



Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

SERIES:	GS - R22
HZ:	50
UNIT OF MEAS:	SI
LANGUAGE:	ENGLISH

Genesis - GS Series Submittal Data

Models 015 thru 070

50Hz - R22

English Language/SI Units

REVISION: 05/14/04



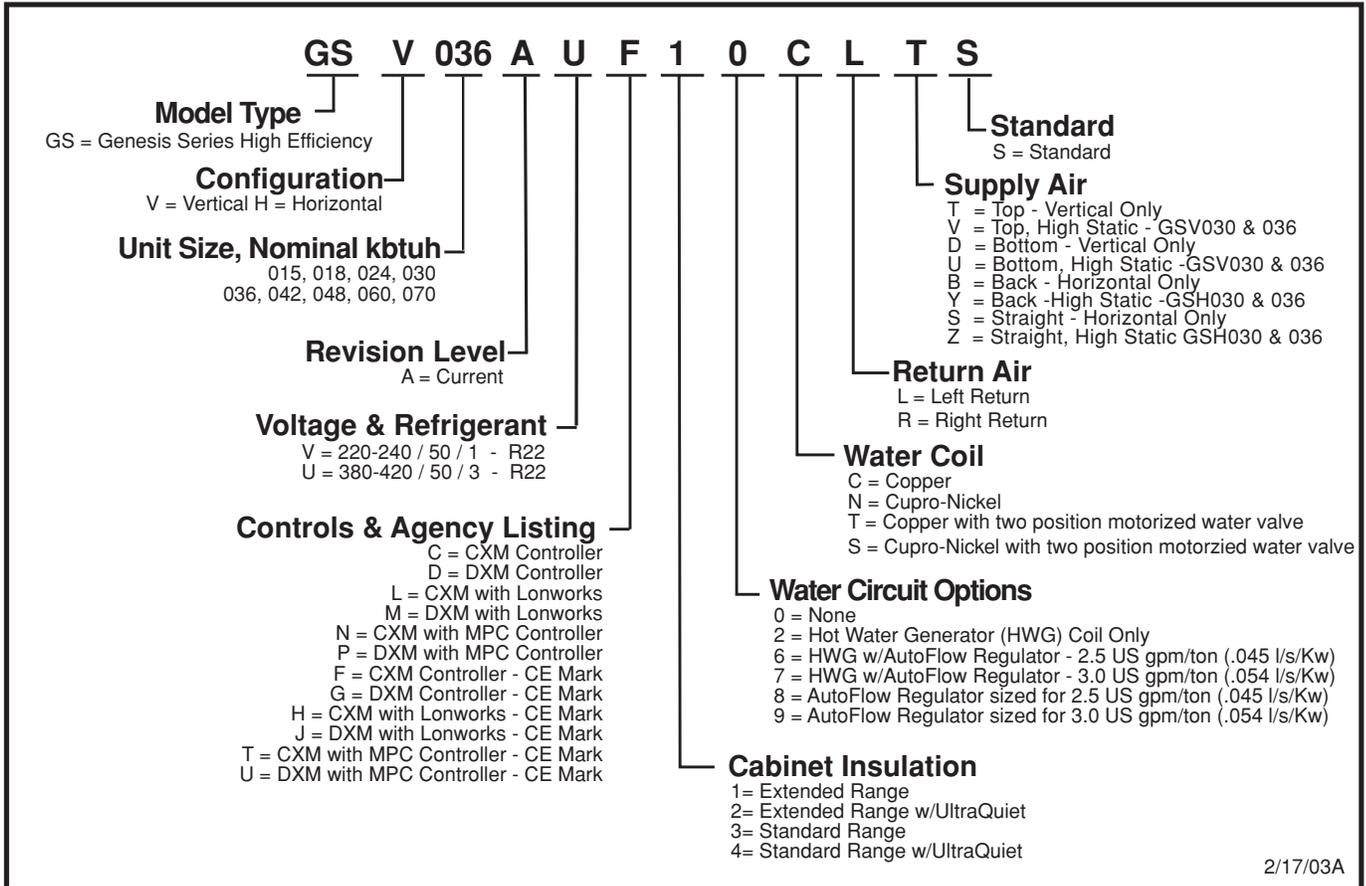
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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
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GS SERIES NOMENCLATURE



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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____	P.O.: _____
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ARI/ASHRAE/ISO 13256-1 PERFORMANCE TABLE

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

Model	Liquid Flow (l/s)	Air Flow (l/s)	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
			Cooling 30°C EWT		Heating 20°C EWT		Cooling 15°C EWT		Heating 10°C EWT		Cooling 25°C EWT		Heating 0°C EWT	
			Capacity Watts	EER (W/W)	Capacity Watts	COP (W/W)	Capacity Watts	EER (W/W)	Capacity Watts	COP (W/W)	Capacity Watts	EER (W/W)	Capacity Watts	COP (W/W)
GSV/H015	0.180	208	3,630	5.3	3,949	5.8	4,116	8.2	3,150	4.7	3,770	6.0	2,734	4.3
GSV/H018	0.213	248	4,508	4.5	5,069	5.1	5,057	7.1	3,998	4.5	4,735	5.3	3,289	4.0
GSV/H024	0.284	330	6,361	4.5	7,350	5.0	6,997	6.7	6,025	4.5	6,518	5.1	5,009	3.9
GSV/H030	0.355	413	7,491	4.5	8,550	5.0	8,205	6.4	6,845	4.3	7,727	5.1	5,567	3.7
GSV/H036	0.426	472	8,539	4.3	9,896	4.6	9,368	6.1	8,160	4.0	8,836	4.9	6,703	3.5
GSV/H042	0.497	578	10,429	4.2	12,055	5.1	11,716	6.1	10,040	4.5	10,940	4.8	8,177	3.8
GSV/H048	0.568	661	11,997	4.4	13,075	5.0	13,033	6.1	11,060	4.5	12,417	5.0	9,347	3.9
GSV/H060	0.710	826	14,448	3.9	18,254	4.8	15,824	5.4	14,653	4.2	15,079	4.4	11,873	3.7
GSV/H070	0.852	949	16,314	3.7	19,352	4.7	17,738	5.1	15,906	4.2	17,015	4.1	12,726	3.5

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

Rev.: 04/01/03 B

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

Model	Liquid Flow (gpm)	Air Flow (cfm)	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
			Cooling 86°F EWT		Heating 68°F EWT		Cooling 59°F EWT		Heating 50°F EWT		Cooling 77°F EWT		Heating 32°F EWT	
			Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
GSV/H015	2.9	441	12,386	18.1	13,474	5.8	14,044	28.0	10,748	4.7	12,863	20.5	9,328	4.3
GSV/H018	3.4	525	15,381	15.4	17,295	5.1	17,254	24.2	13,641	4.5	16,156	18.1	11,222	4.0
GSV/H024	4.5	699	21,704	15.4	25,078	5.0	23,874	22.9	20,557	4.5	22,239	17.4	17,091	3.9
GSV/H030	5.6	875	25,559	15.4	29,173	5.0	27,995	21.8	23,355	4.3	26,365	17.4	18,995	3.7
GSV/H036	6.8	1000	29,135	14.7	33,765	4.6	31,964	20.8	27,842	4.0	30,148	16.7	22,871	3.5
GSV/H042	7.9	1225	35,584	14.3	41,132	5.1	39,975	20.8	34,256	4.5	37,327	16.4	27,900	3.8
GSV/H048	9.0	1400	40,934	15.0	44,612	5.0	44,469	20.8	37,737	4.5	42,367	17.1	31,892	3.9
GSV/H060	11.3	1750	49,297	13.3	62,283	4.8	53,991	18.4	49,996	4.2	51,450	15.0	40,511	3.7
GSV/H070	13.5	2011	55,663	12.6	66,029	4.7	60,522	17.4	54,271	4.2	58,055	14.0	43,421	3.5

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

Rev.: 04/01/03 B

cfm*0.472 = l/s
 gpm*0.0631 = l/s
 in wg*249 = pascals
 ft of hd *2990 = pascals

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

208 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 015

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20°C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.114	2.4	Operation Not Recommended						Operation Not Recommended				
	0.177	5.4											
	0.240	9.2							2.62	0.71	1.9	30.4	3.68
0	0.114	2.4	4.36	3.30	0.76	0.47	4.8	9.34	2.67	0.72	2.0	30.6	3.72
	0.177	5.3	4.45	3.31	0.74	0.44	4.9	10.04	2.79	0.72	2.1	31.1	3.90
	0.240	8.9	4.48	3.31	0.74	0.43	4.9	10.34	2.85	0.72	2.1	31.4	3.97
5	0.114	2.4	4.28	3.24	0.76	0.50	4.8	8.49	3.01	0.73	2.3	32.0	4.11
	0.177	5.1	4.36	3.30	0.76	0.46	4.8	9.40	3.16	0.73	2.4	32.6	4.31
	0.240	8.6	4.40	3.31	0.75	0.45	4.8	9.70	3.23	0.74	2.5	32.9	4.34
10	0.114	2.4	4.15	3.15	0.76	0.55	4.7	7.55	3.36	0.74	2.6	33.4	4.52
	0.177	5.1	4.23	3.25	0.77	0.51	4.7	8.32	3.53	0.75	2.8	34.1	4.70
	0.240	8.4	4.29	3.28	0.76	0.49	4.8	8.77	3.65	0.75	2.9	34.5	4.85
15	0.114	2.1	4.01	3.07	0.76	0.61	4.6	6.56	3.76	0.76	3.0	35.0	4.94
	0.177	4.8	4.13	3.16	0.77	0.56	4.7	7.33	3.96	0.77	3.2	35.8	5.14
	0.240	8.1	4.16	3.19	0.77	0.54	4.7	7.66	4.08	0.77	3.3	36.2	5.29
20	0.114	2.1	3.84	2.98	0.78	0.68	4.5	5.62	4.13	0.77	3.4	36.4	5.36
	0.177	4.5	3.98	3.05	0.77	0.63	4.6	6.28	4.38	0.78	3.6	37.5	5.62
	0.240	8.1	4.03	3.08	0.77	0.60	4.6	6.66	4.50	0.78	3.7	37.9	5.77
25	0.114	2.1	3.65	2.90	0.79	0.76	4.4	4.80	4.54	0.79	3.8	38.1	5.78
	0.177	4.5	3.80	2.96	0.78	0.70	4.5	5.39	4.81	0.79	4.0	39.1	6.09
	0.240	7.9	3.88	2.99	0.77	0.67	4.6	5.75	4.95	0.80	4.1	39.7	6.21
30	0.114	2.1	3.47	2.83	0.82	0.84	4.3	4.12	4.95	0.80	4.2	39.7	6.20
	0.177	4.3	3.61	2.88	0.80	0.78	4.4	4.62	5.25	0.80	4.4	40.9	6.53
	0.240	7.6	3.70	2.91	0.79	0.75	4.5	4.92	5.40	0.81	4.6	41.5	6.68
35	0.114	1.9	3.27	2.79	0.85	0.93	4.2	3.52	Operation Not Recommended				
	0.177	4.2	3.42	2.81	0.82	0.87	4.3	3.93					
	0.240	7.3	3.50	2.84	0.81	0.84	4.3	4.18					
40	0.114	1.8	3.05	2.77	0.91	1.01	4.1	3.01					
	0.177	4.1	3.19	2.77	0.87	0.95	4.1	3.35					
	0.240	7.1	3.28	2.80	0.85	0.92	4.2	3.55					
45	0.114	1.8	3.00	2.66	0.89	1.13	4.1	2.66					
	0.177	3.9	3.17	2.69	0.85	1.05	4.2	3.01					
	0.240	6.9	3.26	2.73	0.84	1.01	4.3	3.23					

Interpolation is permissible, extrapolation is not.

Rev: 1/14/04 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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

Operation below 15°C EWT requires optional insulated water circuit

Operation below 5°C EWT is based on 15% antifreeze solution.

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

Table does not reflect fan or pump power ISO corrections

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

248 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 018

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20 °C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.139	3.6	Operation Not Recommended						Operation Not Recommended				
	0.221	8.0											
	0.284	12.5							3.45	0.94	2.5	31.5	3.68
0	0.139	3.5	5.61	3.99	0.71	0.67	6.3	8.37	3.49	0.95	2.5	31.7	3.68
	0.221	7.7	5.67	4.00	0.70	0.63	6.3	9.03	3.65	0.96	2.7	32.2	3.81
	0.284	12.1	5.68	4.00	0.70	0.62	6.3	9.21	3.73	0.96	2.8	32.5	3.90
5	0.139	3.3	5.50	3.96	0.72	0.73	6.2	7.57	3.94	0.97	3.0	33.2	4.04
	0.221	7.5	5.59	3.99	0.71	0.68	6.3	8.28	4.15	0.99	3.2	33.9	4.18
	0.284	11.6	5.63	4.00	0.71	0.65	6.3	8.59	4.24	0.99	3.2	34.2	4.26
10	0.139	3.3	5.34	3.93	0.74	0.80	6.1	6.69	4.39	1.01	3.4	34.7	4.35
	0.221	7.5	5.49	3.96	0.72	0.74	6.2	7.43	4.65	1.02	3.6	35.6	4.56
	0.284	11.4	5.55	4.00	0.72	0.71	6.3	7.83	4.74	1.03	3.7	35.9	4.61
15	0.139	3.0	5.16	3.88	0.75	0.89	6.0	5.81	4.89	1.04	3.9	36.4	4.72
	0.221	7.2	5.33	3.94	0.74	0.81	6.1	6.58	5.18	1.06	4.1	37.3	4.91
	0.284	11.1	5.39	3.97	0.74	0.78	6.2	6.90	5.30	1.06	4.2	37.7	5.02
20	0.139	3.0	4.95	3.80	0.77	0.98	5.9	5.06	5.37	1.06	4.3	38.0	5.05
	0.221	6.9	5.15	3.88	0.75	0.90	6.0	5.73	5.69	1.08	4.6	39.0	5.25
	0.284	10.8	5.21	3.89	0.75	0.87	6.1	6.00	5.83	1.09	4.7	39.5	5.35
25	0.139	3.0	4.72	3.69	0.78	1.07	5.8	4.39	5.87	1.09	4.8	39.6	5.39
	0.221	6.7	4.92	3.78	0.77	0.99	5.9	4.98	6.21	1.11	5.1	40.8	5.60
	0.284	10.6	5.00	3.80	0.76	0.96	6.0	5.22	6.38	1.12	5.3	41.3	5.70
30	0.139	2.8	4.48	3.56	0.79	1.18	5.7	3.80	6.36	1.12	5.2	41.3	5.69
	0.221	6.4	4.69	3.67	0.78	1.09	5.8	4.30	6.75	1.14	5.6	42.5	5.93
	0.284	10.1	4.78	3.70	0.78	1.05	5.8	4.53	6.92	1.15	5.8	43.1	6.04
35	0.139	2.7	4.23	3.40	0.80	1.28	5.5	3.30	Operation Not Recommended				
	0.221	6.3	4.44	3.53	0.79	1.19	5.6	3.72					
	0.284	9.7	4.52	3.57	0.79	1.16	5.7	3.91					
40	0.139	2.7	3.97	3.23	0.81	1.38	5.4	2.87					
	0.221	6.2	4.17	3.36	0.80	1.30	5.5	3.22					
	0.284	9.4	4.26	3.42	0.80	1.27	5.5	3.37					
45	0.139	2.6	3.91	3.26	0.83	1.54	5.4	2.53					
	0.221	5.9	4.14	3.41	0.82	1.43	5.6	2.90					
	0.284	9.2	4.25	3.46	0.82	1.39	5.6	3.06					

Interpolation is permissible, extrapolation is not.

Rev: 1/14/04 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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

Operation below 15°C EWT requires optional insulated water circuit

Operation below 5°C EWT is based on 15% antifreeze solution.

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

Table does not reflect fan or pump power ISO corrections

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

330 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 024

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20°C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.190	11.6											
	0.284												
	0.379		4.2	1.31	2.9	30.6	3.24						
0	0.190	2.7	7.5	5.7	0.76	0.80	8.3	9.46	4.8	1.35	3.5	32.2	3.60
	0.284	6.3	7.6	5.7	0.75	0.77	8.4	9.94	4.9	1.35	3.6	32.3	3.62
	0.379	11.3	7.7	5.7	0.74	0.75	8.4	10.32	4.9	1.36	3.6	32.4	3.65
5	0.190	2.7	7.4	5.6	0.76	0.93	8.3	7.89	5.4	1.39	4.0	33.6	3.90
	0.284	6.3	7.4	5.6	0.75	0.90	8.3	8.23	5.5	1.39	4.1	33.8	3.97
	0.379	11.0	7.5	5.6	0.74	0.86	8.3	8.68	5.6	1.40	4.2	34.0	3.98
10	0.190	2.7	7.2	5.4	0.76	1.07	8.2	6.70	6.0	1.43	4.6	35.1	4.21
	0.284	6.0	7.2	5.4	0.75	1.03	8.2	7.01	6.1	1.44	4.7	35.4	4.27
	0.379	10.8	7.3	5.4	0.74	0.99	8.3	7.36	6.2	1.46	4.8	35.7	4.29
15	0.190	2.7	6.8	5.3	0.78	1.18	8.0	5.77	6.6	1.47	5.1	36.6	4.49
	0.284	5.7	6.9	5.3	0.77	1.13	8.0	6.12	6.8	1.49	5.3	37.0	4.56
	0.379	10.5	7.0	5.3	0.77	1.07	8.0	6.53	7.0	1.51	5.5	37.5	4.61
20	0.190	2.5	6.5	5.2	0.80	1.29	7.8	5.06	7.2	1.52	5.7	38.0	4.74
	0.284	5.7	6.6	5.3	0.80	1.23	7.8	5.39	7.5	1.54	5.9	38.7	4.83
	0.379	10.2	6.7	5.3	0.79	1.16	7.8	5.76	7.7	1.57	6.1	39.3	4.90
25	0.190	2.4	6.4	5.1	0.80	1.44	7.8	4.43	7.8	1.57	6.2	39.5	4.96
	0.284	5.5	6.4	5.1	0.79	1.36	7.8	4.72	8.1	1.60	6.5	40.3	5.06
	0.379	9.8	6.5	5.1	0.79	1.28	7.8	5.05	8.4	1.63	6.7	41.0	5.12
30	0.190	2.4	6.2	4.9	0.79	1.58	7.8	3.92	8.3	1.61	6.7	40.9	5.17
	0.284	5.2	6.3	4.9	0.78	1.50	7.8	4.16	8.7	1.65	7.0	41.8	5.27
	0.379	9.4	6.3	4.9	0.78	1.42	7.7	4.46	9.0	1.69	7.3	42.6	5.34
35	0.190	2.3	6.0	4.7	0.79	1.75	7.7	3.41	Operation Not Recommended				
	0.284	5.1	6.0	4.7	0.79	1.66	7.7	3.62					
	0.379	9.2	6.1	4.8	0.78	1.57	7.6	3.87					
40	0.190	2.3	5.7	4.6	0.81	1.93	7.6	2.94					
	0.284	4.9	5.7	4.6	0.81	1.83	7.5	3.12					
	0.379	8.9	5.8	4.6	0.80	1.73	7.5	3.33					
45	0.190	2.2	5.5	4.5	0.82	2.18	7.7	2.53					
	0.284	4.8	5.6	4.5	0.81	2.06	7.6	2.70					
	0.379	8.7	5.6	4.6	0.81	1.93	7.5	2.92					

Interpolation is permissible, extrapolation is not.

Rev: 03/11/03 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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

Operation below 15°C EWT requires optional insulated water circuit

Operation below 5°C EWT is based on 15% antifreeze solution.

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

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

413 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 030

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20°C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.237	18.4											
	0.355												
	0.473		4.9	1.53	3.3	29.7	3.17						
0	0.237	4.4	8.8	6.6	0.75	1.04	9.9	8.51	5.2	1.57	3.7	30.5	3.34
	0.355	10.0	8.9	6.6	0.74	1.00	9.8	8.90	5.5	1.57	3.9	31.0	3.48
	0.473	17.8	8.9	6.5	0.73	0.96	9.9	9.32	5.7	1.57	4.1	31.4	3.63
5	0.237	4.3	8.6	6.5	0.76	1.17	9.8	7.33	6.0	1.61	4.4	32.1	3.74
	0.355	9.8	8.6	6.5	0.76	1.13	9.7	7.63	6.2	1.62	4.6	32.5	3.84
	0.473	17.3	8.7	6.5	0.75	1.08	9.8	8.01	6.4	1.62	4.8	32.8	3.94
10	0.237	4.0	8.4	6.5	0.77	1.31	9.7	6.39	6.8	1.65	5.1	33.6	4.10
	0.355	9.5	8.4	6.5	0.77	1.25	9.6	6.68	6.9	1.66	5.3	33.9	4.17
	0.473	16.7	8.4	6.4	0.76	1.21	9.6	6.96	7.1	1.67	5.4	34.2	4.23
15	0.237	4.0	8.1	6.3	0.78	1.40	9.5	5.76	7.6	1.69	5.9	35.2	4.48
	0.355	9.2	8.1	6.3	0.77	1.34	9.5	6.04	7.8	1.71	6.1	35.6	4.55
	0.473	16.2	8.2	6.3	0.77	1.29	9.5	6.34	8.0	1.73	6.2	36.0	4.61
20	0.237	4.0	7.8	6.1	0.78	1.50	9.3	5.21	8.4	1.73	6.6	36.7	4.82
	0.355	8.9	7.9	6.1	0.78	1.43	9.3	5.50	8.6	1.75	6.9	37.3	4.92
	0.473	15.9	7.9	6.1	0.77	1.37	9.3	5.78	8.9	1.78	7.1	37.8	5.00
25	0.237	3.8	7.6	6.1	0.80	1.65	9.2	4.60	9.1	1.79	7.3	38.3	5.11
	0.355	8.6	7.6	6.1	0.80	1.57	9.2	4.86	9.4	1.81	7.6	38.9	5.19
	0.473	15.4	7.7	6.1	0.79	1.50	9.2	5.12	9.7	1.83	7.8	39.4	5.27
30	0.237	3.7	7.3	6.1	0.82	1.81	9.2	4.07	9.9	1.84	8.0	39.8	5.36
	0.355	8.3	7.4	6.1	0.82	1.72	9.1	4.30	10.1	1.87	8.3	40.3	5.43
	0.473	14.9	7.4	6.1	0.82	1.64	9.1	4.52	10.4	1.89	8.5	40.8	5.48
35	0.237	3.6	7.0	5.9	0.84	1.96	9.0	3.59	Operation Not Recommended				
	0.355	8.1	7.1	5.9	0.84	1.87	8.9	3.80					
	0.473	14.5	7.1	5.9	0.83	1.78	8.9	4.00					
40	0.237	3.6	6.7	5.6	0.84	2.11	8.8	3.16					
	0.355	7.9	6.7	5.7	0.84	2.00	8.7	3.34					
	0.473	14.1	6.7	5.7	0.84	1.91	8.7	3.53					
45	0.237	3.5	6.6	5.6	0.86	2.33	8.9	2.82					
	0.355	7.6	6.6	5.7	0.86	2.21	8.8	2.99					
	0.473	13.7	6.6	5.7	0.86	2.10	8.8	3.16					

Interpolation is permissible, extrapolation is not.

Rev: 03/11/03 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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

Operation below 15°C EWT requires optional insulated water circuit

Operation below 5°C EWT is based on 15% antifreeze solution.

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

Table does not reflect fan or pump power ISO corrections

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

472 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 036

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20°C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.284	33.2											
	0.426												
	0.568		5.9	1.83	4.1	30.4	3.22						
0	0.284	11.0	9.9	7.9	0.79	1.17	11.1	8.44	6.5	1.89	4.7	31.5	3.47
	0.426	27.6	10.1	7.9	0.79	1.13	11.2	8.96	6.6	1.89	4.7	31.6	3.50
	0.568	32.4	10.3	8.0	0.78	1.07	11.4	9.63	6.7	1.90	4.8	31.8	3.55
5	0.284	10.4	9.6	7.7	0.80	1.33	11.0	7.27	7.3	1.96	5.4	32.9	3.75
	0.426	20.1	9.8	7.8	0.79	1.28	11.1	7.67	7.4	1.96	5.5	33.1	3.80
	0.568	31.6	10.0	7.8	0.78	1.23	11.3	8.20	7.5	1.96	5.6	33.2	3.85
10	0.284	10.2	9.3	7.6	0.81	1.49	10.8	6.28	8.2	2.03	6.1	34.3	4.02
	0.426	19.6	9.5	7.6	0.80	1.43	11.0	6.65	8.2	2.03	6.2	34.5	4.06
	0.568	30.5	9.8	7.7	0.79	1.38	11.1	7.08	8.4	2.02	6.3	34.7	4.14
15	0.284	9.9	9.1	7.6	0.83	1.61	10.7	5.64	9.0	2.08	6.9	35.8	4.31
	0.426	19.1	9.3	7.6	0.82	1.56	10.8	5.96	9.1	2.09	7.0	36.0	4.36
	0.568	29.7	9.5	7.7	0.80	1.49	11.0	6.37	9.3	2.10	7.2	36.3	4.41
20	0.284	9.6	8.9	7.6	0.86	1.74	10.6	5.10	9.8	2.14	7.6	37.2	4.58
	0.426	18.6	9.1	7.6	0.84	1.69	10.7	5.37	10.0	2.15	7.8	37.5	4.64
	0.568	28.9	9.3	7.6	0.83	1.62	10.9	5.72	10.2	2.17	8.0	37.9	4.69
25	0.284	9.4	8.6	7.4	0.86	1.90	10.5	4.52	10.6	2.18	8.4	38.6	4.85
	0.426	17.9	8.8	7.4	0.85	1.84	10.6	4.76	10.8	2.21	8.6	38.9	4.88
	0.568	28.1	9.0	7.5	0.83	1.77	10.7	5.06	11.0	2.24	8.8	39.3	4.91
30	0.284	9.1	8.3	7.2	0.87	2.07	10.4	4.01	11.4	2.23	9.2	40.0	5.10
	0.426	17.3	8.5	7.2	0.85	2.01	10.5	4.22	11.6	2.27	9.3	40.3	5.11
	0.568	27.1	8.7	7.2	0.83	1.93	10.6	4.48	11.8	2.31	9.5	40.8	5.12
35	0.284	8.8	7.9	7.1	0.90	2.28	10.2	3.48	Operation Not Recommended				
	0.426	15.5	8.1	7.1	0.88	2.21	10.3	3.65					
	0.568	26.4	8.3	7.1	0.86	2.13	10.4	3.88					
40	0.284	8.5	7.5	7.1	0.96	2.51	10.0	2.96					
	0.426	14.6	7.6	7.1	0.94	2.44	10.0	3.11					
	0.568	25.6	7.8	7.2	0.92	2.35	10.1	3.31					
45	0.284	8.3	7.4	7.0	0.95	2.75	10.1	2.69					
	0.426	13.8	7.5	7.0	0.93	2.68	10.2	2.82					
	0.568	24.9	7.7	7.0	0.90	2.59	10.3	2.99					

Interpolation is permissible, extrapolation is not.

Rev: 03/11/03 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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

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Table does not reflect fan or pump power ISO corrections

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

578 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 042

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20 °C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.332	42.4											
	0.497												
	0.663		7.1	2.13	4.9	30.1	3.32						
0	0.332	14.0	12.7	9.9	0.78	1.46	14.2	8.70	7.9	2.17	5.7	31.3	3.65
	0.497	26.9	12.8	9.9	0.77	1.43	14.2	8.92	8.0	2.18	5.9	31.5	3.68
	0.663	41.3	12.9	9.9	0.77	1.38	14.3	9.40	8.2	2.20	6.0	31.8	3.75
5	0.332	13.7	12.3	9.6	0.79	1.67	13.9	7.35	8.9	2.23	6.7	32.8	4.01
	0.497	26.2	12.4	9.7	0.78	1.63	14.0	7.56	9.1	2.25	6.9	33.1	4.06
	0.663	40.2	12.5	9.7	0.78	1.56	14.1	8.02	9.4	2.29	7.2	33.5	4.13
10	0.332	13.1	11.8	9.4	0.79	1.88	13.7	6.31	10.0	2.29	7.7	34.3	4.35
	0.497	25.3	11.9	9.4	0.79	1.83	13.7	6.52	10.2	2.32	7.9	34.6	4.40
	0.663	38.9	12.0	9.5	0.79	1.75	13.8	6.89	10.6	2.37	8.3	35.2	4.49
15	0.332	12.9	11.5	9.2	0.80	2.05	13.6	5.63	11.0	2.35	8.6	35.7	4.67
	0.497	24.6	11.6	9.2	0.80	1.99	13.6	5.81	11.2	2.38	8.8	36.0	4.71
	0.663	37.8	11.7	9.3	0.79	1.88	13.6	6.21	11.6	2.43	9.2	36.7	4.79
20	0.332	12.4	11.2	9.0	0.80	2.22	13.4	5.05	12.0	2.41	9.6	37.2	4.97
	0.497	23.9	11.3	9.0	0.80	2.15	13.4	5.23	12.2	2.43	9.8	37.5	5.01
	0.663	36.7	11.4	9.0	0.80	2.02	13.4	5.64	12.6	2.48	10.2	38.1	5.09
25	0.332	12.0	10.7	8.7	0.81	2.43	13.2	4.42	13.0	2.48	10.5	38.6	5.25
	0.497	23.3	10.8	8.7	0.81	2.36	13.2	4.58	13.3	2.51	10.7	39.0	5.29
	0.663	35.6	10.9	8.8	0.81	2.21	13.1	4.93	13.8	2.56	11.2	39.7	5.37
30	0.332	11.7	10.2	8.5	0.83	2.65	12.9	3.86	14.0	2.53	11.5	40.1	5.53
	0.497	22.5	10.3	8.5	0.83	2.57	12.9	4.00	14.3	2.57	11.7	40.5	5.56
	0.663	34.6	10.4	8.5	0.82	2.41	12.8	4.30	14.9	2.65	12.2	41.3	5.61
35	0.332	11.3	9.8	8.3	0.85	2.92	12.7	3.35	Operation Not Recommended				
	0.497	21.9	9.8	8.3	0.85	2.83	12.6	3.47					
	0.663	33.6	9.9	8.4	0.84	2.65	12.6	3.74					
40	0.332	11.0	9.3	8.1	0.87	3.21	12.5	2.90					
	0.497	21.2	9.4	8.1	0.87	3.11	12.5	3.01					
	0.663	32.6	9.5	8.2	0.87	2.91	12.4	3.24					
45	0.332	10.7	9.1	7.9	0.87	3.55	12.6	2.56					
	0.497	20.6	9.1	7.9	0.87	3.43	12.6	2.67					
	0.663	31.6	9.2	8.0	0.86	3.18	12.4	2.90					

Interpolation is permissible, extrapolation is not.

Rev: 03/11/03 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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

Operation below 15°C EWT requires optional insulated water circuit

Operation below 5°C EWT is based on 15% antifreeze solution.

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

Table does not reflect fan or pump power ISO corrections

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

661 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 048

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20 °C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.379												
	0.568												
	0.757	52.2							8.1	2.42	5.7	30.2	3.36
0	0.379	17.3	13.7	10.5	0.77	1.68	15.4	8.12	9.0	2.44	6.6	31.3	3.69
	0.568	32.4	13.8	10.5	0.76	1.62	15.4	8.49	9.2	2.46	6.7	31.5	3.73
	0.757	50.8	13.9	10.4	0.75	1.56	15.5	8.91	9.3	2.49	6.8	31.7	3.75
5	0.379	16.7	13.3	10.3	0.78	1.90	15.2	7.02	10.0	2.50	7.5	32.5	3.99
	0.568	31.6	13.4	10.3	0.77	1.83	15.2	7.33	10.2	2.51	7.7	32.8	4.06
	0.757	49.5	13.5	10.2	0.76	1.76	15.3	7.69	10.4	2.53	7.9	33.0	4.11
10	0.379	16.2	13.0	10.2	0.78	2.12	15.1	6.14	11.0	2.56	8.4	33.8	4.29
	0.568	30.5	13.1	10.1	0.77	2.05	15.1	6.39	11.3	2.57	8.7	34.1	4.37
	0.757	48.1	13.2	10.1	0.76	1.97	15.1	6.70	11.5	2.57	8.9	34.4	4.47
15	0.379	15.6	12.8	10.1	0.79	2.30	15.0	5.56	11.9	2.63	9.2	34.9	4.52
	0.568	29.7	12.8	10.0	0.78	2.22	15.1	5.79	12.3	2.64	9.6	35.4	4.65
	0.757	46.8	12.9	10.0	0.77	2.13	15.1	6.08	12.7	2.65	10.0	35.9	4.79
20	0.379	15.3	12.5	10.0	0.80	2.48	15.0	5.07	12.8	2.69	10.1	36.0	4.75
	0.568	28.9	12.6	10.0	0.79	2.39	15.0	5.28	13.3	2.71	10.6	36.6	4.90
	0.757	45.5	12.7	9.9	0.78	2.30	15.0	5.53	13.8	2.72	11.1	37.3	5.08
25	0.379	14.9	12.2	9.8	0.81	2.70	14.9	4.51	13.6	2.75	10.9	37.1	4.96
	0.568	28.1	12.2	9.8	0.80	2.60	14.8	4.70	14.2	2.76	11.4	37.7	5.12
	0.757	44.1	12.3	9.8	0.79	2.50	14.8	4.91	14.7	2.78	11.9	38.4	5.27
30	0.379	14.3	11.7	9.6	0.82	2.93	14.7	4.01	14.5	2.81	11.7	38.2	5.16
	0.568	27.1	11.8	9.6	0.81	2.82	14.6	4.18	15.0	2.82	12.2	38.8	5.31
	0.757	42.6	11.9	9.5	0.80	2.72	14.6	4.36	15.5	2.84	12.6	39.4	5.45
35	0.379	13.9	11.3	9.4	0.83	3.21	14.6	3.53	Operation Not Recommended				
	0.568	26.4	11.4	9.4	0.83	3.10	14.5	3.68					
	0.757	41.5	11.5	9.4	0.82	2.98	14.5	3.85					
40	0.379	13.5	10.9	9.3	0.85	3.54	14.5	3.09					
	0.568	25.6	11.0	9.3	0.85	3.41	14.4	3.23					
	0.757	40.3	11.1	9.3	0.84	3.28	14.4	3.39					
45	0.379	13.1	10.8	9.2	0.85	3.86	14.7	2.79					
	0.568	24.9	10.8	9.2	0.85	3.73	14.6	2.91					
	0.757	39.2	10.9	9.2	0.84	3.58	14.5	3.04					

Interpolation is permissible, extrapolation is not.

Rev: 03/11/03 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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

Operation below 15°C EWT requires optional insulated water circuit

Operation below 5°C EWT is based on 15% antifreeze solution.

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Table does not reflect fan or pump power ISO corrections

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

826 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 060

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20 °C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.474	34.9											
	0.710												
	0.947		10.7	3.27	7.4	30.7	3.27						
0	0.474	10.7	16.8	12.6	0.75	2.31	19.1	7.27	11.1	3.28	7.8	31.2	3.39
	0.710	21.0	16.8	12.5	0.75	2.26	19.1	7.44	11.7	3.36	8.3	31.7	3.48
	0.947	33.9	16.9	12.5	0.74	2.22	19.1	7.62	12.2	3.39	8.9	32.3	3.61
5	0.474	10.5	16.3	12.5	0.77	2.62	18.9	6.21	12.8	3.47	9.3	32.8	3.68
	0.710	20.4	16.3	12.4	0.76	2.55	18.9	6.40	13.3	3.50	9.8	33.3	3.79
	0.947	33.1	16.4	12.3	0.75	2.49	18.9	6.59	13.8	3.53	10.2	33.8	3.90
10	0.474	10.2	15.8	12.3	0.78	2.93	18.7	5.37	14.4	3.61	10.8	34.4	3.99
	0.710	19.9	15.8	12.2	0.77	2.85	18.7	5.56	14.8	3.63	11.2	34.9	4.08
	0.947	32.0	15.9	12.1	0.76	2.75	18.7	5.78	15.3	3.66	11.6	35.3	4.17
15	0.474	9.9	15.6	12.3	0.79	3.17	18.7	4.91	16.1	3.76	12.3	36.1	4.28
	0.710	19.4	15.6	12.2	0.78	3.04	18.7	5.14	16.6	3.78	12.9	36.7	4.40
	0.947	31.2	15.7	12.1	0.77	2.92	18.6	5.38	17.2	3.81	13.4	37.3	4.53
20	0.474	9.7	15.3	12.2	0.80	3.41	18.8	4.50	17.7	3.90	13.8	37.8	4.55
	0.710	18.8	15.4	12.1	0.79	3.25	18.7	4.75	18.4	3.93	14.5	38.5	4.69
	0.947	30.1	15.5	12.0	0.78	3.08	18.6	5.04	19.2	3.95	15.2	39.2	4.86
25	0.474	9.4	14.8	12.1	0.82	3.74	18.5	3.96	19.4	4.04	15.3	39.4	4.79
	0.710	18.3	14.9	12.0	0.80	3.55	18.4	4.20	20.1	4.06	16.0	40.1	4.94
	0.947	29.3	15.0	11.9	0.79	3.35	18.4	4.48	20.8	4.08	16.7	40.9	5.10
30	0.474	9.1	14.1	11.9	0.84	4.08	18.2	3.46	21.0	4.18	16.8	41.1	5.02
	0.710	18.3	14.3	11.8	0.82	3.88	18.1	3.68	21.7	4.20	17.5	41.7	5.16
	0.947	28.5	14.4	11.7	0.81	3.66	18.1	3.93	22.4	4.21	18.2	42.4	5.31
35	0.474	8.9	13.7	11.7	0.86	4.46	18.1	3.06	Operation Not Recommended				
	0.710	17.6	13.8	11.6	0.84	4.24	18.0	3.25					
	0.947	27.6	13.9	11.5	0.83	4.01	17.9	3.47					
40	0.474	8.7	13.3	11.6	0.87	4.87	18.2	2.74					
	0.710	17.2	13.5	11.5	0.86	4.63	18.1	2.91					
	0.947	26.8	13.5	11.4	0.84	4.38	17.9	3.10					
45	0.474	8.4	13.0	11.5	0.88	5.36	18.4	2.43					
	0.710	16.8	13.2	11.4	0.87	5.04	18.2	2.61					
	0.947	26.0	13.3	11.3	0.85	4.70	18.0	2.83					

Interpolation is permissible, extrapolation is not.

Rev: 03/11/03 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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

Operation below 15°C EWT requires optional insulated water circuit

Operation below 5°C EWT is based on 15% antifreeze solution.

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

Table does not reflect fan or pump power ISO corrections

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

949 l/s Nominal Airflow

Performance capacities shown in thousands of Watts.

PERFORMANCE DATA GSH/GSV 070

EWT °C	FLOW l/s	WPD kPa	COOLING - EAT 27/19 °C						HEATING - EAT 20°C				
			TC kW	SC kW	Sens/Tot Ratio	POWER kW	HR kW	EER W/W	HC kW	POWER kW	HE kW	LAT °C	COP W/W
-5	0.568												
	0.852												
	1.136	47.1							11.8	3.69	8.1	30.3	3.20
0	0.568	14.6	18.7	15.0	0.80	2.78	21.5	6.72	12.2	3.66	8.6	30.7	3.35
	0.852	28.5	18.8	14.8	0.79	2.67	21.5	7.04	12.5	3.70	8.9	31.0	3.39
	1.136	45.8	18.9	14.6	0.77	2.56	21.4	7.39	13.4	3.74	9.7	31.7	3.59
5	0.568	14.3	18.2	14.6	0.81	3.12	21.3	5.82	13.9	3.79	10.2	32.2	3.68
	0.852	27.7	18.2	14.5	0.79	3.00	21.2	6.08	14.5	3.81	10.7	32.6	3.79
	1.136	44.7	18.4	14.3	0.78	2.87	21.2	6.40	15.0	3.84	11.1	33.1	3.90
10	0.568	13.8	17.6	14.3	0.81	3.46	21.1	5.09	15.6	3.90	11.7	33.7	4.01
	0.852	26.9	17.7	14.2	0.80	3.32	21.0	5.33	16.1	3.92	12.2	34.0	4.10
	1.136	43.4	17.8	14.0	0.79	3.18	21.0	5.59	16.5	3.94	12.6	34.4	4.19
15	0.568	13.5	17.4	14.1	0.81	3.75	21.2	4.65	17.3	4.03	13.3	35.1	4.31
	0.852	26.1	17.6	14.1	0.80	3.60	21.2	4.88	17.8	4.06	13.7	35.5	4.38
	1.136	42.0	17.7	14.0	0.79	3.45	21.2	5.13	18.2	4.10	14.1	35.9	4.45
20	0.568	13.0	17.2	13.9	0.81	4.05	21.3	4.26	19.0	4.15	14.9	36.6	4.59
	0.852	25.3	17.4	13.9	0.80	3.88	21.3	4.49	19.5	4.21	15.3	37.0	4.64
	1.136	40.9	17.6	14.0	0.80	3.72	21.3	4.73	20.0	4.26	15.7	37.5	4.69
25	0.568	13.0	16.7	13.6	0.82	4.39	21.1	3.79	20.7	4.32	16.4	38.1	4.79
	0.852	24.7	16.8	13.6	0.81	4.21	21.1	4.00	21.1	4.36	16.7	38.4	4.84
	1.136	39.6	17.0	13.7	0.80	4.03	21.0	4.22	21.4	4.39	17.0	38.7	4.88
30	0.568	12.2	16.0	13.2	0.83	4.76	20.7	3.36	22.4	4.51	17.9	39.5	4.96
	0.852	24.0	16.1	13.2	0.82	4.57	20.7	3.53	22.6	4.51	18.0	39.7	5.00
	1.136	38.5	16.3	13.3	0.81	4.37	20.7	3.73	22.7	4.51	18.2	39.8	5.04
35	0.568	12.0	15.3	12.9	0.84	5.20	20.5	2.95	Operation Not Recommended				
	0.852	23.3	15.5	13.0	0.84	4.99	20.5	3.11					
	1.136	37.4	15.6	13.0	0.83	4.77	20.4	3.28					
40	0.568	11.7	14.7	12.8	0.87	5.69	20.4	2.59					
	0.852	22.6	14.9	12.8	0.86	5.46	20.3	2.72					
	1.136	36.3	15.0	12.9	0.86	5.22	20.2	2.87					
45	0.568	11.4	14.6	12.5	0.85	6.21	20.8	2.35					
	0.852	22.0	14.8	12.6	0.85	5.96	20.7	2.48					
	1.136	35.2	14.9	12.7	0.85	5.70	20.6	2.62					

Interpolation is permissible, extrapolation is not.

Rev: 03/11/03 B

All entering air conditions are 27°C DB and 19°C WB in cooling and 20°C DB in heating

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Table does not reflect fan or pump power ISO corrections

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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

PERFORMANCE DATA CORRECTION TABLES

AIR FLOW CORRECTION TABLE

Airflow % of Nominal	Heating			Cooling			
	Htg Cap	Power	Heat of Ext	Total Cap	Sens Cap	Power	Heat of Rej
75%	0.968	1.091	0.936	0.914	0.834	0.987	0.929
81%	0.976	1.068	0.952	0.936	0.876	0.990	0.946
88%	0.984	1.045	0.968	0.957	0.917	0.994	0.964
94%	0.992	1.023	0.984	0.979	0.959	0.997	0.982
100%	1.000						
106%	1.008	0.977	1.016	1.021	1.041	1.003	1.018
113%	1.016	0.955	1.032	1.043	1.083	1.006	1.036

Rev 03/13/03B

ENTERING AIR CORRECTION TABLE

Heating Corrections			
Ent Air DB °F	Htg Cap	Power	Heat of Ext
15	1.056	0.937	1.101
17	1.040	0.956	1.070
20	1.016	0.986	1.026
22	1.000	1.006	0.997
24	0.984	1.027	0.969
26	0.969	1.048	0.942

Cooling Corrections										
Ent Air WB °F	Total Clg Cap	Sens Clg Cap Multiplier - Entering DB °F							Power	Heat of Rej
		70	75	80	80.6	85	90	95		
15	0.910	0.864	1.007	1.132	1.200	*	*	*	0.984	0.923
17	0.956	0.718	0.858	1.002	1.142	1.264	*	*	0.992	0.963
19	1.000	0.575	0.715	0.856	1.000	1.176	*	*	1.000	1.000
21	1.073		0.570	0.710	0.851	1.031	1.208	1.391	1.011	1.063
23	1.128			0.563	0.704	0.878	1.059	1.274	1.019	1.110
25	1.192				0.554	0.730	0.907	1.127	1.026	1.164

Rev.: 03/13/03 B

* Sensible capacity equals total capacity

ARI/ISO/ASHRAE 13256-1 uses entering air conditions of Clg- 80.6°F DB/66.2°F WB and Htg- 68°F DB/59°F WB

Discontinued Standards ARI 320, 325, and 330 used entering air conditions of Clg- 80°F DB/67°F WB and Htg- 70°F DB (bold print)

GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

BLOWER PERFORMANCE DATA

Model	Rated Airflow (l/s)	Minimum Airflow (l/s)	Fan Speed	Airflow (l/s) at External Static Pressure (Pa)																
				0	13	25	38	50	63	75	88	100	113	125	150	175	200	225	250	
015	208	156	HI	356	344	332	320	308	297	286	269	256	236	219	197	-	-	-	-	
			MED	311	304	297	285	271	264	253	241	224	212	199	-	-	-	-	-	
			LOW	271	264	261	251	240	234	228	215	203	188	173	-	-	-	-	-	-
018	248	184	HI	352	344	332	320	308	297	286	269	256	236	219	197	-	-	-	-	
			MED	311	304	297	285	271	264	253	241	224	212	199	-	-	-	-	-	-
			LOW	271	264	261	251	240	234	228	215	203	188	173	-	-	-	-	-	-
024	330	248	HI	457	444	431	409	391	375	360	341	323	301	279	233	-	-	-	-	
			MED	384	376	368	355	342	327	316	294	277	260	243	-	-	-	-	-	-
			LOW	356	348	340	324	312	301	294	276	256	239	219	-	-	-	-	-	-
030	413	307	HI	501	492	475	455	436	416	400	377	351	331	309	275	-	-	-	-	
			MED	477	460	443	420	402	383	367	348	333	311	289	-	-	-	-	-	-
			LOW	420	408	396	378	361	345	334	312	295	280	263	-	-	-	-	-	-
Hi Static 030	413	307	HS HI	558	544	522	494	470	453	441	413	389	365	339	304	-	-	-	-	
			HS MED	509	496	483	459	440	420	404	384	365	338	316	-	-	-	-	-	-
			HS LOW	473	460	447	424	406	390	375	355	337	318	299	-	-	-	-	-	-
036	472	354	HI	562	544	522	494	470	453	441	413	389	365	339	304	-	-	-	-	
			MED	509	496	483	459	440	420	404	384	365	338	316	-	-	-	-	-	-
			LOW	473	460	447	424	406	390	375	355	337	318	299	-	-	-	-	-	-
Hi Static 036	472	354	HS HI	723	704	684	656	624	605	584	556	530	502	478	443	395	335	-	-	
			HS MED	610	596	581	559	534	520	507	485	463	444	422	382	333	-	-	-	-
			HS LOW	448	440	431	416	398	390	382	370	-	-	-	-	-	-	-	-	-
042	578	434	HI	-	-	-	644	612	594	577	553	530	492	459	417	352	-	-	-	
			MED	650	632	613	582	556	539	521	499	477	451	422	-	-	-	-	-	-
			LOW	513	504	494	478	458	449	437	416	393	369	342	-	-	-	-	-	-
048	661	496	HI	-	-	-	775	751	721	690	657	624	577	535	498	408	-	-	-	
			MED	784	764	740	702	669	646	624	599	572	536	505	456	408	-	-	-	-
			LOW	594	584	574	555	537	524	507	488	466	437	405	-	-	-	-	-	-
060	826	618	HI	-	-	-	-	909	843	819	790	761	731	701	660	613	-	-	-	
			MED	913	896	878	845	815	795	775	754	729	700	671	634	582	-	-	-	-
			LOW	828	812	795	767	740	724	709	686	659	632	608	576	-	-	-	-	-
070	949	708	HI	-	-	-	-	978	914	892	858	821	789	758	721	678	-	-	-	
			MED	1022	999	977	945	909	892	870	840	810	779	751	711	653	-	-	-	-
			LOW	917	904	890	864	838	821	801	775	750	724	698	660	-	-	-	-	-

Includes allowance for wet coil and clean factory-installed filter
 Factory settings are indicated in bold print
 (-) operation not recommended
 Units factory shipped on medium speed (015 on Low). Other speeds require field selection.
 All airflow is rated at lowest Voltage if unit is dual Voltage rated, i.e. 208V for 208-230V units.
 All units ARI/ISO/ASHRAE 13256-1 rated on high. (015 rated on med)

Rev.: 03/05/03 B

GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

PHYSICAL DATA

Model	015	018	024	030	036	042	048	060	070
Compressor (1 each)	Rotary				Scroll				
Factory Charge R22, oz [kg]	44 [1.25]	44 [1.25]	48 [1.36]	48 [1.36]	60 [1.70]	74 [2.10]	74 [2.10]	102 [2.89]	104 [2.95]
PSC Fan Motor & Blower									
Fan Motor Type/Speeds	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
Fan Motor- hp [W]	1/6 [124]	1/6 [124]	1/5 [150]	1/3 [250]	1/2 [373]	1/2 [373]	3/4 [560]	3/4 [560]	1 [746]
Blower Wheel Size (Dia x W), in. [mm]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	9 x 7 [229 x 178]	10 x 10 [254 x 254]	10 x 10 [254 x 254]	11 x 10 [279 x 254]	11 x 10 [279 x 254]
Water Connection Size									
IPT - in	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1"
HWG Water Connection Size									
IPT - in	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Vertical									
Air Coil Dimensions (H x W), in. [mm]	20 x 20 [508 x 508]		24 x 20 [610 x 508]		28 x 20 [711 x 508]	28 x 25 [711 x 635]		32 x 25 [813 x 635]	36 x 25 [914 x 635]
Filter Standard - 25.4mm Throwaway, in [mm]	20 x 24 [508 x 610]		24 x 24 [610 x 610]		2 - 14 x 24 [356 x 610]	2 - 14 x 30 [356 x 762]		2 - 10 x 30 [254 x 762] 1 - 12 x 30 [305 x 762]	3 - 12 x 30 [356 x 762]
Weight - Operating, lb [kg]	174 [79.1]	184 [83.6]	250 [113.6]	252 [114.5]	266 [120.9]	323 [146.8]	327 [148.6]	416 [189.1]	443 [201.4]
Weight - Packaged, lb [kg]	184 [83.6]	194 [88.2]	260 [118.2]	262 [119.1]	276 [125.5]	333 [151.4]	337 [153.2]	426 [193.6]	453 [205.9]
Horizontal									
Air Coil Dimensions (H x W), in. [mm]	18 x 22 [457 x 559]		18 x 27 [457 x 686]		18 x 31 [457 x 787]	20 x 35 [508 x 889]		20 x 40 [508 x 1016]	20 x 45 [508 x 1143]
Filter Standard - 25.4mm Throwaway, qty-in [mm]	18 x 24 [457 x 610]		2 - 18 x 18 [457 x 457]			1 - 12 x 20 [305 x 508] 1 - 20 x 25 [508 x 635]		1 - 18x 20 [457 x 508] 1 - 20 x 24 [508 x 610]	2 - 24 x 20 [610 x 508]
Weight - Operating, lb [kg]	179 [81.4]	189 [85.9]	250 [113.6]	252 [114.5]	266 [120.9]	323 [146.8]	327 [148.6]	416 [189.1]	443 [201.4]
Weight - Packaged, lb [kg]	189 [85.9]	199 [90.5]	260 [118.2]	262 [119.1]	276 [125.5]	333 [151.4]	337 [153.5]	426 [193.6]	453 [205.9]

Notes:

Rev.: 08/03/05D

All units have spring compressor mountings, TXV expansion devices, and 1/2" [12.2mm] & 3/4" [19.1mm] electrical knockouts.

GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

HORIZONTAL DIMENSIONAL DATA

Horizontal Model	Overall Cabinet			Water Connections						Electrical Knockouts			Discharge Connection duct flange installed (±0.10 in)						Return Connection using air coil opening					
	A	B	C	1	2	3	4	5	Loop Water IPT	HWG IPT	J	K	L	M	N	O	P	Q	R	S	T	U	V	
	Width	Depth	Height	In	Out	HWG In	HWG Out	Condensate			1/2" cond Low Voltage	1/2" cond Ext Pump	3/4" cond Power Supply			Supply Height	Supply Depth			Return Depth	Return Height			
015-018	in.	22.4	53.2	19.3	2.4	5.4	13.9	16.9	0.6	3/4"	1/2"	5.7	9.7	12.2	5.0	6.8	10.4	9.3	5.0	2.1	23.1	17.3	2.2	1.0
	cm.	56.8	135.1	49.0	6.1	13.7	35.3	42.9	1.5			14.5	24.6	31.0	12.7	17.3	26.4	23.6	12.7	5.3	58.7	43.9	5.6	2.5
024-030	in.	22.4	62.2	19.3	2.4	5.4	13.9	16.9	0.6	3/4"	1/2"	5.7	9.7	12.2	5.0	6.8	10.4	9.3	5.0	2.1	28.1	17.3	2.2	1.0
	cm.	56.8	158.0	49.0	6.1	13.7	35.3	42.9	1.5			14.5	24.6	31.0	12.7	17.3	26.4	23.6	12.7	5.3	71.4	43.9	5.6	2.5
036	in.	22.4	62.2	19.3	2.4	5.4	13.9	16.9	0.6	3/4"	1/2"	5.7	9.7	12.2	5.0	6.8	10.4	9.3	5.0	2.1	32.1	17.3	2.2	1.0
	cm.	56.8	158.0	49.0	6.1	13.7	35.3	42.9	1.5			14.5	24.6	31.0	12.7	17.3	26.4	23.6	12.7	5.3	81.5	43.9	5.6	2.5
042-048	in.	25.4	71.2	21.3	2.4	5.4	15.9	18.9	0.6	1"	1/2"	8.1	11.7	14.2	5.8	5.0	13.6	13.3	5.8	2.9	36.1	19.3	2.2	1.0
	cm.	64.5	180.8	54.1	6.1	13.7	40.4	48.0	1.5			20.6	29.7	36.1	14.7	12.7	34.5	33.8	14.7	7.4	91.7	49.0	5.6	2.5
060	in.	25.4	76.2	21.3	2.4	5.4	15.9	18.9	0.6	1"	1/2"	8.1	11.7	14.2	5.8	5.0	13.6	13.3	5.8	2.9	41.1	19.3	2.2	1.0
	cm.	64.5	193.5	54.1	6.1	13.7	40.4	48.0	1.5			20.6	29.7	36.1	14.7	12.7	34.5	33.8	14.7	7.4	104.4	49.0	5.6	2.5
070	in.	25.4	81.2	21.3	2.4	5.4	15.9	18.9	0.6	1"	1/2"	8.1	11.7	14.2	5.8	5.0	13.6	13.3	5.8	2.9	46.1	19.3	2.2	1.0
	cm.	64.5	206.2	54.1	6.1	13.7	40.4	48.0	1.5			20.6	29.7	36.1	14.7	12.7	34.5	33.8	14.7	7.4	117.1	49.0	5.6	2.5

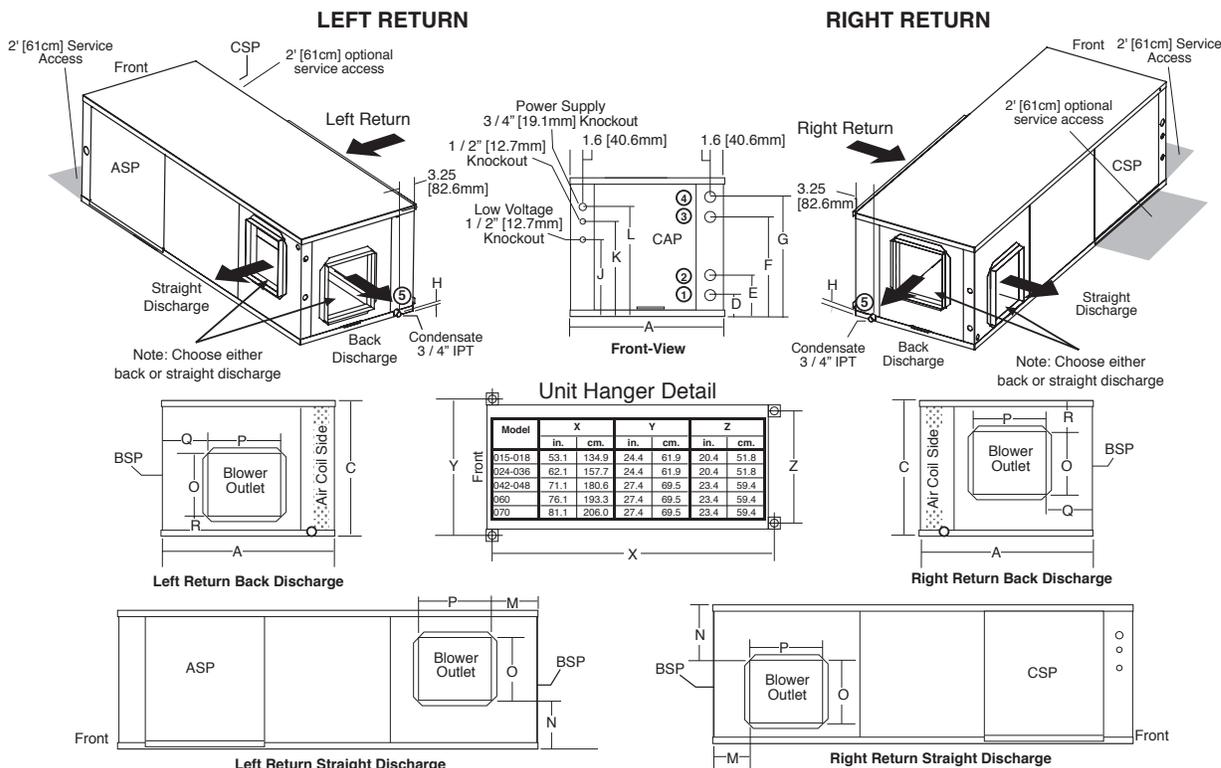
Condensate is 3/4" IPT copper.

Horizontal unit shipped with filter bracket only. This bracket should be removed for return duct connection.

Hangar bracket is factory installed.

Rev: 7/18/00M

GS



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GS Series 50Hz - R22 Submittal Data Eng/SI



Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

VERTICAL DIMENSIONAL DATA

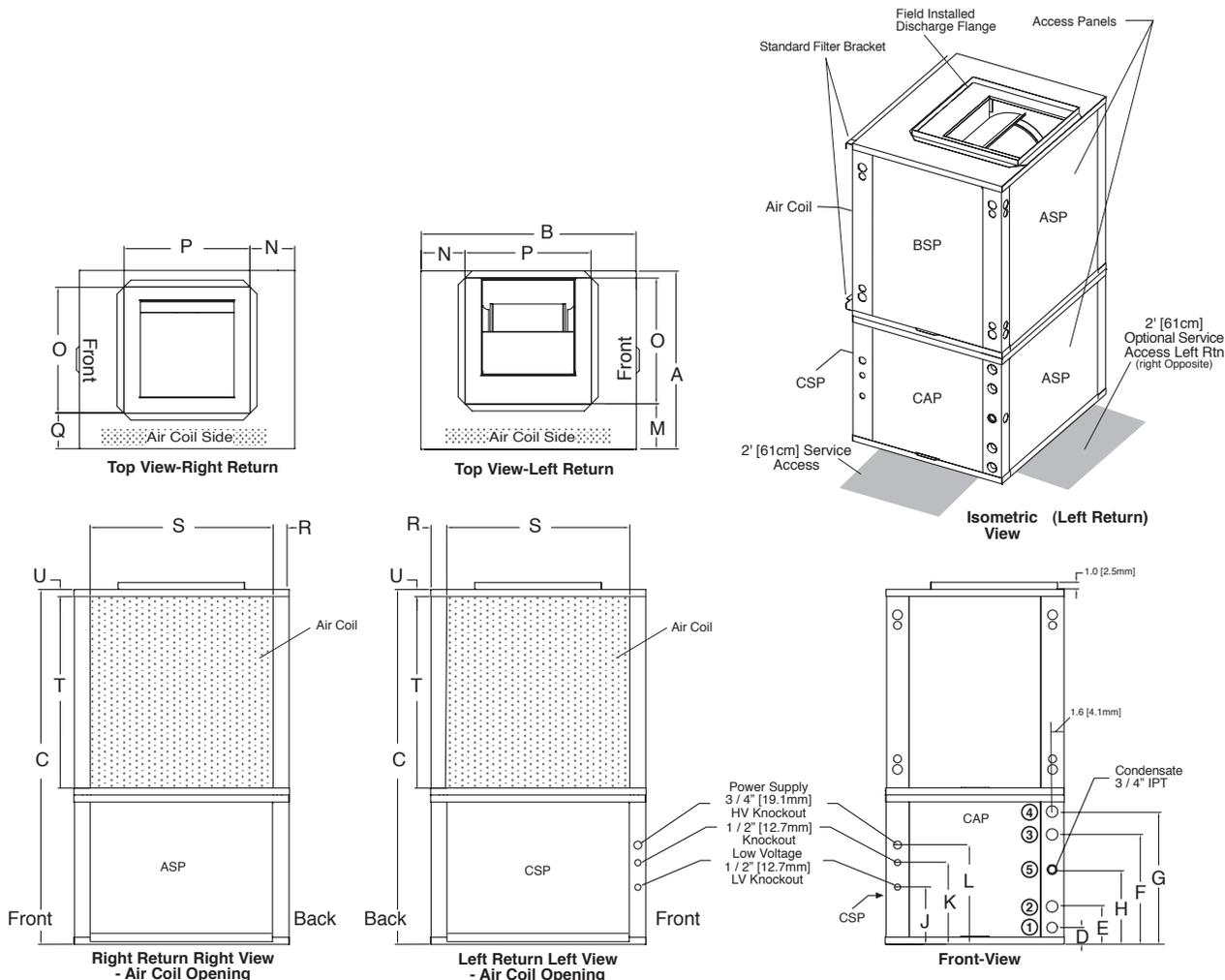
Vertical Upflow Model	Overall Cabinet			Water Connections							Electrical Knockouts			Discharge Connection duct flange installed (±0.10 in)					Return Connection using return air opening				
	A	B	C	1	2	3	4	5	Loop Water IPT	HWG IPT	J	K	L	M	N	O	P	Q	R	S	T	U	
	Width	Depth	Height	In	Out	HWG In	HWG Out	Condensate			1/2" cond Low Voltage	1/2" cond Ext Pump	3/4" cond Power Supply	Supply Width	Supply Depth	Return Depth	Return Height						
015-018	in. cm.	22.4 56.8	25.6 65.1	40.6 103.1	2.4 6.1	5.4 13.7	13.9 35.3	16.9 42.9	9.7 24.6	3/4"	1/2"	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	19.2 48.8	1.0 2.5
024-030	in. cm.	22.4 56.8	25.6 65.1	44.6 113.3	2.4 6.1	5.4 13.7	13.9 35.3	16.9 42.9	9.7 24.6	3/4"	1/2"	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	23.2 58.9	1.0 2.5
036	in. cm.	22.4 56.8	25.6 65.1	48.6 123.4	2.4 6.1	5.4 13.7	13.9 35.3	16.9 42.9	9.7 24.6	3/4"	1/2"	5.7 14.5	9.7 24.6	12.2 31.0	7.2 18.3	5.8 14.7	14.0 35.6	14.0 35.6	4.3 10.9	2.2 5.6	21.1 53.6	27.2 69.1	1.0 2.5
042-048	in. cm.	25.4 64.5	30.6 77.8	50.6 128.5	2.4 6.1	5.4 13.7	15.9 40.4	18.9 48.0	10.7 27.2	1"	1/2"	8.1 20.6	11.7 29.7	14.2 36.1	6.2 15.7	6.3 16.0	18.0 45.7	18.0 45.7	5.1 13.0	2.2 5.6	26.1 66.3	27.2 69.1	1.0 2.5
060	in. cm.	25.4 64.5	30.6 77.8	54.6 138.7	2.4 6.1	5.4 13.7	15.9 40.4	18.9 48.0	10.7 27.2	1"	1/2"	8.1 20.6	11.7 29.7	14.2 36.1	6.2 15.7	6.3 16.0	18.0 45.7	18.0 45.7	5.1 13.0	2.2 5.6	26.1 66.3	31.2 79.2	1.0 2.5
070	in. cm.	25.4 64.5	30.6 77.8	58.6 148.8	2.4 6.1	5.4 13.7	15.9 40.4	18.9 48.0	10.7 27.2	1"	1/2"	8.1 20.6	11.7 29.7	14.2 36.1	6.2 15.7	6.3 16.0	18.0 45.7	18.0 45.7	5.1 13.0	2.2 5.6	26.1 66.3	35.2 89.4	1.0 2.5

Rev.: 6/14/00M

Condensate is 3/4" PVC IPT and is switchable from side to front.

Vertical unit shipped with filter bracket only extending from unit 2.5" [64mm]. This bracket should be removed when connecting return duct.

Discharge flange field installed.



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GS Series 50Hz - R22 Submittal Data Eng/SI



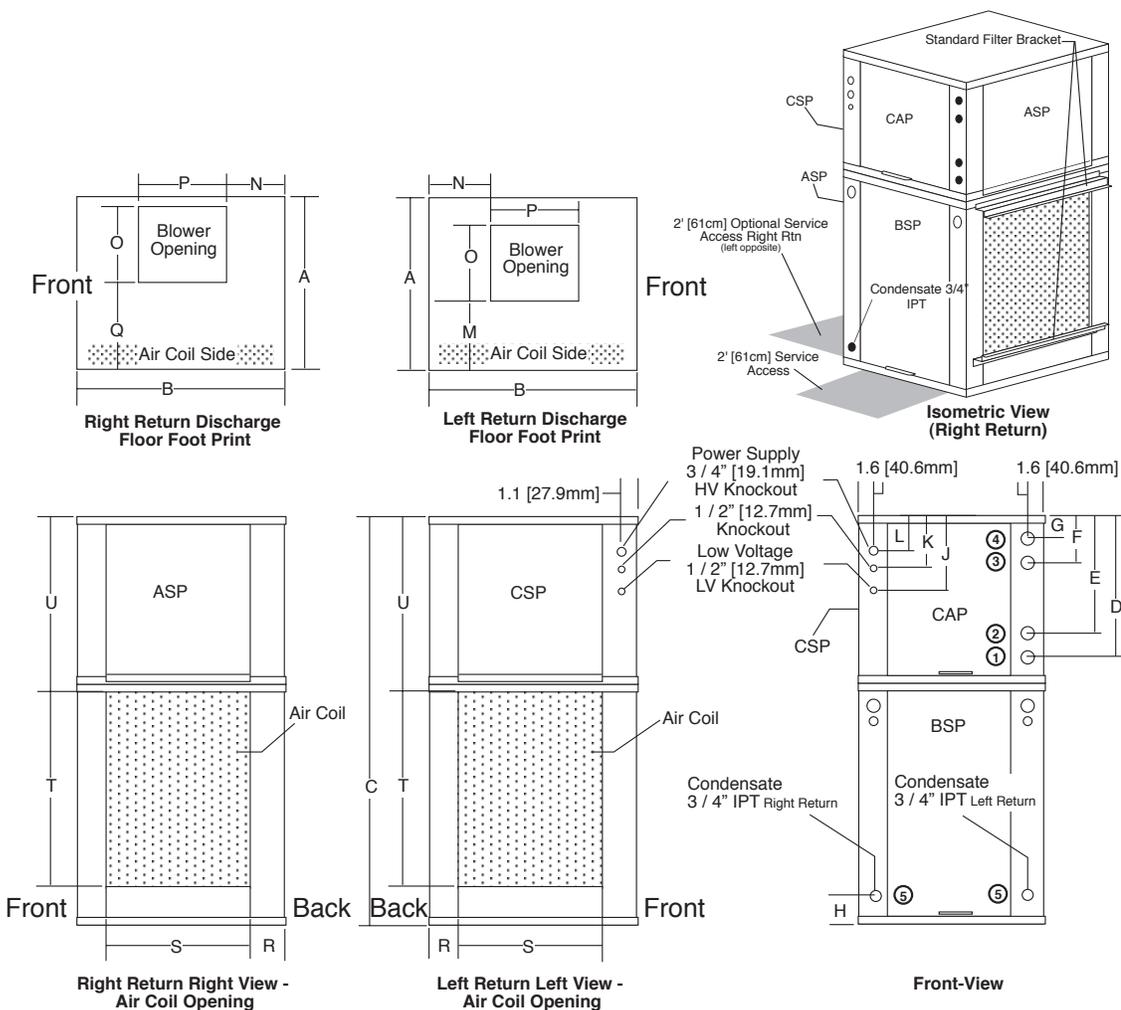
DOWNFLOW DIMENSIONAL DATA

Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

Vertical Downflow Model	Overall Cabinet			Water Connections								Electrical Knockouts			Discharge Connection duct flange installed (±0.10 in., ±2.5mm)					Return Connection using return air opening			
	A	B	C	1	2	3	4	5	Loop Water IPT	HWG IPT	J	K	L	M	N	O	P	Q	R	S	T	U	
	Width	Depth	Height	D In	E Out	F HWG In	G HWG Out	H Condensate			1/2" cond Low Voltage	1/2" cond Ext Pump	3/4" cond Power Supply	Supply Width	Supply Depth	Return Depth	Return Height	Return Height	Return Height				
015-018	in.	22.4	25.6	44.6	16.9	13.9	5.4	2.4	3.5	3/4"	1/2"	13.6	9.7	7.2	6.1	8.2	10.4	9.3	11.0	2.2	21.1	20.2	20.4
	cm.	56.8	65.1	113.3	42.9	35.3	13.7	6.1	8.9			34.5	24.6	18.3	15.4	20.8	26.4	23.5	27.9	5.6	53.6	51.3	51.8
024-030	in.	22.4	25.6	48.6	16.9	13.9	5.4	2.4	3.5	3/4"	1/2"	13.6	9.7	7.2	6.1	8.2	10.4	9.3	11.0	2.2	21.1	24.2	20.4
	cm.	56.8	65.1	123.4	42.9	35.3	13.7	6.1	8.9			34.5	24.6	18.3	15.4	20.8	26.4	23.5	27.9	5.6	53.6	61.5	51.8
036	in.	22.4	25.6	52.6	16.9	13.9	5.4	2.4	3.5	3/4"	1/2"	13.6	9.7	7.2	6.1	8.2	10.4	9.3	11.0	2.2	21.1	28.2	20.4
	cm.	56.8	65.1	133.6	42.9	35.3	13.7	6.1	8.9			34.5	24.6	18.3	15.4	20.8	26.4	23.5	27.9	5.6	53.6	71.6	51.8
042-048	in.	25.4	30.6	54.6	18.9	15.9	5.4	2.4	3.5	1"	1/2"	13.1	9.7	7.2	7.2	8.7	13.6	13.3	10.5	2.2	26.1	28.2	22.4
	cm.	64.5	77.8	138.7	48.0	40.4	13.7	6.1	8.9			33.3	24.6	18.3	18.3	22.1	34.4	33.7	26.7	5.6	66.3	71.6	56.9
060	in.	25.4	30.6	58.6	18.9	15.9	5.4	2.4	3.5	1"	1/2"	13.1	9.7	7.2	7.2	8.7	13.6	13.3	10.5	2.2	26.1	32.2	22.4
	cm.	64.5	77.8	148.8	48.0	40.4	13.7	6.1	8.9			33.3	24.6	18.3	18.3	22.1	34.4	33.7	26.7	5.6	66.3	81.8	56.9
070	in.	25.4	30.6	62.6	18.9	15.9	5.4	2.4	3.5	1"	1/2"	13.1	9.7	7.2	7.2	8.7	13.6	13.3	10.5	2.2	26.1	36.2	22.4
	cm.	64.5	77.8	159.0	48.0	40.4	13.7	6.1	8.9			33.3	24.6	18.3	18.3	22.1	34.4	33.7	26.7	5.6	66.3	91.9	56.9

Condensate is 3/4" PVC IPT and is switchable from side to front.
 Vertical unit shipped with filter bracket only extending from unit 2.5" [64mm]. This bracket should be removed when connecting return duct.

Rev. 3/8/00



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GS Series 50Hz - R22 Submittal Data Eng/SI



UNIT ELECTRICAL DATA

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

Model	Rated Voltage	Voltage Min/Max	Compressor			Fan Motor FLA	Total Unit FLA	Min Circ Amp	Max Fuse/HACR
			Qty	RLA	LRA				
015	220-240/50/1	197/254	1	4.4	28.0	0.9	5.2	6.3	15
018	220-240/50/1	197/254	1	5.5	32.0	0.9	6.4	7.8	15
024	220-240/50/1	197/254	1	8.7	47.0	0.9	9.6	11.7	20
030	220-240/50/1	197/254	1	10.9	56.0	1.6	12.5	15.2	25
036	220-240/50/1	197/254	1	12.8	71.0	2.0	14.8	18.0	30
042	380-420/50/3	342/462	1	5.1	39.0	1.0	6.1	7.4	15
048	380-420/50/3	342/462	1	6.4	44.0	1.7	8.1	9.7	15
060	380-420/50/3	342/462	1	6.7	49.5	1.8	8.5	10.2	15
070	380-420/50/3	342/462	1	9.0	62.0	2.5	11.5	13.7	20

Rev.: 04/07/03

HACR circuit breaker in USA only
All fuses Class RK-5

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GS Series 50Hz - R22 Submittal Data Eng/SI



GS SERIES WIRING DIAGRAM MATRIX

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

Only CXM and DXM diagrams, with a representative diagram of LON and MPC Options are presented in this submittal. Other diagrams can be located online at www.climatemaster.com using the part numbers presented below.

Model	Refrigerant	Wiring Diagram	Availability†	Electrical	Control	Agency	DDC
GR/GS/GC Series Single Phase	R22	96B0006N01	Submittal & Web	220-240/50/1, 208-230/60/1 265/60/1	CXM	-	-
	R22	96B0006N02	Submittal & Web		DXM	-	-
	R22	96B0006N03	Web Only		CXM	-	Lon
	R22	96B0006N04	Web Only		DXM	-	Lon
	R22 & R407c	96B0006N05	Web Only		DXM	CE	
	R22 & R407c	96B0006N06	Web Only		CXM	CE	-
	R22 & R407c	96B0006N07	Web Only		Economizer		
	R22	96B0006N08	Web Only		CXM	-	Premier
	R22	96B0006N09	Web Only		CXM	-	MPC
	R22	96B0006N10	Web Only		DXM	-	MPC
	R22 & R407c	96B0006N11	Web Only		CXM	CE	MPC
	R22	96B0014N02	Submittal & Web		DXM with Reheat Option		
		96B0006N13			not available at printing		
		96B0006N14			not available at printing		
		96B0006N15			not available at printing		
GR/GS/GC Series Three Phase (230 Style)	R22	96B0007N01	Submittal & Web	220-240/50/3, 208-230/60/3	CXM	-	-
	R22	96B0007N02	Submittal & Web		DXM	-	-
	R22	96B0007N03	Web Only		CXM	-	Lon
	R22	96B0007N04	Web Only		DXM	-	Lon
	R22	96B0007N05	Web Only		CXM	-	Prem
	R22	96B0007N06	Web Only		CXM	-	MPC
	R22	96B0007N07	Web Only		DXM	-	MPC
		96B0007N08			not available at printing		
		96B0007N09			not available at printing		
		96B0007N10			not available at printing		
		96B0007N11			not available at printing		
		96B0007N12			not available at printing		
		96B0007N13			not available at printing		
		96B0007N14			not available at printing		
		96B0007N15			not available at printing		
GR/GS/GC Series Three Phase (460 Style)	R22	96B0008N01	Submittal & Web	460/60/3, 575/60/3, & 380-420/60/3	CXM	-	-
	R22	96B0008N02	Submittal & Web		DXM	-	-
	R22	96B0008N03	Submittal & Web		CXM	-	Lon
	R22	96B0008N04	Submittal & Web		DXM	-	Lon
	R22 & R407c	96B0008N05	Web Only		DXM	CE	
	R22 & R407c	96B0008N06	Web Only		CXM	CE	
	R22	96B0008N07	Web Only		CXM		Prem
	R22	96B0008N08	Submittal & Web		CXM		MPC
	R22	96B0008N09	Submittal & Web		DXM		MPC
		96B0008N10			not available at printing		
		96B0008N11			not available at printing		
		96B0008N12			not available at printing		
		96B0008N13			not available at printing		
		96B0008N14			not available at printing		
		96B0008N15			not available at printing		

†All Wiring diagrams available at www.climatemaster.com. R407c Submittals will contain only CE mark wiring diagrams.

Rev.: 06/30/03B

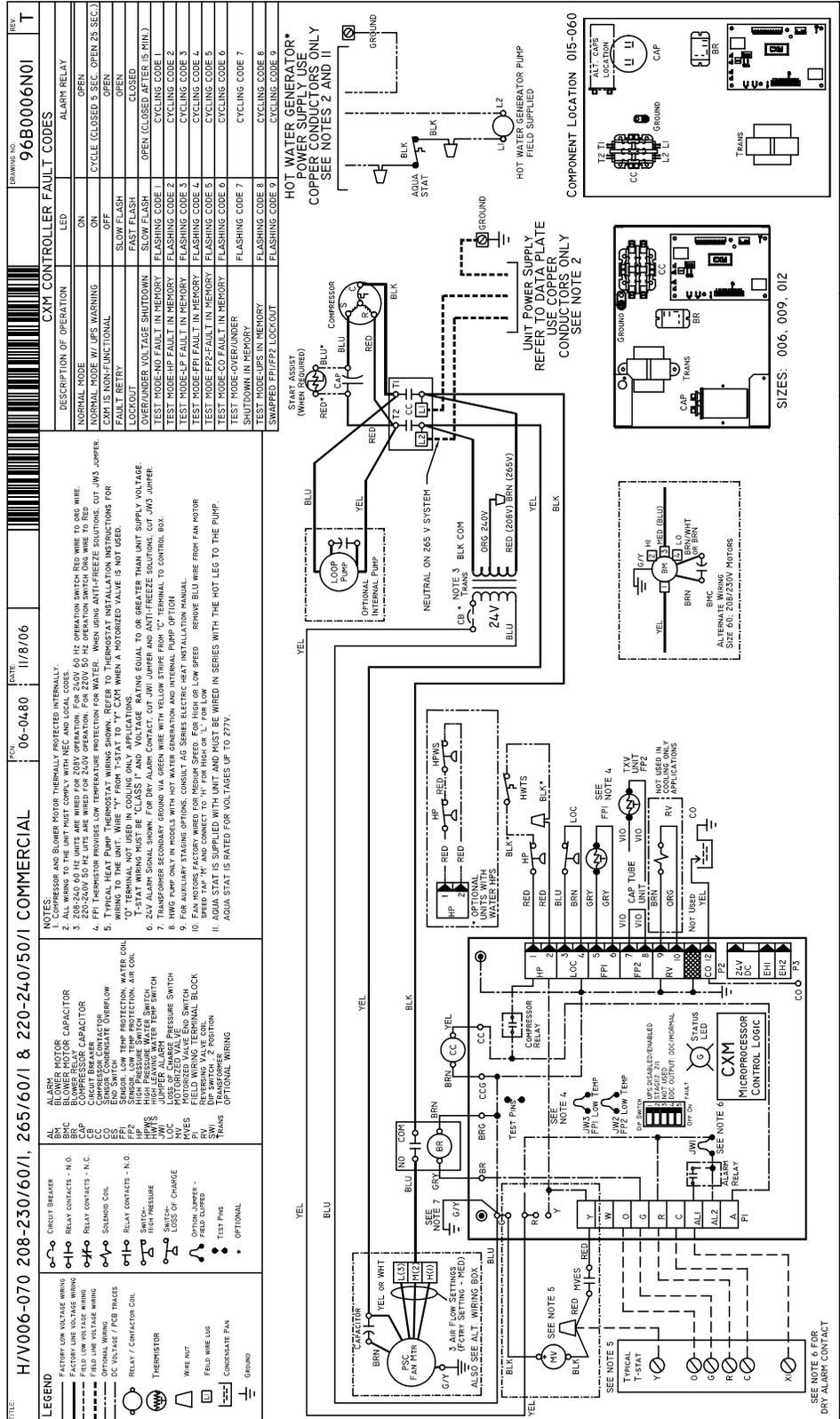
R22 Submittals will contain only non-CE wiring diagrams.

GS Series 50Hz - R22 Submittal Data Eng/SI



TYPICAL WIRING DIAGRAM SINGLE PHASE WIRING DIAGRAM GSH/GSV UNITS WITH CXM CONTROLLER

Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____



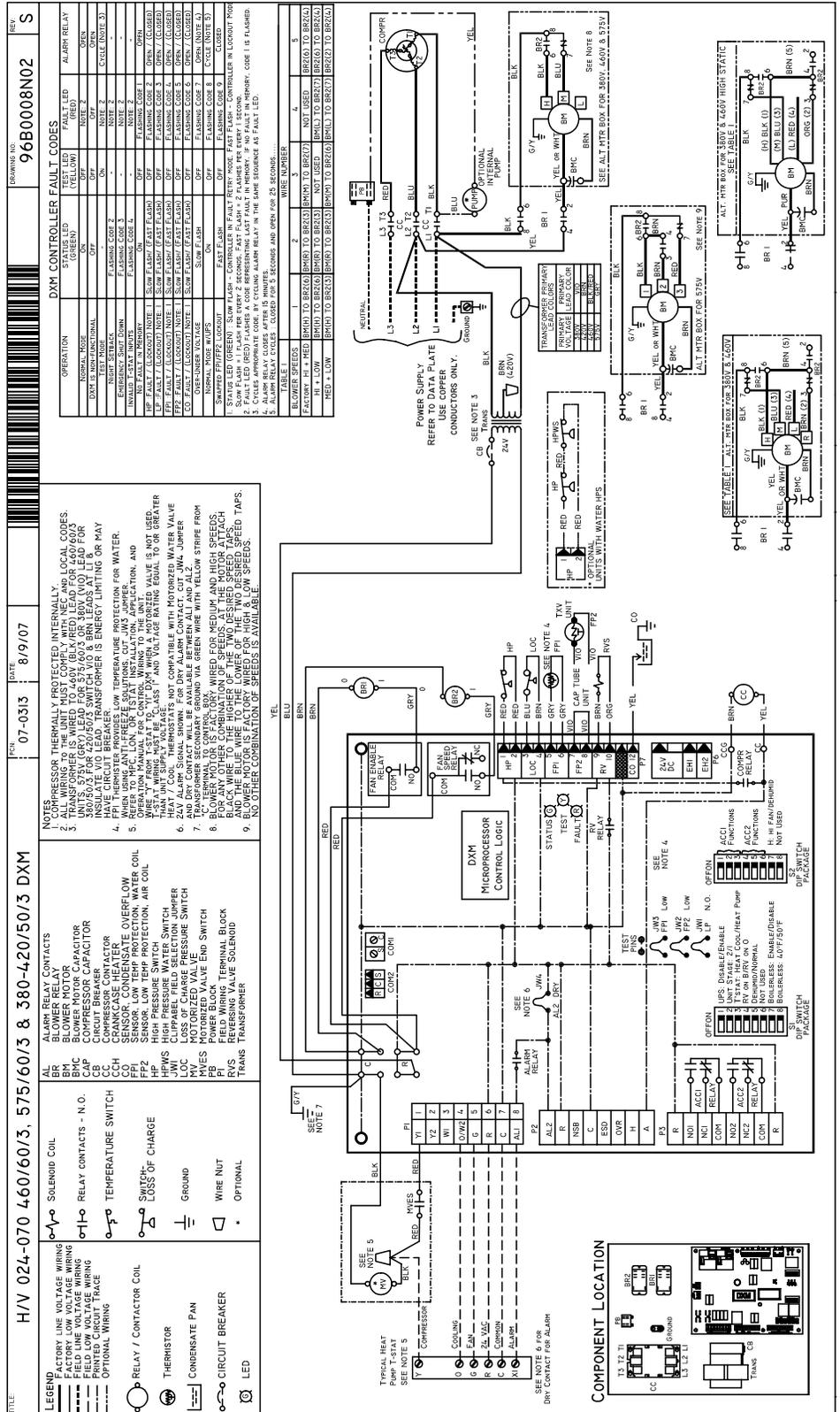
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GS Series 50Hz - R22 Submittal Data Eng/Sl



TYPICAL WIRING DIAGRAM THREE PHASE WIRING DIAGRAM GSH/GSV UNITS WITH DXM CONTROLLER (460/575 Volt)

Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____

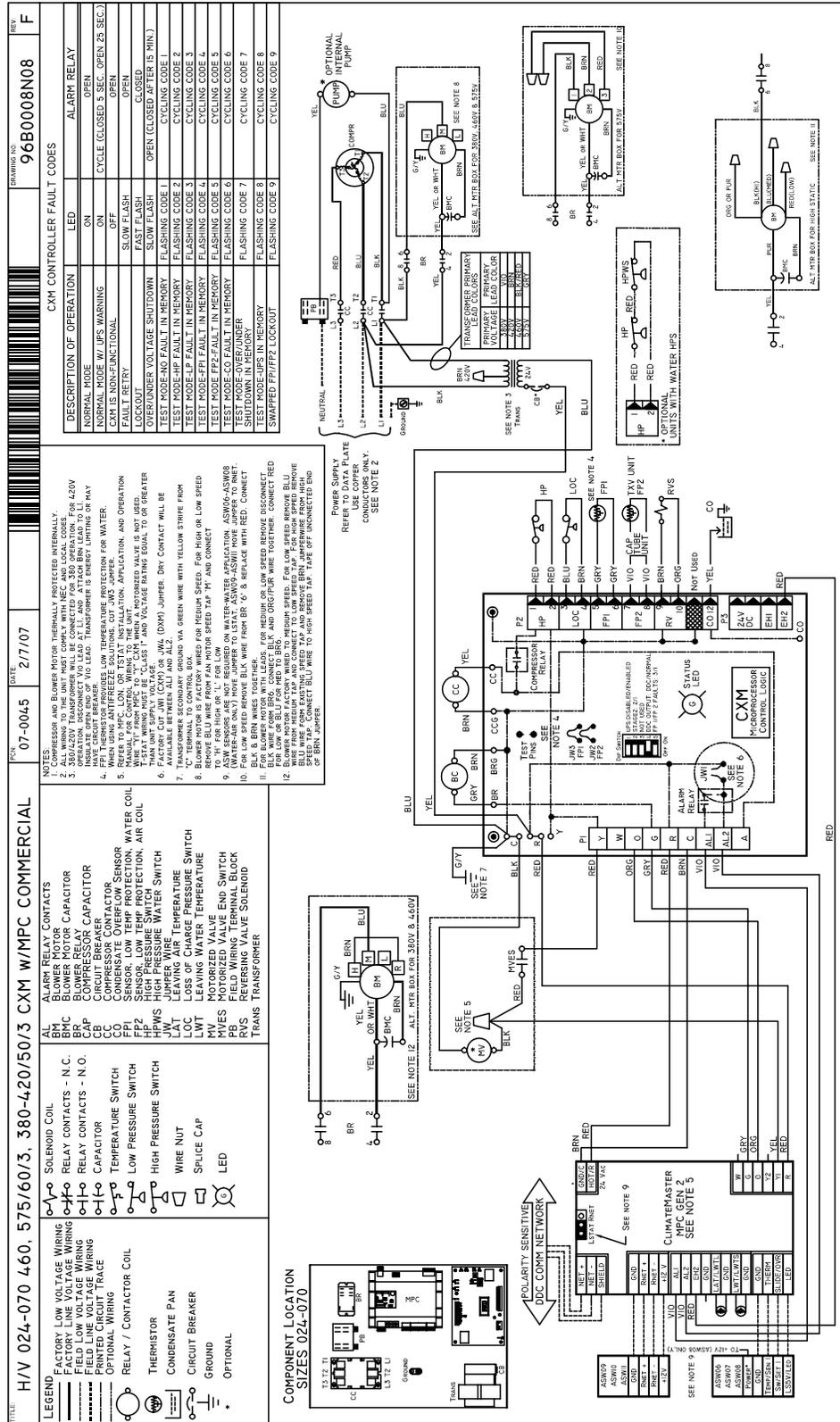


GS Series 50Hz - R22 Submittal Data Eng/SI



TYPICAL WIRING DIAGRAM THREE PHASE WIRING DIAGRAM GSH/GSV UNITS WITH CXM and MPC

Contractor: _____ P.O.: _____
 Engineer: _____
 Project Name: _____ Unit Tag: _____



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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 1

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

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 20° to 110°F (-6.7° to 43.3°C) as standard. Equivalent units from other manufacturers can be proposed provided approval to bid is given 10 days prior to bid closing. All equipment listed in this section must be rated in accordance with (but not certified) American Refrigeration Institute / International Standards Organization (ARI / ISO). The 407C units shall have CE label. All units shall be fully quality tested by factory run testing under normal operating conditions and water flow rates as described herein. Quality control system shall automatically perform via computer: triple leak check, pressure tests, evacuate and accurately charge system, perform detailed heating and cooling mode tests, and quality cross check all operational and test conditions to pass/fail data base. Detailed report card will ship with each unit displaying all test performance data. Note: If unit fails on any cross check, system shall not be allowed unit to ship. Serial numbers will be recorded by factory and furnished to contractor on report card for ease of unit warranty status. Units tested without water flow are not acceptable.

Basic Construction:

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, Left Return/Bottom Discharge, Right Return/Bottom 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 G90 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 G90 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

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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 2

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

growth per ASTM G22. Unit insulation must meet these stringent requirements or unit(s) will not be accepted.

All units to have factory installed 1" (25.4mm) discharge air duct collars, 1" (25.4mm) filter racks with 1" (25.4mm) filters factory installed, and factory installed unit-mounting brackets for horizontal units. 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, and shall be securely mounted flush to the cabinet corner post allowing for connection to a flexible hose without the use of a back-up wrench. Water connections that protrude through the cabinet or require the use of a backup wrench shall not be allowed. All water connections and electrical knockouts must be in the compressor compartment corner post as to not interfere with the serviceability of unit. Contractor shall be responsible for any extra costs involved in the installation of units that do not have this feature. Contractor must ensure that units can be easily removed for servicing and coordinate locations of electrical conduit and lights with the electrical contractor.

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

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

Option: The unit will be supplied with cupro nickel coaxial water to refrigerant heat exchanger.

Option: The unit will be supplied with internally factory mounted two-way water valve for variable speed pumping requirements.

Option: The unit will be supplied with internally factory mounted automatic water flow regulators.

Option: The unit will be supplied with internally mounted secondary pump for primary/secondary applications, specifically one-pipe systems.

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



GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 3

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

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

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 500 hours salt spray protection per ASTM B117-97 on all galvanized end plates and a minimum of 1000 hours of salt spray on all aluminum fin and bracket components. 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 direct (ASTM D2794-93).

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 (015-048) 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 (060 & 070) 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 wet coil and a clean filter in place. Ratings based on a dry coil and / or no filter, or on an ESP less than 0.25 in w.g. (6.35 mm w.g.) shall NOT be acceptable.

Option: High static motor (models GSH030, GSH036, GSV030, GSV036).

Refrigerant Circuit:

Units shall have a sealed refrigerant circuit including a high efficiency scroll or rotary compressor designed for heat pump operation, a thermostatic expansion valve 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 a low water and low air 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 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 (3,101 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 (3,101 kPa) working refrigerant pressure and 450 PSIG (3,101 kPa) working water pressure. Refrigerant metering shall be accomplished by thermostatic expansion valve only. Expansion valves shall be dual

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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 4

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

port balanced types with external equalizer for optimum refrigerant metering. Units shall be designed and tested for operating ranges of entering water temperatures from 20° to 120°F (-6.7° to 43°C). Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function. If the reversing valve solenoid defaults to cooling mode, an additional low temperature thermostat must be provided to prevent over-cooling an already cold room.

Drain Pan:

The drain pan shall be constructed of G90 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

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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 5

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

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, freeze protection, 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 freeze protection (selectable for water or anti-freeze).
- p. Air coil freeze protection.

NOTE: Units not providing the 8 safety protections of anti-short cycle, low voltage, high voltage, high refrigerant pressure, low pressure (loss of charge), air coil freeze, water coil freeze, 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.
- 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.

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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 6

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

- 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

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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 7

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

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

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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 8

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

Hose Kits:

All units 120,000 (35 kW) BTUH and below shall be connected with hoses. The hoses shall be 2 feet (61cm) long, braided stainless steel; fire rated hoses complete with adapters. Only fire rated hoses will be accepted.

Valves:

The following valves are available and will be shipped loose:

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

Hose Kit Assemblies:

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

- Supply and return hoses having ball valve with PT port.
- Supply hose having ball valve with PT port; return hose having automatic flow regulator valve (Measureflo) with PT ports, and ball valve.
- 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:

- Single Stage Standard Manual Changeover (ATM11H02)
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 selection for °F or °C. Thermostat shall only require 4 wires for connection.
- Single Stage Standard Manual Changeover (ATM11H05S)
Thermostat shall be a single-stage, round mount, manual changeover with HEAT-OFF-COOL system switch and fan ON-AUTO switch. Thermostat has standard grip dial and print. Thermostat shall have a mechanical temperature indicator and set point in °F. Thermostat shall only require 4 wires for connection.
- Single Stage Standard Manual Changeover (ATM11H04S)
Thermostat shall be a single-stage, round mount, manual changeover with HEAT-OFF-COOL system switch and fan ON-AUTO switch. Thermostat has easy grip dial, ADA style, and large print. Thermostat shall have a mechanical temperature indicator and set point in °F. Thermostat shall only require 4 wires for connection.
- Single Stage Digital Manual Changeover (ATM11H03)
Thermostat shall be a single-stage, digital, manual changeover with HEAT-OFF-COOL system switch and fan ON-AUTO switch. Thermostat shall have an LCD display with temperature in °F or °C and set-point(s).
- Single Stage Digital Automatic Changeover (ATA11H01)
Thermostat shall be single-stage, manual or automatic changeover with HEAT-OFF-COOL-AUTO system settings and fan ON-AUTO settings. Thermostat shall have a backlit LCD display with temperature, set-point(s), mode, and status indication. The temperature indication shall be selectable for °F or °C. A System

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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 9

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

Test feature shall be provided to simplify troubleshooting. 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 (optional) outdoor air temperature display, heating set-point range limit, cooling set-point range limit, and temperature display offset for custom applications.

- f. Multistage Digital Automatic Changeover with Night Setback (ATA21S02)
Thermostat shall be a multi-stage (2H/1C), digital, manual or automatic changeover with HEAT-OFF-COOL-AUTO system settings and fan HI-LOW-AUTO settings. Thermostat will be night setback type with override capabilities; setback temperature settings of 60°F/85°F (15.5°C/29.4°C) or 50°F/90°F (10.0°C /32.2°C)cooling/heating. Thermostat shall have an LCD display with temperature in °F or °C and set-point(s).
- g. 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.
- h. Multistage Automatic Changeover with Night Set Back (ATA32H02)
Thermostat shall have multi-stage (3H/2C), manual or automatic changeover with HEAT-OFF-COOL-AUTO system settings, and fan ON-AUTO settings. Thermostat will be night setback type with override capabilities; setback temperature offset shall be adjustable from 0-10°F (0-5.5°C). 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. A system test feature shall be provided to simplify troubleshooting. 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 heating set-point range limit, cooling set-point range limit, temperature display offset, temperature display disable, keypad lockout, dead-band range setting, and inter-stage differential settings. The thermostat shall revert to occupied set point when the over-ride key is pressed.
- i. Programmable (ATP32H01)
Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/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. A system test feature shall be provided to simplify troubleshooting. 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 optional extended end of cycle fan operation, heating set-point range limit, cooling set-point range limit, temperature display offset, temperature display disable, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide capability to average from 1-9 remote sensors.
- j. Programmable with Outside Air control (ATP32H01S)
Thermostat shall be 7 day programmable (with up to 4 set points per day), multi-stage (3H/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. A system test feature shall be provided to simplify troubleshooting.

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GENESIS GS SERIES 60 HZ ENGINEERING SPECIFICATIONS

Rev.: 05/05/04 Page 10

Contractor: _____	P.O.: _____
Engineer: _____	
Project Name: _____	Unit Tag: _____

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 optional extended end of cycle fan operation, heating set-point range limit, cooling set-point range limit, temperature display offset, temperature display disable, keypad lockout, dead-band range setting, and inter-stage differential settings. Thermostat shall provide capability to average from 1-9 remote sensors. Thermostat/subbase shall also contain auxiliary set of dry contacts which can connect to outside air damper control to open damper during occupied mode only.

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).

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