



MHCCW-10-03 Chilled Water Ceiling Concealed With **3kW Electric Heat**

2-Pipe Heat / Cool Fan Coil 30,000 BTUH

HVAC Guide Specifications

Chilled Water Fan Coil with Electric Heat
2-Pipe

Nominal Size:

30,000 BTUH

MultiAqua Model Number:

MHCCW-10-03

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-10-03 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-10-03 | 10.25 | 43.70 | 21.65 | 74.8 | 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-10-03 | 950 | 208/230-1-50/60 | 3 | 1/4 | 14.47 | 20.08 | 20 |

| 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 |
| MHCCW-12 | 1254 | 1218 | 1183 | 1147 | 1112 | 1076 | 1041 |
| 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-10-03 Chilled Water Performance Data

| MHCCW-10-03 COOLING CAPACITIES | | | | |
|--------------------------------|----------|-----|------------------------------|---------------------|
| CFM | EWT (°F) | GPM | ENTERING AIR TEMPERATURE (F) | |
| | | | | 80° D.B. / 67° W.B. |
| 950 | 42 | 5.0 | TC | 30869 |
| | | | SC | 22329 |
| | | | WPD | 12.8 |
| | | 5.5 | TC | 32183 |
| | | | SC | 22954 |
| | | | WPD | 15.3 |
| | | 6.0 | TC | 33362 |
| | | | SC | 23469 |
| | | | WPD | 18.0 |
| | | 6.5 | TC | 34286 |
| | | | SC | 23911 |
| | | | WPD | 20.9 |

***High Speed**

| MHCCW-10-03 COOLING CAPACITIES | | | | |
|--------------------------------|----------|-----|------------------------------|---------------------|
| CFM | EWT (°F) | GPM | ENTERING AIR TEMPERATURE (F) | |
| | | | | 80° D.B. / 67° W.B. |
| 950 | 45 | 5.0 | TC | 27387 |
| | | | SC | 21009 |
| | | | WPD | 12.7 |
| | | 5.5 | TC | 28505 |
| | | | SC | 21471 |
| | | | WPD | 15.2 |
| | | 6.0 | TC | 29503 |
| | | | SC | 21939 |
| | | | WPD | 17.9 |
| | | 6.5 | TC | 30424 |
| | | | SC | 22351 |
| | | | WPD | 20.8 |

***High Speed**

Recommended minimum flow rate for this unit at ≥ 2 fps is 2.75 gpm

Recommended maximum flow rate for this unit at ≤ 6 fps is 7.75 gpm

MHCCW-10-03 Hot Water Performance Data

MHCCW-10-03 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 | 950 | 5 | 11.9 | 28979 | 36282 | 43622 | 50991 | 58384 | 65797 | 73225 | 80664 | 88112 | 95565 |
| | | 5.5 | 14.3 | 29472 | 36896 | 44356 | 51844 | 59355 | 66884 | 74428 | 81983 | 89546 | 97115 |
| | | 6.0 | 16.8 | 29888 | 37415 | 44974 | 52562 | 60171 | 67798 | 75438 | 83090 | 90749 | 98414 |
| | | 6.5 | 19.5 | 30245 | 37858 | 45503 | 53174 | 60866 | 68575 | 76298 | 84031 | 91771 | 99517 |

MHCCW-10-03 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 | 950 | 5 | 11.9 | 21829 | 29109 | 36427 | 43777 | 51153 | 58551 | 65964 | 73391 | 80828 | 88271 |
| | | 5.5 | 14.2 | 22193 | 29595 | 37034 | 44503 | 51997 | 59512 | 67042 | 74585 | 82137 | 89697 |
| | | 6.0 | 16.7 | 22501 | 30005 | 37545 | 45114 | 52707 | 60319 | 67947 | 75587 | 83235 | 90891 |
| | | 6.5 | 19.4 | 22765 | 30356 | 37982 | 45635 | 53312 | 61007 | 68717 | 76438 | 84169 | 91906 |

MHCCW-10-03 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 | 950 | 5 | 11.9 | 14666 | 21924 | 29222 | 36554 | 43914 | 51297 | 58697 | 66112 | 73539 | 80973 |
| | | 5.5 | 14.2 | 14904 | 22283 | 29703 | 37155 | 44633 | 52133 | 59651 | 67182 | 74724 | 82275 |
| | | 6.0 | 16.7 | 15104 | 22587 | 30108 | 37660 | 45237 | 52836 | 60451 | 68080 | 75719 | 83366 |
| | | 6.5 | 19.4 | 15276 | 22847 | 30454 | 38091 | 45753 | 53434 | 61132 | 68843 | 76564 | 84292 |

MHCCW-10-03 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 | 950 | 5 | 11.8 | 7490 | 14726 | 22006 | 29321 | 36665 | 44033 | 51421 | 58825 | 66241 | 73666 |
| | | 5.5 | 14.2 | 7602 | 14961 | 22361 | 29796 | 37259 | 44745 | 52250 | 59771 | 67303 | 74845 |
| | | 6.0 | 16.7 | 7697 | 15159 | 22661 | 30197 | 37759 | 45344 | 52947 | 60565 | 68194 | 75833 |
| | | 6.5 | 19.4 | 7778 | 15328 | 22917 | 30538 | 38185 | 45854 | 53540 | 61240 | 68952 | 76672 |

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 | 51653 |
| | 5.5 | 52507 |
| | 6.0 | 53226 |
| | 6.5 | 53838 |

MHCCW-10-03 Electric Heat Performance Data

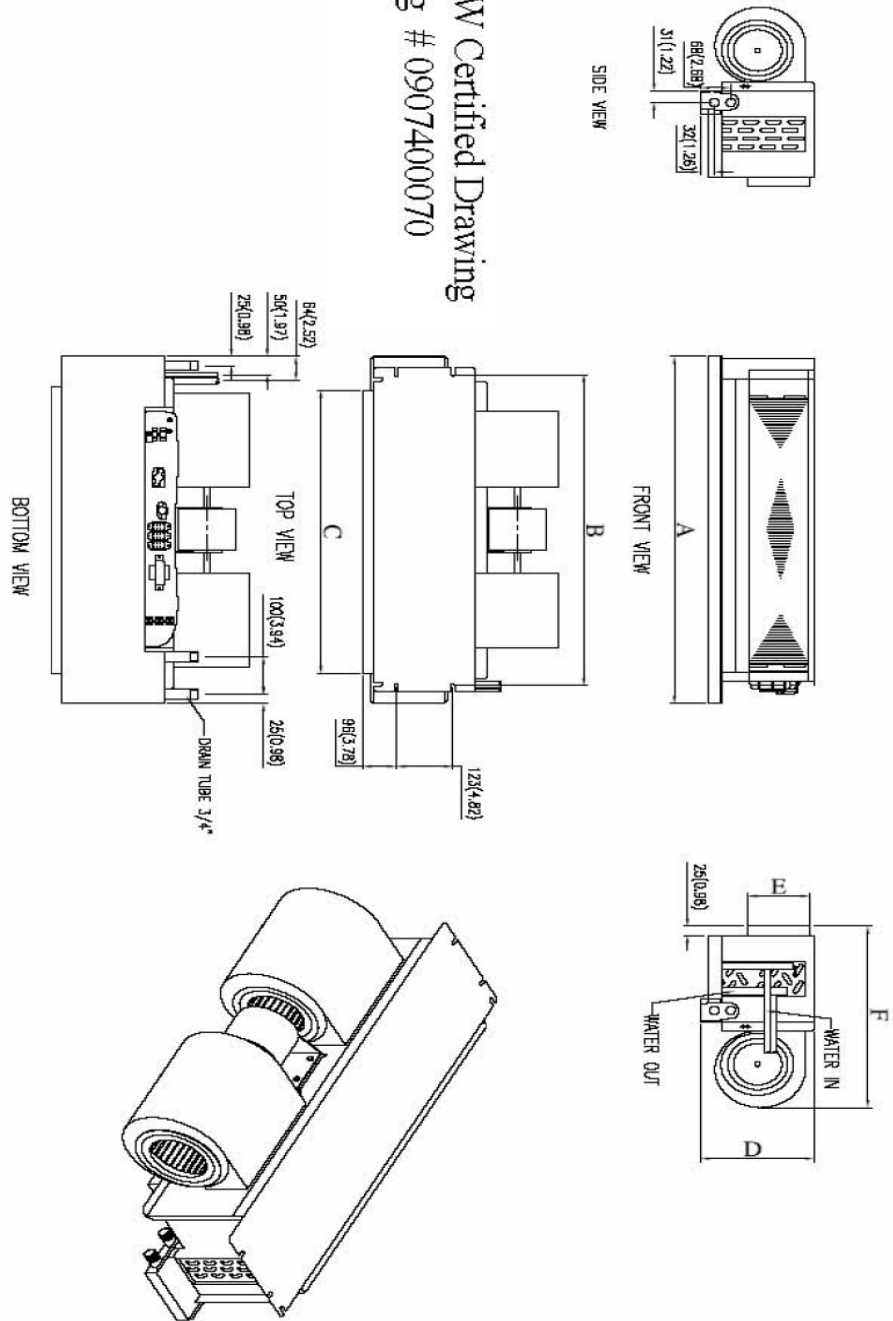
| Model Number | Nominal CFM | Electric Heat BTUH |
|--------------|-------------|--------------------|
| MHCCW-10-03 | 950 | 10,200 |

MHCCW-10-03 Sound Data

| MODEL # | MHCCW-10-03 |
|-----------|-------------|
| Fan Speed | dB @ 1 m |
| H | 48 |

MHCCW-10-03 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) |