

R-410A High Efficiency Water Source Heat Pump

MODEL CM - Heat pump nominal capacities

8,000	12,000	15,000	Btuh
2.6	3.5	4.4	kW

Specifications and Performance



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RETROAIRE

The Right Fit for Comfort



An ISO 9001-2000 Certified Company

СМ

Replacement for: Freidrich and Climate Master "801" Series Water Source

Water Source Console Units

Specifications and Performance •

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NOTICE

The RetroAire[™] Water Source Console Units are backed by EMI and ECR International and is tested and rated in accordance with:

AHRI Standard 320

UL-484

Due to ongoing product development, product designs and specifications may change without notice.

Please contact the factory for more information.

General Product Information

Product description

All RetroAire Water Source Console Units units are available as heat pump systems. Model CW is available as a straight cool unit.

The Retroaire Water Source Console Units:

- Use R-410A refrigerant.
- Include high-efficiency rotary compressors, protected by a 5-year warranty.
- Include enhanced, high-efficiency heat exchangers.
- Offer two fan speeds.
- RetroAire Water Source Console Units ratings:
- CM Series Water Source Console Units units are available in nominal sizes of 8,000 Btuh (2.3kW), 12,000 Btuh (3.5kW), or 15,000 Btuh (4.4kW).
- Energy Efficiency Rating(EER) in excess of 13.
- Coefficient of performance(COP) in excess of 4.

Standard controls and components

Construction

- 20-gauge galvanized steel Water Source Console Units construction of chassis.
- Powder-coated evaporator drain pan.
- Foam strip seal for supply air duct.

Air systems

- Indoor fan motor is are thermally-protected PSC type.
- Air-stream surfaces are insulated with $\frac{l}{4}$ " fiber-glass or $\frac{l}{8}$ " (3.2 mm) Volara".
- The indoor fan is a foward-curved type, directly mounted to the motor shaft.

Controls

• Unit-mounted operating controls include thermostat, fan speed control and heat/cool switch.

- Remote mount controls include fan speed control.
- High pressure switch.
- Low Temperature/Low water flow cut out switch compressor lock out relay
- 4-Way reversing valve with solenoid activated by line voltage. Solenoid is energized for cooling mode. (Heat pump models only)

Factory-installed options (see model nomenclature)

- Voltage
- Electric Heat/Hydronic Heat
- Piping
- Cabinet options
- Pipe connection
- Control

Field-installed accessories

- Remote thermostat
- Hydronic heat valves
- Cabinets

NOTICE

RetroAire units can be equipped with either unit-mounted or remote controlled thermostats. Specify when ordering.

Water Source Console Units • Specifications and Performance •

General Product Information — CM Chassis Figure 1 CM Chassis High Volt Connection RETRO/AIRE CONDITIONED AIR Rating Plate Thermostat Fan Speed Switch (FSS) H20 IN System Switch (SS) Wire Diagram 00 H20 :00 OUT 93 93 93 93 Master .O. .O. Optional INLET AIR Slave ۵ •0



General Product Information — CM Chassis

Figure 2 CM chassis

TOP





Water Source Console Units Specifications and Performance •

CM, CW, WM Model Nomenclature

a 3 Model coding							
Position number: 1 2 3 4 5 6	7 8 9 10 11 12 13 14 15						
vith rating plate							
Product Spring							
	Δ = Rev Level						
	Standard/Special						
	[0 = standard]						
	A-Z = special option						
Straight cool or Heat Pump	Compressor Code						
[C = straight cooling (CW Series Only)]	[A = Tech]						
[Ħ = heat pump unit]	[L =LG]						
Refrigerant	[T = Toshiba]						
G = 410A	Pipe Connections						
	[0 = Sweat Connection]						
	[1 = Female Pipe Thread]						
[08 = 08,000 Btuh (CM and CW Series Only)]	[2 = Male Pipe Thread]						
[09 = 09,000 Btuh (WM Series Only)]	[3 = Ball Valve & Union]						
[10 = 10,000 Btuh (CW Series Only)]	4 = Sweat Connection with						
[12 = 12,000 Btuh (CM and WM Series Only)]							
[13 = 13,000 Btuh (CW Series Only)]	uith Cupronickel Water Coil						
[15 = 15,000 Btuh (CM and WM Series Only)]	6 – Male Pine thread with						
[17 = 17,000 Btuh (CW Series Only)]	Cupronickel Water Coil]						
Voltage	[7 = Ball Valve & Union with						
[A = 115 V / 1 / 60] (CW Series Only)	Cupronickel Water Coil						
[D = 208/230 V / 1 / 60]	Cabinet Options						
[E = 265/277 V / 1 / 60]							
Heat Options (230 Volts)	□ [C = Cabinet with Locking Door (CW						
O = No electric heat J	[D - Front Air Intake (CW Series Only)]						
2 = 2 kW electric heat							
[3 = 3 kW electric heat]	Pining Options						
[4 = 4 kW electric heat]							
[5 = 5 kW electric heat]							
[6 = 1 Row Hydronic Coil N/C Valve (CWC Right Hand Pipe Only]							
[7 = 1 Row Hydronic Coil N/O Valve (CWC Right Hand Pipe Only]	[N = Right Mono Flow Piping]						
Control Options	Control Options (Con't)						
[0 = Unit Mount MCO]	[A = Remote]						
[1 = Unit Mount MCO Boiler less (Heat pump with Electric Heat Only]	[B = Remote Master / Slave]						
[2 = Unit Mount MCO with Disconnect Switch]	[C = Remote with Disconnect Sw.]						
3 = Unit Mount MCO Boilerless (Heatpump with Elect Heat Only)	[D = Remote Master / Slave with Disconnect Sw.]						
[4 = Unit Mount ACO]	[E = Remote Boilerless (Heat Pump with Elect Heat Only)]						
5 = Unit Mount ACO Boilerless (Heat Pump with Elect Heat Only)	[F = Remote Master / Slave Boilerless (Heat Pump with Elect Heat						
6 = Unit Mount ACO with Disconnect Sw.	Only)]						
[7 = Unit Mount ACO Boilerless (Heat Pump with Elect Heat Only and Disconnect Sw)]	[G = Remote with Boilerless (Heat Pump with Elect Heat Only) and Disconnect Sw.]						
	[H = Remote Master / Slave with Boilerless (Heat Pump with Elect Heat Only) and Disconnect SW.]						

Features

Indoor coil freeze protection (standard)

This feature will prevent the indoor coil from freeze up in the cooling mode.

- Indoor coil freeze up can occur due to a dirty air filter, restricted or poor air flow, low refrigerant charge or low room or coil water temperatures.
- Low temperature water flow cut-out switch.
- High pressure control.
- Should a freeze condition be detected, the compressor will be switched off until the freeze condition is satisfied.
- During this time the indoor fan will continue to run to aid in the defrost process.

Power cord with integral safety protection (optional)

Water Source Console Units have the option of a power cord with internal safety protection.

- Provides personal shock protection as well as arcing and fire prevention, The device is designed to sense any damage in the line cord and disconnect power before a fire can occur.
- Tested in accordance with Underwriters Laboratories, the cord set also offers a unique "passive" operation, meaning the unit does not require resetting if main power is interrupted.

Heat pump

Heat pumps are designed to operate when entering water temperature is between $60^{\circ}F(16^{\circ}C)$ to $90^{\circ}F(33^{\circ}C)$ and with a maximum indoor air temperature of $80^{\circ}F(27^{\circ}C)$. The unit is equipped with a reversing valve that is energized for cooling and de-energized in heating mode.

Hydronic heating (optional)

An optional hydronic heat package may be selected in lieu of electric heat. Heating operation is essentially the same as that of units with electric heat.

Optional wall-mounted thermostats

Thermostats available from EMI

EMI offers a thermostat that is compatible with your Water Source Console Unit.

- Select EMI part number 240008208 for the latest RetroAire price list for this option. This is a single stage, cool/heat, thermostat that can be used in all RetroAire cooling, heating or heat pump applications.
- The thermostat has an adjustable setpoint range of between $45^{\circ}F(7^{\circ}C)$ and $90^{\circ}F(32^{\circ}C)$.
- For heat pumps another option is EMI part number 240008209. This is a 2 stage heat/cool thermostat which allows for emergency heat.

Selecting a thermostat (by others)

When selecting a thermostat other than one offered by EMI, choose a single stage heat/cool, 24v thermostat.

Straight cooling with electric heat or hydronic heat

Select a thermostat that is compatible with a cooling/electric heat system. The thermostat should have "**R**", "**Y**", "**W**" and "**G**" terminals.

Heat pump

Select a thermostat that is compatible with a cooling/single-stage heat/heat pump system. The thermostat should have "**R**", "**Y**", "**O**" and "**G**" terminals. RetroAire units are single stage heating only.

Table 1Performance Data

		PERFO	RMAN	CE DATA CM	**			
Maltana	Madal	Cooling	J	Heat Pum	р	Indoor	Shipping	
voitage	Model	Btuh (kW)	EER	Btuh (kW)	СОР	CFM (L/S)	Lbs (Kg)	
44514	CMHG08	9,400 (2.7)	13.2	10,200 (3.0)	3.9	350 (165)	140 (64)	
1150	CMHG12	12,900 (3.8)	12.9	13,100 (3.8)	4.2	450 (212)	140 (64)	
	CMHG08	9,400 (2.7)	13.2	10,200 (3.0)	3.9	350 (165)	140 (64)	
208/230V	CMHG12	12,900 (3.8)	12.9	13,100 (3.8)	4.2	450 (212)	140 (64)	
	CMHG15	18,200 (5.3)	12.9	18,300 (5.4)	3.9	500 (236)	150 (68)	
	CMHG08	N/A	N/A	N/A	N/A	N/A	N/A	
265V	CMHG12	12,900 (3.8)	12.9	13,100 (3.8)	4.2	450 (212)	140 (64)	
	CMHG15	18,200 (5.3)	12.9	18,300 (5.4)	3.9	500 (236)	150 (68)	

**Cooling -ID EAT 80°F (26.7°C) DB/67°F (19.4°C)WB EWT 85°F (29.4°C)

**Heating -ID EAT 70°F (21.1°C) DB EWT 70° (21.1°C)

Electrical Specifications

IMPORTANT

Due to ongoing product development, designs, specifications, and performance are subject to change without notice. Please consult the factory for further information.

Figure 4 CMHG 08	electrical specifications
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Power Volt –	Supply - 1–60	Comp	ressor	Indoo Mo	or Fan otor		Electric Heat				Unit Electrical Ratings					
Volt	Min	RLA	LRA	FLA	Нр	Htr #	Volt	W	HA	TCA	THA	MCA	MOCP	Plug		
115V	104	7.5	47	1.4	0.09	N/A	N/A	N/A	N/A	8.9	N/A	10.8	15	5-15P		
						0	N/A	N/A	N/A		N/A	5.5	15	6-15P		
						2	208	1636	7.9		8.5	10.4	15	6 15D		
						2	230	2000	8.7		9.3	11.5		0-15P		
						2	208	2454	11.8		12.4	15.3	20	6 200		
208/ 230V	197	3.9	20	0.6	0.08	5	230	3000	13.0	4.5	13.6	16.9	20	0-20P		
						4	208	3271	15.7		16.3	20.3	25	6 20P		
						4	230	4000	17.4		18	22.3	23	0-30F		
						5	208	4089	19.7		20.3	25.2	20	6 20P		
							230	5000	21.7		22.3	27.8	50	0-501		
						0	N/A	N/A	N/A		N/A	N/A	N/A	N/A		
						2	265	2655	10		10.7	13.2	15	7 200		
265V	240	N/A	N/A	0.67	0.08	3	265	3983	15	0.7	15.7	19.5	20	7-20P		
						4	265	5310	20		20.7	25.7	30	7-30P		
						5	N/A	N/A	N/A		N/A	N/A	N/A	N/A		

Figure 5 **CMHG 12** electrical specifications

Power S Volt —	upply 1–60	Comp	ressor	Indoor Fan Motor			Elect	ric Heat		Unit Electrical Ratings						
Volt	Min	RLA	LRA	FLA	Нр	Htr #	Volt	W	HA	TCA	THA	MCA	MOCP	Plug		
115V	104	9.9	53	1.4	0.09	N/A	N/A	N/A	N/A	11.3	N/A	13.8	20	5-15P		
						0	N/A	N/A	N/A		N/A	7.1	15	6–15P		
						2	208	1636	7.9		8.5	10.4	15	6 1ED		
208/ 230V						2	230	2000	8.7		9.3	9.3 11.5		6-15P		
						2	208	2454	11.8		12.4	15.3	20	(20D		
	197	5.2	27	0.6	0.08	3	230	3000	13	5.8	13.6	16.9	20	6-20P		
							208	3271	15.7		16.3	20.3		6.000		
						4	230	4000	17.4	18 22.3	22.3	25	6-30P			
							208	4089	19.7		20.3	25.2	20	C 20D		
							230	5000	21.7		22.3	27.8	. 50	0-30r		
						0	N/A	N/A	N/A		N/A	6.4	15	7-20P		
2651	240	10	20	0.67	0.00	2	265	2655	10	5.2	10.7	13.2	15	7 200		
2027	240	4.0	20	0.07	0.08	3	265	3983	15	2.5	15.7	19.5	20	7-20P		
						4	265	5310	20		20.7	25.7	30	7-30P		



Electrical Specifications

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Table 2CMHG 15 electrical specifications

Power S Volt —	Supply 1–60	Comp	ressor	Indo Mo	or Fan otor		Elect	ric Heat		Unit Electrical Ratings						
Volt	Min	RLA	LRA	FLA	Нр	Htr #	Volt	W	HA	TCA	THA	MCA	MOCP	Plug		
						0	N/A	N/A	N/A		N/A	9.9	15	6-15P		
							208	1636	7.9		8.5	10.4	15	6 150		
						2	230	2000	8.7		9.3	11.5		0-15P		
			33				208	2454	11.8		12.4	15.3		6.000		
208/ 230V	197	7.4		0.6	0.08	3	230	3000	13.0	8.0	13.6	16.9	20	6–20P		
							208	3271	15.7		16.3	20.3				
						4	230	4000	17.4		18.0	22.3	25	6-30P		
						5	208	4089	19.7		20.3	25.2	20	6 20P		
						2	230	5000	21.7		22.3	27.8	50	0-30P		
						0	N/A	N/A	N/A		N/A	8.2	15	7-20P		
26514	240	60	20	0.67	0.00	2	265	2655	10	67	10.7	13.2	15	7 200		
265V	240	0.0	28	0.67	0.08	3	265	3983	15	0./	15.7	19.5	20	/-20P		
						4	265	5310	20		20.7	25.7	30	7-30P		



Figure 6 NEMA Specifications Non / Locking / Receptacles

LAGE	12	5V		250∨		265∨							
ş	15(A)	20(A)	15(A)	20(A)	30(A)	15(A)	20(A)	30(A)					
PLUG	5-15 P	5-20 P	6-15 P	6-20 P	6-30 P	7- 15 P	7-20 P	7-30 P					
RECEPTACLE	5-15 R	5-20 R	0g 10 6-15 R	05 6-20 R	6-30 R	7-15 R	7-20 R	7-30 R					

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Notes

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