



## **CFFWA4P-20-1-U Chilled/Hot Water Universal Mount Fan Coil (4-Pipe)**

**4-Pipe Heat / Cool Fan Coil 60,000 BTUH**

# HVAC Guide Specifications

Chilled and Hot Water Universal Mount Fan Coil

4-Pipe Nominal Size:

**60,000 BTUH**

MultiAqua Model Number:

**CFFWA4P-20-1-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. Coils shall be factory tested to 350 psig.
  - 3. Maximum inlet water temperature 180° 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. 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.

**5.02 Measurements**

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

## CFFWA4P-20-1-U Product Specifications

<b>Physical Data</b>									
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-20-1-U	28.3	88.5	11.3	167.6	3-14	.875	1/14	.875	1" tube

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

<b>Electrical Data</b>						
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-20-1-U	1644	208/230-1-50/60	(2)182	2.7	3.4	6.0

# CFFWA4P-20-1-U Chilled Water Performance Data

CFFWA4P-20-01-U COOLING CAPACITIES (Primary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1644*	42	6.75	TC	48336
			SC	35680
			WPD	14.7
		7.75	TC	51477
			SC	37253
			WPD	19.0
		8.75	TC	54119
			SC	38402
			WPD	23.7
		9.75	TC	59117
			SC	39399
			WPD	29.0

**\*High Speed**

CFFWA4P-20-01-U COOLING CAPACITIES (Primary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1644*	45	6.75	TC	43235
			SC	33742
			WPD	14.6
		7.75	TC	45580
			SC	34975
			WPD	18.9
		8.75	TC	47970
			SC	35947
			WPD	23.6
		9.75	TC	49718
			SC	36875
			WPD	28.8

**\*High Speed**

Recommended minimum flow rate for the primary coil at  $\geq 2$  fps is 3.5 gpm

Recommended maximum flow rate for the primary coil at  $\leq 6$  fps is 9.75 gpm

# CFFWA4P-20-1-U Hot Water Performance Data

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

CFFWA4P-20-01-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	1644	6.75	13.6	47067	58813	70605	82434	94292	106172	118068	129976	141889	153806
		7.75	17.5	48431	60523	72660	84833	97033	109255	121493	133742	145998	158257
		8.75	21.9	49513	61877	74285	86726	99195	111684	124189	136705	149227	161754
		9.75	26.6	50390	62974	75599	88257	100940	113644	126362	139091	151827	164567

CFFWA4P-20-01-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	1644	6.75	13.5	35523	47241	59007	70813	82650	94512	106392	118284	130186	142091
		7.75	17.4	36531	48595	60706	72856	85036	97239	109461	121695	133939	146187
		8.75	21.8	37331	49667	62049	74468	86917	99388	111877	124379	136889	149405
		9.75	26.6	37979	50535	63136	75772	88436	101122	113825	126540	139264	151994

CFFWA4P-20-01-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	1644	6.75	13.5	23958	35648	47390	59174	70992	82836	94700	106580	118469	130364
		7.75	17.4	24613	36650	48736	60684	73024	85210	97416	109637	121869	134107
		8.75	21.7	25132	37442	49800	62198	74627	87081	99555	112043	124541	137047
		9.75	26.5	25553	38084	50661	63276	75921	88590	101278	113980	126693	139413

CFFWA4P-20-01-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	1644	6.75	13.4	12373	24038	35757	47520	59319	71147	82997	94863	106742	118628
		7.75	17.3	12678	24689	36752	48859	61000	73170	85362	97570	109790	122019
		8.75	21.6	12920	25204	37539	49916	62326	74764	87223	99699	112187	124683
		9.75	26.4	13116	25621	38175	50770	63397	76050	88724	101414	114116	126826

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

CFFWA4P-20-01-U HOT WATER CAPACITY (Primary Coil)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	6.75	83353
	7.75	85770
	8.75	87677
	9.75	89217

# CFFWA4P-20-1-U Chilled Water Performance Data

CFFWA4P-20-01-U COOLING CAPACITIES (Secondary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1644*	42	6.0	TC	20511
			SC	17170
			WPD	5.6
		7.0	TC	22329
			SC	18044
			WPD	7.5
		8.0	TC	23843
			SC	18763
			WPD	9.6
		9.0	TC	24896
			SC	19278
			WPD	12.0

**\*High Speed**

CFFWA4P-20-01-U COOLING CAPACITIES (Secondary Coil)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1644*	45	6.0	TC	18194
			SC	16316
			WPD	5.6
		7.0	TC	19429
			SC	16965
			WPD	7.5
		8.0	TC	20909
			SC	17660
			WPD	9.6
		9.0	TC	21790
			SC	18104
			WPD	12.0

**\*High Speed**

Recommended minimum flow rate for the secondary coil at  $\geq 2$  fps is 3.5 gpm

Recommended maximum flow rate for the secondary coil at  $\leq 6$  fps is 9.75 gpm

# CFFWA4P-20-1-U Hot Water Performance Data

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

CFFWA4P-20-01-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	1644	6.0	5.3	24536	30478	36472	42507	48577	54676	60797	66937	73093	79260
		7.0	7.0	25218	31328	37485	43682	49911	56166	62443	68737	75045	81364
		8.0	9.0	25763	32004	38291	44614	50967	57345	63744	70158	76585	83023
		9.0	11.3	26208	32556	38947	45372	51826	58303	64799	71310	77833	84366

CFFWA4P-20-01-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	1644	6.0	5.2	18791	24701	30665	36673	42719	48795	54896	61018	67157	73309
		7.0	7.0	19295	25373	31502	37672	43878	50112	56370	62646	68939	75244
		8.0	9.0	19696	25908	32167	38465	44796	51154	57534	63932	70345	76769
		9.0	11.3	20025	26344	32709	39110	45543	52001	58480	64975	71484	78005

CFFWA4P-20-01-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	1644	6.0	5.2	13033	18911	24847	30829	36851	42905	48987	55092	61214	67352
		7.0	7.0	13359	19407	25508	31654	37837	44050	50290	56550	62827	69118
		8.0	9.0	13620	19802	26034	32309	38618	44957	51319	57702	64100	70511
		9.0	11.2	13833	20124	26463	32842	39254	45693	52155	58636	65131	71639

CFFWA4P-20-01-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	1644	6.0	5.2	7262	13110	19018	24975	30974	37008	43071	49158	55265	55265
		7.0	7.0	7413	13432	19506	25628	31789	37982	44204	50447	56710	56710
		8.0	9.0	7535	13688	19895	26146	32435	38754	45099	51466	57850	57850
		9.0	11.2	7634	13897	20212	26568	32960	39381	45827	52292	58775	58775

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

CFFWA4P-20-01-U HOT WATER CAPACITY (Secondary Coil)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	6.0	43026
	7.0	44179
	8.0	45091
	9.0	45833



# CFFWA4P-20-1-U Chilled Water Performance Data

CFFWA4P-20-01-U COOLING CAPACITIES (Both Coils)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1644*	42	12.8	TC	65967
			SC	45194
			WPD	12.9
		14.8	TC	69311
			SC	46728
			WPD	17.0
		16.8	TC	72561
			SC	48261
			WPD	21.6
		18.8	TC	74376
			SC	49173
			WPD	26.7

**\*High Speed**

CFFWA4P-20-01-U COOLING CAPACITIES (Both Coils)				
CFM	EWT (°F)	GPM	ENTERING AIR TEMPERATURE (F)	
				80° D.B. / 67° W.B.
1644*	45	12.8	TC	58610
			SC	42218
			WPD	12.8
		14.8	TC	61562
			SC	43559
			WPD	16.9
		16.8	TC	64151
			SC	44657
			WPD	21.5
		18.8	TC	65786
			SC	45408
			WPD	26.6

**\*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  $\geq$  2fps is 6.75 gpm**

**Recommended minimum flow rate for both coils piped in parallel at  $\leq$  6fps is 19.5 gpm**

# CFFWA4P-20-1-U Hot Water Performance Data

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

## CFFWA4P-20-01-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	1644	12.8	12.1	57496	71977	86516	101103	115730	130388	145070	159773	174490	189218
		14.8	15.9	58440	73144	87903	102705	117543	132409	147297	162204	177124	192055
		16.8	20.2	59146	74017	88936	103896	118887	133904	148942	163996	179063	194140
		18.8	25.0	59699	74698	89742	104823	119933	135067	150219	165387	180566	195754

## CFFWA4P-20-01-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	1644	12.8	12.1	43257	57698	72201	86757	101354	115986	130646	145327	160026	174738
		14.8	15.9	43953	58620	73346	88119	102930	117772	132639	147527	162430	177346
		16.8	20.2	44474	59310	74199	89131	104098	119094	134112	149149	164200	179263
		18.8	25.0	44882	59849	74865	89920	105007	120121	135256	150407	165572	180747

## CFFWA4P-20-01-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	1644	12.8	12.1	29001	43403	57872	72396	86966	101573	116209	130871	145551	160247
		14.8	15.9	29451	44084	58777	73521	88306	103125	117971	132840	147727	162627
		16.8	20.2	29789	44593	59452	74357	89300	104274	119273	134293	149328	164377
		18.8	24.9	30054	44990	59978	75009	90074	105168	120284	135420	150570	165733

## CFFWA4P-20-01-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	1644	12.8	12.0	14729	29094	43530	58025	72567	87150	101765	116406	131069	145749
		14.8	15.8	14938	29536	44198	58914	73674	88471	103297	118148	133018	147904
		16.8	20.1	15095	29866	44696	59576	74496	89449	104429	119432	134453	149488
		18.8	24.9	15218	30124	45085	60092	75135	90210	105309	120429	135566	150716

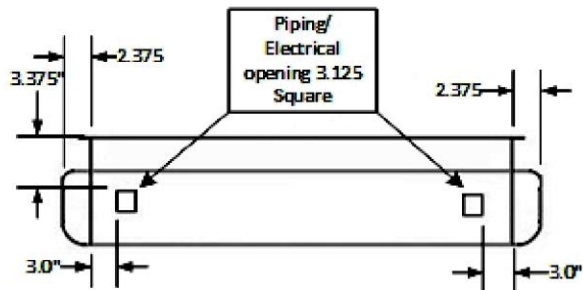
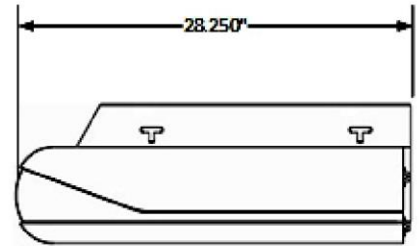
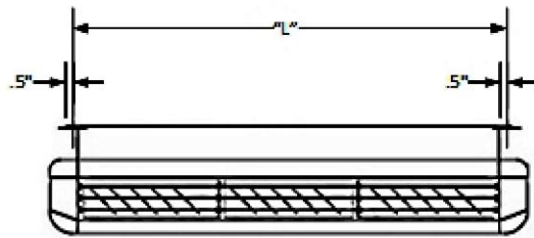
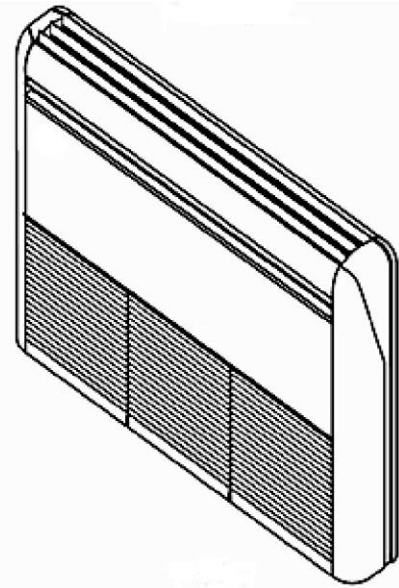
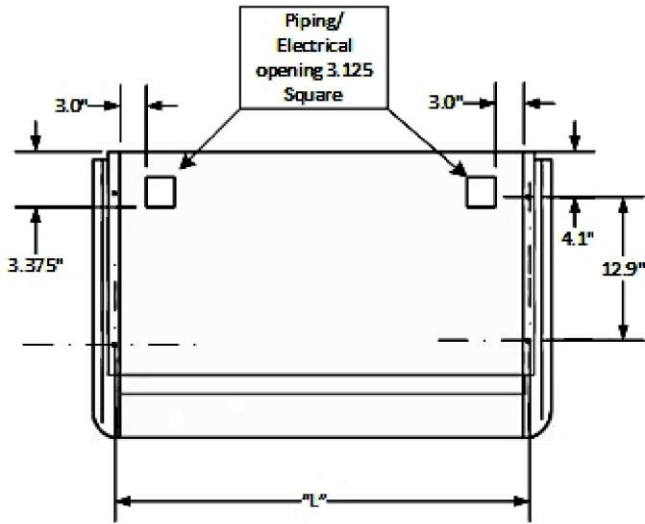
Heating at ANSI/AHRI 440 with addendum 1, 6.3.2 Table 1 as follows:

CFFWA4P-20-01-U HOT WATER CAPACITY (Both Coils)		
ENTERING AIR TEMPERATURE	GPM	ENTERING WATER TEMPERATURE 140F
70F DB / 60F WB	12.8	102450
	14.8	104052
	16.8	105239
	18.8	106163

## CFFWA4P-20-01-U CFM Data

MODEL #	CFFWA4P-20-01-U
Fan Speed	CFM
L	1100
M	1300
H	1644
Wattage @ High Speed	640

# CFFWA4P-20-01-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

These specifications are subject to change without notice.  
Check [www.multiaqua.com](http://www.multiaqua.com) for the latest information.