CFFWA4P-12-1-U Chilled/Hot Water Universal Mount Fan Coil (4-Pipe)

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

Rev. 1.4

HVAC Guide Specifications

Chilled and Hot Water Universal Mount Fan Coil
4-Pipe Nominal Size:
36,000 BTUH

Multiaqua Model Number:
CFFWA4P-12-1-U

Part 1-General

1.01 System Description

Multiaqua Chilled Water Fan Coils are manufactured with galvanized steel and high impact molded polymers.

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 electrically 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 high quality.
   3. Contained with the unit shall be all factory wiring, piping, associated controls.

B. Unit Cabinet:
   1. Composed of galvanized steel with baked polyester powder and high impact polymers.
   2. Coil Compartment 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.
   5. Unit shall contain a swing motor to distribute the discharge air.

D. Blower Wheels:
   1. Blower wheels are double entry and dynamically balanced.

E. Water Coils:
   1. Manufactured with water coils containing 3/8" copper tubing mechanically bonded to aluminum fins.
   2. Maximum operating pressure is 150 psig.
   3. Maximum inlet water temperature 160° F
   4. Primary coil and Secondary coil connections are opposite ends and are non reversible.
   5. Pressure independent flow control required on both coils to not exceed max flow for each coil.
      i. Consult primary coil and secondary coil data for proper sizing

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 drain tubing that is accessible from the back, bottom and side of the unit.

G. Filters:
   1. Unit shall contain washable filters.

Part 3-Controls and Safeties

3.01 Controls

A. Fan coils shall be completely factory wired and tested.
B. Unit shall include a terminal block that is capable of incorporating a field supplied 24 VAC thermostat.
C. Controls shall be capable of incorporating a field supplied three speed fan speed switch and or thermostat.

3.02 Safeties:

A. Fan coil shall contain a field renewable fuse on the secondary voltage side of the transformer.
B. Fan coil shall contain a non renewable thermal protector on the primary voltage side of the transformer.

Part 4-Operating Characteristics:

4.01 Electrical Requirements

A. Electrical shall include a terminal block for both high voltage and low voltage.
B. Electrical power supply shall be rated to withstand 120°F operating ambient temperatures.

Part 5- Definitions:

5.01 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. FP I= 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.

5.02 Measurements

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

CFFWA4P-12-1-U Product Specifications

Physical Data									
Model Number	Height (in)	Length (in)	Depth (in)	Weight (lbs.)	Primary Coil Rows FPI	Water Inlet / Outlet OD (in)	Secondary Coil Rows FPI	Water Inlet/ Outlet OD (in)	Drain Connection ID (in)
CFFWA4P-12-1-U	11.3	76.7	28.3	132.3	3-14	.750	1/14	.750	1” tube

All dimensions rounded up to nearest tenth of an inch. All dimensions are as the unit is horizontal/ceiling mounted.

Electrical Data						
Model Number	High Speed CFM	Volts/ Phase/ Hertz	Fan Motor (Qty) Watts	Fan Motor Full Load Ampacity	Fuse or HACR Circuit Breaker Per Circuit	
					MCA	MOP
CFFWA4P-12-1-U	1100	208/230-1-50/60	(2)177	2.3	2.59	3.0

CFFWA4P-12-1-U Chilled Water Performance Data

CFFWA4P-12-01-U COOLING CAPACITIES (Primary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1100*	42	4.0	TC	29634
			SC	23053
			WPD	5.2
		5.0	TC	33507
			SC	24791
			WPD	7.8
		6.0	TC	36503
			SC	26153
			WPD	11.0
		7.0	TC	38832
			SC	27263
			WPD	14.6

***High Speed**

CFFWA4P-12-01-U COOLING CAPACITIES (Primary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1100*	45	4.0	TC	26675
			SC	21914
			WPD	5.1
		5.0	TC	29878
			SC	23390
			WPD	7.8
		6.0	TC	32575
			SC	24579
			WPD	10.9
		7.0	TC	34620
			SC	25595
			WPD	14.6

***High Speed**

Recommended minimum flow rate for the primary coil at ≥ 2 fps is 3.5 gpm

Recommended maximum flow rate for the primary coil at ≤ 6 fps is 9.75 gpm

CFFWA4P-12-1-U Hot Water Performance Data

This heating performance data is at dry bulb temperature indicated / wet bulb temperature not considered

CFFWA4P-12-01-U HOT WATER CAPACITIES (Primary Coil)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
50	1100	4.0	4.8	30813	38575	46377	54212	62073	69954	77850	85757	93672	101590
		5.0	7.3	32524	40716	48948	57211	65499	73807	82129	90463	98804	107149
		6.0	10.2	33725	42217	50745	59303	67884	76483	85097	93721	102353	110989
		7.0	13.6	34611	43321	52065	60836	69630	78440	87264	96097	104938	113784

CFFWA4P-12-01-U HOT WATER CAPACITIES (Primary Coil)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
60	1100	4.0	4.8	23231	30969	38750	46565	54408	62274	70156	78051	85954	93863
		5.0	7.3	24498	32667	40877	49121	57391	65683	73992	82313	90643	98978
		6.0	10.2	25388	33857	42364	50903	59467	68051	76651	85264	93885	102512
		7.0	13.5	26045	34733	43456	52209	60986	69782	78593	87416	96246	105083

CFFWA4P-12-01-U HOT WATER CAPACITIES (Primary Coil)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
70	1100	4.0	4.8	15627	23343	31103	38900	46727	54577	62446	70329	78222	86121
		5.0	7.2	16456	24602	32791	41015	49269	57546	65840	74149	82468	90795
		6.0	10.2	17038	25483	33970	42490	51038	59607	68194	76795	85405	94023
		7.0	13.5	17467	26132	34836	43572	52333	61115	69913	78724	87544	96372

CFFWA4P-12-01-U HOT WATER CAPACITIES (Primary Coil)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
80	1100	4.0	4.8	8003	15698	23439	31219	39031	46867	54723	62595	70478	78369
		5.0	7.2	8397	16522	24691	32898	41136	49398	57680	65977	74286	82604
		6.0	10.1	8674	17099	25566	34069	42600	51156	59730	68319	76920	85529
		7.0	13.5	8879	17523	26208	34927	43673	52441	61227	70027	78838	87657

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

CFFWA4P-12-01-U HOT WATER CAPACITY (Primary Coil)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	4.0	54913
	5.0	57936
	6.0	60039
	7.0	61579

CFFWA4P-12-1-U Chilled Water Performance Data

CFFWA4P-12-01-U COOLING CAPACITIES (Secondary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1100*	42	4.0	TC	13176
			SC	11777
			WPD	2.7
		5.0	TC	15059
			SC	12668
			WPD	4.2
		6.0	TC	16572
			SC	13366
			WPD	5.9
		7.0	TC	17799
			SC	13926
			WPD	7.9

***High Speed**

CFFWA4P-12-01-U COOLING CAPACITIES (Secondary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1100*	45	4.0	TC	11816
			SC	10901
			WPD	2.7
		5.0	TC	13270
			SC	12009
			WPD	4.2
		6.0	TC	14634
			SC	12642
			WPD	5.9
		7.0	TC	15720
			SC	13141
			WPD	7.9

***High Speed**

Recommended minimum flow rate for the secondary coil at ≥ 2 fps is 3.5 gpm

Recommended maximum flow rate for the secondary coil at ≤ 6 fps is 9.75 gpm

CFFWA4P-12-1-U Hot Water Performance Data

This heating performance data is at dry bulb temperature indicated / wet bulb temperature not considered

CFFWA4P-12-01-U HOT WATER CAPACITIES (Secondary Coil)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	**100°**	**110°**	**120°**	**130°**	**140°**	**150°**	**160°**	**170°**	**180°**
50	1100	4.0	2.6	16434	20528	24666	28841	33045	37275	41525	45793	50073	54365
		5.0	4.0	17199	21478	25798	30151	34532	38936	43358	47795	52245	56705
		6.0	5.6	17760	22174	26624	31105	35612	40139	44684	49242	53812	58390
		7.0	7.5	18191	22706	27255	31833	36434	41054	45690	50339	54998	59665

CFFWA4P-12-01-U HOT WATER CAPACITIES (Secondary Coil)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	**100°**	**110°**	**120°**	**130°**	**140°**	**150°**	**160°**	**170°**	**180°**
60	1100	4.0	2.6	12510	16577	20690	24842	29026	33236	37469	41721	45987	50266
		5.0	4.0	13076	17329	21625	25957	30318	34704	39110	43533	47969	52417
		6.0	5.6	13491	17880	22308	26769	31257	35768	40297	44842	49399	53967
		7.0	7.5	13810	18302	22830	27388	31972	36577	41199	45835	50482	55139

CFFWA4P-12-01-U HOT WATER CAPACITIES (Secondary Coil)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	**100°**	**110°**	**120°**	**130°**	**140°**	**150°**	**160°**	**170°**	**180°**
70	1100	4.0	2.6	8574	12614	16703	20833	24997	29189	33405	37641	41894	46160
		5.0	3.9	8943	13171	17444	21755	26097	30465	34856	39264	43688	48124
		6.0	5.6	9214	13579	17985	22426	26897	31391	35906	40437	44982	49539
		7.0	7.5	9423	13891	18399	22939	27506	32095	36703	41327	45963	50609

CFFWA4P-12-01-U HOT WATER CAPACITIES (Secondary Coil)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	**100°**	**110°**	**120°**	**130°**	**140°**	**150°**	**160°**	**170°**	**180°**
80	1100	4.0	2.6	4626	8641	12707	16815	20959	25134	29334	33556	37795	42049
		5.0	3.9	4801	9005	13255	17546	21869	26221	30596	34991	39402	43826
		6.0	5.6	4930	9271	13656	18078	22531	27010	31510	36028	40562	45107
		7.0	7.5	5029	9475	13963	18484	23035	27609	32204	36815	41441	46077

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

CFFWA4P-12-01-U HOT WATER CAPACITY (Secondary Coil)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	4.0	29276
	5.0	30561
	6.0	31494
	7.0	32203

CFFWA4P-12-1-U Chilled Water Performance Data

CFFWA4P-12-01-U COOLING CAPACITIES (Both Coils)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1100*	42	8.0	TC	41491
			SC	29357
			WPD	6.4
		10.0	TC	45688
			SC	31189
			WPD	9.8
		12.0	TC	48510
			SC	32461
			WPD	13.9
		14.0	TC	51157
			SC	33730
			WPD	18.7

***High Speed**

CFFWA4P-12-01-U COOLING CAPACITIES (Both Coils)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1100*	45	8.0	TC	36982
			SC	27546
			WPD	6.4
		10.0	TC	40646
			SC	29133
			WPD	9.8
		12.0	TC	43470
			SC	30344
			WPD	13.8
		14.0	TC	45470
			SC	31227
			WPD	18.6

***High Speed**

Pressure independent flow control required on both coils to not exceed max flow for each coil
Consult primary coil and secondary coil data for proper sizing

Recommended minimum flow rate for both coils piped in parallel at ≥ 2fps is 6.75 gpm

Recommended minimum flow rate for both coils piped in parallel at ≤ 6fps is 19.5 gpm

CFFWA4P-12-1-U Hot Water Performance Data

This heating performance data is at dry bulb temperature indicated / wet bulb temperature not considered

CFFWA4P-12-01-U HOT WATER CAPACITIES (Both Coils)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
50	1100	8.0	6.1	38501	48265	58080	67938	77830	87750	97693	107654	117628	127614
		10.0	9.3	39604	49626	59692	69794	79926	90082	100257	110448	120650	130863
		12.0	13.2	40326	50513	60738	70994	81277	91580	101899	112233	122576	132928
		14.0	17.8	40838	51139	61474	71838	82224	92628	103047	113478	123918	134365

CFFWA4P-12-01-U HOT WATER CAPACITIES (Both Coils)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
60	1100	8.0	6.1	28949	38680	48465	58295	68163	78061	87983	97926	107884	117855
		10.0	9.3	29764	39756	49795	59873	69984	80120	90278	100453	110641	120841
		12.0	13.2	30298	40458	50659	60894	71158	81444	91748	102067	112399	122740
		14.0	17.7	30677	40954	51268	61612	71981	82370	92776	103194	113623	124061

CFFWA4P-12-01-U HOT WATER CAPACITIES (Both Coils)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
70	1100	8.0	6.1	19380	29078	38833	48637	58480	68356	78259	88184	98126	108083
		10.0	9.3	19911	29874	39886	49941	60029	70146	80287	90446	100620	110807
		12.0	13.2	20260	30393	40570	50784	61028	71297	81586	91892	102210	112540
		14.0	17.7	20507	30760	41052	51378	61729	72103	82494	92901	103319	113746

CFFWA4P-12-01-U HOT WATER CAPACITIES (Both Coils)												
ENTERING AIR (°F)	NOMINAL CFM	GPM	WPD	ENTERING WATER TEMPERATURE (°F)								
				90°	100°	110°	120°	130°	140°	150°	160°	170°	180°
80	1100	8.0	6.1	9796	19462	29190	38968	48788	58643	68527	78465	88362	98304
		10.0	9.3	10048	19982	29969	40001	50069	60167	70290	80434	90595	100769
		12.0	13.2	10214	20321	30476	40669	50894	61146	71420	81712	92019	102338
		14.0	17.7	10331	20561	30833	41139	51474	61833	72211	82605	93012	103430

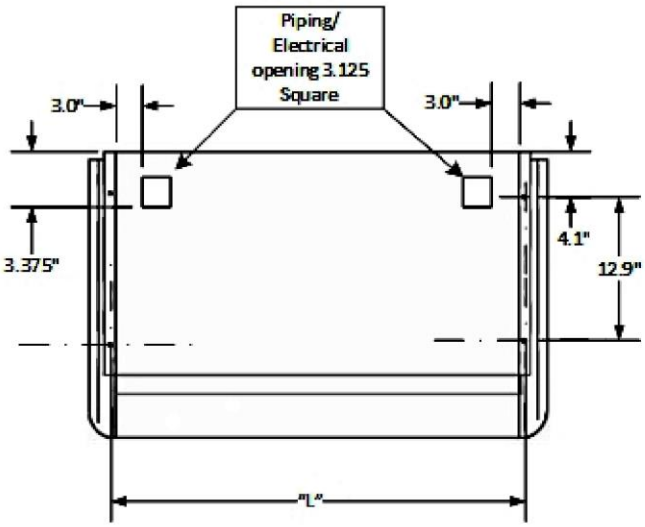
Heating at ANSI/AHRI 440 with addendum 1, 6.3.2 Table 1 as follows:

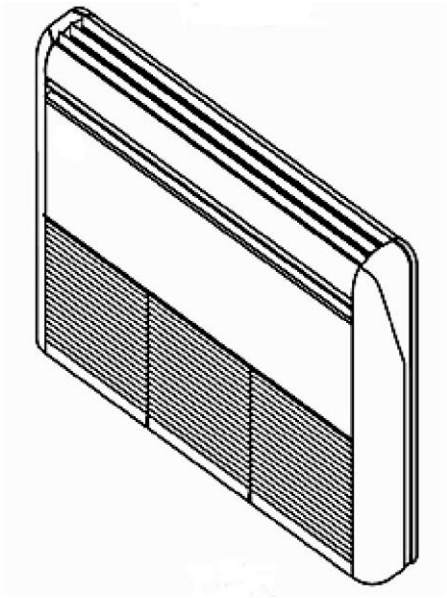
CFFWA4P-12-01-U HOT WATER CAPACITY (Both Coils)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	8.0	68960
	10.0	70808
	12.0	71999
	14.0	72834

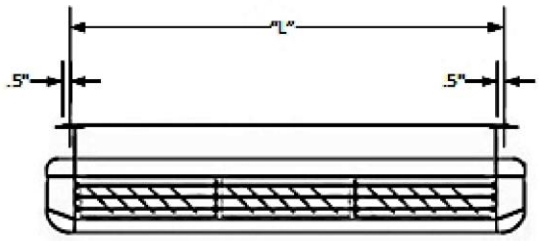
CFFWA4P-12-01-U CFM Data

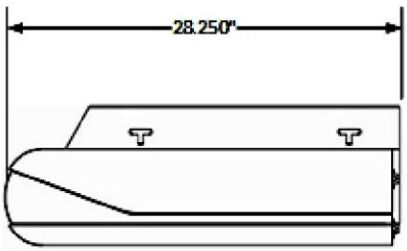
MODEL #	CFFWA4P-12-01-U
Fan Speed	CFM
L	925
M	975
H	1100
Wattage @ High Speed	292

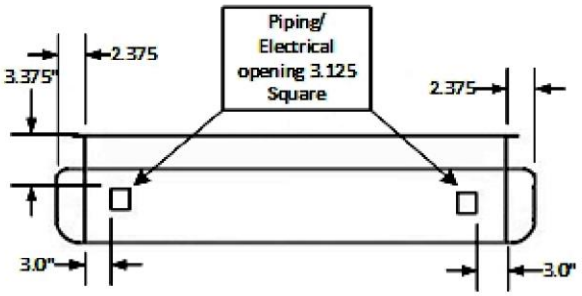
CFFWA4P-12-01-U Dimensional Drawing











Model	"L" Dimension
CFFWA4P-04	48.3
CFFWA4P-06	48.3
CFFWA4P-08	60.1
CFFWA4P-12	71.9
CFFWA4P-16	83.7
CFFWA4P-20	83.7