



## **MHCFC4W-04-1 Chilled/Hot Water Cassette Fan Coil**

**4-Pipe Heat / Cool Fan Coil 12,000 BTUH**

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# HVAC Guide Specifications

Chilled and Hot Water Cassette Fan Coil

4-Pipe

Nominal Size:

**12,000 BTUH**

MultiAqua Model Number:

**MHCFC4W-04-1**

## Part 1 - General

### 1.01 System Description:

MultiAqua Chilled Water Fan Coils are manufactured with galvanized steel and high impact molded polymers.

### 1.02 Quality Assurance:

- A. ETL Certified in accordance with U.L. Standard 95, latest version (U.S.A.).
- B. Manufactured in a facility registered to ISO 9002, Manufacturing Quality Standard.
- C. Fully load tested at the factory.
- D. Damage resistant packaging.

### 1.03 Delivery, Storage and Handling:

- A. Packaged and readied for shipment from the factory.
- B. Controls shall be capable of withstanding 150°F storage temperatures in the control compartment.

## Part 2 - Product

### 2.01 Equipment:

- A. General:
  - 1. Unit shall be a factory assembled and tested water fan coil.
  - 2. Unit shall be assembled with high quality.
  - 3. Contained within the unit shall be all factory wiring, piping, and associated controls.
- B. Unit Cabinet and Cover:
  - 1. Cabinet is constructed of galvanized sheet metal.
  - 2. Cover composed of high impact polymers.
  - 3. Internally and externally insulated to ensure quiet operation.
- C. Fan Motor and Blower Wheels:
  - 1. Available in 208/230-1-50/60 VAC.
  - 2. Fan motor shall be three speed, direct drive, and PSC type.
  - 3. Fan motor shall be totally enclosed.
  - 4. Fan motor shall be internal overload protected.
  - 5. Radial blower wheel is dynamically balanced.
- D. Air Distribution:
  - 1. Unit contains four manually adjustable discharge air louvers.
- E. Water Coil:
  - 1. Manufactured with water coils containing copper tubing mechanically bonded to aluminum fins.
  - 2. Maximum operating pressure is 150 psig.
  - 3. Coils are designed to accept an entering water temperature not to exceed 160°F
  - 4. Pressure independent flow control required on both coils to not exceed max flow for each coil.  
Consult primary coil and secondary coil data for proper sizing
- F. Drain Pan:
  - 1. Constructed of injected molded polystyrene.

**G. Filters:**

1. Unit shall contain a woven panel washable filter.

**H. Fresh Air:**

1. Unit shall be able to receive up to 50% filtered fresh air.
2. Fresh air introduced shall be externally fan forced and externally controlled.

**Part 3 - Controls and Safeties****3.01 Controls:**

- A. Fan coils are factory wired and tested.
- B. Unit includes a terminal block that is capable of incorporating a 24 vac, field supplied, hard wired thermostat.

**3.02 Safeties:**

- A. Fan coil contains a renewable fuse on the low voltage side of the transformer.
- B. Coils shall be designed to accept an entering water temperature not to exceed 160°F

**Part 4 - Operating Characteristics****4.01 Electrical Requirements**

- A. Electrical line voltage connections shall be made at the factory supplied terminal block.
- B. Factory wiring shall be rated according to UL listing at the time of manufacturing.

**4.02 Installation in high ambient/high humidity environments**

- A. Cabinets are internally insulated from the factory. However, when these units are installed in high ambient/high humidity environments, additional external cabinet insulation may be required.

**Part 5- Definitions****5.01 Abbreviations:**

CFM = Cubic Feet per Minute  
DB = Dry Bulb Temperature  
EWT = Entering Water Temperature  
GPM = US Gallons Per Minute  
MBH = BTU X 1000  
SC = Sensible Cooling  
TC = Total Cooling = Sensible + Latent  
WB = Wet Bulb Temperature  
WPD = Water Pressure Drop in feet of head  
dB = Decibel Level  
m = Meter  
In = Inches  
FP I= Fins per Inch  
OD = Outside Diameter  
ID = Inside Diameter  
MCA = Minimum Circuit Amps  
MOP = Maximum Over current Protection  
LBS = Pounds U.S.

**5.02 Measurements**

- A. All measurements with regard to length, width, and height shall be in inches.

# MHCFC4W-04-1

## Product Specifications

Physical Data								
Model Number	Overall Height (in)	Overall Width* (in)	Width** (in)	Weight (lbs.)	Cooling Rows FPI	Heating Rows FPI	Water Inlet/Outlet (in)	Drain (in)
MHCFC4W-04-1	16.8	26.8	22.8	50.7	2/14	1/14	¾" FPT	1" Barb

\*Units are Square. Overall width is the cover dimension. See IOM for drawing details.

\*\* Units are Square. Width is the cabinet dimension. See IOM for drawing details.

Electrical Data***							
Model Number	CFM	Volts/Phase/Hertz	Motor Watts	Full Load Amps	Fuse or HACR Circuit Breaker or Glass Fuse Per Circuit		
					MCA	MOP	
MHCFC4W-04-1	380	208/230-1 50/60	80	.4	1	1	

\*All Electric Data Shown is at 60 hz

# MHCFC4W-04-1 Chilled Water Performance Data

MHCFC4W-04-1 COOLING CAPACITIES (Primary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
380*	42	1.5	TC	10898
			SC	8409
			WPD	4.5
		2.0	TC	12481
			SC	9078
			WPD	7.6
		3.0	TC	14649
			SC	9964
			WPD	16.1
		3.75	TC	15635
			SC	10377
			WPD	24.3

**\*High Speed**

MHCFC4W-04-1 COOLING CAPACITIES (Primary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
380*	45	1.5	TC	9786
			SC	7942
			WPD	4.5
		2.0	TC	11183
			SC	8552
			WPD	7.6
		3.0	TC	13022
			SC	9307
			WPD	16.0
		3.75	TC	13902
			SC	9660
			WPD	24.1

**\*High Speed**

**Recommended minimum flow rate for the primary coil at  $\geq 2$  fps is 1.5 gpm**

**Recommended maximum flow rate for the primary coil at  $\leq 6$  fps is 3.75 gpm**

# MHCFC4W-04-1 Hot Water Performance Data

This heating performance data is at dry bulb temperature indicated / wet bulb temperature not considered

MHCFC4W-04-1 HOT WATER CAPACITIES (Primary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
50	380	1.5	4.2	10614	13282	15960	18646	21338	24034	26733	29435
		2.0	7.0	11318	14162	17016	19878	22745	25617	28492	31370
		3.0	14.7	12084	15118	18160	21208	24261	27317	30377	33438
		3.75	22.1	12412	15526	18646	21772	24903	28037	31173	34311

MHCFC4W-04-1 HOT WATER CAPACITIES (Primary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
60	380	1.5	4.1	7993	10655	13327	16008	18695	21388	24084	26782
		2.0	7.0	8516	11354	14202	17059	19922	22790	25662	28536
		3.0	14.7	9085	12113	15150	18194	21243	24296	27353	30411
		3.75	22.1	9329	12437	15554	18676	21803	24934	28068	31203

MHCFC4W-04-1 HOT WATER CAPACITIES (Primary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
70	380	1.5	4.1	5366	8022	10689	13365	16048	18737	21430	24125
		2.0	7.0	5710	8542	11385	14236	17095	19959	22828	25699
		3.0	14.6	6084	9106	12138	15177	18222	21272	24326	27382
		3.75	22.0	6244	9347	12459	15577	18701	21828	24959	28093

MHCFC4W-04-1 HOT WATER CAPACITIES (Primary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
80	380	1.5	4.1	2735	5385	8047	10719	13398	16083	18773	21466
		2.0	6.9	2900	5727	8565	11412	14266	17127	19992	22861
		3.0	14.6	3080	6097	9125	12160	15201	18248	21299	24352
		3.75	22.0	3157	6256	9363	12478	15598	18723	21851	24983

Heating at ANSI/AHRI 440 with addendum 1, 6.3.2 Table 1 as follows:

MHCFC4W-04-1 HOT WATER CAPACITY (Primary coil)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	1.5	18863
	2.0	20110
	3.0	21449
	3.75	22017

# MHCFC4W-04-1 Chilled Water Performance Data

MHCFC4W-04-1 COOLING CAPACITIES (Secondary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
380*	42	.75	TC	6133
			SC	5263
			WPD	4.8
		1.0	TC	7118
			SC	5740
			WPD	8.1
		1.25	TC	8002
			SC	6079
			WPD	12.2
		1.5	TC	8755
			SC	6360
			WPD	17.1

**\*High Speed**

MHCFC4W-04-1 COOLING CAPACITIES (Secondary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
380*	45	.75	TC	5550
			SC	4988
			WPD	4.8
		1.0	TC	6380
			SC	5442
			WPD	8.1
		1.25	TC	7107
			SC	5758
			WPD	12.2
		1.5	TC	7704
			SC	5983
			WPD	17.0

**\*High Speed**

**Recommended minimum flow rate for the secondary coil at  $\geq 2$  fps is .75 gpm**

**Recommended maximum flow rate for the secondary coil at  $\leq 6$  fps is 1.75 gpm**

# MHCFC4W-04-1 Hot Water Performance Data

This heating performance data is at dry bulb temperature indicated / wet bulb temperature not considered

MHCFC4W-04-1 HOT WATER CAPACITIES (Secondary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
50	380	.75	4.5	6725	8393	10069	11750	13436	15125	16816	18509
		1.0	7.5	7317	9136	10962	12795	14632	16473	18316	20161
		1.25	11.2	7716	9636	11563	13495	15433	17373	19316	21261
		1.5	15.6	8006	9998	11997	14002	16011	18023	20037	22053

MHCFC4W-04-1 HOT WATER CAPACITIES (Secondary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
60	380	.75	4.4	5092	6756	8428	10106	11789	13475	15164	16855
		1.0	7.5	5532	7346	9169	10988	12832	14669	16510	18353
		1.25	11.2	5828	7743	9666	11595	13529	15467	17407	19349
		1.5	15.6	6044	8031	10026	12027	14033	16402	18054	20068

MHCFC4W-04-1 HOT WATER CAPACITIES (Secondary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
70	380	.75	4.4	3454	5114	6783	8458	10138	11822	13509	15197
		1.0	7.4	3743	5553	7371	9197	11028	12863	14701	16541
		1.25	11.1	3937	5848	7767	9692	11623	13558	15496	17436
		1.5	15.5	4079	6062	8053	10050	12053	14059	16069	18080

MHCFC4W-04-1 HOT WATER CAPACITIES (Secondary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
80	380	.75	4.4	1811	3468	5133	6806	8483	10165	11850	13537
		1.0	7.4	1950	3756	5571	7393	9221	11054	12890	14728
		1.25	11.1	2044	3950	5865	7787	9715	11647	13583	15521
		1.5	15.5	2112	4091	6078	8072	10072	12075	14082	16092

Heating at ANSI/AHRI 440 with addendum 1, 6.3.2 Table 1 as follows:

MHCFC4W-04-1 HOT WATER CAPACITY (Secondary Coil)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	.75	11865
	1.0	12917
	1.25	13619
	1.5	14126



# MHCFC4W-04-1 Chilled Water Performance Data

MHCFC4W-04-1 COOLING CAPACITIES (Both Coils)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
380*	42	2.5	TC	15591
			SC	10813
			WPD	5.7
		3.5	TC	17635
			SC	11692
			WPD	10.6
		4.5	TC	18992
			SC	12278
			WPD	16.9
		5.5	TC	19851
			SC	12658
			WPD	24.4

**\*High Speed**

MHCFC4W-04-1 COOLING CAPACITIES (Both Coils)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
380*	45	2.5	TC	13974
			SC	10138
			WPD	5.7
		3.5	TC	15796
			SC	10905
			WPD	10.6
		4.5	TC	16961
			SC	11396
			WPD	16.8
		5.5	TC	17724
			SC	11719
			WPD	24.3

**\*High Speed**

**Pressure independent flow control required on both coils to not exceed max flow for each coil  
Consult primary coil and secondary coil data for proper sizing**

**Recommended minimum flow rate for both coils piped in parallel at  $\geq$  2fps is 2.0 gpm**

**Recommended maximum flow rate for both coils piped in parallel at  $\leq$  6fps is 5.75 gpm**

# MHCFC4W-04-1 Hot Water Performance Data

This heating performance data is at dry bulb temperature indicated / wet bulb temperature not considered

MHCFC4W-04-1 HOT WATER CAPACITIES (Both Coils)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
50	380	2.5	5.3	13350	16706	20071	23443	26819	30199	33580	36964
		3.5	9.7	13978	17489	21007	24530	28057	31588	35120	38588
		4.5	15.4	14330	17927	21529	25135	28745	32358	35973	39588
		5.5	22.2	14554	18204	21859	25518	29180	32844	36509	40176

MHCFC4W-04-1 HOT WATER CAPACITIES (Both Coils)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
60	380	2.5	5.2	10031	13382	16742	20109	23481	26858	30237	33618
		3.5	9.7	10498	14004	17517	21037	24561	28088	31318	35150
		4.5	15.3	10759	14352	17950	21554	25161	28771	32384	35998
		5.5	22.1	10926	14572	18224	21880	25540	29202	32866	36531

MHCFC4W-04-1 HOT WATER CAPACITIES (Both Coils)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
70	380	2.5	5.2	6708	10053	13408	16771	20140	23513	26889	30267
		3.5	9.7	7014	10516	14025	17541	21061	24586	28113	31643
		4.5	15.3	7186	10774	14369	17969	21574	25181	28791	32403
		5.5	22.1	7296	10938	14587	18240	21897	25557	29219	32882

MHCFC4W-04-1 HOT WATER CAPACITIES (Both Coils)											
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)							
				90°	100°	110°	120°	130°	140°	150°	160°
80	380	2.5	5.2	3382	6723	10073	13432	16798	20168	23541	26917
		3.5	9.6	3530	7026	10532	14044	17562	21084	24609	28136
		4.5	15.3	3612	7196	10788	14385	17987	21592	25201	28811
		5.5	22.1	3665	7304	10950	14601	18255	21913	25573	29236

Heating at ANSI/AHRI 440 with addendum 1, 6.3.2 Table 1 as follows:

MHCFC4W-04-1 HOT WATER CAPACITY (Both Coils)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	2.5	23741
	3.5	24847
	4.5	25461
	5.5	25850

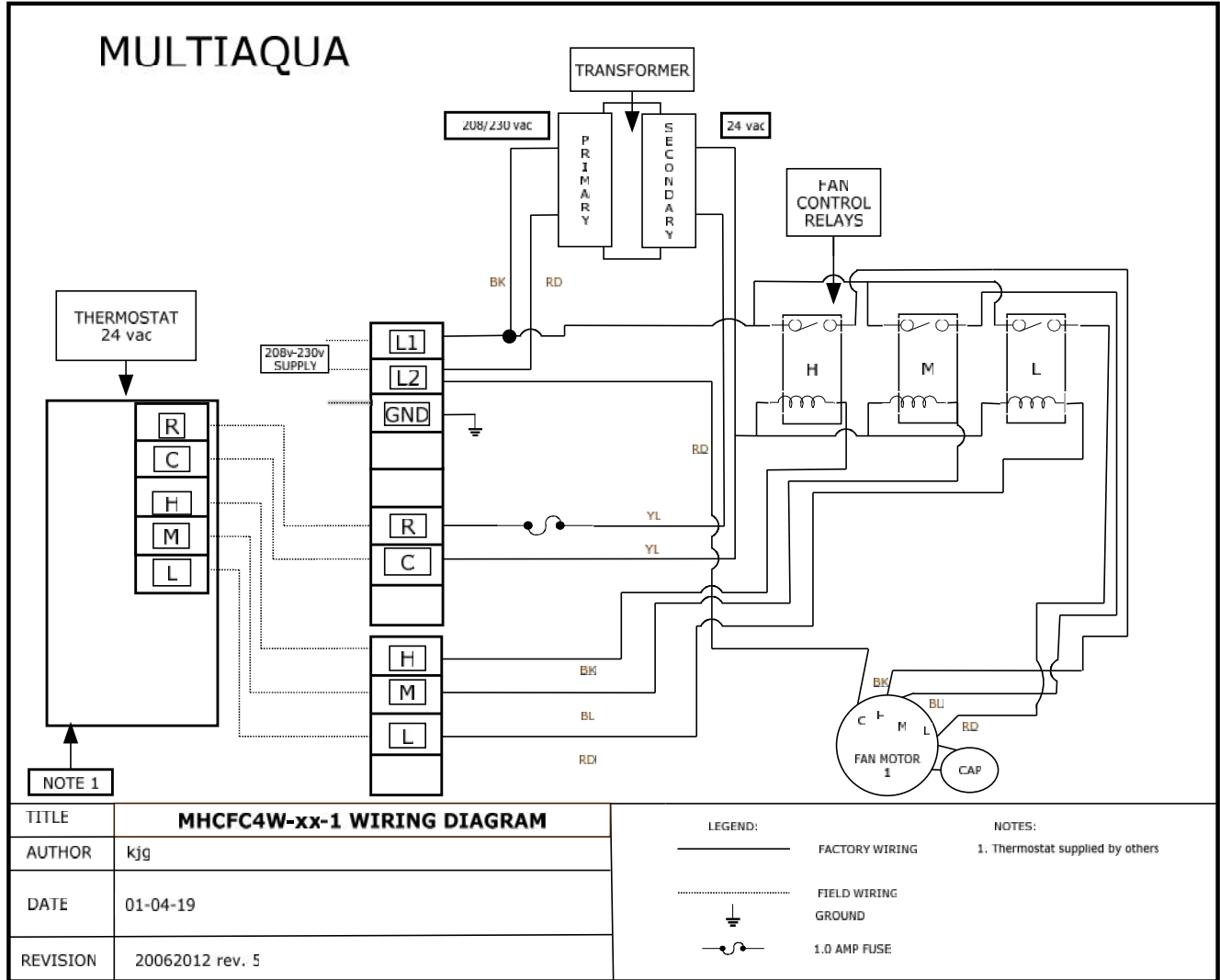
## MHCFC4W-04-1 CFM Data

MODEL #	MHCFC4W-04-1
Fan Speed	CFM
L	320
M	350
H	380
Wattage @ High Speed	80

## MHCFC4W-04-1 Sound Data

MODEL #	MHCFC4W-04-1
Fan Speed	dB @ 1 m
H	47.8
M	44.4
L	41.3

# MHCFC4W-04-1 Wiring Diagram



See Installation and Operation Manual  
for Dimensional Drawings

