

## Vertical High Performance Fan Coil Unit (Model FCC)

*Model FCC Vertical High Performance fan coil units are designed to maximize flexibility of selection and installation.*

*The units are designed to exceed the stringent quality standards of the institutional market, while remaining cost competitive in the light commercial segment of the market.*



**Figure 1: Model FCC Vertical High Performance Fan Coil Unit**

## Physical Data

**Table 1: ARI Standard Ratings**

Unit Size	ARI 440 Certified	Coil		Airflow CFM (Dry Flow)	Cooling Capacity		Water		Power Input (Watts)
		Rows	FPI		QT (BTUH)	QS (BTUH)	Flow Rate GPM	WPD ft. wg	
04	•	4	10	400	13.6	9.4	2.7	3.2	250
06	•	4	10	600	18.0	12.9	3.6	3.6	275
08	•	4	10	800	24.3	17.2	4.9	4.8	425
10	•	4	10	1000	33.6	23.0	6.7	5.8	450
12	•	4	10	1200	40.4	27.5	8.1	8.2	850
16		4	10	1600	57.6	38.4	11.5	9.8	850
20		4	10	2000	66.4	45.7	13.3	4.3	900

**Note:** Based on 80°F Dry Bulb (DB) and 67°F Wet Bulb (WB) Entering Air Temperature (EAT), 45°F Entering Water Temperature (EWT), 10°F temperature rise, high fan speed. Motor type is Permanent Split Capacitor (PSC) and motor voltage is 115/1/60. Airflow under dry coil conditions. All models tested at 0.05" external static pressure.

Airflow rate Cubic Feet per Minute (CFM) on sizes 16 and 20 exceed minimum ratings in Air Conditioning and Refrigeration Institute (ARI) 440 and are not certified.

**Table 2: Heating Capacity**

Unit Size	Nominal CFM	1 Row			2 Row		
		QS (MBH)	GPM	WPD	QS (MBH)	GPM	WPD
04	400	12.5	1.3	1.5	21.2	2.2	1.5
06	600	14.9	1.5	2.1	26.4	2.7	2.2
08	800	20.5	2.1	4.9	36.3	3.7	4.9
10	1000	30.7	3.2	2.9	52.9	5.4	4.3
12	1200	33.5	3.4	3.4	58.5	6.0	5.2
16	1600	50.4	5.2	4.4	89.0	9.1	12.3
20	2000	56.0	5.7	5.4	100.9	10.3	15.7

**Note:** Based on 70°F EAT, 180°F EWT, 20°F temperature drop, high fan speed.

**Table 3: Unit Weight Data**

Component	Unit Size							
	04	06	08	10	12	16	20	
Base Unit	81 (37)	81 (37)	103 (47)	103 (47)	106 (48)	128 (58)	134 (61)	
Mixing Box	24 (11)	24 (11)	24 (11)	37 (17)	37 (17)	54 (24)	54 (24)	
Discharge Plenum	21 (10)	21 (10)	21 (10)	33 (15)	33 (15)	48 (22)	48 (22)	
Return Plenum	17 (8)	17 (8)	17 (8)	25 (11)	25 (11)	33 (15)	33 (15)	
Coil Rows	1 Row - Dry	7 (3)	7 (3)	8 (4)	11 (5)	11 (5)	16 (7)	16 (7)
	1 Row - Wet	8 (4)	8 (4)	9 (4)	14 (6)	14 (6)	19 (9)	19 (9)
	2 Row - Dry	10 (5)	10 (5)	12 (5)	17 (8)	17 (8)	25 (11)	25 (11)
	2 Row - Wet	12 (5)	12 (5)	14 (6)	21 (10)	21 (10)	31 (14)	31 (14)
	3 Row - Dry	16 (7)	19 (9)	21 (10)	27 (12)	29 (13)	38 (17)	46 (21)
	3 Row - Wet	20 (9)	23 (10)	26 (12)	35 (16)	38 (17)	49 (22)	60 (27)
	4 Row - Dry	20 (9)	23 (10)	26 (12)	34 (15)	37 (17)	49 (22)	59 (27)
	4 Row - Wet	25 (11)	29 (13)	34 (15)	44 (20)	48 (22)	64 (29)	77 (35)

**Note:** Unit weight data is shipping weight in pounds (kilograms).

## Fan Performance Curves

Fan curves on the following pages depict actual performance of each motor tap without any additional fan balance adjustment. Actual capacities that fall below each curve can be obtained by adding an adjustment device. Do not run units prior to installation of downstream ductwork; otherwise, damage to the motor may result. The minimum External Static Pressure (ESP) required is 0.1 in. wg.

FCC fan coil units are equipped with PSC motors with three separate speeds (High, Medium, and Low) that provide variable horsepower outputs. Most often, size selections are conservative, and actual CFM requirements and/or external static pressure requirements are lower than those specified. In this case, you can run the unit fan motor at low or medium tap, substantially reducing the operating cost of the unit.

All fan curves are for 115/1/60 motors and include losses for the cabinet, electric heater, 3- or 4-row coil, and clean 1" throwaway filter. For other configurations, adjust performance curves based on pressure losses for individual components indicated in the *Coils* section in the *Vertical High Performance Fan Coil Unit (Model FCC) Product Bulletin (LIT-12011005)*.

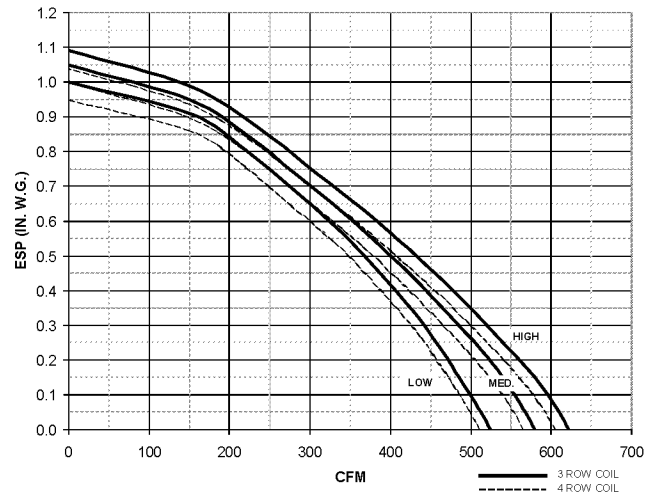


Figure 2: Model FCC 3- and 4-Row Coils Size 04

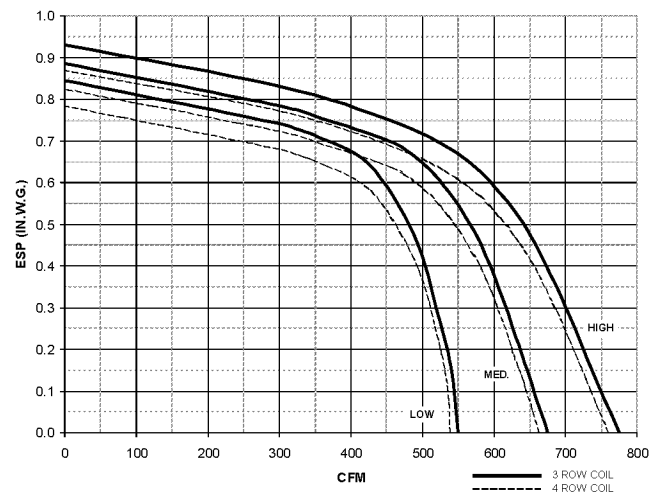
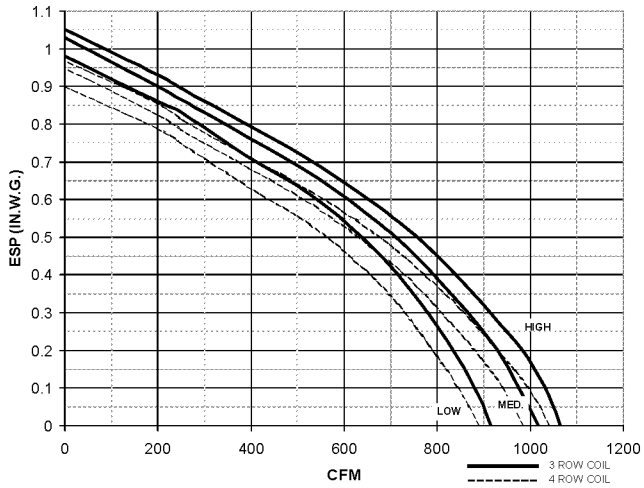
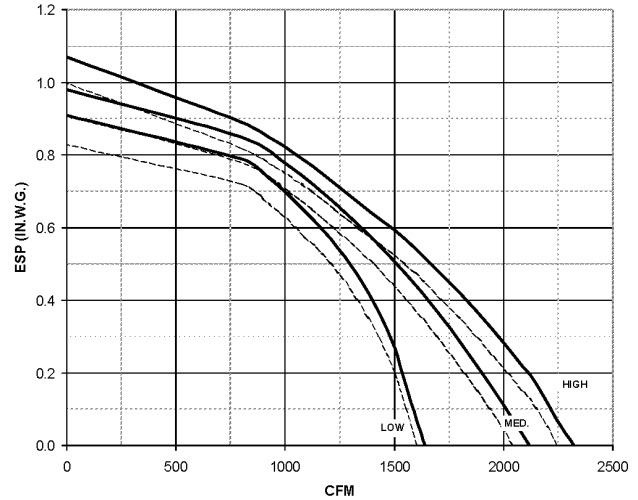


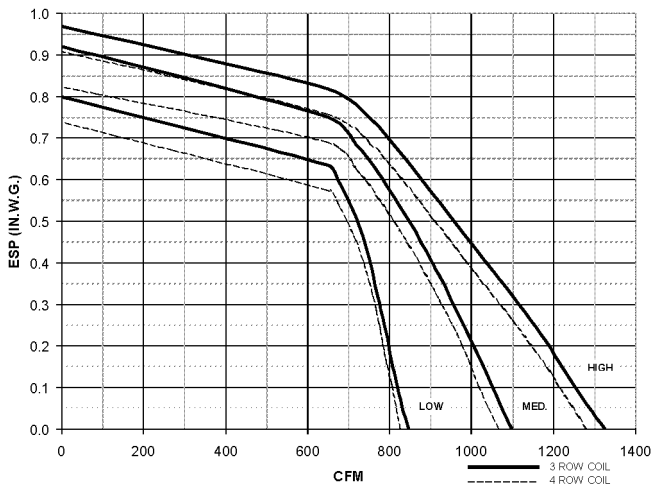
Figure 3: Model FCC 3- and 4-Row Coils Size 06



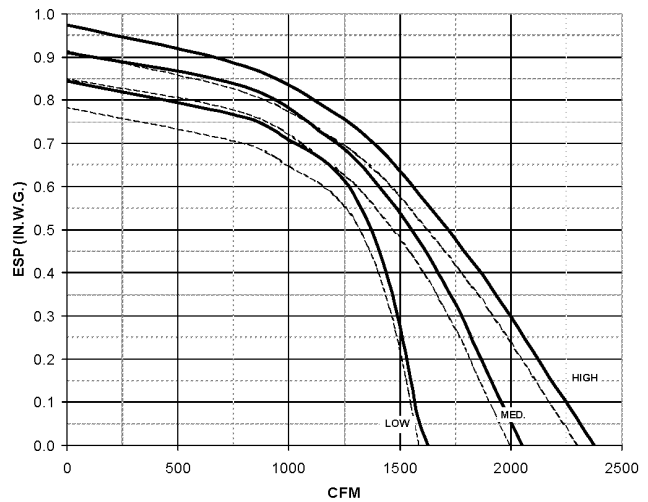
**Figure 4: Model FCC 3- and 4-Row Coils Size 08**



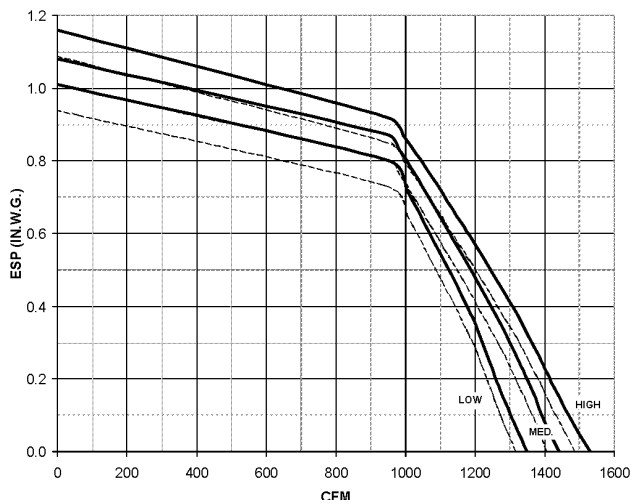
**Figure 7: Model FCC 3- and 4-Row Coils Size 16**



**Figure 5: Model FCC 3- and 4-Row Coils Size 10**



**Figure 8: Model FCC 3- and 4-Row Coils Size 20**



**Figure 6: Model FCC 3- and 4-Row Coils Size 12**

## Motor, Fan, and Sound Data

Table 4: Motor and Fan Data

Unit Size	Motor Tap	Motor (Quantity) hp	Fan #	Amperes			
				115V	208V	230V	277V
04	High	(1) 1/6	1	2.6	1.2	1.0	0.9
	Medium	(1) 1/8		2.1	1.0	0.9	0.8
	Low	(1) 1/10		1.8	0.8	0.8	0.7
06	High	(1) 1/6	1	2.6	1.2	1.0	0.9
	Medium	(1) 1/8		2.1	1.0	0.9	0.8
	Low	(1) 1/10		1.8	0.8	0.8	0.7
08	High	(1) 1/4	1	4.9	2.7	2.2	1.9
	Medium	(1) 1/5		4.1	2.1	1.5	1.6
	Low	(1) 1/8		3.2	1.6	1.1	1.3
10	High	(1) 1/4	1	4.9	2.7	2.2	1.9
	Medium	(1) 1/5		4.1	2.1	1.5	1.6
	Low	(1) 1/8		3.2	1.6	1.1	1.3
12	High	(1) 1/2	1	8.8	4.3	4.2	3.6
	Medium	(1) 1/3		7.9	3.9	3.1	3.2
	Low	(1) 1/4		6.9	3.4	1.9	2.7
16	High	(2) 1/4	2	9.8	5.4	4.4	3.8
	Medium	(2) 1/5		8.2	4.2	3.0	3.2
	Low	(2) 1/8		6.4	3.2	2.2	2.6
20	High	(2) 1/4	2	9.8	5.4	4.4	3.8
	Medium	(2) 1/5		8.2	4.2	3.0	3.2
	Low	(2) 1/8		6.4	3.2	2.2	2.6

**Notes:** Motor electrical data is nameplated data. Actual data varies with application.

230 volt motor is nameplated for 208-230/1/60. Use 230 volt motor data for 208 volt applications.

**Table 5: Sound Data**

Unit Size	Fan Speed	CFM	RPM	Total Sound Power Data						
				Octave Band/Center Frequency						
				2/125	3/250	4/500	5/1000	6/2000	7/4000	8/8000
04	High	610	1107	70	62	57	53	51	49	42
	Medium	570	1040	69	61	55	51	49	49	42
	Low	515	949	69	63	58	53	50	49	42
06	High	750	1050	78	71	63	59	57	56	49
	Medium	650	895	73	66	59	55	53	51	47
	Low	540	735	68	61	54	50	48	45	41
08	High	1050	1114	75	70	64	59	57	56	49
	Medium	1000	1023	72	68	62	57	55	54	46
	Low	895	877	69	64	58	53	51	48	40
10	High	1275	1051	74	70	64	64	62	61	53
	Medium	1050	849	70	64	60	59	56	55	47
	Low	825	671	65	58	54	53	50	48	40
12	High	1490	1089	77	72	67	68	68	67	62
	Medium	1420	1035	76	71	66	67	66	65	60
	Low	1320	964	74	69	64	65	64	63	58
16	High	2300	1099	77	71	67	65	64	63	57
	Medium	2030	988	75	69	65	63	61	60	54
	Low	1600	785	71	63	59	57	55	54	46
20	High	2290	1088	77	73	68	66	64	64	58
	Medium	1970	941	76	69	65	63	61	60	54
	Low	1590	769	71	64	60	57	56	53	46

**Notes:** Sound data tested in accordance with ARI 350-86.

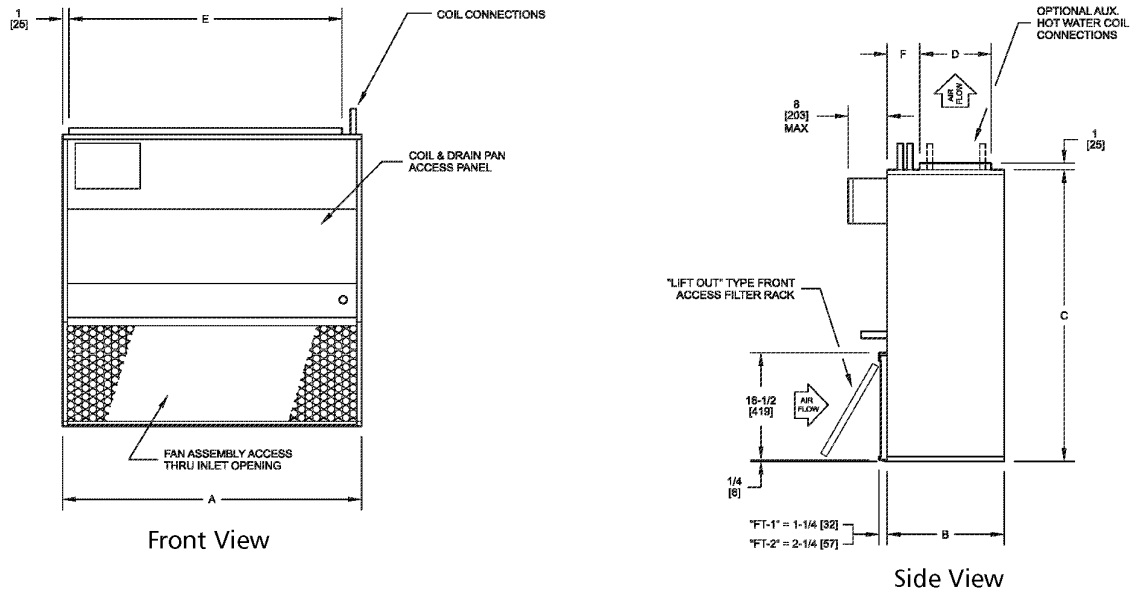
Sound levels are expressed in decibels, dB RE:  $1 \times 10^{-12}$  watts.

Total sound power level data is based on fan CFM at corresponding motor tap with 115/1/60 volt motor, 0.0" external static pressure, and standard rated internal pressure losses.

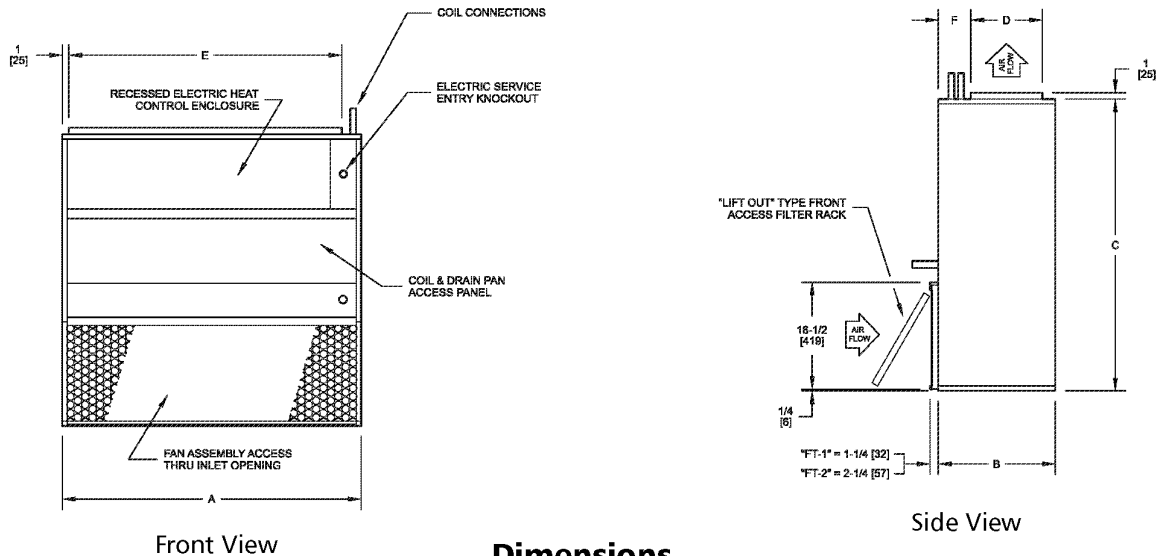
## Dimensional Data

Drawings are not to scale and are not for installation purposes.

### Without Electric Heat



### With Electric Heat



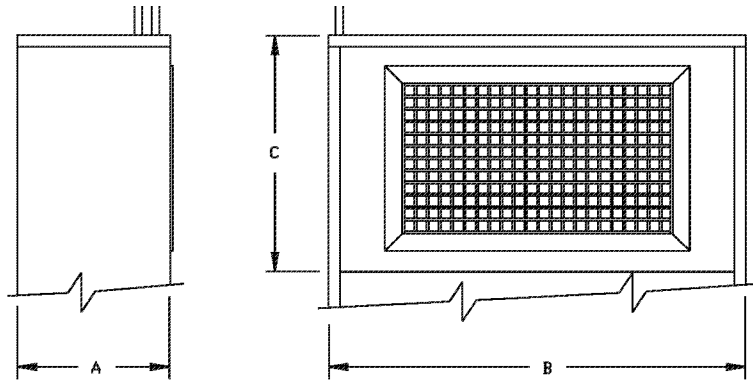
### Dimensions

UNIT SIZE	A	B	C	D	E	F
04-08	22 [559]	15 [381]	48 [1219]	8 [203]	18 [457]	4 [102]
10-12	29 [737]	18 [457]	48 [1219]	12 [305]	25 [635]	4 [102]
16-20	46 [1168]	18 [457]	48 [1219]	12 [305]	40 [1016]	5 [127]

#### NOTES:

1. All dimensions are inches [millimeters] +/- 1/4" [6mm]. Metric values are soft conversion.
2. Front access only is required for installation and service.
3. Right hand unit shown, left hand unit opposite.

Figure 9: Model FCC – Vertical Unit

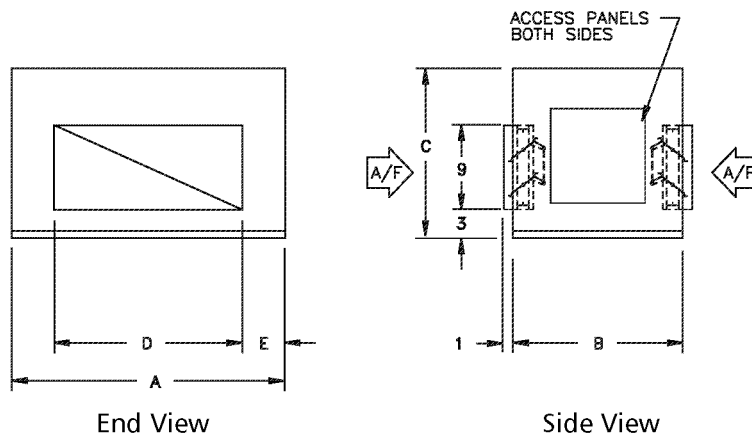


UNIT SIZE	A	B	C	SUPPLY GRILLE W x H
04-08	15" [381]	22" [559]	15" [381]	18" x 8" [457 x 203]
10-12	18" [457]	29" [737]	18" [457]	24" x 12" [610 x 305]
16-20	18" [457]	46" [1168]	18" [457]	40" x 12" [1016 x 305]

**NOTES:**

1. All dimensions are inches [millimeters] +/- 1/4" [6mm]. Metric values are soft conversion.
2. C-dimension adds to basic unit height.

**Figure 10: Discharge Plenum with Double Deflection Grille**



UNIT SIZE	A	B	C	D	E
04-08	22" [559]	15" [381]	15" [381]	15" [381]	3 1/2" [89]
10-12	29" [737]	18" [457]	18" [457]	20" [508]	4 1/2" [114]
16-20	46" [1168]	18" [457]	18" [457]	36" [914]	5" [127]

**NOTES:**

1. All dimensions are inches [millimeters] +/- 1/4" [6mm]. Metric values are soft conversion.
2. Return air plenum (one inlet, no dampers) is available in lieu of mixing box section.
3. C-dimension adds to basic unit height.
4. Linkage and actuator for damper control shall be provided/installed by others.

**Figure 11: Mixing Box Section**





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