Genesis Large Water-to-Water (GLW) Series Submittal Data

Model GLW360
60 Hz - R22

English Language/I-P Units

Rev.: 11/30/05D

CLIMATEMASTER®

SUBMITTAL DATA - I-P UNITS

Unit Designation: Double Click Here

Job Name: Double Click Here

Architect: Double Click Here

Engineer: Double Click Here

Contractor: Double Click Here

PERFORMANCE DATA

Cooling Capacity: Double Click Here Btuh

EER: Double Click Here

Heating Capacity: Double Click Here Btuh

COP: Double Click Here

Ambient Air Temp: Double Click Here °F

Entering Source Water Temp (Clg): Double Click °F

Entering Source Water Temp (Htg): Double Click °F

Entering Load Water Temp (Clg): Double Click °F

Entering Load Water Temp (Htg): Double Click °F

Operating Weight: Double Click Here (lb)

ELECTRICAL DATA

Power Supply: Click Volts Click Phase Click Hz

Minimum Circuit Ampacity: Click

Maximum Overcurrent Protection: Click

Genesis Large Water-to-Water (GLW) Series Submittal Data

Model GLW360
60 Hz - R22

English Language/S-I Units

Rev.: 11/30/05D

CLIMATEMASTER®

SUBMITTAL DATA - S-I UNITS

Unit Designation: Double Click Here

Job Name: Double Click Here

Architect: Double Click Here

Engineer: Double Click Here

Contractor: Double Click Here

PERFORMANCE DATA

Cooling Capacity: Double Click Here kW

EER: Double Click Here

Heating Capacity: Double Click Here kW

COP: Double Click Here

Ambient Air Temp: Double Click Here °C

Entering Source Water Temp (Clg): Double Click °C

Entering Source Water Temp (Htg): Double Click °C

Entering Load Water Temp (Clg): Double Click °C

Entering Load Water Temp (Htg): Double Click °C

Operating Weight: Double Click Here (kg)

ELECTRICAL DATA

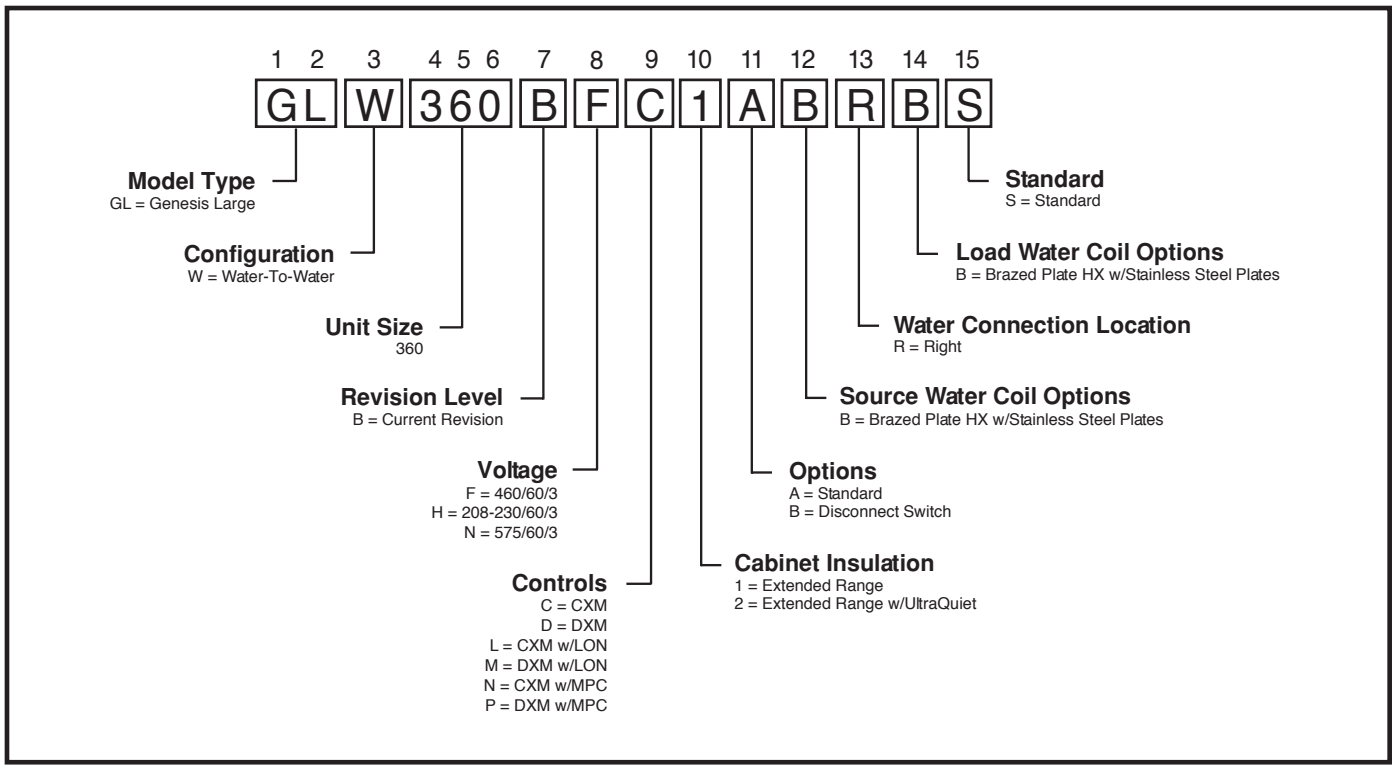
Power Supply: Click Volts Click Phase Click Hz

Minimum Circuit Ampacity: Click

Maximum Overcurrent Protection: Click

CLIMATEMASTER®

GLW Series Nomenclature



Rev.: 10/04/05D

GLW Series 60Hz - R22 Submittal Data Eng/I-P

CLIMATEMASTER®

Performance Data
ARI/ASHRAE/ISO 13256-2

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

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
	Indoor 53.6°F Outdoor 86°F		Indoor 104°F Outdoor 68°F		Indoor 53.6°F Outdoor 59°F		Indoor 104°F Outdoor 50°F		Indoor 53.6°F Outdoor 77°F		Indoor 104°F Outdoor 32°F	
	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP	Capacity Btuh	EER Btuh/W	Capacity Btuh	COP
GLW360	283,000	12.4	424,000	4.4	310,000	17.2	342,000	3.7	293,000	13.9	270,000	3.0

All ratings based upon 208V operation
Indoor coil also called "Load" and outdoor coil also called "Source"

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

Model	Water Loop Heat Pump				Ground Water Heat Pump				Ground Loop Heat Pump			
	Cooling		Heating		Cooling		Heating		Cooling		Heating	
	Indoor 12°C Outdoor 30°C		Indoor 40°C Outdoor 20°C		Indoor 12°C Outdoor 15°C		Indoor 40°C Outdoor 10°C		Indoor 12°C Outdoor 25°C		Indoor 40°C Outdoor 0°C	
	Capacity Watts	EER W/W	Capacity Watts	COP	Capacity Watts	EER W/W	Capacity Watts	COP	Capacity Watts	EER W/W	Capacity Watts	COP
GLW360	82,943	3.6	124,267	4.4	90,858	5.0	100,234	3.7	85,873	4.1	79,132	3.0

All ratings based upon 208V operation
Indoor coil also called "Load" and outdoor coil also called "Source"

GLW Series 60Hz - R22 Submittal Data Eng/I-P

CLIMATEMASTER®

Performance Data
GLW360 - Cooling

SOURCE				LOAD																			
	Flow				Flow 45 gpm							Flow 67.5 gpm							Flow 90 gpm						
EWT °F	GPM	WPD PSI	WPD FT	EWT °F	TC MBtuh	Power kW	HR MBtuh	LWT °F	EER	WPD PSI	WPD FT	TC MBtuh	Power kW	HR MBtuh	LWT °F	EER	WPD PSI	WPD PSI	TC MBtuh	Power kW	HR MBtuh	LWT °F	EER	WPD PSI	WPD PSI
50	45	2.4	5.5	50	Operation Not Recommended							Operation Not Recommended							298	15.3	350	43.4	19.5		
				60	323	15.7	377	45.7	20.6			340	15.9	394	50.0	21.3			348	16.0	402	52.3	21.7		
				70	371	16.4	427	53.6	22.6			391	16.7	448	58.5	23.4			401	16.9	459	61.1	23.8		
				80	421	17.2	479	61.3	24.5			445	17.6	505	66.8	25.4			458	17.8	518	69.8	25.8		
				90	473	18.0	534	69.0	26.3			503	18.5	566	75.1	27.2			518	18.7	582	78.5	27.6		
	67.5	5.1	11.8	50	Operation Not Recommended							Operation Not Recommended							302	14.7	352	43.3	20.5		
				60	328	15.0	379	45.5	21.8			344	15.3	397	49.8	22.6			353	15.4	406	52.2	22.9		
				70	376	15.7	430	53.3	23.9	2.2	5.1	397	16.0	452	58.3	24.8	4.8	11.1	408	16.2	463	61.0	25.2	8.2	18.9
				80	428	16.5	484	61.0	26.0			454	16.8	511	66.6	27.0			467	17.0	526	69.6	27.4		
				90	482	17.3	541	68.6	27.9			514	17.7	574	74.8	29.0			530	18.0	592	78.2	29.5		
	90	8.7	20.1	50	Operation Not Recommended							Operation Not Recommended							304	14.4	353	43.3	21.1		
				60	330	14.7	380	45.4	22.4			347	15.0	398	49.8	23.2			356	15.1	407	52.1	23.6		
				70	379	15.4	432	53.2	24.6			401	15.7	454	58.2	25.5			412	15.9	466	60.9	26.0		
				80	431	16.1	487	60.9	26.7			458	16.5	515	66.4	27.7			472	16.7	529	69.5	28.2		
				90	487	17.0	544	68.4	28.7			519	17.4	579	74.6	29.8			536	17.7	597	78.1	30.3		
70	45	2.4	5.5	50	Operation Not Recommended							Operation Not Recommended							280	18.6	344	43.8	15.1		
				60	305	18.9	370	46.5	16.1			319	19.1	384	50.6	16.7			326	19.2	392	52.8	16.9		
				70	349	19.6	416	54.5	17.8			367	19.8	434	59.2	18.5			375	20.0	444	61.7	18.8		
				80	396	20.3	465	62.4	19.5			417	20.6	488	67.7	20.2			428	20.8	499	70.5	20.6		
				90	445	21.1	517	70.2	21.1			471	21.5	544	76.1	21.9			484	21.7	558	79.2	22.3		
	67.5	5.1	11.8	50	Operation Not Recommended							Operation Not Recommended							285	17.8	345	43.7	16.0		
				60	310	18.0	371	46.3	17.2			324	18.2	387	50.4	17.8			332	18.3	394	52.7	18.1		
				70	355	18.6	419	54.3	19.1	2.2	5.1	374	18.8	438	59.0	19.9	4.8	11.1	383	18.9	448	61.5	20.2	8.2	18.9
				80	404	19.2	469	62.1	21.0			426	19.5	493	67.4	21.9			438	19.7	505	70.3	22.3		
				90	455	19.9	523	69.8	22.9			482	20.3	552	75.7	23.8			497	20.5	566	79.0	24.3		
	90	8.7	20.1	50	Operation Not Recommended							Operation Not Recommended							287	17.3	346	43.7	16.5		
				60	312	17.6	372	46.2	17.7			327	17.8	388	50.3	18.4			335	17.9	396	52.6	18.7		
				70	358	18.1	420	54.1	19.8			377	18.3	440	58.9	20.6			387	18.5	450	61.4	21.0		
				80	408	18.7	471	61.9	21.8			431	19.0	496	67.3	22.7			443	19.1	508	70.2	23.1		
				90	459	19.3	526	69.6	23.7			488	19.7	555	75.5	24.7			503	19.9	571	78.8	25.2		
90	45	2.4	5.5	50	Operation Not Recommended							254	23.0	332	42.5	11.0			258	23.1	337	44.3	11.2		
				60	283	23.5	363	47.5	12.1			295	23.6	376	51.3	12.5			301	23.7	382	53.3	12.7		
				70	324	24.1	407	55.6	13.5			339	24.3	422	60.0	13.9			347	24.5	430	62.3	14.2		
				80	368	24.8	453	63.7	14.8			386	25.1	472	68.6	15.4			395	25.3	482	71.2	15.6		
				90	414	25.6	502	71.6	16.2			436	26.0	525	77.1	16.8			448	26.2	537	80.1	17.1		
	67.5	5.1	11.8	50	Operation Not Recommended							259	21.9	333	42.4	11.8			263	22.0	338	44.2	12.0		
				60	289	22.3	365	47.2	13.0			301	22.4	378	51.1	13.4			307	22.5	384	53.2	13.7		
				70	331	22.8	409	55.3	14.5	2.2	5.1	347	23.0	425	59.7	15.1	4.8	11.1	355	23.1	434	62.1	15.4	8.2	18.9
				80	377	23.4	456	63.3	16.1			396	23.6	477	68.3	16.8			406	23.7	487	71.0	17.1		
				90	425	24.0	506	71.1	17.7			448	24.3	531	76.7	18.4			460	24.5	544	79.8	18.8		
	90	8.7	20.1	50	Operation Not Recommended							261	21.4	334	42.3	12.2			266	21.5	339	44.1	12.4		
				60	291	21.7	365	47.1	13.4			304	21.9	379	51.0	13.9			311	21.9	385	53.1	14.2		
				70	335	22.2	410	55.2	15.1			351	22.3	427	59.6	15.7			359	22.4	435	62.0	16.0		
				80	381	22.7	458	63.1	16.8			401	22.9	479	68.1	17.5			411	23.0	490	70.9	17.9		
				90	430	23.2	509	70.9	18.5			454	23.5	534	76.6	19.3			467	23.7	548	79.6	19.7		
110	45	2.4	5.5	50	Operation Not Recommended							228	28.7	325	43.3	7.9			231	28.8	330	44.9	8.0		
				60	256	29.3	356	48.7	8.8			266	29.5	367	52.1	9.0			271	29.6	372	54.0	9.2		
				70	295	30.1	398	56.9	9.8			307	30.3	411	60.9	10.1			314	30.5	418	63.0	10.3		
				80	336	30.9	442	65.1	10.9			351	31.2	458	69.6	11.3			359	31.4	466	72.0	11.4		
				90	379	31.8	488	73.1	11.9			398	32.1	508	78.2	12.4			407	32.3	518	81.0	12.6		
	67.5	5.1	11.8	50	Operation Not Recommended							233	27.4	327	43.1	8.5			238	27.5	331	44.8	8.7		
				60	263	27.9	358	48.4	9.4			273	28.0	369	51.9	9.8			279	28.1	374	53.8	9.9		
				70	303	28.4	400	56.6	10.7	2.2	5.1	316	28.6	414	60.7	11.0	4.8	11.1	323	28.7	421	62.8	11.2	8.2	18.9
				80	346	29.1	445	64.7	11.9			362	29.3	462	69.3	12.4			370	29.4	470	71.8	12.6		
				90	391	29.7	492	72.7	13.1			411	30.0	513	77.8	13.7			421	30.2	524	80.7	14.0		
	90	8.7	20.1	50	Operation Not Recommended							236	26.8	328	43.0	8.8			241	26.8	332	44.7	9.0		
				60	266	27.2	359	48.2	9.8			277	27.3	370	51.8	10.1			282	27.4	376	53.8	10.3		
				70	307	27.7	401	56.4	11.1			320	27.8	415	60.5	11.5			327	27.9	422	62.7	11.7		
				80	350	28.2	446	64.5	12.4			367	28.4	464	69.1	12.9			376	28.5	473	71.7	13.2		
				90	396	28.7	494	72.4	13.8			417	29.0	516	77.7	14.4			427	29.1	527	80.5	14.7		

Rev. 5/23/05 JH

Interpolation is permissible; extrapolation is not.
All performance data is based upon the lower of dual voltage rated units.

GLW Series 60Hz - R22 Submittal Data Eng/I-P

CLIMATEMASTER®

Performance Data
GLW360 - Heating

SOURCE				LOAD																					
	Flow				Flow 45 gpm							Flow 67.5 gpm							Flow 90 gpm						
EWT °F	GPM	WPD PSI	WPD FT	EWT °F	HC MBtuh	Power kW	HE MBtuh	LWT °F	COP	WPD PSI	WPD FT	HC MBtuh	Power kW	HE MBtuh	LWT °F	COP	WPD PSI	WPD FT	HC MBtuh	Power kW	HE MBtuh	LWT °F	COP	WPD PSI	WPD FT
20	90	10.4	24.0	60	219	15.1	167	69.7	4.24	2.2	5.1	219	14.6	169	66.5	4.38	4.8	11.1	218	14.4	169	64.8	4.45	8.2	18.9
				80	220	18.9	155	89.8	3.41			220	18.3	157	86.5	3.53			220	18.0	159	84.9	3.58		
				100	217	23.4	137	109.6	2.71			217	22.7	140	106.4	2.81			218	22.4	141	104.8	2.85		
				120	210	28.8	111	129.3	2.13			211	28.0	115	126.3	2.21			211	27.6	117	124.7	2.24		
30	45	2.6	6.0	60	246	15.5	193	70.9	4.65	2.2	5.1	245	14.9	194	67.2	4.82	4.8	11.1	245	14.6	195	65.4	4.91	8.2	18.9
				80	246	19.3	180	90.9	3.74			246	18.6	183	87.3	3.88			246	18.3	184	85.5	3.95		
				100	244	24.0	162	110.9	2.98			245	23.2	166	107.3	3.09			245	22.8	167	105.5	3.15		
				120	239	29.8	138	130.7	2.35			240	28.8	142	127.1	2.44			241	28.4	144	125.4	2.49		
	67.5	5.6	12.9	60	253	15.6	200	71.2	4.76			253	15.0	202	67.5	4.94			253	14.7	203	65.6	5.03		
				80	253	19.4	187	91.2	3.82			253	18.7	189	87.5	3.96			253	18.4	190	85.6	4.04		
				100	250	24.2	168	111.1	3.03			251	23.3	171	107.4	3.15			251	22.9	173	105.6	3.21		
				120	244	29.9	142	130.9	2.39			245	28.9	146	127.3	2.48			246	28.5	149	125.5	2.53		
	90	9.5	21.9	60	257	15.6	203	71.4	4.82			257	15.0	205	67.6	5.00			257	14.8	206	65.7	5.10		
				80	256	19.5	190	91.4	3.86			256	18.7	192	87.6	4.01			256	18.4	194	85.7	4.09		
				100	253	24.2	170	111.3	3.06			254	23.4	174	107.5	3.18			254	23.0	176	105.6	3.24		
				120	246	30.0	144	131.0	2.41			248	29.0	149	127.4	2.50			248	28.5	151	125.5	2.55		
40	45	2.4	5.5	60	287	16.0	232	72.7	5.25	2.2	5.1	287	15.4	234	68.5	5.47	4.8	11.1	287	15.1	236	66.4	5.58	8.2	18.9
				80	285	19.9	217	92.7	4.20			286	19.1	220	88.5	4.38			286	18.7	222	86.3	4.48		
				100	282	24.8	197	112.6	3.33			283	23.8	201	108.4	3.48			283	23.4	203	106.3	3.55		
				120	277	30.9	172	132.3	2.63			278	29.7	177	128.3	2.74			279	29.2	179	126.2	2.80		
	67.5	5.1	11.8	60	296	16.1	241	73.1	5.38			297	15.5	244	68.8	5.61			297	15.2	245	66.6	5.73		
				80	293	20.0	225	93.0	4.30			294	19.2	229	88.7	4.49			294	18.8	230	86.5	4.59		
				100	289	25.0	204	112.9	3.40			290	23.9	208	108.6	3.55			291	23.4	211	106.5	3.63		
				120	283	31.0	177	132.6	2.67			284	29.9	182	128.4	2.79			285	29.3	185	126.3	2.85		
	90	8.7	20.1	60	301	16.2	246	73.3	5.44			302	15.5	248	68.9	5.68			302	15.2	250	66.7	5.81		
				80	297	20.1	229	93.2	4.34			298	19.2	233	88.8	4.55			299	18.8	234	86.6	4.65		
				100	293	25.0	207	113.0	3.43			294	24.0	212	108.7	3.59			294	23.5	214	106.5	3.67		
				120	286	31.1	180	132.7	2.69			287	29.9	185	128.5	2.81			288	29.3	188	126.4	2.88		
50	45	2.4	5.5	60	328	16.6	272	74.6	5.81	2.2	5.1	329	15.9	275	69.7	6.09	4.8	11.1	330	15.5	277	67.3	6.23	8.2	18.9
				80	324	20.5	255	94.4	4.65			325	19.5	259	89.6	4.88			326	19.1	261	87.2	5.00		
				100	320	25.5	233	114.2	3.67			321	24.4	238	109.5	3.86			321	23.8	240	107.1	3.95		
				120	314	31.9	205	134.0	2.89			315	30.5	211	129.4	3.03			316	29.8	214	127.0	3.11		
	67.5	5.1	11.8	60	341	16.7	284	75.1	5.97			342	16.0	287	70.1	6.26			343	15.7	289	67.6	6.41		
				80	335	20.6	265	94.9	4.77			336	19.7	269	90.0	5.02			337	19.2	271	87.5	5.14		
				100	329	25.7	241	114.6	3.75			330	24.5	247	109.8	3.95			331	23.9	249	107.4	4.05		
				120	322	32.0	212	134.3	2.94			323	30.6	219	129.6	3.09			324	29.9	222	127.2	3.17		
	90	8.7	20.1	60	347	16.8	290	75.4	6.05			348	16.1	294	70.3	6.35			349	15.7	296	67.7	6.50		
				80	340	20.7	270	95.1	4.82			342	19.7	275	90.1	5.08			343	19.3	277	87.6	5.21		
				100	333	25.8	246	114.8	3.79			335	24.6	251	109.9	4.00			336	24.0	254	107.5	4.10		
				120	325	32.1	216	134.5	2.97			327	30.7	222	129.7	3.12			328	30.0	226	127.3	3.20		
60	45	2.4	5.5	60	373	17.2	315	76.6	6.37	2.2	5.1	375	16.4	319	71.1	6.70	4.8	11.1	376	16.0	321	68.3	6.87	8.2	18.9
				80	366	21.0	295	96.3	5.10			368	20.0	300	90.9	5.39			369	19.5	302	88.2	5.54		
				100	360	26.2	270	116.0	4.02			361	24.9	276	110.7	4.25			362	24.3	279	108.1	4.37		
				120	353	32.8	241	135.7	3.16			354	31.2	248	130.5	3.33			355	30.4	251	127.9	3.42		
	67.5	5.1	11.8	60	389	17.4	330	77.2	6.56			391	16.6	335	71.6	6.91			393	16.2	337	68.7	7.09		
				80	380	21.2	307	96.9	5.24			382	20.2	313	91.3	5.56			383	19.7	316	88.5	5.71		
				100	371	26.4	281	116.5	4.12			373	25.0	288	111.1	4.37			374	24.4	291	108.3	4.50		
				120	362	33.0	250	136.1	3.22			364	31.3	258	130.8	3.41			365	30.6	261	128.1	3.50		
	90	8.7	20.1	60	397	17.5	337	77.6	6.65			400	16.7	343	71.8	7.02			401	16.3	346	68.9	7.20		
				80	387	21.3	314	97.2	5.31			389	20.2	320	91.5	5.64			390	19.7	323	88.7	5.80		
				100	377	26.5	287	116.8	4.17			379	25.1	294	111.3	4.43			381	24.5	297	108.5	4.56		
				120	367	33.1	254	136.4	3.25			370	31.4	262	131.0	3.45			371	30.6	266	128.3	3.55		
70	45	2.4	5.5	60	421	17.8	360	78.7	6.92	2.2	5.1	424	17.0	366	72.5	7.31	4.8	11.1	426	16.6	369	69.4	7.51	8.2	18.9
				80	411	21.7	337	98.3	5.56			414	20.5	344	92.3	5.91			415	20.0	347	89.2	6.09		
				100	402	26.9	310	117.9	4.38			404	25.4	318	112.0	4.66			406	24.7	321	109.0	4.81		
				120	393	33.7	279	137.5	3.43			396	31.8	287	131.7	3.64			397	31.0	291	128.8	3.75		
	67.5	5.1	11.8	60	441	18.1	379	79.5	7.13			445	17.3	386	73.1	7.55			447	16.9	389	69.9	7.77		
				80	428	21.9	353	99.0	5.72			431	20.7	361	92.8	6.10			433	20.2	364	89.6	6.30		
				100	416	27.1	324	118.5	4.50			419	25.6	332	112.4	4.80			421	24.9	336	109.4	4.96		
				120	405	33.9	290	138.1	3.50			408	32.0	299	132.1	3.73			410	31.2	303	129.1	3.85		
	90	8.7	20.1	60	451	18.3	389	80.0	7.24			455	17.4	396	73.5	7.67			458	17.0	400	70.1	7.89		
				80	437	22.0	361	99.4	5.81			440	20.8	369	93.0	6.20			442	20.3	373	89.8	6.40		
				100	424	27.3	331	118.9	4.55			427	25.7	339	112.7	4.87			429	25.0	344	109.5	5.03		
				120	411	34.0	295	138.3	3.54			415	32.1	305	132.3	3.78			416	31.2	310	129.3	3.90		

Rev. 5/23/05 JH

Source heat exchanger antifreeze solution is required for applications with operation in the shaded areas shown above. ***Failure to comply will void the equipment warranty.***

Interpolation is permissible; extrapolation is not.
All performance data is based upon the lower of dual voltage rated units.
Performance data shown in shaded areas is based upon a 15% antifreeze solution.

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Antifreeze Correction Table

Antifreeze Type	Anitfreeze %	Cooling EWT 90°F			Heating EWT 30°F		WPD Corr. Fct. EWT 30°F
		Total Cap	Sens Cap	Power	Htg Cap	Power	
Water	10	1.000	1.000	1.000	1.000	1.000	1.000
Propylene Glycol	5	0.995	0.995	1.003	0.989	0.997	1.070
	15	0.986	0.986	1.009	0.968	0.990	1.210
	25	0.978	0.978	1.014	0.947	0.983	1.360
Methanol	5	0.997	0.997	1.002	0.989	0.997	1.070
	15	0.990	0.990	1.007	0.968	0.990	1.160
	25	0.982	0.982	1.012	0.949	0.984	1.220
Ethanol	5	0.998	0.998	1.002	0.981	0.994	1.140
	15	0.994	0.994	1.005	0.944	0.983	1.300
	25	0.986	0.986	1.009	0.917	0.974	1.360
Ethylene Glycol	5	0.998	0.998	1.002	0.993	0.998	1.040
	15	0.994	0.994	1.004	0.980	0.994	1.120
	25	0.988	0.988	1.008	0.966	0.990	1.200

Physical Data

Model	360
Compressor (qty)	Scroll (2)
Factory Charge R22 (lbs) [kg]	9 [4.1]
Indoor/Load Water Connection Size	
IPT (in)	2
Outdoor/Source Water Connection Size	
IPT (in)	2
Weight - Operating, (lbs) [kg]	955 [434]
Weight - Packaged, (lbs) [kg]	1005 [457]

Spring mounted compressor
Dedicated heating and cooling expansion valves with filter drier
Insulated Source and Load Water Coils with brazed plate heat exchangers
Check serial plate for refrigerant type

Electrical Data

Model	Voltage Code	Voltage	Min/Max Voltage	Compressor			Total Unit FLA	Min Circuit Amps	Max Fuse/ HACR
				QTY	RLA	LRA			
GLW360	H	208-230/60/3	197/254	2	41.0	350.0	82.0	92.3	125
	F	460/60/3	414/506	2	21.8	158.0	43.6	49.0	70
	N	575/60/3	518/633	2	17.3	125.0	34.6	38.9	50
	U	380-420/50/3	342/462	2	21.8	167.0	43.6	49.0	70

HACR circuit breaker in USA only

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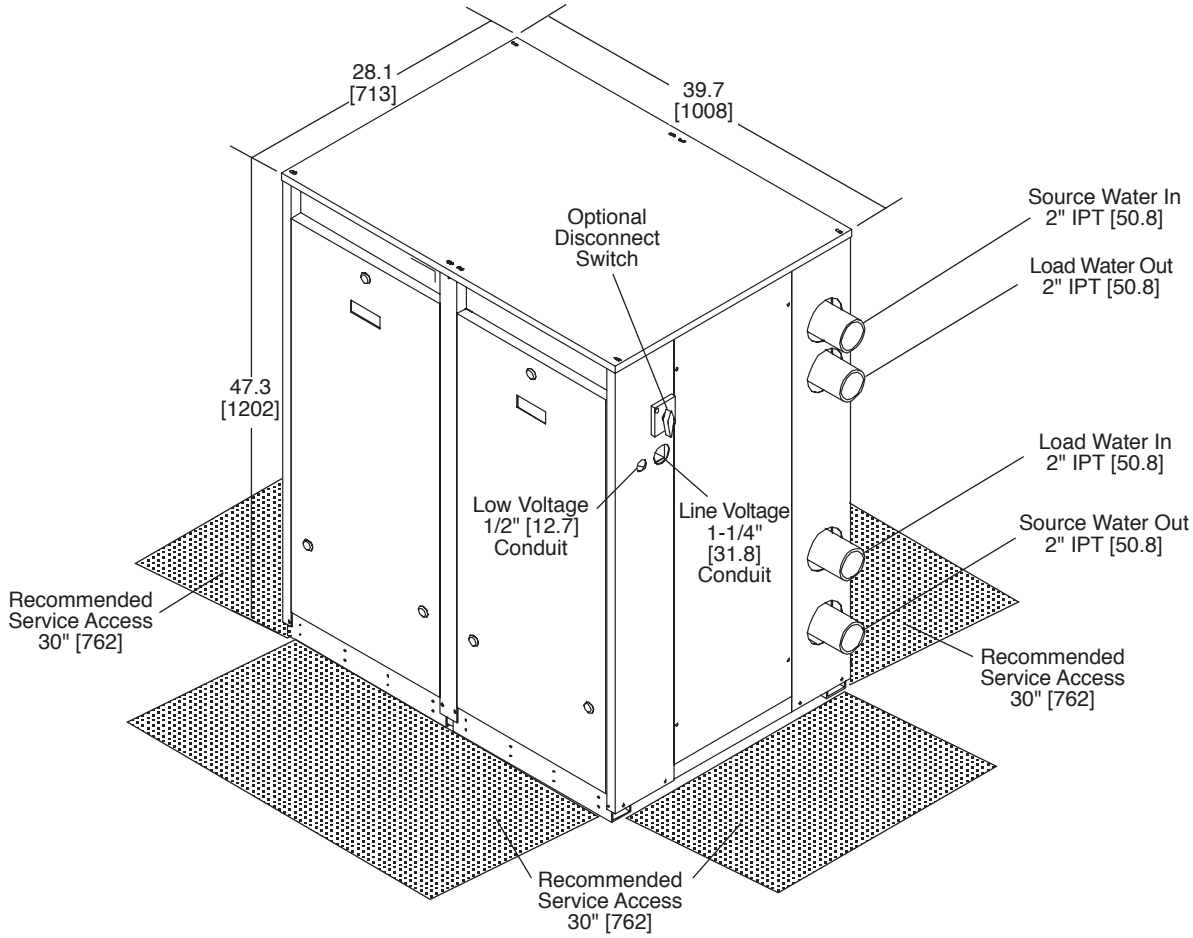
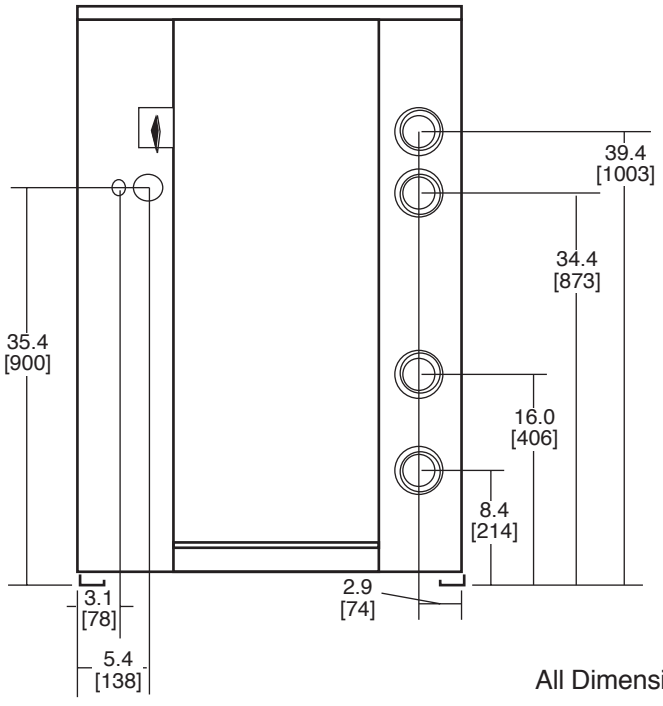
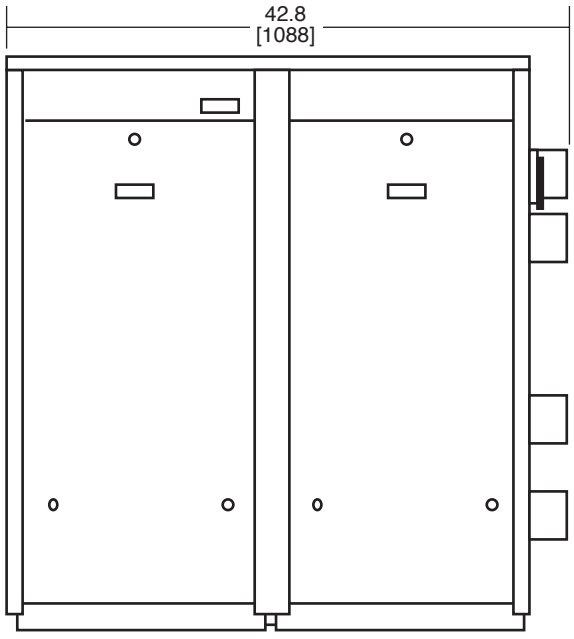
Dimensional Data



Front View



Left Side View



All Dimensions in inches [mm]

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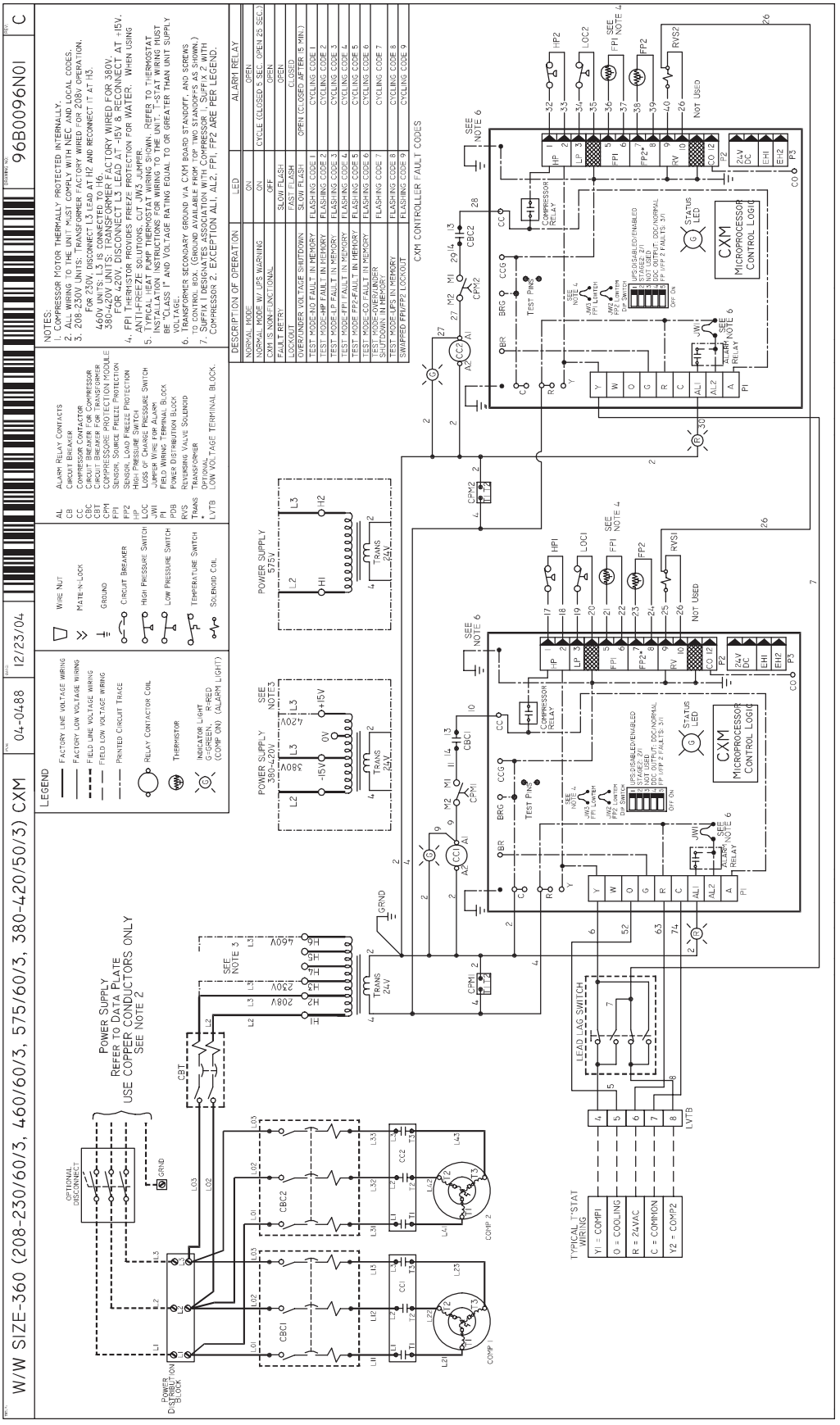
Typical Wiring Diagram Three Phase GLW Units With CXM Controller



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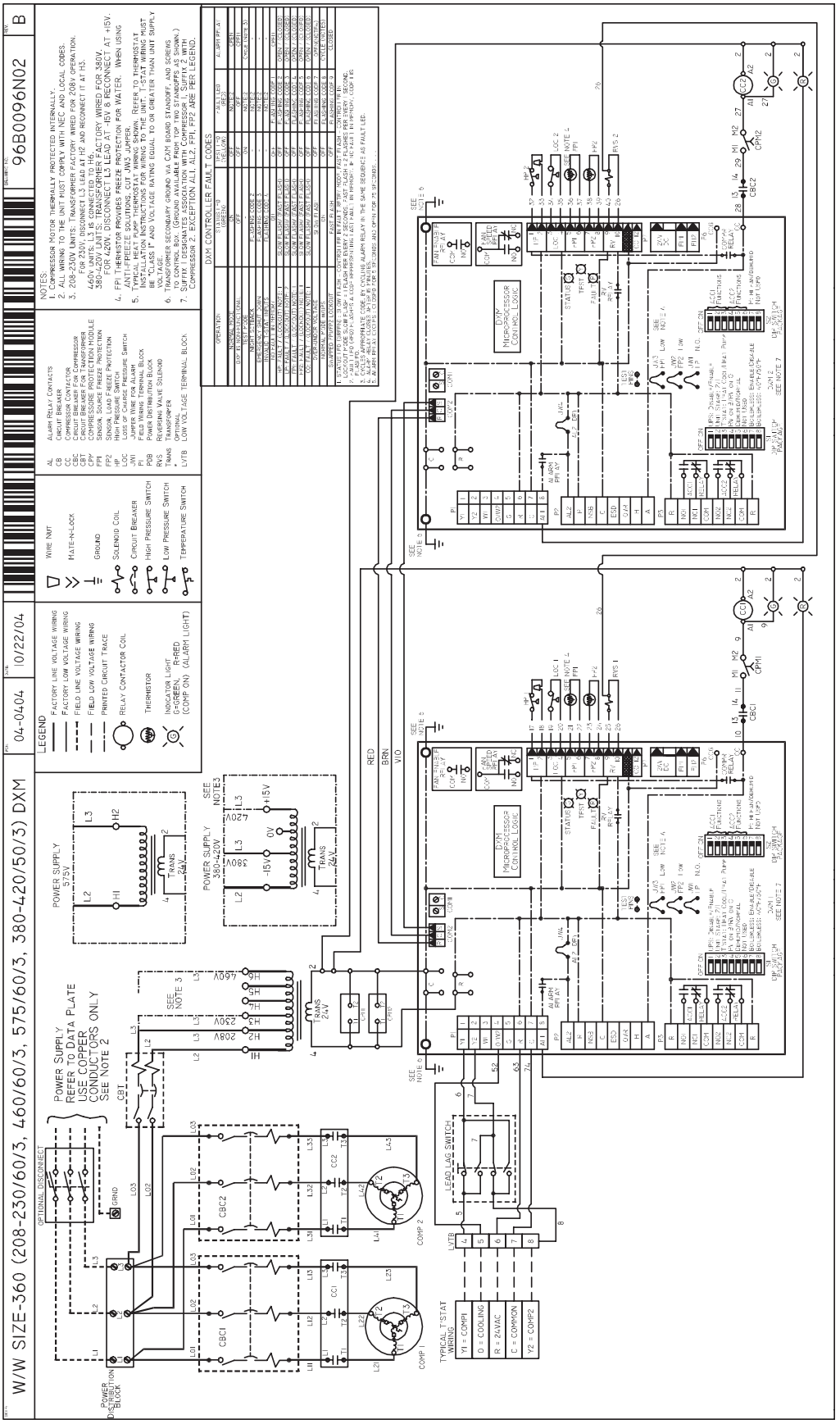
Typical Wiring Diagram
Three Phase GLW Units
With DXM Controller



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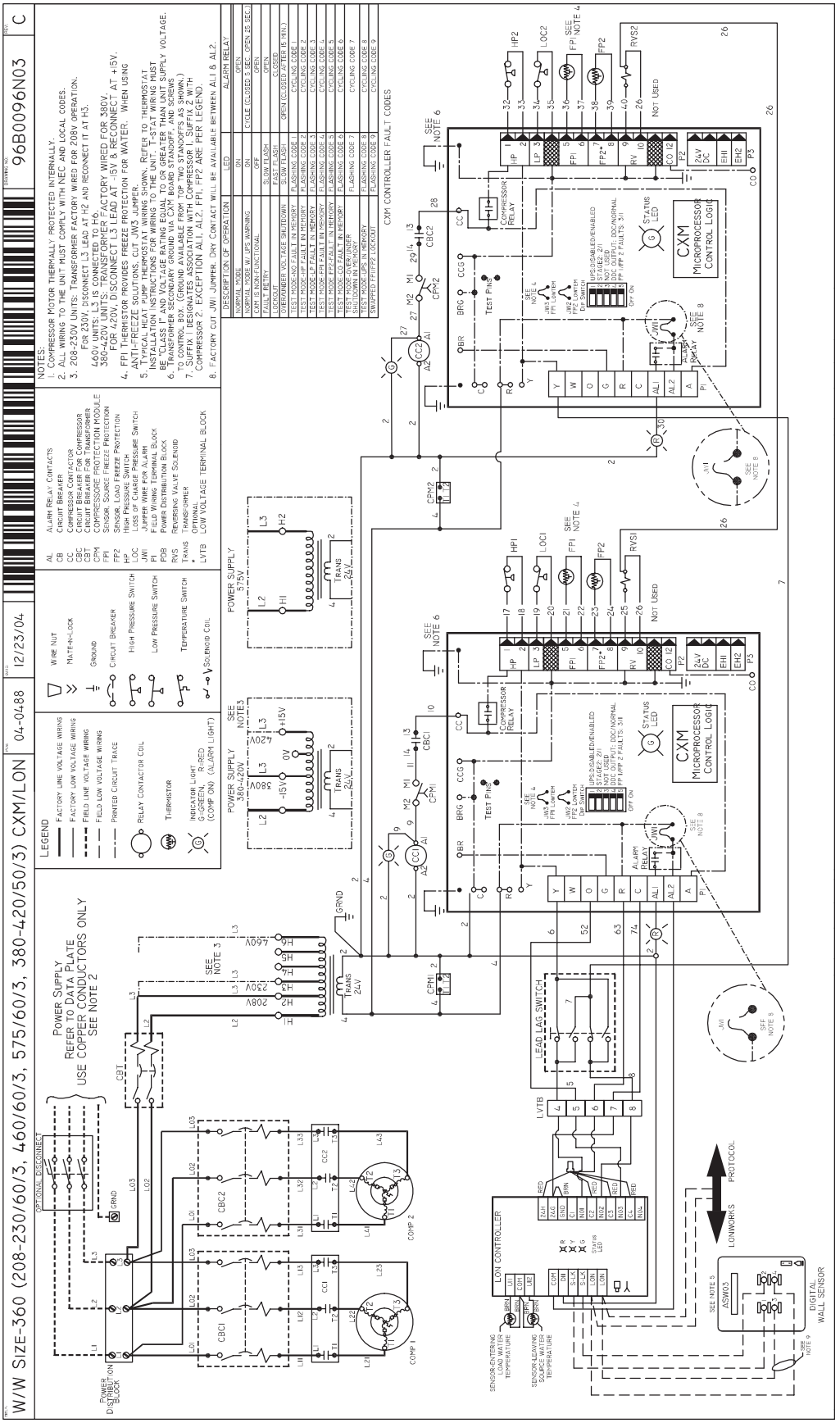
Typical Wiring Diagram Three Phase GLW Units With CXM & LON Controller



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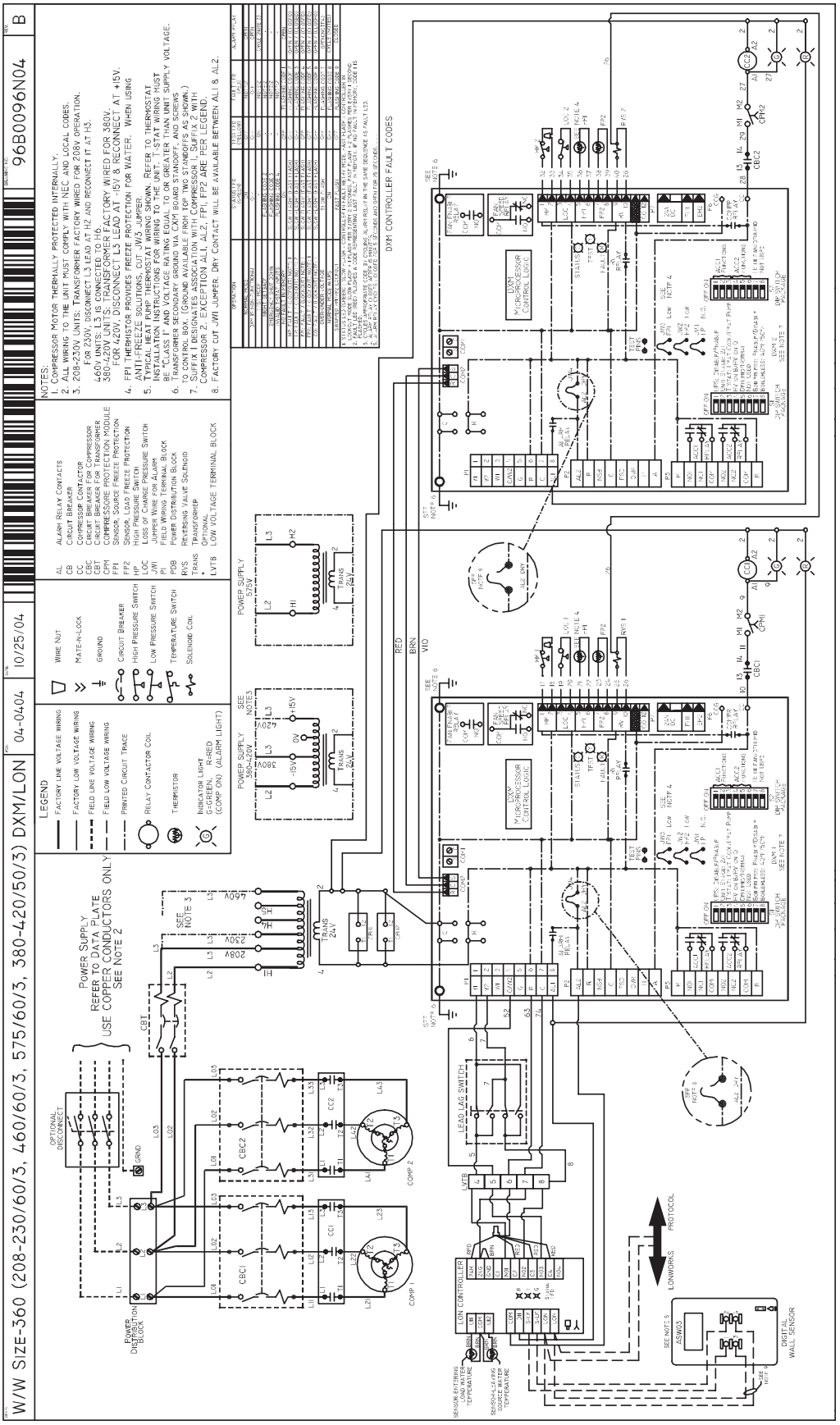
Typical Wiring Diagram
Three Phase GLW Units
With DXM & LON Controller



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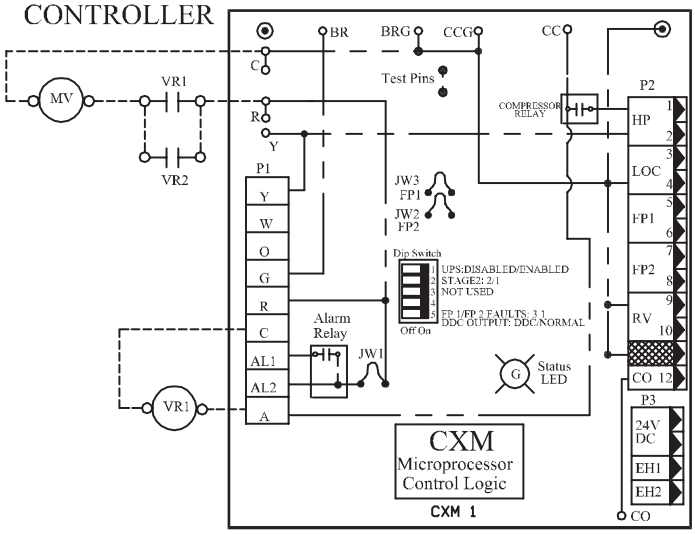
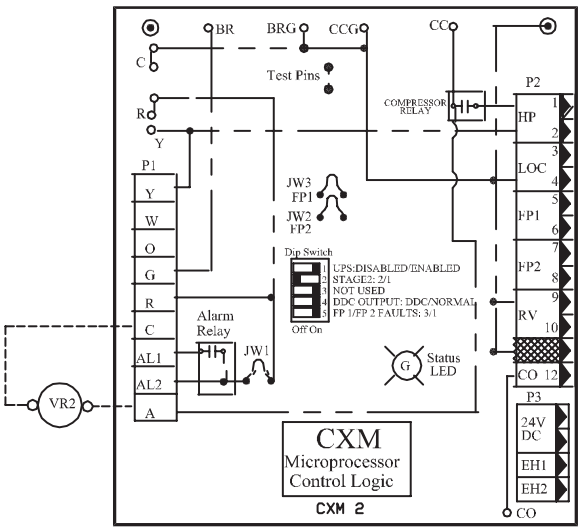
Typical Wiring Diagram
Three Phase GLW Units
With Motorized Water Valve

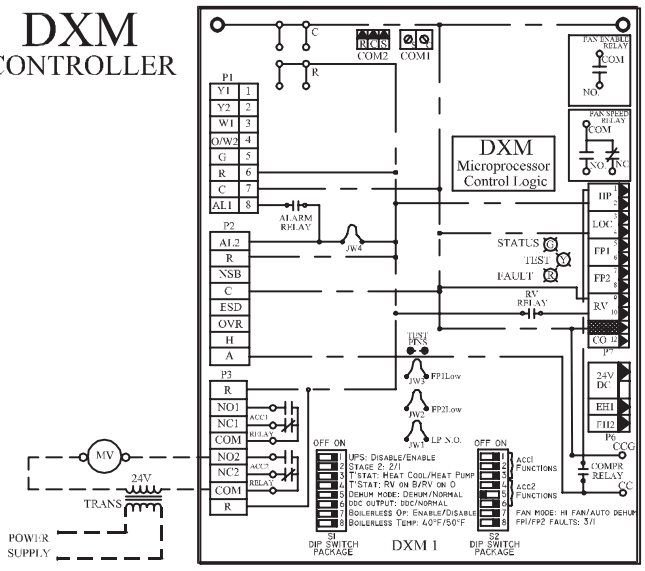
CXM CONTROLLER

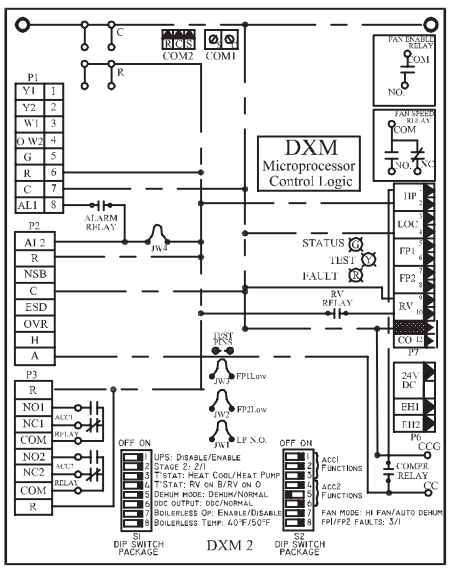




– – – – – – FIELD WIRING (24 VOLT)
MV - MOTORIZED VALVE
VR1, VR2 - VALVE RELAY 1 AND 2

DXM CONTROLLER





NOTE: SET DIP SWITCH PACKAGE S2 FOR MOTORIZED VALVE AS PER TABLE

2.4	2.5	2.6
ON	OFF	ON

⚠ WARNING

Never jumper terminal "A" from CXM or DXM board #1 to CXM or DXM board #2.

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Brazed Plate Heat Exchanger
Corrosion Resistance

CORROSION RESISTANCE OF COPPER AND STAINLESS STEEL IN CBEs; POINTS TO MEASURE AND CHECK IN A WATER ANALYSIS

The resistance guide below is an attempt to give a picture of the corrosion resistance of stainless steel of type **AISI 316** and pure **Copper** (99.9%) in water, to a number of important chemical factors. The actual corrosion is however a very complex process influenced by many different factors in combination. This table is therefore a considerable simplification and should not be overvalued!

EXPLANATIONS
+ Good resistance under normal conditions
0 Corrosion problems may occur especially when more factors are valued 0
- Use is not recommended

GLW360

WATER CONTAINING	CONCENTRATION (mg/l or ppm)	Time Limits Analyze before	AISI 316	254 SMO	Copper Alloy	Nickel Alloy
Alkalinity (HCO_3^-)	<70	Within 24 Hours	+	+	0	+
	70-300		+	+	+	+
	>300		+	+	0/+	+
Sulfate (SO_4^{2-})	< 70	No limit	+	+	+	+
	70-300		+	+	0/-	+
	> 300		0	0	-	+
HCO_3^- / SO_4^{2-}	> 1.0	No limit	+	+	+	+
	< 1.0		+	+	0/-	+
Electrical Conductivity	< 10 µS/cm	No limit	+	+	0	+
	10 - 500 µS/cm		+	+	+	+
	> 500 µS/cm		+	+	0	+
pH	< 6.0	Within 24 Hours	0	0	0	+
	6.0 - 7.5		0/+	+	0	+
	7.5 - 9.0		+	+	+	+
	> 9.0		+	+	0	+
Ammonium (NH_4^+)	< 2	Within 24 Hours	+	+	+	+
	2-20		+	+	0	+
	> 20		+	+	-	+
Chlorides (Cl^-) Please also	< 300	No limit	+	+	+	+
see table below	> 300		0	+	0/+	+
Free chlorine (Cl_2)	< 1	Within 5 hours	+	+	+	+
	1-5		+	+	0	+
	> 5		0/+	+	0/-	+
Hydrogen Sulfide (H_2S)	< 0.05	No limit	+	+	+	+
	> 0.05		+	+	0/-	+
Free(aggressive)	< 5	No limit	+	+	+	+
Carbon Dioxide (CO 2)	5-20		+	+	0	+
	>20		+	+	-	+
Total Hardness (°dH)	4.0 - 8.5	No limit	+	+	+	+
Nitrate (NO_3)	< 100	No limit	+	+	+	+
	> 100		+	+	0	+
Iron (Fe)	< 0.2	No limit	+	+	+	+
	> 0.2		+	+	0	+
Aluminum (Al)	< 0.2	No limit	+	+	+	+
	> 0.2		+	+	0	+
Manganese (Mn)	< 0.1	No limit	+	+	+	+
	> 0.1		+	+	0	+

The information in this document is subject to change without prior notice.

CLIMATEMASTER®

Brazed Plate Heat Exchanger
Corrosion Resistance

CORROSION RESISTANCE OF COPPER AND STAINLESS STEEL

SWEP's CHOICE OF CHANNEL PLATE MATERIAL

CHLORIDE CONTENT	MAXIMUM TEMPERATURE			
	60°C	80°C	120°C	130°C
= 10 ppm	SS 304	SS 304	SS 304	SS 316
= 25 ppm	SS 304	SS 304	SS 316	SS 316
= 50 ppm	SS 304	SS 316	SS 316	Ti / 254 SMO
= 80 ppm	SS 316	SS 316	SS 316	Ti / 254 SMO
= 150 ppm	SS 316	SS 316	Ti / 254 SMO	Ti / 254 SMO
= 300 ppm	SS 316	Ti / 254 SMO	Ti / 254 SMO	Ti / 254 SMO
> 300 ppm	Ti / 254 SMO	Ti / 254 SMO	Ti / 254 SMO	Ti / 254 SMO

CLIMATEMASTER®

Genesis Large Water-to-Water (GLW) Series 60Hz
Engineering Specifications
Rev.: 08/16/05 **Page 1**

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

Water-to-Water Heat Pumps:
Units shall be supplied completely factory built for an entering source water temperature range from 20° to 110°F (-6.7° to 43.3°C) and entering (heating) load water temperature range from 60° to 120°F (15.6° to 48.9°C) or entering (cooling) load water temperature range of 50° to 90°F (10.0° to 32.2°C) as standard. Equivalent units from other manufacturers can be proposed provided approval to bid is given 10 days prior to bid closing. All equipment listed in this section must be rated in accordance with American Refrigeration Institute / International Standards Organization (ARI / ISO) and Canadian Standards Association (CSA-US). 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. ***Units tested without water flow are not acceptable.***

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

The heat pumps shall be fabricated from heavy gauge steel with powder coat paint finish. Both sides of the steel shall be painted for added protection. All interior surfaces shall be lined with 3/8 inch (9.5mm) thick, acoustic type foam insulation.

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

Cabinets shall have separate entrance connectors for 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 as to not interfere with the serviceability of unit. Contractor shall be responsible for any extra costs involved in the installation of units that do not have this feature. Contractor must ensure that units can be easily removed for servicing and coordinate locations of electrical conduit and lights with the electrical contractor.

Unit(s) shall have exterior indicator lights showing, 1) compressor operation (on/off) and 2) unit "fault" status. An "A/B" switch shall allow the selection of compressor operation sequence. Contractor shall be responsible for providing control circuitry and indicator lights for units not providing these features.

Option: UltraQuiet package shall consist of sound attenuating blanket on both compressors to reduce radiated noise.

Refrigerant Circuit:
Units shall have two sealed, isolated refrigerant circuits, each including a high efficiency scroll compressor designed for heat pump operation, a thermostatic expansion valve for refrigerant metering, a reversing valve, two brazed plate refrigerant to water heat exchangers utilizing stainless steel plates, and safety controls including a high pressure switch, low pressure switch, and low water temperature sensors. 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.

Hermetic compressors shall be internally sprung. The compressor(s) shall be mounted on a large heavy gauge compressor base pan, which is then isolated from the cabinet base with rubber grommets for maximized vibration attenuation. Compressor shall have thermal overload protection. Refrigerant to water heat exchangers shall be brazed plate type with stainless steel plates, rated to withstand 435 PSIG (2997 kPa) working refrigerant pressure and 435 PSIG (2997 kPa) working water pressure.

Refrigerant metering shall be accomplished by thermostatic expansion valve only. Expansion valves shall be dual port balanced types with external equalizer for optimum refrigerant metering. Units shall be designed and tested for operating ranges of entering water temperatures from 20° to 110°F (-6.7° to 43.3°C). Reversing valve shall be four-way solenoid activated refrigerant valve, which shall default to heating mode should the solenoid fail to function.

Electrical:
A control box shall be located within the unit compressor compartment and shall contain a 75VA transformer, 24 volt activated, 3 pole compressor contactor, terminal block for thermostat wiring and solid-state controller for complete unit operation. Reversing valve wiring shall be routed through this electronic controller. Units shall be name-plated for use with time delay fuses or HACR

circuit breakers. Unit controls shall be 24 Volt and provide heating or cooling as required by the remote aquastat / sensor. A compressor solid state protection module shall be supplied on each circuit for compressor overload protection. Circuit breakers shall be provided on each compressor power circuit for short circuit protection.

Solid State Control System (CXM):
Units shall have a solid-state control system. ***Units utilizing electro-mechanical control shall not be acceptable.*** The control system microprocessor board shall be specifically designed to protect against building electrical system noise contamination, EMI, and RFI interference. The control system shall interface with a heat pump type thermostat. The control system shall have the following features:

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

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

Option: Enhanced solid state control system (DXM)
Control shall have all of the above mentioned features of the CXM control system along with the following expanded features:

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

Option: Lonworks interface system
Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a LONWORKS interface board, which is LONMark certified. This will permit all units to be daisy chained via a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:
a. Source leaving water temperature
b. Load leaving water temperature
c. Command of temperature setpoint
d. Cooling status
e. Heating status
f. Low temperature sensor alarm
g. Low pressure sensor alarm
h. High pressure switch alarm

i. Hi/low voltage alarm
j. Unoccupied / occupied command
k. Cooling command
l. Heating command
m. Fault reset command
n. Itemized fault code revealing reason for specific shutdown fault (any one of 7)

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

Option: MPC (Multiple Protocol Control) interface system
Units shall have all the features listed above (either CXM or DXM) and the control board will be supplied with a Multiple Protocol interface board. Available protocols are BACnet MS/TP, Modbus, or Johnson Controls N2. The choice of protocol shall be field selectable/changeable via the use of a simple selector switch. Protocol selection shall not require any additional programming or special external hardware or software tools. This will permit all units to be daisy chain connected by a 2-wire twisted pair shielded cable. The following points must be available at a central or remote computer location:
a. Source leaving water temperature
b. Load leaving water temperature
c. Command of space temperature setpoint
d. Cooling status
e. Heating status
f. Low temperature sensor alarm
g. Low pressure sensor alarm
h. High pressure switch alarm
i. Hi/low voltage alarm
j. Unoccupied / occupied command
k. Cooling command
l. Heating command
m. Fault reset command
n. Itemized fault code revealing reason for specific shutdown fault (any one of 7)

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

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

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

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

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

FIELD INSTALLED OPTIONS

Hose Kits:
All units 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.

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Submittal Change Log

Date:	Item:	Action:
11/30/05	Various	Formatting changes
08/18/05	Specifications	Updated CXM verbiage
06/09/05	All	Corrected part number from LC283 to LC282
05/23/05	Model Nomenclature	Updated model nomenclature for revision B
05/23/05	Performance Data - Cooling	Updated operational data for low load EWT/flow rate
05/23/05	Performance Data - Heating	Added notes on antifreeze requirements
05/23/05	Wiring Diagrams	Added wiring diagrams for motorized valves
05/23/05	Heat Exchangers	Added information on brazed plate heat exchangers
05/23/05	Specifications	Updated specifications to match other products
05/23/05	Added Change Log	