

## CWC/CWH SPECIFICATION GUIDE

COOLING ONLY/HEAT PUMP  
8,000 - 10,000 - 13,000 - 17,000 BTU/H  
P/N# 240-3267, REV. 1.1 [07/02]

# CWC/CWH HIGH-EFFICIENCY WATER SOURCE HEAT PUMP

COMPLETE REPLACEMENT CHASSIS FOR FREIDRICH AND CLIMATE MASTER WC AND "800" SERIES WATER SOURCE AND MOST UNITS IN CUSTOM ENCLOSURES



### PRODUCT DESCRIPTION

THE CWC/CWH SERIES OF WATER SOURCE HEAT PUMPS WERE DESIGNED TO REPLACE MANY OF THE MOST POPULAR UNITS NOW IN SERVICE AND VIRTUALLY ALL WATER SOURCE HEAT PUMPS THAT WERE INSTALLED IN CUSTOM CABINETRY WITH DIMENSIONS EQUAL TO OR LARGER THAN THE CWC.

THE CWC/CWH EER RATINGS OF 13.3 TO 13.7 AND COP'S OF 4.6 TO 4.7 FAR EXCEED THE RATINGS FOR THE OLD UNITS (EVEN WHEN THEY WERE NEW).

THE CWC/CWH CHASSIS IS A COMPLETE PACKAGE WITH COMPRESSOR; HEAT PUMP WITH REVERSING VALVE; CAPILLARY TUBE METERING; AND ALL REFRIGERATION COMPONENTS. SAFETY CONTROLS INCLUDE OVERLOAD PROTECTION AND HIGH/LOW PRESSURE CONTROLS.

### CAPACITIES

THE CWC/CWH REPLACEMENT CHASSIS IS AVAILABLE IN NOMINAL COOLING CAPACITIES OF 8,000, 10,000, 13,000, AND 15,000 BTU/H. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

### AIR SYSTEMS

- FANS ARE FORWARD CURVE TYPE, DIRECTLY MOUNTED TO THE MOTOR SHAFTS
- MOTOR IS PSC TYPE WITH OVERHEAT PROTECTION
- AIR STREAM SURFACES ARE INSULATED WITH 1/4" FIBERGLASS AND FOIL FACED FIBERGLASS FOR ELECTRIC HEAT UNITS

### HIGH EFFICIENCY HEAT EXCHANGER

EVAPORATOR COIL IS SEAMLESS, COPPER TUB-

ING ARRANGED IN STAGGERED CONFIGURATION WITH ENHANCED ALUMINUM FINS TESTED TO 460 PSIG. THE TUBES ARE MECHANICALLY EXPANDED FOR SECURE BONDING TO FIN SHOULDERS.

### REFRIGERATION CIRCUIT

- HIGH EFFICIENCY ROTARY COMPRESSOR WITH 5 YEAR WARRANTY
- CONDENSER COIL IS COPPER INNER TUBE WITH STEEL OUTER TUBE DESIGN. REFRIGERANT FLOW IS THROUGH THE COPPER INNER TUBE AND HEAT IS EXCHANGED WITH A COUNTER FLOW OF WATER THROUGH THE OUTER SHELL.

### CONTROLS & COMPONENTS (FACTORY INSTALLED)

- HIGH PRESSURE CONTROL
- LOW TEMPERATURE/LOW WATER FLOW CUT-OUT SWITCH
- COMPRESSOR LOCK-OUT RELAY
- UNIT-MOUNTED CONTROLS FOR TEMPERATURE, FAN SPEED, AND MODE CONTROL
- 4-WAY REVERSING VALVE WITH SOLENOID (ENERGIZED FOR COOLING MODE) ACTIVATED BY LINE VOLTAGE

### OPTIONS

- ELECTRICAL RESISTANCE HEAT ELEMENT
- REMOTE THERMOSTAT CONTROLS
- MOTORIZED FRESH AIR CAPABILITY

### RATING & TESTING

UNITS ARE TESTED AND RATED IN ACCORDANCE WITH ARI STANDARDS 320 AND UL 484. DUE TO ONGOING DEVELOPMENT PROGRAMS, DESIGN AND SPECIFICATIONS MAY CHANGE WITHOUT NOTICE.

### WARRANTY

ALL PRODUCTS ARE COVERED UNDER STANDARD WARRANTY

# COOLING AND HEATING SPECIFICATIONS

NOTE: DATA IN BOLD IS ARI STANDARD.

## CWC/CWH 8 COOLING CAPACITY SPECIFICATIONS

ARI STANDARD 320: 350 CFM, 1.9 GPM/5.1 P.D. FT.

ENTERING WATER TEMP.	ENTERING AIR WET BULB TEMP.	TOTAL CAPACITY BTU/H	WATTS INPUT	HEAT REJECTION BTU/H	SENSIBLE CAPACITY BTU/H ENT. AIR DRY BULB F°			EER
					75°	80°	85°	
55°	61°	7412	424	8859	6180	7662	—	17.5
	64°	7761	427	9217	5515	6997	8605	18.2
	67°	8118	430	9584	4850	6332	7940	18.9
	70°	8507	432	9983	3862	5344	6952	19.7
	73°	8897	435	10,383	—	4363	5971	20.5
65°	61°	7249	463	8830	6045	7494	—	15.7
	64°	7591	466	9181	5394	6844	8417	16.3
	67°	7940	469	9541	4744	6193	7766	16.9
	70°	8321	472	9932	3778	5227	6800	17.6
	73°	8702	475	10,324	—	4267	5840	18.3
75°	61°	7080	502	8794	5904	7319	—	14.1
	64°	7414	505	9137	5269	6684	8221	14.7
	67°	7755	509	9491	4634	6049	7586	15.2
	70°	8127	512	9874	3690	5105	6642	15.9
	73°	8500	515	10,258	—	4168	5704	16.5
85°	61°	6756	541	8602	5633	6984	—	12.5
	64°	7074	544	8932	5027	6378	7844	13
	67°	<b>7400</b>	<b>548</b>	<b>9270</b>	<b>4421</b>	<b>5772</b>	<b>7238</b>	<b>13.5</b>
	70°	7755	551	9637	3521	4872	6338	14.1
	73°	8110	555	10,005	—	3977	5443	14.6
95°	61°	6162	579	8139	5138	6370	—	10.6
	64°	6452	583	8441	4585	5817	7154	11.1
	67°	6749	587	8752	4032	5264	6601	11.5
	70°	7073	590	9088	3211	4443	5780	12
	73°	7397	595	9426	—	3627	4964	12.4

## CWC/CWH 8 HEATING CAPACITY

ENTERING WATER TEMP.	ENTERING AIR TEMP.	HEATING CAPACITY BTU/H	HEAT OF ABSORPTION BTU/H	POWER INPUT WATTS	COP
55°	60°	8518	6698	533	4.7
	70°	8036	6179	544	4.3
	80°	7554	5660	555	4
70°	60°	10,388	8348	598	5.1
	70°	<b>9800</b>	<b>7718</b>	<b>610</b>	<b>4.7</b>
	80°	9212	7088	622	4.3
80°	60°	11,011	8893	621	5.2
	70°	10,388	8227	633	4.8
	80°	9765	7560	646	4.4

## CWC/CWH CONDENSER WATER FLOW

COOLING CYCLE DESIGN Δ T	GPM		P.D. (FT. OF HD.)	
	8	10	8	10
8°	2.3	3.1	7.1	13.8
10°	1.9	2.6	5.1	12.7
12°	1.7	2.4	4.6	12.2
14°	1.6	2.3	4.2	11.8
16°	1.5	2	4	9.7

## CWC/CWH 10 COOLING CAPACITY SPECIFICATIONS

ARI STANDARD 320: 400 CFM, 2.6 GPM/12.7 P.D. FT.

ENTERING WATER TEMP.	ENTERING AIR WET BULB TEMP.	TOTAL CAPACITY BTU/H	WATTS INPUT	HEAT REJECTION BTU/H	SENSIBLE CAPACITY BTU/H ENT. AIR DRY BULB F°			EER
					75°	80°	85°	
55°	61°	9815	562	11,733	8184	10,146	—	17.5
	64°	10,278	565	12,207	7304	9266	11,396	18.2
	67°	10,751	569	12,693	6423	8385	10,515	18.9
	70°	11,267	573	13,221	5115	7077	9207	19.7
	73°	11,783	577	13,751	—	5778	7907	20.4
65°	61°	9601	613	11,694	8005	9924	—	15.7
	64°	10,053	617	12,159	7144	9063	11,147	16.3
	67°	10,515	621	12,636	6283	8202	10,285	16.9
	70°	11,020	625	13,154	5003	6922	9006	17.6
	73°	11,525	630	13,673	—	5651	7734	18.3
75°	61°	9377	665	11,646	7819	9693	—	14.1
	64°	9819	669	12,102	6978	8852	10,887	14.7
	67°	10,270	674	12,570	6136	8011	10,046	15.2
	70°	10,763	678	13,077	4887	6761	8796	15.9
	73°	11,256	682	13,586	—	5520	7554	16.5
85°	61°	8947	717	11,393	7461	9249	—	12.5
	64°	9369	721	11,829	6658	8447	10,388	13
	67°	<b>9800</b>	<b>726</b>	<b>12,278</b>	<b>5855</b>	<b>7644</b>	<b>9586</b>	<b>13.5</b>
	70°	10,270	730	12,763	4663	6452	8393	14.1
	73°	10,741	735	13,251	—	5267	7208	14.6
95°	61°	8160	767	10,779	6804	8435	—	10.6
	64°	8544	772	11,180	6072	7703	9474	11.1
	67°	8938	778	11,591	5340	6971	8742	11.5
	70°	9367	782	12,036	4253	5884	7655	12
	73°	9796	788	12,484	—	4803	6574	12.4

## CWC/CWH 10 HEATING CAPACITY

ENTERING WATER TEMP.	ENTERING AIR TEMP.	HEATING CAPACITY BTU/H	HEAT OF ABSORPTION BTU/H	POWER INPUT WATTS	COP
55°	60°	11,126	8694	712	4.6
	70°	10,496	8015	727	4.2
	80°	9866	7335	742	3.9
70°	60°	13,568	10,842	799	5
	70°	<b>12,800</b>	<b>10,018</b>	<b>815</b>	<b>4.6</b>
	80°	12,032	9195	831	4.2
80°	60°	14,382	11,553	829	5.1
	70°	13,568	10,681	846	4.7
	80°	12,754	9809	863	4.3

**CWC/CWH 13 COOLING CAPACITY SPECIFICATIONS**

ARI STANDARD 320: 450 CFM, 3.3 GPM/14.1 P.D. FT.

ENTERING WATER TEMP.	ENTERING AIR WET BULB TEMP.	TOTAL CAPACITY BTU/H	WATTS INPUT	HEAT REJECTION BTU/H	SENSIBLE CAPACITY BTU/H ENT. AIR DRY BULB F°			EER
					75°	80°	85°	
55°	61°	13,020	734	15,526	10,857	13,460	—	17.7
	64°	13,634	739	16,155	9689	11,124	15,117	18.4
	67°	14,261	744	16,800	8521	11,124	13,949	19.2
	70°	14,946	478	17,500	6785	9388	12,214	20
	73°	15,630	754	18,202	—	7664	10,490	20.7
65°	61°	12,735	802	15,472	10,619	13,165	—	15.9
	64°	13,335	807	16,088	9477	12,023	14,786	16.5
	67°	13,949	812	16,721	8334	10,880	13,644	17.2
	70°	14,619	817	17,407	6637	9183	11,946	17.9
	73°	15,288	823	18,096	—	7496	10,260	18.6
75°	61°	12,439	869	15,405	10,372	12,858	—	14.3
	64°	13,025	874	16,009	9256	11,743	14,422	14.9
	67°	13,624	881	16,629	8140	10,627	13,326	15.5
	70°	14,278	886	17,301	6482	8969	11,668	16.1
	73°	14,932	892	17,976	—	7322	10,021	16.7
85°	61°	11,869	937	15,066	9897	12,269	—	12.7
	64°	12,428	942	15,644	8832	11,205	13,780	13.2
	67°	<b>13,000</b>	<b>949</b>	<b>16,239</b>	<b>7767</b>	<b>10,140</b>	<b>12,716</b>	<b>13.7</b>
	70°	13,624	955	16,882	6185	8558	11,134	14.3
	73°	14,248	961	17,529	—	6986	9562	14.8
95°	61°	10,825	1003	14,248	9026	11,190	—	10.8
	64°	11,334	1009	14,779	8055	10,219	12,568	11.2
	67°	11,856	1016	15,325	7084	9248	11,597	11.7
	70°	12,425	1022	15,914	5641	7805	10,154	12.2
	73°	12,994	1029	16,508	—	9372	8721	12.6

**CWC/CWH 13 HEATING CAPACITY**

ENTERING WATER TEMP.	ENTERING AIR TEMP.	HEATING CAPACITY BTU/H	HEAT OF ABSORPTION BTU/H	POWER INPUT WATTS	COP
55°	60°	13,560	10,658	850	4.7
	70°	12,792	9831	867	4.3
	80°	12,024	9005	885	4
70°	60°	16,536	13,283	953	5.1
	70°	<b>15,600</b>	<b>12,281</b>	<b>973</b>	<b>4.7</b>
	80°	14,664	11,278	992	4.3
80°	60°	17,528	14,152	989	5.2
	70°	16,536	13,091	1009	4.8
	80°	15,544	12,030	1030	4.4

**CWC/CWH CONDENSER WATER FLOW**

COOLING CYCLE DESIGN Δ T	GPM		P.D. (FT. OF HD.)	
	13	17	13	17
8°	4	5	14.6	19.4
10°	3.3	4.2	14.1	19.1
12°	3.1	4	13.2	18.2
14°	2.9	3.8	12.4	17.1
16°	2.6	3.3	12	16.3

**CWC/CWH 17 COOLING CAPACITY SPECIFICATIONS**

ARI STANDARD 320: 500 CFM, 4.2 GPM/19.1 P.D. FT.

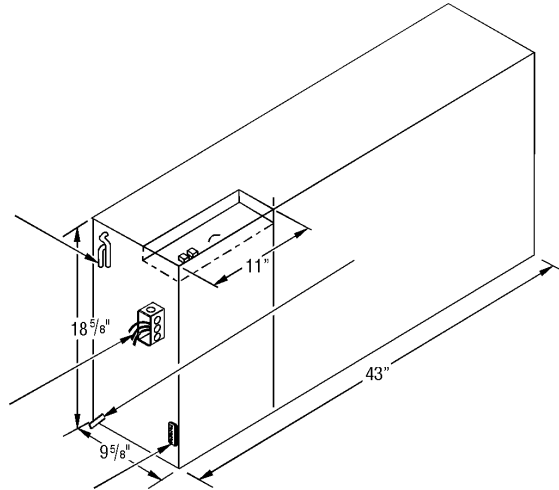
ENTERING WATER TEMP.	ENTERING AIR WET BULB TEMP.	TOTAL CAPACITY BTU/H	WATTS INPUT	HEAT REJECTION BTU/H	SENSIBLE CAPACITY BTU/H ENT. AIR DRY BULB F°			EER
					75°	80°	85°	
55°	61°	17,027	989	20,402	14,197	17,601	—	17.2
	64°	17,828	995	21,225	12,670	16,074	19,768	17.9
	67°	18,649	1002	22,069	11,142	14,546	18,241	18.6
	70°	19,544	1008	22,985	8873	12,277	15,972	19.4
	73°	20,439	1015	23,904	—	10,022	13,717	20.1
65°	61°	16,654	1080	20,340	13,887	17,216	—	15.4
	64°	17,438	1086	21,147	12,393	15,722	19,336	16.1
	67°	18,241	1094	21,975	10,899	14,228	17,842	16.7
	70°	19,117	1101	22,873	8679	12,008	15,622	17.4
	73°	19,992	1108	23,775	—	9803	13,417	18
75°	61°	16,266	1171	20,262	13,563	16,815	—	13.9
	64°	17,032	1178	21,052	12,104	15,356	18,885	14.5
	67°	17,816	1186	21,864	10,645	13,896	17,426	15
	70°	18,671	1193	22,744	8477	11,729	15,258	15.7
	73°	19,526	1202	23,627	—	9575	13,104	16.2
85°	61°	15,521	1262	19,827	12,942	16,045	—	12.3
	64°	16,252	1269	20,584	11,549	14,652	18,020	12.8
	67°	<b>17,000</b>	<b>1278</b>	<b>21,362</b>	<b>10,157</b>	<b>13,260</b>	<b>16,628</b>	<b>13.3</b>
	70°	17,816	1286	22,202	8089	11,191	14,559	13.9
	73°	18,632	1295	23,051	—	9136	12,504	14.4
95°	61°	14,155	1351	18,767	11,803	14,633	—	10.5
	64°	14,822	1359	19,461	10,533	13,363	16,435	10.9
	67°	15,504	1369	20,176	9263	12,093	15,165	11.3
	70°	16,248	1377	20,948	7377	10,207	13,278	11.8
	73°	16,992	1387	21,725	—	8332	11,404	12.3

**CWC/CWH 17 HEATING CAPACITY**

ENTERING WATER TEMP.	ENTERING AIR TEMP.	HEATING CAPACITY BTU/H	HEAT OF ABSORPTION BTU/H	POWER INPUT WATTS	COP
55°	60°	17,558	13,719	1125	4.6
	70°	16,564	12,647	1148	4.2
	80°	15,570	11,575	1171	3.9
70°	60°	21,412	17,109	1261	5
	70°	<b>20,200</b>	<b>15,809</b>	<b>1287</b>	<b>4.6</b>
	80°	18,988	14,509	1312	4.2
80°	60°	22,697	18,230	1309	5.1
	70°	21,412	16,854	1336	4.7
	80°	20,127	15,478	1362	4.3

## DIMENSIONS AND SPECIFICATIONS

NOTE: DUE TO ONGOING DEVELOPMENT PROGRAMS, DESIGN AND SPECIFICATIONS MAY CHANGE WITHOUT NOTICE.



### PERFORMANCE DATA AND MECHANICAL SPECIFICATIONS

UNIT SIZE	COOLING		HEATING		GPM	CFM	EVAPORATOR				WEIGHT	
	BTU/H	EER	BTU/H	COP			FACE FT. <sup>2</sup>	ROWS DEEP	TUBE SIZE	FINS/IN	NET	SHIPPING
8	7400	13.5	9800	4.7	1.9	350	2	1	3/8"	12	131	151
10	9800	13.5	12,800	4.6	2.6	400	2	1	3/8"	12	138	158
13	13,000	13.7	15,600	4.7	3.3	450	2	2	3/8"	12	144	164
17	17,000	13.3	20,200	4.6	4.2	500	2	3	3/8"	13.5	152	172

### ELECTRICAL SPECIFICATIONS

UNIT SIZE	VOLTS/HZ/PHASE	COMPRESSOR		BLOWER		TOTAL AMPS	MCA	MAX FUSE
		RLA	LRA	RLA	HP			
8	115/1/60	5.7	40	1.60	0.09	7.3	8.7	15
	208-230/1/60	2.7	19	0.67	0.08	3.4	4	15
	265/1/60	2.4	16	0.67	0.08	3.1	3.7	15
10	115/1/60	7.4	44	1.60	0.09	9	9	15
	208-230/1/60	3.8	20	0.67	0.08	4.5	4.5	15
	265/1/60	3.3	19	0.67	0.08	4	4	15
13	115/1/60	9.9	54	1.60	0.09	10.5	10.5	15
	208-230/1/60	5.5	26	0.67	0.08	6.2	6.2	15
	265/1/60	4.2	28	0.67	0.08	4.9	4.9	15
17	208-230/1/60	6.4	38	0.67	0.08	7.1	7.1	15
	265/1/60	6.1	32	0.67	0.08	6.8	6.8	15

### OPTIONAL ELECTRIC HEAT SPECIFICATIONS

HEATER#	VOLTS	WATTS	BTU/H	TOTAL AMPS	HEAT AMPS	AMPACITY	FUSE
2	208	1650	5900	7.9	8.6	10.6	15
	230	2000	7100	8.7	9.4	11.6	15
	265	2700	9500	10.2	10.9	13.5	15
3	208	2500	8800	12	12.7	15.7	20
	230	3000	10,500	13	13.7	17	20
	265	4000	13,900	15.1	15.8	19.6	20
4	208	3300	11,500	15.9	16.6	20.6	20
	230	4000	13,900	17.4	18.1	22.5	25
	265	5300	18,100	20	20.7	25.7	30
5	208	4400	15,140	21.2	21.9	27.2	30
	230	5000	17,200	21.7	22.4	27.9	30

