2.74	6.2	4.72
	10.0	4.0	9.3	60	48.0	37.6	94.2	2.57	5.48	42.1	38.0	90.0	2.48	6.0	5.69
				70	46.5	35.5	103.1	2.70	5.04	40.4	35.9	98.7	2.62	6.1	5.21
				80	44.9	33.3	112.0	2.84	4.63	38.6	33.7	107.5	2.75	6.3	4.79
70	5.6	1.3	3.1	60	55.0	44.2	99.1	2.67	6.04	48.1	44.7	94.3	2.54	6.8	6.33
				70	53.0	41.6	107.8	2.80	5.54	46.0	42.2	102.8	2.68	7.0	5.80
				80	51.1	39.1	116.4	2.94	5.09	43.9	39.7	111.3	2.81	7.2	5.32
	7.8	2.4	5.5	60	57.7	46.5	101.1	2.74	6.16	50.5	47.3	96.0	2.62	7.2	6.46
				70	55.7	43.9	109.7	2.89	5.65	48.3	44.5	104.4	2.76	7.4	5.92
				80	53.6	41.2	118.2	3.04	5.17	46.1	41.9	112.8	2.90	7.5	5.43
	10.0	3.8	8.9	60	59.3	48.0	102.2	2.78	6.26	51.9	48.7	97.0	2.64	7.4	6.58
				70	57.1	45.2	110.7	2.92	5.73	49.6	46.0	105.3	2.78	7.6	6.02
				80	55.0	42.5	119.2	3.07	5.26	47.3	43.3	113.7	2.92	7.7	5.52
90	5.6	1.2	2.9	60	63.4	52.1	105.1	2.64	7.02	55.5	53.1	99.5	2.63	7.9	7.06
				70	61.0	49.0	113.5	2.99	5.98	53.0	50.0	107.7	2.77	8.1	6.45
				80	58.7	46.1	121.8	3.08	5.59	50.5	47.0	115.9	2.91	8.2	5.90
	7.8	2.2	5.1	60	67.0	55.2	107.7	2.90	6.76	58.6	56.3	101.8	2.73	8.3	7.19
				70	64.5	52.1	116.0	3.06	6.19	56.0	53.2	109.9	2.88	8.5	6.57
				80	62.0	48.9	124.2	3.21	5.66	53.3	49.9	118.0	3.02	8.7	6.01
	10.0	3.6	8.2	60	69.2	57.1	109.3	2.95	6.88	60.6	58.4	103.2	2.76	8.6	7.34
				70	66.6	53.9	117.4	3.10	6.29	57.8	55.1	111.2	2.92	8.8	6.69
				80	64.0	50.7	125.6	3.26	5.76	55.0	51.8	119.2	3.06	9.0	6.12

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT060 Performance Data:
5.0 Ton, High Capacity Hydronic Heating

EWT	GPM	WPD		Heating						Heating with Desuperheater					
		PSI	FT	ELT	HC	KW	HE	LWT	COP	HC	KW	HE	LWT	DH	COP
30	8.3	2.2	5.1	85	49.9	4.11	35.8	97.0	3.56	43.7	4.07	35.9	95.5	6.2	3.59
				95	48.5	4.33	33.7	106.6	3.28	42.1	4.26	33.9	105.1	6.4	3.33
				110	47.0	4.54	31.8	121.3	3.03	40.4	4.46	31.8	119.7	6.6	3.09
	11.7	4.1	9.6	85	51.4	4.15	37.4	93.8	3.63	45.0	4.07	37.4	92.7	6.4	3.70
				95	50.0	4.37	35.1	103.6	3.35	43.4	4.29	35.3	102.4	6.6	3.41
				110	48.6	4.59	33.0	118.3	3.10	41.8	4.50	33.2	117.2	6.8	3.17
	15.0	6.7	15.4	85	52.1	4.15	38.1	91.9	3.68	45.6	4.07	38.3	91.1	6.5	3.75
				95	50.7	4.37	36.0	101.8	3.40	44.0	4.30	30.9	100.9	6.7	3.46
				110	49.4	4.59	33.7	116.6	3.15	42.4	4.51	33.9	115.7	6.9	3.20
50	8.3	2.1	4.8	85	64.6	4.30	50.0	100.5	4.40	56.5	4.17	50.5	98.6	8.0	4.53
				95	62.6	4.53	47.1	110.0	4.05	54.4	4.41	47.5	108.0	8.3	4.17
				110	60.5	4.75	44.3	124.5	3.73	52.0	4.63	44.7	122.5	8.5	3.83
	11.7	3.8	8.9	85	67.3	4.39	52.4	96.6	4.50	58.9	4.26	53.0	95.1	8.4	4.63
				95	65.1	4.62	49.5	106.2	4.13	56.5	4.48	49.9	104.7	8.6	4.26
				110	63.0	4.86	46.4	120.8	3.80	54.1	4.71	47.0	119.3	8.8	3.92
	15.0	6.2	14.4	85	68.7	4.41	53.8	94.2	4.57	60.1	4.26	54.3	93.0	8.6	4.72
				95	66.5	4.64	50.7	103.9	4.20	57.7	4.50	51.3	102.7	8.8	4.33
				110	64.2	4.88	47.7	118.6	3.86	55.2	4.73	48.2	117.4	9.0	3.98
70	8.3	2.1	4.8	85	78.6	4.57	63.1	103.8	5.03	68.8	4.38	63.9	101.5	9.8	5.26
				95	75.8	4.81	59.5	113.2	4.62	65.8	4.62	60.3	110.8	10.0	4.81
				110	73.0	5.05	55.9	127.5	4.24	62.7	4.85	56.8	125.1	10.2	4.42
	11.7	3.7	8.5	85	82.5	4.71	66.5	99.2	5.13	72.2	4.50	67.6	97.4	10.3	5.37
				95	79.6	4.96	62.7	108.7	4.71	69.1	4.75	63.7	106.9	10.5	4.91
				110	76.7	5.21	58.9	123.2	4.31	65.9	4.99	59.9	121.3	10.8	4.50
	15.0	5.9	13.7	85	84.7	4.76	68.6	96.3	5.21	74.2	4.54	69.7	94.9	10.5	5.47
				95	81.7	5.01	64.7	105.9	4.78	70.9	4.79	65.8	104.4	10.8	5.00
				110	78.6	5.26	60.8	120.5	4.38	67.6	5.03	61.8	119.0	11.0	4.58
90	8.3	1.9	4.4	85	90.6	4.54	74.4	106.7	5.85	79.3	4.53	75.9	104.0	11.3	5.86
				95	87.2	5.13	70.1	115.9	4.98	75.7	4.77	71.5	113.2	11.5	5.36
				110	83.9	5.28	65.9	130.1	4.66	72.1	5.02	67.2	127.3	11.8	4.90
	11.7	3.4	7.9	85	95.7	4.98	78.9	101.4	5.63	83.8	4.70	80.5	99.4	11.9	5.97
				95	92.3	5.25	74.4	110.8	5.15	80.1	4.96	76.0	108.7	12.2	5.46
				110	88.6	5.51	70.0	125.2	4.72	76.2	5.21	71.4	123.1	12.4	4.99
	15.0	5.5	12.6	85	99.0	5.06	81.7	98.2	5.73	86.6	4.76	83.4	96.6	12.3	6.09
				95	95.2	5.32	77.1	107.7	5.24	82.6	5.02	78.8	106.0	12.6	5.56
				110	91.4	5.59	72.5	122.2	4.80	78.6	5.27	74.0	120.5	12.8	5.08

Notes:
1. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
2. Extrapolation data down to 25°F for heating and interpolation between EWT & GPM data is permissible.
3. See Flow Rate Selection on page 6 for proper application.
4. EWT (Entering Water Temperature) is also called EST (Entering Source Temperature).
5. Load flow rate is the same as the source flow rate at each of the three flow selections.

GT060 Performance Data:
5.0 Ton, 2100 CFM, Forced Air, High Capacity Cooling

EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	8.3	2.1	5.0	75/63	64.6	45.2	76.1	3.43	18.8	64.6	45.2	76.1	3.36	5.4	19.2
				80/67	70.2	47.0	81.0	3.51	20.2	70.2	47.1	80.9	3.43	5.6	20.5
				85/71	75.8	48.9	85.8	3.58	21.2	75.8	49.0	85.8	3.50	5.7	21.6
	11.7	3.8	8.9	75/63	65.3	45.6	76.3	3.28	19.9	65.3	45.6	76.3	3.23	5.2	20.2
				80/67	70.9	47.4	81.1	3.34	21.2	70.9	47.5	81.3	3.30	5.3	21.5
				85/71	76.6	49.3	86.0	3.41	22.4	76.6	49.4	86.1	3.37	5.4	22.7
	15.0	6.2	14.4	75/63	65.9	45.6	76.7	3.18	20.7	65.9	45.6	76.7	3.17	4.9	20.8
				80/67	71.7	47.4	81.7	3.24	22.1	71.7	47.5	81.7	3.23	5.0	22.2
				85/71	77.4	49.3	86.4	3.31	23.4	77.4	49.4	86.6	3.29	5.2	23.5
70	8.3	2.1	4.8	75/63	60.6	44.4	74.1	4.12	14.7	61.0	44.4	74.2	4.02	7.8	15.1
				80/67	65.8	46.1	78.7	4.22	15.6	66.2	46.3	78.9	4.10	8.1	16.1
				85/71	71.1	48.0	83.5	4.29	16.6	71.5	48.2	83.7	4.20	8.4	17.0
	11.7	3.7	8.5	75/63	61.5	44.8	74.3	3.92	15.7	61.9	45.0	74.6	3.86	7.6	16.0
				80/67	66.9	46.6	79.1	4.01	16.7	67.3	46.8	79.4	3.95	7.8	17.0
				85/71	72.2	48.5	83.9	4.09	17.7	72.6	48.7	84.2	4.01	8.0	18.1
	15.0	5.9	13.7	75/63	62.1	44.8	74.7	3.80	16.3	62.4	45.0	75.0	3.78	7.2	16.5
				80/67	67.5	46.6	79.5	3.88	17.4	67.9	46.8	79.8	3.86	7.4	17.6
				85/71	72.9	48.5	84.2	3.96	18.4	73.3	48.7	84.6	3.93	7.7	18.7
90	8.3	1.9	4.4	75/63	55.1	42.5	71.3	5.10	10.8	55.7	42.8	71.5	4.94	10.3	11.3
				80/67	59.9	44.2	75.8	5.19	11.5	60.5	44.6	76.1	5.05	10.6	12.0
				85/71	64.7	46.1	80.5	5.28	12.3	65.4	46.3	80.7	5.14	10.9	12.7
	11.7	3.4	7.9	75/63	56.2	42.9	71.7	4.80	11.7	56.8	43.2	72.1	4.70	10.0	12.1
				80/67	61.1	44.8	76.2	4.91	12.4	61.7	45.0	76.6	4.79	10.2	12.9
				85/71	66.1	46.5	80.7	4.99	13.3	66.7	46.8	81.3	4.90	10.5	13.6
	15.0	5.5	12.7	75/63	56.9	42.9	71.8	4.67	12.2	57.4	43.2	72.3	4.62	9.6	12.4
				80/67	61.8	44.8	76.3	4.76	13.0	62.4	45.0	77.0	4.71	9.8	13.3
				85/71	66.7	46.5	81.0	4.87	13.7	67.4	46.8	81.7	4.79	10.1	14.1
110	8.3	1.9	4.3	75/63	48.1	39.8	67.8	6.35	7.6	48.9	40.2	68.1	6.16	12.7	7.9
				80/67	52.2	41.4	72.2	6.44	8.1	53.1	41.8	72.5	6.27	13.1	8.5
				85/71	56.5	43.0	76.5	6.59	8.6	57.4	43.5	76.7	6.37	13.5	9.0
	11.7	3.4	7.9	75/63	49.3	40.2	68.1	5.94	8.3	50.1	40.6	68.5	5.85	12.3	8.6
				80/67	53.7	41.8	72.3	6.08	8.8	54.6	42.2	72.9	5.94	12.7	9.2
				85/71	57.9	43.6	76.7	6.24	9.3	58.9	43.9	77.3	6.05	13.0	9.7
	15.0	5.4	12.5	75/63	49.8	40.2	68.1	5.82	8.6	50.7	40.6	68.7	5.73	11.8	8.8
				80/67	54.2	41.8	72.3	5.90	9.2	55.1	42.2	73.1	5.88	12.2	9.4
				85/71	58.5	43.6	76.7	6.01	9.7	59.5	43.9	77.5	5.94	12.6	10.0

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

GT060 Performance Data:
5.0 Ton, 1300 CFM, Forced Air, Low Capacity Cooling

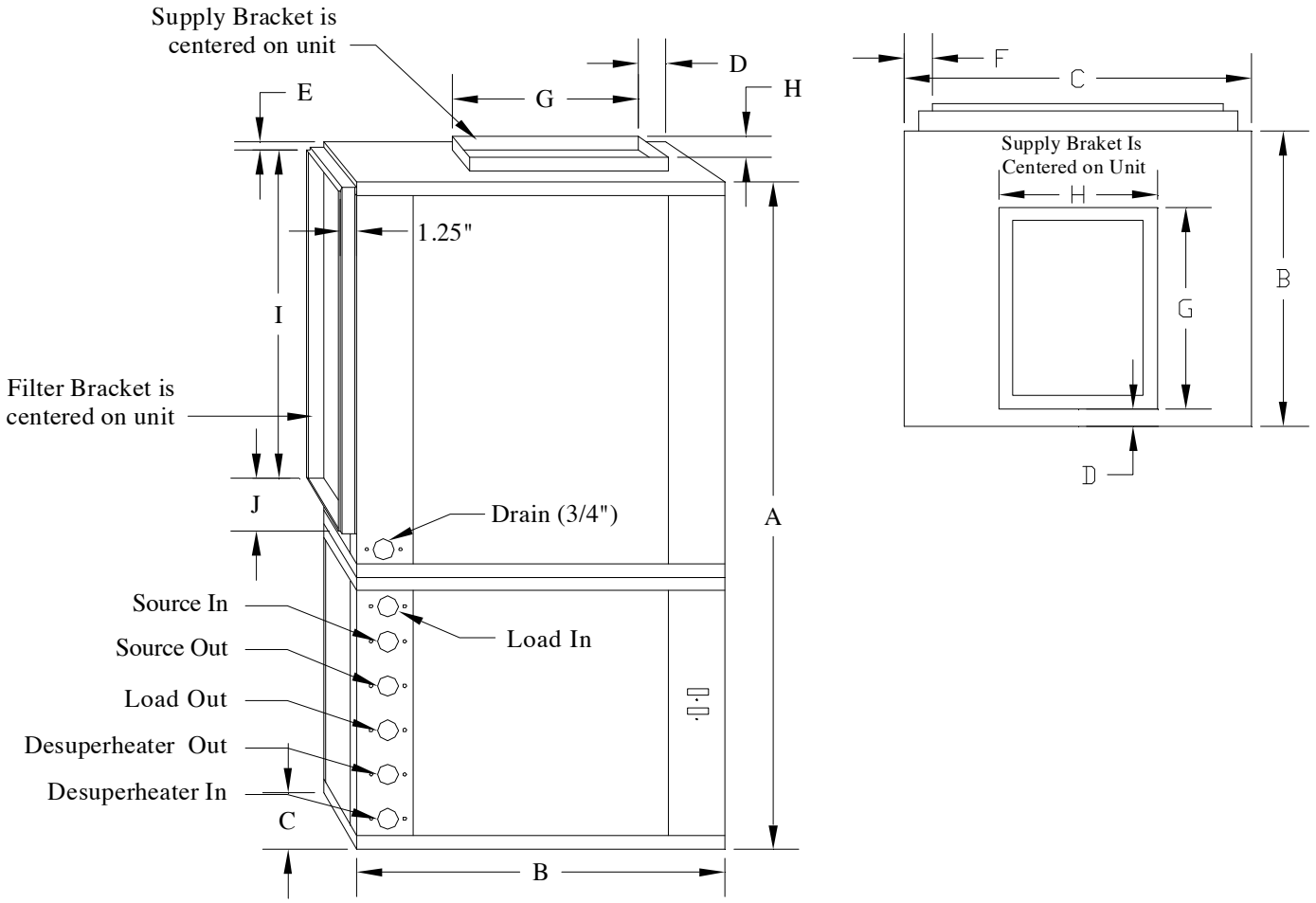
EWT	GPM	WPD		EAT DB/ WB	Cooling					Cooling with Desuperheater					
		PSI	FT		TC	SC	HR	KW	EER	TC	SC	HR	KW	DH	EER
50	5.6	1.4	3.2	75/63	45.2	31.6	53.2	1.77	25.6	45.2	31.6	53.2	1.73	3.8	26.0
				80/67	49.1	32.9	56.6	1.81	27.1	49.1	32.9	56.5	1.77	3.9	27.8
				85/71	53.0	34.2	60.0	1.84	28.7	53.0	34.2	60.0	1.81	4.0	29.3
	7.8	2.5	5.8	75/63	45.6	31.8	53.4	1.69	27.0	45.6	31.9	53.4	1.67	3.6	27.4
				80/67	49.5	33.2	56.7	1.72	28.7	49.5	33.2	56.8	1.70	3.7	29.1
				85/71	53.5	34.5	60.2	1.76	30.4	53.5	34.5	60.2	1.74	3.8	30.8
	10.0	4.0	9.3	75/63	46.1	31.8	53.6	1.64	28.1	46.1	31.9	53.6	1.63	3.4	28.2
				80/67	50.1	33.2	57.1	1.67	30.0	50.1	33.2	57.1	1.67	3.5	30.1
				85/71	54.1	34.5	60.4	1.71	31.7	54.1	34.5	60.5	1.70	3.6	31.9
70	5.6	1.3	3.1	75/63	42.4	31.0	51.8	2.13	19.9	42.6	31.1	51.9	2.07	5.5	20.5
				80/67	46.0	32.2	55.0	2.17	21.2	46.3	32.4	55.1	2.11	5.7	21.9
				85/71	49.7	33.5	58.4	2.21	22.5	50.0	33.7	58.5	2.16	5.8	23.1
	7.8	2.4	5.5	75/63	43.0	31.3	52.0	2.02	21.3	43.3	31.4	52.2	1.99	5.3	21.8
				80/67	46.8	32.6	55.3	2.07	22.6	47.0	32.7	55.5	2.03	5.5	23.1
				85/71	50.5	33.9	58.7	2.11	24.0	50.8	34.1	58.9	2.07	5.6	24.6
	10.0	3.8	8.9	75/63	43.4	31.3	52.2	1.96	22.1	43.6	31.4	52.4	1.95	5.0	22.4
				80/67	47.2	32.6	55.6	2.00	23.6	47.5	32.7	55.8	1.99	5.2	23.8
				85/71	50.9	33.9	58.9	2.04	24.9	51.2	34.1	59.1	2.02	5.4	25.3
90	5.6	1.2	2.9	75/63	38.6	29.7	49.8	2.63	14.7	38.9	29.9	50.0	2.55	7.2	15.3
				80/67	41.9	30.9	53.0	2.68	15.7	42.3	31.2	53.2	2.60	7.4	16.3
				85/71	45.3	32.2	56.2	2.72	16.6	45.7	32.4	56.4	2.65	7.6	17.2
	7.8	2.2	5.2	75/63	39.3	30.0	50.1	2.47	15.9	39.7	30.2	50.4	2.42	7.0	16.4
				80/67	42.7	31.3	53.3	2.53	16.9	43.2	31.4	53.6	2.47	7.1	17.5
				85/71	46.2	32.5	56.4	2.57	18.0	46.6	32.7	56.8	2.53	7.3	18.5
	10.0	3.6	8.3	75/63	39.8	30.0	50.2	2.41	16.5	40.1	30.2	50.6	2.38	6.7	16.9
				80/67	43.2	31.3	53.4	2.45	17.6	43.6	31.4	53.8	2.43	6.9	18.0
				85/71	46.7	32.5	56.6	2.51	18.6	47.1	32.7	57.1	2.47	7.0	19.1
110	5.6	1.2	2.8	75/63	33.6	27.8	47.4	3.27	10.3	34.2	28.1	47.6	3.18	8.9	10.8
				80/67	36.5	29.0	50.5	3.32	11.0	37.1	29.2	50.7	3.23	9.2	11.5
				85/71	39.5	30.1	53.5	3.40	11.6	40.2	30.4	53.6	3.28	9.5	12.2
	7.8	2.2	5.1	75/63	34.5	28.1	47.6	3.06	11.2	35.0	28.4	47.9	3.02	8.6	11.6
				80/67	37.5	29.2	50.6	3.13	12.0	38.2	29.5	50.9	3.06	8.9	12.5
				85/71	40.5	30.5	53.6	3.22	12.6	41.2	30.7	54.0	3.12	9.1	13.2
	10.0	3.5	8.1	75/63	34.8	28.1	47.6	3.00	11.6	35.4	28.4	48.0	2.96	8.3	12.0
				80/67	37.9	29.2	50.6	3.04	12.5	38.5	29.5	51.1	3.03	8.5	12.7
				85/71	40.9	30.5	53.6	3.10	13.2	41.6	30.7	54.2	3.06	8.8	13.6

Notes:
1. Capacity data includes water pumping watts and are base upon 15% (by volume) propylene glycol antifreeze solution.
2. Desuperheater Capacity is based upon 0.4 GPM Flow per nominal ton at 90°F entering hot water temperature.
3. The manufacturer reserves the right to make changes in design and construction at any time without notice.
4. Extrapolation data down to 25°F for heating and interpolation between CFM, EWT & GPM data is permissible.
5. See Flow Rate Selection on page 6 for proper application.

Physical Data

Dual Capacity				
Model Number	**GT024**	**GT036**	**GT048**	**GT060**
Fan Wheel (in.)	9 x 7	9 x 9	11x10	11x10
Fan Motor ECM (HP)	1/2	1/2	1.0	1.0
Refrigerant Charge (oz.)	40.0	58.0	56.0	80.0
Air Coil				
Face Area (Sq.Ft.)	4.2	5.6	6.3	6.3
Dimensions (in.)	20x30	25x32	25x36	25x36
Number Of Rows	3	3	3	4
Filter 1” Thick	30x24	32x28	36x28	36x28
Unit Weight (nominal) - lbs	300	370	410	460

Dimensional Data:
Vertical Cabinets



Model	Dimensional Data						Supply Air		Return Air		Water Loop		Weight (lbs)
	A	B	C	D	E	F	G	H	I	J	IN	OUT	
024	50.0	22.0	25.5	0.75	1.6	2.5	12.0	14.0	28.2	20.7	3/4”	3/4”	200
036	54.0	26.0	30.5	0.75	1.6	2.5	14.0	16.0	30.2	25.7	3.4”	3/4”	270
048	60.0	26.0	30.5	0.75	1.6	2.5	16.0	16.0	34.2	25.7	1.0”	1.0”	310
060	60.0	28.0	30.5	0.75	1.6	2.5	16.0	16.0	34.2	25.7	1.0”	1.0”	360

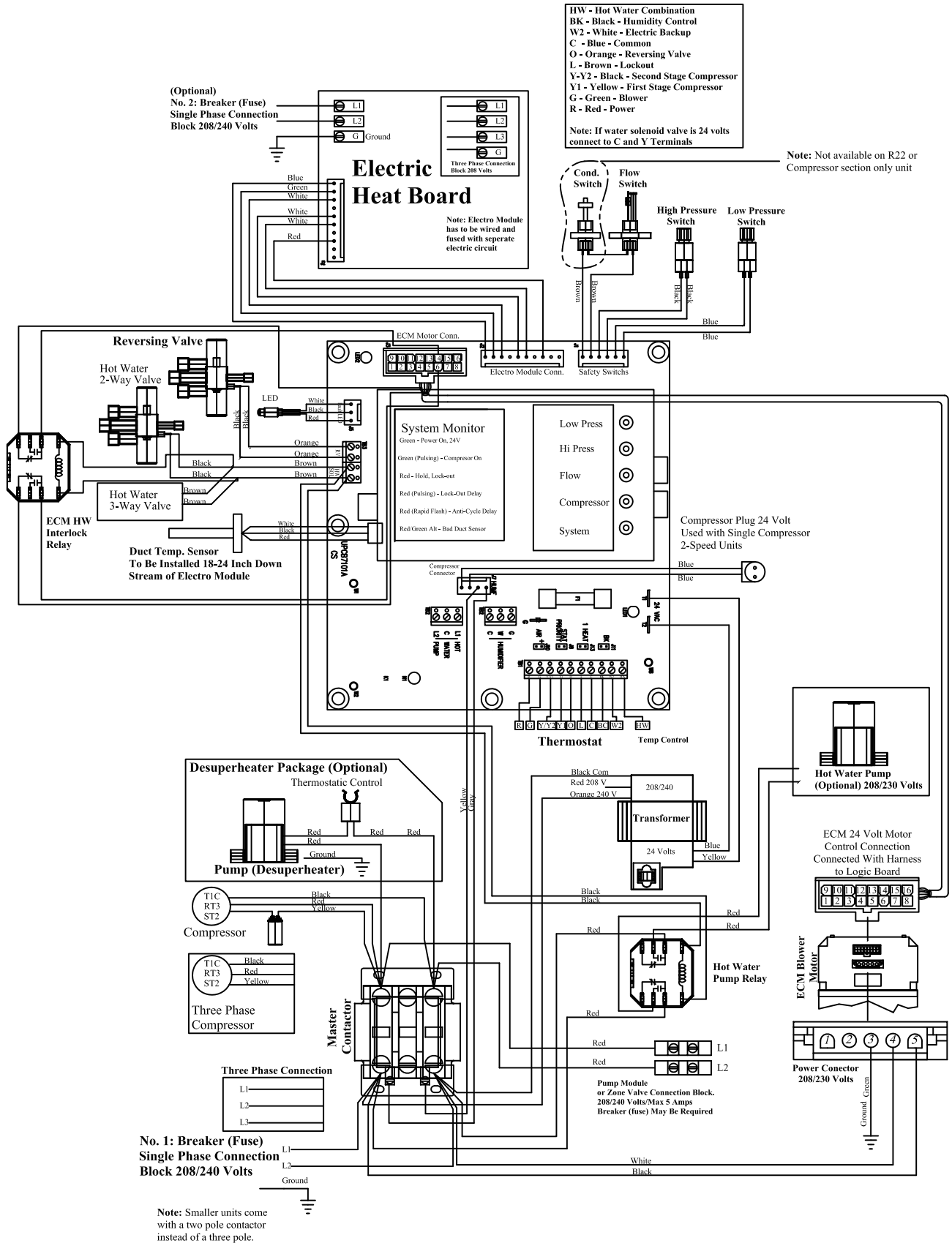
Notes
All Desuperheater connections are 3/4” FPT.
All measurements are in inches.

Electrical Data:
Unit Electrical Data

Model	60Hz Power		Compressor		Fan Motor		Total Unit FLA	Minimum Circuit Ampacity	Minimum Circuit Size	Maximum Fuse Size
	Volts	Phase	RLA	LRA	FLA	LRA				
024	208-230	1	6.2	52.0	1.1	2.5	7.3	10.0	15.0	15.0
036	208-230	1	13.3	82.0	1.7	4.5	15.0	20.0	30.0	30.0
	208-230	3	8.1	58.0	1.7	4.5	9.8	15.0	20.0	20.0
048	208-230	1	17.3	96.0	3.1	8.0	20.4	30.0	45.0	45.0
	208-230	3	11.5	88.0	3.4	8.0	14.6	20.0	30.0	30.0
060	208-230	1	22.2	118.0	4.3	10.4	26.5	35.0	55.0	55.0
	208-230	3	14.9	135.0	4.3	10.4	19.2	25.0	40.0	40.0

Notes:
Always refer to unit nameplate data prior to installation
Installing Wires (High Voltage): Main Electric Supply for GT Series (compressor compartment) should enter the unit at the heat pump high voltage wiring entrance. Wire should be run through a conduit up to the cabinet and wired to the heat pump main contactor.

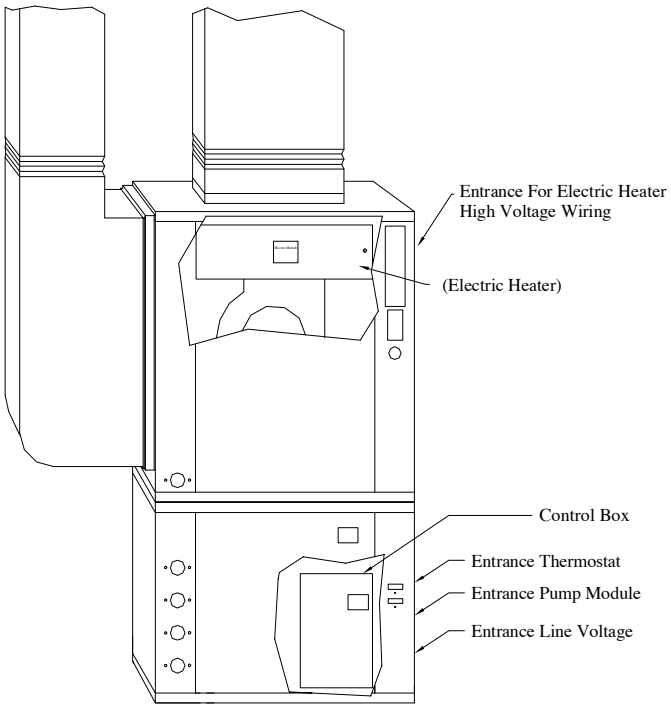
GT Series 024, 036, 048 & 060 2-Stage Compressor with ECM Motor Wiring Diagram



Electrical Data:
Auxiliary Heater Electrical Data

Model Number	Unit Model	kW	Volts	Amps	Minimum Circuit Size	Maximum Circuit Size	Fuse Size Amps (Inside Heater)	Minimum CFM
AHTR101A	024 - 060	10	240	40.0	50.0	90.0	None	600
AHTR151A	036 - 060	15	240	60.0	75.0	135.0	2 - 30 & 2 - 50	900
AHTR201A	048 - 060	20	240	80.0	100.0	180.0	4 - 50	1200

Note: 20kW heater not recommended for size GT036 or smaller



All line voltage knockouts are 1-1/8".
All low voltage knockouts are 7/8".

Installing Electric Heater High Voltage Wires:

A: Wires should enter the unit at the entrance of Electric Heater wiring entrance. Wire should be run through a conduit up to the cabinet and wired to the Electric Heater terminal strip (See wiring diagram located inside units electric box cover).

B: A separate circuit/breaker must be installed for the Electric Heater. It is not recommended to operate the Electric Heater on the same Line or Fuse (breaker) that the unit is powered.

All wiring MUST be done in strict compliance with local, state, national or any other applicable codes.

Note: If Electric Auxiliary is used, never disconnect power to the heat unit as it may be required to properly heat the home. Major damage may result.

Blower Data

ECM Blower

Model	Blower Speed	CFM Nominal
GT024	High	900
	Low	450
GT036	High	1300
	Low	650
GT048	High	1700
	Low	850
GT060	High	2100
	Low	1050

Note: ECM Motors will maintain a nominal CFM (approximately 400 CFM Per Ton) between .10 and .80 Static Pressure.
Constant Fan Speed is 50% of High Speed
Auxiliary Heat Speed is 110% of High Speed

Operating Pressures

Heating - Without Desuperheater							
EWT (°F)	GPM Per Ton	Discharge Pressure (PSIG)	Suction Pressure (PSIG)	Sub Cooling (°F)	Super Heat (°F)	Air Temperature Rise (°F-DB)	Water Temperature Drop (°F)
30	1.5	285-310	68-76	4-10	8-12	14-20	5-8
	3	290-315	70-80	4-10	8-12	16-22	3-6
50	1.5	315-345	100-110	6-12	9-14	22-28	7-10
	3	320-350	105-115	6-12	9-14	24-30	5-8
70	1.5	355-395	135-145	7-12	10-15	30-36	9-12
	3	360-390	140-150	7-12	10-15	32-38	7-10
Cooling - Without Desuperheater							
EWT (°F)	GPM Per Ton	Discharge Pressure (PSIG)	Suction Pressure (PSIG)	Sub Cooling (°F)	Super Heat (°F)	Air Temperature Drop (°F-DB)	Water Temperature Rise (°F)
50	1.5	220-235	120-130	10-16	12-20	20-26	19-23
	3	190-210	120-130	10-16	12-20	20-26	9-12
70	1.5	280-300	125-135	8-14	10-16	19-24	18-22
	3	250-270	125-135	8-14	10-16	19-24	9-12
90	1.5	360-380	130-145	8-14	10-14	18-22	17-21
	3	330-350	130-140	8-14	10-14	18-22	8-11

01CB30 Board Control Feature and Operation, For Two Speed Units With ECM Technology,

The G Series, Logic Controlled System
(01CB30) is a microprocessor-based printed circuit board. It is located in the unit control box for convenient accessibility. This control board is specially design for the G series units which integrate the ECM blower motor. The microprocessor provides control of the entire unit as well as outputs for status modes, faults and diagnostics. An LED is located on front corner of the unit for quick inspection without removing any access panels.

Low voltage strip provide all necessary terminal for field installations. The board accepts standard 24VAC Thermostat inputs.

Startup
The unit will not operate until all inputs and safety controls are checked for normal conditions.

Fault Retry & Diagnostics
All faults are retried three times, with 5 minute delay between each attempt, before finally locking the unit out. An output signal (L) is made available for a fault LED at the thermostat. The “fault retry” feature is designed to prevent nuisance service calls.

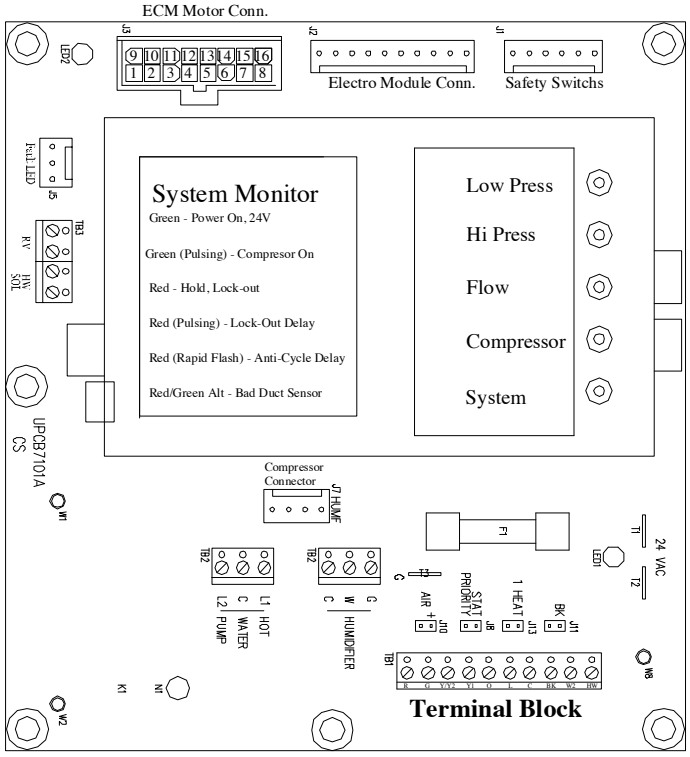
Safety Controls
The G Series control receives separate signals for a high pressure switch for safety, a low pressure switch to prevent loss/low refrigerant charge damage & a flow switch for freeze protection.

Fan Speed Control
The BK terminal on the G series board allows field speed reduction of 15% blower speed for cooling in the dehumidification mode.

Flow Switch (Freeze Protection) Operation
When the 24vac is applied to the Y/Y2 or Y terminal, the control is monitoring the flow switch input. If the flow switch opens (no water flow), the control board will energize the compressor contractor, and start the compressor, after the random start is over. If the flow switch is still open after the 30 seconds, the control will de-energize the compressor contractor. The control board won’t start the sequence unless the flow switch closes. If the flow switch opens while the compressor is energizes, the control board will energize the compressor contractor for a minimum time period of 30 seconds, after 30 seconds, the control board will de-energize the compressor contractor and go into a soft lockout. The control board will not energize the compressor contractor unless the flow switch closes and the anti-short cycle time has expired. If the flow switch opens three times with-in 1 hour, the control board will go into manual lockout and the fault indicator will energize. When the flow switch is open, or if in lockout mode, the status led on the control board will blink, three times.

Condensation Overflow Protection
The G Series units come standard with a condensation sensor. If sensor is sensing condensation liquid the compressor will shut down and the flow status light will blink, three times.

G Series Microprocessor driven Logic Control Board

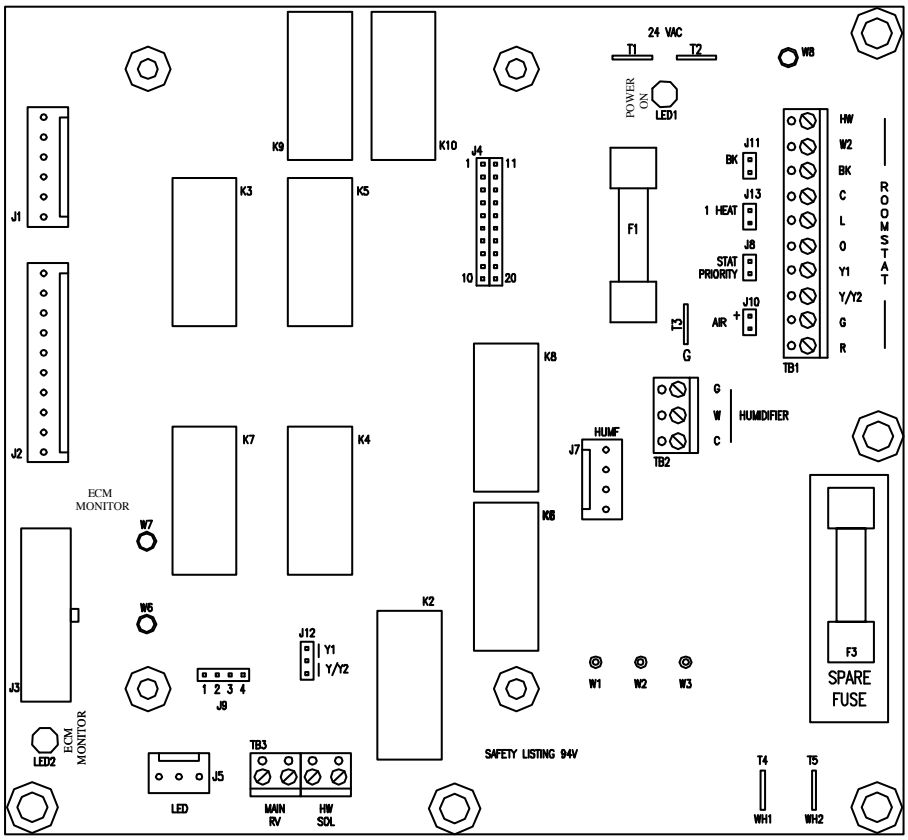


Anti-Short Cycle Operation
If all safety controls are satisfactory, the compressor contractor will energize when the control board receives 24VAC on the thermostat input “Y/Y2 or Y1” terminal. If the 24VAC on the “Y/Y2 or Y1” terminal is removed, the control board will de-energize the compressor contactor and go into a 300 second lockout. If the 24VAC is reapplied to the “Y/Y2 or Y1” terminal again, the control board will not energize the compressor contractor until after the 300 second lockout is over.

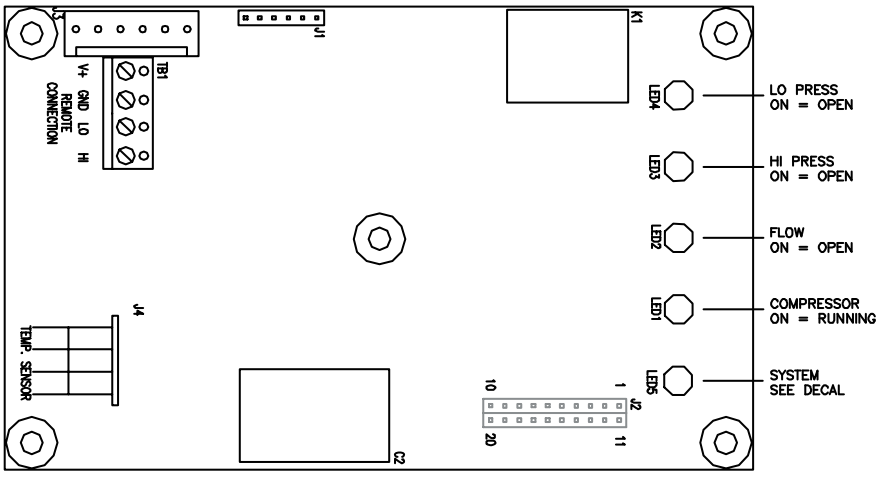
High & Low Pressure Safety Operation
When the 24vac is applied to the “Y/Y2 or Y1” terminal, the control board is monitoring the high & low pressure switch input to make sure that they are closed. The control board won’t start the sequence unless the high & Low pressure switch are closed. If the high & low pressure switch opens while the compressor contactor is energized, the control will de-energize the compressor contractor and go into a soft lockout. The control board will not energize the compressor contractor unless the high or low pressure switch closes and the anti-short cycle time has expired. If the high or low pressure switch opens three times with in 1 hour, the control board will go into manual lockout and the fault contact will energize. When the high or low pressure switch opens or if in lockout

01CB30 Board Control Physical Layout

Back Board



Top Board



Plenum Temperature Sensor

Plenum temperature sensor should be installed 18” to 24” above (or from) the Electro Module Elements. Stage 1 is a direct function of W2 stat input only. The controller has the ability to interrupt or deactivate stage 2 and stage 3. Sensor must be enabled, to function by connecting means of software to the board data port. For more information on sensor see your Electro Module PC software manual.

Controls Sequence of Operation

Control Board Lockout Functions
High and Low Pressure switches, only create Soft Lockout mode.

Jumper Setup
J8 = stat priority – "Y" is priority over HW terminal if jumper is installed. Used on combination units.

J9 = ECM jumpers - relates to specific models. Can also be used to lower motor speed. Jumper pins 3 & 4 lower heating speed by 200 CFM. Pins 1 & 2 lower cooling speed by 200 CFM.

J10 = Air+ - Change the continuous fan speed "G" call (50%) to 65 % continuous air, if jumper is installed.

J11 = BK - Cooling only, If jumper is installed fan is running at normal speed, When a humidistat is connected to BK terminal remove jumper. When humidistat calls, (0 volts at BK terminal) fan will reduce speed by 15%.

J12, selects single speed or dual speed compressor (three posts, two positions) - jumper installed at Y/Y2 sets up standard single stage stat where "basic Y" is connected to Y/Y2 screw. Jumper installed at Y1 set up Y1 input as first stage stat where "basic Y or Y1 on multistage thermostat" is connected on Y1 screw. Jumper set at Y1 requires a 2 Heat/2 Cool thermostat and if auxiliary heat installed a 3 Heat/2 Cool Thermostat. See technical bulletin TB08.001 for details.

J13, 1 HEAT – Heating mode only, with pin jumper installed, Y1 activates both compressor stage 1 and stage 2. Stat Y/Y2 basically has no function (heat only).

Heating Operation
Heat, 1st stage (Y/Y1)
The fan motor is started on low speed immediately, the loop pump is also started at the Y/Y1 call, and the compressor is energized at low capacity. The fan motor speed is changed to 70% in 30 seconds, after Y call.

Heat, 2nd stage (Y & W2) Single Capacity Units
The second stage heater, if installed, is energized. The fan motor speed is changed to 100% after W2 calls. After 10 Minutes of continuous W2 Call, and plenum temperature is not at max, the fan motor will change to 110%.

Heat, 2nd stage (Y1 & Y2) Dual Capacity Units
The second stage compressor is energized. The fan motor speed is changed to 85% after Y2 calls.

Heat, 3rd stage (Y1, Y2 & W2) Dual Capacity Units
The third stage heater, if installed, is energized. The fan motor speed is changed to 100% after W2 calls. After 10 Minutes of continuous W2 Call, and plenum temperature is not at max, the fan motor will change to 110%.

Emergency Heat (W2 Only)
The fan motor is started on high speed, and the first stage heat is energized. 10 seconds after continuous demand the addiction stages of resistance heat will sequence to desired temperature, (if temperature sensor is installed).

Water Heating Mode (HW) combo units only:
Depending on priority setting of controls (J8): On a call for HW the unit will energize the diverting valve and 3-way valve, and the compressor is energized in full load position only, along with the loop pumps, load side pump, and desuperheater (if applicable). The unit will run until the Aquastat reaches setpoint and HW signal is gone. If the J8 jumper is set to forced air priority and the forced air thermostat sends a Y1 signal the unit will immediately shut down (even if in HW mode) and go into a 5 minute time delay. The unit will then re-start in the forced air mode. If the Aquastat wasn't satisfied, once the forced air signal is complete the unit will again shut down, go into a 5 minute time delay, and then re-start in the water heating mode to try and satisfy the Aquastat call. If the J8 jumper is set for HW priority, then the unit will continue to run in the water heating mode until the aquastat is satisfied even after a Y1 signal is received. The fan motor could be energized during the Y1 and Y2 calls while the unit is running in the HW priority mode. If the stat goes into 3rd stage W2 call, the electric heat along with the fan motor will operate to try and satisfy the forced air stat while the unit is running in HW priority mode.

Cooling Operation
In cooling mode the O terminal (reversing valve) is always energized.

Cool, 1st stage (Y, O or Y1, O) Dual Capacity Units
The fan motor is started on low speed immediately, the loop pump is also started at the Y1 call, and the compressor is energized at low capacity. The fan motor speed is changed to 70% in 30 seconds, after Y1 call.

Cool, 2nd stage (Y1 & Y2) Dual Capacity Units
The second stage cool is energized. The fan motor speed is changed to 85% and after 15 seconds to 100% (85% if Humidistat calls), after Y2 calls.

Humidifier Terminal Strip
The G Terminal allows a direct 24 volt signal (from the thermostat G terminal) if the O is not energized. The W terminal allows a direct 24 volt signal (from the thermostat Y terminal) if the O is not energized. Both G & W are de-energized when the O terminal represents cooling.

Fan (G Only)
The "G" terminal starts the fan at low speed. Regardless of the fan input "G" from thermostat, the fan will remain on low speed for 30 seconds at the end of each heating, cooling or emergency heat cycle.

Indicator LEDs
Top Board, Controller & External (outside) Corner
System - red and green color with various combinations.
Constant Green = on solid - power-on, ready or no t-stat call.
Green Blinking (during lockout) =
1 = High Pressure, 2 = Low Pressure, 3 = Water Flow
Pulsing - compressor relay on.
Red = pulsing - in lockout mode.
On solid - in lockout hold mode.
Fast pulsing - in anti-cycle delay (ACD).
Green/red = alternating - detected bad temperature sensor or not plugged in.

Top Board, Controller
Compressor: Yellow = On indicates voltage to compressor contactor coil.
Flow: Red = on indicates no flow. If there's no t-stat call, LED is on representing no flow.
High Pressure: Red = on indicates open. Momentary open declares lockout hold (set at 600 PSI).
Low Pressure: Red = on indicates open. Momentary open declares lockout hold (Set at 50 PSI).
L Fault LED (Thermostat)
Pulsing = in lockout mode or bad temperature sensor.

Engineering Specifications

General
The Geothermal Heat Pump system and the earth loop shall be one system and include all interconnecting piping and controls to provide an efficient, harmoniously balanced package. All units shall be tested and rated by ETL in accordance with UL and CSA test laboratory safety and performance standards. Each unit shall be computer run-tested at the factory. Each unit shall be mounted on a pallet and shipped in a corrugated box. Units shall be designed to operate with entering liquid temperature between 25°F and 110°F.

Refrigerant Circuit
Compressor shall be hermetically sealed high efficient scroll, mounted on vibration isolators. The air heat exchanger (coated) coil shall use high-density technology, low-face velocity and incorporate enhanced aluminum fins bonded to copper tubing not less than three rows deep. The coaxial water heat exchanger shall be designed for low water pressure drop and constructed of a an optional cupro-nickel or standard copper inner tube and a steel outer tube with enhanced heat exchanger surface. An optional domestic water desuperheater coil of vented double wall copper construction for potable water with high limit control shall be employed. The thermostatic expansion device shall be bi-directional, mechanical controlled and shall provide proper superheat over the entire liquid temperature range with minimal hunting. The reversing valve shall be of copper construction with a 24V AC solenoid valve with fail-to-heating position.

Cabinet
The cabinet shall be of heavy gauge steel. It shall be bolted together and incorporate a condensate pan and be installed with high-density insulation, with smoke and flame spread of class 1 type and acoustic value of NRC .45. It shall be oriented to allow complete component service access from all sides. Electrical box shall be of heavy gauge steel located on the access panel side of the cabinet. A duct collar shall be provided on the supply air opening and a return air filter, rack & duct collar shall be provided on the return air opening. Standard size 1-inch filters shall be provided with each.

Controls and Blower Motor
Units shall incorporate a microprocessor based control board. All equipment shall incorporate both high and low pressure switches and freeze protection (including a water flow switch) with total refrigerant circuit lockout with manual reset. The board shall provide a terminal block, LED status, fault indicators, fault memory and accessory output. All units shall have knockouts for entrance of line & low voltage wiring.

Fan Motor & Assembly.
The fan shall be a direct driven type. The motor shall be a variable-speed ECM motor with direct driven blowers that can be easily removed from the heat pump without duct disconnection. The ECM fan motor shall be soft starting and maintain constant CFM over its operating static pressure range. The fan motor shall be isolated from the housing by rubber grommets. The ECM motors shall be long life ball bearing type.

Piping & Connections
Loop water connections (supply/return) shall be 1-inch FPT brass swivel connection, which provide a union for easy connection. Larger fitting shall be female copper (1¼ to 1½) connection. All water piping shall be insulated to prevent condensation at low water temperatures. The condensation connection shall be ¾“ female brass connection.

Hanger Kit (for field installed horizontal units)
The hanger kit shall consist of galvanized steel brackets, isolators, bolts & lock washers. Bracket shall be designed to fasten to the unit’s bottom cabinet and be connected to ceiling with a field supplied 3/8” threaded rod. Units sizes 018-024 shall include four brackets and units size 030-072 shall include six brackets

Secondary Drain Pan.
A secondary drain pan should be field furnished and installed under any unit that is mounted overhead in an attic, or one a second floor

Options, Accessories, & Warranty

Desuperheater
Optional desuperheater package of vented double wall copper constructed heat exchanger coil suitable for potable water shall be provided. The heat exchanger and hot water circulating pump shall be factory installed inside the cabinet.

Field Installed Hydronic Pump Module (Flow Center)
Pump module shall be self contained and provide all liquid flow, liquid fill and connection required for earth loop system. The pumps shall be wired to the pump terminal strip inside unit electric box.

Field Installed Thermostat
A multiple-stage manual or autochangeover electronic/digital thermostat shall be provided with the unit. The thermostat shall provide two or three stage heating and one or two stage cooling with comfort temperature control. An AUTO-OFF fan switch, an EMERG-HEAT OFF- COOL-AUTO system switch, and indicting LEDs. The thermostat shall provide display in °F or °C. An option remote outdoor sensor shall be available.

Field Installed Electric Auxiliary Heater
An Electric resistance heater shall provide emergency and/or supplemental heating. Vertical unit shall have the control console and element (coils) assembly mounted internally. The heater shall provide operation control based upon signals from the thermostat or compressor section controls. A Low Voltage wiring harness shall be provided with electric heat package.

Zone Control System
Call your Factory representative for information on Zoning.

Warranty
Residential Class Equipment
Enertech Manufacturing, LLC warrants the REFRIGERANT SYSTEM, to include the compressor, condenser, evaporator, expansion valve, and reversing valve, to be free from defect in material and workmanship for a period of TEN (10) YEARS FROM THE DATE OF INSTALLATION.†

Enertech Manufacturing, LLC warrants its GEOTHERMAL UNIT against defect in materials and workmanship for FIVE (5) YEARS FROM THE DATE OF INSTALLATION.†

Enertech Manufacturing, LLC warrants SERVICE LABOR ALLOWANCES for TWO (2) YEARS FROM THE DATE OF INSTALLATION† for servicing, removing, or reinstalling parts for the refrigerant circuit, steel cabinets or for any defect in materials and workmanship as set forth above.

† Warranty start date will be delivery date unless proof of startup (no later than 90 days after invoice) is presented. All warranties must be purchased within 90 days of invoice. For unoccupied spec homes, extended warranty may be purchased within 360 days of invoice. Warranty commences at startup date.

Revision Table

Date:	By:	Page:	Description:
12 June, 2008	DS	37	Added Water Heating Mode Description
6 June, 2008	DS	All	First Published

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