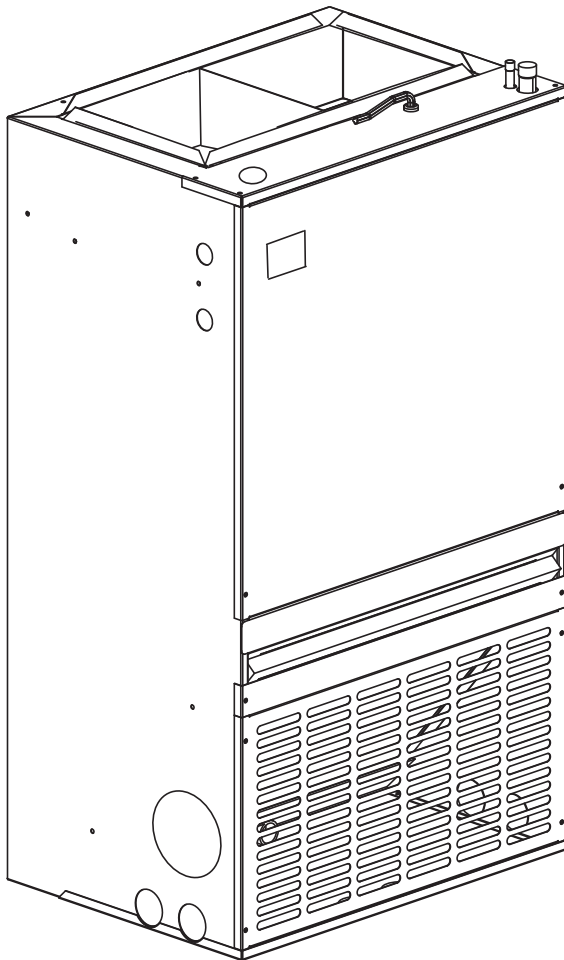


**FFMA**  
**Base Series Fan Coil**  
**Sizes 018 thru 036**



## Product Data



### FEATURES

The FFMA Series Fan Coil unit is primarily designed for apartment applications as an upflow only indoor fan coil for split-system heat pumps for use with either Puron<sup>®</sup> refrigerant or R-22 refrigerant. Accessory field-installed electric heat kits are available in 5, 7.5 or 10 kW sizes. The fan coil comes configured for Puron refrigerant. However, it can be used for R-22 applications with the addition of an R-22 TXV kit.

This fan coil may be installed in a frame mount or wall hung applications. The cabinet sizes allow units to fit between standard stud spacings. No return-air ductwork is required if the application provides for return air in the front of the cabinet through either a louvered closet door or optional louvered wall panel. This unit comes standard with a return air grille panel and is field convertible to bottom return without the need for an additional accessory kit.

The cabinet exterior is made of galvanized sheet metal. The cabinet is fully insulated to meet applications in conditioned space. This unit is not approved for installation in unconditioned spaces.

PSC blower motors have been selected to provide the proper air handling for both heating and cooling. Motors are suspended at three points on rubber grommets for quieter operation.

Refrigerant lines and thermostat low voltage connections are made through the top while the high voltage connections are made from either the right, left or top side of the fan coil. Sweat-type refrigerant connections on both liquid and vapor lines make for swift, low-cost installation. All service access to the unit is conveniently located in the front.

Primary and secondary drain connections exit from the bottom or either side of the cabinet. Fresh air intake holes measuring 3.4" (35 mm) are located on each side of the unit cabinet and come capped from the factory.

A13033

# MODEL NUMBER NOMENCLATURE

1 2 3 4 5 6 7 8 9 10 11 12  
 F F M A N P 0 1 8 0 0 0

**Product**

F = Fan Coil

**Type**

F = Thru-the-Wall

**Position**

M = Upflow/Apartment

**Series**

A

**Electrical**

N = 208/230v, 1ph-60 Hz

**Refrigerant**

P = Puron® piston (R-410A piston)

**Heating Size**

000 = No Factory-Installed  
 Electric Heat

**Capacity**

018 = 18,000  
 024 = 24,000  
 030 = 30,000  
 036 = 36,000

FFMA



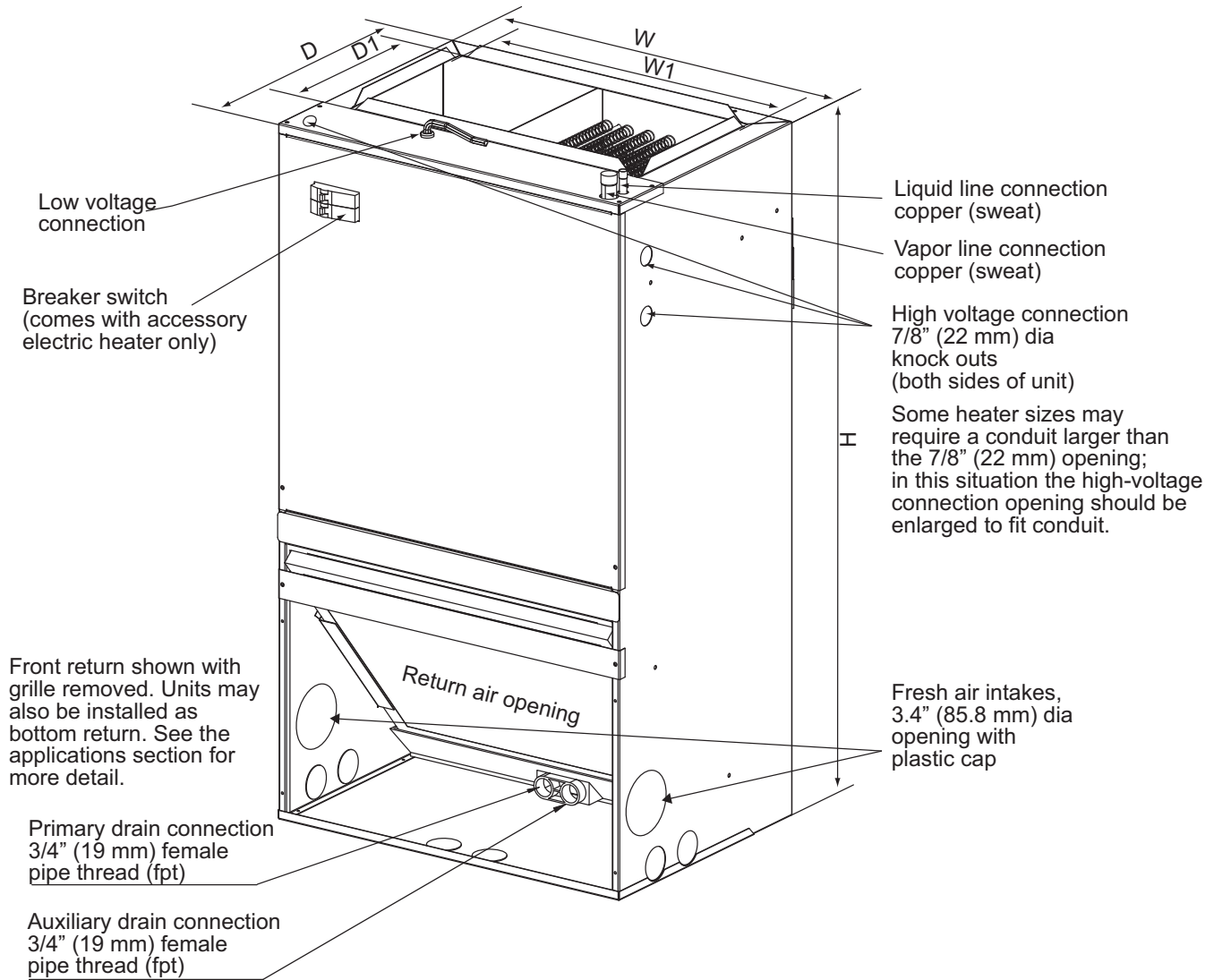
Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to [www.ahridirectory.org](http://www.ahridirectory.org).



ISO 9001  
 QMS-SAI Global



## DIMENSIONS



FFMA

NOTE: Hand tighten only

All units are vertical upflow only.  
Equipment shown with field-installed electric heat.

### DIMENSIONAL DATA

MODEL SIZE	Dimensions inch [mm]					UNIT WEIGHT /SHIPPING WEIGHT (LBS.[kg])
	UNIT HEIGHT "H" IN. [mm]	UNIT WIDTH "W" IN.[mm]	UNIT WIDTH "W1" IN.[mm]	UNIT LENGTH "D" IN.[mm]	UNIT LENGTH "D1" IN.[mm]	
18	36-1/2"[928]	20-1/2"[521]	17--2/5"[442]	15"[381]	9-1/2"[242]	88/99 [40]/[45]
24	36-1/2"[928]	20-1/2"[521]	17--2/5"[442]	15"[381]	9-1/2"[242]	88/99 [40]/[45]
30	39-1/2"[1004]	22"[559]	18--4/5"[478]	19"[483]	9-1/2"[242]	110/121 [50]/[55]
36	39-1/2"[1004]	22"[559]	18--4/5"[478]	19"[483]	9-1/2"[242]	110/121 [50]/[55]

A13161

# SPECIFICATIONS

FFMANPO	Unit Size			
	18	24	30	36
Nominal Cooling Capacity (BTUH)	18,000	24,000	30,000	36,000
<b>COIL</b>				
Puron - Refrigerant metering Device (Piston)*	50 (1.27)	57 (1.45)	70 (1.78)	72 (1.83)
Rows/Fins Per In.	17	17	17	17
Face Area Ft <sup>2</sup>	2.149	2.149	2.955	2.955
Coil Configuration	Slope			
<b>BLOWER &amp; MOTOR</b>				
Air Discharge	Upflow			
Blower Type	Direct Drive			
CFM (Nominal)	600	800	1000	1200
Motor Type	PSC	PSC	PSC	PSC
Motor HP	1/6	1/4	1/3	1/2
Rated RPM	1075	1075	1075	1075
Motor Speeds	3	3	3	3
<b>FILTER</b>				
Field Installed	16x20 (406x508)	16x20 (406x508)	20x20 (508x508)	20x20 (508x508)
<b>CONNECTIONS (Sweat)</b>				
Suction In. (mm)	3/4 In. (19 mm)			
Liquid In. (mm)	3/8 In. (9.5 mm)			
Condensate (FPT) In. (mm)	3/4 In. (19 mm)			
<b>ELECTRICAL DATA</b>				
Voltage	208/230	208/230	208/230	208/230
Hertz	60	60	60	60
Circuit Amps	0.8	1.0	1.28	1.8
Minimum Circuit Ampacity	1	1.3	1.6	2.3
Maximum Circuit Protector	15 (A)	15 (A)	15 (A)	15 (A)

\* The piston included with the fan coil is unique to this product and cannot be replaced with the piston shipped with outdoor unit. Refer to the AHRI ratings to check if your combination can use the piston shipped with the unit or requires an accessory TXV.

## PERFORMANCE DATA

### AIRFLOW PERFORMANCE (CFM)

MODEL SIZE	BLOWER SPEEDS	EXTERNAL STATIC PRESSURE (In. W.C.)							
		0	0.1	0.2	0.3	0.4	0.5	0.6	0.7
18	High	776	733	695	653	610	564	525	464
	Med	661	624	585	546	502	454	415	354
	Low	565	529	487	448	405	353	299	244
24	High	917	881	790	739	687	631	564	482
	Med	819	785	703	654	604	544	480	398
	Low	668	631	551	506	464	403	343	290
30	High	1236	1176	1115	1064	1000	936	861	793
	Med	1113	1065	1014	962	908	842	772	701
	Low	935	894	852	807	755	694	631	561
36	High	1350	1292	1228	1167	1108	1045	981	902
	Med	1266	1198	1139	1088	1029	970	905	831
	Low	1115	1066	1015	966	918	861	801	722

— Shaded boxes represent airflow outside the required 300-450 cfm/ton.

**NOTES:**

- Airflow data includes use with electric heat and standard 1" fiberglass filter, and is measured in standard cfm.
- Airflow data is with no return grill. When using a return grill on 18 & 24 sizes, decrease numbers above by approx. 10 cfm. For 30 & 36 sizes, decrease numbers above by approx. 50 cfm.
- Airflow is equivalent for front or bottom return configurations.

### Required CFM Range

Size	CFM	
	Min	Max
18	450	675
24	600	900
30	750	1125
36	900	1350

## PERFORMANCE DATA (cont.)

### GROSS COOLING CAPACITIES (mbh)

UNIT SIZE	INDOOR COIL AIR		SATURATED TEMPERATURE LEAVING EVAPORATOR °F (°C)														
			35 (2)			40 (4)			45 (7)			50 (10)			55 (13)		
	CFM	EWB	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF	TC	SHC	BF
18	525	72 (22)	38	18	0.00	35	17	0.00	31	15	0.00	27	14	0.00	22	12	0.00
		67 (19)	32	19	0.00	28	18	0.00	25	16	0.00	20	14	0.00	15	12	0.00
		62 (17)	26	20	0.00	22	18	0.00	19	17	0.01	15	15	0.07	13	13	0.21
	600	72 (22)	42	20	0.00	38	18	0.00	34	17	0.00	30	15	0.00	24	13	0.00
		67 (19)	34	21	0.00	31	19	0.00	26	17	0.00	22	16	0.00	17	14	0.01
		62 (17)	28	22	0.01	24	20	0.01	20	19	0.01	17	17	0.08	14	14	0.22
	675	72 (22)	45	21	0.00	41	20	0.00	37	18	0.00	32	16	0.00	26	14	0.00
		67 (19)	37	23	0.01	33	21	0.01	29	19	0.01	24	17	0.01	18	15	0.01
		62 (17)	30	24	0.01	26	22	0.01	22	20	0.01	19	19	0.10	16	16	0.24
24	700	72 (22)	46	22	0.00	43	20	0.00	38	19	0.00	33	17	0.00	27	15	0.00
		67 (19)	38	24	0.01	35	22	0.01	30	20	0.01	25	18	0.01	19	16	0.01
		62 (17)	31	25	0.01	27	24	0.01	23	22	0.02	20	20	0.11	17	17	0.24
	800	72 (22)	50	24	0.00	46	22	0.00	41	20	0.01	36	18	0.01	30	16	0.01
		67 (19)	41	26	0.01	37	24	0.01	32	22	0.01	27	20	0.01	21	18	0.02
		62 (17)	34	28	0.01	30	26	0.01	25	25	0.03	22	22	0.14	19	19	0.26
	900	72 (22)	53	25	0.01	48	24	0.01	44	22	0.01	38	20	0.01	32	17	0.01
		67 (19)	44	28	0.01	39	26	0.01	34	24	0.01	29	22	0.02	22	19	0.02
		62 (17)	36	30	0.02	32	28	0.02	27	27	0.05	24	24	0.16	21	21	0.28
30	875	72 (22)	67	33	0.00	61	30	0.00	54	27	0.00	46	23	0.00	37	20	0.00
		67 (19)	55	34	0.01	49	31	0.01	41	28	0.01	33	24	0.01	23	20	0.01
		62 (17)	44	35	0.01	38	32	0.01	30	28	0.01	24	24	0.07	20	20	0.23
	1000	72 (22)	74	37	0.00	67	33	0.00	59	30	0.00	50	26	0.00	40	22	0.01
		67 (19)	61	38	0.01	54	34	0.01	46	31	0.01	37	27	0.01	25	22	0.01
		62 (17)	49	39	0.01	42	35	0.01	34	31	0.02	27	27	0.08	22	22	0.24
	1100	72 (22)	79	39	0.00	72	36	0.00	63	32	0.01	54	28	0.01	43	24	0.01
		67 (19)	65	41	0.01	57	37	0.01	49	33	0.01	39	29	0.01	28	24	0.02
		62 (17)	52	42	0.02	45	38	0.02	36	34	0.02	29	29	0.09	24	24	0.25
36	1050	72 (22)	73	36	0.00	67	33	0.00	59	29	0.01	51	26	0.01	41	22	0.01
		67 (19)	60	38	0.01	54	34	0.01	46	31	0.01	37	27	0.01	27	23	0.02
		62 (17)	49	39	0.01	42	36	0.01	34	32	0.02	28	28	0.09	23	23	0.24
	1200	72 (22)	80	39	0.00	73	36	0.00	65	32	0.01	55	28	0.01	45	24	0.01
		67 (19)	66	41	0.02	58	38	0.02	50	34	0.02	41	30	0.02	30	26	0.02
		62 (17)	53	43	0.02	46	40	0.02	38	36	0.02	32	32	0.11	26	26	0.25
	1350	72 (22)	85	42	0.00	78	39	0.01	69	35	0.01	59	31	0.02	48	27	0.02
		67 (19)	71	45	0.02	63	41	0.02	54	37	0.02	44	33	0.02	32	28	0.03
		62 (17)	57	47	0.02	49	44	0.02	41	39	0.03	35	35	0.12	29	29	0.26

**FFMA**

**CFM** – Cubic Ft per Minute      **EWB** – Entering Wet Bulb °F (°C)      **LWB** – Leaving Wet Bulb °F (°C)      **TC** – Gross Cooling Capacity 1000 Btuh  
**SHC** – Gross Sensible Capacity 1000 Btuh      **BF** – Bypass Factor      **MBH** – 1000 Btuh

**NOTES:**

- Contact manufacturer for cooling capacities at conditions other than shown in table.
- Formulas:  
 Leaving db = entering db -  $\frac{\text{sensible heat cap.}}{1.09 \times \text{CFM}}$   
 Leaving wb = wb corresponding to enthalpy of air leaving coil ( $h_{lwb}$ )  
 $h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{CFM}}$   
 where  $h_{ewb}$  = enthalpy of air entering coil. Direct interpolation is permissible. Do not extrapolate.
- SHC is based on 80°F (27°C) db temperature of air entering coil. Below 80°F (27°C) db, subtract (Correction Factor x CFM) from SHC. Above 80°F (27°C) db, add (Correction Factor x CFM) to SHC.
- Bypass Factor = 0 indicates no psychometric solution. Use bypass factor of next lower EWB for approximation.

**SHC CORRECTION FACTOR**

BYPASS FACTOR	ENTERING AIR DRY-BULB TEMPERATURE (°F)					
	79	78	77	76	75	Under 75
	81	82	83	84	85	Over 85
BYPASS FACTOR	ENTERING AIR DRY-BULB TEMPERATURE (°C)					
	26	25	25	24	24	Under 75
	27	28	28	29	29	Over 85
Correction Factor						
0.10	.098	1.96	2.94	3.92	4.91	Use formula shown below
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.05	3.82	

Interpolation is permissible.  
 Correction Factor =  $1.09 \times (1 - \text{BF}) \times (\text{db} - 80)$

## PERFORMANCE DATA (cont.)

### ESTIMATED SOUND POWER LEVEL (dBA)

UNIT SIZE	CONDITIONS		OCTAVE BAND CENTER FREQUENCY						
	CFM	Ext Static Pressure	63	125	250	500	1000	2000	4000
18	600	0.25	46	52.1	48.9	51.8	52.5	51.7	49.7
24	800	0.25	54.1	57.1	58.6	59	61.5	59.8	57
30	1000	0.25	51.6	52.6	52.6	53.3	56.1	52.8	59.7
36	1200	0.25	52.6	52.3	54.6	54.3	57.2	53.8	50.4

\* Estimated sound power levels have been derived using the method described in the 1987 ASHRAE HVAC Systems & Applications Handbook, Chapter 52, p. 52.7.

### OPTIONAL FIELD-INSTALLED ELECTRIC HEAT PACKAGES

HEATER PART NUMBER WITH TDR	SIZES USED WITH	NOMINAL kw @ 240V	HEATER VOLTS-PHASE (60 Hz)	HEATER CAPACITY (MBH)		MIN. CIRCUIT AMPACITY		MAX. FUSE OR BREAKER (HACR) AMPACITY		APPROX. SHIP WGT. LBS. (kg)
				208	240	208	240	208	240	
EHK2-05B	18/24/30/36	5	208/240-1	14.8	17.1	22.6	26.1	30	30	5.1 (2.3)
EHK2-08B	18/24/30/36	7.5	208/240-1	22.2	25.6	33.9	39.1	50	50	5.1 (2.3)
EHK2-10B	18/24/30/36	10	208/240-1	29.6	34.1	45.2	52.1	60	60	5.1 (2.3)

### OTHER ACCESSORIES

Kit Number	Description	Used on sizes
KFBLG0106LGL	Louvered Wall Panel with Frame (6 pack)	18, 24
KFBLG0106LGL	Louvered Wall Panel with Frame (6 pack)	30, 36
KSATX0601HSO	TXV Kit R-22	18, 24, 30, 36
KSATX0201PUR	TXV Kit Puron (R-410A)	18, 24, 30
KSATX0301PUR	TXV Kit Puron (R-410A)	36
KFAET0150ETK	PVC Condensate Trap Kit (50 pack)	All

FFMA