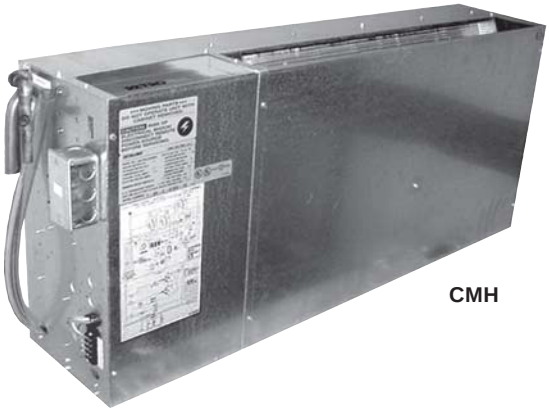
RETROAIRE
The Right Fit for Comfort

CMH HIGH-EFFICIENCY WATER SOURCE HEAT PUMP

P/N# 240003268, Rev. 1.4 [03/05]

SPECIFICATIONS AND PERFORMANCE

Complete Replacement Chassis for FREIDRICH AND CLIMATE MASTER "801" SERIES WATER SOURCE



CMH

HEAT PUMP
Nominal Capacities: 8,000 - 12,000 - 15,000 Btuh

PRODUCT DESCRIPTION

The RetroAire CMH Series of Water Source Heat Pumps was designed to specifically replace the obsolete Climate Master "801" series of water source console units. The CMH may also replace water source heat pumps that were installed in custom cabinetry with dimensions equal or larger than the CMH (consult factory for details).

The CMH EER ratings of 13.3 to 13.7 and COP of 4.6 to 4.7 exceed the rating for the old units.

The CMH chassis is a complete package with all refrigeration components, compressor, reversing valve in heat pumps, and capillary tube metering. Safety controls include overload protection, and high and low pressure controls.

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 inch fiberglass and foil faced fiberglass for electric heat units
- Filter is permanent, washable aluminum mesh, accessible without tools

High Efficiency Heat Exchanger – Evaporator coils is seamless, copper tubing, arranged in staggered configuration with enhanced tubes, and 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.

Factory Installed Controls and Components:
- High Pressure control
- Low temperature/low water flow cutout switch
- Compressor lock-out relay
- Unit mounted controls for temperature, two speed fan and mode control
- 4-Way reversing valve with solenoid activated by line voltage. Solenoid is energized for cooling mode.

Options:
- Electrical resistance heat element
- Remote thermostat controls
- Unit mount ACO with fan cycle switch

Rating & Testing – Units are tested and rated in accordance with ARI standards 320 and UL 484. Due to RetroAire's ongoing development programs, design and specifications may change without notice.

Warranty – All RetroAire products are covered under standard warranty and are backed by Enviromaster international, llc.

PERFORMANCE DATA						
UNIT SIZE	COOLING		HEATING		GPM	CFM
	Btuh	EER	Btuh	COP		
8	7400	13.5	9800	4.7	1.9	350
12	13,000	13.7	15,600	4.7	3.3	450
15	17,000	13.3	20,200	4.6	4.2	500

CMH COOLING AND HEATING SPECIFICATIONS

NOTE: *Data in **Bold** is ARI standard.*

CMH 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 BTUH	WATTS INPUT	HEAT REJECTION BTUH	SENSIBLE CAPACITY BTUH 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	13.0
	67°	**7400**	**548**	**9270**	**4421**	**5772**	**7238**	**13.5**
	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	12.0
	73°	7397	595	9426	—	3627	4964	12.4

CMH 12 COOLING CAPACITY SPECIFICATIONS ARI STANDARD 320: 350 CFM, 3.3 GPM/14.1 P.D. FT.								
ENTERING WATER TEMP.	ENTERING AIR WET BULB TEMP.	TOTAL CAPACITY BTUH	WATTS INPUT	HEAT REJECTION BTUH	SENSIBLE CAPACITY BTUH 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	748	17,500	6785	9388	12,214	20.0
	73°	15,630	754	18,202	—	7664	10,490	20.7
65°	61°	12,735	802	16,472	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	14,442	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°	**13,000**	**949**	**16,239**	**7767**	**10,140**	**12,716**	**13.7**
	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

CMH 15 COOLING CAPACITY SPECIFICATIONS ARI STANDARD 320: 500 CFM, 4.23 GPM/19.1 P.D. FT.								
ENTERING WATER TEMP.	ENTERING AIR WET BULB TEMP.	TOTAL CAPACITY BTUH	WATTS INPUT	HEAT REJECTION BTUH	SENSIBLE CAPACITY BTUH 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	18.0
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	15.0
	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°	**17,000**	**1278**	**21,362**	**10,157**	**13,260**	**16,628**	**13.3**
	70°	17,816	1286	22,205	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

CMH 8 HEATING CAPACITY					
ENTERING WATER TEMP.	ENTERING AIR TEMP.	HEATING CAPACITY BTUH	HEAT OF ABSORPTION BTUH	POWER INPUT WATTS	COP
55°	60°	8518	6698	533	4.7
	70°	8036	6179	544	4.3
	80°	7554	5660	555	4.0
70°	60°	10,388	8348	598	5.1
	70°	**9800**	**7718**	**610**	**4.7**
	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

CMH 8 CONDENSER WATER FLOW		
COOLING CYCLE DESIGN TEMP. DIFF.	GPM	P.D. (FT. OF HD.)
8°	2.3	7.1
10°	**1.9**	**5.1**
12°	1.7	4.6
14°	1.6	4.2
16°	1.5	4.0

CMH 12 HEATING CAPACITY					
ENTERING WATER TEMP.	ENTERING AIR TEMP.	HEATING CAPACITY BTUH	HEAT OF ABSORPTION BTUH	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	4.0
70°	60°	16,536	13,283	953	5.1
	70°	**15,600**	**12,281**	**973**	**4.7**
	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

CMH 12 CONDENSER WATER FLOW		
COOLING CYCLE DESIGN TEMP. DIFF.	GPM	P.D. (FT. OF HD.)
8°	4.0	14.6
10°	**3.3**	**14.1**
12°	3.1	13.2
14°	2.9	12.4
16°	2.6	12.0

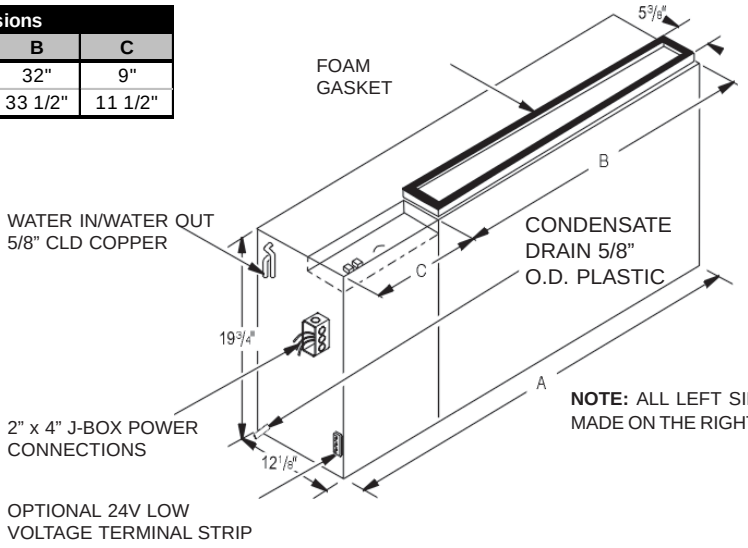
CMH 15 HEATING CAPACITY					
ENTERING WATER TEMP.	ENTERING AIR TEMP.	HEATING CAPACITY BTUH	HEAT OF ABSORPTION BTUH	POWER INPUT WATTS	COP
55°	60°	17,558	13,719	1125	4.6
	70°	16,564	12647	1148	4.2
	80°	15,570	11575	1171	3.9
70°	60°	21,412	17,109	1261	5.0
	70°	**20,200**	**15,809**	**1287**	**4.6**
	80°	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

CMH 15 CONDENSER WATER FLOW		
COOLING CYCLE DESIGN TEMP. DIFF.	GPM	P.D. (FT. OF HD.)
8°	5.0	19.4
10°	**4.2**	**19.1**
12°	4.0	18.2
14°	3.8	17.1
16°	3.3	16.3

DIMENSIONS AND SPECIFICATIONS

NOTE: *Due to ongoing development programs, design and specifications may change without notice.*

Dimensions			
Unit Size	A	B	C
8-12	41"	32"	9"
15	45"	33 1/2"	11 1/2"



NOTE: ALL LEFT SIDE CONNECTIONS MAY BE MADE ON THE RIGHT SIDE. CONSULT FACTORY.

EVAPORATOR SPECIFICATIONS				
UNIT SIZE	FACE FT.^{2}	ROWS DEEP	TUBE SIZE	FINS/IN
8	2	1	3/8"	14
12	2	2	3/8"	14
15	2	3	3/8"	12

SOUND DATA		WEIGHT	
CMH		NET	SHIPPING
Size	dBa		
08	49	120	140
12	53	120	140
15	55	130	150

CMC/CMH ELECTRICAL SPECIFICATIONS									
Model Number	Voltage/hz/ph	Evap Motor		Compressor		Total	MCA	Max Fuse	Min Voltage
		FLA	Hp	RLA	LRA	Amps			
8	115/60/1	1.4	0.09	5.7	40	7.1	8.5	15	104
	208/230/60/1	0.6	0.08	2.7	19	3.3	4.0	15	197
	265/60/1	0.67	0.08	2.4	16	3.1	3.7	15	240
12	115/60/1	1.4	0.09	9.7	54	11.1	13.5	20	104
	208/230/60/1	0.6	0.08	4.8	26.3	5.4	6.6	15	197
	265/60/1	0.67	0.08	4.2	28	4.9	5.9	15	240
15	208/230/60/1	0.6	0.08	6.4	38	7.0	8.6	15	197
	265/60/1	0.67	0.08	5.4	32	6.1	7.4	15	240

CMC/CMH Optional Electric Heat							
Heater No.	Voltage	Watts	Btuh	Amps	Total Heat Amps	MCA	Max Fuse
2	208	1636	5600	7.9	8.5	10.4	15
	230	2000	6900	8.7	9.3	11.5	15
	265	2655	9100	10.0	10.7	13.2	15
3	208	2454	8400	11.8	12.4	15.3	20
	230	3000	10300	13.0	13.6	16.9	20
	265	3983	13600	15.0	15.7	19.5	20
4	208	3271	11200	15.7	16.3	20.3	25
	230	4000	13700	17.4	18.0	22.3	25
	265	5310	18200	20.0	20.7	25.7	30
5	208	4089	14000	19.7	20.3	25.2	30
	230	5000	17100	21.7	22.3	27.8	30

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