



GENESIS COMPACT (GC) SERIES



SIZE 006 - 060 (1.76kW - 17.6kW)
HORIZONTAL & VERTICAL
R22 - 60Hz STANDARD RANGE



GENESIS COMPACT (GC) SERIES



R2S - 60Hz STANDARD RANGE
HORIZONTAL & VERTICAL
SIZE 006 - 060 (1.76kW - 17.6kW)

THE GENESIS COMPACT (GC) SERIES

Uniquely designed to be backwards compatible with hundreds of thousands of older water-source heat pumps, the Genesis Compact (GC) Series utilizes innovative ClimateMaster cabinet design solutions to meet ASHRAE 90.1 efficiencies, while maintaining one of the smallest cabinets in the industry. The Vertical GCV041 is designed to be a "drop-in" replacement unit for thousands of existing Condo / Apartment units.

The GC Series is designed specifically for boiler-tower applications where low first cost matters. Refrigerant circuits use trouble-free cap tube metering devices and reliable rotary, reciprocating or scroll compressors to create a full line of products to meet the varying needs of today's construction projects. Sizes from 1/2 ton (1.76 kW) through 5 tons (17.6 kW) and field convertible discharge options for horizontal units make the GC Series extremely flexible.

The GC Series features long-lasting galvanized steel for all models and polyester powder coat paint for vertical units. ClimateMaster's exclusive double isolation compressor mounting system and standard cabinet insulation make the GC Series exceptionally quiet.

Some manufacturers' compact cabinet designs offer limited features. The GC series includes many standard features and a number of options. Factory installed hanger brackets (Horizontal units only), microprocessor controls and torsion flex motor mounting (006-042) are standard features. Options such as e-coated air coils, ClimaDry modulating reheat and DDC controls allow customized design solutions. Optional high static motors help overcome some of the challenges associated with ductwork for retrofit installations.

The GC Series water-source heat pumps are designed to meet the challenges of today's HVAC demands with a low cost/high value solution.

UNIT FEATURES

- Sizes 006 (1/2 ton, 1.76 kW) through 060 (5 tons, 17.6 kW)
- Meets ASHRAE 90.1 efficiencies
- Compact cabinet design: Great for retrofit or tight spaces
- Galvanized steel construction (powder coat paint on vertical units)
- Unique double isolation compressor mounting for quiet operation
- Reliable rotary, reciprocating and scroll compressors
- Trouble-free cap tube refrigerant metering device
- Standard Range (60 to 95°F, [16 to 35°C]) operation
- Microprocessor controls standard (optional DXM and/or DDC controls)
- LonWorks, BACnet, Modbus and Johnson N2 compatibility options for DDC controls
- Field convertible discharge air arrangement for horizontal units
- High static blowers available
- Low cost/high value product specifically designed for standard range (boiler/tower) applications
- Wide variety of options including ClimaDry modulating reheat and e-coated air coils
- Seven Safeties Standard

Selection Procedure

Reference Calculations

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

Legend and Glossary of Abbreviations

BTUH = BTU(British Thermal Unit) per hour	HWC = hot water generator (desuperheater) capacity, Mbtuh
CFM = airflow, cubic feet/minute	IPT = internal pipe thread
COP = coefficient of performance = BTUH output/BTUH input	KW = total power unit input, kilowatts
DB = dry bulb temperature (°F)	LAT = leaving air temperature, °F
EAT = entering air temperature, Fahrenheit (dry bulb/wet bulb)	LC = latent cooling capacity, BTUH
EER = energy efficiency ratio = BTUH output/Watt input	LWT = leaving water temperature, °F
EPT = external pipe thread	MBTUH = 1000 BTU per hour
ESP = external static pressure (inches w.g.)	S/T = sensible to total cooling ratio
EWT = entering water temperature	SC = sensible cooling capacity, BTUH
GPM = water flow in U.S. gallons/minute	TC = total cooling capacity, BTUH
HE = total heat of extraction, BTUH	WB = wet bulb temperature (°F)
HC = air heating capacity, BTUH	WPD = waterside pressure drop (psi & ft. of hd.)
HR = total heat of rejection, BTUH	

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

Air Flow	Water Flow	Ext Static Pressure	Water Pressure Drop
Airflow (L/s) = CFM x 0.472	Water Flow (L/s) = gpm x 0.0631	ESP (Pa) = ESP (in of wg) x 249	PD (kPa) = PD (ft of hd) x 2.99

Selection Procedure

- Step 1 Determine the actual heating and cooling loads at the desired dry bulb and wet bulb conditions.
- Step 2 Obtain the following design parameters: Entering water temperature, water flow rate in GPM, air flow in CFM, water flow pressure drop and design wet and dry bulb temperatures. Air flow CFM should be between 300 and 450 CFM per ton. 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 Select a unit based on total and sensible cooling conditions. Select a unit which is closest to, but no larger than, the actual cooling load.
- Step 4 Enter tables at the design water flow and water temperature. Read the total and sensible cooling capacities (Note: interpolation is permissible, extrapolation is not).
- Step 5 Read the heating capacity. If it exceeds the design criteria it is acceptable. It is quite normal for Water-Source Heat Pumps to be selected on cooling capacity only since the heating output is usually greater than the cooling capacity.
- Step 6 Determine the correction factors associated with the variable factors of dry bulb and wet bulb (page 14).
- Corrected Total Cooling =
tabulated total cooling x wet bulb correction.
Corrected Sensible Cooling =
tabulated sensible cooling x wet/dry bulb correction.
- Step 7 Compare the corrected capacities to the load requirements. Normally if the capacities are within 10% of the loads, the equipment is acceptable. It is better to undersize than oversize, as undersizing improves humidity control, reduces sound levels and extends the life of the equipment.
- Step 8 When completed, calculate water temperature rise and assess the selection. If the units selected are not within 10% of the load calculations, then review what effect changing the GPM, water temperature and/or air flow and air temperature would have on the corrected capacities. If the desired capacity cannot be achieved, select the next larger or smaller unit and repeat the procedure. Remember, when in doubt, undersize slightly for best performance.

Example Equipment Selection For Cooling

Step 1 Load Determination:

Assume we have determined that the appropriate cooling load at the desired dry bulb 80°F and wet bulb 65°F conditions is as follows:

Total Cooling 22,100 BTUH
Sensible Cooling 16,500 BTUH
Entering Air Temp.... 80°F Dry Bulb / 65°F Wet Bulb

Step 2 Design Conditions:

Similarly, we have also obtained the following design parameters:

Entering Water Temp 90°F
Water Flow (Based upon 12°F rise in temp.) 4.5 GPM
Air Flow 700 CFM

Step 3, 4 & 5 HP Selection:

After making our preliminary selection (GCH024B), we enter the tables at design water flow and water temperature and read Total Cooling, Sens. Cooling and Heat of Rej. capacities:

Total Cooling 23,500 BTUH
Sensible Cooling 17,800 BTUH
Heat of Rejection 30,300 BTUH

Step 6 & 7 Entering Air and Airflow Corrections:

Next, we determine our correction factors.

	Table	Ent Air	Air Flow	Corrected
Corrected Total Cooling	=	23,500	x 0.964 x 0.987	= 22,359
Corrected Sens Cooling	=	17,800	x 1.076 x 0.949	= 18,176
Corrected Heat of Reject	=	30,300	x 0.971 x 0.985	= 28,980

Step 8 Water Temperature Rise Calculation & Assessment:

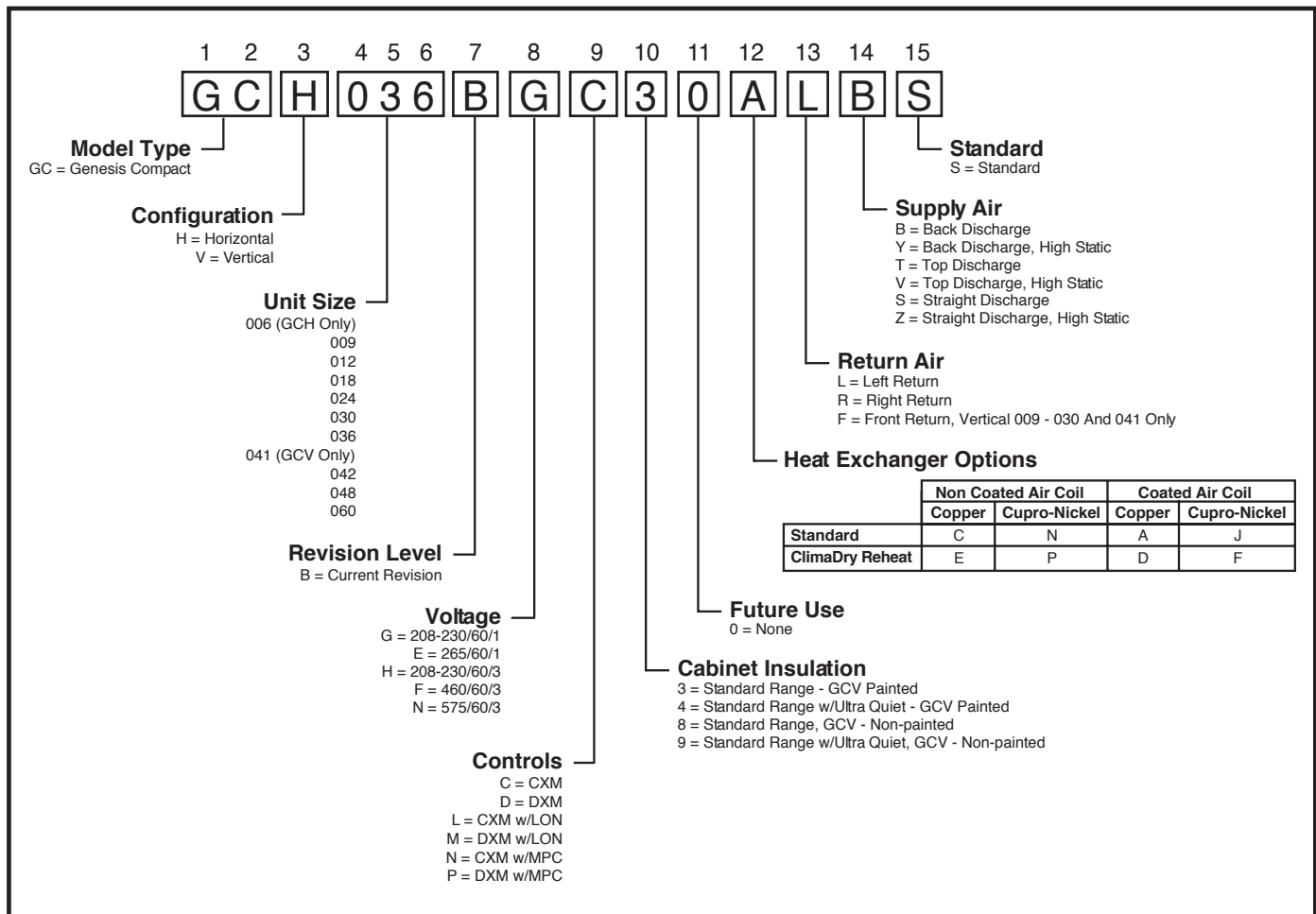
Actual Temperature Rise 12.9°F

When we compare the Corrected Total Cooling and Corrected Sensible Cooling figures with our load requirements stated in Step 1, we discover that our selection is within +/- 10% of our sensible load requirement. Furthermore, we see that our Corrected Total Cooling figure is within 259 Btuh of the actual indicated load.

Genesis Compact (GC) Series

Rev.: 05/23/07D

GC Series Nomenclature



Rev.: 06/14/06D

Performance Data
ASHRAE/ARI/ISO 13256-1

ASHRAE/ARI/ISO 13256-1. English (IP) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling 86°F		Heating 68°F		Cooling 59°F		Heating 50°F		Cooling 77°F		Heating 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
GCH006	6,400	12.5	8,300	4.2	Please see GR, GS, TT, or TS Series for extended range applications.				Please see GR, GS, TT, or TS Series for extended range applications.			
GCH/V009	8,300	12.7	10,800	4.3								
GCH/V012	11,500	12.7	14,300	4.2								
GCH/V018	18,200	12.3	22,000	4.2								
GCH/V024	23,800	13.0	27,800	4.6								
GCH/V030	28,000	12.2	33,500	4.4								
GCH/V036	35,000	12.0	45,500	4.2								
GCV041	37,700	12.0	47,500	4.2								
GCH/V042	41,000	12.0	52,600	4.2								
GCH/V048	47,100	12.2	58,200	4.4								
GCH/V060	58,000	12.0	76,800	4.2								

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

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

All air flow is rated on high speed

All ratings based upon operation at lower voltage of dual voltage rated models

ASHRAE/ARI/ISO 13256-1. Metric (SI) Units

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling 30°C		Heating 20°C		Cooling 15°C		Heating 10°C		Cooling 25°C		Heating 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
GCH006	1,876	3.7	2,433	4.2	Please see GR, GS, TT, or TS Series for extended range applications.				Please see GR, GS, TT, or TS Series for extended range applications.			
GCH/V009	2,433	3.7	3,165	4.3								
GCH/V012	3,370	3.7	4,191	4.2								
GCH/V018	5,334	3.6	6,448	4.2								
GCH/V024	6,974	3.8	8,148	4.6								
GCH/V030	8,206	3.6	9,818	4.4								
GCH/V036	10,258	3.5	13,335	4.2								
GCV041	11,049	3.5	13,921	4.2								
GCH/V042	12,016	3.5	15,416	4.2								
GCH/V048	13,804	3.6	17,057	4.4								
GCH/V060	16,999	3.5	22,509	4.2								

Cooling capacities based upon 27°C DB, 19°C WB entering air temperature

Heating capacities based upon 20°C DB, 15°C WB entering air temperature

All air flow is rated on high speed

All ratings based upon operation at lower voltage of dual voltage rated models

Genesis Compact (GC) Series

Rev.: 05/23/07D

Performance Data
GCH006

220 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	0.9	0.7	1.7	7.6	5.1	0.67	0.49	9.3	15.4	7.5	0.58	5.5	101.4	3.75
	1.1	1.2	2.9	7.8	5.1	0.66	0.47	9.4	16.6	7.7	0.59	5.7	102.6	3.83
	1.7	2.0	4.5	8.0	5.2	0.65	0.44	9.5	18.2	8.1	0.60	6.0	104.0	3.92
70	0.9	0.7	1.6	7.1	5.0	0.69	0.54	9.0	13.1	8.3	0.61	6.2	105.0	3.98
	1.1	1.2	2.7	7.4	5.0	0.68	0.52	9.2	14.2	8.6	0.62	6.5	106.1	4.06
	1.7	1.9	4.4	7.6	5.1	0.67	0.49	9.3	15.6	8.9	0.63	6.8	107.5	4.14
80	0.9	0.7	1.6	6.6	4.8	0.73	0.59	8.6	11.3	9.0	0.63	6.9	108.1	4.18
	1.1	1.2	2.7	6.9	4.9	0.71	0.57	8.8	12.1	9.3	0.64	7.1	109.1	4.25
	1.7	1.8	4.3	7.2	5.0	0.69	0.54	9.0	13.3	9.6	0.65	7.4	110.5	4.32
85	0.9	0.7	1.5	6.3	4.7	0.75	0.60	8.3	10.4	9.4	0.64	7.2	109.5	4.27
	1.1	1.1	2.6	6.6	4.8	0.73	0.59	8.6	11.2	9.6	0.65	7.4	110.5	4.33
	1.7	1.8	4.2	6.9	4.9	0.71	0.56	8.8	12.2	10.0	0.66	7.7	112.0	4.40
90	0.9	0.7	1.5	5.9	4.6	0.77	0.62	8.1	9.6	9.7	0.65	7.5	110.8	4.34
	1.1	1.1	2.6	6.3	4.7	0.75	0.61	8.3	10.3	10.0	0.66	7.7	112.0	4.40
	1.7	1.8	4.1	6.6	4.8	0.73	0.59	8.6	11.3	10.3	0.68	8.0	113.5	4.46
95	0.9	0.6	1.5	5.6	4.5	0.80	0.63	7.7	8.9	Operation Not Recommended				
	1.1	1.1	2.6	5.9	4.6	0.78	0.62	8.0	9.5					
	1.7	1.8	4.1	6.3	4.7	0.75	0.60	8.3	10.4					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Performance Data GC H/V 009

325 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	1.1	2.4	5.6	9.3	7.0	0.75	0.58	11.3	16.2	9.6	0.70	7.2	97.2	3.98
	1.7	3.1	7.2	9.6	7.1	0.74	0.54	11.5	17.8	10.0	0.72	7.6	98.6	4.09
	2.3	4.0	9.3	9.7	7.2	0.74	0.53	11.5	18.5	10.2	0.73	7.8	99.2	4.14
70	1.1	2.3	5.4	8.9	6.8	0.76	0.63	11.1	14.1	10.5	0.73	8.0	99.9	4.19
	1.7	3.0	6.9	9.2	7.0	0.76	0.59	11.2	15.6	10.9	0.74	8.4	101.1	4.29
	2.3	3.9	9.0	9.4	7.0	0.75	0.57	11.3	16.3	11.1	0.75	8.5	101.6	4.34
80	1.1	2.3	5.2	8.4	6.5	0.78	0.69	10.8	12.2	11.3	0.75	8.7	102.1	4.38
	1.7	2.9	6.7	8.8	6.7	0.77	0.65	11.0	13.6	11.7	0.77	9.1	103.4	4.48
	2.3	3.8	8.8	8.9	6.8	0.76	0.63	11.1	14.2	11.9	0.77	9.3	104.0	4.54
85	1.1	2.2	5.1	8.2	6.4	0.78	0.72	10.6	11.3	11.6	0.76	9.0	103.2	4.47
	1.7	2.9	6.7	8.5	6.6	0.77	0.68	10.8	12.6	12.2	0.78	9.5	104.7	4.58
	2.3	3.7	8.6	8.7	6.7	0.77	0.66	10.9	13.2	12.4	0.79	9.8	105.5	4.63
90	1.1	2.2	5.1	7.9	6.2	0.79	0.75	10.5	10.5	12.1	0.78	9.4	104.4	4.56
	1.7	2.8	6.6	8.3	6.4	0.78	0.71	10.7	11.7	12.7	0.79	10.0	106.1	4.68
	2.3	3.7	8.5	8.4	6.5	0.78	0.69	10.8	12.2	13.0	0.81	10.3	107.1	4.73
95	1.1	2.2	5.0	7.6	6.0	0.79	0.79	10.3	9.7	Operation Not Recommended				
	1.7	2.8	6.5	8.0	6.3	0.79	0.74	10.5	10.8					
	2.3	3.6	8.4	8.1	6.4	0.78	0.72	10.6	11.3					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Genesis Compact (GC) Series

Rev.: 05/23/07D

Performance Data
GC H/V 012

400 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	1.5	2.3	5.3	12.7	9.0	0.71	0.82	15.5	15.5	13.0	1.00	9.5	100.0	3.79
	2.3	4.5	10.3	13.1	9.2	0.70	0.77	15.7	17.1	13.6	1.02	10.1	101.6	3.90
	3.0	6.4	14.9	13.2	9.2	0.70	0.74	15.8	17.8	13.9	1.03	10.4	102.3	3.95
70	1.5	2.2	5.1	12.1	8.7	0.71	0.90	15.2	13.5	14.4	1.05	10.8	103.2	4.01
	2.3	4.3	9.9	12.6	8.9	0.71	0.84	15.5	14.9	15.0	1.07	11.4	104.8	4.11
	3.0	6.2	14.3	12.8	9.0	0.71	0.82	15.6	15.6	15.3	1.08	11.7	105.5	4.16
80	1.5	2.1	4.9	11.4	8.3	0.73	0.98	14.7	11.6	15.6	1.09	11.9	106.1	4.19
	2.3	4.2	9.7	11.9	8.6	0.72	0.92	15.1	12.9	16.3	1.11	12.5	107.7	4.28
	3.0	6.0	13.9	12.1	8.7	0.71	0.90	15.2	13.5	16.6	1.12	12.7	108.3	4.33
85	1.5	2.1	4.9	11.0	8.1	0.73	1.02	14.4	10.7	16.2	1.11	12.4	107.5	4.27
	2.3	4.1	9.5	11.5	8.3	0.72	0.96	14.8	12.0	16.8	1.13	13.0	108.9	4.36
	3.0	6.0	13.8	11.8	8.5	0.72	0.94	15.0	12.5	17.1	1.14	13.2	109.6	4.40
90	1.5	2.1	4.8	10.5	7.8	0.75	1.07	14.1	9.8	16.7	1.13	12.9	108.7	4.35
	2.3	4.1	9.4	11.1	8.1	0.73	1.01	14.5	11.0	17.3	1.14	13.4	110.1	4.44
	3.0	5.9	13.6	11.4	8.3	0.73	0.98	14.7	11.6	17.6	1.15	13.7	110.8	4.48
95	1.5	2.1	4.8	10.0	7.6	0.76	1.11	13.8	9.0	Operation Not Recommended				
	2.3	4.0	9.3	10.6	7.9	0.74	1.05	14.2	10.1					
	3.0	5.8	13.4	10.9	8.0	0.74	1.03	14.4	10.6					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Performance Data GC H/V 018

600 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	2.3	2.1	4.8	20.2	14.8	0.73	1.37	24.8	14.7	19.9	1.54	14.6	100.7	3.78
	3.4	3.0	7.0	20.9	15.1	0.72	1.28	25.3	16.4	20.7	1.57	15.4	102.0	3.87
	4.5	4.3	9.8	21.3	15.2	0.71	1.24	25.6	17.2	21.1	1.58	15.7	102.6	3.90
70	2.3	2.0	4.6	19.3	14.4	0.75	1.48	24.4	13.1	21.6	1.60	16.1	103.3	3.95
	3.4	2.9	6.7	20.0	14.7	0.74	1.39	24.7	14.3	22.4	1.63	16.8	104.6	4.03
	4.5	4.1	9.5	20.3	14.9	0.73	1.36	24.9	14.9	22.7	1.64	17.1	105.1	4.06
80	2.3	1.9	4.5	18.3	13.8	0.75	1.58	23.7	11.5	23.1	1.65	17.4	105.6	4.09
	3.4	2.8	6.5	19.1	14.3	0.75	1.50	24.2	12.7	23.8	1.68	18.1	106.8	4.15
	4.5	4.0	9.2	19.4	14.4	0.74	1.47	24.4	13.2	24.1	1.69	18.3	107.2	4.17
85	2.3	1.9	4.4	17.6	13.4	0.76	1.63	23.1	10.8	23.7	1.68	18.0	106.6	4.14
	3.4	2.8	6.4	18.6	14.0	0.75	1.56	23.9	11.9	24.4	1.71	18.6	107.6	4.19
	4.5	3.9	9.1	18.9	14.2	0.75	1.52	24.1	12.4	24.7	1.72	18.8	108.1	4.20
90	2.3	1.9	4.4	16.7	12.9	0.77	1.67	22.4	10.0	24.3	1.70	18.5	107.5	4.18
	3.4	2.7	6.3	17.9	13.6	0.76	1.61	23.4	11.2	24.9	1.73	19.0	108.5	4.22
	4.5	3.9	9.0	18.3	13.8	0.75	1.58	23.7	11.6	25.3	1.74	19.4	109.0	4.25
95	2.3	1.9	4.3	15.7	12.3	0.78	1.72	21.5	9.1	Operation Not Recommended				
	3.4	2.7	6.3	17.1	13.1	0.77	1.65	22.7	10.3					
	4.5	3.8	8.9	17.6	13.4	0.76	1.63	23.2	10.8					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Genesis Compact (GC) Series

Rev.: 05/23/07D

Performance Data
GC H/V 024

800 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	3.0	2.0	4.6	25.5	19.1	0.75	1.71	31.3	14.9	26.3	1.74	20.3	100.4	4.42
	4.5	3.8	8.9	25.8	19.2	0.74	1.62	31.4	15.9	27.4	1.78	21.4	101.8	4.51
	6.0	6.4	14.9	26.0	19.3	0.74	1.58	31.4	16.5	28.0	1.80	21.9	102.4	4.55
70	3.0	1.9	4.4	24.9	18.7	0.75	1.85	31.2	13.5	28.6	1.83	22.4	103.1	4.59
	4.5	3.7	8.5	25.3	19.0	0.75	1.76	31.3	14.4	29.7	1.87	23.3	104.3	4.66
	6.0	6.2	14.3	25.5	19.1	0.75	1.71	31.3	14.9	30.1	1.89	23.7	104.9	4.68
80	3.0	1.9	4.3	23.9	18.0	0.75	1.97	30.6	12.1	30.5	1.90	24.0	105.3	4.70
	4.5	3.6	8.3	24.6	18.5	0.75	1.89	31.0	13.0	31.3	1.94	24.7	106.2	4.73
	6.0	6.0	13.9	24.9	18.7	0.75	1.84	31.2	13.5	31.6	1.95	25.0	106.6	4.74
85	3.0	1.8	4.2	23.2	17.6	0.76	2.03	30.2	11.4	31.2	1.93	24.6	106.1	4.73
	4.5	3.6	8.2	24.1	18.2	0.75	1.95	30.8	12.4	31.9	1.97	25.1	106.9	4.75
	6.0	6.0	13.8	24.5	18.4	0.75	1.91	31.0	12.8	32.1	1.98	25.3	107.2	4.75
90	3.0	1.8	4.2	22.4	17.2	0.77	2.08	29.5	10.8	31.8	1.96	25.1	106.8	4.75
	4.5	3.5	8.1	23.5	17.8	0.76	2.01	30.3	11.7	32.3	1.99	25.5	107.3	4.75
	6.0	5.9	13.6	23.9	18.1	0.75	1.97	30.6	12.1	32.4	2.00	25.6	107.5	4.74
95	3.0	1.8	4.1	21.5	16.6	0.77	2.13	28.7	10.1	Operation Not Recommended				
	4.5	3.5	8.0	22.7	17.3	0.76	2.07	29.8	11.0					
	6.0	5.8	13.4	23.2	17.6	0.76	2.03	30.2	11.5					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Performance Data GC H/V 030

1000 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	3.8	1.6	3.6	28.8	21.3	0.74	2.00	35.7	14.4	31.2	2.22	23.6	98.9	4.12
	5.6	2.8	6.5	29.2	21.5	0.74	1.91	35.7	15.3	32.1	2.24	24.5	99.7	4.21
	7.5	4.4	10.1	29.4	21.7	0.74	1.87	35.7	15.7	32.6	2.25	24.9	100.2	4.25
70	3.8	1.5	3.5	28.1	21.0	0.75	2.17	35.5	13.0	33.3	2.26	25.5	100.8	4.31
	5.6	2.7	6.2	28.7	21.2	0.74	2.06	35.7	13.9	34.1	2.28	26.3	101.6	4.38
	7.5	4.2	9.7	28.9	21.3	0.74	2.01	35.7	14.4	34.6	2.29	26.7	102.0	4.42
80	3.8	1.5	3.4	26.9	20.4	0.76	2.34	34.9	11.5	35.0	2.30	27.2	102.4	4.45
	5.6	2.6	6.1	27.7	20.8	0.75	2.23	35.4	12.4	35.8	2.33	27.9	103.2	4.51
	7.5	4.1	9.4	28.1	20.9	0.75	2.18	35.5	12.9	36.2	2.34	28.2	103.5	4.53
85	3.8	1.4	3.3	26.2	20.1	0.77	2.43	34.5	10.8	35.8	2.33	27.9	103.2	4.51
	5.6	2.6	6.0	27.1	20.5	0.76	2.32	35.0	11.7	36.6	2.36	28.5	103.8	4.55
	7.5	4.0	9.3	27.5	20.7	0.75	2.27	35.3	12.1	36.9	2.37	28.8	104.2	4.56
90	3.8	1.4	3.3	25.4	19.7	0.77	2.50	33.9	10.2	36.6	2.36	28.5	103.8	4.55
	5.6	2.6	5.9	26.4	20.1	0.76	2.41	34.6	11.0	37.2	2.38	29.1	104.5	4.58
	7.5	4.0	9.2	26.8	20.4	0.76	2.35	34.9	11.4	37.5	2.40	29.3	104.8	4.59
95	3.8	1.4	3.2	24.5	19.2	0.78	2.57	33.3	9.5	Operation Not Recommended				
	5.6	2.5	5.8	25.6	19.7	0.77	2.49	34.1	10.3					
	7.5	3.9	9.1	26.1	20.0	0.77	2.44	34.4	10.7					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Genesis Compact (GC) Series

Rev.: 05/23/07D

Performance Data
GC H/V 036

1200 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	4.5	1.8	4.1	38.2	26.8	0.70	2.74	47.6	14.0	39.0	2.94	28.9	100.1	3.88
	6.8	3.2	7.4	39.0	26.9	0.69	2.58	47.8	15.1	41.4	3.03	31.0	101.9	4.00
	9.0	5.1	11.8	39.3	27.1	0.69	2.50	47.8	15.7	42.6	3.07	32.1	102.9	4.06
70	4.5	1.7	3.9	36.6	26.3	0.72	2.95	46.6	12.4	43.9	3.12	33.3	103.9	4.12
	6.8	3.1	7.2	37.8	26.7	0.71	2.80	47.3	13.5	46.2	3.21	35.2	105.6	4.22
	9.0	4.9	11.3	38.3	26.8	0.70	2.72	47.6	14.1	47.2	3.25	36.1	106.4	4.26
80	4.5	1.7	3.8	34.4	25.6	0.74	3.15	45.1	10.9	47.9	3.28	36.7	107.0	4.28
	6.8	3.0	7.0	35.9	26.2	0.73	3.01	46.2	11.9	49.7	3.36	38.2	108.3	4.34
	9.0	4.8	11.0	36.7	26.4	0.72	2.94	46.7	12.5	50.5	3.40	38.9	108.9	4.35
85	4.5	1.6	3.8	33.1	25.0	0.76	3.24	44.1	10.2	49.5	3.35	38.1	108.2	4.33
	6.8	3.0	6.9	34.8	25.8	0.74	3.11	45.4	11.2	50.9	3.42	39.3	109.3	4.36
	9.0	4.7	10.9	35.6	26.0	0.73	3.05	46.0	11.7	51.5	3.45	39.7	109.7	4.37
90	4.5	1.6	3.7	31.6	24.3	0.77	3.34	43.0	9.5	50.8	3.41	39.1	109.2	4.36
	6.8	2.9	6.8	33.5	25.2	0.75	3.21	44.5	10.4	51.8	3.47	39.9	110.0	4.37
	9.0	4.6	10.7	34.4	25.6	0.74	3.15	45.1	10.9	52.1	3.50	40.2	110.2	4.36
95	4.5	1.6	3.7	30.1	23.5	0.78	3.43	41.8	8.8	Operation Not Recommended				
	6.8	2.9	6.7	32.0	24.6	0.77	3.31	43.3	9.7					
	9.0	4.6	10.6	33.0	25.0	0.76	3.25	44.1	10.2					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Performance Data GCV041

1325 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	5.3	1.0	2.2	40.0	29.0	0.73	2.78	49.4	14.4	43.1	3.21	32.2	100.1	3.93
	7.9	2.2	5.1	40.5	29.0	0.72	2.67	49.6	15.2	44.7	3.28	33.5	101.2	3.99
	10.5	4.0	9.3	40.9	29.0	0.71	2.62	49.8	15.6	45.5	3.32	34.1	101.8	4.02
70	5.3	0.9	2.1	39.1	29.0	0.74	3.00	49.4	13.1	46.6	3.37	35.1	102.6	4.06
	7.9	2.1	5.0	39.7	29.0	0.73	2.86	49.4	13.9	48.1	3.43	36.3	103.6	4.10
	10.5	3.9	8.9	39.9	29.0	0.73	2.79	49.4	14.3	48.8	3.46	36.9	104.1	4.13
80	5.3	0.9	2.1	37.9	28.4	0.75	3.24	49.0	11.7	49.6	3.50	37.6	104.7	4.15
	7.9	2.1	4.8	38.8	28.9	0.75	3.09	49.3	12.5	50.8	3.56	38.7	105.5	4.19
	10.5	3.8	8.7	39.1	29.0	0.74	3.01	49.4	13.0	51.4	3.58	39.2	106.0	4.21
85	5.3	0.9	2.0	37.0	27.8	0.75	3.36	48.5	11.0	50.9	3.56	38.7	105.5	4.19
	7.9	2.1	4.8	38.1	28.5	0.75	3.21	49.1	11.9	52.0	3.61	39.7	106.3	4.22
	10.5	3.7	8.6	38.5	28.8	0.75	3.13	49.2	12.3	52.6	3.64	40.1	106.7	4.23
90	5.3	0.9	2.0	35.9	27.1	0.75	3.48	47.7	10.3	52.0	3.61	39.7	106.3	4.22
	7.9	2.0	4.7	37.3	27.9	0.75	3.33	48.6	11.2	53.0	3.66	40.5	107.1	4.25
	10.5	3.7	8.5	37.8	28.3	0.75	3.26	48.9	11.6	53.5	3.68	40.9	107.4	4.26
95	5.3	0.9	2.0	34.4	26.3	0.76	3.58	46.7	9.6	Operation Not Recommended				
	7.9	2.0	4.6	36.2	27.3	0.75	3.45	47.9	10.5					
	10.5	3.6	8.4	36.9	27.7	0.75	3.38	48.4	10.9					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Genesis Compact (GC) Series

Rev.: 05/23/07D

Performance Data
GC H/V 042

1350 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btu/h

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	5.3	1.0	2.4	43.2	31.0	0.72	3.03	53.5	14.3	46.8	3.47	34.9	102.1	3.95
	8.0	2.7	6.2	43.8	31.0	0.71	2.89	53.6	15.2	48.9	3.58	36.7	103.5	4.00
	11.0	5.5	12.7	44.2	31.0	0.70	2.84	53.9	15.6	50.0	3.63	37.6	104.3	4.04
70	5.3	1.0	2.3	42.3	30.8	0.73	3.29	53.5	12.8	51.2	3.69	38.7	105.1	4.07
	8.0	2.6	6.0	42.9	30.9	0.72	3.11	53.5	13.8	53.3	3.79	40.4	106.6	4.13
	11.0	5.3	12.2	43.2	31.0	0.72	3.02	53.5	14.3	54.4	3.83	41.3	107.3	4.16
80	5.3	1.0	2.2	40.8	30.2	0.74	3.58	53.0	11.4	55.1	3.87	42.0	107.8	4.18
	8.0	2.5	5.8	41.9	30.7	0.73	3.38	53.4	12.4	57.0	3.95	43.6	109.1	4.24
	11.0	5.2	11.9	42.3	30.8	0.73	3.28	53.5	12.9	58.0	3.98	44.4	109.8	4.26
85	5.3	1.0	2.2	39.6	29.7	0.75	3.72	52.3	10.7	56.9	3.94	43.4	109.0	4.23
	8.0	2.5	5.8	41.1	30.4	0.74	3.53	53.1	11.6	58.6	4.01	45.0	110.2	4.29
	11.0	5.1	11.8	41.6	30.6	0.73	3.43	53.3	12.1	59.5	4.04	45.7	110.8	4.32
90	5.3	0.9	2.2	38.2	29.0	0.76	3.85	51.3	9.9	58.4	4.00	44.8	110.1	4.28
	8.0	2.5	5.7	40.0	29.9	0.75	3.67	52.6	10.9	60.1	4.06	46.2	111.2	4.34
	11.0	5.0	11.6	40.8	30.2	0.74	3.58	53.0	11.4	60.8	4.08	46.9	111.7	4.37
95	5.3	0.9	2.2	36.4	28.0	0.77	3.96	49.9	9.2	Operation Not Recommended				
	8.0	2.4	5.6	38.7	29.2	0.76	3.81	51.7	10.1					
	11.0	5.0	11.5	39.6	29.7	0.75	3.72	52.3	10.6					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Performance Data GC H/V 048

1600 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	6.0	1.2	2.9	50.2	35.8	0.71	3.67	62.7	13.7	52.1	3.70	39.5	100.1	4.13
	9.0	2.9	6.7	50.9	36.1	0.71	3.48	62.8	14.6	54.6	3.79	41.7	101.6	4.22
	12.0	5.3	12.3	51.2	36.3	0.71	3.39	62.8	15.1	56.0	3.84	42.9	102.4	4.27
70	6.0	1.2	2.8	48.8	35.4	0.73	3.96	62.3	12.3	57.4	3.89	44.1	103.2	4.32
	9.0	2.8	6.5	49.8	35.6	0.72	3.76	62.6	13.3	59.9	3.98	46.3	104.6	4.41
	12.0	5.1	11.8	50.2	35.8	0.71	3.66	62.7	13.7	61.1	4.02	47.4	105.4	4.45
80	6.0	1.2	2.7	46.6	34.8	0.75	4.25	61.1	11.0	62.0	4.05	48.2	105.9	4.48
	9.0	2.7	6.3	48.2	35.3	0.73	4.05	62.0	11.9	64.2	4.13	50.1	107.1	4.56
	12.0	5.0	11.5	48.8	35.4	0.73	3.95	62.3	12.4	65.2	4.16	51.0	107.8	4.60
85	6.0	1.2	2.7	45.2	34.3	0.76	4.38	60.2	10.3	64.0	4.12	49.9	107.0	4.55
	9.0	2.7	6.2	47.1	34.9	0.74	4.20	61.4	11.2	66.0	4.18	51.7	108.2	4.62
	12.0	4.9	11.3	47.9	35.2	0.73	4.10	61.8	11.7	66.9	4.21	52.6	108.7	4.66
90	6.0	1.1	2.6	43.5	33.5	0.77	4.51	58.9	9.7	65.7	4.18	51.5	108.0	4.61
	9.0	2.7	6.1	45.7	34.5	0.75	4.34	60.5	10.5	67.6	4.23	53.1	109.1	4.68
	12.0	4.8	11.2	46.7	34.8	0.75	4.24	61.1	11.0	68.4	4.25	53.9	109.6	4.71
95	6.0	1.1	2.6	41.6	32.6	0.78	4.62	57.4	9.0	Operation Not Recommended				
	9.0	2.6	6.1	44.1	33.8	0.77	4.47	59.3	9.9					
	12.0	4.8	11.0	45.2	34.3	0.76	4.38	60.2	10.3					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Genesis Compact (GC) Series

Rev.: 05/23/07D

Performance Data
GC H/V 060

2000 CFM Nominal (Rated) Airflow

Performance capacities shown in thousands of Btuh

EWT °F	GPM	WPD		Cooling - EAT 80/67°F						Heating - EAT 70°F				
		PSI	FT	TC	SC	Sens/Tot Ratio	kW	HR	EER	HC	kW	HE	LAT	COP
60	7.5	4.4	10.1	60.5	43.1	0.71	4.36	75.4	13.9	63.0	5.02	45.9	99.2	3.68
	11.3	7.6	17.5	61.2	43.2	0.71	4.17	75.5	14.7	67.4	5.17	49.8	101.2	3.82
	15.0	11.5	26.7	61.6	43.3	0.70	4.08	75.5	15.1	69.8	5.25	51.9	102.3	3.90
70	7.5	4.2	9.7	59.0	42.9	0.73	4.68	74.9	12.6	72.6	5.34	54.4	103.6	3.98
	11.3	7.3	16.9	60.1	43.1	0.72	4.46	75.3	13.5	77.0	5.49	58.2	105.6	4.11
	15.0	11.1	25.6	60.5	43.2	0.71	4.36	75.4	13.9	79.2	5.56	60.2	106.6	4.17
80	7.5	4.1	9.4	56.8	42.4	0.75	5.04	74.0	11.3	80.6	5.61	61.5	107.3	4.21
	11.3	7.1	16.4	58.3	42.8	0.73	4.80	74.7	12.2	84.4	5.74	64.8	109.1	4.31
	15.0	10.8	25.0	59.0	42.9	0.73	4.68	74.9	12.6	86.2	5.80	66.4	109.9	4.35
85	7.5	4.0	9.3	55.4	42.0	0.76	5.23	73.3	10.6	83.9	5.73	64.4	108.9	4.30
	11.3	7.0	16.2	57.2	42.5	0.74	4.98	74.1	11.5	87.3	5.84	67.4	110.4	4.38
	15.0	10.7	24.6	57.9	42.7	0.74	4.86	74.5	11.9	88.7	5.89	68.7	111.1	4.42
90	7.5	4.0	9.2	53.9	41.4	0.77	5.44	72.4	9.9	86.8	5.82	66.9	110.2	4.37
	11.3	6.9	16.0	55.8	42.1	0.75	5.17	73.5	10.8	89.5	5.91	69.4	111.5	4.44
	15.0	10.5	24.3	56.7	42.4	0.75	5.04	73.9	11.2	90.6	5.95	70.3	112.0	4.46
95	7.5	3.9	9.1	52.1	40.5	0.78	5.66	71.4	9.2	Operation Not Recommended				
	11.3	6.8	15.8	54.3	41.6	0.77	5.38	72.7	10.1					
	15.0	10.4	24.0	55.3	42.0	0.76	5.24	73.2	10.6					

Interpolation is permissible; extrapolation is not.

All entering air conditions are 80°F DB and 67°F WB in cooling, and 70°F DB in heating.

ARI/ISO certified conditions are 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Table does not reflect fan or pump power corrections for ARI/ISO conditions.

All performance is based upon the lower voltage of dual voltage rated units.

Performance stated is at the rated power supply; performance may vary as the power supply varies from the rated.

See performance correction tables for operating conditions other than those listed above.

Blower Performance Data Standard Unit - No Reheat

Airflow in CFM with dry coil and clean air filter.

Model	Fan Speed	Rated Airflow	Min CFM	Airflow (cfm) at External Static Pressure (in. wg)															
				0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00
GCH 006	HI	220	150																
	MED	220	150																
	LOW	220	150																
GCH/V 009	HI	325	225																
	MED	325	225																
	LOW	325	225																
GCH/V 012	HI	400	300																
	MED	400	300																
	LOW	400	300																
GCH/V 018	HI	600	450																
	MED	600	450																
	LOW	600	450																
GCH/V 024	HI	800	600																
	MED	800	600																
	LOW	800	600																
GCH/V 030	HI	1000	750																
	MED	1000	750																
	LOW	1000	750																
GCH/V 036	HI	1200	900																
	MED	1200	900																
	LOW	1200	900																
GCV 041	HI	1325	950																
	MED	1325	950																
	LOW	1325	950																
GCH/V 042	HI	1350	1050																
	MED	1350	1050																
	LOW	1350	1050																
GCH/V 048	HI	1600	1200																
	MED	1600	1200																
	LOW	1600	1200																
GCH/V 060	HI	2000	1500																
	MED	2000	1500																
	LOW	2000	1500																

Black areas denote ESP where operation is not recommended

Units factory shipped on medium speed, other speeds require field selection

All airflow is rated at lowest Voltage if unit is dual Voltage rated, e.g. 208V for 208-230V units

All units ARI/ISO/ASHRAE 13256-1 rated on high fan speed

Only two speed fan (H & M) available on 575V units

Performance stated is at the rated power supply, performance may vary as the power supply varies from the rated.

Blower Performance Data - High Static Standard Unit - No Reheat

Airflow in CFM with dry coil and clean air filter.

Model	Fan Speed	Rated Airflow	Min CFM	Airflow (cfm) at External Static Pressure (in. wg)																			
				0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.60	0.70	0.80	0.90	1.00				
GCH/V 018	HS HI	600	450					790	780	770	760	750	730	710	690	650	530						
	HS MED	600	450	750	740	720	710	700	690	670	670	660	650	630	600	490							
	HS LOW	600	450	670	660	640	630	620	610	600	590	580	580	570	530								
GCH/V 024	HS HI	800	600											1030	950	840	700						
	HS MED	800	600									1040	1010	970	890	750	620						
	HS LOW	800	600						1030	1010	980	960	930	900	870	790	710						
GCH/V 030	HS HI	1000	750											1160	1040	920	800	750					
	HS MED	1000	750									1130	1080	1030	930	820	750						
	HS LOW	1000	750	1050	1040	1030	1010	990	980	960	940	910	880	840	750								
GCH/V 036	HS HI	1200	900											1530	1500	1470	1400	1290	1170	960			
	HS MED	1200	900	1360	1350	1340	1330	1320	1310	1300	1280	1260	1250	1230	1150	1070	910						
	HS LOW	1200	900	1030	1020	1010	1010	1000	1000	990	980	960	950	930									
GCH/V 042	HS HI	1350	1050						1550	1540	1520	1500	1470	1460	1450	1380	1240	1080					
	HS MED	1350	1050	1390	1380	1370	1360	1350	1340	1320	1310	1300	1280	1250	1180	1080							
	HS LOW	1350	1050																				
GCH/V 048	HS HI	1600	1200											2060	2040	2010	1960	1880	1790	1660	1510		
	HS MED	1600	1200	2050	2050	2040	2020	1990	1970	1940	1920	1890	1860	1830	1780	1710	1620	1490	1320				
	HS LOW	1600	1200	1850	1850	1840	1830	1810	1800	1780	1760	1730	1700	1670	1600	1510	1380	1220					
GCH/V 060	HS HI	2000	1500	2400	2400	2390	2380	2370	2360	2340	2320	2300	2270	2240	2200	2130	2060	1980	1890				
	HS MED	2000	1500	2160	2160	2150	2150	2140	2110	2080	2060	2040	2030	2020	1980	1930	1880	1490	1750				
	HS LOW	2000	1500	1930	1930	1920	1920	1910	1900	1890	1890	1880	1870	1850	1830	1800	1750	1700	1620				

Black areas denote ESP where operation is not recommended

Units factory shipped on medium speed, other speeds require field selection

All airflow is rated at lowest Voltage if unit is dual Voltage rated, e.g. 208V for 208-230V units

All units ARI/ISO/ASHRAE 13256-1 rated on high fan speed

Only two speed fan (H & M) available on 575V units

Performance stated is at the rated power supply, performance may vary as the power supply varies from the rated.

**Blower Performance Data
Units With ClimaDry****GCV Unit Blower Performance with ClimaDry Reheat Option**

Coil Face Velocity FPM	GCV with Reheat ESP Loss		
	GCV 018, 024, 030 In. of Water	GCV 036, 042 In. of Water	GCV 048, 060 In. of Water
200	0.060	0.049	0.038
250	0.070	0.055	0.040
300	0.090	0.068	0.045
350	0.124	0.091	0.059
400	0.164	0.129	0.094
450	0.252	0.221	0.189
500	0.380	0.350	0.320

For GCV units with Reheat coil applications, calculate coil face velocity of the entering air. From the table above find ESP loss for Reheat application.
This loss includes the wet coil loss.

Example:

Reheat coil loss can be determined from the above table. Coil velocity (FPM) = Airflow (CFM) / Face Area (sq. ft.)

- 1) GCV036 has a face area of 3.63 sq. ft. (see physical data table).
- 2) At 1,100 cfm, coil velocity (FPM) = $1,100 / 3.63 = 303$ FPM
- 3) From above table, it will be necessary to subtract 0.068 from the blower performance ESP.
- 4) On medium speed, the GCV036 (without reheat – see blower table) can deliver 1,100 CFM at 0.40 in. wg.; with the reheat coil, it now delivers 1,063 CFM at 0.40 in. wg (includes adder for wet coil) or 1,100 CFM at 0.33 in. wg.
- 5) To compensate, high speed fan should be used to overcome pressure drop of reheat coil.

GCV Unit Blower Performance with Wet Coil

Coil Face Velocity FPM	Wet Coil Reduction In. of Water
200	0.030
250	0.055
300	0.080
350	0.100
400	0.120
450	0.140
500	0.160

Example:

Wet coil loss can be determined from the above table. Coil velocity (FPM) = Airflow (CFM) / Face Area (sq. ft.)

- 1) GCV036 has a face area of 3.63 sq. ft. (see physical data table).
- 2) At 1,100 cfm, coil velocity (FPM) = $1,100 / 3.63 = 303$ FPM
- 3) From above table, it will be necessary to subtract 0.080 from the blower performance ESP.
- 4) On medium speed, the GCV036 (without dry coil – see blower table) can deliver 1,100 CFM at 0.40 in. wg.; with a wet coil, it now delivers 1,055 CFM at 0.40 in. wg or 1,100 CFM at 0.32 in. wg.
- 5) If unit has reheat option, reheat coil pressure drop already includes adjustment for wet coil (Reheat ESP Loss Table).

Performance Data Correction Tables

Air Flow Correction Table

Airflow	Cooling				Heating		
% of Rated	Total Capacity	Sensible Capacity	Power	Heat of Rejection	Heating Capacity	Power	Heat of Extraction
75%	0.970	0.899	0.953	0.967	0.966	1.051	0.939
81%	0.979	0.924	0.966	0.976	0.976	1.037	0.956
88%	0.987	0.949	0.979	0.985	0.985	1.023	0.973
94%	0.994	0.975	0.990	0.993	0.993	1.012	0.987
100%	1.000	1.000	1.000	1.000	1.000	1.000	1.000
106%	1.005	1.026	1.008	1.005	1.006	0.991	1.010
113%	1.009	1.051	1.016	1.010	1.011	0.982	1.020
119%	1.011	1.077	1.022	1.013	1.014	0.975	1.027
125%	1.013	1.102	1.027	1.016	1.017	0.968	1.033

Entering Air Correction Table

Heating			
Entering Air DB°F	Heating Capacity	Power	Heat of Extraction
45	1.044	0.803	1.123
50	1.042	0.847	1.107
55	1.037	0.888	1.086
60	1.028	0.927	1.062
65	1.016	0.965	1.033
68	1.007	0.986	1.014
70	1.000	1.000	1.000
75	0.980	1.033	0.963
80	0.957	1.065	0.921

Cooling										
Entering Air WB°F	Total Capacity	Sensible Cooling Capacity Multiplier - Entering DB °F							Power	Heat of Rejection
		70	75	80	80.6	85	90	95		
60	0.858	0.812	1.062	1.217	1.229	*	*	*	0.982	0.886
65	0.964	0.622	0.876	1.076	1.098	1.240	*	*	0.996	0.971
66.2	0.986	0.577	0.822	1.032	1.055	1.214	*	*	0.999	0.989
67	1.000	0.547	0.785	1.000	1.024	1.192	1.362	1.508	1.000	1.000
70	1.049		0.630	0.864	0.891	1.086	1.236	1.399	1.004	1.039
75	1.113			0.580	0.609	0.814	1.027	1.218	1.007	1.089

* = Sensible capacity equals total capacity
ARI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1

* = Sensible capacity equals total capacity

ARI/ISO/ASHRAE 13256-1 uses entering air conditions of Cooling - 80.6°F DB/66.2°F WB, 1 and Heating - 68°F DB/59°F WB entering air temperature

Physical Data

Model	006	009	012	018	024	030	036	041	042	048	060
Compressor (1 Each)	Rotary			Reciprocating							Scroll
Factory Charge Vertical R22 (oz) [kg]	-	14 [4.40]	14 [4.40]	25 [7.74]	38 [1.08]	37 [1.05]	42 [1.19]	50 [1.42]	51 [1.87]	66 [1.87]	74 [2.10]
Factory Charge Horizontal R22 (oz) [kg]	14 [4.40]	14 [4.40]	14 [4.40]	25 [7.74]	38 [1.08]	37 [1.05]	41 [1.16]	-	51 [1.87]	66 [1.87]	74 [2.10]
PSC Fan Motor & Blower (3 Speeds)											
Fan Motor (hp) [W]	1/25 [30]	1/10 [75]	1/10 [75]	1/6 [124]	1/4 [187]	3/4 [560]	1/2 [373]	3/4 [560]	3/4 [560]	3/4 [560]	1 [746]
Blower Wheel Size (dia x w) - (in) [mm]	5 x 5 [127 x 127]	5 x 5 [127 x 127]	6 x 5 [152 x 127]	8 x 7 [208 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 8 [229 x 203]	9 x 8 [229 x 203]	9 x 8 [229 x 203]	10 x 10 [254 x 254]	11 x 10 [279 x 254]
Water Connection Size											
IPT (in)	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	1	1
Coax Volume											
Volume (US Gallons) [liters]	0.123 [0.47]	0.143 [0.54]	0.167 [0.63]	0.286 [1.08]	0.286 [1.08]	0.323 [1.22]	0.526 [1.99]	0.738 [2.79]	0.890 [3.37]	0.738 [2.79]	0.939 [3.55]
Vertical Upflow											
Air Coil Dimensions (h x w) - (in) [mm]	-	10 x 15 [254 x 381]	10 x 15 [254 x 381]	20 x 17.25 [508 x 438]	20 x 17.25 [508 x 438]	20 x 17.25 [508 x 438]	24 x 21.75 [610 x 552]	20 x 17.25 [508 x 438]	24 x 21.75 [610 x 552]	24 x 28.25 [610 x 718]	24 x 28.25 [610 x 718]
Standard Filter - 1" [25.4mm] Throwaway, qty (in) [mm]	-	10 x 18 [254 x 457]	10 x 18 [254 x 457]	20 x 20 [508 x 508]	20 x 20 [508 x 508]	20 x 20 [508 x 508]	24 x 24 [610 x 610]	20 x 20 [508 x 508]	24 x 24 [610 x 610]	1 - 14 x 24, 1 - 18 x 24 [356 x 610], [457 x 610]	1 - 14 x 24, 1 - 18 x 24 [356 x 610], [457 x 610]
Horizontal											
Air Coil Dimensions (h x w) - (in) [mm]	10 x 15 [254 x 381]	10 x 15 [254 x 381]	10 x 15 [254 x 381]	16 x 22 [406 x 559]	16 x 22 [406 x 559]	16 x 22 [406 x 559]	20 x 25 [508 x 635]	-	20 x 25 [508 x 635]	20 x 35 [508 x 889]	20 x 35 [508 x 889]
Standard Filter - 1" [25.4mm] Throwaway, qty (in) [mm]	10 x 18 [254 x 457]	10 x 18 [254 x 457]	10 x 18 [254 x 457]	16 x 25 [406 x 635]	16 x 25 [406 x 635]	16 x 25 [406 x 635]	20 x 28 or 2 - 20 x 14 [508 x 711] or [2 - 508 x 356]	-	20 x 28 or 2 - 20 x 14 [508 x 711] or [2 - 508 x 356]	1 - 20 x 24, 1 - 20 x 14 [508 x 610], [508 x 356]	1 - 20 x 24, 1 - 20 x 14 [508 x 610], [508 x 356]
Weight - Operating, (lbs) [kg]	103 [47]	105 [48]	114 [52]	181 [82]	189 [86]	197 [89]	203 [92]	207 [94]	218 [99]	263 [119]	278 [126]
Weight - Packaged, (lbs) [kg]	113 [51]	115 [52]	124 [56]	186 [84]	194 [88]	202 [92]	209 [95]	212 [96]	224 [102]	270 [122]	285 [129]

All units have grommet compressor mountings, and 1/2" [12.2mm] & 3/4" [19mm] electrical knockouts.

Genesis Compact (GC) Series

Rev.: 05/23/07D

GC - Horizontal
Dimensional Data

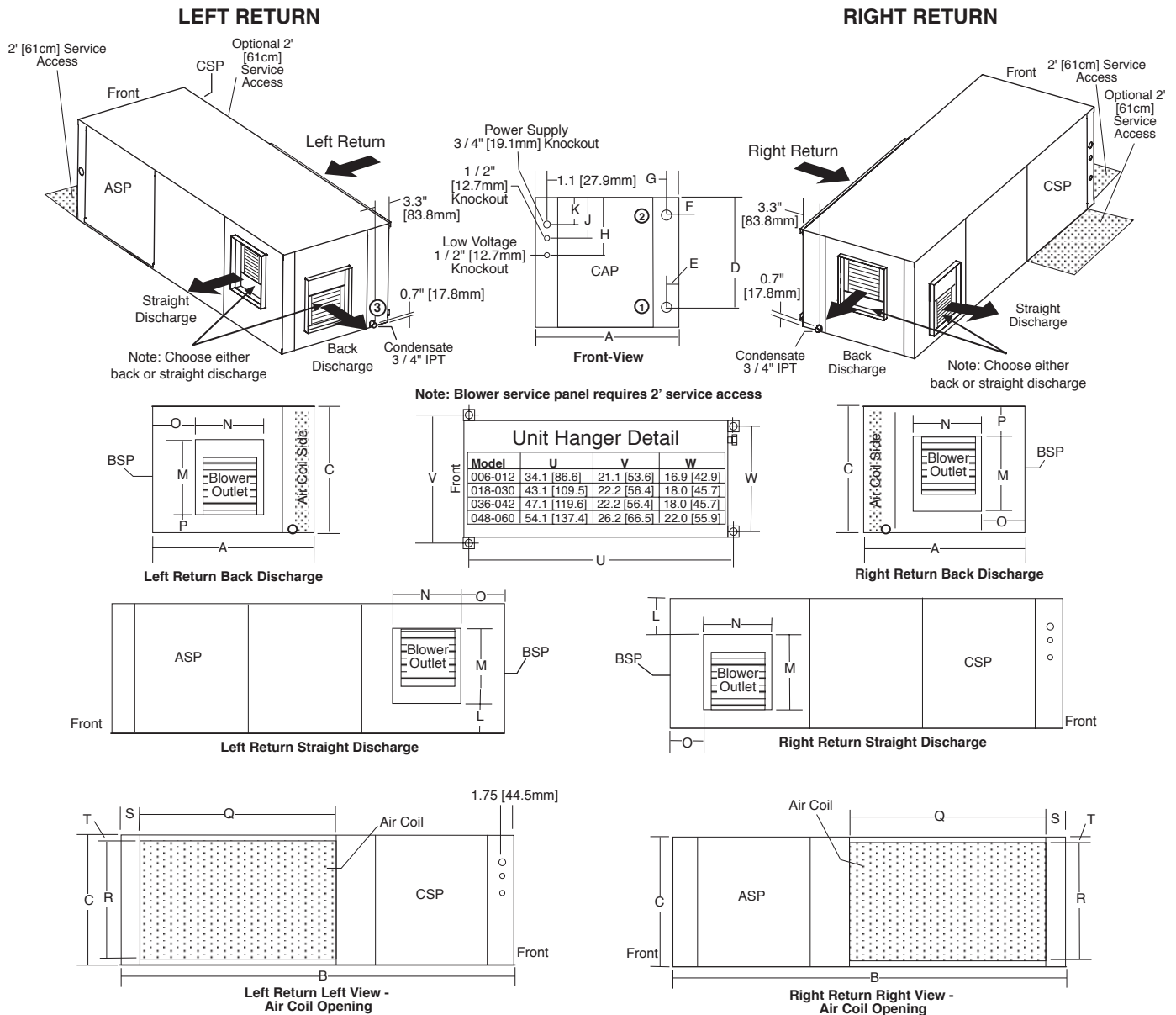
Horizontal Model		Overall Cabinet		
		A Width	B Length	C Height
006 - 012	in cm	19.1 48.5	34.1 86.6	11.0 27.9
018	in cm	20.1 51.1	43.1 109.5	17.1 43.4
024 - 030	in cm	20.1 51.1	43.1 109.5	17.1 43.4
036 - 042	in cm	20.1 51.1	47.1 119.6	21.1 53.6
048	in cm	24.1 61.2	54.1 137.4	21.1 53.6
060	in cm	24.1 61.2	54.1 137.4	21.1 53.6

Horizontal Model		Water Connections				
		1	2	3	4	
		Loop In D	Loop In E	Loop Out F	Loop Out G	Size IPT
006 - 012	in cm	9.6 24.4	0.8 2.0	1.8 4.4	0.8 2.0	1/2"
018	in cm	15.3 38.9	2.4 6.1	1.9 4.9	2.1 5.3	1/2"
024 - 030	in cm	15.3 38.9	2.4 6.1	1.9 4.9	2.1 5.3	3/4"
036 - 042	in cm	18.8 47.6	2.2 5.5	4.7 11.9	1.2 3.0	3/4"
048	in cm	19.4 49.2	5.9 14.9	4.3 11.0	2.3 5.8	3/4"
060	in cm	19.4 49.2	5.9 14.9	4.3 11.0	2.3 5.8	1"

Horizontal Model		Electrical Knockouts		
		H 1/2"	J 1/2"	K 3/4"
		Low Voltage	Low Voltage	Power Supply
006 - 012	in cm	8.1 20.6	5.1 13.0	2.1 5.4
018	in cm	12.1 30.8	9.1 23.2	6.1 15.6
024 - 030	in cm	12.1 30.8	9.1 23.2	6.1 15.6
036 - 042	in cm	16.1 41.0	13.1 33.3	10.1 25.7
048	in cm	16.1 41.0	13.1 33.3	10.1 25.7
060	in cm	16.1 41.0	13.1 33.3	10.1 25.7

Horizontal Model		Discharge Connection Duct Flange Installed (+/- 0.10 in, +/- 2.5mm)					Return Connection Using Return Air Opening			
		L	M Supply Height	N Supply Width	O	P	Q Return Width	R Return Height	S	T
006 - 012	in cm	0.8 1.9	8.9 22.7	6.7 17.0	5.2 13.3	1.3 3.3	16.1 41.0	9.8 25.0	1.1 2.7	0.6 1.5
018	in cm	2.6 6.6	13.3 33.8	9.9 25.1	4.1 10.5	1.3 3.3	23.0 58.4	15.0 38.1	1.1 2.8	1.0 2.5
024 - 030	in cm	2.6 6.6	13.3 33.8	9.9 25.1	4.1 10.5	1.3 3.3	23.0 58.4	15.0 38.1	1.1 2.8	1.0 2.5
036 - 042	in cm	2.5 6.3	16.1 40.9	11.0 27.9	3.0 7.7	2.5 6.4	25.9 65.8	19.0 48.3	1.1 2.8	1.0 2.5
048	in cm	3.7 9.5	16.1 41.0	13.7 34.8	4.1 10.3	1.3 3.2	35.9 91.2	19.0 48.3	1.1 2.8	1.0 2.5
060	in cm	1.7 4.4	18.1 46.0	13.7 34.8	4.1 10.3	1.3 3.2	35.9 91.2	19.0 48.3	1.1 2.8	1.0 2.5

GC - Horizontal Dimensional Data



Notes:

1. 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.
2. Horizontal units shipped with filter bracket only. This bracket should be removed for return duct connection
3. Discharge flange and hanger brackets are factory installed.
4. Condensate is 3/4" IPT.
5. Blower service panel requires 2' service access.
6. Blower service access is through back panel on straight discharge units or through panel opposite air coil on back discharge units

Legend:

CAP = Control Access Panel
BSP = Blower Service Panel
CSP = Compressor Access Panel
ASP = Alternative Service Panel

Genesis Compact (GC) Series

Rev.: 05/23/07D

GC - Vertical Upflow
Dimensional Data

Vertical Upflow Model		Overall Cabinet		
		A Width	B Depth	C Height
009 - 012	in cm	19.1 48.5	19.1 48.5	22.0 55.9
018	in cm	21.5 54.6	21.5 54.6	39.0 99.1
024 - 030	in cm	21.5 54.6	21.5 54.6	39.0 99.1
036 - 042	in cm	21.5 54.6	26.0 66.0	44.0 111.8
041	in cm	21.5 54.6	21.5 54.6	39.0 99.1
048 - 060	in cm	24.0 61.0	32.5 82.6	46.0 116.8

Vertical Upflow Model		Water Connections - Standard Units							Water Connections - Units with ClimaDry			
		1		2		3		Size IPT	1		2	
		Loop In D	Loop In E	Loop Out F	Loop Out G	H	I		Loop In D	Loop In E	Loop Out F	Loop Out G
009 - 012	in cm	1.4 3.6	2.8 7.1	9.4 24.0	2.8 7.1	6.1 15.6	2.3 5.9	1/2"	N/A	N/A	N/A	N/A
018	in cm	1.8 4.5	3.8 9.7	15.2 38.6	3.6 9.1	8.1 20.6	2.3 5.8	1/2"	5.424 13.78	2.608 6.62	14.875 37.78	4.071 10.34
024 - 030	in cm	1.8 4.5	3.8 9.7	15.2 38.6	3.6 9.1	8.1 20.6	2.3 5.8	3/4"	5.438 13.81	2.609 6.62	13.312 33.81	3.978 10.10
036 - 042	in cm	2.0 5.1	3.7 9.4	16.2 41.1	2.6 6.6	10.4 26.4	2.3 5.8	3/4"	6.344 16.11	2.633 6.69	14.500 36.83	2.759 7.01
041	in cm	1.7 4.4	3.6 9.1	16.4 41.7	2.6 6.6	8.1 20.6	2.3 5.8	3/4"	7.187 18.25	2.754 7.00	14.531 36.91	4.383 11.13
048 - 060	in cm	1.8 4.5	5.9 14.9	16.7 42.4	2.3 5.8	10.1 25.7	2.3 5.8	1"	7.187 18.25	2.754 7.00	15.251 38.74	3.321 8.43

Vertical Upflow Model		Electrical Knockouts		
		J 1/2"	K 1/2"	L 3/4"
		Low Voltage	Low Voltage	Power Supply
009 - 012	in cm	2.9 7.3	5.9 14.9	8.9 22.5
018	in cm	4.1 10.5	7.1 18.1	10.1 25.7
024 - 030	in cm	4.1 10.5	7.1 18.1	10.1 25.7
036 - 042	in cm	4.1 10.5	7.1 18.1	10.1 25.7
041	in cm	4.1 10.5	7.1 18.1	10.1 25.7
048 - 060	in cm	4.1 10.5	7.1 18.1	10.1 25.7

Notes:

1. 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.
2. 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. (Except on GCV 009-030 & 041 with front return)
3. Discharge flange is field installed.
4. Condensate is 3/4" IPT.

Legend:

CAP = Control Access Panel

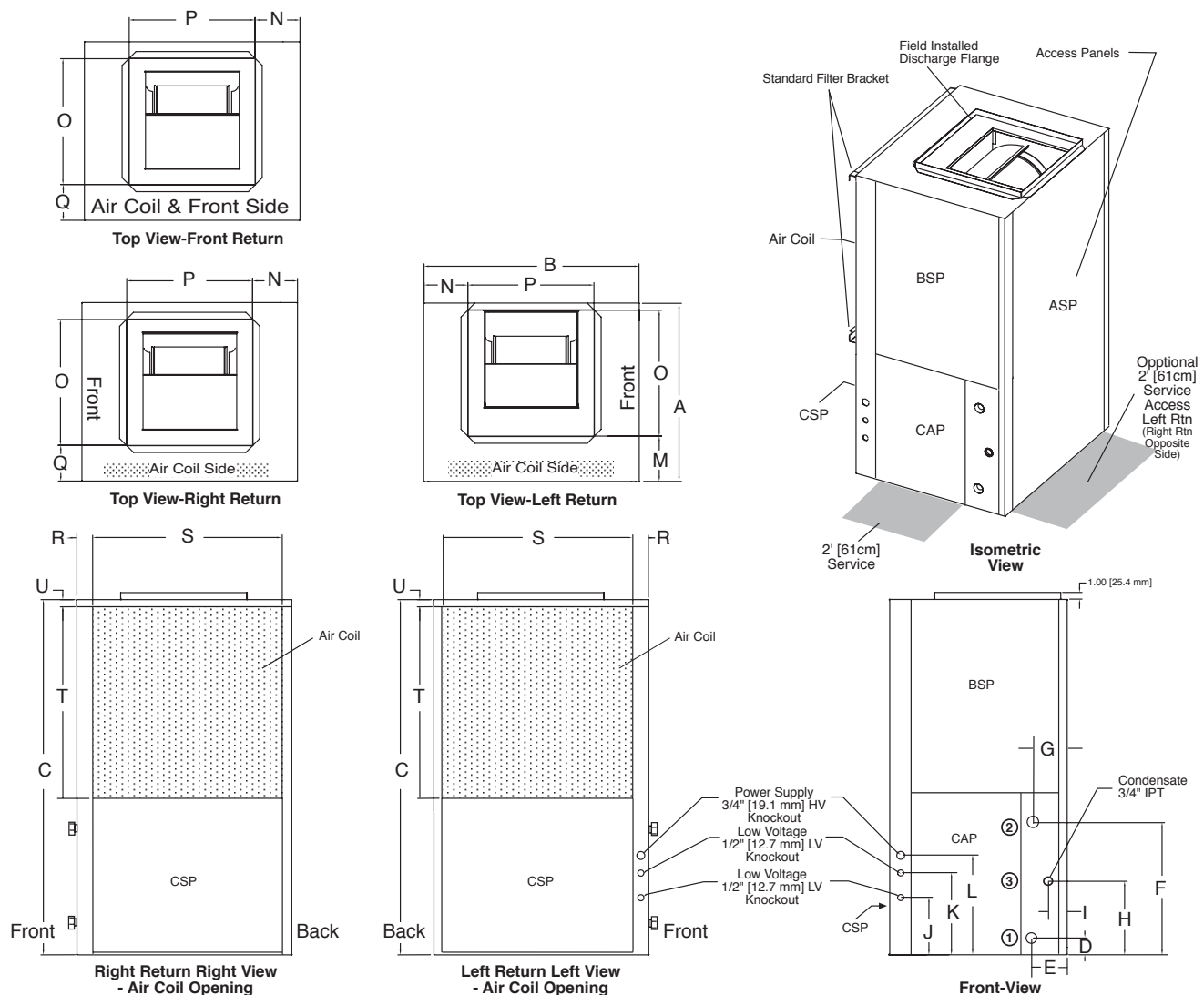
BSP = Blower Service Panel

CSP = Compressor Access Panel

ASP = Alternative Service Panel

GC - Vertical Upflow Dimensional Data

Vertical Upflow Model		Discharge Connection Duct Flange Installed (+/- 0.10 in, +/- 2.5mm)					Return Connection Using Return Air Opening			
		M	N	O Supply Width	P Supply Depth	Q	R	S Return Depth	T Return Height	U
009 - 012	in cm	8.9 22.7	5.1 12.9	9.0 22.9	9.0 22.9	5.5 14.0	2.1 5.3	16.2 41.1	9.9 25.1	0.7 1.9
018	in cm	6.4 16.1	3.8 9.5	14.0 35.6	14.0 35.6	5.3 13.6	2.3 5.8	18.3 46.5	20.2 51.3	0.7 1.9
024 - 030	in cm	6.4 16.1	3.8 9.5	14.0 35.6	14.0 35.6	5.3 13.6	2.3 5.8	18.3 46.5	20.2 51.3	0.7 1.9
036 - 042	in cm	6.4 16.1	3.8 9.5	14.0 35.6	14.0 35.6	5.1 13.1	2.3 5.8	22.8 57.9	24.2 61.4	0.7 1.9
041	in cm	6.4 16.1	3.8 9.5	14.0 35.6	14.0 35.6	5.3 13.6	2.3 5.8	18.3 46.5	20.2 51.3	0.7 1.9
048 - 060	in cm	6.9 17.4	7.3 18.4	16.0 40.6	18.0 45.7	5.1 13.1	2.3 5.8	29.3 74.4	24.2 61.4	0.7 1.9



Corner Weights for GCH Series Units

Model		Total	Left-Front*	Right-Front*	Left-Back*	Right-Back*
GCH006	Lbs	103	37	24	23	19
	kg	46.72	16.78	10.89	10.43	8.62
GCH009	Lbs	105	38	24	23	20
	kg	47.63	17.24	10.89	10.43	9.07
GCH012	Lbs	114	42	26	25	21
	kg	51.71	19.05	11.79	11.34	9.53
GCH018	Lbs	181	66	42	40	33
	kg	82.10	29.94	19.05	18.14	14.97
GCH024	Lbs	189	70	43	42	34
	kg	85.73	31.75	19.50	19.05	15.42
GCH030	Lbs	197	74	45	43	35
	kg	89.36	33.57	20.41	19.50	15.88
GCH036	Lbs	203	75	47	44	37
	kg	92.08	34.02	21.32	19.96	16.78
GCH042	Lbs	218	81	50	48	39
	kg	98.88	36.74	22.68	21.77	17.69
GCH048	Lbs	263	98	60	58	47
	kg	119.29	44.45	27.22	26.31	21.32
GCH060	Lbs	303	103	64	61	75
	kg	137.44	46.72	29.03	27.67	34.02

*Front is control box end.

Electrical Data Standard Blower Units

All GC Units								Standard GC Unit			GCV Units with Reheat			
Model	Voltage Code	Voltage	Min/Max Voltage	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amps	Max Fuse/HACR	Reheat Pump FLA	Total Unit FLA	Min Circuit Amps	Max Fuse/HACR
				QTY	RLA	LRA								
GCH 006	G	208-230/60/1	197/254	1	2.9	17.7	0.4	3.3	4.0	15	N/A	N/A	N/A	N/A
	E	265/60/1	239/292	1	2.5	15.0	0.4	2.8	3.5	15	N/A	N/A	N/A	N/A
GCH/V 009	G	208-230/60/1	197/254	1	3.9	22.2	0.8	4.7	5.7	15	N/A	N/A	N/A	N/A
	E	265/60/1	239/292	1	3.3	18.8	0.7	4.0	4.8	15	N/A	N/A	N/A	N/A
GCH/V 012	G	208-230/60/1	197/254	1	5.3	27.9	0.8	6.1	7.4	15	N/A	N/A	N/A	N/A
	E	265/60/1	239/292	1	4.2	22.2	0.7	4.9	6.0	15	N/A	N/A	N/A	N/A
GCH/V 018	G	208-230/60/1	197/254	1	8.6	49.0	1.0	9.6	11.8	20	0.80	10.4	12.6	20
	E	265/60/1	239/292	1	8.1	44.0	0.9	8.9	11.0	15	0.70	9.6	11.7	15
GCH/V 024	G	208-230/60/1	197/254	1	9.6	50.0	1.5	11.1	13.5	20	0.80	11.9	14.3	20
	E	265/60/1	239/292	1	9.1	55.0	1.3	10.4	12.7	20	0.70	11.1	13.4	20
	H	208-230/60/3	197/254	1	6.7	51.0	1.5	8.2	9.9	15	0.80	9.0	10.7	15
	F*	460/60/3	414/506	1	3.5	25.0	0.8	4.3	5.2	15	0.70	5.0	5.9	15
GCH/V 030	G	208-230/60/1	197/254	1	11.2	61.0	3.0	14.2	17.0	25	0.80	15.0	17.8	25
	E	265/60/1	239/292	1	10.0	58.0	2.7	12.7	15.2	25	0.70	13.4	15.9	25
	H	208-230/60/3	197/254	1	6.9	55.0	3.0	9.9	11.6	15	0.80	10.7	12.4	15
	F*	460/60/3	414/506	1	3.6	28.0	1.7	5.3	6.2	15	0.70	6.0	6.9	15
GCH/V 036	G	208-230/60/1	197/254	1	15.4	82.0	1.8	17.2	21.1	35	0.80	18.0	21.9	35
	E	265/60/1	239/292	1	14.4	83.0	2.0	16.4	20.0	30	0.70	17.1	20.7	35
	H	208-230/60/3	197/254	1	9.6	70.0	1.8	11.4	13.8	20	0.80	12.2	14.6	20
	F*	460/60/3	414/506	1	4.9	33.0	1.2	6.1	7.4	15	0.70	6.8	8.1	15
GCV 041	G	208-230/60/1	197/254	1	16.2	96.0	3.0	19.2	23.3	35	N/A	N/A	N/A	N/A
	H	208-230/60/3	197/254	1	10.3	75.0	3.0	13.3	15.9	25	N/A	N/A	N/A	N/A
	F*	460/60/3	414/506	1	4.3	40.0	1.7	6.0	7.1	15	N/A	N/A	N/A	N/A
	N	575/60/3	518/633	1	3.7	31.0	1.5	5.2	6.0	15	N/A	N/A	N/A	N/A
GCH/V 042	G	208-230/60/1	197/254	1	17.1	105.0	3.0	20.1	24.4	40	0.80	20.9	25.2	40
	H	208-230/60/3	197/254	1	10.7	85.0	3.0	13.7	16.4	25	0.80	14.5	17.2	25
	F*	460/60/3	414/506	1	5.3	42.0	1.7	7.0	8.3	15	0.70	7.7	9.0	15
	N	575/60/3	518/633	1	4.3	34.0	1.4	5.7	6.8	15	N/A	N/A	N/A	N/A
GCH/V 048	G	208-230/60/1	197/254	1	18.3	102.0	3.4	21.7	26.3	40	1.07	22.8	27.3	45
	H	208-230/60/3	197/254	1	12.6	91.0	3.4	16.0	19.2	30	1.07	17.1	20.2	30
	F*	460/60/3	414/506	1	5.7	42.0	1.8	7.5	8.9	15	1.00	8.6	10.0	15
	N	575/60/3	518/633	1	4.7	39.0	1.4	6.1	7.2	15	N/A	N/A	N/A	N/A
GCH/V 060	G	208-230/60/1	197/254	1	25.6	170.0	4.9	30.5	36.9	60	1.07	31.0	37.4	60
	H	208-230/60/3	197/254	1	14.7	124.0	4.9	19.6	23.3	35	1.07	20.1	23.7	35
	F*	460/60/3	414/506	1	7.4	59.6	2.5	9.9	11.8	15	1.00	11.0	12.8	20
	N	575/60/3	518/633	1	5.9	49.4	1.9	7.8	9.3	15	N/A	N/A	N/A	N/A

HACR circuit breaker in USA only

All fuses Class RK-5

* All F voltage (460V) units with ClimaDry Reheat require a four (4) wire power supply with neutral; reheat pump is rated 265V and is wired between one hot leg and neutral

Electrical Data

High Static Blower Units

All GC Units								Standard GC Unit			GCV Units with ClimaDry			
Model	Voltage Code	Voltage	Min/Max Voltage	Compressor			Fan Motor FLA	Total Unit FLA	Min Circuit Amps	Max Fuse/HACR	Reheat Pump FLA	Total Unit FLA	Min Circuit Amps	Max Fuse/HACR
				QTY	RLA	LRA								
GCH/V 018	G	208-230/60/1	197/254	1	8.6	49.0	1.0	9.6	11.8	20	0.80	10.4	12.6	20
	E	265/60/1	239/292	1	8.1	44.0	0.9	9.0	11.0	15	0.70	9.7	11.7	15
GCH/V 024	G	208-230/60/1	197/254	1	9.6	50.0	3.0	12.6	15.0	20	0.80	13.4	15.8	25
	E	265/60/1	239/292	1	9.1	55.0	2.7	11.8	14.1	20	0.70	12.5	14.8	20
	H	208-230/60/3	197/254	1	6.7	51.0	3.0	9.7	11.4	15	0.80	10.5	12.2	15
	F*	460/60/3	414/506	1	3.5	25.0	1.7	5.2	6.1	15	0.70	5.9	6.8	15
GCH/V 030	G	208-230/60/1	197/254	1	11.2	61.0	3.0	14.2	17.0	25	0.80	15.0	17.8	25
	E	265/60/1	239/292	1	10.0	58.0	2.7	12.7	15.2	25	0.70	13.4	15.9	25
	H	208-230/60/3	197/254	1	6.9	55.0	3.0	9.9	11.6	15	0.80	10.7	12.4	15
	F*	460/60/3	414/506	1	3.6	28.0	1.7	5.3	6.2	15	0.70	6.0	6.9	15
GCH/V 036	G	208-230/60/1	197/254	1	15.4	82.0	3.0	18.4	22.3	35	0.80	19.2	23.1	35
	E	265/60/1	239/292	1	14.4	83.0	2.7	17.1	20.7	35	0.70	17.8	21.4	35
	H	208-230/60/3	197/254	1	9.6	70.0	3.0	12.6	15.0	20	0.80	13.4	15.8	20
	F*	460/60/3	414/506	1	4.9	33.0	1.7	6.6	7.8	15	0.70	7.3	8.5	15
GCH/V 042	G	208-230/60/1	197/254	1	17.1	105.0	3.0	20.1	24.4	40	0.80	20.9	25.2	40
	H	208-230/60/3	197/254	1	10.7	85.0	3.0	13.7	16.4	25	0.80	14.5	17.2	25
	F*	460/60/3	414/506	1	5.3	42.0	1.7	7.0	8.3	15	0.70	7.7	9.0	15
	N	575/60/3	518/633	1	4.3	34.0	1.4	5.7	6.8	15	N/A	N/A	N/A	N/A
GCH/V 048	G	208-230/60/1	197/254	1	18.3	102.0	4.9	23.2	27.8	45	1.07	24.3	28.8	45
	H	208-230/60/3	197/254	1	12.6	91.0	4.9	17.5	20.7	30	1.07	18.6	21.7	30
	F*	460/60/3	414/506	1	5.7	42.0	2.5	8.2	9.6	15	1.00	9.3	10.7	15
	N	575/60/3	518/633	1	4.7	39.0	1.9	6.6	7.8	15	N/A	N/A	N/A	N/A
GCH/V 060	G	208-230/60/1	197/254	1	25.6	170.0	5.8	31.4	37.8	60	1.07	32.5	38.9	60
	H	208-230/60/3	197/254	1	14.7	124.0	5.8	20.5	24.2	35	1.07	21.6	25.2	35
	F*	460/60/3	414/506	1	7.4	59.6	2.6	10.0	11.9	15	1.00	11.1	12.9	20
	N	575/60/3	518/633	1	5.9	49.4	2.3	8.2	9.7	15	N/A	N/A	N/A	N/A

HACR circuit breaker in USA only

All fuses Class RK-5

* All F voltage (460V) units with ClimaDry Reheat require a four (4) wire power supply with neutral; reheat pump is rated 265V and is wired between one hot leg and neutral

GC 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.climate-master.com using the part numbers presented below.

Model	Refrigerant	Wiring Diagram Part Number	Electrical	Control	DDC	Agency
GC Series Single Phase	R22	96B0006N01	208-230/60/1, 265/60/1, 220-240/50/1	CXM	-	-
	R22 & R407C	96B0006N06			-	CE
	R22	96B0006N03			LON	-
	R22	96B0006N09			MPC	-
	R22 & R407C	96B0006N11			MPC	CE
	R22	96B0006N02		DXM	-	-
	R22 & R407C	96B0006N05			-	CE
	R22	96B0006N04			LON	-
	R22	96B0006N10			MPC	-
	R22	96B0014N02		DXM with Reheat Option		
GC Series Three Phase (230 Style)	R22	96B0007N01	208-230/60/3, 220-240/50/3	CXM	-	-
	R22	96B0007N03			LON	-
	R22	96B0007N06			MPC	-
	R22	96B0007N02		DXM	-	-
	R22	96B0007N04			LON	-
	R22	96B0007N07			MPC	-
GC Series Three Phase (460 Style)	R22	96B0008N01	460/60/3, 575/60/3, 380-420/50/3	CXM	-	-
	R22 & R407C	96B0008N06			-	CE
	R22	96B0008N03			LON	-
	R22	96B0008N08			MPC	-
	R22	96B0008N02		DXM	-	-
	R22 & R407C	96B0008N05			-	CE
	R22	96B0008N04			LON	-
	R22	96B0008N09			MPC	-

All wiring diagrams available at www.climate-master.com. R407C submittals will only contain CE Mark wiring diagrams

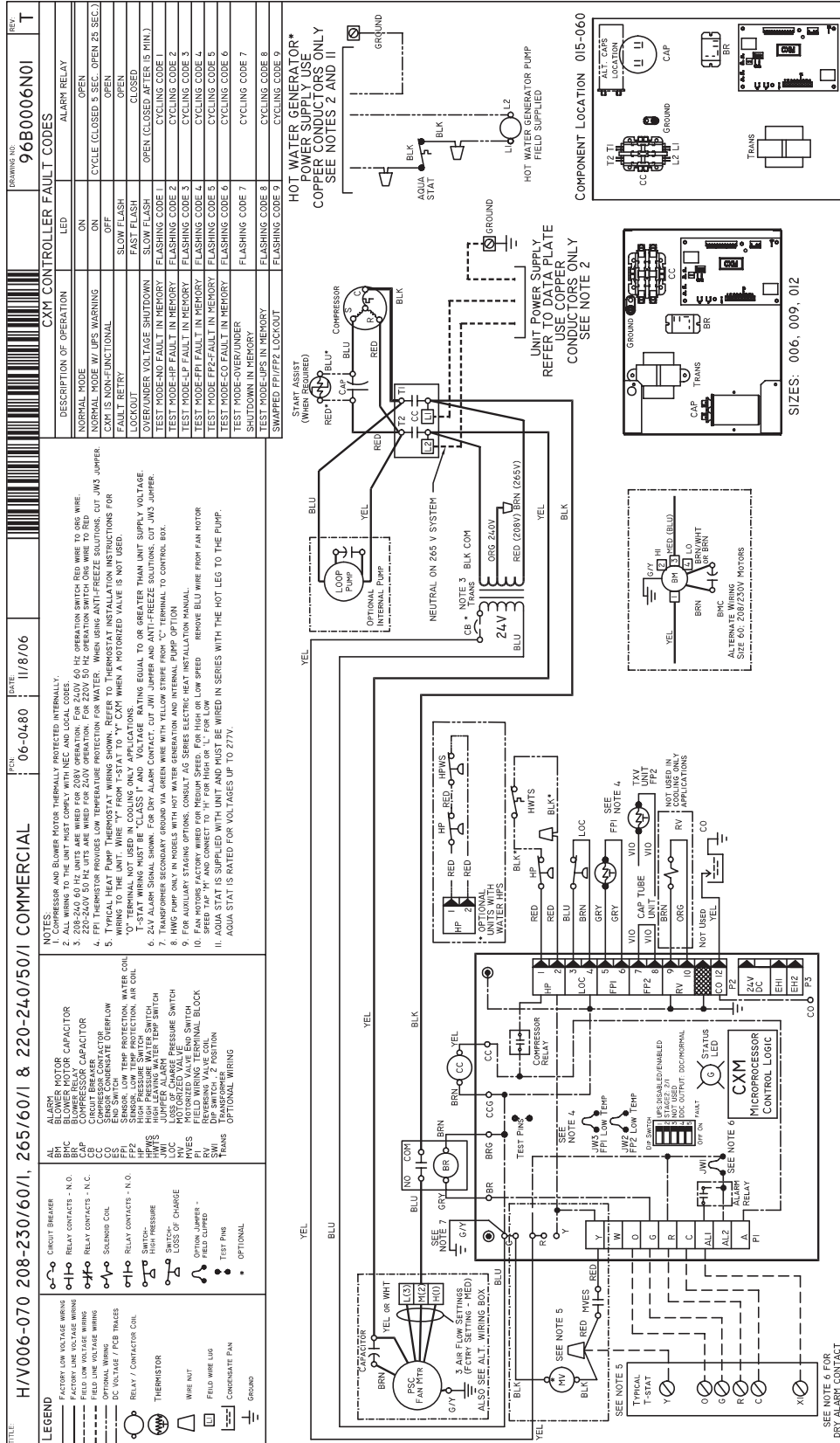
Genesis Compact (GC) Series

Rev.: 05/23/07D

Typical Wiring Diagram

Single Phase GC Units

With CXM Controller



FILE H/V 006-070 208-230/60/1, 265/60/1 & 220-240/50/1 DXM COMMERCIAL

DATE 5/22/07

REV N

96B0006N02

96B0006N02

ALARM RELAY CONTACTS

AL BLOWER RELAY

BM BLOWER MOTOR

BMC BLOWER MOTOR CAPACITOR

CB CIRCUIT BREAKER

CC COMPRESSOR CONTACTOR

CCH CRANKCASE HEATER

CO SENSOR, LOW TEMP PROTECTION WATER COIL

FP2 SENSOR, LOW TEMP PROTECTION, AIR COIL

HP HIGH PRESSURE WATER SWITCH

HPWS HIGH PRESSURE WATER SWITCH

HWTS HIGH (LEAVING) WATER TEMP SWITCH

JWI CLIP LABEL FIELD SELECTION JUMPER

LOC LOSS OF CHARGE PRESSURE JUMPER

MVES MOTOR VALVE END SWITCH

PI FIELD WIRING TERMINAL BLOCK

RVS REVERSING VALVE SOLENOID

TRANS TRANSFORMER

FIELD LINE VOLTAGE WIRING

FIELD LOW VOLTAGE WIRING

OPTIONAL WIRING

RELAY / CONTACTOR COIL

SOLENOID

TEMPERATURE

WIRE NUT

NOTES

- COMPRESSOR THERMALLY PROTECTED INTERNALLY.
- ALL WIRING TO THE UNIT MUST COMPLY WITH NEC AND LOCAL CODES.
- TRANSFORMER IS WIRED TO 265 V (BRN) LEAD FOR 265/60/UNITS, 230V (ORG) LEAD FOR 220/240/50/1 OR 288V (RED) LEAD FOR 208/60/UNITS. INSULATE RED LEAD. TRANSFORMER IS ENERGY LIMITING OR MAY HAVE CIRCUIT BREAKER.
- FPI THERMISTOR PROVIDES LOW TEMPERATURE PROTECTION FOR WATER. WHEN USING ANTI-FREEZE SOLUTIONS, CUT JWS JUMPER.
- REFER TO MFC, LON, OR TST/AT INSTALLATION, APPLICATION, AND OPERATION MANUAL FOR CONTROL WIRING TO THE UNIT.
- 24V ALARM SIGNAL SHOWN. FOR DRY ALARM CONTACT, CUT JWM JUMPER AND DRY CONTACT WILL BE AVAILABLE BETWEEN AL1 AND AL2.
- TRANSFORMER SECONDARY GROUND VIA GRN/VEL WIRE TO CONTROL BOX FROM "C" TERMINAL.
- BLOWER MOTOR IS FACTORY WIRED FOR MEDIUM AND HIGH SPEEDS. FOR ANY OTHER COMBINATION OF SPEEDS, AT THE MOTOR ATTACH BLACK WIRE TO THE HIGHER OF THE TWO DESIRED SPEED TAPS, AND THE BLUE WIRE TO THE LOWER OF THE TWO DESIRED SPEED. AQUA STAT IS SUPPLIED WITH UNIT AND MUST BE WIRED IN SERIES WITH THE HOT LEG TO THE PUMP. AQUA STAT IS RATED FOR VOLTAGES UP TO 277V.

AL BLOWER RELAY

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BMC BLOWER MOTOR CAPACITOR

CB CIRCUIT BREAKER

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- BLOWER MOTOR IS FACTORY WIRED FOR MEDIUM AND HIGH SPEEDS. FOR ANY OTHER COMBINATION OF SPEEDS, AT THE MOTOR ATTACH BLACK WIRE TO THE HIGHER OF THE TWO DESIRED SPEED TAPS, AND THE BLUE WIRE TO THE LOWER OF THE TWO DESIRED SPEED. AQUA STAT IS SUPPLIED WITH UNIT AND MUST BE WIRED IN SERIES WITH THE HOT LEG TO THE PUMP. AQUA STAT IS RATED FOR VOLTAGES UP TO 277V.

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HP HIGH PRESSURE WATER SWITCH

HPWS HIGH PRESSURE WATER SWITCH

HWTS HIGH (LEAVING) WATER TEMP SWITCH

JWI CLIP LABEL FIELD SELECTION JUMPER

LOC LOSS OF CHARGE PRESSURE JUMPER

MVES MOTOR VALVE END SWITCH

PI FIELD WIRING TERMINAL BLOCK

RVS REVERSING VALVE SOLENOID

TRANS TRANSFORMER

FIELD LINE VOLTAGE WIRING

FIELD LOW VOLTAGE WIRING

OPTIONAL WIRING

RELAY / CONTACTOR COIL

SOLENOID

TEMPERATURE

WIRE NUT

NOTES

- COMPRESSOR THERMALLY PROTECTED INTERNALLY.
- ALL WIRING TO THE UNIT MUST COMPLY WITH NEC AND LOCAL CODES.
- TRANSFORMER IS WIRED TO 265 V (BRN) LEAD FOR 265/60/UNITS, 230V (ORG) LEAD FOR 220/240/50/1 OR 288V (RED) LEAD FOR 208/60/UNITS. INSULATE RED LEAD. TRANSFORMER IS ENERGY LIMITING OR MAY HAVE CIRCUIT BREAKER.
- FPI THERMISTOR PROVIDES LOW TEMPERATURE PROTECTION FOR WATER. WHEN USING ANTI-FREEZE SOLUTIONS, CUT JWS JUMPER.
- REFER TO MFC, LON, OR TST/AT INSTALLATION, APPLICATION, AND OPERATION MANUAL FOR CONTROL WIRING TO THE UNIT.
- 24V ALARM SIGNAL SHOWN. FOR DRY ALARM CONTACT, CUT JWM JUMPER AND DRY CONTACT WILL BE AVAILABLE BETWEEN AL1 AND AL2.
- TRANSFORMER SECONDARY GROUND VIA GRN/VEL WIRE TO CONTROL BOX FROM "C" TERMINAL.
- BLOWER MOTOR IS FACTORY WIRED FOR MEDIUM AND HIGH SPEEDS. FOR ANY OTHER COMBINATION OF SPEEDS, AT THE MOTOR ATTACH BLACK WIRE TO THE HIGHER OF THE TWO DESIRED SPEED TAPS, AND THE BLUE WIRE TO THE LOWER OF THE TWO DESIRED SPEED. AQUA STAT IS SUPPLIED WITH UNIT AND MUST BE WIRED IN SERIES WITH THE HOT LEG TO THE PUMP. AQUA STAT IS RATED FOR VOLTAGES UP TO 277V.

AL BLOWER RELAY

BM BLOWER MOTOR

BMC BLOWER MOTOR CAPACITOR

CB CIRCUIT BREAKER

CC COMPRESSOR CONTACTOR

CCH CRANKCASE HEATER

CO SENSOR, LOW TEMP PROTECTION WATER COIL

FP2 SENSOR, LOW TEMP PROTECTION, AIR COIL

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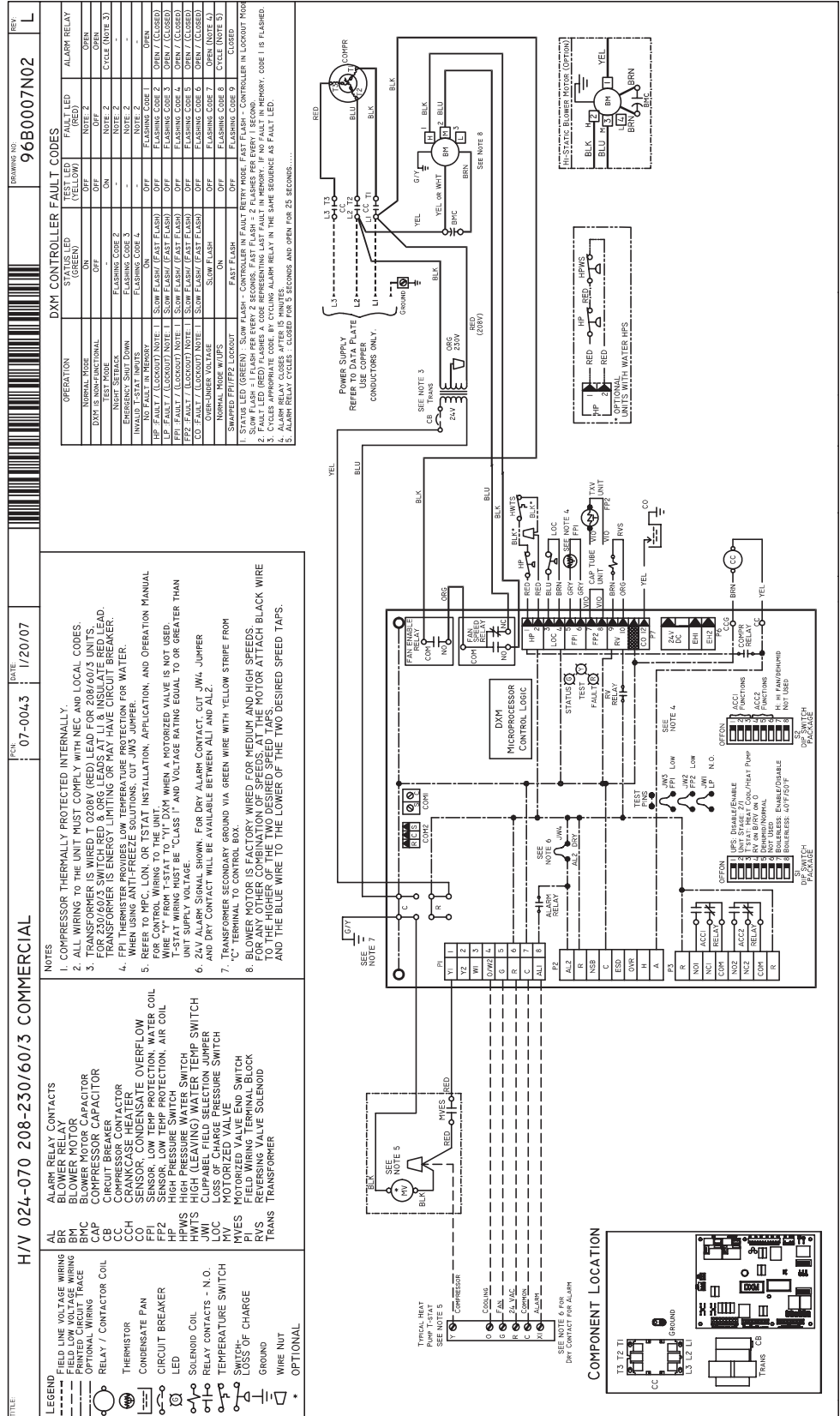
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[illegible]

Typical Wiring Diagram Three Phase 208/230V GC Units With DXM Controller



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Genesis Compact (GC) 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.

Horizontal / Vertical Water Source Heat Pumps:

Units shall be supplied completely factory built for an entering water temperature range from 60° to 95°F (15.6° to 35.0°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 and certified 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 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 criteria. **Units tested without water flow are not acceptable.**

Basic Construction:

Horizontal Units shall have one of the following air flow arrangements: Left Inlet/Straight (Right) Discharge; Right Inlet/Straight (Left) Discharge; Left Inlet/Back Discharge; or Right Inlet/Back Discharge as shown on the plans. Units must have the ability to be field convertible from straight to back or back to straight discharge with no additional parts or unit structure modification. Horizontal units will have factory installed hanger brackets with rubber isolation grommets packaged separately.

Vertical Units shall have one of the following air flow arrangements: Left Return/Top Discharge, Right Return/Top Discharge, as shown on the plans.

If units with these arrangements are not used, the contractor is responsible for any extra costs incurred by other trades. All units (horizontal and vertical) must have a minimum of three access panels for serviceability of compressor compartment. **Units having only one access panel to compressor/heat exchangers/expansion device/refrigerant piping shall not be acceptable.**

The heat pumps shall be fabricated from heavy gauge galvanized steel. All interior surfaces shall be lined with 1/2 inch (12.7mm) thick, dual density, 1-3/4 lb/ft³ (28 kg/m³) acoustic type glass fiber insulation. Insulation placement shall be designed in a manner that will eliminate any exposed edges to prevent the introduction of glass fibers into the air stream.

Vertical 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.

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.**

All horizontal units to have factory installed 1" (25.4mm) discharge air duct collars, 1" (25.4mm) filter rails with 1" (25.4mm) filters factory installed, and factory installed unit-mounting brackets. Vertical units to have field installed discharge air duct collar, shipped loose and 1" (25.4mm) filter rails with 1" (25.4mm) filters factory installed. **If units with these factory installed provisions are not used, the contractor is responsible for any extra costs to field install these provisions, and/or the extra costs for his sub-contractor to install these provisions.**

All units must have an insulated panel separating the fan compartment from the compressor compartment. **Units with the compressor in the air stream are not acceptable.** Units shall have a factory installed 1 inch (25.4mm) wide filter bracket for filter removal from either side. Units shall have a 1 inch (25.4mm) thick throwaway type glass fiber filter. The contractor shall purchase one spare set of filters and replace factory shipped filters on completion of start-up. Filters shall be standard sizes. If units utilize non-standard filter sizes then the contractor shall provide 12 spare filters for each unit.

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. All water connections and electrical knockouts must be in the compressor compartment corner post so as not to 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.

Option: Contractor shall install 2-inch (50.8mm) filter brackets and 2 inch(50.8mm) glass fiber throwaway filters on all units.

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Option: Ultra Quiet package shall consist of dual density acoustical, 1/2" (12.7mm) fiberglass insulation; spring isolation under compressor; discharge muffler (except rotary compressors); and sound attenuating material applied to the fan housing.

Option: The refrigerant to air 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 galvanized end plates and copper tubing, and a minimum of 2000 hours of salt spray on all aluminum fins. 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).

*Option (vertical units only): Unit shall include ClimaDry reheat option. Only modulating reheat that will adjust capacity based upon supply air temperature to provide "neutral" (72°F, 22.2°C) constant air temperature will be accepted. "Neutral" supply air temperature shall be provided regardless of entering loop water temperatures (above 55°F, 12.8°C) or refrigerant condensing pressures. Control of reheat must be accomplished via a humidistat or dehumidistat contact closure. Refrigerant circuit must be ARI certified. Approved equal manufacturers may provide pre-engineered integrated modulating hot gas reheat within the unit cabinet, or the installing contractor in conjunction with the "approved equal" unit manufacturer can provide for approval (during the submittal phase) an engineered system consisting of: a duct mounted hot water coil, small circulating pump, modulating control valve, and associated piping using the discharge condenser water off of the unit as the heating medium. All design costs and costs of field installed items including additional power wiring to pump, and control wiring to and from pump and control valve to unit shall be borne by mechanical contractor. **Refrigerant circuits that are not ARI certified when the reheat option is applied will not be accepted.***

Fan and Motor Assembly:

Blower shall have inlet rings to allow removal of wheel and motor from one side without removing housing. Units shall have a direct-drive centrifugal fan. The fan motor shall be 3-speed (2-speed for 575V), permanently lubricated, PSC type, with internal thermal overload protection. Units supplied without permanently lubricated motors must provide external oilers for easy service. The fan motor on small and medium size units (006-042) shall be isolated from the fan housing by a torsionally flexible motor mounting system with rubber type grommets to inhibit vibration induced high noise levels associated with "hard wire belly band" motor mounting. The fan motor on larger units (048 & 060) shall be isolated with flexible rubber type isolation grommets only. The fan and motor assembly must be capable of overcoming the external static pressures as shown on the schedule. Airflow / Static pressure rating of the unit shall be based on a dry coil and a clean filter in place.

Option: High static motors (except 006-012 and GCV041)

Refrigerant Circuit:

Units shall have a sealed refrigerant circuit including a high efficiency scroll, rotary or reciprocating compressor designed for heat pump operation, a capillary tube assembly for refrigerant metering, an enhanced corrugated aluminum lanced fin and rifled copper tube refrigerant to air heat exchanger, reversing valve, coaxial (tube in tube) refrigerant to water heat exchanger, and safety controls including a high pressure switch, low pressure switch (loss of charge), and water coil low temperature sensor. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service. Activation of any safety device shall prevent compressor operation via a microprocessor lockout circuit. The lockout circuit shall be reset at the thermostat or at the contractor supplied disconnect switch. **Units that cannot be reset at the thermostat shall not be acceptable.**

Hermetic compressors shall be internally sprung. The compressor shall have a dual level vibration isolation system. The compressor will be mounted on computer selected vibration isolation grommets or 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. Compressor shall be located in an insulated compartment away from air stream to minimize sound transmission.

Refrigerant to air heat exchangers shall utilize enhanced corrugated lanced aluminum fins and rifled copper tube construction rated to withstand 450 PSIG (3101 kPa) refrigerant working pressure. 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).

Refrigerant metering shall be accomplished by capillary tube assembly. Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function. If the unit's reversing valve solenoid defaults to cooling mode, a separate low temperature thermostat must be provided to prevent over-cooling an already cold room.

Drain Pan:

The drain pan shall be constructed of galvanized steel and have a powder coat paint application to further inhibit corrosion. This corrosion protection system shall meet the stringent 1000 hour salt spray test per ASTM B117. If plastic type material is used, it must be HDPE (High Density Polyethylene) to avoid thermal cycling shock stress failure over the lifetime of the unit. Stainless Steel materials are also acceptable. Drain pan shall be fully insulated. Drain outlet shall be located at pan as to allow complete and unobstructed drainage of condensate. Drain outlet for horizontal units shall be connected from pan directly to IPT fitting.

No hidden internal tubing extensions from pan outlet extending to unit casing (that can create drainage problems) will be accepted. The unit as standard will be supplied with solid-state electronic condensate overflow protection. **Mechanical float switches will NOT be accepted.**

Vertical units shall be furnished with a PVC slip condensate drain connection and an internal factory installed condensate trap.

If units without an internal trap are used, the contractor is responsible for any extra costs to field install these provisions, and/or the extra costs for his sub-contractor to install these provisions.

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 and fan motor 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 thermostat / sensor.

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. Condensate overflow electronic protection.
- h. Option to reset unit at thermostat or disconnect.
- i. 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.
- j. Ability to defeat time delays for servicing.
- k. Light emitting diode (LED) on circuit board to indicate high pressure, low pressure, low voltage, high voltage, low water/air temperature cut-out, condensate overflow, and control voltage status.
- l. The low-pressure switch shall not be monitored for the first 120 seconds after a compressor start command to prevent nuisance safety trips.
- m. 24V output to cycle a motorized water valve or other device with compressor contactor.
- n. Unit Performance Sentinel (UPS). The UPS warns when the heat pump is running inefficiently.
- o. Water coil low temperature sensing (selectable for water or anti-freeze).

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

Option: Enhanced solid state control system (DXM)

This control system features two stage control of cooling and two stage control of heating modes for exacting temperature and dehumidification purposes.

This control system coupled with a multi-stage thermostat will better dehumidify room air by automatically running the heat pump's fan at lower speed on the first stage of cooling thereby implementing low sensible heat ratio cooling. On the need for higher cooling performance the system will activate the second stage of cooling and automatically switch the fan to the higher fan speed setting. This system may be further enhanced with a humidistat. **Units not having automatic low sensible heat ratio cooling will not be accepted;** as an alternate a hot gas reheat coil may be provided with control system for automatic activation.

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

- a. Removable thermostat connector.

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- b. Night setback control.
- c. Random start on return from night setback.
- d. 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.).
- e. Override temperature control with 2-hour (adjustable) timer for room occupant to override setback temperature at the thermostat.
- f. Dry contact night setback output for digital night setback thermostats.
- g. Ability to work with heat pump or heat/cool (Y, W) type thermostats.
- h. Ability to work with heat pump thermostats using O or B reversing valve control.
- i. Emergency shutdown contacts.
- j. Boilerless system heat control at low loop water temperature.
- k. Ability to allow up to 3 units to be controlled by one thermostat.
- l. Relay to operate an external damper.
- m. Ability to automatically change fan speed from multistage thermostat.
- n. Relay to start system pump.
- o. 75 VA control transformer. Control transformer shall have load side short circuit and overload protection via a built in circuit breaker.

Remote Service Sentinel (CXM/DXM):

Solid state control system shall communicate with thermostat to display (at the thermostat) the unit status, fault status, and specific fault condition, as well as retrieve previously stored fault that caused unit shutdown. The Remote Service Sentinel allows building maintenance personnel or service personnel to diagnose unit from the wall thermostat. The control board shall provide a signal to the thermostat fault light, indicating a lockout. Upon cycling the G (fan) input 3 times within a 60 second time period, the fault light shall display the specific code as indicated by a sequence of flashes. A detailed flashing code shall be provided at the thermostat LED to display unit status and specific fault status such as over/under voltage fault, high pressure fault, low pressure fault, low water temperature fault, condensate overflow fault, etc. **Units that do not provide this remote service sentinel shall not be acceptable.**

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. Space temperature
- b. Leaving water temperature
- c. Discharge air temperature
- d. Command of space temperature setpoint
- e. Cooling status
- f. Heating status
- g. Low temperature sensor alarm
- h. Low pressure sensor alarm
- i. High pressure switch alarm
- j. Condensate sensor alarm
- k. Hi/low voltage alarm
- l. Fan "ON/AUTO" position of space thermostat as specified above
- m. Unoccupied / occupied command
- n. Cooling command
- o. Heating command
- p. Fan "ON / AUTO" command
- q. Fault reset command
- r. 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. Space temperature
- b. Leaving water temperature
- c. Discharge air temperature
- d. Command of space temperature setpoint
- e. Cooling status
- f. Heating status
- g. Low temperature sensor alarm
- h. Low pressure sensor alarm
- i. High pressure switch alarm
- j. Condensate overflow alarm
- k. Hi/low voltage alarm
- l. Fan "ON/AUTO" position of space thermostat as specified above
- m. Unoccupied / occupied command
- n. Cooling command
- o. Heating command
- p. Fan "ON / AUTO" command
- q. Fault reset command
- r. 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 BTUH (35 kW) 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.

Thermostats:

The thermostat shall be a ClimateMaster mechanical or electronic type thermostat as selected below with the described features:

- a. Single Stage Standard Manual Changeover (ATM11C01)
Thermostat shall be a single-stage, vertical mount, manual changeover with HEAT-OFF-COOL system switch and fan ON-AUTO switch. Thermostat shall have a mechanical temperature indicator and set point indication. Thermostat shall only require 4 wires for connection. Mercury bulb thermostats are not acceptable.

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- b. Single Stage Digital Manual Changeover with Two-Speed Fan Control (ATM11C03) – DXM and PSC Fan required
Thermostat shall be a single-stage, digital, manual changeover with HEAT-OFF-COOL system switch, fan ON-AUTO switch, and fan LO-HI switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. The Thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall come standard with remote temperature sensor, but may be operated with internal sensor if desired via installation of a jumper.
- c. Single Stage Digital Auto or Manual Changeover (ATA11U01)
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch and fan ON-AUTO switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. The Thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall provide temperature display offset for custom applications.
- d. Single Stage Digital Automatic Changeover with Two-Speed Fan Control (ATA11C04) – DXM and PSC Fan required
Thermostat shall be a single-stage, digital, auto or manual changeover with HEAT-OFF-COOL-AUTO system switch, fan ON-AUTO switch, and fan LO-HI switch. Thermostat shall have an LCD display with temperature and set-point(s) in °F or °C. The Thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to display specific fault condition. Thermostat shall come standard with remote temperature sensor, but may be operated with internal sensor if desired via installation of a jumper.
- e. Multistage Digital Automatic Changeover (ATA22U01)
Thermostat shall be multi-stage (2H/2C), manual or automatic changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. A fault LED shall be provided to indicate specific fault condition(s). Thermostat shall provide temperature display offset for custom applications. Thermostat shall allow unit to provide better dehumidification with optional DXM controller by automatically using lower fan speed on stage 1 cooling (higher latent cooling) as main cooling mode, and automatically shifting to high speed fan on stage 2 cooling.
- f. Single Stage Manual Changeover Programmable 5/2 Day (ATP11N01)
Thermostat shall be 5 day/2 day programmable (with up to 4 set points per day), single stage (1H/1C), manual changeover with HEAT-OFF-COOL system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. Thermostat shall provide convenient override feature to temporarily change set point.
- g. Multistage Automatic or Manual Changeover Programmable 5/2 Day (ATP21U01)
Thermostat shall be 5 day/2 day programmable (with up to 4 set points per day), multi-stage (2H/1C), automatic or manual changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Thermostat shall have an LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. The thermostat shall provide permanent memory of set-point(s) without batteries. Thermostat shall provide convenient override feature to temporarily change set point.
- h. Multistage Automatic or Manual Changeover Programmable 7 Day (ATP32U01)
Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Thermostat shall have a blue backlit dot matrix LCD display with temperature, set-points, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM or DXM controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of set-points without batteries. Thermostat shall provide heating set-point range limit, cooling set-point range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.
- i. Multistage Automatic or Manual Changeover Programmable 7 Day with Humidity Control (ATP32U02)
Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/2C), automatic or manual changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Separate dehumidification and humidification set points shall be configurable for discreet outputs to a dehumidification option and/or an external humidifier. Installer configuration mode shall allow thermostat dehumidification mode to operate with ClimaDry reheat or with ECM fan dehumidification mode via settings changes. Thermostat shall have a blue backlit dot matrix LCD display with temperature, relative humidity, set-points, mode, and status indication. The temperature indication shall be selectable for °F or °C. Time display shall be selectable for 12 or 24 hour clock. Fault identification shall be provided (when used with ClimateMaster CXM or DXM controls) to simplify troubleshooting by providing specific unit fault at the thermostat with red backlit LCD during unit lockout. The thermostat shall provide permanent memory of set-points without batteries. Thermostat shall provide heating set-point range limit, cooling set-point range limit, temperature display offset, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide progressive recovery to anticipate

time required to bring space temperature to the next programmed event. Thermostat shall provide an installer setup for configuring options and for setup of servicing contractor name and contact information. Thermostat shall allow the use of an accessory remote and/or outdoor temperature sensor (AST008). Thermostat navigation shall be accomplished via five buttons (up/down/right/left/select) with menu-driven selections for ease of use and programming.

DDC Sensors:

ClimateMaster wall mounted DDC sensor to monitor room temperature and interfaces with optional interface system described above. Several types as described below:

- a. Sensor only with no display (LON and MPC).
- b. Sensor with override (LON only).
- c. Sensor with setpoint and adjustment override (MPC only).
- d. Sensor with setpoint and adjustment override, LCD display, status/fault indication (LON and MPC).

Section Change Log

Date:	Item:	Action:
05/23/07	Specifications	Updated for new Safety Agency
01/01/07	Specifications	Updated thermostat offering
01/01/07	Wiring Diagrams	Added pressure switch for motorized valve option
01/01/07	Dimensional Data	Updated All Dimensional Data
01/01/07	Electrical Data	Updated RLA and LRA compressor data, added high static blower electrical data
01/01/07	Updated Decoder	Corrected Cabinet Insulation options
01/01/06	First Published	

Genesis Compact (GC) Series

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