



## **MCFCW-12-4HS-1 (4-Pipe) High Static Chilled/Hot Water Ceiling Concealed Cased Fan Coil 208/230V**

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

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# HVAC Guide Specifications

Chilled and Hot Water Fan Coil High Static  
4-Pipe  
Nominal Size:  
**36,000 BTUH**

MultiAqua Model Number:  
**MCFCW-12-4HS-1**

## **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. Filters are not included with the fan coil.
  - 4. A filter rack is built into the return of each fan coil.

#### 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. External Static Pressure

- 1. Unit shall be rated for a minimum external static pressure of 0.3" WG and maximum external static pressure of 0.5" WG.

#### F. Water Coil:

- 2. Manufactured with water coils containing 3/8 copper tubing mechanically bonded to aluminum fins.
- 3. Contain both a manual water/ air bleed port per coil.
- 4. Coils have a max operating pressure of 150 PSIG.
- 5. Maximum liquid solution temperature is 180 degrees F.

**G. 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 sloped drain connection as well as a sloped secondary drain connection.
4. Field supplied and installed P-Traps are required.

**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 24 vac thermostat and or fan speed control.
- C. Controls shall include the following components.
  1. 24vac transformer.
  2. Three 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 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.

## MCFCW-12-4HS-1 Product Specifications

<b>Physical Data</b>										
Model Number	Height (in)	Length (in)	Depth (in)	Weight (lbs.)	Primary Rows FPI	Secondary Rows FPI	Copper Diameter (in)	Water Inlet O.D(in)	Water Outlet O.D(in)	Drain (in)
MCFCW-12-4HS-1	14.25	55.00	29.5	144	3-14	1-14	3/8	5/8	5/8	3/4

<b>Electrical Data</b>							
Model Number	Nominal CFM	Volts/ Phase/ Hertz	Fan Motor HP	Full Load Ampacity	Fuse or HACR Circuit Breaker Per Circuit		
					MCA	MOP	
MCFCW-12-4HS-1	1200	208/230-1-50/60	1/2	3.57	4.47	10	

# MCFCW-12-4HS-1 Chilled Water Performance Data

MCFCW-12-4HS-1 COOLING CAPACITIES (Primary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1706	42	0.30	5.0	TC	38450
				SC	30321
				WPD FT	5.8
			5.5	TC	40483
				SC	31361
				WPD FT	6.9
			6.0	TC	42327
				SC	32252
				WPD FT	8.1

MCFCW-12-4HS-1 COOLING CAPACITIES (Primary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1546	42	0.40	5.0	TC	37405
				SC	28930
				WPD FT	5.8
			5.5	TC	39324
				SC	29856
				WPD FT	6.9
			6.0	TC	41096
				SC	30686
				WPD FT	8.1

MCFCW-12-4HS-1 COOLING CAPACITIES (Primary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1339	42	0.50	5.0	TC	35776
				SC	26865
				WPD FT	5.8
			5.5	TC	37556
				SC	27691
				WPD FT	6.9
			6.0	TC	39178
				SC	28420
				WPD FT	8.1

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<b>MCFCW-12-4HS-1 COOLING CAPACITIES</b>					
<b>(Primary Coil Only)</b>					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1706	45	0.30	5.0	TC	34745
				SC	28795
				WPD FT	5.8
			5.5	TC	36450
				SC	29690
				WPD FT	6.9
			6.0	TC	38062
				SC	30497
				WPD FT	8.1

<b>MCFCW-12-4HS-1 COOLING CAPACITIES</b>					
<b>(Primary Coil Only)</b>					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1546	45	0.40	5.0	TC	33691
				SC	27390
				WPD FT	5.8
			5.5	TC	35365
				SC	28227
				WPD FT	6.9
			6.0	TC	36899
				SC	29002
				WPD FT	8.1

<b>MCFCW-12-4HS-1 COOLING CAPACITIES</b>					
<b>(Primary Coil Only)</b>					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1339	45	0.50	5.0	TC	32160
				SC	25382
				WPD FT	5.8
			5.5	TC	33699
				SC	26116
				WPD FT	6.9
			6.0	TC	35081
				SC	26782
				WPD FT	8.1

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MCFCW-12-4HS-1 COOLING CAPACITIES (Secondary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1706	42	0.30	5.0	TC	16662
				SC	14443
				WPD FT	4.5
			5.5	TC	17888
				SC	14878
				WPD FT	5.4
			6.0	TC	18796
				SC	15275
				WPD FT	6.3

MCFCW-12-4HS-1 COOLING CAPACITIES (Secondary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1546	42	0.40	5.0	TC	16634
				SC	13926
				WPD FT	4.5
			5.5	TC	17595
				SC	14345
				WPD FT	5.4
			6.0	TC	18677
				SC	14724
				WPD FT	6.3

MCFCW-12-4HS-1 COOLING CAPACITIES (Secondary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1339	42	0.50	5.0	TC	16193
				SC	13152
				WPD FT	4.5
			5.5	TC	17299
				SC	13543
				WPD FT	5.4
			6.0	TC	18174
				SC	13894
				WPD FT	6.3

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MCFCW-12-4HS-1 COOLING CAPACITIES (Secondary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1706	45	0.30	5.0	TC	15048
				SC	13711
				WPD FT	4.5
			5.5	TC	15780
				SC	14139
				WPD FT	5.4
			6.0	TC	16432
				SC	14465
				WPD FT	6.3

MCFCW-12-4HS-1 COOLING CAPACITIES (Secondary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1546	45	0.40	5.0	TC	14719
				SC	13232
				WPD FT	4.5
			5.5	TC	15411
				SC	13589
				WPD FT	5.4
			6.0	TC	16335
				SC	13922
				WPD FT	6.3

MCFCW-12-4HS-1 COOLING CAPACITIES (Secondary Coil Only)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1339	45	0.50	5.0	TC	14174
				SC	12457
				WPD FT	4.5
			5.5	TC	15124
				SC	12801
				WPD FT	5.4
			6.0	TC	15841
				SC	13112
				WPD FT	6.3

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MCFCW-12-4HS-1 COOLING CAPACITIES (Primary and Secondary Coil)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1706	42	0.30	5.0	TC	43606
				SC	33454
				WPD FT	3.9
			5.5	TC	45900
				SC	34634
				WPD FT	4.7
			6.0	TC	47995
				SC	35715
				WPD FT	5.6

MCFCW-12-4HS-1 COOLING CAPACITIES (Primary and Secondary Coil)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1546	42	0.40	5.0	TC	42333
				SC	31865
				WPD FT	3.9
			5.5	TC	44472
				SC	32962
				WPD FT	4.7
			6.0	TC	46470
				SC	33902
				WPD FT	5.6

MCFCW-12-4HS-1 COOLING CAPACITIES (Primary and Secondary Coil)					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1339	42	0.50	5.0	TC	40333
				SC	29556
				WPD FT	3.9
			5.5	TC	42293
				SC	30466
				WPD FT	4.7
			6.0	TC	44135
				SC	31337
				WPD FT	5.6

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<b>MCFCW-12-4HS-1 COOLING CAPACITIES</b>					
<b>(Primary and Secondary Coil)</b>					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1706	45	0.30	5.0	TC	39587
				SC	31779
				WPD FT	3.9
			5.5	TC	41509
				SC	32845
				WPD FT	4.7
			6.0	TC	43362
				SC	33914
				WPD FT	5.6

<b>MCFCW-12-4HS-1 COOLING CAPACITIES</b>					
<b>(Primary and Secondary Coil)</b>					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1546	45	0.40	5.0	TC	38303
				SC	30235
				WPD FT	3.9
			5.5	TC	40182
				SC	31202
				WPD FT	4.7
			6.0	TC	41876
				SC	32055
				WPD FT	5.6

<b>MCFCW-12-4HS-1 COOLING CAPACITIES</b>					
<b>(Primary and Secondary Coil)</b>					
CFM	EWT (°F)	ESP IN WC	GPM	ENTERING AIR TEMPERATURE (F)	
					80° D.B. / 67° W.B.
1339	45	0.50	5.0	TC	36423
				SC	27935
				WPD FT	3.9
			5.5	TC	38096
				SC	28765
				WPD FT	4.7
			6.0	TC	39650
				SC	29495
				WPD FT	5.6

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# MCFCW-12-4HS-1 Hot Water Performance Data

This heating performance data is at dry bulb temperature indicated / wet bulb temperature is 56 degrees F.

MCFCW-12-4HS-1 HOT WATER CAPACITIES (Primary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1706	0.30	5.0	5.4	33680	44300	54986	65726	76510	87330	98178
			5.5	6.4	34623	45559	56560	67615	78715	89850	101014
			6.0	7.5	35441	46649	57921	69248	80618	92025	103459
			6.5	8.7	36156	47600	59109	70671	82277	93918	105587

MCFCW-12-4HS-1 HOT WATER CAPACITIES (Primary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1546	0.40	5.0	5.4	32163	42313	52523	62784	73085	83419	93778
			5.5	6.4	33007	43437	53928	64468	75049	85662	96302
			6.0	7.5	33734	44406	55137	65917	76737	87590	98468
			6.5	8.7	34368	45249	56188	67175	78202	89260	100345

MCFCW-12-4HS-1 HOT WATER CAPACITIES (Primary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1339	0.50	5.0	5.4	29985	39442	48952	58506	68095	77713	87354
			5.5	6.4	30691	40382	50125	59911	69732	79581	89453
			6.0	7.5	31296	41186	51128	61111	71129	81174	91242
			6.5	8.7	31820	41882	51994	62267	72333	82547	92783

MCFCW-12-4HS-1 HOT WATER CAPACITIES (Secondary Coil)											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1706	0.30	5.0	4.2	18460	23982	29561	35188	40856	46559	52290
			5.5	5.0	18821	24459	30153	35894	41675	47489	53330
			6.0	5.9	19136	24875	30669	36508	42386	48296	54232
			6.5	6.9	19413	25242	31123	37048	43010	49004	55023

<b>MCFCW-12-4HS-1 HOT WATER CAPACITIES (Secondary Coil)</b>											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1546	0.40	5.0	4.2	17736	23055	28427	33844	39299	44786	50299
			5.5	5.0	18070	23497	28975	34497	40055	45644	51258
			6.0	5.9	18361	23881	29451	35063	40711	46388	52090
			6.5	6.9	19618	24219	29870	35561	41286	47040	52817

<b>MCFCW-12-4HS-1 HOT WATER CAPACITIES (Secondary Coil)</b>											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1339	0.50	5.0	4.2	16736	21761	26832	31944	37090	42264	47461
			5.5	5.0	17033	22153	27319	32523	37760	43024	48311
			6.0	5.9	17292	22494	27741	33025	38340	43682	49045
			6.5	6.9	17519	22793	28110	33486	38848	44257	49687

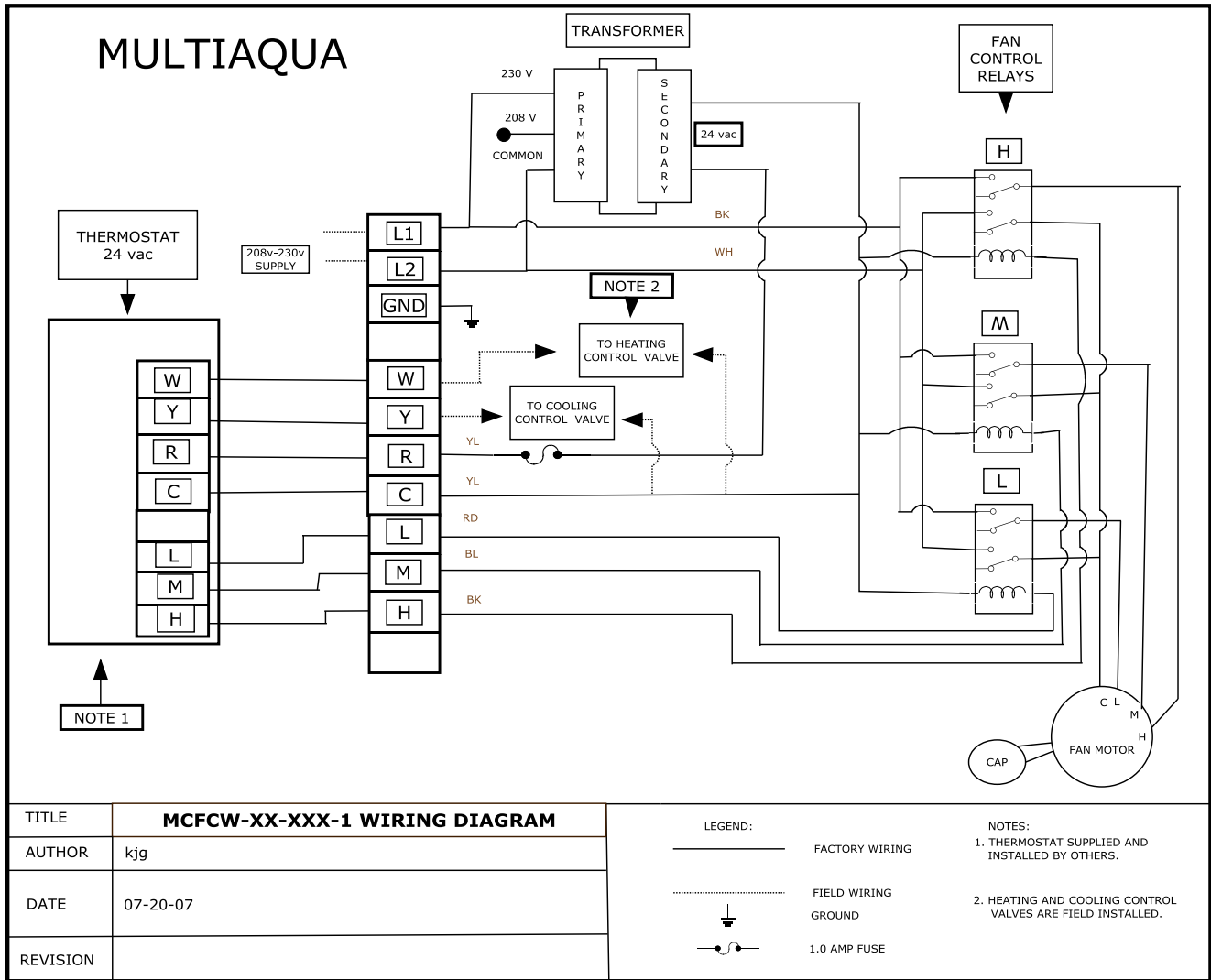
<b>MCFCW-12-4HS-1 HOT WATER CAPACITIES (Primary and Secondary)</b>											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1706	0.30	5.0	3.7	37466	49378	61368	73421	85527	97676	109858
			5.5	4.4	38603	50896	63268	75703	88192	100724	113291
			6.0	5.2	39583	52203	64901	77663	90479	103337	116230
			6.5	6.0	40434	53337	66316	79360	92456	105595	118768

<b>MCFCW-12-4HS-1 HOT WATER CAPACITIES (Primary and Secondary)</b>											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1546	0.40	5.0	3.7	35756	47132	58580	70086	81642	93236	104862
			5.5	4.4	36759	48469	60251	72092	83981	95910	107871
			6.0	5.2	37617	49612	61677	73802	85974	98186	110429
			6.5	6.0	38358	50597	62906	75273	87687	100140	112624

<b>MCFCW-12-4HS-1 HOT WATER CAPACITIES (Primary and Secondary)</b>											
ENTERING AIR (°F)	NOMINAL CFM	ESP "WC	GPM	WPD	ENTERING WATER TEMPERATURE (F)						
					100°	110°	120°	130°	140°	150°	160°
70	1339	0.50	5.0	3.7	33271	43848	54488	65180	75915	86684	97481
			5.5	4.4	34089	44937	55847	66808	77811	88849	99914
			6.0	5.2	34782	45859	56995	68182	79410	90672	101960
			6.5	6.0	35376	46646	57975	69511	80772	92222	103700

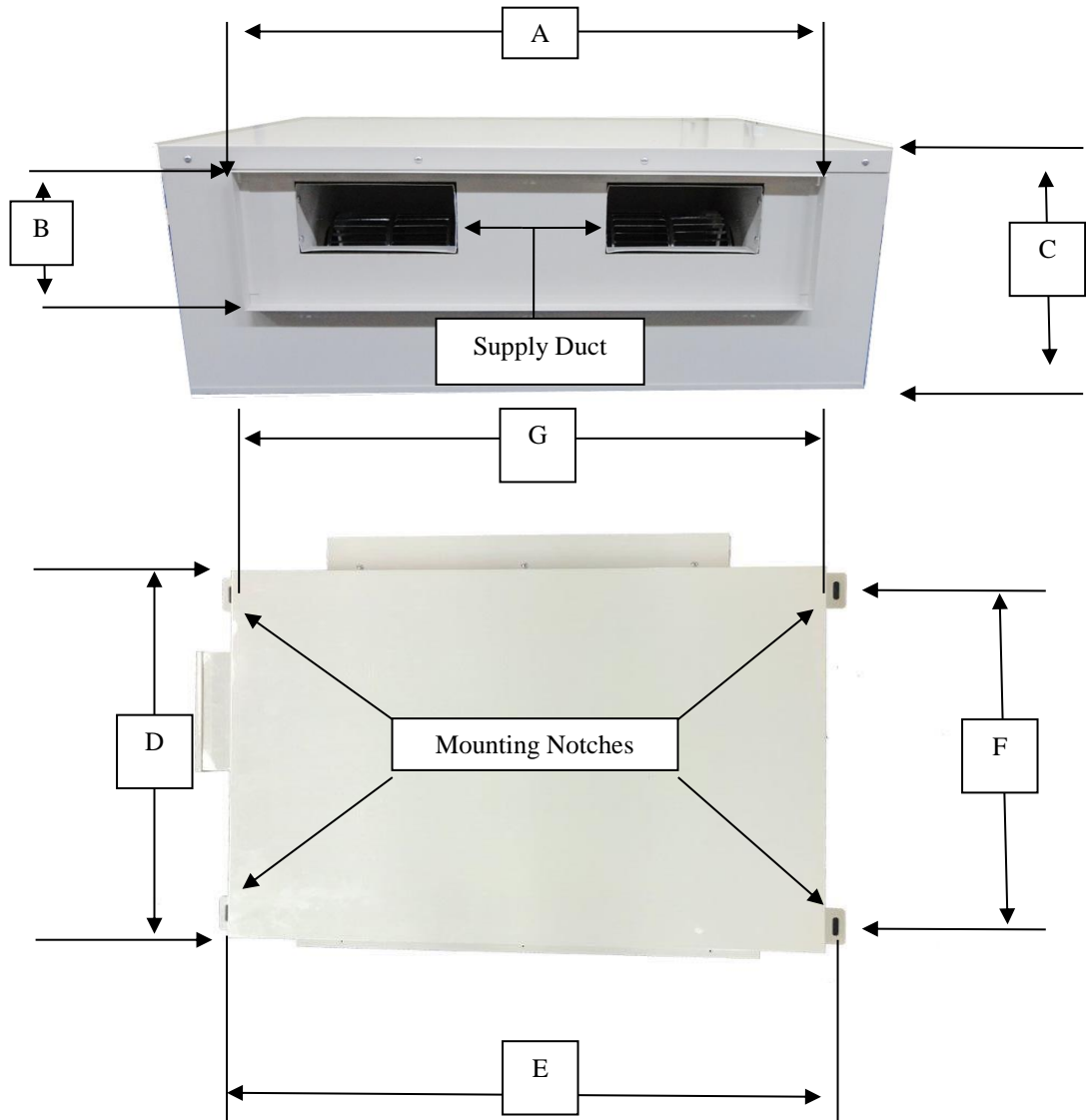
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# MCFCW-12-4HS-1 Wiring Diagram



# MCFCW-12-4HS-1 Dimensional Drawing

FAN COIL DIMENSIONS (in.)									
Fan Coil Model Number	A	B	C	D	E	F	G	H	I
MCFCW-12-4HS-01	32.5	11.5	14.25	29.5	55.5	26.5	55	48.5	12.25



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