



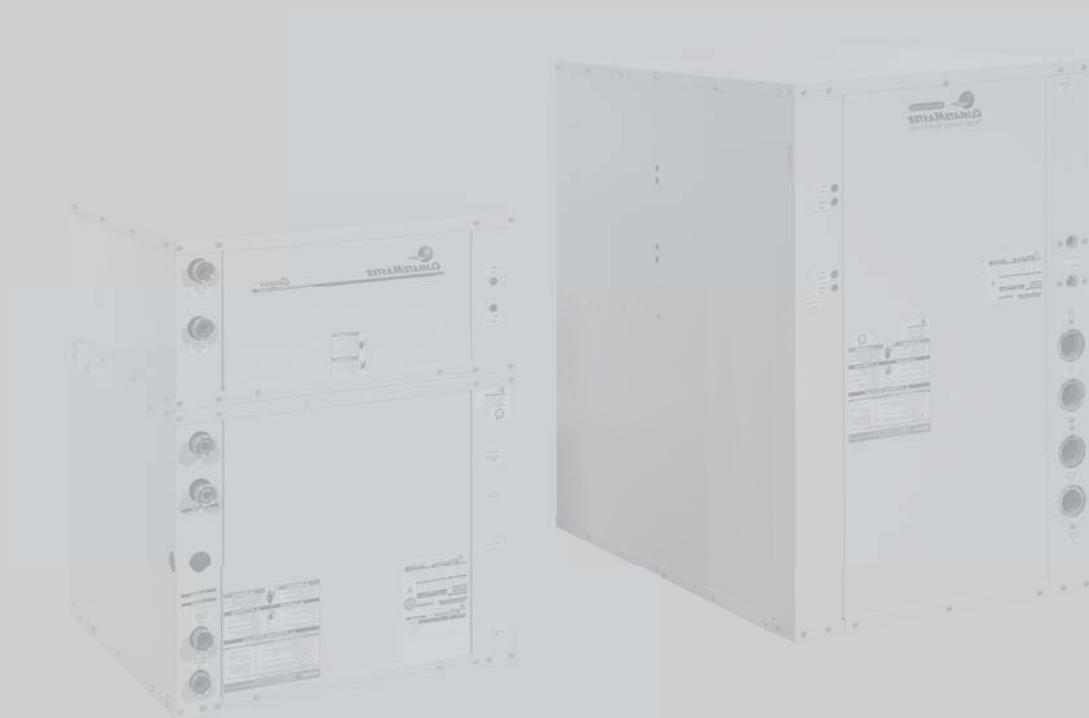
## GENESIS WATER-TO-WATER (GSW) SERIES



SIZE 036, 060, 120 (10.6kW - 29.3kW)  
WATER-TO-WATER  
R22 - 60Hz STANDARD & EXTENDED RANGE



## GENESIS WATER-TO-WATER (GSW) SERIES



R22 - 90Hz STANDARD & EXTENDED RANGE  
WATER-TO-WATER  
SIZE 039, 060, 080, 100, 120 (10.9kW - 23.9kW)

## THE GENESIS WATER-TO-WATER (GSW) SERIES

The GSW water-to-water series offers high efficiency with advanced features, extremely quiet operation and application flexibility at competitive prices. As ClimateMaster's most adaptable R-22 refrigerant units, the GSW series can be used for radiant floor heating, snow/ice melt, chilled water for fan coils, industrial process control, potable hot water generation, hot/chilled water for make-up air, and many other types of HVAC and industrial applications.

Available in sizes 3 ton (10.6 kW), 5 ton (17.6 kW) and 10 ton (29.3 kW) the GSW series offers a wide range of units for most any installation. The GSW has an extended range refrigerant circuit, capable of ground loop (geothermal) applications as well as water loop (boiler-tower) applications. Standard features are many. Microprocessor controls, galvanized steel cabinet, polyester powder coat paint and TXV refrigerant metering device are just some of the features of the flexible GSW series.

ClimateMaster's exclusive double isolation compressor mounting system makes the GSW series the quietest water-to-water unit on the market. Compressors are mounted on vibration isolation springs to a heavy gauge mounting plate, which is then isolated from the cabinet base with rubber grommets for maximized vibration/sound attenuation. Options such as double-wall load heat exchanger (for potable hot water generation) and DDC controls allow customized design solutions.

The GSW Series water-to-water heat pumps are designed to meet the challenges of today's HVAC demands with a high efficiency, high value solution.

## UNIT FEATURES

- Sizes 036 (3 ton, 10.6 kW), 060 (5 ton, 17.6 kW) and 120 (10 ton, 29.3 kW)
- Copeland scroll compressors
- Dual refrigeration circuits on size 120
- Exceeds ASHRAE 90.1 efficiencies
- Galvanized steel construction with polyester powder coat paint
- Unique double isolation compressor mounting with vibration isolation springs for quiet operation
- Insulated compressor compartment
- TXV metering device
- Extended range (20 to 120°F, -6.7 to 48.9°C) operation
- Microprocessor controls standard (optional DXM and/or DDC controls)
- LonWorks, BACnet, Modbus and Johnson N2 compatibility options for DDC controls
- Flush securely-mounted corner post water connections (no backup wrench required)
- Compressor "run" and "fault" lights on the front of the cabinet
- Seven Safeties Standard
- Wide variety of options including double-wall vented load heat exchanger and UltraQuiet™ sound attenuation package

**Selection Procedure****Reference Calculations****Heating**

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

**Cooling**

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

**Legend and Glossary of Abbreviations**

BTUH = BTU( British Thermal Unit) per hour

CFM = airflow, cubic feet/minute

COP = coefficient of performance = BTUH output/BTUH input

DB = dry bulb temperature (°F)

EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)

EER = energy efficiency ratio = BTUH output/Watt input

EPT = external pipe thread

ESP = external static pressure (inches w.g.)

EWT = entering water temperature

GPM = water flow in U.S. gallons/minute

HE = total heat of extraction, BTUH

HC = air heating capacity, BTUH

HR = total heat of rejection, BTUH

HWC = hot water generator (desuperheater) capacity, Mbtuh

IPT = internal pipe thread

KW = total power unit input, kilowatts

LAT = leaving air temperature, °F

LC = latent cooling capacity, BTUH

LWT = leaving water temperature, °F

MBTUH = 1000 BTU per hour

S/T = sensible to total cooling ratio

SC = sensible cooling capacity, BTUH

TC = total cooling capacity, BTUH

WB = wet bulb temperature (°F)

WPD = waterside pressure drop (psi &amp; ft. of hd.)

**Conversion Table - to convert inch-pound (English) to SI (Metric)**

Water Flow	Water Pressure Drop
Water Flow (L/s) = gpm x 0.0631	PD (kPa) = PD (ft of hd) x 2.99

**Selection Procedure**

**Step 1:** Determine the actual heating and/or cooling loads at the applicable source (building loop) water temperature/flow rate and load water temperature/flow rate. The source heat exchanger is the condenser in cooling/evaporator in heating; the load heat exchanger is the evaporator in cooling/condenser in heating.

**Step 2:** Obtain the following design parameters: Entering source/load water temperature, source/load water flow rate in GPM and water flow pressure drop. Water flow rate is generally between 2.25 and 3.00 GPM/ton for closed loop (boiler/tower and geothermal) systems, and between 1.5 and 2.0 GPM/ton for open loop (well water) systems. Unit water pressure drop should be kept as close as possible to each other to make water balancing easier. Go to the appropriate tables and find the proper indicated water flow and water temperature.

**Step 3:** Determine application requirements. Water-to-water applications are almost always designed for a particular installation, which will change how the data tables are used for unit selection. For example, a water-to-water unit used for radiant floor heating on a geothermal closed loop is significantly different in unit selection from a water-to-water unit on a boiler/tower application used for generating chilled water for fan coil units. It is especially important to note that the load water flow rate must be maintained above minimum flow rates as shown in the data tables for proper refrigerant circuit operation and unit longevity. For example, most radiant floor applications require buffer (storage) tanks because the flow rate through the floor is usually lower than the minimum flow rate for the water-to-water unit. Therefore, selection of the heat pump is dependent upon maintaining a certain tank temperature and unit load flow rate. There would be a pump between the heat pump and the buffer tank, and a pump(s) between the buffer tank and radiant floor to maintain design flow rate on both sides.

**Step 4:** Enter tables at the design source water temperature and flow rate. Choose the appropriate load water temperature and flow rate. Read the total heating or cooling capacities (Note: interpolation is permissible; extrapolation is not).

**Step 5:** If the units selected are not within 10% of the load calculations, then review what effect changing the GPM and water temperature would have on the capacities. If the desired capacity cannot be achieved, select the next larger or smaller unit and repeat the procedure.

**Example Equipment Selection for Heating****Step 1 Load Determination:**

Assume we have determined that the application will be heating only (radiant floor), and that the appropriate heating load at design conditions is as follows:

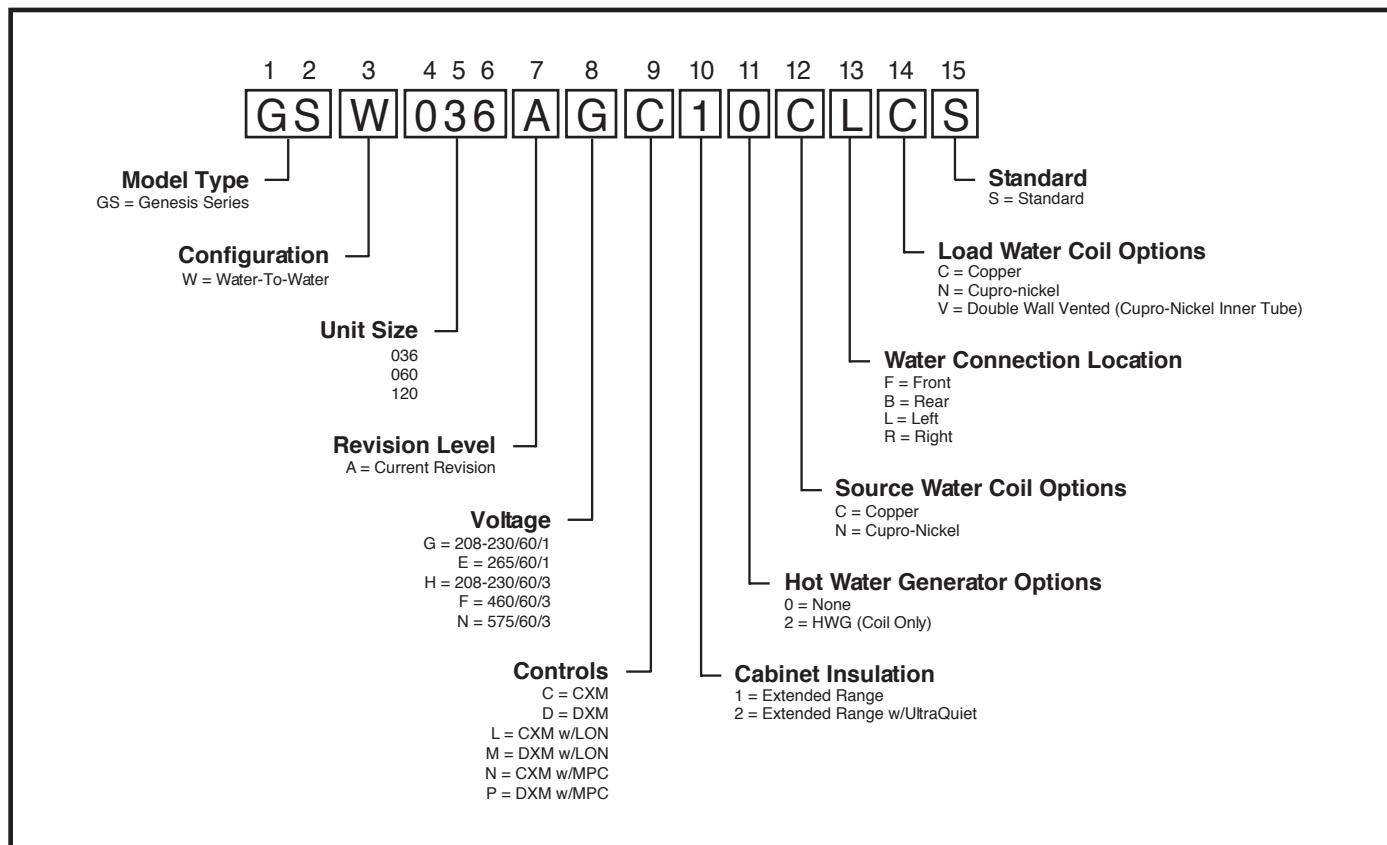
Total heating .....	36,000 BTUH
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**Step 2 Design Conditions:**

Entering source temperature .....	30°F (geothermal closed loop)
Entering source flow rate .....	11.3 GPM
Entering load temperature .....	100°F
Entering load temperature .....	11.3 GPM

**Steps 3, 4, 5 HP Selection:**

We enter the tables at design source water temperature and flow rate, and select the appropriate load water temperature and flow rate. A GSW060 at design conditions supplies 37,400 BTUH, which meets the design heating load requirement.

**GSW Series Nomenclature**

Rev.: 10/04/05D

**Performance Data  
ARI/ASHRAE/ISO 13256-2**

ASHRAE/ARI/ISO 13256-2. English (IP) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
	Indoor 53.6°F Outdoor 86°F		Indoor 104°F Outdoor 68°F		Indoor 53.6°F Outdoor 59°F		Indoor 104°F Outdoor 50°F		Indoor 53.6°F Outdoor 77°F		Indoor 104°F Outdoor 32°F	
	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
GSW036	29,800	14.3	43,000	5.0	31,200	20.6	33,400	4.0	29,800	16.2	27,200	3.3
GSW060	44,400	12.0	63,300	4.2	49,200	17.5	53,000	3.5	46,100	13.6	40,900	2.9
GSW120	88,600	11.6	126,900	4.1	98,100	16.9	106,200	3.5	91,800	13.2	82,000	2.8

All ratings based upon 208V operation

Indoor coil also called "Load" and outdoor coil also called "Source"

ASHRAE/ARI/ISO 13256-2. Metric (SI) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
	Indoor 12°C Outdoor 30°C		Indoor 40°C Outdoor 20°C		Indoor 12°C Outdoor 15°C		Indoor 40°C Outdoor 10°C		Indoor 12°C Outdoor 25°C		Indoor 40°C Outdoor 0°C	
	Capacity Watts	EER W/W	Capacity Watts	COP	Capacity Watts	EER W/W	Capacity Watts	COP	Capacity Watts	EER W/W	Capacity Watts	COP
GSW036	8,499	4.2	12,603	5.0	9,144	6.0	9,789	4.0	8,734	4.7	7,972	3.3
GSW060	13,013	3.5	18,552	4.2	14,420	5.1	15,533	3.5	13,511	4.0	11,987	2.9
GSW120	25,967	3.4	37,192	4.1	28,751	5.0	31,125	3.5	26,905	3.9	24,033	2.8

All ratings based upon 208V operation

Indoor coil also called "Load" and outdoor coil also called "Source"

## Performance Data Selection Notes

For operation in the shaded area when water is used in lieu of an anti-freeze solution, the LWT (Leaving Water Temperature) must be calculated. Flow must be maintained to a level such that the LWT is maintained above 40°F [4.4°C] when the JW3 jumper is not clipped (see example below). This is due to the potential of the refrigerant temperature being as low as 32°F [0°C] with 40°F [4.4°C] LWT, which may lead to a nuisance cutout due to the activation of the Low Temperature Protection. JW3 should never be clipped for standard range equipment or systems without antifreeze.

### Example:

At 50°F EWT (Entering Water Temperature) and 1.5 gpm/ton, a 3 ton unit has a HE of 22,500 Btuh. To calculate LWT, rearrange the formula for HE as follows:

$HE = TD \times GPM \times 500$ , where HE = Heat of Extraction (Btuh); TD = temperature difference (EWT - LWT) and GPM = U.S. Gallons per Minute.

$$TD = HE / (GPM \times 500)$$

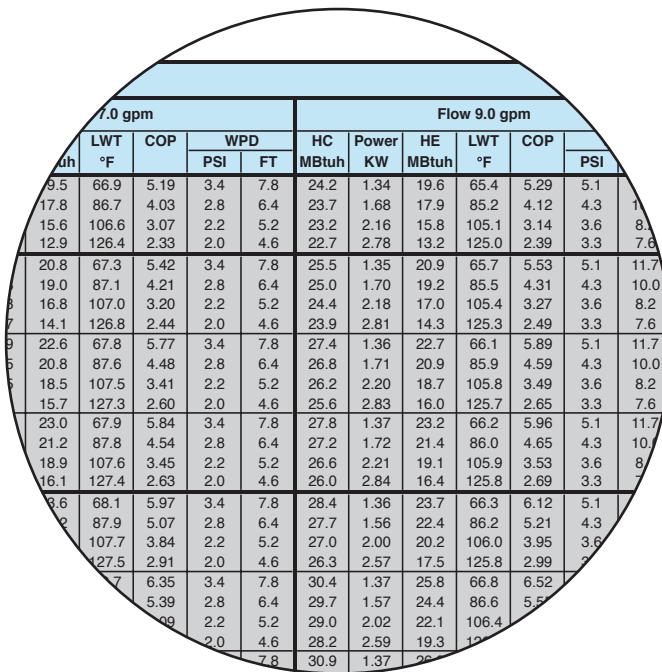
$$TD = 22,500 / (4.5 \times 500)$$

$$TD = 10^{\circ}\text{F}$$

$$LWT = EWT - TD$$

$$LWT = 50 - 10 = 40^{\circ}\text{F}$$

In this example, as long as the EWT does not fall below 50°F, the system will operate as designed. For EWTs below 50°F, higher flow rates will be required (open loop systems, for example, require at least 2 gpm/ton when EWT is below 50°F).



## Performance Data GSW036 Cooling

SOURCE			LOAD																						
EWT °F	Flow		EWT °F	Flow 5.0 gpm						Flow 7.0 gpm						Flow 9.0 gpm									
	GPM	WPD		TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD	TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD	TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD				
	PSI	FT		PSI	FT	PSI	FT	PSI	FT	PSI	Power KW	HR MBtuh	LWT °F	EER	WPD	PSI	FT	PSI	FT	PSI	FT				
50	5.0	2.6	6.1	50	28.9	1.34	33.4	38.5	21.5	2.3	5.3	30.5	1.35	35.1	41.3	22.6	3.7	8.5	31.4	1.35	36.0	43.0	23.3	5.3	12.3
				60	33.3	1.36	37.9	46.7	24.5	2.0	4.5	35.0	1.36	39.7	50.0	25.7	3.4	7.8	36.0	1.37	40.7	52.0	26.3	5.1	11.7
				70	37.4	1.38	42.1	55.0	27.2	1.6	3.7	39.2	1.38	43.9	58.8	28.3	2.9	6.7	40.2	1.39	45.0	61.1	29.0	4.6	10.6
				80	41.3	1.39	46.0	63.5	29.6	1.5	3.5	43.0	1.40	47.8	67.7	30.7	2.8	6.4	44.1	1.41	48.9	70.2	31.3	4.3	10.0
				90	44.7	1.41	49.6	72.1	31.7	1.3	3.0	46.5	1.42	51.3	76.7	32.6	2.5	5.8	47.4	1.43	52.3	79.5	33.2	3.9	8.9
	7.0	4.1	9.5	50	29.2	1.28	33.6	38.3	22.9	2.3	5.3	30.8	1.28	35.2	41.2	24.0	3.7	8.5	31.8	1.29	36.2	42.9	24.7	5.3	12.3
				60	33.7	1.29	38.1	46.5	26.1	2.0	4.5	35.5	1.30	39.9	49.9	27.3	3.4	7.8	36.5	1.30	40.9	51.9	28.0	5.1	11.7
				70	37.9	1.31	42.4	54.8	29.0	1.6	3.7	39.7	1.32	44.2	58.7	30.1	2.9	6.7	40.7	1.32	45.2	60.9	30.8	4.6	10.6
				80	41.8	1.33	46.3	63.3	31.5	1.5	3.5	43.6	1.34	48.1	67.6	32.6	2.8	6.4	44.6	1.34	49.2	70.1	33.3	4.3	10.0
				90	45.3	1.35	49.9	71.9	33.7	1.3	3.0	47.1	1.36	51.7	76.6	34.7	2.5	5.8	48.0	1.36	52.7	79.3	35.3	3.9	8.9
	9.0	6.0	13.8	50	29.5	1.24	33.7	38.2	23.8	2.3	5.3	31.2	1.24	35.4	41.1	25.1	3.7	8.5	32.1	1.25	36.4	42.9	25.8	5.3	12.3
				60	34.1	1.25	38.3	46.4	27.2	2.0	4.5	35.8	1.26	40.1	49.8	28.4	3.4	7.8	36.8	1.26	41.1	51.8	29.2	5.1	11.7
				70	38.3	1.27	42.6	54.7	30.2	1.6	3.7	40.1	1.28	44.5	58.5	31.4	2.9	6.7	41.1	1.28	45.5	60.9	32.1	4.6	10.6
				80	42.2	1.29	46.6	63.1	32.8	1.5	3.5	44.0	1.29	48.4	67.4	34.0	2.8	6.4	45.0	1.30	49.5	70.0	34.7	4.3	10.0
				90	45.8	1.30	50.2	71.7	35.1	1.3	3.0	47.5	1.31	52.0	76.4	36.2	2.5	5.8	48.5	1.32	53.0	79.2	36.8	3.9	8.9
70	5.0	2.3	5.4	50	27.4	1.70	33.2	39.0	16.1	2.3	5.3	29.0	1.70	34.8	41.7	17.0	3.7	8.5	29.9	1.71	35.7	43.4	17.5	5.3	12.3
				60	32.0	1.72	37.8	47.2	18.6	2.0	4.5	33.6	1.72	39.5	50.4	19.5	3.4	7.8	34.6	1.73	40.5	52.3	20.0	5.1	11.7
				70	36.2	1.74	42.1	55.5	20.8	1.6	3.7	37.9	1.75	43.9	59.2	21.7	2.9	6.7	38.9	1.75	44.9	61.4	22.2	4.6	10.6
				80	40.0	1.76	46.0	64.0	22.7	1.5	3.5	41.8	1.77	47.8	68.1	23.5	2.8	6.4	42.8	1.78	48.8	70.5	24.0	4.3	10.0
				90	43.5	1.79	49.6	72.6	24.3	1.3	3.0	45.2	1.81	51.4	77.1	25.0	2.5	5.8	46.2	1.82	52.3	79.7	25.4	3.9	8.9
	7.0	3.6	8.4	50	27.8	1.62	33.3	38.9	17.2	2.3	5.3	29.3	1.62	34.9	41.6	18.1	3.7	8.5	30.3	1.63	35.8	43.3	18.6	5.3	12.3
				60	32.4	1.63	37.9	47.1	19.8	2.0	4.5	34.1	1.64	39.7	50.3	20.7	3.4	7.8	35.0	1.65	40.7	52.2	21.3	5.1	11.7
				70	36.6	1.65	42.3	55.4	22.1	1.6	3.7	38.4	1.66	44.0	59.0	23.1	2.9	6.7	39.4	1.67	45.1	61.2	23.6	4.6	10.6
				80	40.5	1.68	46.2	63.8	24.2	1.5	3.5	42.3	1.69	48.1	67.9	25.0	2.8	6.4	43.3	1.70	49.1	70.4	25.5	4.3	10.0
				90	44.1	1.70	49.9	72.4	25.9	1.3	3.0	45.8	1.72	51.6	76.9	26.6	2.5	5.8	46.7	1.73	52.6	79.6	27.0	3.9	8.9
	9.0	5.4	12.6	50	28.0	1.57	33.4	38.8	17.9	2.3	5.3	29.6	1.57	35.0	41.5	18.8	3.7	8.5	30.6	1.58	36.0	43.2	19.4	5.3	12.3
				60	32.7	1.58	38.1	46.9	20.6	2.0	4.5	34.4	1.59	39.8	50.2	21.6	3.4	7.8	35.4	1.60	40.8	52.1	22.2	5.1	11.7
				70	37.0	1.60	42.5	55.2	23.1	1.6	3.7	38.8	1.61	44.3	58.9	24.0	2.9	6.7	39.8	1.62	45.3	61.2	24.6	4.6	10.6
				80	40.9	1.63	46.5	63.6	25.2	1.5	3.5	42.7	1.64	48.3	67.8	26.1	2.8	6.4	43.7	1.65	49.3	70.3	26.6	4.3	10.0
				90	44.5	1.65	50.2	72.2	27.0	1.3	3.0	46.2	1.67	51.9	76.8	27.8	2.5	5.8	47.2	1.68	52.9	79.5	28.2	3.9	8.9
90	5.0	1.8	4.1	50	26.0	2.16	33.4	39.6	12.0	2.3	5.3	27.4	2.17	34.8	42.2	12.6	3.7	8.5	28.3	2.18	35.7	43.7	13.0	5.3	12.3
				60	30.4	2.19	37.8	47.9	13.9	2.0	4.5	31.9	2.19	39.4	50.9	14.5	3.4	7.8	32.8	2.20	40.3	52.7	14.9	5.1	11.7
				70	34.4	2.21	42.0	56.2	15.6	1.6	3.7	36.1	2.21	43.6	59.7	16.3	2.9	6.7	37.0	2.22	44.6	61.8	16.7	4.6	10.6
				80	38.3	2.22	45.8	64.7	17.2	1.5	3.5	39.9	2.23	47.5	68.6	17.9	2.8	6.4	40.9	2.23	48.5	70.9	18.3	4.3	10.0
				90	41.8	2.24	49.4	73.3	18.7	1.3	3.0	43.4	2.24	51.1	77.6	19.4	2.5	5.8	44.4	2.25	52.0	80.1	19.8	3.9	8.9
	7.0	3.1	7.1	50	26.4	2.06	33.4	39.5	12.8	2.3	5.3	27.8	2.07	34.8	42.1	13.4	3.7	8.5	28.6	2.07	35.7	43.6	13.8	5.3	12.3
				60	30.7	2.08	37.9	47.7	14.8	2.0	4.5	32.3	2.09	39.4	50.8	15.5	3.4	7.8	33.2	2.09	40.4	52.6	15.9	5.1	11.7
				70	34.9	2.10	42.0	56.0	16.6	1.6	3.7	36.5	2.11	43.7	59.6	17.3	2.9	6.7	37.5	2.11	44.7	61.7	17.7	4.6	10.6
				80	38.7	2.12	45.9	64.5	18.3	1.5	3.5	40.4	2.12	47.7	68.5	19.0	2.8	6.4	41.4	2.13	48.6	70.8	19.5	4.3	10.0
				90	42.3	2.13	49.6	73.1	19.9	1.3	3.0	44.0	2.14	51.3	77.4	20.6	2.5	5.8	44.9	2.14	52.2	80.0	21.0	3.9	8.9
110	5.0	1.4	3.2	50	23.7	2.79	33.2	40.5	8.5	2.3	5.3	24.9	2.80	34.5	42.9	8.9	3.7	8.5	25.7	2.81	35.3	44.3	9.1	5.3	12.3
				60	28.0	2.82	37.6	48.8	9.9	2.0	4.5	29.4	2.83	39.0	51.6	10.4	3.4	7.8	30.2	2.84	39.9	53.3	10.7	5.1	11.7
				70	32.1	2.85	41.8	57.2	11																

## Genesis Water-to-Water (GSW) Series

Rev.: 05/23/07D

## Performance Data

### GSW036 Heating

SOURCE			LOAD																						
EWT °F	Flow		EWT °F	Flow 5.0 gpm						Flow 7.0 gpm						Flow 9.0 gpm									
	GPM PSI	WPD FT		HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD		HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD		HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD		
									PSI	FT													PSI	FT	
20	9.0	9.9	22.9	60	24.1	1.41	19.3	69.6	5.00	2.0	4.5	24.2	1.37	19.5	66.9	5.19	3.4	7.8	24.2	1.34	19.6	65.4	5.29	5.1	11.7
				80	23.5	1.78	17.5	89.4	3.87	1.5	3.5	23.6	1.72	17.8	86.7	4.03	2.8	6.4	23.7	1.68	17.9	85.2	4.12	4.3	10.0
	100	23.0	2.29	15.2	109.2	2.94	1.1	2.4	23.1	2.21	15.6	106.6	3.07	2.2	5.2	23.2	2.16	15.8	105.1	3.14	3.6	8.2			
	120	22.6	2.94	12.5	129.0	2.24	0.9	2.1	22.6	2.84	12.9	126.4	2.33	2.0	4.6	22.7	2.78	13.2	125.0	2.39	3.3	7.6			
30	5.0	3.8	8.7	60	25.4	1.42	20.5	70.2	5.22	2.0	4.5	25.5	1.38	20.8	67.3	5.42	3.4	7.8	25.5	1.35	20.9	65.7	5.53	5.1	11.7
				80	24.8	1.80	18.7	89.9	4.04	1.5	3.5	24.9	1.73	19.0	87.1	4.21	2.8	6.4	25.0	1.70	19.2	85.5	4.31	4.3	10.0
	100	24.3	2.32	16.4	109.7	3.07	1.1	2.4	24.4	2.23	16.8	107.0	3.20	2.2	5.2	24.4	2.18	17.0	105.4	3.27	3.6	8.2			
	120	23.8	2.97	13.6	129.5	2.34	0.9	2.1	23.8	2.87	14.1	126.8	2.44	2.0	4.6	23.9	2.81	14.3	125.3	2.49	3.3	7.6			
	7.0	5.8	13.5	60	27.2	1.43	22.3	70.9	5.56	2.0	4.5	27.3	1.39	22.6	67.8	5.77	3.4	7.8	27.4	1.36	22.7	66.1	5.89	5.1	11.7
				80	26.6	1.81	20.4	90.6	4.30	1.5	3.5	26.7	1.75	20.8	87.6	4.48	2.8	6.4	26.8	1.71	20.9	85.9	4.59	4.3	10.0
	100	26.0	2.33	18.1	110.4	3.27	1.1	2.4	26.1	2.25	18.5	107.5	3.41	2.2	5.2	26.2	2.20	18.7	105.8	3.49	3.6	8.2			
	120	25.5	2.99	15.3	130.2	2.50	0.9	2.1	25.6	2.89	15.7	127.3	2.60	2.0	4.6	25.6	2.83	16.0	125.7	2.65	3.3	7.6			
40	5.0	3.2	7.4	60	28.2	1.45	23.2	71.3	5.69	2.0	4.5	28.3	1.39	23.6	68.1	5.97	3.4	7.8	28.4	1.36	23.7	66.3	6.12	5.1	11.7
				80	27.5	1.68	21.8	91.0	4.81	1.5	3.5	27.7	1.60	22.2	87.9	5.07	2.8	6.4	27.7	1.56	22.4	86.2	5.21	4.3	10.0
	100	26.8	2.16	19.4	110.7	3.64	1.1	2.4	26.9	2.06	19.9	107.7	3.84	2.2	5.2	27.0	2.00	20.2	106.0	3.95	3.6	8.2			
	120	26.0	2.76	16.6	130.4	2.77	0.9	2.1	26.2	2.64	17.2	127.5	2.91	2.0	4.6	26.3	2.57	17.5	125.8	2.99	3.3	7.6			
	7.0	5.0	11.5	60	30.2	1.46	25.2	72.1	6.06	2.0	4.5	30.4	1.40	25.6	68.7	6.35	3.4	7.8	30.4	1.37	25.8	66.8	6.52	5.1	11.7
				80	29.5	1.69	23.8	91.8	5.12	1.5	3.5	29.7	1.61	24.2	88.5	5.39	2.8	6.4	29.7	1.57	24.4	86.6	5.55	4.3	10.0
	100	28.8	2.17	21.3	111.5	3.88	1.1	2.4	28.9	2.07	21.8	108.3	4.09	2.2	5.2	29.0	2.02	22.1	106.4	4.21	3.6	8.2			
	120	27.9	2.78	18.5	131.2	2.95	0.9	2.1	28.1	2.66	19.0	128.0	3.10	2.0	4.6	28.2	2.59	19.3	126.3	3.18	3.3	7.6			
50	5.0	2.6	6.1	60	32.0	1.48	26.9	72.8	6.33	2.0	4.5	32.1	1.42	27.3	69.2	6.64	3.4	7.8	32.2	1.39	27.5	67.2	6.81	5.1	11.7
				80	31.2	1.88	24.8	92.5	4.88	1.5	3.5	31.4	1.79	25.3	89.0	5.14	2.8	6.4	31.5	1.74	25.5	87.0	5.29	4.3	10.0
	100	30.4	2.41	22.2	112.2	3.70	1.1	2.4	30.6	2.30	22.7	108.7	3.89	2.2	5.2	30.7	2.24	23.0	106.8	4.01	3.6	8.2			
	120	29.6	3.08	19.0	131.8	2.81	0.9	2.1	29.7	2.95	19.6	128.5	2.95	2.0	4.6	29.8	2.88	20.0	126.6	3.03	3.3	7.6			
	7.0	4.1	9.5	60	34.3	1.49	29.2	73.7	6.74	2.0	4.5	34.5	1.43	29.6	69.9	7.07	3.4	7.8	34.6	1.40	29.8	67.7	7.25	5.1	11.7
				80	33.5	1.89	27.1	93.4	5.19	1.5	3.5	33.7	1.80	27.5	89.6	5.47	2.8	6.4	33.8	1.76	27.8	87.5	5.63	4.3	10.0
	100	32.6	2.43	24.3	113.1	3.94	1.1	2.4	32.8	2.32	24.9	109.4	4.15	2.2	5.2	32.9	2.26	25.2	107.3	4.27	3.6	8.2			
	120	31.7	3.11	21.1	132.7	2.99	0.9	2.1	31.9	2.97	21.7	129.1	3.14	2.0	4.6	32.0	2.90	22.1	127.1	3.23	3.3	7.6			
60	5.0	2.9	6.6	60	35.5	1.50	30.4	74.2	6.94	2.0	4.5	35.7	1.44	30.8	70.2	7.27	3.4	7.8	35.8	1.40	31.0	67.9	7.46	5.1	11.7
				80	34.7	1.68	28.9	93.9	6.06	1.5	3.5	34.8	1.60	29.4	90.0	6.38	2.8	6.4	34.9	1.56	29.6	87.8	6.57	4.3	10.0
	100	33.8	2.16	26.4	113.5	4.59	1.1	2.4	33.9	2.06	26.9	109.7	4.84	2.2	5.2	34.0	2.00	27.2	107.6	4.98	3.6	8.2			
	120	32.8	2.76	23.4	133.1	3.49	0.9	2.1	33.0	2.64	24.0	129.4	3.66	2.0	4.6	33.1	2.57	24.3	127.4	3.77	3.3	7.6			
	7.0	3.9	8.9	60	38.1	1.51	32.9	75.2	7.39	2.0	4.5	38.3	1.45	33.3	70.9	7.74	3.4	7.8	38.4	1.41	33.5	68.5	7.94	5.1	11.7
				80	37.2	1.69	31.4	94.9	6.45	1.5	3.5	37.4	1.61	31.9	90.7	6.80	2.8	6.4	37.5	1.57	32.1	88.3	7.00	4.3	10.0
	100	36.2	2.17	28.8	114.5	4.89	1.1	2.4	36.4	2.07	29.3	110.4	5.15	2.2	5.2	36.5	2.02	29.6	108.1	5.30	3.6	8.2			
	120	35.2	2.78	25.7	134.1	3.71	0.9	2.1	35.4	2.66	26.3	130.1	3.90	2.0	4.6	35.5	2.59	26.6	127.9	4.01	3.3	7.6			
70	5.0	2.3	5.4	60	38.7	1.52	33.6	75.5	7.48	2.0	4.5	38.9	1.45	33.9	71.1	7.84	3.4	7.8	39.0	1.42	34.1	68.7	8.05	5.1	11.7
				80	37.8	1.70	32.0	105.1	6.53	1.5	3.5	38.0	1.62	32.5	100.9	6.88	2.8	6.4	38.1	1.58	32.7	98.5	7.09	4.3	10.0
	100	36.8	2.18	29.4	114.7	4.95	1.1	2.4	37.0	2.08	29.9	110.6	5.22	2.2	5.2	37.1	2.03	30.2	108.2	5.37	3.6	8.2			
	120	35.8	2.79	26.3	134.3	3.76	0.9	2.1	36.0	2.67	26.9	130.3	3.95	2.0	4.6	36.1	2.60	27.2	128.0	4.06	3.3	7.6			
	7.0	3.6	8.4	60	43.2	1.57	37.9	77.3	8.08	2.0	4.5	44.5	1.58	38.1	92.7	6.94	2.8	6.4	44.6	1.82	38.4	89.9	7.20	4.3	10.0
				80	42.5	1.98	35.7	97.0	6.28	1.5	3.5	43.6	2.41	35.3	112.4	5.30	2.2	5.2	43.7	2.33	35.8	109.7	5.50	3.6	8.2
	100	41.6	2.54	32.9	116.6	4.79	1.1	2.4	42.4	3.09	31.9	132.1	4.02	2.0	4.6	42.6	2.99	32.4	129.5	4.17	3.3	7.6			
				60	43.9	1.57	38.6	77.6	8.																

## Performance Data GSW060 Cooling

SOURCE			LOAD																								
EWT °F	Flow		EWT °F	Flow 7.5 gpm								Flow 11.3 gpm								Flow 15.0 gpm							
	GPM			WPD		TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD		TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD		TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD		
	PSI	FT		PSI	FT						PSI	FT	PSI												FT		
50	7.5	2.2	5.2	50	46.3	2.43	54.5	37.7	19.1	1.8	4.2	48.6	2.45	56.9	41.4	19.9	3.4	8.0	49.7	2.45	58.1	43.4	20.3	5.6	12.9		
				60	51.4	2.47	59.8	46.3	20.8	1.6	3.7	53.7	2.48	62.1	50.5	21.6	3.1	7.1	54.8	2.49	63.3	52.7	22.0	5.0	11.6		
				70	56.0	2.50	64.5	55.1	22.4	1.4	3.3	58.2	2.52	66.8	59.7	23.1	2.8	6.5	59.3	2.52	67.9	62.1	23.5	4.6	10.6		
				80	60.1	2.53	68.7	64.0	23.8	1.3	3.0	62.2	2.54	70.8	69.0	24.5	2.6	5.9	63.1	2.55	71.8	71.6	24.8	4.2	9.7		
				90	63.6	2.55	72.3	73.0	25.0	1.1	2.6	65.5	2.56	74.2	78.4	25.6	2.2	5.2	66.4	2.56	75.1	81.2	25.9	3.8	8.8		
	11.3	4.0	9.2	50	46.7	2.32	54.6	37.5	20.1	1.8	4.2	49.0	2.34	57.0	41.3	21.0	3.4	8.0	50.2	2.35	58.2	43.3	21.4	5.6	12.9		
				60	51.9	2.36	59.9	46.2	22.0	1.6	3.7	54.2	2.38	62.3	50.4	22.8	3.1	7.1	55.4	2.38	63.5	52.6	23.2	5.0	11.6		
				70	56.5	2.39	64.7	54.9	23.6	1.4	3.3	58.8	2.41	67.0	59.6	24.4	2.8	6.5	59.9	2.41	68.1	62.0	24.8	4.6	10.6		
				80	60.7	2.42	68.9	63.8	25.1	1.3	3.0	62.8	2.43	71.1	68.9	25.8	2.6	5.9	63.8	2.44	72.1	71.5	26.2	4.2	9.7		
				90	64.3	2.44	72.6	72.9	26.4	1.1	2.6	66.2	2.45	74.5	78.3	27.1	2.2	5.2	67.0	2.45	75.4	81.1	27.4	3.8	8.8		
	15.0	6.1	14.1	50	47.4	2.27	55.2	37.4	20.9	1.8	4.2	49.8	2.29	57.6	41.2	21.8	3.4	8.0	51.0	2.29	58.8	43.2	22.2	5.6	12.9		
				60	52.6	2.31	60.5	46.0	22.8	1.6	3.7	55.0	2.32	62.9	50.3	23.7	3.1	7.1	56.2	2.33	64.1	52.5	24.1	5.0	11.6		
				70	57.4	2.34	65.4	54.7	24.6	1.4	3.3	59.7	2.35	67.7	59.4	25.4	2.8	6.5	60.8	2.36	68.8	61.9	25.8	4.6	10.6		
				80	61.6	2.36	69.6	63.6	26.1	1.3	3.0	63.7	2.37	71.8	68.7	26.8	2.6	5.9	64.7	2.38	72.9	71.4	27.2	4.2	9.7		
				90	65.3	2.38	73.4	72.6	27.4	1.1	2.6	67.2	2.39	75.3	78.1	28.1	2.2	5.2	68.1	2.39	76.2	80.9	28.4	3.8	8.8		
70	7.5	1.9	4.5	50	43.1	3.04	53.5	38.5	14.2	1.8	4.2	45.4	3.06	55.8	42.0	14.8	3.4	8.0	46.5	3.07	57.0	43.8	15.2	5.6	12.9		
				60	48.5	3.09	59.0	47.1	15.7	1.6	3.7	50.8	3.11	61.4	51.0	16.3	3.1	7.1	52.0	3.12	62.6	53.1	16.6	5.0	11.6		
				70	53.4	3.14	64.1	55.8	17.0	1.4	3.3	55.8	3.16	66.5	60.1	17.7	2.8	6.5	56.9	3.17	67.7	62.4	18.0	4.6	10.6		
				80	57.9	3.18	68.8	64.5	18.2	1.3	3.0	60.2	3.20	71.1	69.3	18.8	2.6	5.9	61.3	3.21	72.3	71.8	19.1	4.2	9.7		
				90	62.0	3.22	73.0	73.5	19.3	1.1	2.6	64.2	3.24	75.2	78.6	19.8	2.2	5.2	65.2	3.25	76.3	81.3	20.1	3.8	8.8		
	11.3	3.6	8.2	50	43.6	2.91	53.5	38.4	15.0	1.8	4.2	45.8	2.93	55.8	41.9	15.7	3.4	8.0	47.0	2.94	57.0	43.7	16.0	5.6	12.9		
				60	49.0	2.96	59.1	46.9	16.6	1.6	3.7	51.3	2.98	61.5	50.9	17.2	3.1	7.1	52.5	2.99	62.7	53.0	17.6	5.0	11.6		
				70	54.0	3.00	64.2	55.6	18.0	1.4	3.3	56.3	3.02	66.6	60.0	18.6	2.8	6.5	57.5	3.03	67.8	62.3	19.0	4.6	10.6		
				80	58.5	3.04	68.9	64.4	19.2	1.3	3.0	60.8	3.06	71.3	69.2	19.9	2.6	5.9	62.0	3.07	72.4	71.7	20.2	4.2	9.7		
				90	62.6	3.08	73.1	73.3	20.4	1.1	2.6	64.8	3.10	75.4	78.5	20.9	2.2	5.2	65.9	3.11	76.5	81.2	21.2	3.8	8.8		
	15.0	5.5	12.7	50	44.2	2.84	53.9	38.2	15.6	1.8	4.2	46.5	2.86	56.3	41.8	16.3	3.4	8.0	47.7	2.87	57.5	43.6	16.6	5.6	12.9		
				60	49.7	2.89	59.6	46.7	17.2	1.6	3.7	52.1	2.91	62.0	50.8	17.9	3.1	7.1	53.3	2.92	63.3	52.9	18.3	5.0	11.6		
				70	54.8	2.93	64.8	55.4	18.7	1.4	3.3	57.2	2.95	67.2	59.9	19.4	2.8	6.5	58.4	2.96	68.5	62.2	19.7	4.6	10.6		
				80	59.4	2.97	69.5	64.2	20.0	1.3	3.0	61.7	2.99	71.9	69.1	20.6	2.6	5.9	62.9	3.00	73.1	71.6	21.0	4.2	9.7		
				90	63.6	3.01	73.8	73.0	21.1	1.1	2.6	65.8	3.03	76.1	78.4	21.7	2.2	5.2	66.8	3.03	77.2	81.1	22.0	3.8	8.8		
90	7.5	1.5	3.5	50	39.9	3.87	53.1	39.4	10.3	1.8	4.2	42.0	3.90	55.3	42.6	10.8	3.4	8.0	43.0	3.91	56.4	44.3	11.0	5.6	12.9		
				60	45.2	3.94	58.6	47.9	11.5	1.6	3.7	47.3	3.96	60.8	51.6	11.9	3.1	7.1	48.4	3.97	62.0	53.5	12.2	5.0	11.6		
				70	50.0	3.99	63.6	56.7	12.5	1.4	3.3	52.1	4.02	65.8	60.8	13.0	2.8	6.5	53.2	4.03	66.9	62.9	13.2	4.6	10.6		
				80	54.4	4.04	68.1	65.5	13.5	1.3	3.0	56.4	4.05	70.2	70.0	13.9	2.6	5.9	57.4	4.06	71.2	72.4	14.1	4.2	9.7		
				90	58.2	4.07	72.1	74.5	14.3	1.1	2.6	60.1	4.08	74.0	79.4	14.7	2.2	5.2	60.9	4.08	74.9	81.9	14.9	3.8	8.8		
	11.3	3.1	7.1	50	40.3	3.70	53.0	39.2	10.9	1.8	4.2	42.4	3.73	55.1	42.5	11.4	3.4	8.0	43.5	3.74	56.2	44.2	11.6	5.6	12.9		
				60	45.7	3.77	58.5	47.8	12.1	1.6	3.7	47.8	3.79	60.7	51.5	12.6	3.1	7.1	48.9	3.80	61.9	53.5	12.9	5.0	11.6		
				70	50.5	3.82	63.6	56.5	13.2	1.4	3.3	52.7	3.84	65.8	60.7	13.7	2.8	6.5	53.7	3.85	66.9	62.8	14.0	4.6	10.6		
				80	54.9	3.86	68.1	65.4	14.2	1.3	3.0	56.9	3.88	70.2	69.9	14.7	2.6	5.9	57.9	3.88	71.2	72.3	14.9	4.2	9.7		
				90	58.8	3.89	72.0	74.3	15.1	1.1	2.6	60.7	3.90	74.0	79.3	15.6	2.2	5.2	61.6	3.90	74.9	74.8	15.8	3.8	8.8		
	15.0	5.0	11.6	50	40.9	3.61	53.3	39.1	11.3	1.8	4.2	43															

## Genesis Water-to-Water (GSW) Series

Rev.: 05/23/07D

## Performance Data

### GSW060 Heating

SOURCE			LOAD																						
EWT °F	Flow		EWT °F	Flow 7.5 gpm						Flow 11.3 gpm						Flow 15.0 gpm									
	GPM	WPD		HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD		HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD		HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD		
		PSI	FT						PSI	FT						PSI	FT								
20	15.0	7.9	18.2	60	36.8	2.53	28.2	69.8	4.26	1.6	3.7	37.2	2.44	28.9	66.6	4.48	3.1	7.1	37.4	2.39	29.3	65.0	4.58	5.0	11.6
				80	35.0	3.17	24.2	89.3	3.24	1.3	3.0	35.2	3.04	24.9	86.2	3.39	2.6	5.9	35.4	2.98	25.2	84.7	3.48	4.2	9.7
				100	33.9	4.01	20.2	109.0	2.48	0.9	2.1	34.0	3.86	20.9	106.0	2.59	1.9	4.5	34.1	3.78	21.2	104.5	2.64	3.5	8.1
				120	33.6	5.08	16.3	129.0	1.94	0.6	1.5	33.6	4.89	17.0	126.0	2.02	1.6	3.6	33.6	4.79	17.3	124.5	2.06	2.9	6.7
30	7.5	3.1	7.2	60	38.2	2.55	29.5	70.2	4.39	1.6	3.7	38.7	2.46	30.3	66.8	4.62	3.1	7.1	38.9	2.41	30.7	65.2	4.73	5.0	11.6
				80	36.3	3.19	25.4	89.7	3.34	1.3	3.0	36.6	3.06	26.1	86.5	3.50	2.6	5.9	36.7	3.00	26.5	84.9	3.58	4.2	9.7
				100	35.2	4.04	21.4	109.4	2.55	0.9	2.1	35.4	3.88	22.1	106.3	2.67	1.9	4.5	35.4	3.81	22.4	104.7	2.73	3.5	8.1
				120	35.0	5.12	17.5	129.3	2.00	0.6	1.5	34.9	4.92	18.1	126.2	2.08	1.6	3.6	34.9	4.83	18.5	124.7	2.12	2.9	6.7
	11.3	5.0	11.5	60	40.5	2.57	31.7	70.8	4.61	1.6	3.7	41.0	2.48	32.5	67.2	4.84	3.1	7.1	41.2	2.43	32.9	65.5	4.96	5.0	11.6
				80	38.5	3.22	27.5	90.3	3.50	1.3	3.0	38.8	3.09	28.2	86.9	3.68	2.6	5.9	38.9	3.03	28.6	85.2	3.76	4.2	9.7
	15.0	7.4	17.0	60	42.3	2.58	33.5	71.3	4.80	1.6	3.7	42.8	2.49	34.3	67.6	5.04	3.1	7.1	43.0	2.44	34.7	65.7	5.16	5.0	11.6
				80	40.2	3.23	29.2	90.7	3.65	1.3	3.0	40.5	3.10	29.9	87.2	3.82	2.6	5.9	40.7	3.04	30.3	85.4	3.92	4.2	9.7
				100	39.0	4.09	25.0	110.4	2.79	0.9	2.1	39.1	3.93	25.7	106.9	2.91	1.9	4.5	39.2	3.86	26.0	105.2	2.98	3.5	8.1
				120	38.7	5.18	21.0	130.3	2.19	0.6	1.5	38.7	4.99	21.6	126.8	2.27	1.6	3.6	38.7	4.89	22.0	125.2	2.32	2.9	6.7
40	7.5	2.7	6.2	60	44.1	2.62	35.1	71.8	4.93	1.6	3.7	44.3	2.48	35.8	67.8	5.23	3.1	7.1	44.3	2.42	36.1	65.9	5.37	5.0	11.6
				80	43.1	3.32	31.8	91.5	3.80	1.3	3.0	43.4	3.14	32.6	87.7	4.05	2.6	5.9	43.5	3.06	33.1	85.8	4.17	4.2	9.7
				100	41.8	4.21	27.5	112.2	2.91	0.9	2.1	42.1	3.99	28.5	107.5	3.10	1.9	4.5	42.3	3.89	29.0	105.6	3.19	3.5	8.1
				120	40.3	5.28	22.2	130.7	2.23	0.6	1.5	40.6	5.03	23.5	127.2	2.37	1.6	3.6	40.8	4.91	24.1	125.4	2.44	2.9	6.7
	11.3	4.4	10.2	60	46.7	2.64	37.7	72.4	5.17	1.6	3.7	46.9	2.50	38.3	68.3	5.49	3.1	7.1	47.0	2.44	38.6	66.3	5.64	5.0	11.6
				80	45.6	3.35	34.2	92.2	3.99	1.3	3.0	45.9	3.17	35.1	88.1	4.25	2.6	5.9	46.0	3.08	35.5	86.1	4.38	4.2	9.7
	15.0	6.6	15.2	60	48.8	2.66	39.7	73.0	5.38	1.6	3.7	49.0	2.51	40.4	68.7	5.71	3.1	7.1	49.1	2.45	40.7	66.5	5.87	5.0	11.6
				80	47.7	3.36	36.2	92.7	4.16	1.3	3.0	48.0	3.18	37.1	88.5	4.42	2.6	5.9	48.1	3.10	37.5	86.4	4.56	4.2	9.7
				100	46.3	4.26	31.7	112.3	3.18	0.9	2.1	46.6	4.04	32.8	108.3	3.38	1.9	4.5	46.8	3.94	33.4	106.2	3.48	3.5	8.1
				120	44.5	5.35	26.3	131.9	2.44	0.6	1.5	45.0	5.09	27.6	128.0	2.59	1.6	3.6	45.1	4.97	28.2	126.0	2.66	2.9	6.7
50	7.5	2.2	5.2	60	50.0	2.67	40.9	73.3	5.50	1.6	3.7	50.3	2.53	41.6	68.9	5.83	3.1	7.1	50.3	2.46	41.9	66.7	5.99	5.0	11.6
				80	48.9	3.38	37.4	93.0	4.24	1.3	3.0	49.2	3.20	38.3	88.7	4.51	3.1	7.1	49.4	3.11	38.7	86.6	4.65	4.2	9.7
				100	47.5	4.28	32.9	112.7	3.25	0.9	2.1	47.8	4.06	34.0	108.5	3.45	1.9	4.5	48.0	3.95	34.5	106.4	3.56	3.5	8.1
				120	45.7	5.37	27.4	132.2	2.49	0.6	1.5	46.1	5.12	28.7	128.2	2.64	1.6	3.6	46.3	5.00	29.3	126.2	2.72	2.9	6.7
	11.3	4.0	9.2	60	53.0	2.69	43.8	74.1	5.77	1.6	3.7	53.2	2.55	44.5	69.4	6.12	3.1	7.1	53.3	2.48	44.8	67.1	6.29	5.0	11.6
				80	51.8	3.41	40.2	93.8	4.45	1.3	3.0	52.1	3.22	41.1	89.2	4.74	2.6	5.9	52.3	3.14	41.6	87.0	4.88	4.2	9.7
	15.0	6.1	14.1	60	55.4	2.70	46.1	74.8	6.00	1.6	3.7	55.6	2.56	46.9	69.8	6.37	3.1	7.1	55.7	2.49	47.2	67.4	6.55	5.0	11.6
				80	54.1	3.42	42.5	94.4	4.64	1.3	3.0	54.5	3.24	43.4	89.6	4.93	2.6	5.9	54.6	3.15	43.9	87.3	5.08	4.2	9.7
				100	52.5	4.34	37.7	114.0	3.55	0.9	2.1	52.9	4.11	38.9	109.4	3.77	1.9	4.5	53.1	4.01	39.5	107.1	3.89	3.5	8.1
				120	50.6	5.44	32.0	133.5	2.72	0.6	1.5	51.0	5.18	33.3	129.0	2.88	1.6	3.6	51.3	5.06	34.0	126.8	2.97	2.9	6.7
60	7.5	2.1	4.8	60	55.5	2.71	46.3	74.8	6.00	1.6	3.7	55.8	2.57	47.0	69.9	6.37	3.1	7.1	55.9	2.50	47.3	67.4	6.55	5.0	11.6
				80	54.3	3.43	42.6	94.5	4.64	1.3	3.0	54.6	3.25	43.5	89.7	4.93	2.6	5.9	54.8	3.16	44.0	87.3	5.08	4.2	9.7
				100	52.7	4.35	37.9	114.1	3.55	0.9	2.1	53.1	4.13	39.0	109.4	3.77	1.9	4.5	53.3	4.02	39.6	107.1	3.89	3.5	8.1
				120	50.7	5.46	32.1	133.5	2.72	0.6	1.5	51.2	5.20	33.4	129.1	2.88	1.6	3.6	51.4	5.08	34.1	126.9	2.97	2.9	6.7
	11.3	3.8	8.7	60	58.8	2.73	49.5	75.7	6.31	1.6	3.7	59.1	2.59	50.2	70.5	6.69	3.1	7.1	59.2	2.52	50.6	67.9	6.88	5.0	11.6
				80	57.5	3.46	45.7	95.3	4.87	1.3	3.0	57.9	3.27	46.7	90.2	5.18	2.6	5.9	58.0	3.19	47.1	87.7	5.34	4.2	9.7
	15.0	5.7	13.3																						

Performance Data  
GSW120 Cooling

SOURCE			LOAD																								
EWT °F	Flow		EWT °F	Flow 15.0 gpm								Flow 22.6 gpm								Flow 30.0 gpm							
	GPM	WPD		TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD	TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD	TC MBtuh	Power KW	HR MBtuh	LWT °F	EER	WPD						
	PSI	FT		PSI	FT	PSI	FT	PSI	FT	PSI	FT	PSI	FT	PSI	FT	PSI	FT	PSI	FT	PSI	FT						
50	15.0	3.1	7.3	50	92.5	4.85	109.1	37.7	19.1	2.6	5.9	97.1	4.89	113.8	41.4	19.9	4.8	11.1	99.4	4.91	116.2	43.4	20.3	7.8	18.1		
				60	102.7	4.93	119.5	46.3	20.8	2.2	5.1	107.3	4.97	124.3	50.5	21.6	4.3	9.9	109.6	4.99	126.6	52.7	22.0	7.0	16.2		
				70	111.9	5.00	129.0	55.1	22.4	2.0	4.6	116.4	5.03	133.6	59.7	23.1	3.9	9.0	118.6	5.05	135.8	62.1	23.5	6.4	14.9		
				80	120.1	5.06	137.4	64.0	23.8	1.8	4.2	124.3	5.08	141.6	69.0	24.5	3.6	8.3	126.3	5.09	143.7	71.6	24.8	5.9	13.6		
	22.6	5.6	12.8	90	127.3	5.10	144.7	73.0	25.0	1.6	3.6	131.0	5.11	148.5	78.4	25.6	3.1	7.2	132.7	5.12	150.2	81.2	25.9	5.3	12.3		
				50	93.4	4.64	109.3	37.5	20.1	2.6	5.9	98.1	4.68	114.1	41.3	21.0	4.8	11.1	100.4	4.70	116.5	43.3	21.4	7.8	18.1		
				60	103.7	4.72	119.8	46.2	22.0	2.2	5.1	108.4	4.75	124.6	50.4	22.8	4.3	9.9	110.7	4.77	127.0	52.6	23.2	7.0	16.2		
				70	113.1	4.78	129.4	54.9	23.6	2.0	4.6	117.6	4.81	134.0	59.6	24.4	3.9	9.0	119.8	4.83	136.2	62.0	24.8	6.4	14.9		
				80	121.4	4.84	137.9	63.8	25.1	1.8	4.2	125.6	4.86	142.1	68.9	25.8	3.6	8.3	127.6	4.87	144.2	71.5	26.2	5.9	13.6		
	30.0	8.5	19.7	90	128.6	4.88	145.2	72.9	26.4	1.6	3.6	132.3	4.89	149.0	78.3	27.1	3.1	7.2	134.1	4.90	150.8	81.1	27.4	5.3	12.3		
				50	94.9	4.54	110.3	37.4	20.9	2.6	5.9	99.6	4.57	115.2	41.2	21.8	4.8	11.1	102.0	4.59	117.6	43.2	22.2	7.8	18.1		
				60	105.3	4.61	121.0	46.0	22.8	2.2	5.1	110.0	4.64	125.9	50.3	23.7	4.3	9.9	112.4	4.66	128.3	52.5	24.1	7.0	16.2		
				70	114.8	4.67	130.7	54.7	24.6	2.0	4.6	119.3	4.70	135.4	59.4	25.4	3.9	9.0	121.6	4.72	137.7	61.9	25.8	6.4	14.9		
				80	123.2	4.73	139.3	63.6	26.1	1.8	4.2	127.4	4.75	143.6	68.7	26.8	3.6	8.3	129.5	4.76	145.7	71.4	27.2	5.9	13.6		
				90	130.5	4.76	146.8	72.6	27.4	1.6	3.6	134.3	4.78	150.6	78.1	28.1	3.1	7.2	136.1	4.79	152.4	80.9	28.4	5.3	12.3		
70	15.0	2.7	6.3	50	86.3	6.08	107.0	38.5	14.2	2.6	5.9	90.8	6.12	111.7	42.0	14.8	4.8	11.1	93.1	6.14	114.0	43.8	15.2	7.8	18.1		
				60	97.0	6.18	118.1	47.1	15.7	2.2	5.1	101.6	6.22	122.9	51.0	16.3	4.3	9.9	104.0	6.25	125.3	53.1	16.6	7.0	16.2		
				70	106.9	6.27	128.3	55.8	17.0	2.0	4.6	111.5	6.32	133.1	60.1	17.7	3.9	9.0	113.9	6.34	135.5	62.4	18.0	6.4	14.9		
				80	115.9	6.36	137.6	64.5	18.2	1.8	4.2	120.4	6.40	142.3	69.3	18.8	3.6	8.3	122.7	6.42	144.6	71.8	19.1	5.9	13.6		
	22.6	5.0	11.5	90	124.0	6.43	146.0	73.5	19.3	1.6	3.6	128.3	6.47	150.4	78.6	19.8	3.1	7.2	130.4	6.49	152.5	81.3	20.1	5.3	12.3		
				50	87.2	5.82	107.0	38.4	15.0	2.6	5.9	91.7	5.86	111.7	41.9	15.7	4.8	11.1	94.0	5.88	114.1	43.7	16.0	7.8	18.1		
				60	98.0	5.91	118.1	46.9	16.6	2.2	5.1	102.7	5.95	123.0	50.9	17.2	4.3	9.9	105.0	5.97	125.4	53.0	17.6	7.0	16.2		
				70	107.9	6.00	128.4	55.6	18.0	2.0	4.6	112.6	6.04	133.3	60.0	18.6	3.9	9.0	115.0	6.06	135.7	62.3	19.0	6.4	14.9		
				80	117.0	6.08	137.8	64.4	19.2	1.8	4.2	121.6	6.12	142.5	69.2	19.9	3.6	8.3	123.9	6.14	144.9	71.7	20.2	5.9	13.6		
	30.0	7.7	17.8	90	125.3	6.15	146.3	73.3	20.4	1.6	3.6	129.6	6.19	150.7	78.5	20.9	3.1	7.2	131.7	6.21	152.9	81.2	21.2	5.3	12.3		
				50	88.5	5.68	107.8	38.2	15.6	2.6	5.9	93.1	5.72	112.6	41.8	16.3	4.8	11.1	95.4	5.74	115.0	43.6	16.6	7.8	18.1		
				60	99.4	5.78	119.1	46.7	17.2	2.2	5.1	104.2	5.82	124.0	50.8	17.9	4.3	9.9	106.6	5.84	126.5	52.9	18.3	7.0	16.2		
				70	109.6	5.86	129.6	55.4	18.7	2.0	4.6	114.3	5.90	135.3	59.9	19.4	3.9	9.0	116.7	5.92	136.9	62.2	19.7	6.4	14.9		
				80	118.8	5.94	139.1	64.2	20.0	1.8	4.2	123.5	5.98	143.9	69.1	20.6	3.6	8.3	125.8	6.00	146.2	71.6	21.0	5.9	13.6		
	15.0	2.1	5.0	90	127.1	6.01	147.7	73.0	21.1	1.6	3.6	131.6	6.05	152.2	78.4	21.7	3.1	7.2	133.7	6.07	154.4	81.1	22.0	5.3	12.3		
				50	79.9	7.74	106.3	39.4	10.3	2.6	5.9	84.0	7.79	110.6	42.6	10.8	4.8	11.1	86.1	7.82	112.8	44.3	11.0	7.8	18.1		
				60	90.4	7.87	117.3	47.9	11.5	2.2	5.1	94.7	7.92	121.7	51.6	11.9	4.3	9.9	96.8	7.95	123.9	53.5	12.2	7.0	16.2		
				70	100.0	7.99	127.3	56.7	12.5	2.0	4.6	104.3	8.03	131.7	60.8	13.0	3.9	9.0	106.4	8.05	133.8	62.9	13.2	6.4	14.9		
				80	108.7	8.07	136.3	65.5	13.5	1.8	4.2	112.8	8.11	140.4	70.0	13.9	3.6	8.3	114.7	8.12	142.4	72.4	14.1	5.9	13.6		
90	22.6	4.3	9.9	90	116.4	8.13	144.1	74.5	14.3	1.6	3.6	120.1	8.15	147.9	79.4	14.7	3.1	7.2	121.9	8.16	149.7	81.9	14.9	5.3	12.3		
				50	80.7	7.40	105.9	39.2	10.9	2.6	5.9	84.8	7.45	110.3	42.5	11.4	4.8	11.1	87.0	7.48	112.5	44.2	11.6	7.8	18.1		
				60	91.3	7.53	117.0	47.8	12.1	2.2	5.1	95.6	7.58	121.5	51.5	12.6	4.3	9.9	97.8	7.60	123.7	53.5	12.9	7.0	16.2		
				70	101.1	7.64	127.1	56.5	13.2	2.0	4.6	105.3	7.68	131.5	60.7	13.7	3.9	9.0	107.4	7.70	133.7	62.8	14.0	6.4	14.9		
	30.0	7.0	16.2	80	109.8	7.72	136.2	65.4	14.2	1.8	4.2	113.9	7.75	140.4	69.9	14.7	3.6	8.3	115.9	7.77	142.4	72.3	14.9	5.9	13.6		
				90	117.6	7.78	144.1	74.3	15.1	1.6	3.6	121.3	7.80	147.9	73.6	15.3	3.1	7.2	123.1	7.81	149.7	81.8	15.8	5.3	12.3		
				50	81.9	7.23	106.5	39.1	11.3	2.6	5.9	86.1	7.28	110.9	42.4	11.8	4.8	11.1	88.3	7.31	113.2	44.1	12.1	7.8	18.1		
				60	92.7	7.36																					

## Genesis Water-to-Water (GSW) Series

Rev.: 05/23/07D

## Performance Data

### GSW120 Heating

SOURCE			LOAD																						
EWT °F	Flow		EWT °F	Flow 15.0 gpm						Flow 22.6 gpm						Flow 30.0 gpm									
	GPM PSI	WPD FT		HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD PSI	HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD PSI	HC MBtuh	Power KW	HE MBtuh	LWT °F	COP	WPD PSI				
				MBtuh	KW	MBtuh	°F			MBtuh	KW	MBtuh	°F			MBtuh	KW	MBtuh	°F						
20	30.0	11.1	25.5	60	73.6	5.06	56.3	69.8	4.26	2.2	5.1	74.4	4.88	57.8	66.6	4.48	4.3	9.9	74.9	4.79	58.5	65.0	4.58	7.0	16.2
				80	69.9	6.33	48.3	89.3	3.24	1.8	4.2	70.5	6.08	49.7	86.2	3.39	3.6	8.3	70.7	5.96	50.4	84.7	3.48	5.9	13.6
				100	67.8	8.03	40.4	109.0	2.48	1.3	2.9	68.1	7.71	41.7	106.0	2.59	2.7	6.3	68.2	7.56	42.4	104.5	2.64	4.9	11.3
				120	67.3	10.16	32.6	129.0	1.94	0.9	2.1	67.3	9.77	33.9	126.0	2.02	2.2	5.1	67.3	9.59	34.6	124.5	2.06	4.0	9.3
	30.0	10.0	10.0	60	76.5	5.10	59.1	70.2	4.39	2.2	5.1	77.3	4.91	60.6	66.8	4.62	4.3	9.9	77.8	4.82	61.3	65.2	4.73	7.0	16.2
				80	72.7	6.38	50.9	89.7	3.34	1.8	4.2	73.2	6.13	52.3	86.5	3.50	3.6	8.3	73.5	6.01	53.0	84.9	3.58	5.9	13.6
				100	70.4	8.09	42.9	109.4	2.55	1.3	2.9	70.7	7.77	44.2	106.3	2.67	2.7	6.3	70.8	7.62	44.9	104.7	2.73	4.9	11.3
				120	69.9	10.23	35.0	129.3	2.00	0.9	2.1	69.9	9.84	36.3	126.2	2.08	2.2	5.1	69.9	9.66	36.9	124.7	2.12	4.0	9.3
30	22.6	7.0	16.2	60	81.0	5.15	63.4	70.8	4.61	2.2	5.1	81.9	4.95	65.0	67.2	4.84	4.3	9.9	82.4	4.86	65.8	65.5	4.96	7.0	16.2
				80	76.9	6.44	55.0	90.3	3.50	1.8	4.2	77.5	6.18	56.4	86.9	3.68	3.6	8.3	77.8	6.06	57.2	85.2	3.76	5.9	13.6
				100	74.6	8.16	46.8	109.9	2.68	1.3	2.9	74.9	7.84	48.1	106.6	2.80	2.7	6.3	75.0	7.69	48.8	105.0	2.86	4.9	11.3
				120	74.0	10.32	38.8	129.9	2.10	0.9	2.1	74.0	9.93	40.1	126.5	2.18	2.2	5.1	74.0	9.74	40.8	124.9	2.23	4.0	9.3
	30.0	10.3	23.8	60	84.6	5.17	67.0	71.3	4.80	2.2	5.1	85.6	4.97	68.6	67.6	5.04	4.3	9.9	86.1	4.88	69.4	65.7	5.16	7.0	16.2
				80	80.4	6.46	58.3	90.7	3.65	1.8	4.2	81.0	6.21	59.8	87.2	3.82	3.6	8.3	81.3	6.09	60.5	85.4	3.92	5.9	13.6
				100	77.9	8.19	50.0	110.4	2.79	1.3	2.9	78.2	7.87	51.4	106.9	2.91	2.7	6.3	78.4	7.72	52.1	105.2	2.98	4.9	11.3
				120	77.3	10.36	42.0	130.3	2.19	0.9	2.1	77.3	9.97	43.3	126.8	2.27	2.2	5.1	77.3	9.78	43.9	125.2	2.32	4.0	9.3
40	15.0	3.7	8.6	60	88.2	5.24	70.3	71.8	4.93	2.2	5.1	88.5	4.97	71.6	67.8	5.23	4.3	9.9	88.7	4.84	72.2	65.9	5.37	7.0	16.2
				80	86.2	6.64	63.5	91.5	3.80	1.8	4.2	86.7	6.28	65.3	87.7	4.05	3.6	8.3	87.0	6.11	66.1	85.8	4.17	5.9	13.6
				100	83.7	8.42	54.9	111.2	2.91	1.3	2.9	84.3	7.98	57.1	107.5	3.10	2.7	6.3	84.6	7.77	58.1	105.6	3.19	4.9	11.3
				120	80.5	10.56	44.5	130.7	2.23	0.9	2.1	81.3	10.06	46.9	127.2	2.37	2.2	5.1	81.6	9.82	48.1	125.4	2.44	4.0	9.3
	22.6	6.2	14.3	60	93.4	5.29	75.3	72.4	5.17	2.2	5.1	93.8	5.01	76.7	68.3	5.49	4.3	9.9	93.9	4.88	77.3	66.3	5.64	7.0	16.2
				80	91.3	6.70	68.4	92.2	3.99	1.8	4.2	91.8	6.34	70.2	88.1	4.25	3.6	8.3	92.1	6.17	71.1	86.1	4.38	5.9	13.6
				100	88.6	8.49	59.6	111.8	3.06	1.3	2.9	89.3	8.05	61.8	107.9	3.25	2.7	6.3	89.6	7.84	62.8	106.0	3.35	4.9	11.3
				120	85.3	10.65	48.9	131.4	2.35	0.9	2.1	86.1	10.15	51.4	127.6	2.49	2.2	5.1	86.4	9.91	52.6	125.8	2.56	4.0	9.3
50	30.0	9.2	21.3	60	97.5	5.31	79.4	73.0	5.38	2.2	5.1	97.9	5.03	80.8	68.7	5.71	4.3	9.9	98.1	4.90	81.4	66.5	5.87	7.0	16.2
				80	95.4	6.73	72.4	92.7	4.16	1.8	4.2	95.9	6.36	74.2	88.5	4.42	3.6	8.3	96.2	6.19	75.1	86.4	4.56	5.9	13.6
				100	92.6	8.52	63.5	112.3	3.18	1.3	2.9	93.3	8.08	65.7	108.3	3.38	2.7	6.3	93.6	7.87	66.7	106.2	3.48	4.9	11.3
				120	89.1	10.70	52.6	131.9	2.44	0.9	2.1	89.9	10.19	55.1	128.0	2.59	2.2	5.1	90.3	9.95	56.4	126.0	2.66	4.0	9.3
	22.6	5.6	12.8	60	100.1	5.34	81.9	73.3	5.50	2.2	5.1	100.5	5.05	83.3	68.9	5.83	4.3	9.9	100.7	4.92	83.9	66.7	5.99	7.0	16.2
				80	97.9	6.76	74.8	93.0	4.24	1.8	4.2	98.4	6.39	76.6	88.7	4.51	3.6	8.3	98.7	6.22	77.5	86.6	4.65	5.9	13.6
				100	95.0	8.56	65.8	112.7	3.25	1.3	2.9	95.7	8.12	68.0	108.5	3.45	2.7	6.3	96.0	7.91	69.0	106.4	3.56	4.9	11.3
				120	91.4	10.75	54.7	132.2	2.49	0.9	2.1	92.3	10.24	57.3	128.2	2.64	2.2	5.1	92.7	9.99	58.6	126.2	2.72	4.0	9.3
60	30.0	8.5	19.7	60	110.7	5.40	92.3	74.8	6.00	2.2	5.1	110.2	5.13	94.0	69.9	6.37	4.3	9.9	111.7	5.00	94.7	67.4	6.55	7.0	16.2
				80	108.3	6.87	85.2	94.5	4.64	1.8	4.2	109.3	6.49	87.1	89.7	4.93	3.6	8.3	109.6	6.32	88.0	87.3	5.08	5.9	13.6
				100	105.4	8.70	75.7	114.1	3.55	1.3	2.9	106.2	8.25	78.0	109.4	3.77	2.7	6.3	106.6	8.04	79.2	107.1	3.89	4.9	11.3
				120	101.4	10.92	64.2	135.3	2.72	0.9	2.1	102.4	10.40	66.9	129.1	2.88	2.2	5.1	102.8	10.15	68.2	126.9	2.97	4.0	9.3
	22.6	5.3	12.2	60	117.6	5.47	99.0	75.7	6.31	2.2	5.1	118.1	5.18	100.5	70.5	6.69	4.3	9.9	118.3	5.04	101.1	67.9	6.88	7.0	16.2
				80	115.0	6.93	91.4	95.3	4.87	1.8	4.2	115.7	6.55	93.4	90.2	5.18	3.6	8.3	116.0	6.37	94.3	87.7	5.34	5.9	13.6
				100	111.6	8.78	81.7	114.9	3.73	1.3	2.9	112.5	8.32	84.1	110.0	3.96	2.7	6.3	112.9	8.10	85.2	107.5	4.08	4.9	11.3
				120	107.4	11.01	69.9	134.3	2.86	0.9	2.1	108.4	10.49	72.6	129.6	3.03	2.2	5.1	108.9	10.24	74.0	127.3	3.12	4.0	9.3
70	30.0	8.0	18.6	60	122.9	5.49	104.2	76.4	6.56	2.2	5.1	123.4	5.20	105.7	70.9	6.96	4.3	9							

**Antifreeze Correction Table**

Antifreeze Type	Antifreeze %	Cooling			Heating		WPD Corr. Fct. EWT 30°F	
		EWT 90°F			EWT 30°F			
		Total Cap	Sens Cap	Power	Htg Cap	Power		
Water	0	1.000	1.000	1.000	1.000	1.000	1.000	
Propylene Glycol	5	0.995	0.995	1.003	0.989	0.997	1.070	
	15	0.986	0.986	1.009	0.968	0.990	1.210	
	25	0.978	0.978	1.014	0.947	0.983	1.360	
Methanol	5	0.997	0.997	1.002	0.989	0.997	1.070	
	15	0.990	0.990	1.007	0.968	0.990	1.160	
	25	0.982	0.982	1.012	0.949	0.984	1.220	
Ethanol	5	0.998	0.998	1.002	0.981	0.994	1.140	
	15	0.994	0.994	1.005	0.944	0.983	1.300	
	25	0.986	0.986	1.009	0.917	0.974	1.360	
Ethylene Glycol	5	0.998	0.998	1.002	0.993	0.998	1.040	
	15	0.994	0.994	1.004	0.980	0.994	1.120	
	25	0.988	0.988	1.008	0.966	0.990	1.200	

**Physical & Electrical Data****Physical Data**

Model	036	060	120
Compressor (qty)	Scroll (1)	Scroll (2)	
Factory Charge R22 (oz) [kg]	48 [1.36]	64 [1.81]	(2) 64 [1.81]
<b>Indoor/Load Water Connection Size</b>			
Residential Swivel (in)	1	1	-
Commercial IPT (in)	3/4	1	1-1/2
<b>Outdoor/Source Water Connection Size</b>			
Residential Swivel (in)	1	1	-
Commercial IPT (in)	3/4	1	1-1/2
<b>Hot Water Generator Connection Size</b>			
Residential Swivel (in)	1	1	-
Commercial IPT (in)	1/2	1/2	1/2
Weight - Operating, (lbs) [kg]	236 [107]	343 [156]	725 [329]
Weight - Packaged, (lbs) [kg]	255 [116]	362 [164]	765 [347]

Spring mounted compressor

Balanced Port Expansion Valve (TXV)

Insulated Source and Load Water Coils with optional water/refrigerant circuit insulation package

Compressor on (green) and fault (red) light

Check serial plate for refrigerant type

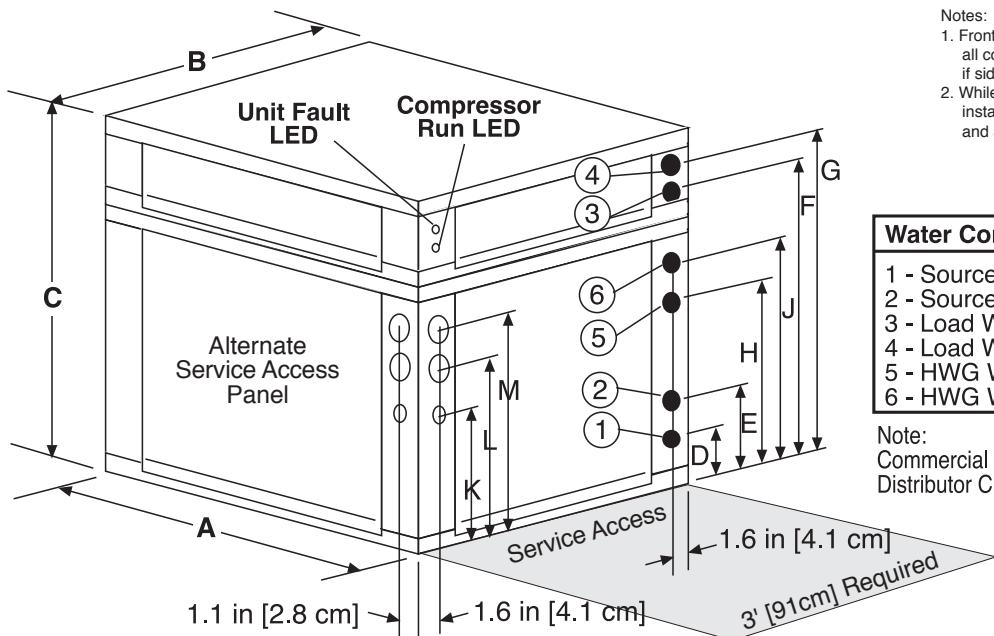
**Electrical Data**

Model	Voltage Code	Voltage	Min/Max Voltage	Compressor			HWG Pump FLA	Ext Loop Pump FLA	Total Unit FLA	Min Circuit Amps	Max Fuse/HACR
				QTY	RLA	LRA					
GSW036 Residential	G	208-230/60/1	197/254	1	15.0	73.0	0.4	4.0	19.4	23.2	35
GSW036 Commercial	G	208-230/60/1	197/254	1	15.0	73.0	-	-	15.0	18.8	30
	E	265/60/1	239/292	1	14.3	71.0	-	-	14.3	17.9	30
	H	208-230/60/3	197/254	1	10.7	63.0	-	-	10.7	13.4	20
	F	460/60/3	414/506	1	5.0	31.0	-	-	5.0	6.3	15
GSW060 Residential	G	208-230/60/1	197/254	1	28.0	148.0	0.4	4.0	32.4	39.4	60
GSW060 Commercial	G	208-230/60/1	197/254	1	28.0	148.0	-	-	28.0	35.0	60
	H	208-230/60/3	197/254	1	19.3	123.0	-	-	19.3	24.1	40
	F	460/60/3	414/506	1	7.5	49.5	-	-	7.5	9.4	15
	N	575/60/3	518/633	1	6.4	40.0	-	-	6.4	8.0	15
GSW120 Commercial	G	208-230/60/1	197/254	2	28.0	148.0	-	-	56.0	63.0	90
	H	208-230/60/3	197/254	2	19.3	123.0	-	-	38.6	43.4	60
	F	460/60/3	414/506	2	7.5	49.5	-	-	15.0	16.9	20
	N	575/60/3	518/633	2	6.4	40.0	-	-	12.8	14.4	20

HACR circuit breaker in USA only

Residential units come standard with 75VA transformer, HWG pump, and HWG connections

## GSW036 &amp; 060 Dimensional Data



## Notes:

- Front & Side access is preferred for service access. However, all components may be serviced from the front access panel if side access is not available.
- While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.

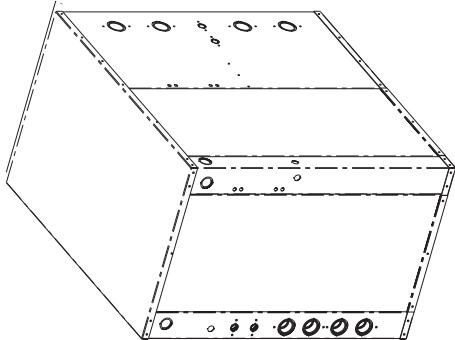
Water Connection	036	060
1 - Source Water In	3/4" IPT	1" IPT
2 - Source Water Out	3/4" IPT	1" IPT
3 - Load Water In	3/4" IPT	1" IPT
4 - Load Water Out	3/4" IPT	1" IPT
5 - HWG Water In	1/2" IPT	1/2" IPT
6 - HWG Water Out	1/2" IPT	1/2" IPT

## Note:

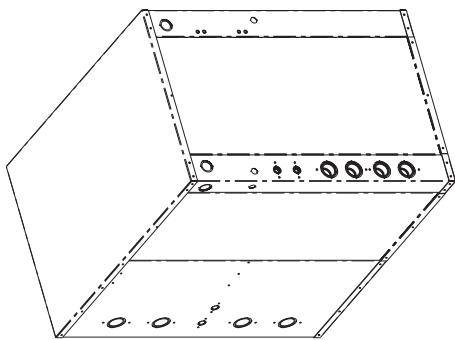
Commercial Class Connections Shown  
Distributor Class Utilizes 1" Swivel Throughout

Model	Overall Cabinet			Water Connections						Electrical Knockouts			
				1	2	3	4	5	6				
	A Width	B Depth	C Height	D Source (Outdoor) Water In	E Source (Outdoor) Water Out	F Load (Indoor) Water In	G Load (Indoor) Water Out	H HWG In	J HWG Out	K Low Voltage	L External Pump	M Power Supply	
036	in. cm.	25.6 65.1	22.4 56.8	29.5 74.9	2.4 6.1	5.4 13.7	22.7 57.5	26.1 66.3	13.9 35.3	16.9 42.9	5.6 15.2	9.6 24.1	12.1 30.5
060	in. cm.	30.6 77.8	25.4 64.5	33.0 83.8	2.4 6.1	5.4 13.7	26.8 68.1	30.9 78.4	15.6 40.4	18.9 48.0	8.1 20.3	11.6 29.2	14.1 35.6

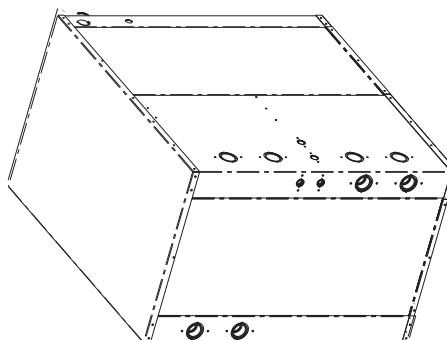
## GSW120 Dimensional Data



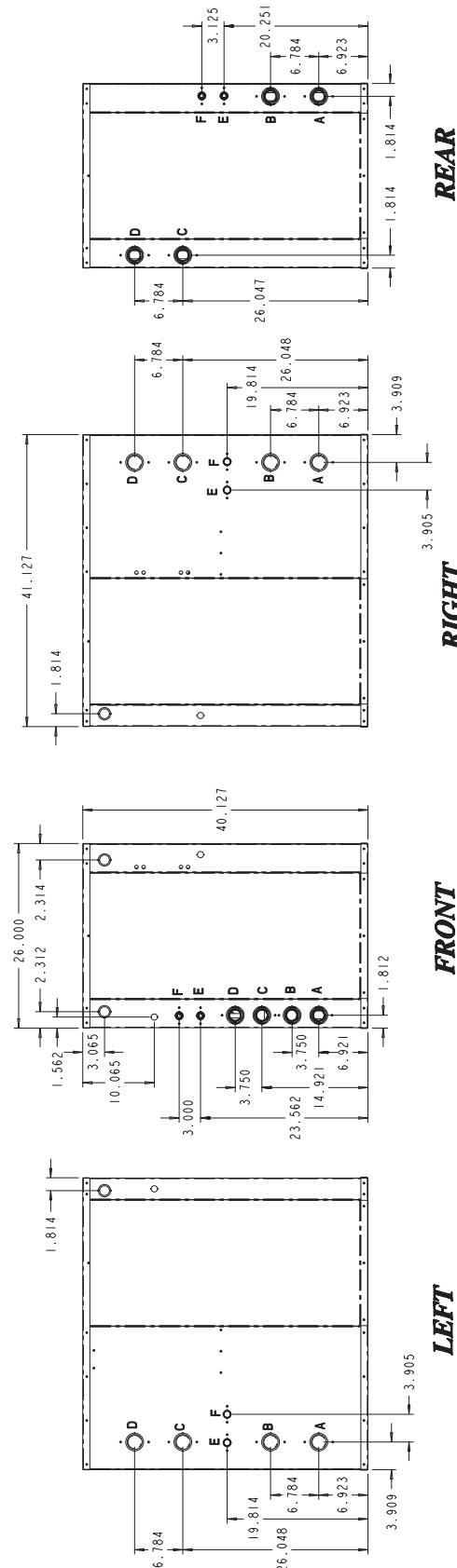
FRONT-RIGHT



FRONT-LEFT



REAR-LEFT



WATER CONNECTION TABLE	A SOURCE WATER IN	B LOAD WATER OUT	C WATER IN	D LOAD WATER OUT	E HNG WATER IN	F HNG WATER OUT
CONNECTION SIZE	1 1/2 FPT	1 1/2 FPT	1 1/2 FPT	1 1/2 FPT	1 1/2 FPT	1 1/2 FPT

## Notes:

1. Front & Side access is preferred for service access. However, all components may be serviced from the front access panel if side access is not available.
2. While clear access to all removable panels is not required, installer should take care to comply with all building codes and allow adequate clearance for future field service.

**GSW Series Wiring Diagram Matrix**

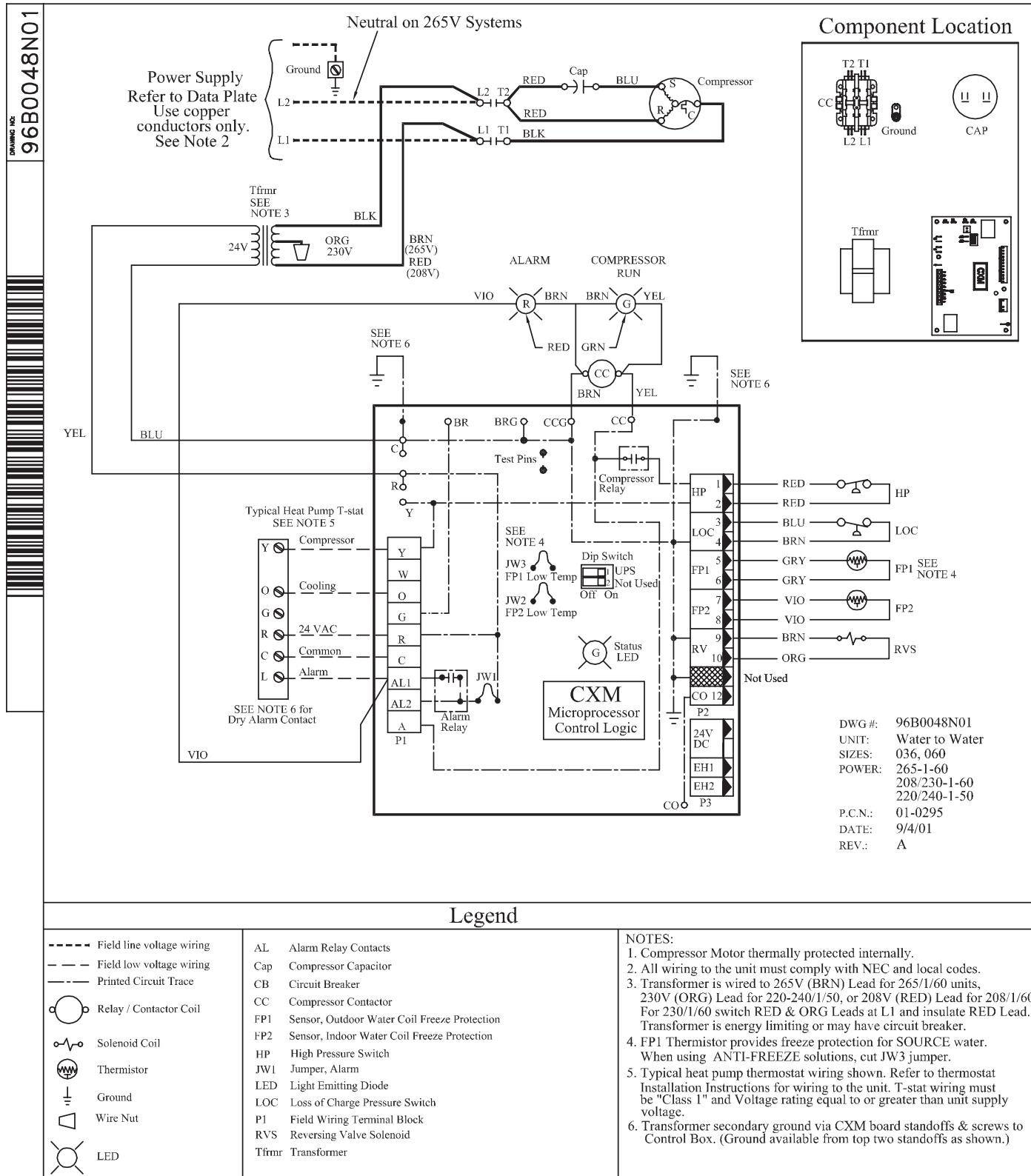
Only CXM and DXM diagrams, with a representative diagram of LON and MPC Options are presented in this submittal.  
Other diagrams can be located online at [www.climateMaster.com](http://www.climateMaster.com) using the part numbers presented below.

Model	Refrigerant	Wiring Diagram Part Number	Electrical	Control	DDC	Agency
GSW 036 - 060 Series Single Phase	R22 & R407C	96B0047N01	208-230/60/1, 265/60/1, 220-240/50/1	CXM	-	Residential
	R22 & R407C	96B0048N06			-	-
	R22 & R407C	96B0050N01			-	CE
	R22 & R407C	96B0050N03			-	CE HWG
	R22 & R407C	96B0048N02		DXM	-	-
	R22 & R407C	96B0050N02			-	CE
	R22 & R407C	96B0050N04				CE HWG
GSW 036 - 060 Series Three Phase	R22 & R407C	96B0049N01	208-230/60/3, 460/60/3, 575/60/3, 220-240/50/3, 380-420/50/3	CXM	-	-
	R22 & R407C	96B0051N01			-	CE
	R22 & R407C	96B0051N03			-	CE HWG
	R22 & R407C	96B0049N03			LON	-
	R22 & R407C	96B0049N02		DXM	-	-
	R22 & R407C	96B0051N02			-	CE
	R22 & R407C	96B0049N04			LON	-
GSW120 Series Single Phase	R22 & R407C	96B0085N01	208-230/60/1, 265/60/1, 220-240/50/1	CXM	-	-
	R22 & R407C	96B0085N02			LON	-
	R22 & R407C	96B0086N01		DXM	-	-
	R22 & R407C	96B0086N02			LON	-
GSW120 Series Three Phase	R22 & R407C	96B0087N01	208-230/60/3, 460/60/3, 575/60/3, 220-240/50/3, 380-420/50/3	CXM	-	-
	R22 & R407C	96B0089N01			-	CE
	R22 & R407C	96B0087N02			LON	-
	R22 & R407C	96B0089N02			LON	CE
	R22 & R407C	96B0088N01		DXM	-	-
	R22 & R407C	96B0089N03			-	CE
	R22 & R407C	96B0088N02			LON	-
	R22 & R407C	96B0089N04			LON	CE

All wiring diagrams available at [www.climateMaster.com](http://www.climateMaster.com). R407C submittals will only contain CE Mark wiring diagrams

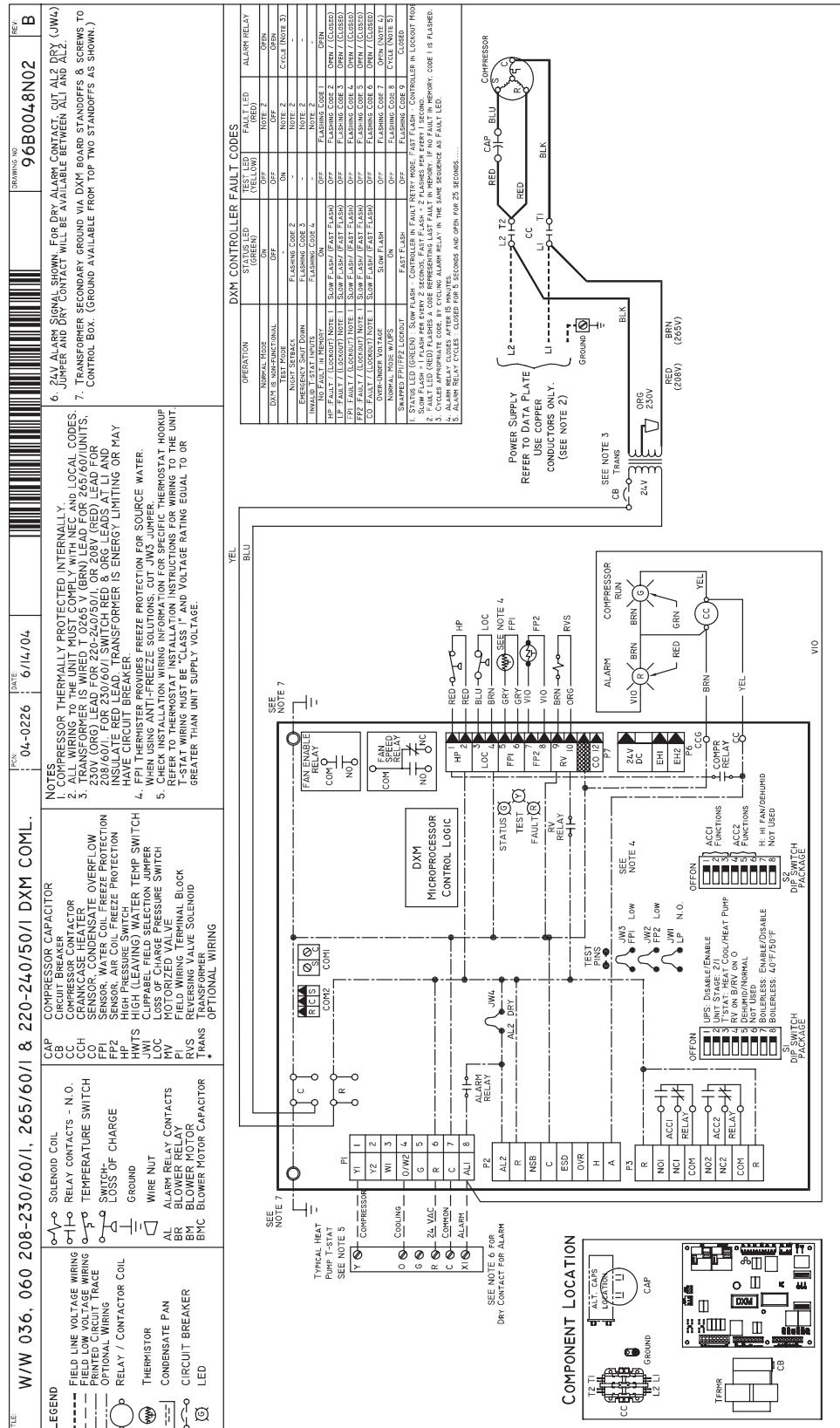
## Typical Wiring Diagram

### Single Phase 208-265V GSW036 & 060 Units With CXM Controller



## Typical Wiring Diagram

### Single Phase 208-265V GSW036 & 060 Units With CXM Controller

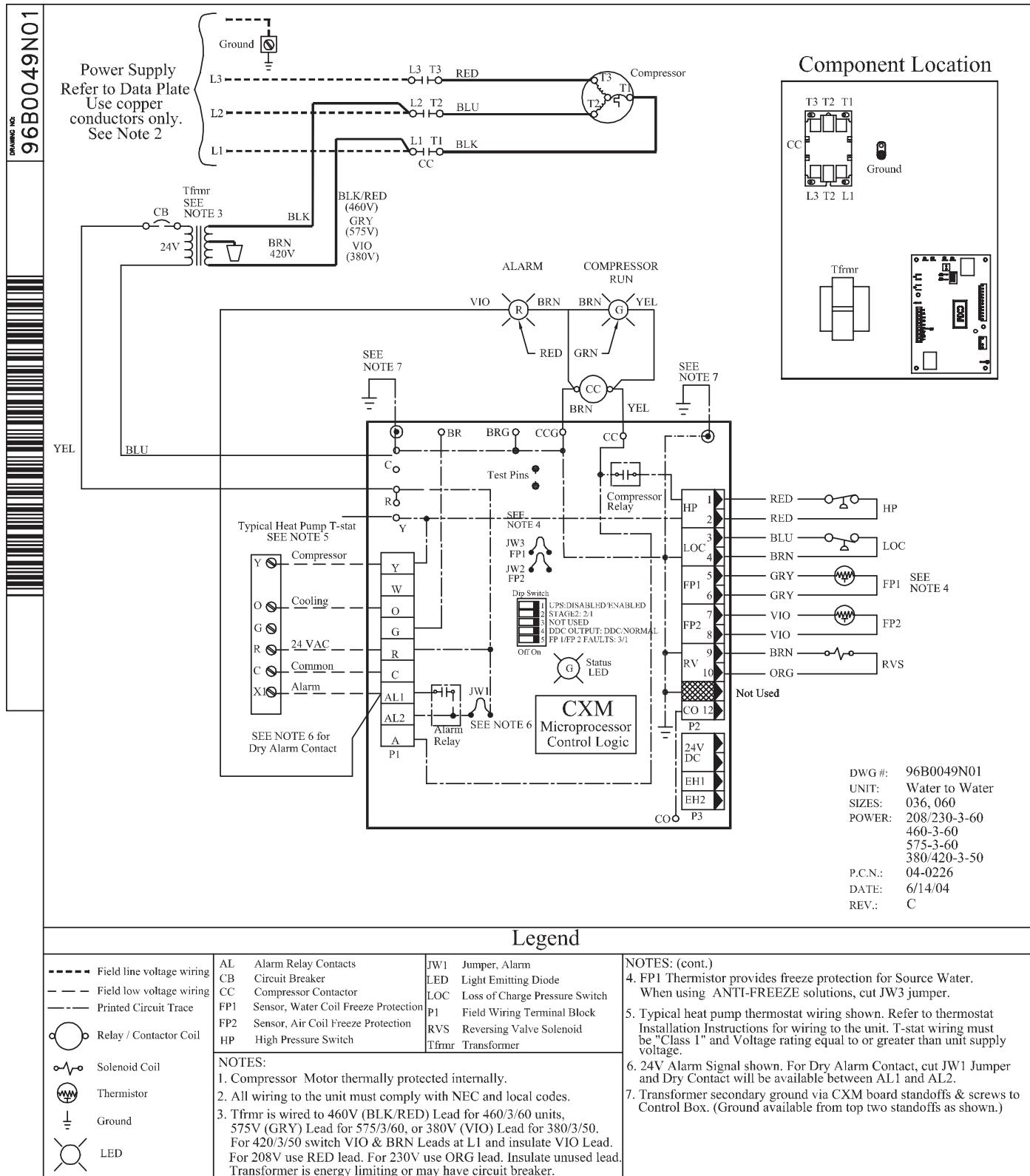


## Genesis Water-to-Water (GSW) Series

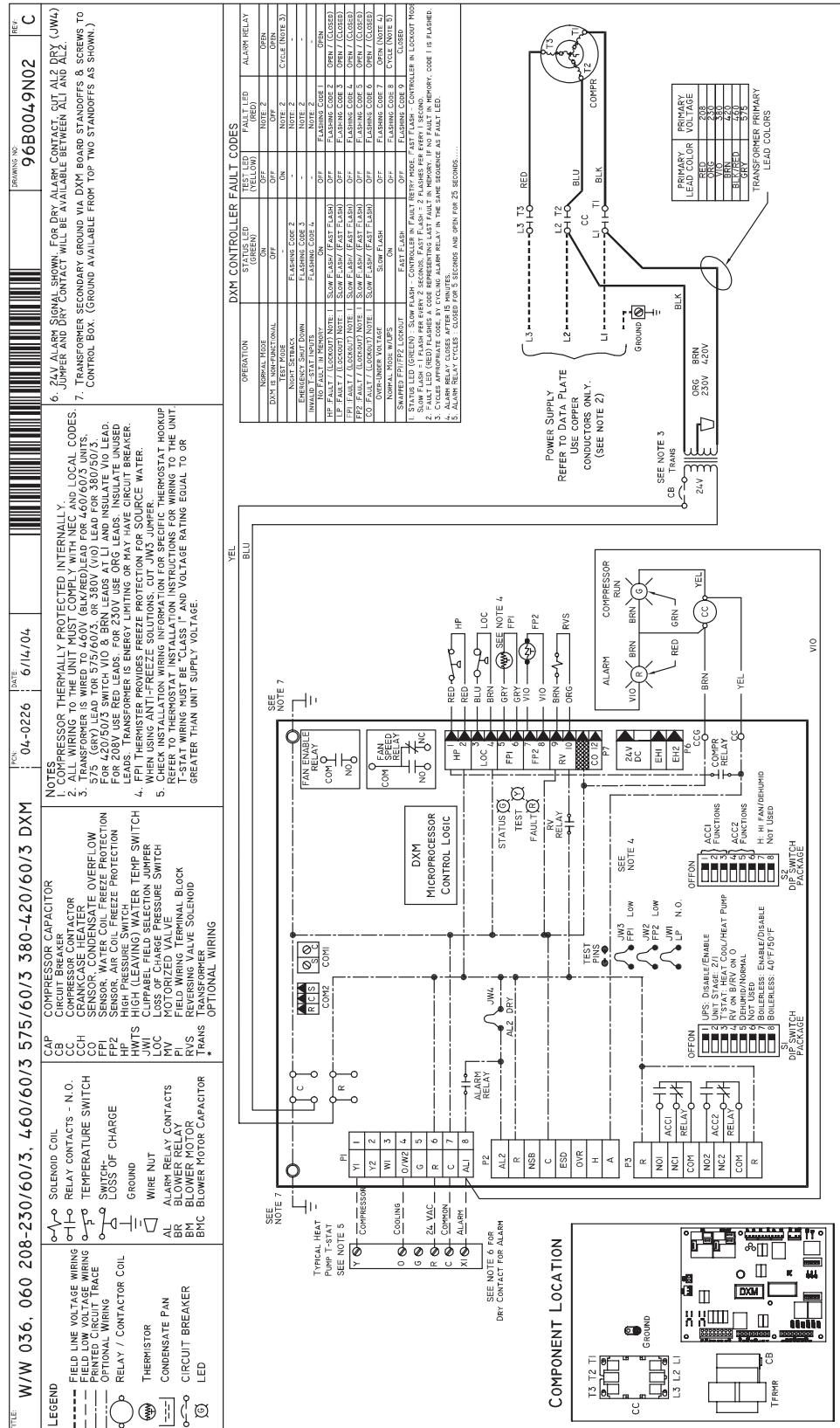
Rev.: 05/23/07D

## Typical Wiring Diagram

### Three Phase 208-575V GSW036 & 060 Units With CXM Controller

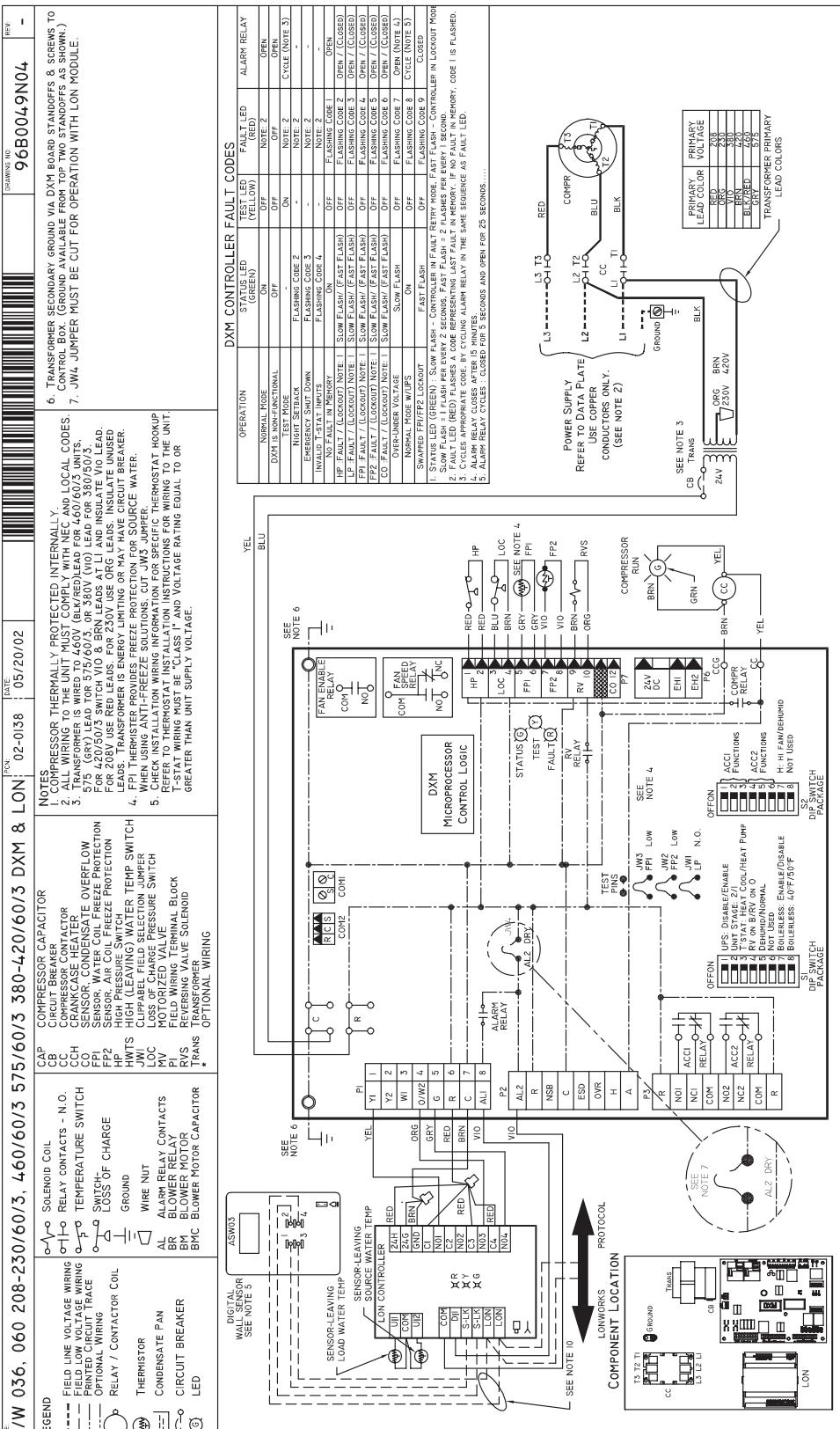


## Typical Wiring Diagram Three Phase 208-575V GSW036 & 060 Units With DXM Controller



## **Typical Wiring Diagram Three Phase 208-575V GSW036 & 060 Units With CXM & LON Controller**

# Typical Wiring Diagram Three Phase 208-575V GSW036 & 060 Units With DXM & LON Controller

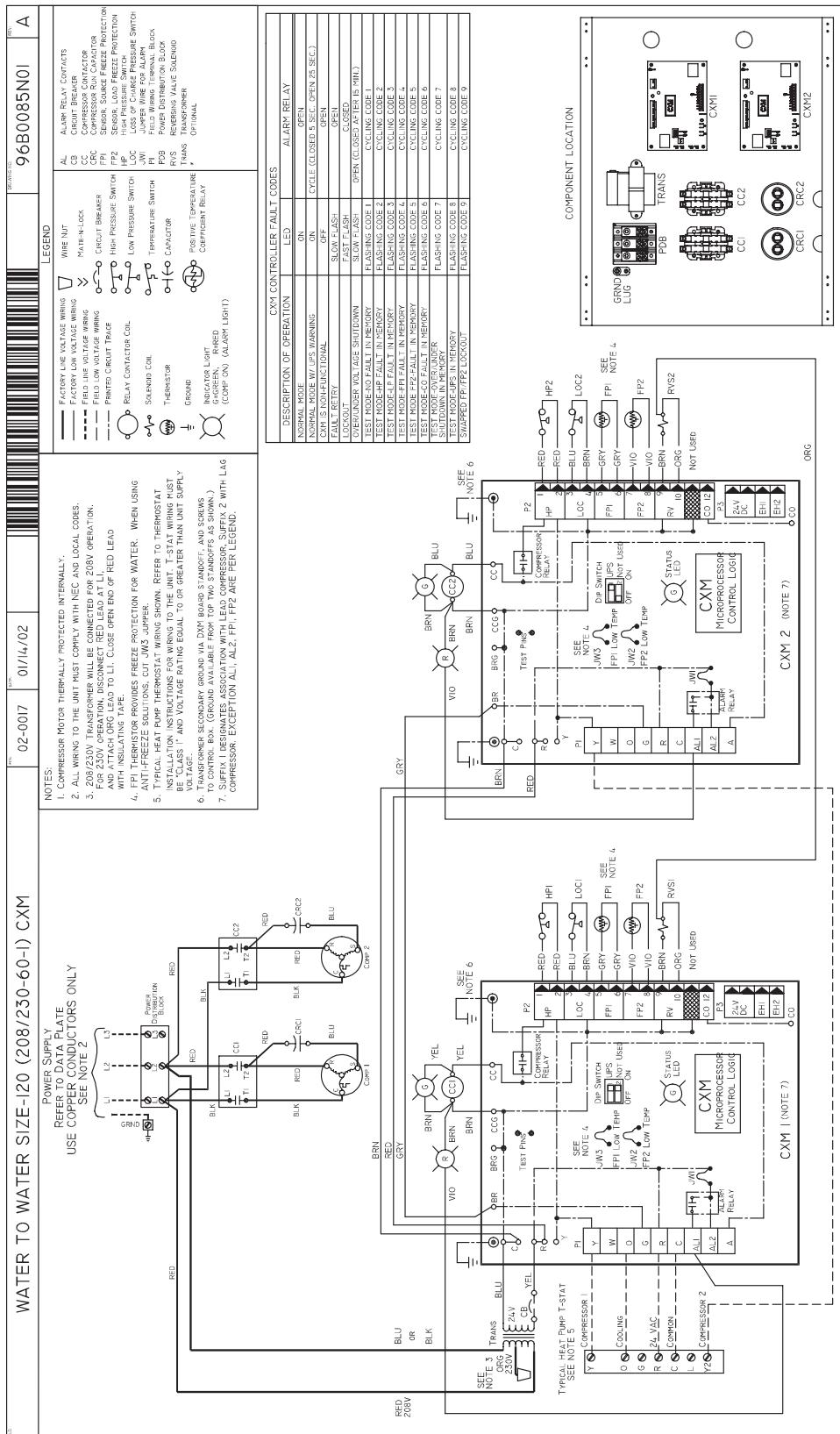


# CLIMATEMASTER WATER-SOURCE HEAT PUMPS

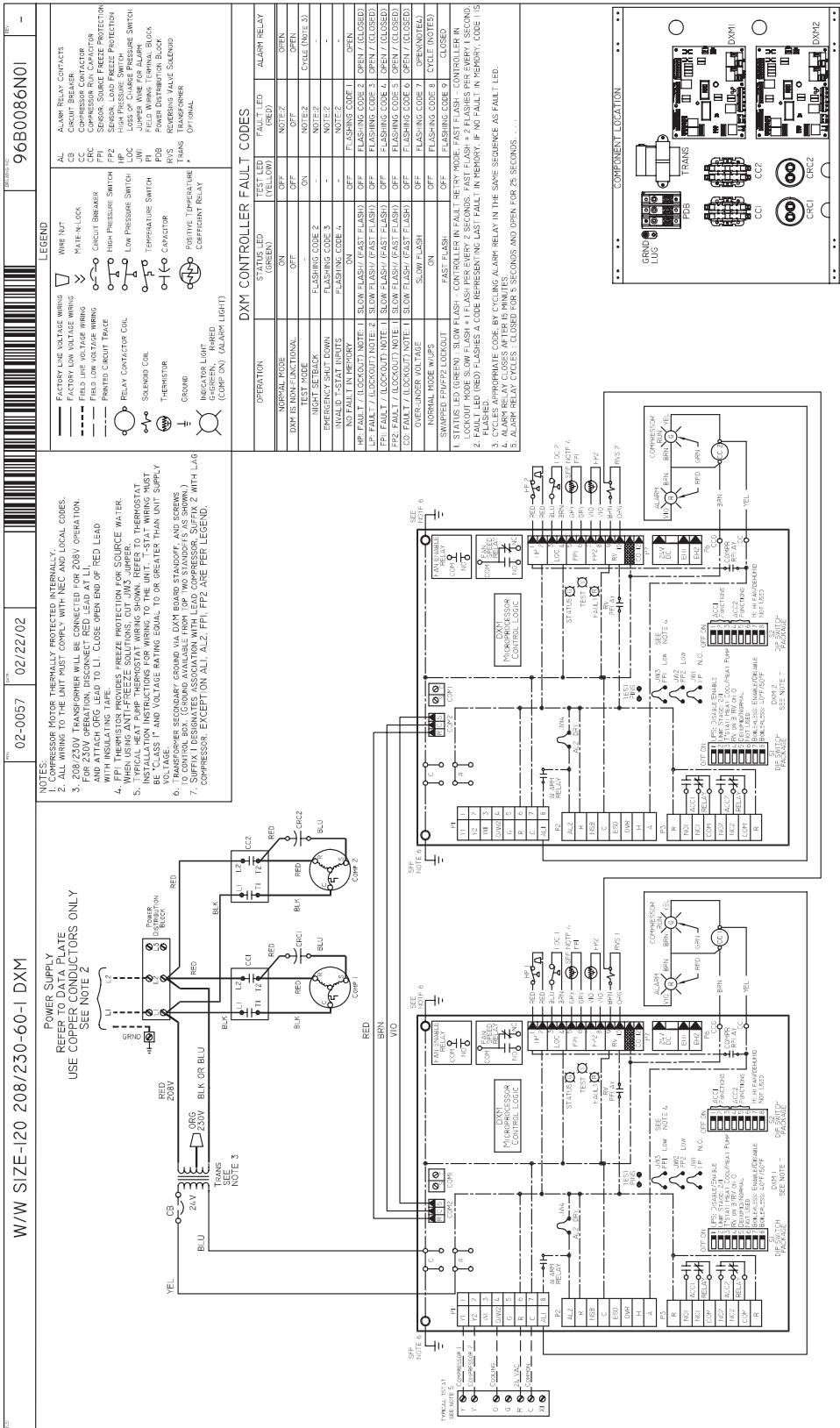
Genesis Water-to-Water (GSW) Series  
Rev.: 05/23/07D

Rev.: 05/23/07 D

## Typical Wiring Diagram Single Phase 208-265V GSW120 Units With CXM Controller



# Typical Wiring Diagram Single Phase 208-265V GSW120 Units With DXM Controller

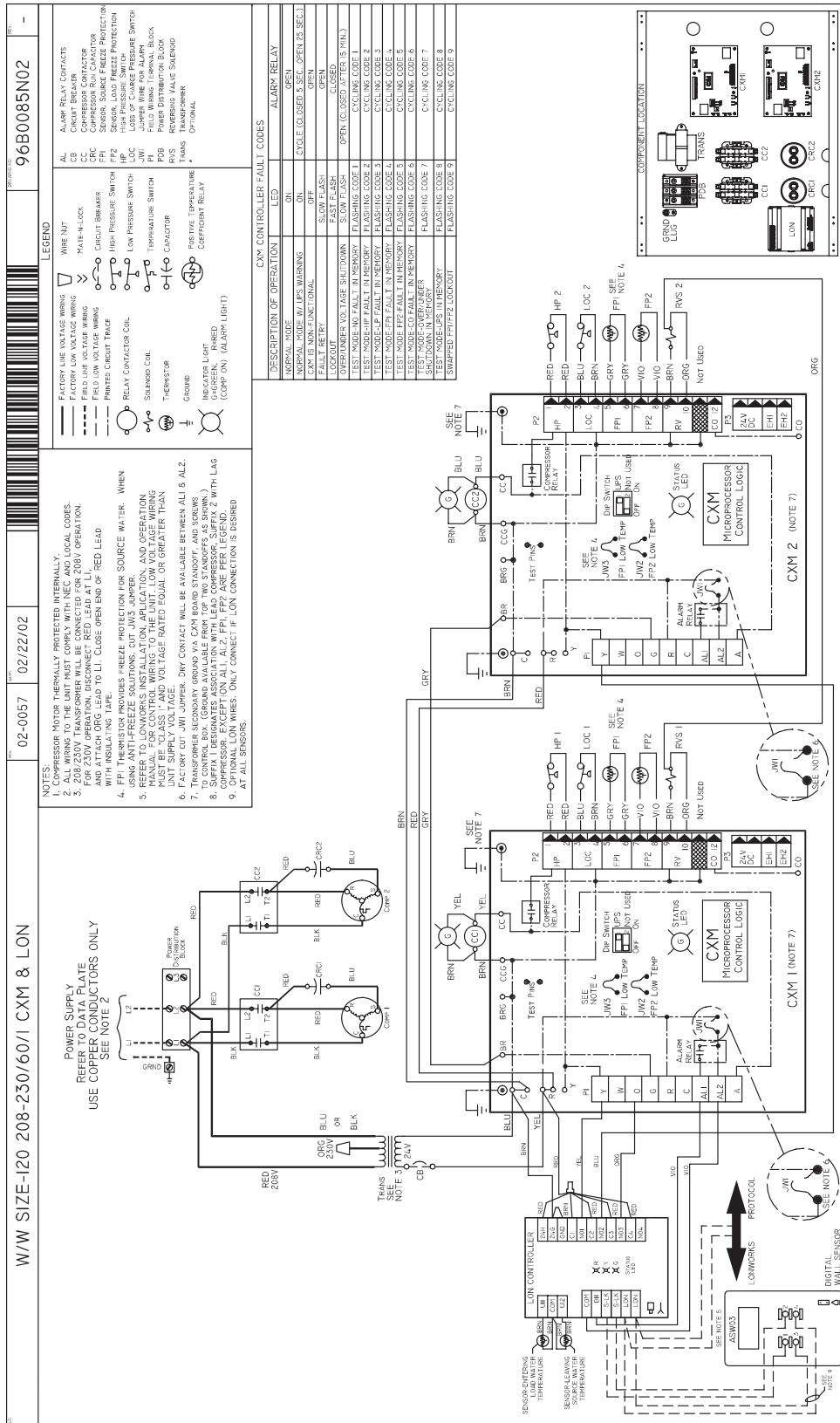


# CLIMATEMASTER WATER-SOURCE HEAT PUMPS

Genesis Water-to-Water (GSW) Series  
Rev.: 05/23/07D

Rev.: 05/23/07 D

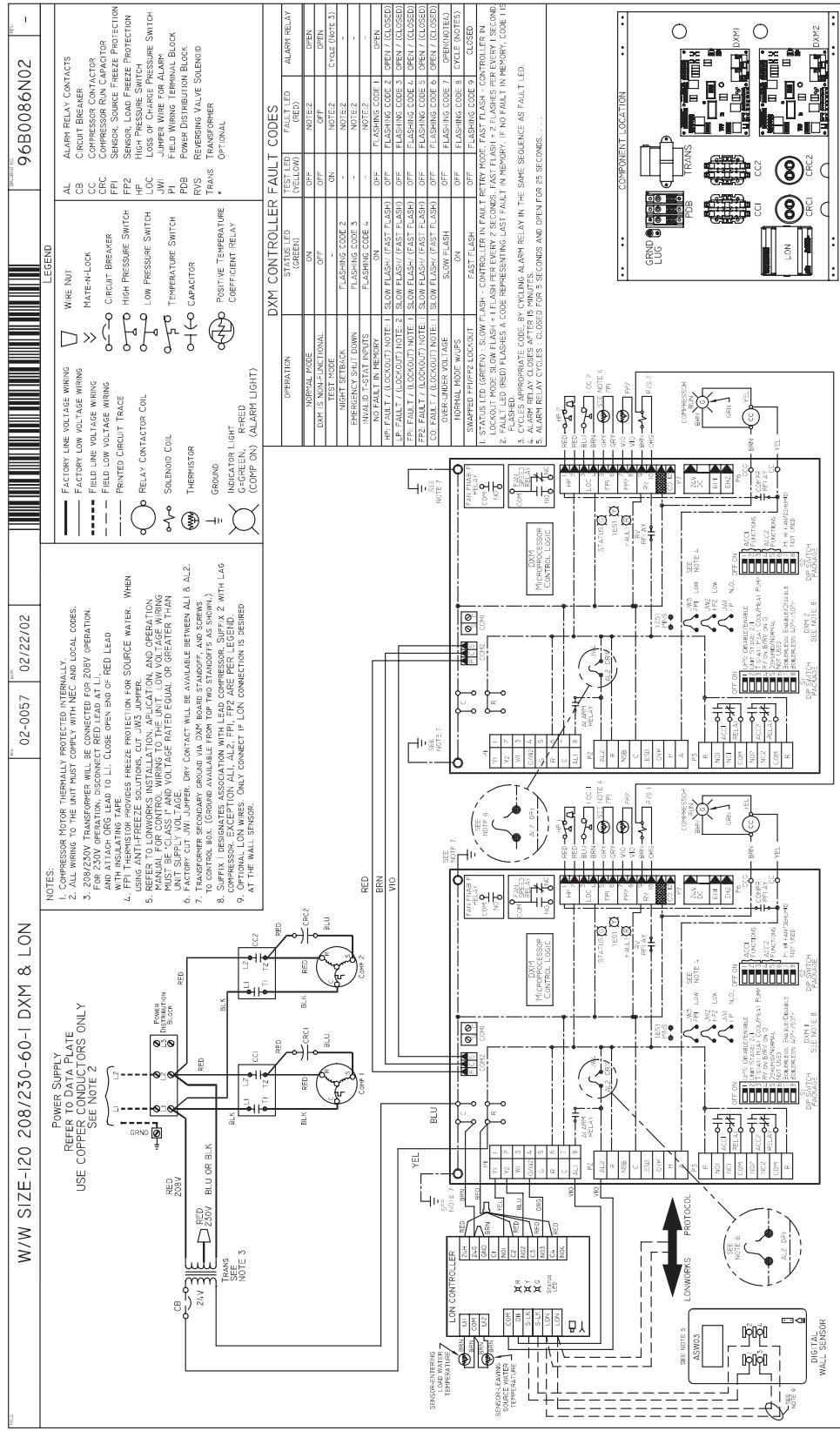
## **Typical Wiring Diagram Single Phase 208-265V GSW120 Units With CXM & LON Controller**



# Typical Wiring Diagram

## Single Phase 208-265V GSW120 Units

### With DXM & LON Controller

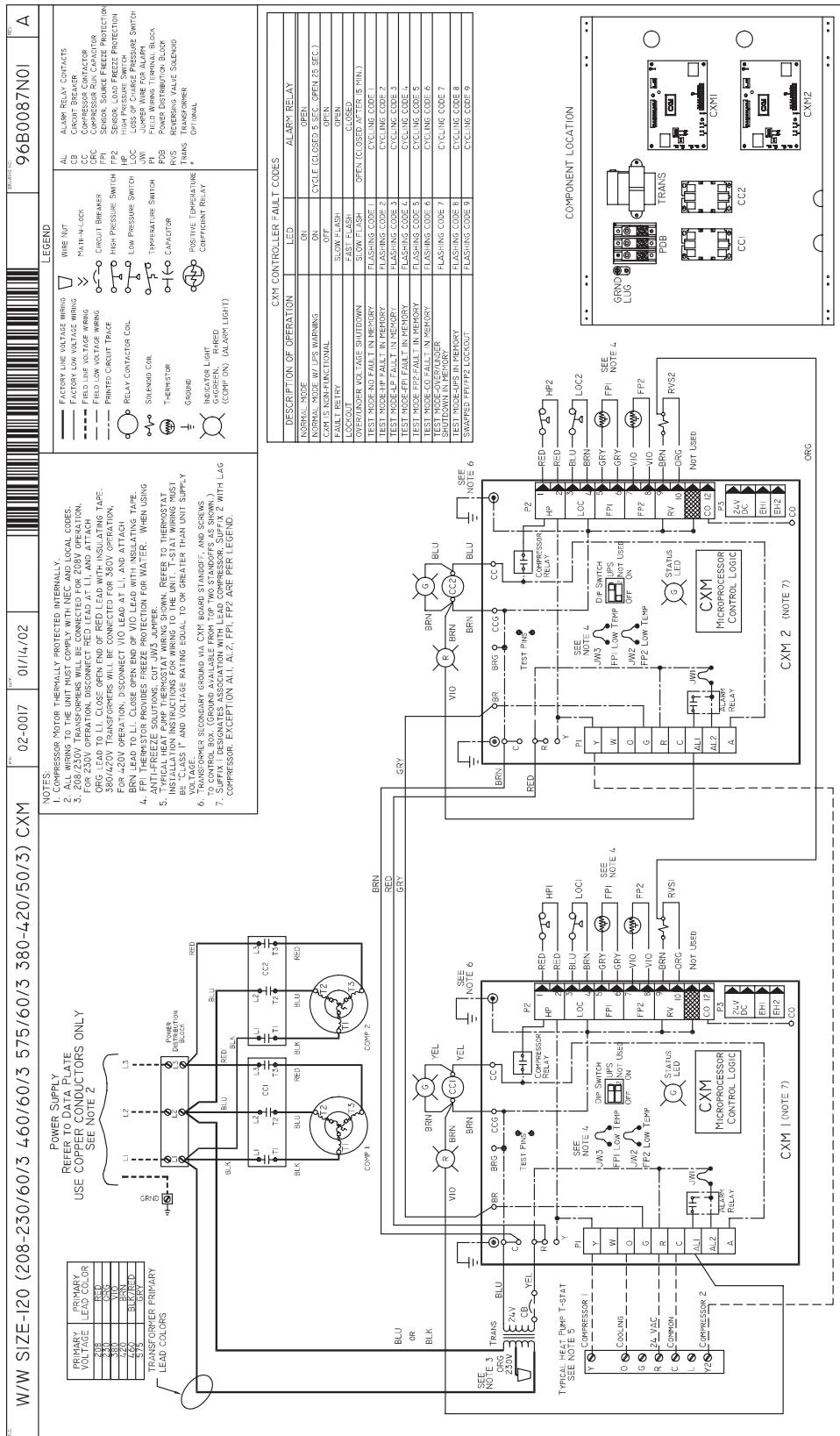


# CLIMATEMASTER WATER-SOURCE HEAT PUMPS

Genesis Water-to-Water (GSW) Series  
Rev.: 05/23/07D

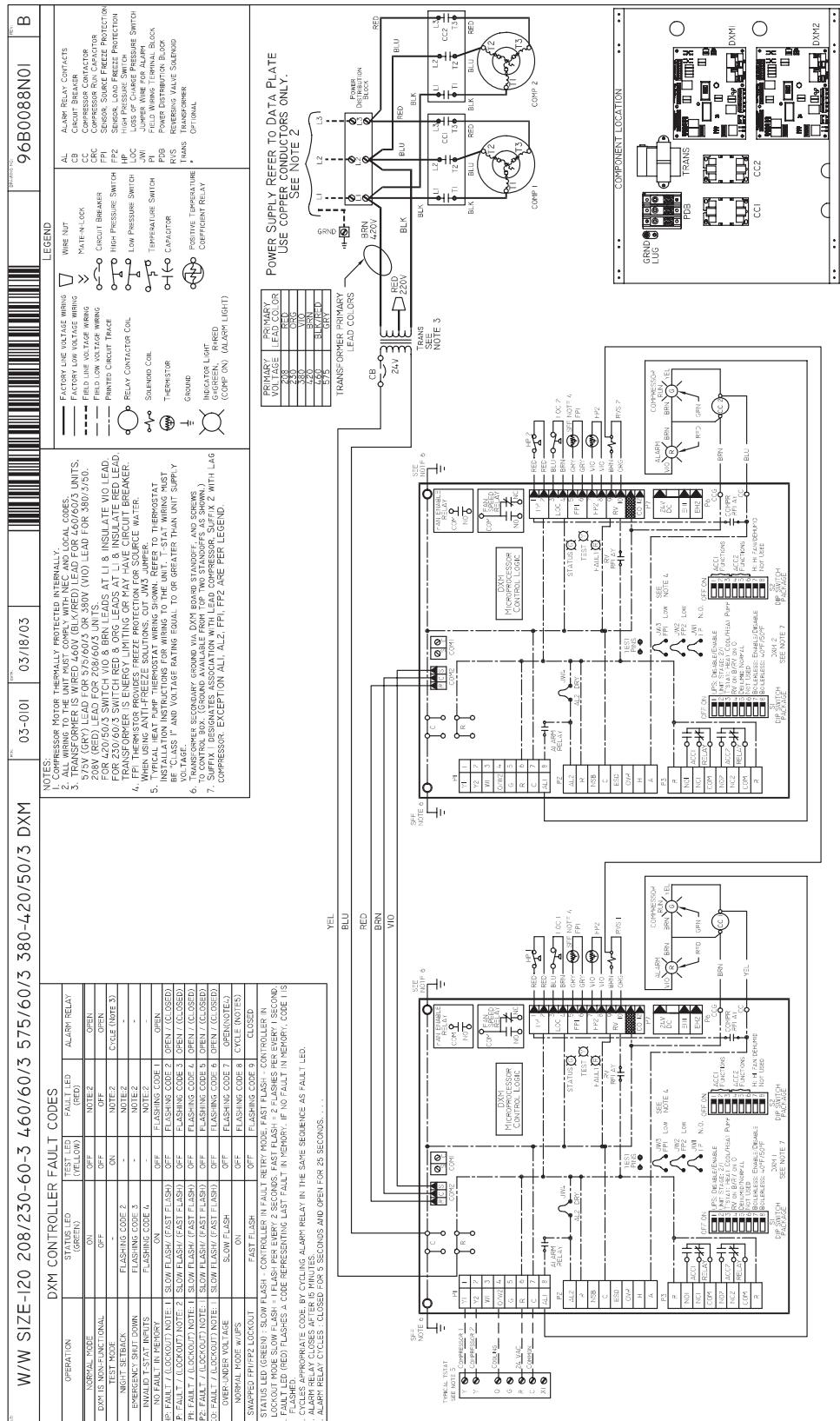
Rev.: 05/23/07 D

## **Typical Wiring Diagram Three Phase 208-575V GSW120 Units With CXM Controller**



# Typical Wiring Diagram

## Three Phase 208-575V GSW120 Units With DXM Controller



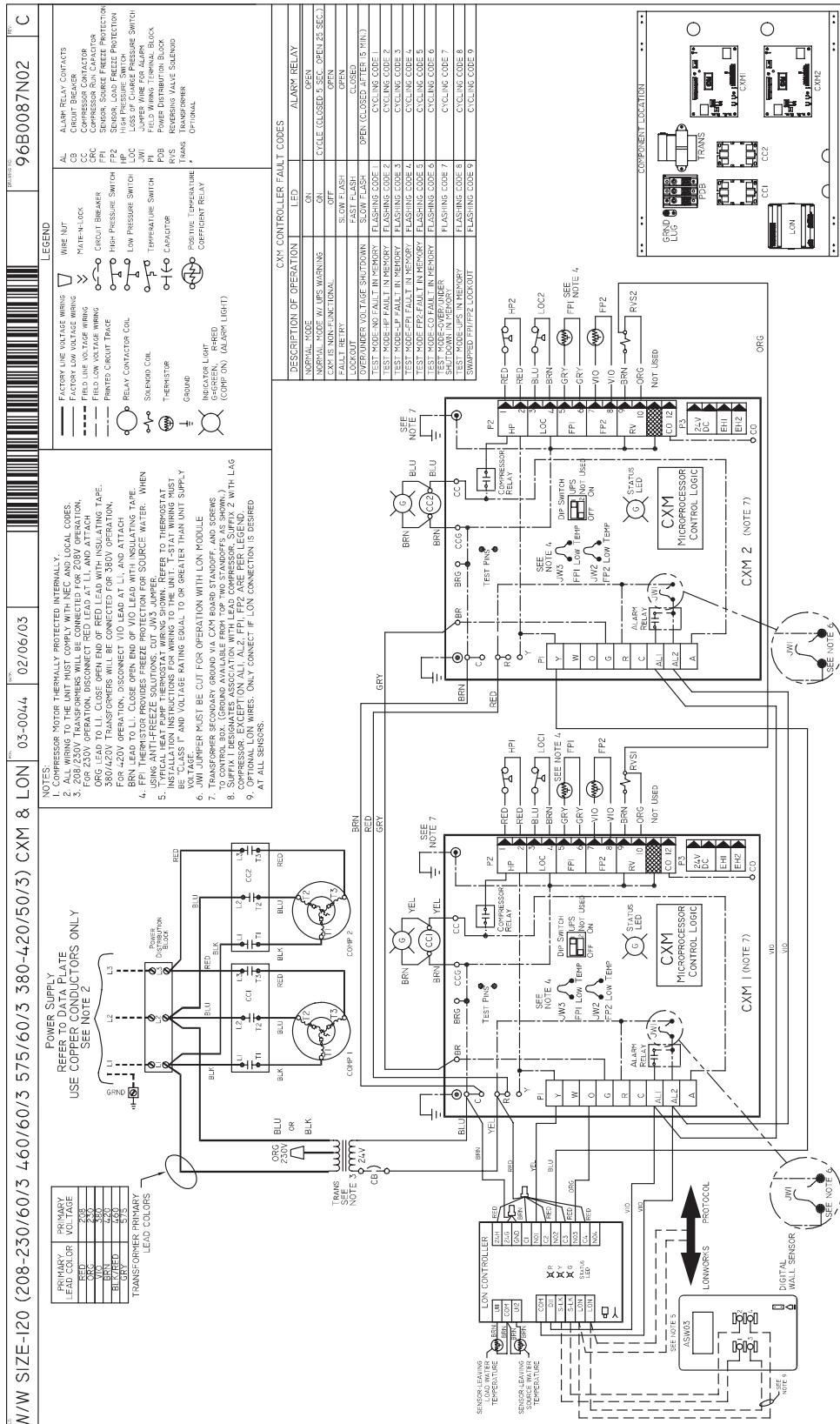
# CLIMATEMASTER WATER-SOURCE HEAT PUMPS

Genesis Water-to-Water (GSW) Series  
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## Typical Wiring Diagram

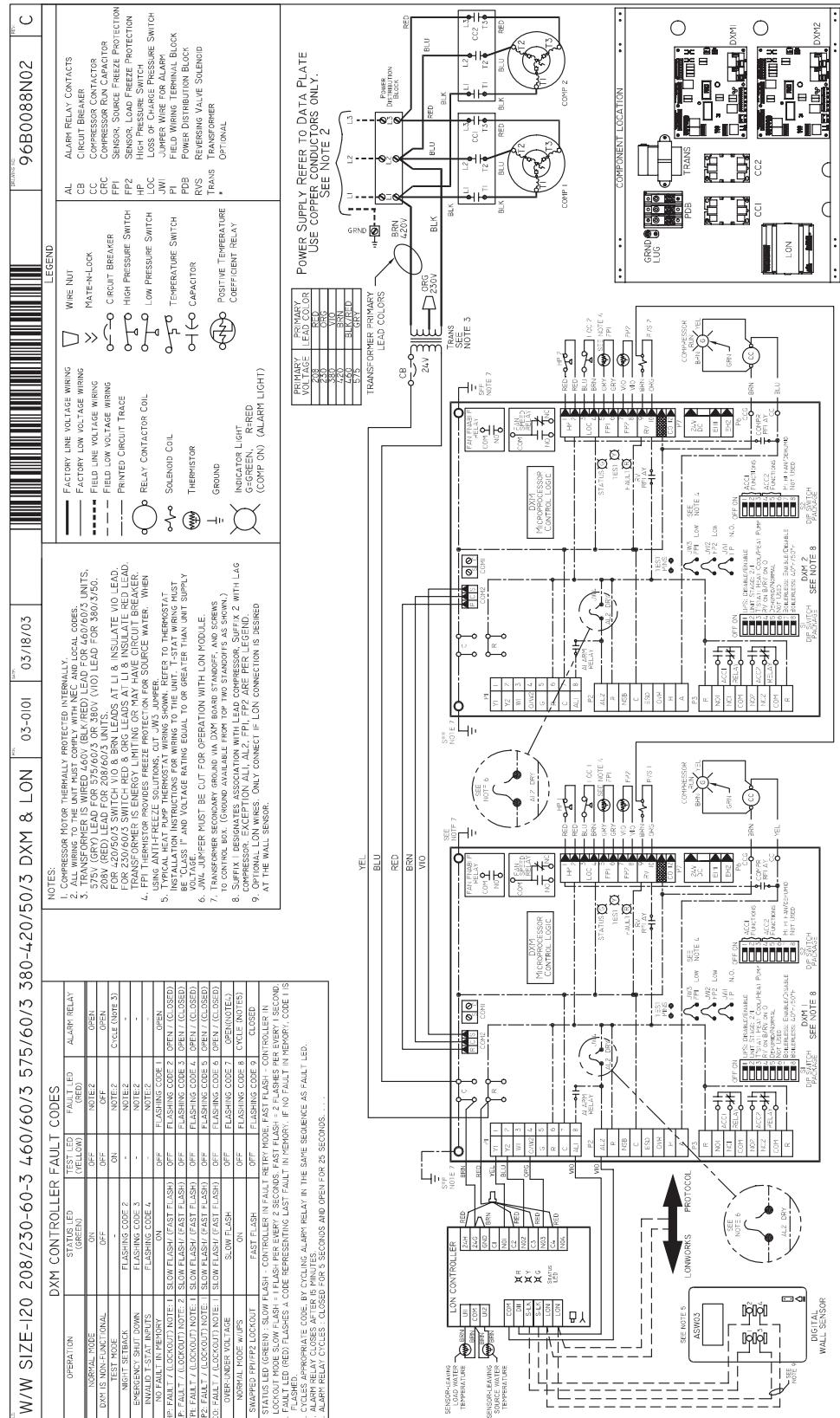
## **Three Phase 208-575V GSW120 Units With CXM & LON Controller**



# Typical Wiring Diagram

## Three Phase 208-575V GSW120 Units

### With DXM & LON Controller



## **Genesis Water-to-Water (GSW) Series 60Hz**

### **Engineering Specifications Rev.: 04/02/07**

#### **General:**

Furnish and install ClimateMaster "Genesis" Water Source Heat Pumps, as indicated on the plans. Equipment shall be completely assembled, piped and internally wired. Capacities and characteristics as listed in the schedule and the specifications that follow.

#### **Water-to-Water Heat Pumps:**

Units shall be supplied completely factory built for an entering source water temperature range from 20° to 110°F (-6.7° to 43.3°C) and entering (heating) load water temperature range from 60° to 120°F (15.6° to 48.9°C) or entering (cooling) load water temperature range of 50° to 90°F (10.0° to 32.2°C) as standard. Equivalent units from other manufacturers can be proposed provided approval to bid is given 10 days prior to bid closing. All equipment listed in this section must be rated in accordance with American Refrigeration Institute / International Standards Organization (ARI / ISO) and Environmental Testing Laboratories for United States and Canada (ETL-US-C). The units shall have ARI / ISO and ETL-US-C labels. All units shall be fully quality tested by factory run testing under normal operating conditions and water flow rates as described herein. Quality control system shall automatically perform via computer: triple leak check, pressure tests, evacuate and accurately charge system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail data base. Detailed report card will ship with each unit displaying all test performance data. Note: If unit fails on any cross check, system shall not be allowed unit to ship. Serial numbers will be recorded by factory and furnished to contractor on report card for ease of unit warranty status.

**Units tested without water flow are not acceptable.**

#### **Basic Construction:**

All units must have a minimum of three access panels for serviceability of compressor compartment. **Units having only one access panel to compressor shall not be acceptable.**

The heat pumps shall be fabricated from heavy gauge galvanized steel with powder coat paint finish. The color will be Polar Ice. Both sides of the steel shall be painted for added protection. All interior surfaces shall be lined with 1/2 inch (12.7mm) thick, dual density, 1-3/4 lb/ft<sup>3</sup> (28 kg/m<sup>3</sup>) acoustic type glass fiber insulation. Insulation placement shall be designed in a manner that will eliminate any exposed edges.

Standard cabinet panel insulation must meet NFPA 90A requirements, air erosion and mold growth limits of UL-181, stringent fungal resistance test per ASTM-C1071 and ASTM G21, and shall meet zero level bacteria growth per ASTM G22. **Unit insulation must meet these stringent requirements or unit(s) will not be accepted.**

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 IPT fittings, and shall be securely mounted flush to the cabinet corner post allowing for connection to a flexible hose without the use of a back-up wrench. Water connections that protrude through the cabinet or require the use of a backup wrench shall not be allowed. All water connections and electrical knockouts must be in the compressor compartment corner post as to not interfere with the serviceability of unit. **Contractor shall be responsible for any extra costs involved in the installation of units that do not have this feature.** Contractor must ensure that units can be easily removed for servicing and coordinate locations of electrical conduit and lights with the electrical contractor.

Unit(s) shall have exterior indicator lights showing, 1) compressor operation (on/off) and 2) unit "fault" status. Contractor shall be responsible for providing control circuitry and indicator lights for units not providing this feature.

*Option: UltraQuiet package shall consist of high technology sound attenuating material that is strategically applied to the compressor compartment in addition to the standard ClimaQuiet system design, to further dampen and attenuate sound transmissions.*

*Option: The unit will be supplied with cupro nickel coaxial water to refrigerant heat exchanger (specify source and/or load heat exchanger).*

*Option: The unit will be supplied with a double wall, vented water to refrigerant load coil.*

*Option: The unit shall be supplied with extended range Insulation option, which adds closed cell insulation to internal water lines, and provides insulation on suction side refrigeration tubing including refrigerant to water heat exchanger.*

*Option: The unit shall be supplied with a hot water generator (desuperheater).*

**Refrigerant Circuit:**

Units shall have a sealed refrigerant circuit including a high efficiency scroll compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, a reversing valve, coaxial (tube in tube) refrigerant to water heat exchangers, and safety controls including a high pressure switch, low pressure switch (loss of charge), and low water temperature sensors. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service. GSW120 units shall have 2 independent refrigeration circuits. Activation of any safety device shall prevent compressor operation via a microprocessor lockout circuit.

Hermetic compressors shall be internally sprung. The compressor(s) shall have a dual level vibration isolation system. The compressor(s) will be mounted on computer selected vibration isolation springs to a large heavy gauge compressor mounting tray plate, which is then isolated from the cabinet base with rubber grommets for maximized vibration attenuation. Compressor shall have thermal overload protection.

Refrigerant to water heat exchangers shall be of copper inner water tube and steel refrigerant outer tube design, rated to withstand 450 PSIG (3101 kPa) working refrigerant pressure and 450 PSIG (3101 kPa) working water pressure. The refrigerant to water heat exchanger shall be "electro-coated" with a low cure cathodic epoxy material a minimum of 0.4 mils thick (0.4 – 1.5 mils range) on all surfaces. The black colored coating shall provide a minimum of 1000 hours salt spray protection per ASTM B117-97 on all external steel and copper tubing. The material shall be formulated without the inclusion of any heavy metals and shall exhibit a pencil hardness of 2H (ASTM D3363-92A), crosshatch adhesion of 4B-5B (ASTM D3359-95), and impact resistance of 160 in-lbs (184 kg-cm) direct (ASTM D2794-93). **Plate to plate heat exchangers are not acceptable.**

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. Units shall be designed and tested for operating ranges of entering water temperatures from 20° to 110°F (-6.7° to 43.3°C). Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function.

**Electrical:**

A control box shall be located within the unit compressor compartment and shall contain a 50VA transformer, 24 volt activated, 2 or 3 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation. 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. Two compressor units shall have a solid-state time delay relay and random start to prevent both compressors from starting simultaneously.

**Solid State Control System (CXM):**

Units shall have a solid-state control system. **Units utilizing electro-mechanical control shall not be acceptable.** 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 thermostat. The control system shall have the following features:

- a. Anti-short cycle time delay on compressor operation.
- b. Random start on power up mode.
- c. Low voltage protection.
- d. High voltage protection.
- e. Unit shutdown on high or low refrigerant pressures.
- f. Unit shutdown on low water temperature.
- g. Option to reset unit at thermostat or disconnect.
- h. Automatic intelligent reset. Unit shall automatically reset the unit 5 minutes after trip if the fault has cleared. If a fault occurs 3 times sequentially without thermostat meeting temperature, then lockout requiring manual reset will occur.
- i. Ability to defeat time delays for servicing.
- j. Light emitting diode (LED) on circuit board to indicate high pressure, low pressure, low voltage, high voltage, freeze protection, condensate overflow, and control voltage status.
- k. The low-pressure switch shall not be monitored for the first 120 seconds after a compressor start command to prevent nuisance safety trips.
- l. 24V output to cycle a motorized water valve or other device with compressor contactor.
- m. Unit Performance Sentinel (UPS). The UPS warns when the heat pump is running inefficiently.
- n. Source water coil low temperature sensing (selectable for water or anti-freeze).
- o. Load water coil low temperature sensing.

**NOTE: Units not providing the 7 safety protections of anti-short cycle, low voltage, high voltage, high refrigerant pressure, low pressure (loss of charge), source water coil low water temperature sensing and load water coil low water temperature sensing will not be accepted.**

**Option: Enhanced solid state control system (DXM)**

Control shall have all of the above mentioned features of the CXM control system along with the following expanded features:

- a. Removable thermostat connector.
- b. Minimized reversing valve operation (Unit control logic shall only switch the reversing valve when cooling is demanded for the first time. The reversing valve shall be held in this position until the first call for heating, ensuring quiet operation and increased valve life.).
- c. Ability to work with heat pump or heat/cool (Y, W) type controls.
- d. Ability to work with controls using O or B reversing valve control.
- e. Emergency shutdown contacts.
- f. Relay to operate an external damper.
- g. Relay to start system pump.
- h. 75 VA control transformer. Control transformer shall have load side short circuit and overload protection via a built in circuit breaker.

**Option: Lonworks interface system**

Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a LONWORKS interface board, which is LONMark certified. This will permit all units to be daisy chained via a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

- a. Source leaving water temperature
- b. Load leaving water temperature
- c. Command of temperature setpoint
- d. Cooling status
- e. Heating status
- f. Low temperature sensor alarm
- g. Low pressure sensor alarm
- h. High pressure switch alarm
- i. Hi/low voltage alarm
- j. Unoccupied / occupied command
- k. Cooling command
- l. Heating command
- m. Fault reset command
- n. Itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

**Option: MPC (Multiple Protocol Control) interface system**

Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a Multiple Protocol interface board. Available protocols are BACnet MS/TP, Modbus, or Johnson Controls N2. The choice of protocol shall be field selectable/changeable via the use of a simple selector switch. Protocol selection shall not require any additional programming or special external hardware or software tools. This will permit all units to be daisy chain connected by a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:

- a. Source leaving water temperature
- b. Load leaving water temperature
- c. Command of space temperature setpoint
- d. Cooling status
- e. Heating status
- f. Low temperature sensor alarm
- g. Low pressure sensor alarm
- h. High pressure switch alarm
- i. Hi/low voltage alarm
- j. Unoccupied / occupied command
- k. Cooling command
- l. Heating command
- m. Fault reset command
- n. Itemized fault code revealing reason for specific shutdown fault (any one of 7)

This option also provides the upgraded 75VA control transformer with load side short circuit and overload protection via a built in circuit breaker.

**Warranty:**

Climate Master shall warranty equipment for a period of 12 months from start up or 18 months from shipping (which ever occurs first).

*Option: Extended 4-year compressor warranty covers compressor for a total of 5 years.*

*Option: Extended 4-year refrigeration circuit warranty covers coils, reversing valve, expansion valve and compressor for a total of 5 years.*

*Option: Extended 4-year control board warranty covers the CXM/DXM control board for a total of 5 years.*

**FIELD INSTALLED OPTIONS****Hose Kits:**

All units 120000 (35 kW) BTUH and below shall be connected with hoses. The hoses shall be 2 feet (61cm) long, braided stainless steel; fire rated hoses complete with adapters. Only fire rated hoses will be accepted.

**Valves:**

The following valves are available and will be shipped loose:

- a. Ball valve; bronze material, standard port full flow design, IPT connections.
- b. Ball valve with memory stop and PT Port; standard port full flow design, IPT connections.
- c. "Y" strainer with cap; bronze material, IPT connections.
- d. "Y" strainer with blowdown valve; bronze material, IPT connections.
- e. Motorized water valve; slow acting, 24v, IPT connections.

**Hose Kit Assemblies:**

The following assemblies ship with the valves already assembled to the hose described:

- a. Supply and return hoses having ball valve with PT port.
- b. Supply hose having ball valve with PT port; return hose having automatic flow regulator valve (Measureflo) with PT ports, and ball valve.
- c. Supply hose having "Y" strainer with blowdown valve, and ball valve with PT port; return hose having automatic flow regulator (Measureflo) with PT ports, and ball valve.

## Section Change Log

Date:	Item:	Action:
05/23/07	Specifications	Updated for new Safety Agency
02/08/07	Specifications	Updated
01/01/07	Wiring Diagrams	Added pressure switch for motorized valve option
01/01/07	Performance Data	Added low temperature selection notes
01/01/06	First Published	

THE SMART SOLUTION FOR ENERGY EFFICIENCY

Genesis Water-to-Water (GSW) Series

Rev.: 05/23/07D

**Notes:**

# CLIMATEMASTER WATER-SOURCE HEAT PUMPS

## Genesis Water-to-Water (GSW) Series

Rev.: 05/23/07D