



MHCCW-06-05 Chilled Water Ceiling Concealed with **5kW** Electric Heat

2-Pipe Heat / Cool Fan Coil 18,000 BTUH

HVAC Guide Specifications

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

Nominal Size:
18,000 BTUH

Multiaqua Model Number:
MHCCW-06-05

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-06-05 Product Specifications

| Physical Data | | | | | | | | | |
|---------------|-------------|------------|------------|---------------|---------------|----------------------|------------------|-------------------|------------|
| Model Number | Height (in) | Width (in) | Depth (in) | Weight (lbs.) | Coil Rows FPI | Copper Diameter (in) | Water Inlet (in) | Water Outlet (in) | Drain (in) |
| MHCCW-06-05 | 10.25 | 37.72 | 21.65 | 68.2 | 3-14 | 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-06-05 | 675 | 208/230-1-50/60 | 5 | 1/8 | 22.92 | 32.05 | 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 |
| 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-06-05 Chilled Water Performance Data

| MHCCW-06-05 COOLING CAPACITIES | | | | |
|--------------------------------|----------|------|------------------------------|---------------------|
| CFM | EWT (°F) | GPM | ENTERING AIR TEMPERATURE (F) | |
| | | | | 80° D.B. / 67° W.B. |
| 675 | 42 | 4.0 | TC | 19613 |
| | | | SC | 14339 |
| | | | WPD | 6.5 |
| | | 4.25 | TC | 19796 |
| | | | SC | 14589 |
| | | | WPD | 7.3 |
| | | 4.5 | TC | 20268 |
| | | | SC | 14814 |
| | | | WPD | 8.1 |
| | | 5.0 | TC | 21168 |
| | | | SC | 15200 |
| | | | WPD | 9.9 |

***High Speed**

| MHCCW-06-05 COOLING CAPACITIES | | | | |
|--------------------------------|----------|------|------------------------------|---------------------|
| CFM | EWT (°F) | GPM | ENTERING AIR TEMPERATURE (F) | |
| | | | | 80° D.B. / 67° W.B. |
| 675 | 45 | 4.0 | TC | 17186 |
| | | | SC | 13591 |
| | | | WPD | 6.5 |
| | | 4.25 | TC | 17648 |
| | | | SC | 13744 |
| | | | WPD | 7.3 |
| | | 4.5 | TC | 18062 |
| | | | SC | 13941 |
| | | | WPD | 8.1 |
| | | 5.0 | TC | 18861 |
| | | | SC | 14271 |
| | | | WPD | 9.9 |

***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-06-05 Hot Water Performance Data

MHCCW-06-05 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 | 675 | 4 | 6.1 | 18797 | 23544 | 28322 | 33125 | 37950 | 42791 | 47645 | 52511 | 57384 | 62264 |
| | | 4.25 | 6.9 | 19003 | 23800 | 28627 | 33479 | 38351 | 43239 | 48141 | 53053 | 57973 | 62899 |
| | | 4.5 | 7.7 | 19188 | 24030 | 28901 | 33797 | 38712 | 43643 | 48587 | 53541 | 58503 | 63471 |
| | | 5.0 | 9.4 | 19509 | 24428 | 29375 | 34344 | 39332 | 44336 | 49351 | 54376 | 59409 | 64447 |

MHCCW-06-05 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 | 675 | 4 | 6.1 | 14176 | 18903 | 23662 | 28449 | 33258 | 38086 | 42928 | 47783 | 52646 | 57518 |
| | | 4.25 | 6.9 | 14328 | 19105 | 23914 | 28750 | 33607 | 38483 | 43372 | 48273 | 53184 | 58102 |
| | | 4.5 | 7.6 | 14465 | 19287 | 24141 | 29020 | 33921 | 38839 | 43771 | 48715 | 53667 | 58627 |
| | | 5.0 | 9.3 | 14702 | 19602 | 24532 | 29486 | 34461 | 39452 | 44456 | 49471 | 54494 | 59525 |

MHCCW-06-05 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 | 675 | 4 | 6.1 | 9545 | 14253 | 18995 | 23766 | 28561 | 33376 | 34061 | 38952 | 47905 | 52768 |
| | | 4.25 | 6.9 | 9644 | 14402 | 19195 | 24015 | 28858 | 33721 | 34564 | 39558 | 48392 | 53301 |
| | | 4.5 | 7.6 | 9733 | 14537 | 19374 | 24239 | 29126 | 34031 | 38207 | 43051 | 48829 | 53781 |
| | | 5.0 | 9.3 | 9888 | 14770 | 19684 | 24624 | 29585 | 34564 | 38599 | 43490 | 49578 | 54601 |

MHCCW-06-05 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 | 675 | 4 | 6.1 | 4905 | 9594 | 14320 | 19076 | 23857 | 28660 | 33479 | 38313 | 43158 | 48012 |
| | | 4.25 | 6.8 | 4952 | 9692 | 14468 | 19273 | 24103 | 28953 | 33821 | 38702 | 43594 | 48495 |
| | | 4.5 | 7.6 | 4994 | 9780 | 14601 | 19450 | 24324 | 29218 | 34128 | 39051 | 43986 | 48929 |
| | | 5.0 | 9.3 | 5067 | 9932 | 14830 | 19755 | 24704 | 29671 | 34655 | 39650 | 44657 | 49672 |

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 | 4 | 33588 |
| | 4.25 | 33939 |
| | 4.5 | 34255 |
| | 5.0 | 34798 |

MHCCW-06-05 Electric Heat Performance Data

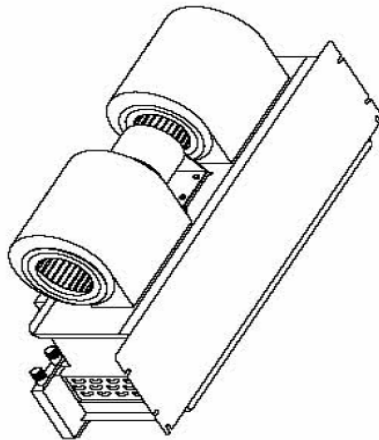
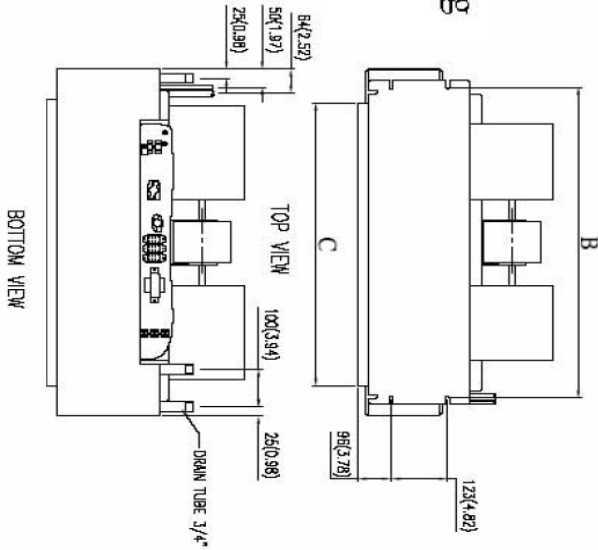
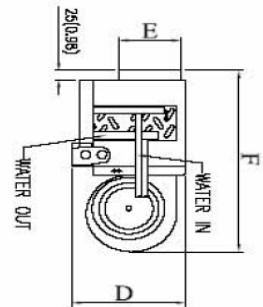
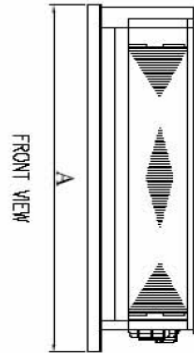
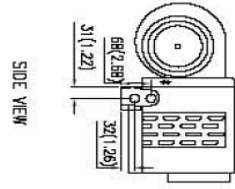
| Model Number | Nominal CFM | Electric Heat BTUH |
|--------------|-------------|--------------------|
| MHCCW-06-05 | 675 | 10,200 |

MHCCW-06-05 Sound Data

| | |
|-----------|-------------|
| MODEL # | MHCCW-06-05 |
| Fan Speed | dB @ 1 m |
| H | 44 |

MHCCW-06-05 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) |