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## MHCCW-12-05 Chilled Water Ceiling Concealed With **5kW** Electric Heat

2-Pipe Heat / Cool Fan Coil 36,000 BTUH

# HVAC Guide Specifications

Chilled or Hot Water Fan Coil with Electric Heat  
2-Pipe

Nominal Size:

**36,000 BTUH**

MultiAqua Model Number:

**MHCCW-12-05**

## **Part 1-General**

### **1.01 System Description**

MultiAqua Chilled Water Fan Coils are manufactured with heavy gauge galvanized steel to resist corrosion.

### **1.02 Quality Assurance**

- A. 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.
- C. Stored and handled per manufacturer's recommendations.

## **Part 2-Product**

### **2.01 Equipment**

- A. General:
  1. Unit shall be a factory assembled and tested chilled or hot water fan coil with electric heat.
  2. Shall be assembled with heavy gauge galvanized steel.
  3. Contained with the unit shall be all factory wiring, piping, associated controls and special accessories required prior to start up.
- B. Unit Cabinet:
  1. Composed of heavy gauge galvanized steel casing with a baked polyester powder.
  2. Shall be internally insulated to ensure quiet operation.
- C. Fan Motors:
  1. Shall be available in 208/230-1-50/60 VAC.
  2. Fan motors shall be three speed, direct drive, and PSC type.
  3. Totally enclosed.
  4. Internal overload protected.
- D. Blower Wheels:
  1. Blower wheels are forward curved and dynamically balanced.
- E. Water Coil:
  1. Manufactured with water coils containing 3/8" copper tubing mechanically bonded to aluminum fins.
  2. Contain both a manual water drain and manual air bleed port per coil.
  3. Coils shall be factory tested to 350 psig.
  4. Coils shall be capable of being field converted from right to left hand connection.
- F. Drain Pan:
  1. All drain pans shall be coated on both the interior and exterior with baked polyester powder to resist corrosion.
  2. The exterior of all drain pans shall be insulated with closed cell insulation to prevent condensation.
  3. Pans shall contain a left and right hand primary sloped drain connection as well as a sloped right hand secondary drain connection.
- G. Electric Heat:
  1. Electric Heaters shall be of the rod and disk type.
  2. Shall be protected by safeties.

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

- A. Fan coils shall be completely factory wired and tested.
- B. All components shall be wired to an internal terminal block to allow for a field installed thermostat and or Fan speed control.
- C. Controls shall include the following components.
  - 1. 24vac transformer.
  - 2. Fan relays.
  - 3. Electric heat sequencer (s).
  - 4. Optional Thermostats.

**3.02 Safeties**

- A. Fan coil shall be equipped with all necessary components in conjunction with the control system to provide the following protectants.
  - 1. High temperature.
  - 2. Over current protection.

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

- A. Primary electrical power supply shall enter the unit at a single location.
- B. Electrical power supply shall be rated to withstand 120°F operating ambient temperatures.
- C. Control and high voltage points shall be accessed through terminal block.

**Part 5- Accessories:****5.01 Enclosures**

- A. Fan coils shall be capable of incorporating field assembled enclosures.
  - 1. Enclosures shall be internally insulated to ensure quiet operation and increase efficiency.
  - 2. Shall include knockouts for ease of piping and electrical in and out of the enclosures.
  - 3. Shall include an optional return air cutout in the enclosure.
  - 4. Shall include a supply air duct flange.
  - 5. Shall incorporate baked polyester powder service access panels with and without a filtered louver

**Part 6- Definitions:****6.01 Abbreviations**

- A. CFM = Cubic Feet per Minute
- B. DB = Dry Bulb Temperature
- C. EWT = Entering Water Temperature
- D. GPM = US Gallons Per Minute
- E. MBH = BTU X 1000
- F. SC = Sensible Cooling
- G. TC = Total Cooling = Sensible + Latent
- H. WB = Wet Bulb Temperature
- I. WPD = Water Pressure Drop in feet of head
- J. dB = Decibel Level
- K. m = Meter
- L. In = Inches
- M. FPI = Fins per Inch
- N. OD = Outside Diameter
- O. ID = Inside Diameter
- P. MCA = Minimum Circuit Amps
- Q. MOP = Maximum Over current Protection
- R. LBS = Pounds U.S.

**6.02 Measurements**

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

# MHCCW-12-05 Product Specifications

Physical Data									
Model Number	Height (in)	Width (in)	Depth (in)	Weight (lbs.)	Coil Rows FPI	Copper Diameter (in)	Water Inlet (in) (OD)	Water Outlet (in) (OD)	Drain (in)
MHCCW-12-05	10.25	49.68	21.65	83.6	4-14	3/8	5/8	5/8	3/4

Electrical Data							
Model Number	Nominal CFM	Volts Phase Hertz	Electric Heat (KW)	Fan Motor HP	Full Load Ampacity	Fuse or HACR Circuit Breaker Per Circuit	
						MCA	MOP
MHCCW-12-05	1200	208/230-1-50/60	5	1/2	23.55	32.84	35

External Static Pressure Comparative CFM Table							
Model Number	0.00*	0.05*	0.10*	0.15*	0.2*	0.25*	0.30*
MHCCW-04	322	290	252	220	0	0	0
MHCCW-06	715	684	653	622	591	565	538
MHCCW-08	915	879	814	809	774	734	693
MHCCW-10	1007	975	944	898	853	817	780
<b>MHCCW-12</b>	<b>1254</b>	<b>1218</b>	<b>1183</b>	<b>1147</b>	<b>1112</b>	<b>1076</b>	<b>1041</b>
MCCW-16	1435	1394	1354	1313	1272	1231	1191
MCCW-20	1450	1409	1368	1327	1285	1244	1203

\* External static pressure (In W.G.)

# MHCCW-12-05 Chilled Water Performance Data

MHCCW-12-05 COOLING CAPACITIES				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1200	42	5.75	TC	37937
			SC	27520
			WPD	17.8
		6.5	TC	39858
			SC	28458
			WPD	22.4
		7.0	TC	41024
			SC	28962
			WPD	25.7
		7.75	TC	42350
			SC	29615
			WPD	31.1

**\*High Speed**

MHCCW-12-05 COOLING CAPACITIES				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1200	45	5.75	TC	33714
			SC	25832
			WPD	17.7
		6.5	TC	35218
			SC	26596
			WPD	22.3
		7.0	TC	36190
			SC	27060
			WPD	25.6
		7.75	TC	37577
			SC	27693
			WPD	30.9

**\*High Speed**

**Recommended minimum flow rate for this unit at  $\geq 2$  fps is 2.75 gpm**

**Recommended maximum flow rate for this unit at  $\leq 6$  fps is 7.75 gpm**

# MHCCW-12-05 Hot Water Performance Data

## MHCCW-12-05 HOT WATER CAPACITIES

ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)									
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
50	1200	5.75	16.6	35575	44536	53538	62573	71636	80720	89820	98933	108055	117182
		6.5	20.9	36390	45552	54754	63987	73246	82526	91821	101129	110444	119766
		7.0	24.0	36844	46117	55429	64771	74138	83526	92928	102342	111764	121192
		7.75	29.0	37421	46835	56286	65766	75270	84792	94329	103877	113433	122995

## MHCCW-12-05 HOT WATER CAPACITIES

ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)									
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
60	1200	5.75	16.6	26793	35727	44705	53720	62763	71830	80915	90014	99124	108240
		6.5	20.8	27396	36533	45711	54924	64165	73428	82708	92003	101307	110618
		7.0	23.9	27732	36981	46270	55592	64941	74312	83700	93101	102512	111930
		7.75	28.9	28160	37550	46979	56440	65926	75433	84956	94492	104037	113589

## MHCCW-12-05 HOT WATER CAPACITIES

ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)									
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
70	1200	5.75	16.5	17993	26902	35858	44851	53877	62927	71997	81083	90180	99286
		6.5	20.8	18387	27499	36655	45848	55071	64317	73583	82864	92157	101458
		7.0	23.9	18607	27831	37098	46401	55732	65087	74461	83849	93249	102657
		7.75	28.8	18887	28253	37661	47102	56571	66063	75572	85096	94630	104172

## MHCCW-12-05 HOT WATER CAPACITIES

ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)									
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
80	1200	5.75	16.5	9177	18063	26997	35971	44979	54013	63069	72142	81229	90325
		6.5	20.7	9365	18453	27588	36762	45967	55199	64451	73720	83001	92292
		7.0	23.8	9470	18670	27917	37201	46515	55855	65215	74591	83980	93378
		7.75	28.8	9603	18947	28334	37757	47210	56687	66183	75694	85218	94751

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

ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	5.75	63346
	6.5	64765
	7.0	65552
	7.75	66549

## MHCCW-12-05 Electric Heat Performance Data

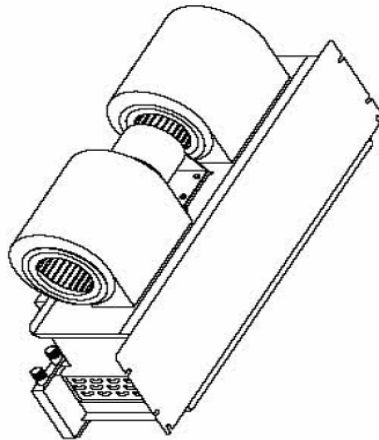
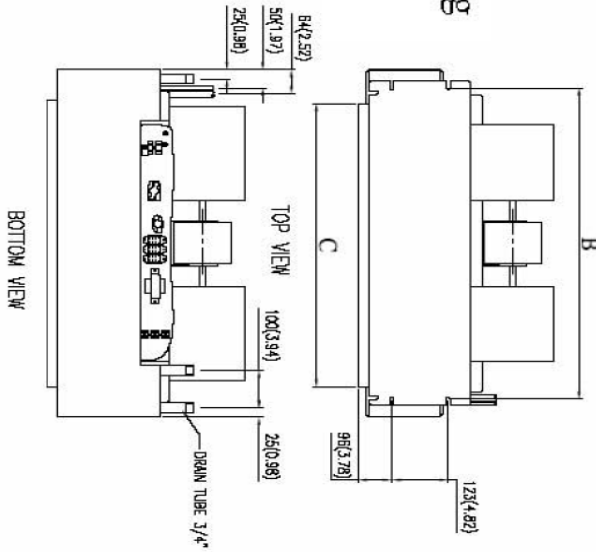
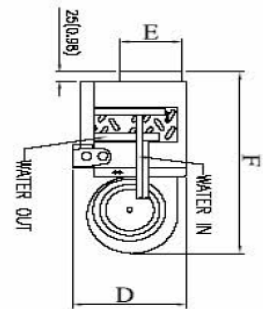
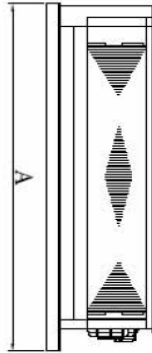
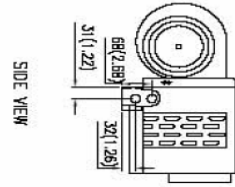
Model Number	Nominal CFM	Electric Heat BTUH
MHCCW-12-05	1200	17,000

## MHCCW-12-05 Sound Data

MODEL #	MHCCW-12-05
Fan Speed	dB @ 1 m
H	49

# MHCCW-12-05 Dimensional Drawing

MHCCW Certified Drawing  
 Drawing # 0907400070



Model MHCCW						
MODEL	A	B	C	D	E	F
04	958(37.72)	878(34.57)	798(31.42)	260(10.24)	140(5.51)	550(21.65)
06	958(37.72)	878(34.57)	798(31.42)	260(10.24)	140(5.51)	550(21.65)
08	958(37.72)	878(34.57)	798(31.42)	260(10.24)	140(5.51)	550(21.65)
10	1110(43.70)	1030(40.55)	950(37.40)	260(10.24)	140(5.51)	550(21.65)
12	1262(49.69)	1182(46.54)	1102(43.38)	260(10.24)	140(5.51)	550(21.65)