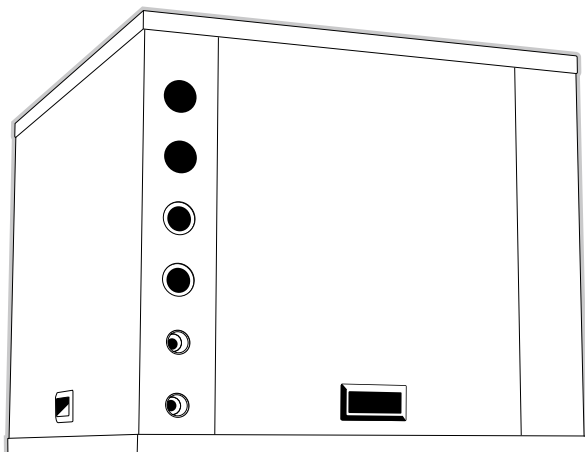


Engineering Data Submittal Manual



**MODELS ST 024 - 072
INDOOR SPLIT
COMPRESSOR SECTION
WATER-TO-AIR HEAT PUMPS**

Project Name: _____
Engineer: _____
Contractor: _____
Architect: _____
Date Received: _____
Date Submitted: _____

Unit Tag	Model Number
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GENERAL:

Indoor Split Water-to-Air Two-Stage "ST" Series Geothermal Heat Pumps shall be constructed based on all information to follow. Equipment shall be completely assembled, piped, internally wired, charged with refrigerant, and tested.

Units shall be supplied completely factory built capable of operating over an entering water temperature range from 25° to 120°F (-3.9° to 48.9°C) (extended data tables; Heating 25F – 90F, cooling 50F – 110F) as standard. All equipment listed in this section must be rated and certified in accordance with Air-Conditioning, Heating and Refrigeration Institute/International Standards Organization (AHRI/ISO 13256-1). All equipment must be tested, investigated, and determined to comply with the requirements of the standards for Heating and Cooling Equipment UL-1995 for the United States and CAN/CSA-C22.2 NO.236 for Canada, by Intertek Testing Laboratories (ETL). The units shall have AHRI/ISO and ETL-US-C labels.

All units shall be fully quality tested by factory run testing under normal operating conditions as described herein. Quality control system shall automatically perform via computer: helium leak check of both the water and refrigerant circuits, pressure tests, double evacuation and accurately charged system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail criteria.

BASIC CONSTRUCTION:

The heat pumps shall be fabricated from powder coated heavy gauge galvanized steel. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117.

All units must have a minimum of three access panels for serviceability of compressor compartment. See IOM manuals for service clearances.

All interior surfaces shall be lined with 3/8 inch (9.5mm) thick, 3-6 lb/ft³ (24 kg/m³) acoustic type closed cell Nitrile/Vinyl insulation. Standard cabinet panel insulation must meet UL-1995 and ASTM E 84/UL 723 Flame 25 / Smoke 50 requirements, air erosion and mold growth limits of UL-181, stringent fungal resistance test per ASTM-C1071 and ASTM G21, and shall meet zero level bacteria growth per ASTM G22.

Cabinets shall have separate holes and knockouts for entrance of line voltage and low voltage control wiring. All factory-installed wiring passing through factory knockouts and openings shall be protected from sheet metal edges at openings by plastic ferrules. Supply and return water connections shall be copper MPT fittings, and shall be securely mounted flush to the cabinet allowing for connection to a flexible hose without the use of a back-up wrench. All water connections and electrical knockouts must be in the compressor compartment as to not interfere with the serviceability of unit.

The unit shall be supplied with extended range internal insulation. All internal water lines and the evaporator side refrigeration tubing shall all have closed cell EPDM insulation. The water to refrigerant coaxial heat exchanger shall have 8lb. Envelo-Seal rigid closed cell spray foam applied to a minimum of .5" thickness.

Option: Sound attenuating compressor blanket for additional noise reduction.

REFRIGERANT CIRCUIT:

All units shall contain R-410A sealed refrigerant circuit including a high efficiency two stage unloading scroll compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, reversing valve, coaxial refrigerant to water heat exchangers, and safety controls (see controls section). Refrigerant access ports shall be factory installed on high and low pressure refrigerant lines to facilitate

ENGINEERING SPECIFICATIONS:

field service. All units have factory installed bi-directional filter/drier for added moisture protection. Units to have line set refrigeration back seat service valves with Schrader ports installed.

Hermetic compressors shall be internally sprung. The compressor shall have a dual level vibration isolation system. The compressor will be mounted on EPDM rubber grommets secured to a large heavy gauge compressor mounting plate, which is then mounted to the cabinet base with specially engineered sound-tested PU foam vibration isolation pads for maximized vibration attenuation. Compressor shall have thermal overload protection. Compressor discharge and suction refrigerant lines to have shock loops directly at compressor for additional vibration elimination.

Refrigerant to water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design (coaxial), shall have enhanced rifled and knurled inner tube, rated to withstand 625 PSIG (4309 kPa) working refrigerant pressure and 500 PSIG (3445 kPa) working water pressure, and designed to have a low water pressure drop (max. 15ft.hd.).

Refrigerant metering shall be accomplished by thermostatic expansion valve only. Expansion valves shall be dual port balanced types with external equalizer for optimum refrigerant metering. The expansion valves must be one directional with the use of a check valve and bypass port. Units shall be designed and tested for operating ranges of entering water temperatures from 25° to 120°F (-3.9° to 48.9°C). Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function.

Option: The unit will be supplied with a cupro-nickel coaxial water to refrigerant heat exchanger (source heat exchanger only).

Option: The unit shall be supplied with a hot water generator (desuperheater) heat exchanger, which shall be double wall and vented.

ELECTRICAL:

A control box shall be located within the unit compressor compartment and shall contain a 50VA or 75VA transformer, 24 volt activated, 2 or 3 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation and control. Reversing valve wiring shall be routed through this electronic controller. Units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 Volt and provide heating or cooling as required by the remote aquastat/sensor.

Source pump high voltage terminal block including minimum 7amp circuit breaker protection to be provided for field wiring of source pumps.

A detachable low voltage thermostat terminal strip with screw terminals to be provided for field wiring.

SOLID STATE CONTROL BOARD SYSTEM:

Units shall have a solid-state control system. The control system microprocessor board shall be specifically designed to protect against building electrical system noise contamination, EMI, and RFI interference. The control system shall interface with a heat pump type 24V thermostat. The control system shall have the following features:

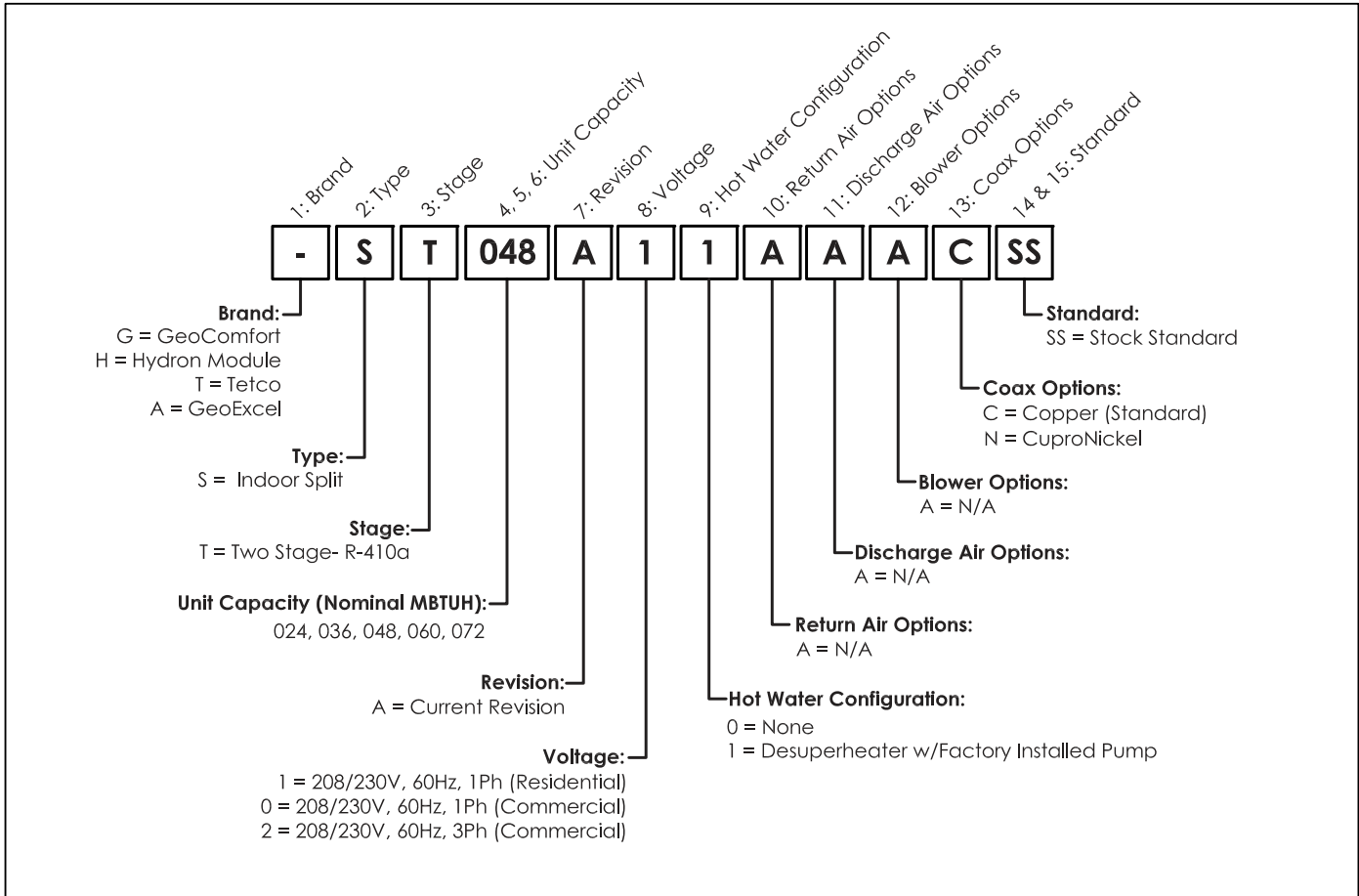
- Anti-short cycle time delay on compressor operation (5 minutes).
- Random start on power up mode.
- Low voltage protection.
- High voltage protection.
- Unit shutdown on high or low refrigerant pressures.
- Unit shutdown on low temperature (low source coil temp OR low air coil temp).
- Condensate overflow electronic protection.

ENGINEERING SPECIFICATIONS:

- Option to reset unit at thermostat or disconnect (soft or hard reset functions)
- Fault retry logic. The same fault trip has to occur 3 times before a hard lockout. If a fault occurs 3 times sequentially without thermostat meeting temperature, then lockout requiring manual reset will occur. A soft or hard reset will restart the unit.
- Ability to defeat time delays for servicing (test mode).
- Light emitting diode (LED) on circuit board to indicate high pressure, low pressure, low/high voltage, low water/air temperature, condensate overflow, high discharge gas temperature, faulty temperature sensor(s), and control voltage status.
- The low-pressure switch shall not be monitored for the first 90 seconds after a compressor start command to prevent nuisance safety trips.
- 24V output to cycle a motorized water valve or other device with compressor contactor.
- Water coil low temperature sensing selectable for water or anti-freeze.
- Air coil low temperature sensing.
- High discharge gas temperature sensing.
- Smart desuperheater operation and logic to eliminate any heat transfer from the water tank to the source loop during cooling mode.

ENGINEERING SPECIFICATIONS:

MODEL NOMENCLATURE DECODER, ST TWO STAGE:



AHRI PERFORMANCE DATA:



Ground Loop Heat Pump

MODEL	CAPACITY	HEATING		COOLING	
		Btu/hr	COP	Btu/hr	EER
ST024	Full Load	17,800	3.4	24,900	15.4
	Part Load	14,100	3.7	18,300	22.1
ST036	Full Load	28,000	3.6	37,400	16.3
	Part Load	22,300	4.1	28,500	23.5
ST048	Full Load	35,900	3.8	52,000	18.7
	Part Load	27,900	4.2	39,400	26.8
ST060	Full Load	44,200	3.5	62,200	16.8
	Part Load	34,700	3.9	47,400	22.5
ST072	Full Load	51,800	3.4	68,000	15.7
	Part Load	41,900	3.7	53,600	21.8

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.

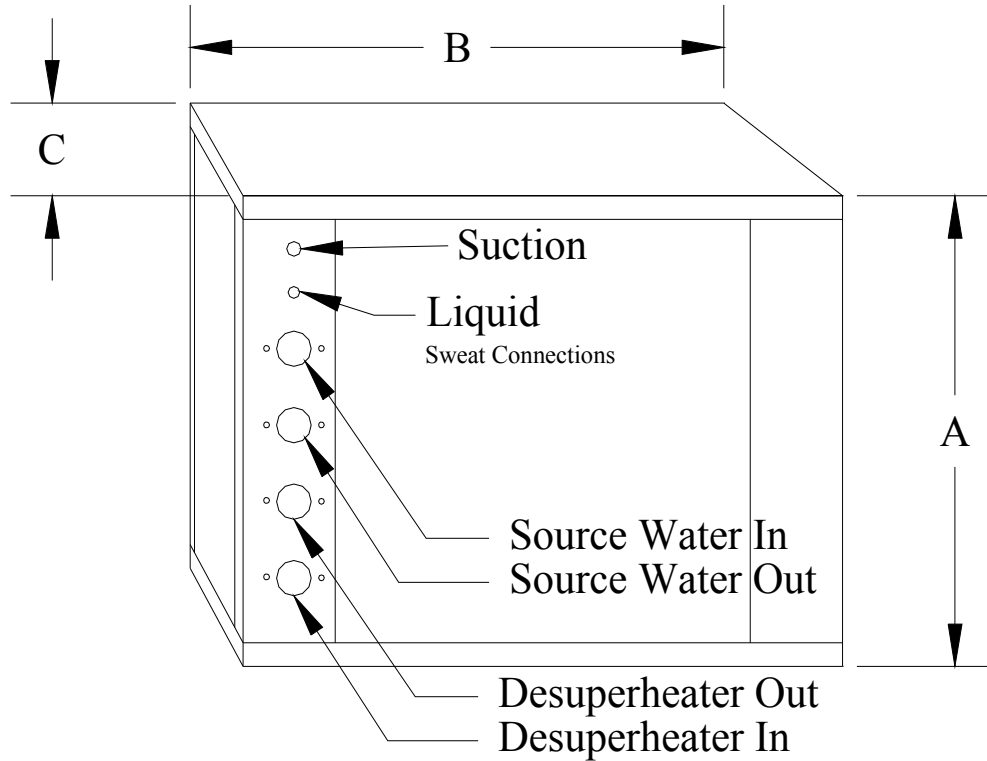
Ground Water Heat Pump

MODEL	CAPACITY	HEATING		COOLING	
		Btu/hr	COP	Btu/hr	EER
ST024	Full Load	23,100	4.2	26,800	20.2
	Part Load	16,100	4.1	19,100	26.8
ST036	Full Load	35,800	4.3	40,000	21.6
	Part Load	25,200	4.7	29,600	28.4
ST048	Full Load	44,400	4.5	55,400	24.0
	Part Load	31,600	4.5	40,800	30.8
ST060	Full Load	54,900	4.1	65,900	21.0
	Part Load	39,300	4.4	49,100	26.3
ST072	Full Load	64,000	4.0	71,800	20.1
	Part Load	47,000	4.1	55,600	25.8

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.

ENGINEERING SPECIFICATIONS:

DIMENSIONAL DATA:



DIMENSIONAL DATA TABLE:

Model	Dimensional Data			Refrigeration Connection		Water Loop*		Desuperheater		Unit Weight (Pounds)
	A	B	C	Liquid	Suction	IN	OUT	IN	OUT	
024	18.8	22.0	25.5	1/2"	7/8"	1.0"	1.0"	3/4"	3/4"	180
036	21.8	26.0	30.5	1/2"	7/8"	1.0"	1.0"	3/4"	3/4"	225
048	22.8	26.0	30.5	1/2"	1-1/8"	1.0"	1.0"	3/4"	3/4"	270
060	22.8	26.0	30.5	1/2"	1-1/8"	1.0"	1.0"	3/4"	3/4"	270
072	22.8	28.0	30.5	1/2"	1-1/8"	1.0"	1.0"	3/4"	3/4"	295

* Water loop fittings are Double O-Ring fittings on GeoComfort residential units only. Hydron Module, TETCO, and Commercial voltage units have threaded fittings.

UNIT PHYSICAL DATA:

MODEL	024	036	048	060	072
COMPRESSOR TYPE	Two Stage Unloading Scroll				
Refrigerant Type	R 410-A				
Heat Exchanger (Source)	Coaxial Copper/Steel (tube in tube)				
Source Option	Coaxial Cupro-Nickel/Steel				

ENGINEERING SPECIFICATIONS:

UNIT ELECTRICAL DATA:

Model	Voltage Code/ HWG Option	60 Hz Power		Compressor		HWG Pump FLA	Ext. Loop Pump FLA	Total Unit FLA	Min Circuit AMPS	Max Fuse HACR	Min AWG	Max Ft
		Volts	Phase	LRA	RLA							
ST024	00	208/230	1	58.3	11.7	0.0	0.0	11.7	14.6	25	14	83
	01	208/230	1	58.3	11.7	0.5	0.0	12.2	15.1	25	14	83
	10	208/230	1	58.3	11.7	0.0	4.0	15.7	18.6	30	14	83
	11	208/230	1	58.3	11.7	0.5	4.0	16.2	19.1	30	14	55
	20	208/230	3	55.4	6.5	0.0	0.0	6.5	8.1	15	14	52
	21	208/230	3	55.4	6.5	0.5	0.0	7.0	8.6	15	14	41
ST036	00	208/230	1	83.0	15.3	0.0	0.0	15.3	19.1	30	14	39
	01	208/230	1	83.0	15.3	0.5	0.0	15.8	19.6	35	14	99
	10	208/230	1	83.0	15.3	0.0	4.0	19.3	23.1	35	12	92
	11	208/230	1	83.0	15.3	0.5	4.0	19.8	23.6	35	12	42
	20	208/230	3	73.0	11.6	0.0	0.0	11.6	14.5	25	14	40
	21	208/230	3	73.0	11.6	0.5	0.0	12.1	15.0	25	14	51
ST048	00	208/230	1	104.0	21.2	0.0	0.0	21.2	26.5	45	10	50
	01	208/230	1	104.0	21.2	0.5	0.0	21.7	27.0	45	10	55
	10	208/230	1	104.0	21.2	0.0	5.5	26.7	32.0	50	8	53
	11	208/230	1	104.0	21.2	0.5	5.5	27.2	32.5	50	8	78
	20	208/230	3	83.1	14.0	0.0	0.0	14.0	17.5	30	14	76
	21	208/230	3	83.1	14.0	0.5	0.0	14.5	18.0	30	14	96
ST060	00	208/230	1	152.9	27.1	0.0	0.0	27.1	33.9	60	8	94
	01	208/230	1	152.9	27.1	0.5	0.0	27.6	34.4	60	8	46
	10	208/230	1	152.9	27.1	0.0	5.5	32.6	39.4	60	8	44
	11	208/230	1	152.9	27.1	0.5	5.5	33.1	39.9	60	8	94
	20	208/230	3	110.0	16.5	0.0	0.0	16.5	20.6	35	12	92
	21	208/230	3	110.0	16.5	0.5	0.0	17.0	21.1	35	12	78
ST072	00	208/230	1	179.2	29.7	0.0	0.0	29.7	37.1	60	8	77
	01	208/230	1	179.2	29.7	0.5	0.0	30.2	37.6	60	8	60
	10	208/230	1	179.2	29.7	0.0	5.5	35.2	42.6	70	6	58
	11	208/230	1	179.2	29.7	0.5	5.5	35.7	43.1	70	6	86
	20	208/230	3	136.0	17.6	0.0	0.0	17.6	22.0	40	12	84
	21	208/230	3	136.0	17.6	0.5	0.0	18.1	22.5	40	12	115

Notes:

1. All line and low voltage wiring must adhere to the National Electrical Code and Local Codes, whichever is the most stringent.
 2. Wire length based on a one way measurement with a 2% voltage drop.
 3. Wire size based on 60°C copper conductor and minimum circuit ampacity.
 3. All fuses class RK-5
 4. Min/Max Voltage: 208/230/60/1 = 187/252, 208/230/60/3 = 187/252
- * The external loop pump FLA is based on a maximum of three UP26-116F-230V pumps (1/2hp) for 048 - 062 and two pumps for 024 - 038

NOTE: Proper Power Supply Evaluation

When any compressor bearing unit is connected to a weak power supply, starting current will generate a significant “sag” in the voltage which reduces the starting torque of the compressor motor and increases the start time. This will influence the rest of the electrical system in the building by lowering the voltage to the lights. This momentary low voltage causes “light dimming”. The total electrical system should be evaluated with an electrician and HVAC technician. The evaluation should include all connections, sizes of wires, and size of the distribution panel between the unit and the utility’s connection. The transformer connection and sizing should be evaluated by the electric utility provider.

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	

SENSIBLE COOLING CORRECTION FACTORS:

EAT (WB) °F	EAT (DB) °F				
	70	75	80	85	90
55	1.201	1.289			
60	0.943	1.067	1.192		
65	0.797	0.952	1.106	1.261	
67	0.624	0.812	1.000	1.188	1.343
70		0.697	0.820	0.944	1.067
75			0.637	0.817	0.983

COOLING CORRECTION FACTORS:

EAT (WB) °F	TC	HR	kW
55	0.8215	0.8293	0.8635
60	0.8955	0.9001	0.9205
65	0.9701	0.9715	0.9774
67	1.0000	1.0000	1.0000
70	1.0446	1.0425	1.0335
75	1.1179	1.1124	1.0878

HEATING & COOLING CALCULATIONS:

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

HEATING CORRECTION FACTORS:

EAT °F	HC	HE	kW
50	1.0465	1.1188	0.8024
55	1.0351	1.0918	0.8436
60	1.0253	1.0645	0.8928
65	1.0108	1.0300	0.9454
70	1.0000	1.0000	1.0000
75	0.9895	0.9701	1.0553
80	0.9742	0.9489	1.0518

ENGINEERING SPECIFICATIONS:

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 industry standard 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 be 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 Heat of Extraction (HE) at the “rule of thumb” water flow rate (GPM) and at the design Entering Air Temperature (EAT).
- Calculate the temperature difference (TD) based upon the HE and GPM of the model.
- $TD = HE / (GPM \times 485)$.
- Calculate the LWT.
- $LWT = EWT - TD$.

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.

Example 1:

EWT = 50°F.

Flow rate = 6 GPM.

Air Flow = 1650 CFM. HE = 35,600 Btuh.

$TD = 36,600 / (6 \times 485) = 12.6^\circ\text{F}$

$LWT = 50 - 12.6 = 37.4^\circ\text{F}$

Since the water flow is leaving at approximately 38°F, the flow rate is acceptable.

Example 2:

EWT = 40°F.

Flow rate = 6 GPM.

Air Flow = 1650 CFM. HE = 30,600 Btuh.

$TD = 30,600 / (6 \times 485) = 10.5^\circ\text{F}$

$LWT = 40 - 10.5 = 29.5^\circ\text{F}$

Water flow rate must be increased to avoid freezing.

Performance Data Notes

1. Capacity data is based on 15% (by mass) methanol antifreeze solution (multiplier: 485).
2. Heating data is based on 70°F EAT. Cooling data is based on 80/67°F EAT. Any condition outside performance table(s) requires correction factor(s).
3. Full-load performance data is accurate within $\pm 15\%$. Discharge pressure is up to ± 25 PSI; Suction pressure is up to ± 15 PSI. Sub-cooling is up to $\pm 5^\circ\text{F}$; Superheat is up to $\pm 6^\circ\text{F}$.
4. Unit performance test is run without hot water generation.
5. Capacity data does not include fan power or pump power and it does not reflect fan or pump power correction for AHRI/ISO conditions.
6. Performance data is based upon the lower voltage of dual voltage rated units.
7. Interpolation of unit performance data is permissible; extrapolation is not.
8. Performance data is a result of lab testing and is not related to warranty.
9. Due to variations in installation, actual unit performance may vary from the tabulated data.
10. See Flow Rate Selection above for proper application.
11. Continuous research and development may result in a change to the current product design and specifications without notice.

ENGINEERING SPECIFICATIONS:

**MODEL 024 WITH MPD024A PERFORMANCE DATA: 2.0 TON,
FULL LOAD, 900 CFM COOLING / 900 CFM HEATING**

EWT °F	Flow GPM	WPD		Heating							Cooling								
		PSI	FT	Aiflow CFM	HC MBtuh	HE MBtuh	LAT °F	kW	COP W/W	DH MBtuh	Aiflow CFM	TC MBtuh	SC MBtuh	S/T	HR MBtuh	kW	EER Btuh/W	DH MBtuh	
																			Operation Not Recommended
25	6.0	5.2	12.1	900	17.0	11.4	87.5	1.63	3.06	2.3	Operation Not Recommended								
				975	17.0	11.8	86.1	1.51	3.30	2.3									
30	4.0	2.5	5.9	900	18.4	12.9	88.9	1.60	3.37	2.5									
				975	18.4	13.3	87.5	1.48	3.64	2.5									
	5.0	3.6	8.4	900	18.8	13.3	89.3	1.61	3.42	2.5									
				975	18.8	13.7	87.9	1.50	3.67	2.5									
	6.0	5.0	11.7	900	19.0	13.4	89.5	1.63	3.42	2.5									
				975	19.0	13.8	88.0	1.51	3.69	2.5									
40	4.0	2.3	5.4	900	20.8	15.1	91.4	1.66	3.67	2.8									
				975	20.8	15.5	89.8	1.54	3.96	2.8									
	5.0	3.3	7.7	900	21.3	15.6	91.9	1.68	3.71	2.8									
				975	21.3	16.0	90.2	1.56	4.00	2.8									
	6.0	4.6	10.7	900	21.5	15.7	92.1	1.70	3.71	2.9									
				975	21.5	16.1	90.4	1.58	3.99	3.0									
50	4.0	2.1	4.9	900	23.2	17.3	93.9	1.73	3.93	3.1		950	33.4	20.1	0.60	38.1	1.37	24.4	2.4
				975	23.2	17.7	92.0	1.61	4.22	3.1		925	32.8	20.1	0.61	37.5	1.39	23.6	2.4
	5.0	3.1	7.1	900	23.7	17.7	94.4	1.75	3.97	3.1		950	33.6	19.2	0.57	38.1	1.33	25.3	2.1
				975	23.7	18.2	92.5	1.62	4.29	3.1		925	33.0	19.2	0.58	37.6	1.35	24.4	2.1
	6.0	4.2	9.8	900	23.9	17.9	94.6	1.76	3.98	3.2		950	33.8	19.1	0.57	38.3	1.31	25.8	2.0
				975	23.9	18.3	92.7	1.64	4.27	3.2		925	33.2	19.1	0.58	37.7	1.33	25.0	2.0
60	4.0	2.0	4.6	900	26.1	20.0	96.9	1.78	4.30	3.5	950	32.6	20.0	0.61	37.7	1.50	21.7	3.0	
				975	26.1	20.5	94.8	1.65	4.63	3.5	925	32.0	20.0	0.63	37.2	1.51	21.2	3.0	
	5.0	2.8	6.5	900	26.6	20.5	97.4	1.80	4.33	3.5	950	32.8	19.1	0.58	37.8	1.46	22.5	2.7	
				975	26.6	20.9	95.3	1.67	4.67	3.6	925	32.2	19.1	0.59	37.2	1.47	21.9	2.7	
	6.0	3.9	9.0	900	26.9	20.7	97.7	1.82	4.33	3.6	950	33.0	19.0	0.58	37.9	1.43	23.1	2.5	
				975	26.9	21.1	95.5	1.69	4.66	3.8	925	32.4	19.0	0.59	37.3	1.45	22.3	2.5	
70	4.0	1.8	4.3	900	28.9	22.6	99.7	1.84	4.60	3.8	950	31.6	19.8	0.63	37.2	1.65	19.2	3.5	
				975	28.9	23.1	97.4	1.71	4.95	3.8	925	31.1	19.8	0.64	36.8	1.67	18.6	3.5	
	5.0	2.6	6.1	900	29.6	23.3	100.5	1.86	4.66	3.9	950	31.9	18.9	0.59	37.4	1.61	19.8	3.2	
				975	29.6	23.7	98.1	1.73	5.01	3.9	925	31.3	18.9	0.60	36.9	1.63	19.2	3.2	
	6.0	3.7	8.5	900	29.8	23.4	100.7	1.88	4.64	4.0	950	32.0	18.8	0.59	37.4	1.58	20.3	3.0	
				975	29.8	23.9	98.3	1.74	5.02	4.0	925	31.4	18.8	0.60	36.9	1.60	19.6	3.0	
80	4.0	1.7	4.0	900	31.3	24.7	102.2	1.93	4.75	4.1	950	30.4	19.2	0.63	36.5	1.80	16.9	4.0	
				975	31.3	25.2	99.7	1.79	5.12	4.2	925	29.8	19.2	0.64	36.0	1.83	16.3	4.0	
	5.0	2.5	5.7	900	32.0	25.3	102.9	1.95	4.81	4.3	950	30.6	18.3	0.60	36.6	1.76	17.4	3.6	
				975	32.0	25.8	100.4	1.81	5.18	4.3	925	30.1	18.3	0.61	36.2	1.78	16.9	3.6	
	6.0	3.4	8.0	900	32.3	25.6	103.2	1.97	4.80	4.3	950	30.8	18.2	0.59	36.7	1.73	17.8	3.5	
				975	32.3	26.1	100.7	1.83	5.17	4.4	925	30.2	18.2	0.60	36.2	1.75	17.3	3.5	
90	4.0	1.6	3.8	900	33.6	26.7	104.6	2.01	4.90	4.4	950	28.9	18.4	0.64	35.8	2.03	14.2	4.4	
				975	33.6	27.2	101.9	1.87	5.26	4.4	925	28.3	18.4	0.65	35.3	2.05	13.8	4.4	
	5.0	2.3	5.4	900	34.4	27.5	105.4	2.03	4.97	4.6	950	29.1	17.6	0.60	35.8	1.97	14.8	4.0	
				975	34.4	27.9	102.7	1.89	5.33	4.6	925	28.5	17.6	0.62	35.3	2.00	14.3	4.0	
	6.0	3.2	7.5	900	34.7	27.7	105.7	2.06	4.94	4.6	950	29.2	17.5	0.60	35.8	1.94	15.1	3.9	
				975	34.7	28.2	103.0	1.91	5.32	4.6	925	28.7	17.5	0.61	35.4	1.96	14.6	3.9	
100	4.0	1.5	3.6	Operation Not Recommended							950	27.1	17.9	0.66	35.2	2.36	11.5	5.0	
				925	26.6	17.9	0.67	34.8	2.39	11.1	5.0								
	5.0	2.2	5.1	Operation Not Recommended							950	27.3	17.0	0.62	35.1	2.30	11.9	4.5	
				925	26.8	17.0	0.63	34.7	2.32	11.6	4.5								
	6.0	3.1	7.0	Operation Not Recommended							950	27.5	17.0	0.62	35.2	2.26	12.2	4.4	
				925	26.9	17.0	0.63	34.7	2.28	11.8	4.4								
110	4.0	1.4	3.3	Operation Not Recommended							950	25.3	17.3	0.68	34.6	2.72	9.3	5.5	
				925	24.8	17.3	0.70	34.2	2.75	9.0	5.5								
	5.0	2.1	4.8	Operation Not Recommended							950	25.4	16.5	0.65	34.4	2.65	9.6	5.0	
				925	25.0	16.5	0.66	34.1	2.68	9.3	5.0								
	6.0	2.9	6.6	Operation Not Recommended							950	25.6	16.4	0.64	34.5	2.60	9.8	4.8	
				925	25.1	16.4	0.65	34.1	2.63	9.5	4.8								

ENGINEERING SPECIFICATIONS:

**MODEL 036 WITH MPD036A PERFORMANCE DATA: 3.0 TON
FULL LOAD, 1350 CFM COOLING / 1350 CFM HEATING**

EWT °F	Flow GPM	WPD		Heating							Cooling									
		PSI	FT	Aiflow CFM	HC MBtuh	HE MBtuh	LAT °F	kW	COP W/W	DH MBtuh	Aiflow CFM	TC MBtuh	SC MBtuh	S/T	HR MBtuh	kW	EER Btuh/W	DH MBtuh		
25	9.0	3.8	8.8	1350	27.3	18.8	88.7	2.50	3.20	3.7	Operation Not Recommended	1150	26.4	18.1	91.3	2.42	3.20	3.6		
				1350	28.2	19.7	89.3	2.50	3.31	3.8		1150	27.4	19.1	92.1	2.42	3.32	3.7		
30	5.0	1.5	3.5	1350	28.6	20.0	89.6	2.51	3.34	3.8			1150	27.8	19.5	92.4	2.43	3.35	3.7	
				1350	29.2	20.6	90.0	2.53	3.38	3.8			1150	28.3	19.9	92.8	2.45	3.38	3.7	
	7.0	2.5	5.8	1350	32.2	23.3	92.1	2.60	3.63	4.2				1150	31.2	22.6	95.1	2.52	3.63	4.2
				1350	32.6	23.7	92.4	2.62	3.65	4.3				1150	31.7	23.1	95.5	2.53	3.67	4.3
40	5.0	1.4	3.2	1350	33.3	24.3	92.8	2.64	3.70	4.3			1150	32.3	23.6	96.0	2.56	3.70	4.5	
				1350	36.2	26.9	94.8	2.72	3.90	4.7			1350	41.4	29.1	0.70	48.3	2.02	20.5	3.4
	7.0	2.2	5.1	1150	35.1	26.1	98.3	2.63	3.91	4.6			1150	41.2	28.3	0.69	47.7	1.90	21.7	3.3
				1350	36.7	27.4	95.2	2.73	3.94	4.8			1350	41.7	29.0	0.70	48.6	2.01	20.7	3.2
50	5.0	1.3	3.0	1150	35.6	26.6	98.7	2.64	3.95	4.7			1150	41.5	28.2	0.68	48.0	1.90	21.8	3.1
				1350	37.4	28.0	95.7	2.75	3.98	4.9			1350	41.9	29.0	0.69	48.6	1.96	21.4	3.1
	7.0	2.2	5.1	1150	36.3	27.2	99.2	2.66	4.00	4.8			1150	41.7	28.1	0.67	48.0	1.85	22.5	3.0
				1350	40.1	30.4	97.5	2.83	4.15	5.2			1350	40.4	28.9	0.72	48.0	2.22	18.2	4.2
60	5.0	1.2	2.8	1150	38.9	29.6	101.3	2.73	4.17	5.2			1150	40.2	28.0	0.70	47.3	2.09	19.2	4.1
				1350	40.6	30.9	97.8	2.84	4.19	5.4			1350	40.7	28.8	0.71	48.3	2.22	18.3	4.0
	7.0	2.1	4.7	1150	39.4	30.0	101.7	2.75	4.20	5.4			1150	40.5	27.9	0.69	47.6	2.09	19.4	3.9
				1350	41.5	31.7	98.5	2.87	4.24	5.5			1350	40.9	28.7	0.70	48.3	2.16	18.9	3.8
70	5.0	1.1	2.6	1150	40.2	30.7	102.4	2.77	4.25	5.6			1150	40.7	27.9	0.69	47.7	2.04	20.0	3.7
				1350	44.0	33.9	100.2	2.95	4.37	5.8			1350	39.3	28.6	0.73	47.7	2.47	15.9	5.0
	7.0	1.9	4.5	1150	42.7	33.0	104.4	2.85	4.39	5.6			1150	39.1	27.7	0.71	47.1	2.33	16.8	4.8
				1350	44.6	34.5	100.6	2.96	4.41	6.0			1350	39.5	28.5	0.72	47.9	2.47	16.0	4.8
80	5.0	1.1	2.5	1150	43.3	33.5	104.9	2.87	4.42	5.8		1150	39.3	27.6	0.70	47.2	2.32	16.9	4.6	
				1350	45.6	35.4	101.3	2.99	4.47	6.1		1350	39.7	28.4	0.72	47.9	2.40	16.5	4.5	
	7.0	1.8	4.2	1150	44.2	34.3	105.6	2.89	4.48	5.9		1150	39.5	27.5	0.70	47.2	2.26	17.5	4.4	
				1350	48.0	37.4	102.9	3.10	4.54	6.3		1350	37.1	27.7	0.75	46.5	2.74	13.5	5.7	
90	5.0	1.0	2.4	1150	46.6	36.4	107.5	2.99	4.57	6.4		1150	36.9	26.9	0.73	45.7	2.58	14.3	5.5	
				1350	48.7	38.1	103.4	3.11	4.59	6.4		1350	37.3	27.6	0.74	46.6	2.73	13.7	5.4	
	7.0	1.8	4.1	1150	47.2	36.9	108.0	3.01	4.59	6.5		1150	37.2	26.7	0.72	46.0	2.58	14.4	5.2	
				1350	49.7	39.0	104.1	3.14	4.64	6.6		1350	37.5	27.5	0.73	46.6	2.66	14.1	5.3	
100	5.0	1.0	2.4	1150	48.2	37.8	108.8	3.04	4.65	6.7		1150	37.3	26.7	0.72	45.9	2.51	14.9	5.1	
				1350	52.0	40.9	105.7	3.25	4.69	6.9		1350	34.5	26.6	0.77	45.0	3.09	11.2	6.4	
	7.0	1.8	4.1	1150	50.5	39.8	110.7	3.14	4.71	6.7		1150	34.3	25.8	0.75	44.2	2.91	11.8	6.2	
				1350	52.8	41.7	106.2	3.26	4.75	7.0		1350	34.8	26.5	0.76	45.3	3.08	11.3	6.0	
110	5.0	1.1	2.5	1150	51.2	40.4	111.2	3.16	4.75	6.8		1150	34.6	25.7	0.74	44.5	2.90	11.9	5.8	
				1350	53.9	42.7	107.0	3.29	4.80	7.2		1350	34.9	26.4	0.76	45.1	3.00	11.6	5.9	
	7.0	1.8	4.3	1150	52.3	41.4	112.1	3.19	4.80	7.0		1150	34.7	25.6	0.74	44.3	2.82	12.3	5.7	
				1350	32.3	25.7	0.80	44.4	3.55	9.1		7.1	1150	32.1	24.9	0.78	43.5	3.35	9.6	6.9
120	5.0	1.0	2.4	1350	32.5	25.6	0.79	44.6	3.54	9.2	6.7		1150	32.4	24.8	0.77	43.8	3.34	9.7	6.5
				1350	32.7	25.5	0.78	44.5	3.45	9.5	6.6		1150	32.5	24.7	0.76	43.6	3.25	10.0	6.4
	7.0	1.7	4.0	1350	30.0	24.7	0.82	43.9	4.06	7.4	7.9		1350	30.0	24.6	0.81	44.0	4.05	7.5	7.4
				1150	29.8	23.9	0.80	42.9	3.83	7.8	7.6		1150	30.2	24.6	0.81	44.0	4.05	7.5	7.4
130	5.0	1.1	2.5	1150	30.0	23.8	0.79	43.0	3.82	7.9	7.2		1350	30.3	24.5	0.81	43.8	3.95	7.7	7.2
				1350	30.2	23.8	0.79	42.9	3.72	8.1	7.0		1350	30.2	23.8	0.79	42.9	3.72	8.1	7.0
	7.0	1.8	4.3	1350	30.0	23.8	0.79	43.0	3.82	7.9	7.2		1350	30.3	24.5	0.81	43.8	3.95	7.7	7.2
				1350	30.2	23.8	0.79	42.9	3.72	8.1	7.0		1350	30.2	23.8	0.79	42.9	3.72	8.1	7.0

ENGINEERING SPECIFICATIONS:

**MODEL 048 WITH MPD060B PERFORMANCE DATA: 4.0 TON,
FULL LOAD, 1650 CFM COOLING / 1600 CFM HEATING**

EWT °F	Flow GPM	WPD		Heating							Cooling							
		PSI	FT	Aiflow CFM	HC MBtuh	HE MBtuh	LAT °F	kW	COP W/W	DH MBtuh	Aiflow CFM	TC MBtuh	SC MBtuh	S/T	HR MBtuh	kW	EER Btuh/W	DH MBtuh
25	12.0	7.1	16.4	1600	37.1	26.9	91.5	3.00	3.62	4.9	Operation Not Recommended							
				1500	37.0	26.7	92.8	3.02	3.59	4.9								
30	7.0	2.8	6.4	1600	36.2	25.9	90.9	3.02	3.51	4.8								
				1500	36.2	25.9	92.3	3.03	3.50	4.8								
	9.0	4.2	9.7	1600	37.0	26.7	91.4	3.01	3.60	4.9								
				1500	36.9	26.6	92.8	3.03	3.57	4.9								
	12.0	6.9	15.9	1600	37.9	27.6	91.9	3.03	3.66	5.0								
				1500	37.9	27.5	93.4	3.04	3.65	5.0								
40	7.0	2.6	6.0	1600	41.0	30.4	93.7	3.12	3.85	5.4								
				1500	40.9	30.2	95.2	3.13	3.83	5.5								
	9.0	3.9	9.1	1600	41.9	31.3	94.2	3.11	3.95	5.5								
				1500	41.8	31.1	95.8	3.13	3.91	5.6								
	12.0	6.4	14.9	1600	42.9	32.2	94.8	3.13	4.02	5.7								
				1500	42.8	32.1	96.4	3.14	3.99	5.9								
50	7.0	2.4	5.6	1600	45.4	34.4	96.3	3.21	4.14	6.0								
				1500	45.3	34.3	98.0	3.23	4.11	6.0								
	9.0	3.7	8.5	1600	46.4	35.4	96.9	3.21	4.24	6.1								
				1500	46.3	35.3	98.6	3.23	4.20	6.1								
	12.0	6.0	13.9	1600	47.5	36.5	97.5	3.22	4.32	6.3								
				1500	47.4	36.3	99.3	3.24	4.29	6.3								
60	7.0	2.3	5.3	1600	48.2	37.0	97.9	3.28	4.31	6.3								
				1500	48.0	36.8	99.6	3.29	4.27	6.3								
	9.0	3.5	8.0	1600	49.2	38.0	98.5	3.28	4.39	6.5								
				1500	49.1	37.9	100.3	3.29	4.37	6.6								
	12.0	5.7	13.1	1600	50.4	39.2	99.2	3.29	4.49	6.7								
				1500	50.3	39.0	101.0	3.31	4.45	6.7								
70	7.0	2.2	5.0	1600	50.2	38.8	99.1	3.33	4.42	6.5								
				1500	50.1	38.7	100.9	3.35	4.38	6.5								
	9.0	3.3	7.6	1600	51.3	39.9	99.7	3.33	4.51	6.8								
				1500	51.2	39.8	101.6	3.35	4.48	6.8								
	12.0	5.4	12.5	1600	52.5	41.1	100.4	3.34	4.61	7.0								
				1500	52.4	40.9	102.3	3.36	4.57	7.0								
80	7.0	2.1	4.8	1600	52.7	41.1	100.5	3.39	4.55	6.9								
				1500	52.6	41.0	102.5	3.41	4.52	7.0								
	9.0	3.1	7.3	1600	53.8	42.2	101.1	3.39	4.65	7.1								
				1500	53.7	42.1	103.1	3.40	4.63	7.2								
	12.0	5.2	11.9	1600	55.2	43.6	101.9	3.40	4.76	7.3								
				1500	55.0	43.3	104.0	3.42	4.71	7.3								
90	7.0	2.0	4.6	1600	54.9	43.2	101.8	3.44	4.68	7.2								
				1500	54.8	43.0	103.8	3.46	4.64	7.2								
	9.0	3.0	7.0	1600	56.1	44.4	102.5	3.44	4.78	7.4								
				1500	56.0	44.2	104.6	3.46	4.74	7.4								
	12.0	4.9	11.4	1600	57.5	45.7	103.3	3.45	4.88	7.6								
				1500	57.3	45.5	105.4	3.47	4.84	7.6								
100	7.0	1.9	4.4	Operation Not Recommended							1650	45.9	34.4	0.75	60.2	4.19	11.0	9.5
											1525	45.5	33.2	0.73	59.5	4.09	11.1	9.2
	9.0	2.9	6.7								1650	45.4	34.4	0.76	59.5	4.12	11.0	9.1
											1525	45.1	33.2	0.74	58.9	4.03	11.2	8.8
	12.0	4.8	11.0								1650	45.9	34.6	0.75	59.6	4.00	11.5	8.9
											1525	45.6	33.5	0.73	58.9	3.91	11.7	8.6
110	7.0	1.9	4.4	Operation Not Recommended							1650	42.9	33.0	0.77	59.0	4.72	9.1	10.4
											1525	42.7	31.9	0.75	58.5	4.62	9.2	10.1
	9.0	2.8	6.6								1650	42.5	33.0	0.78	58.4	4.65	9.1	10.1
											1525	42.3	31.8	0.75	57.8	4.55	9.3	9.7
	12.0	4.7	10.8								1650	43.0	33.2	0.77	58.4	4.52	9.5	9.7
											1525	42.7	32.1	0.75	57.8	4.42	9.7	9.4

ENGINEERING SPECIFICATIONS:

**MODEL 060 WITH MPD060B PERFORMANCE DATA: 5.0 TON,
FULL LOAD, 1950 CFM COOLING / 1900 CFM HEATING**

EWT °F	Flow GPM	WPD		Heating							Cooling								
		PSI	FT	Aiflow CFM	HC MBtuh	HE MBtuh	LAT °F	kW	COP W/W	DH MBtuh	Aiflow CFM	TC MBtuh	SC MBtuh	S/T	HR MBtuh	kW	EER Btuh/W	DH MBtuh	
25	15.0	9.7	22.5	1900	44.4	31.3	91.6	3.84	3.39	5.9	Operation Not Recommended								
				1750	44.4	31.2	93.5	3.87	3.36	5.9									
30	8.0	7.4	17.0	1900	43.1	29.9	91.0	3.86	3.27	5.7									
				1750	43.1	29.9	92.8	3.88	3.25	5.7									
	12.0	7.9	18.3	1900	44.5	31.3	91.7	3.87	3.37	5.9									
				1750	44.5	31.2	93.5	3.90	3.34	5.9									
15.0	9.2	21.3	1900	45.4	32.2	92.1	3.88	3.43	6.0										
			1750	45.4	32.1	94.0	3.90	3.41	6.0										
40	8.0	6.3	14.5	1900	48.7	35.1	93.7	3.98	3.59	6.4									
				1750	48.7	35.0	95.8	4.01	3.56	6.5									
	12.0	6.8	15.7	1900	50.3	36.6	94.5	4.00	3.68	6.6									
				1750	50.3	36.5	96.6	4.03	3.66	6.7									
	15.0	7.9	18.2	1900	51.4	37.7	95.0	4.00	3.77	6.8									
				1750	51.4	37.6	97.2	4.03	3.74	7.0									
50	8.0	5.6	12.9	1900	54.0	40.0	96.3	4.10	3.86	7.1		1950	69.5	47.3	0.68	80.1	3.12	22.3	5.6
				1750	54.0	39.9	98.6	4.13	3.83	7.1		1700	68.4	44.1	0.64	78.6	3.00	22.8	5.2
	12.0	6.0	13.9	1900	55.8	41.7	97.2	4.12	3.97	7.3		1950	69.5	47.4	0.68	79.9	3.04	22.9	5.2
				1750	55.8	41.6	99.5	4.15	3.94	7.3		1700	68.4	44.3	0.65	78.4	2.92	23.4	4.9
	15.0	7.0	16.2	1900	56.9	42.8	97.7	4.13	4.04	7.5		1950	70.0	47.7	0.68	80.1	2.97	23.6	5.1
				1750	56.9	42.7	100.1	4.16	4.01	7.5		1700	68.8	44.6	0.65	78.5	2.85	24.1	4.8
60	8.0	5.5	12.6	1900	57.2	42.9	97.9	4.19	4.00	7.5		1950	67.6	46.5	0.69	79.3	3.44	19.7	6.8
				1750	57.2	42.8	100.3	4.22	3.97	7.6		1700	66.4	43.5	0.66	77.7	3.30	20.1	6.4
	12.0	5.9	13.6	1900	59.2	44.9	98.8	4.20	4.13	7.8	1950	67.6	46.7	0.69	79.0	3.34	20.2	6.5	
				1750	59.2	44.8	101.3	4.23	4.10	7.9	1700	66.4	43.6	0.66	77.4	3.21	20.7	6.1	
	15.0	6.8	15.7	1900	60.4	46.0	99.4	4.21	4.20	8.0	1950	68.0	47.0	0.69	79.1	3.26	20.9	6.2	
				1750	60.4	45.9	102.0	4.24	4.17	8.0	1700	66.8	43.9	0.66	77.5	3.14	21.3	5.8	
70	8.0	5.6	12.9	1900	59.6	45.1	99.0	4.26	4.10	7.8	1950	65.4	45.7	0.70	78.4	3.80	17.2	8.0	
				1750	59.6	45.0	101.5	4.29	4.07	7.8	1700	64.3	42.7	0.66	76.8	3.65	17.6	7.5	
	12.0	6.0	13.9	1900	61.7	47.1	100.1	4.27	4.23	8.2	1950	65.4	45.9	0.70	78.0	3.69	17.7	7.7	
				1750	61.7	47.0	102.6	4.30	4.20	8.2	1700	64.3	42.8	0.67	76.4	3.55	18.1	7.2	
	15.0	7.0	16.1	1900	62.9	48.3	100.7	4.28	4.31	8.4	1950	65.8	46.1	0.70	78.1	3.61	18.2	7.3	
				1750	62.9	48.2	103.3	4.31	4.28	8.4	1700	64.7	43.1	0.67	76.5	3.47	18.6	6.8	
80	8.0	5.6	12.9	1900	62.6	47.8	100.5	4.33	4.24	8.2	1950	62.4	44.4	0.71	76.7	4.20	14.9	9.2	
				1750	62.6	47.7	103.1	4.36	4.21	8.4	1700	61.3	41.5	0.68	75.1	4.03	15.2	8.6	
	12.0	6.0	13.9	1900	64.7	49.9	101.5	4.35	4.36	8.6	1950	62.4	44.6	0.71	76.3	4.08	15.3	8.8	
				1750	64.7	49.8	104.2	4.38	4.33	8.7	1700	61.3	41.6	0.68	74.7	3.92	15.6	8.2	
	15.0	7.0	16.2	1900	66.0	51.1	102.2	4.36	4.44	8.8	1950	62.8	44.8	0.71	76.4	3.99	15.7	8.4	
				1750	66.0	51.0	104.9	4.39	4.40	8.7	1700	61.7	41.9	0.68	74.8	3.83	16.1	7.9	
90	8.0	5.2	12.1	1900	65.2	50.2	101.8	4.40	4.34	8.6	1950	58.9	42.9	0.73	74.9	4.70	12.5	10.3	
				1750	65.2	50.1	104.5	4.43	4.31	8.6	1700	57.9	40.1	0.69	73.3	4.52	12.8	9.6	
	12.0	5.6	13.0	1900	67.5	52.4	102.9	4.42	4.47	8.9	1950	58.9	43.0	0.73	74.5	4.57	12.9	9.7	
				1750	67.5	52.3	105.7	4.45	4.44	8.9	1700	57.9	40.2	0.69	72.9	4.39	13.2	9.1	
	15.0	6.5	15.1	1900	68.8	53.7	103.5	4.42	4.56	9.2	1950	59.3	43.3	0.73	74.6	4.47	13.3	9.6	
				1750	68.8	53.6	106.4	4.46	4.52	9.2	1700	58.3	40.4	0.69	72.9	4.29	13.6	9.0	
100	8.0	4.7	10.7	Operation Not Recommended							1950	55.6	41.3	0.74	73.9	5.36	10.4	11.4	
											1700	54.6	38.6	0.71	72.2	5.15	10.6	10.7	
	12.0	5.0	11.6								1950	55.6	41.5	0.75	73.3	5.20	10.7	10.9	
											1700	54.6	38.7	0.71	71.7	5.00	10.9	10.2	
	15.0	5.8	13.4								1950	55.9	41.7	0.75	73.3	5.09	11.0	10.7	
											1700	55.0	39.0	0.71	71.7	4.89	11.2	10.0	
110	8.0	4.8	11.1	Operation Not Recommended							1950	52.0	39.6	0.76	72.6	6.05	8.6	12.5	
											1700	51.2	37.0	0.72	71.1	5.82	8.8	11.7	
	12.0	5.2	12.0								1950	52.0	39.8	0.77	72.1	5.88	8.8	12.1	
											1700	51.2	37.2	0.73	70.5	5.65	9.1	11.3	
	15.0	6.0	13.9								1950	52.3	40.0	0.76	71.9	5.75	9.1	11.8	
											1700	51.5	37.4	0.73	70.4	5.53	9.3	11.0	

ENGINEERING SPECIFICATIONS:

**MODEL 072 WITH MPD072A PERFORMANCE DATA: 6.0 TON,
FULL LOAD, 2100 CFM COOLING / 2100 CFM HEATING**

EWT °F	Flow GPM	WPD		Heating							Cooling							
		PSI	FT	Aiflow CFM	HC MBtuh	HE MBtuh	LAT °F	kW	COP W/W	DH MBtuh	Aiflow CFM	TC MBtuh	SC MBtuh	S/T	HR MBtuh	kW	EER Btuh/W	DH MBtuh
25	18.0	10.4	24.0	2050	51.4	35.6	93.2	4.62	3.26	6.9	Operation Not Recommended							
				1700	50.4	34.7	97.5	4.60	3.21	6.8								
30	12.0	5.0	11.5	2050	52.5	36.7	93.7	4.62	3.33	7.0								
				1700	51.5	35.8	98.1	4.60	3.28	6.9								
	15.0	7.4	17.1	2050	53.1	37.2	94.0	4.65	3.35	7.0								
				1700	52.0	36.2	98.3	4.62	3.30	6.9								
	18.0	10.1	23.3	2050	53.1	37.1	94.0	4.68	3.32	7.0								
				1700	52.1	36.2	98.4	4.66	3.28	6.9								
40	12.0	4.7	10.8	2050	59.1	42.6	96.7	4.84	3.58	7.8								
				1700	57.9	41.5	101.5	4.81	3.53	7.8								
	15.0	6.9	16.0	2050	59.7	43.1	97.0	4.86	3.60	7.8								
				1700	58.6	42.1	101.9	4.84	3.55	7.8								
	18.0	9.5	21.8	2050	59.8	43.1	97.0	4.90	3.58	7.8								
				1700	58.6	41.9	101.9	4.88	3.52	8.2								
50	12.0	4.4	10.1	2050	65.2	48.0	99.4	5.03	3.80	8.7								
				1700	63.9	46.8	104.8	5.01	3.74	8.5								
	15.0	6.5	15.0	2050	65.9	48.6	99.8	5.06	3.82	8.7								
				1700	64.6	47.4	105.2	5.04	3.76	8.5								
	18.0	8.9	20.5	2050	66.0	48.6	99.8	5.10	3.79	8.7								
				1700	64.7	47.4	105.2	5.08	3.73	8.5								
60	12.0	4.2	9.6	2050	69.3	51.7	101.3	5.16	3.94	9.0								
				1700	68.0	50.5	107.0	5.14	3.88	9.0								
	15.0	6.1	14.2	2050	70.1	52.4	101.7	5.19	3.96	9.1								
				1700	68.7	51.1	107.4	5.17	3.89	9.1								
	18.0	8.4	19.4	2050	70.1	52.3	101.7	5.23	3.93	9.1								
				1700	68.8	51.0	107.5	5.21	3.87	9.3								
70	12.0	4.0	9.2	2050	72.3	54.4	102.7	5.25	4.03	9.5								
				1700	70.9	53.1	108.6	5.23	3.97	9.3								
	15.0	5.9	13.6	2050	73.1	55.1	103.0	5.28	4.06	9.7								
				1700	71.6	53.7	109.0	5.25	4.00	9.5								
	18.0	8.1	18.7	2050	73.1	54.9	103.0	5.32	4.03	9.7								
				1700	71.7	53.6	109.1	5.30	3.96	9.5								
80	12.0	3.9	9.0	2050	75.4	57.2	104.1	5.34	4.14	9.8								
				1700	73.9	55.8	110.3	5.31	4.08	9.9								
	15.0	5.7	13.2	2050	76.2	57.9	104.4	5.36	4.17	10.0								
				1700	74.7	56.5	110.7	5.34	4.10	10.0								
	18.0	7.8	18.1	2050	76.3	57.8	104.5	5.41	4.13	10.0								
				1700	74.8	56.4	110.7	5.38	4.07	10.1								
90	12.0	3.8	8.7	2050	78.0	59.6	105.2	5.40	4.23	10.3								
				1700	76.5	58.1	111.7	5.38	4.17	10.1								
	15.0	5.6	12.9	2050	78.8	60.3	105.6	5.43	4.25	10.4								
				1700	77.3	58.9	112.1	5.40	4.19	10.2								
	18.0	7.6	17.6	2050	78.9	60.2	105.6	5.47	4.23	10.5								
				1700	77.4	58.8	112.2	5.45	4.16	10.3								
100	12.0	3.7	8.5	Operation Not Recommended							2100	62.4	45.7	0.73	83.1	6.06	10.3	12.7
											1750	61.2	41.9	0.68	80.7	5.70	10.7	11.6
	15.0	5.4	12.5								2100	62.5	45.6	0.73	82.6	5.89	10.6	12.1
											1750	61.4	41.8	0.68	80.3	5.54	11.1	11.1
	18.0	7.4	17.1								2100	62.5	45.4	0.73	82.3	5.80	10.8	11.7
											1750	61.3	41.6	0.68	79.9	5.45	11.2	10.7
110	12.0	3.5	8.2	Operation Not Recommended							2100	58.9	44.2	0.75	81.9	6.74	8.7	14.0
											1750	57.8	40.5	0.70	79.4	6.34	9.1	12.8
	15.0	5.2	12.1								2100	59.0	44.2	0.75	81.4	6.55	9.0	13.5
											1750	57.9	40.4	0.70	78.9	6.16	9.4	12.3
	18.0	7.2	16.5								2100	59.0	44.0	0.75	81.0	6.45	9.1	12.9
											1750	57.9	40.2	0.69	78.6	6.07	9.5	11.8

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