



## **MHCFC4W-12-1 Chilled/Hot Water Cassette Fan Coil**

**4-Pipe Heat / Cool Fan Coil 36,000 BTUH**

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# HVAC Guide Specifications

Chilled and Hot Water Cassette Fan Coil  
4-Pipe

Nominal Size:

**36,000 BTUH**

MultiAqua Model Number:

**MHCFC4W-12-1**

## 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-12-1

## 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-12-1	16.8	38.6	32.8	88.2	3/14	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-12-1	870	208/230-1-50/60	260	1.5	2	3	

\*All Electric Data Shown is at 60 hz

# MHCFC4W-12-1 Chilled Water Performance Data

MHCFC4W-12-1 COOLING CAPACITIES (Primary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
870*	42	4.0	TC	29386
			SC	21882
			WPD	8.8
		5.5	TC	33871
			SC	23810
			WPD	15.8
		6.75	TC	36424
			SC	24914
			WPD	23.0
		7.5	TC	37549
			SC	25393
			WPD	27.9

**\*High Speed**

MHCFC4W-12-1 COOLING CAPACITIES (Primary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
870*	45	4.0	TC	26436
			SC	20622
			WPD	8.7
		5.5	TC	30329
			SC	22345
			WPD	15.7
		6.75	TC	32493
			SC	23266
			WPD	22.8
		7.5	TC	33495
			SC	23707
			WPD	27.7

**\*High Speed**

**Recommended minimum flow rate for the primary coil at  $\geq 2$  fps is 2.75 gpm**

**Recommended maximum flow rate for the primary coil at  $\leq 6$  fps is 7.75 gpm**

# MHCFC4W-12-1 Hot Water Performance Data

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

MHCFC4W-12-1 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	870	4.0	8.1	27098	33883	40687	47506	54335	61172	68014	74858
		5.5	14.5	28851	36078	43324	50583	57852	65130	72412	79697
		6.75	21.0	29736	37185	44650	52128	59615	67109	74609	82111
		7.5	25.5	30132	37679	45241	52815	60398	67988	75583	83181

MHCFC4W-12-1 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	870	4.0	8.1	20402	27174	33967	40776	47597	54427	61262	68101
		5.5	14.4	21701	28917	36152	43401	50662	57932	65208	72488
		6.75	21.1	22358	29795	37250	44719	52198	59686	67179	74676
		7.5	25.4	22652	30187	37740	45305	52881	60464	68053	75646

MHCFC4W-12-1 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	870	4.0	8.0	13696	20458	27241	34040	40854	47677	54506	61340
		5.5	14.4	14546	21750	28975	36216	43469	50732	58002	65277
		6.75	20.9	14975	22402	29847	37307	44779	52260	59748	67241
		7.5	25.3	15167	22693	30236	37793	45362	52939	60523	68111

MHCFC4W-12-1 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	870	4.0	8.0	6981	13732	20505	27296	34102	40918	47743	54572
		5.5	14.3	7384	14577	21792	29024	36269	43526	50790	58060
		6.75	20.8	7584	15003	22439	29891	37355	44830	52312	59800
		7.5	25.3	7678	15193	22727	30277	37838	45409	52987	60571

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

MHCFC4W-12-1 HOT WATER CAPACITY (Primary Coil)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	4.0	48047
	5.5	51169
	6.75	52738
	7.5	53433

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# MHCFC4W-12-1 Chilled Water Performance Data

MHCFC4W-12-1 COOLING CAPACITIES (Secondary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
870*	42	4.5	TC	16727
			SC	12297
			WPD	5.3
		5.5	TC	18354
			SC	12964
			WPD	7.8
		6.5	TC	19610
			SC	13482
			WPD	10.6
		7.5	TC	20408
			SC	13820
			WPD	13.9

**\*High Speed**

MHCFC4W-12-1 COOLING CAPACITIES (Secondary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
870*	45	4.5	TC	14827
			SC	11608
			WPD	5.3
		5.5	TC	16275
			SC	12195
			WPD	7.7
		6.5	TC	17331
			SC	12626
			WPD	10.6
		7.5	TC	18034
			SC	12919
			WPD	13.8

**\*High Speed**

**Recommended minimum flow rate for the secondary coil at  $\geq 2$  fps is 2.75 gpm**

**Recommended maximum flow rate for the secondary coil at  $\leq 6$  fps is 7.75 gpm**

# MHCFC4W-12-1 Hot Water Performance Data

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

MHCFC4W-12-1 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	870	4.5	5.0	16712	20856	25026	29216	33423	37645	41877	46117
		5.5	7.2	17225	21493	25784	30094	34419	38757	43104	47459
		6.5	9.8	17603	21961	26341	30737	35148	39570	44001	48438
		7.5	12.9	17894	22321	26768	31230	35706	40191	44685	49186

MHCFC4W-12-1 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	870	4.5	4.9	12669	16796	20950	25127	29322	33531	37753	41985
		5.5	7.2	13049	17301	21578	25875	30188	34515	38853	43200
		6.5	9.8	13329	17672	22038	26423	30823	35235	39657	44087
		7.5	12.9	13545	17958	22392	26843	31309	35785	40271	44765

MHCFC4W-12-1 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	870	4.5	4.9	8621	12731	16871	21034	25216	29415	33627	37850
		5.5	7.2	8869	13105	17368	21652	25955	30272	34601	38939
		6.5	9.8	9052	13380	17733	22106	26496	30898	35312	39735
		7.5	12.8	9193	13592	18014	22454	26910	31378	35856	40342

MHCFC4W-12-1 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	870	4.5	4.9	4567	8661	12786	16935	21106	25295	29497	33711
		5.5	7.2	4684	8905	13154	17426	21717	26025	30345	34676
		6.5	9.8	4770	9085	13425	17786	22165	26559	30965	35380
		7.5	12.8	4837	9223	13633	18062	22508	26968	31438	35918

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

MHCFC4W-12-1 HOT WATER CAPACITY (Secondary Coil)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	4.5	29534
	5.5	30398
	6.5	31031
	7.5	31515



# MHCFC4W-12-1 Chilled Water Performance Data

MHCFC4W-12-1 COOLING CAPACITIES (Both Coils)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
			80° D.B. / 67° W.B.	
870*	42	7.5	TC	39144
			SC	26970
			WPD	6.9
		8.5	TC	41083
			SC	27825
			WPD	8.7
		9.5	TC	42723
			SC	28538
			WPD	10.7
		10.5	TC	44091
			SC	29135
			WPD	12.9

**\*High Speed**

MHCFC4W-12-1 COOLING CAPACITIES (Both Coils)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
			80° D.B. / 67° W.B.	
870*	45	7.5	TC	35209
			SC	25311
			WPD	6.9
		8.5	TC	36895
			SC	26026
			WPD	8.7
		9.5	TC	38326
			SC	26651
			WPD	10.7
		10.5	TC	39569
			SC	27181
			WPD	12.9

**\*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 5.5 gpm**

**Recommended maximum flow rate for both coils piped in parallel at  $\leq$  6fps is 15.5 gpm**

# MHCFC4W-12-1 Hot Water Performance Data

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

MHCFC4W-12-1 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	870	7.5	6.4	32149	40230	48331	56449	64578	72717	80863	89013
		8.5	8.1	32624	40822	49038	57268	65510	73761	82018	90279
		9.5	10.0	32999	41286	49591	57910	66239	74576	82919	91266
		10.5	12.0	33301	41661	50037	58426	66824	75230	83642	92058

MHCFC4W-12-1 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	870	7.5	6.4	24155	32222	40310	48416	56536	64666	72804	80948
		8.5	8.1	24507	32691	40895	49115	57347	65590	73840	82095
		9.5	9.9	24784	33060	41353	49662	57982	66312	74648	82989
		10.5	12.0	25008	33357	41722	50102	58492	66891	75297	83707

MHCFC4W-12-1 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	870	7.5	6.4	16155	24209	32286	40381	48492	56614	64744	72882
		8.5	8.1	16385	24557	32749	40960	49184	57419	65662	73911
		9.5	9.9	16566	24830	33113	41413	49725	58047	66378	74714
		10.5	11.9	16713	25050	33406	41777	50160	58553	66952	75358

MHCFC4W-12-1 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	870	7.5	6.4	8149	16189	24254	32340	40441	48555	56678	64810
		8.5	8.0	8258	16416	24598	32799	41014	49241	57478	65721
		9.5	9.9	8343	16595	24868	33158	41462	49778	58101	66432
		10.5	11.9	8413	16739	25085	33448	41823	50209	58602	67002

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

MHCFC4W-12-1 HOT WATER CAPACITY (Both Coils)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	7.5	57207
	8.5	58041
	9.5	58690
	10.5	59213

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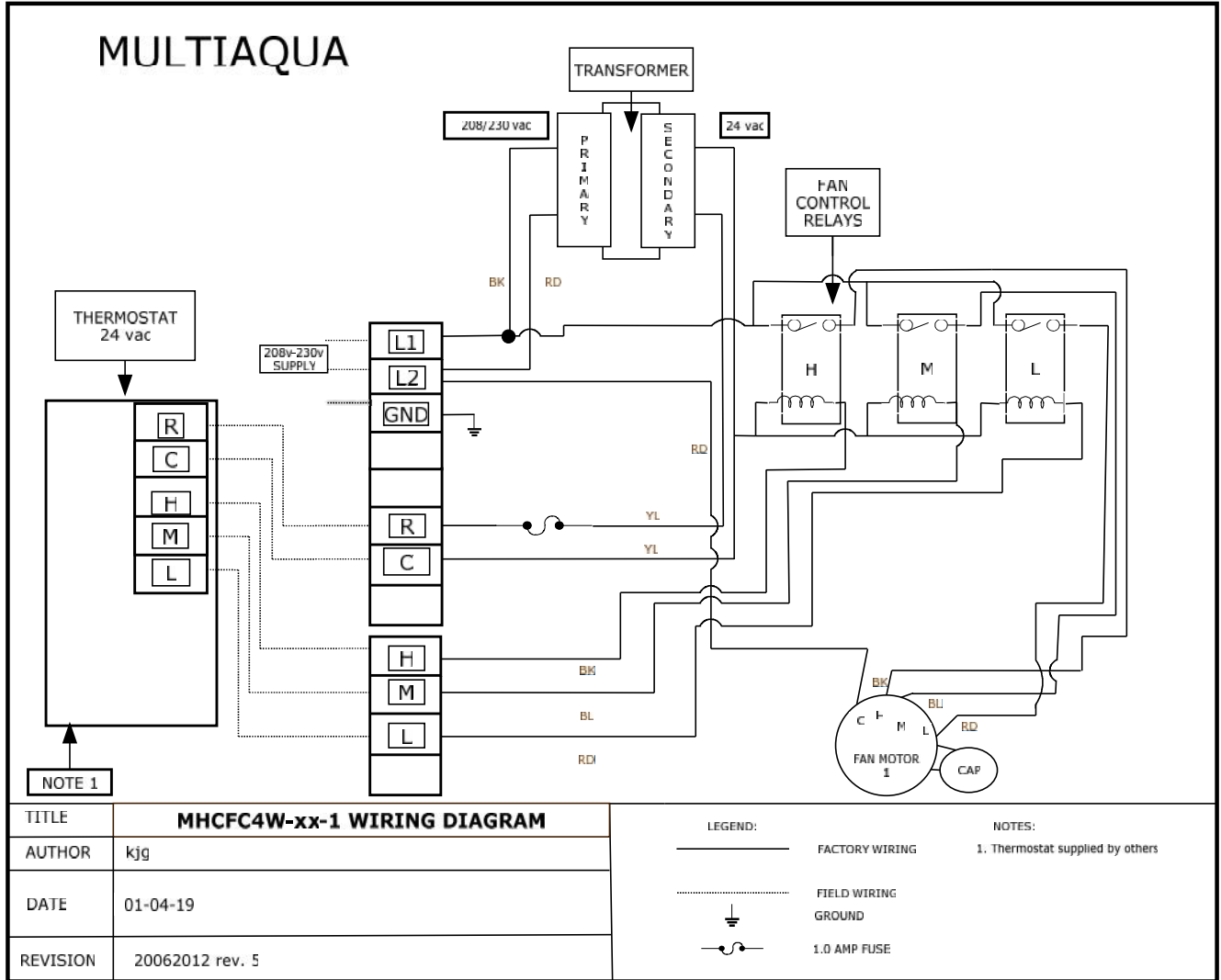
## MHCFC4W-12-1 CFM Data

MODEL #	MHCFC4W-12-1
Fan Speed	CFM
L	575
M	800
H	870
Wattage @ High Speed	260

## MHCFC4W-12-1 Sound Data

MODEL #	MHCFC4W-12-1
Fan Speed	dB @ 1 m
H	54.9
M	51
L	47.9

# MHCFC4W-12-1 Wiring Diagram



See Installation and Operation Manual  
for Dimensional Drawings

