



## **MHNCCW-12-01 (4-Pipe) Chilled/Hot Water Ceiling Concealed 208/230V**

**4-Pipe Heating & Cooling Fan Coil 36,000 BTUH**

*Rev. 1.2*

# HVAC Guide Specifications

Chilled and Hot Water Fan Coil  
4-Pipe

Nominal Size:  
**36,000 BTUH**

MultiAqua Model Number:  
**MHNCCW-12-01**

## 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 and hot water fan coil.
  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 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.

**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. Optional thermostats.

**3.02 Safeties:**

- A. Fan coil shall contain a non-reusable fuse on the secondary voltage side of the transformer.

**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 are not offered on the MHNCCW models. Enclosure provided by others.

**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.

## MHNCCW-12-01 Product Specifications

| Physical Data |             |             |            |               |                  |                  |                      |                  |                   |            |
|---------------|-------------|-------------|------------|---------------|------------------|------------------|----------------------|------------------|-------------------|------------|
| Model Number  | Height (in) | Length (in) | Depth (in) | Weight (lbs.) | Cooling Rows FPI | Heating Rows FPI | Copper Diameter (in) | Water Inlet (in) | Water Outlet (in) | Drain (in) |
| MHNCCW-12-01  | 10          | 49.68       | 21.65      | 83.6          | 4-14             | 2-14             | 3/8                  | 7/8              | 7/8               | 3/4        |

| Electrical Data |             |                     |          |                    |  |     |
|-----------------|-------------|---------------------|----------|--------------------|--|-----|
| Model Number    | Nominal CFM | Volts/ Phase/ Hertz | Motor HP | Full Load Ampacity | Fuse or HACR Circuit Breaker Per Circuit |     |
|                 |             |                     |          |                    | MCA                                      | MOP |
| MHNCCW-12-01    | 1200        | 208/230-1-50/60     | 1/4      | 1.81               | 2.26                                     | 5   |

## MHNCCW-12-01 Chilled Water Performance Data

| MHNCCW-12-01 COOLING CAPACITIES |          |      |                              |                     |
|---------------------------------|----------|------|------------------------------|---------------------|
| CFM                             | EWT (°F) | GPM  | ENTERING AIR TEMPERATURE (F) |                     |
|                                 |          |      |                              | 80° D.B. / 67° W.B. |
| 1200                            | 42       | 5.5  | TC                           | 36775               |
|                                 |          |      | SC                           | 27055               |
|                                 |          |      | WPD                          | 16.4                |
|                                 |          | 6.0  | TC                           | 38423               |
|                                 |          |      | SC                           | 27738               |
|                                 |          |      | WPD                          | 19.3                |
|                                 |          | 6.5  | TC                           | 39686               |
|                                 |          |      | SC                           | 28350               |
|                                 |          |      | WPD                          | 22.4                |
|                                 |          | 7.75 | TC                           | 42186               |
|                                 |          |      | SC                           | 29513               |
|                                 |          |      | WPD                          | 31.1                |

**\*High Speed**

| MHNCCW-12-01 COOLING CAPACITIES |          |      |                              |                     |
|---------------------------------|----------|------|------------------------------|---------------------|
| CFM                             | EWT (°F) | GPM  | ENTERING AIR TEMPERATURE (F) |                     |
|                                 |          |      |                              | 80° D.B. / 67° W.B. |
| 1200                            | 45       | 5.5  | TC                           | 32757               |
|                                 |          |      | SC                           | 25400               |
|                                 |          |      | WPD                          | 16.3                |
|                                 |          | 6.0  | TC                           | 34084               |
|                                 |          |      | SC                           | 25998               |
|                                 |          |      | WPD                          | 19.2                |
|                                 |          | 6.5  | TC                           | 35029               |
|                                 |          |      | SC                           | 26482               |
|                                 |          |      | WPD                          | 22.3                |
|                                 |          | 7.75 | TC                           | 37421               |
|                                 |          |      | SC                           | 27594               |
|                                 |          |      | WPD                          | 30.9                |

**\*High Speed**

### Chilled Water Coil

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

### Hot Water Coil

Recommended minimum flow rate for this unit at  $\geq 2$  fps is 1.50 gpm  
 Recommended maximum flow rate for this unit at  $\leq 6$  fps is 3.75 gpm

## MHNCCW-12-01 Hot Water Performance Data

| MHNCCW-12-01 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        | 1.5  | 4.3  | 17607                           | 21858 | 26135 | 30432 | 34745 | 39069 | 43402 | 47739 | 52077 | 56415 |
|                                   |             | 2.75 | 13.0 | 21871                           | 27236 | 32630 | 38049 | 43487 | 48940 | 54404 | 59876 | 65353 | 70832 |
|                                   |             | 3.0  | 15.3 | 22408                           | 27911 | 33443 | 39000 | 44575 | 50166 | 55768 | 61378 | 66993 | 72611 |
|                                   |             | 3.75 | 23.0 | 23679                           | 29506 | 35361 | 41241 | 47138 | 53051 | 58974 | 64906 | 70843 | 76783 |

| MHNCCW-12-01 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        | 1.5  | 4.3  | 13479                           | 17720 | 21987 | 26275 | 30579 | 34896 | 39221 | 43553 | 47886 | 52220 |
|                                   |             | 2.75 | 12.9 | 16638                           | 21986 | 27365 | 32769 | 38194 | 43636 | 49089 | 54552 | 60021 | 65493 |
|                                   |             | 3.0  | 15.2 | 17035                           | 22520 | 28037 | 33579 | 39142 | 44720 | 50312 | 55912 | 61519 | 67130 |
|                                   |             | 3.75 | 22.9 | 17975                           | 23784 | 29624 | 35488 | 41372 | 47273 | 53186 | 59108 | 65036 | 70969 |

| MHNCCW-12-01 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        | 1.5  | 4.2  | 9329                            | 13560 | 17818 | 22097 | 26394 | 30705 | 35025 | 39351 | 43681 | 48011 |
|                                   |             | 2.75 | 12.9 | 11389                           | 16721 | 22085 | 27476 | 32889 | 38320 | 43764 | 49218 | 54679 | 60145 |
|                                   |             | 3.0  | 15.1 | 11648                           | 17116 | 22618 | 28146 | 33697 | 39265 | 44846 | 50438 | 56037 | 61641 |
|                                   |             | 3.75 | 22.8 | 12260                           | 18052 | 23875 | 29726 | 35598 | 41487 | 47389 | 53302 | 59223 | 65149 |

| MHNCCW-12-01 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        | 1.5  | 4.2  | 5156                            | 9379  | 13629 | 17902 | 22193 | 26498 | 30813 | 35135 | 39462 | 43789 |
|                                   |             | 2.75 | 12.8 | 6125                            | 11441 | 16792 | 22172 | 27574 | 32994 | 38429 | 43876 | 49330 | 54790 |
|                                   |             | 3.0  | 15.1 | 6246                            | 11699 | 17187 | 22703 | 28242 | 33800 | 39372 | 44956 | 50548 | 56146 |
|                                   |             | 3.75 | 22.7 | 6534                            | 12309 | 18118 | 23956 | 29816 | 35694 | 41587 | 47492 | 53405 | 59325 |

**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          | 1.5  | 30786                           |
|                          | 2.75 | 38456                           |
|                          | 3.0  | 39409                           |
|                          | 3.75 | 41651                           |

## MHNCCW-12-01 CFM Adjustments

| CFM vs. External Static Pressure Table |          |      |      |      |      |      |
|--|----------|------|------|------|------|------|
| Model Number                           | Hi Speed |      |      |      |      |      |
|  | 0.05     | 0.1  | 0.15 | 0.2  | 0.25 | 0.3  |
| MHNCCW-12-01                           | 1228     | 1194 | 1160 | 1126 | 1088 | 1050 |

## MHNCCW-12-01 Sound Data

|           |             |
|-----------|-------------|
| MODEL #   | MHCCW-12-01 |
| Fan Speed | dB @ 1 m    |
| H         | 48          |



# MHNCCW-12-01 Dimensional Drawing

