FIRST CO.
P.O. BOX 270969 - DALLAS, TEXAS 75227
PH. (214) 388-5751 | FAX (214) 388-2255
WWW.FIRSTCO.COM

VMB-HW SERIES

Variable Speed

- High efficiency variable speed motor
- Copper tube heating and cooling coils
- Heating coil is down stream from blower
- Manual air bleed on hot water coil
- Factory installed filter
- 240 motor – 24V control
- Convertible horizontal drain pan

AHRI CERTIFIED® www.ahridirectory.org
Unitary Small AC
AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

*The **VMB-HW** Series includes a programmable, high efficiency motor that redefines comfort and energy savings.*

VMB-HW SERIES

The **VMB-HW** Series includes a programmable, high efficiency motor that redefines comfort and energy savings. The **VMB-HW** motor automatically adjusts its torque and speed to maintain a preprogrammed level of constant airflow over a wide range of external static pressures. This variable speed technology offers better indoor air quality, more precise humidity control, quieter operation, consistent indoor air temperature, and lower utility bills.

High Efficiency - At full load conditions the **VMB-HW** motor is 20% more efficient than an induction motor and at constant fan speed it consumes only 60-80 watts of power compared to 400 watts for a standard induction motor.

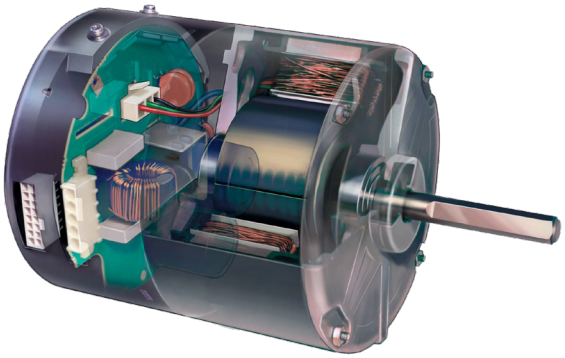
Quiet Operation - The versatile **VMB-HW** motor quietly "ramps up" when the unit is turned on and "ramps down" when the thermostat is satisfied, eliminating the annoying sounds of changing airflow.

Self-Regulating Constant Airflow - The **VMB-HW** motor is factory programmed to maintain a predetermined level of airflow over a wide range of external static pressures, ensuring optimum system performance and whole-house comfort. The benefits of constant fan operation are:

- **Consistent air distribution** (and temperature) throughout the home
- **Better indoor air quality** (further improved with the addition of high efficiency filter) - This allows the air to be filtered without excessive drafts and without sacrificing efficiency.
- **Better humidity control** - The **VMB-HW** is designed to extract much more moisture from the air than a conventional system by slowing the airflow over the cooling coil. The result is an improved summer comfort level at higher indoor temperatures.

Additional Standard Features:

- Vertical/horizontal drain pans
- Hot water coil assembly slides out for asier service
- Manual air vent on hot water coil
- Fully insulated cabinet
- Higher efficiency pleated filter
- Primary and secondary drain connections on cooling coil
- 120V motor, 24V control
- Compatible with most properly sized and installed zone control systems. Contact the zone control manufacturer.
- Optional 208/230 and 277V models available. Contact factory

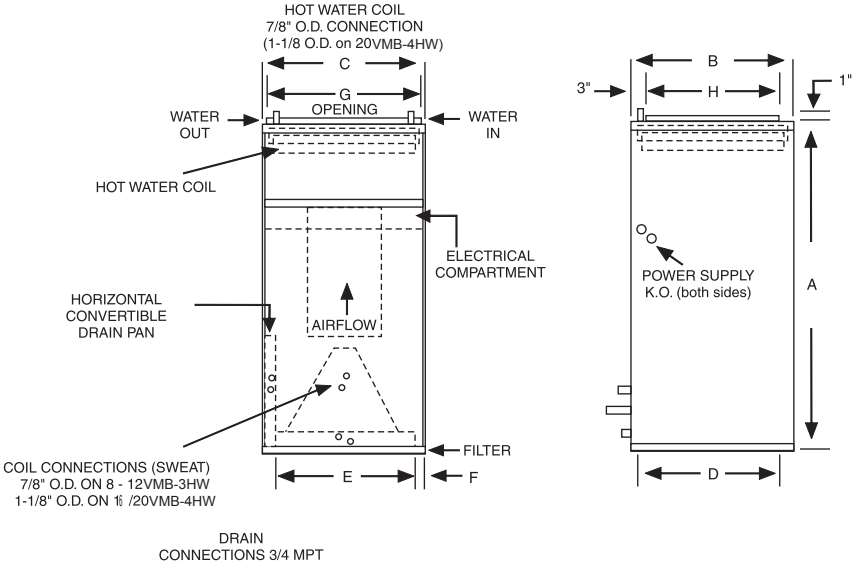


Variable Speed ECM Motor

VMB-HW SERIES

Features:

1. Separate cooling and heating coils (4 row cooling coil)
2. Variable speed motor
3. Vertical / Horizontal drain pan (right-to-left and left-to-right airflow)
4. Manual air vent
5. Pleated filter(s)



ELECTRICAL DATA				
UNIT MODEL	MOTOR HP (120V)	MOTOR AMPS	MIN. CIR. AMPACITY	MAX. HACR BREAKER
8VMB-3HW	1/3	4.8	6.0	15
12VMB-3HW	1/2	7.3	10	15
16VMB-4HW	1	10.5	14	15
20VMB-4HW	1	11.5	15	15

PHYSICAL DIMENSIONS										
UNIT MODEL	A	B	C	D	E	F	G	H	FILTER SIZE	SHIP WT. (LBS.)
8VMB-3HW	40	20	20	18-1/2	16	2	18	16	18 X 20 X 1	145
12VMB-3HW	42	23	20	21-1/2	16	2	18	19	20 X 22 X 1	165
16VMB-4HW	48	28	21-1/4	26-1/4	17-1/4	2	18	24	20 X 25 X 1	225
20VMB-4HW	52	28	25-1/4	26-1/2	21-1/4	2	22	24	14 X 24 X 1 (2 required)	285

AIR FLOW DATA													
MODEL	OPERATING MODE	THERMOSTAT TERMINALS "X" ENERGIZED TERMINAL				CONTROL BOARD SELECTION TAPS							
						COOL (CFM)				HEAT (CFM)			
		Y1	HUM	G	W1	A	B	C	D	A	B	C	D
8VMB-3HW	COOLING	X				800	720	640	560				
	COOL & DEHUMIDIFY	X	X			640	575	510	450				
	CONTINUOUS BLOWER			X		400	360	320	280				
	HEATING				X					800	700	600	500
12VMB-3HW	COOLING	X				1200	1050	950	850				
	COOL & DEHUMIDIFY	X	X			960	840	760	680				
	CONTINUOUS BLOWER			X		600	525	475	425				
	HEATING				X					1200	1050	900	750
16VMB-4HW	COOLING	X				1600	1420	1270	1120				
	COOL & DEHUMIDIFY	X	X			1280	1135	1015	900				
	CONTINUOUS BLOWER			X		800	710	635	560				
	HEATING				X					1600	1400	1200	1000
20VMB-4HW	COOLING	X				1825	1700	1600	1400				
	COOL & DEHUMIDIFY	X	X			1600	1440	1280	1120				
	CONTINUOUS BLOWER			X		1000	900	800	700				
	HEATING				X					1825	1700	1500	1250

For additional sales and technical information on variable speed motors visit:
www.thedealertoolbox.com

Digital thermostats for these units must have a "C" terminal.

Airflow shown are at standard air conditions, dry coil at 120 volts.
Max. ext. static pressure is 0.50" wtr

NOTES:

The cooling and heating speed taps are factory set on "A".
The delay profile is factory set on "Arid" setting.
The adjust profile is factory set on "Normal:"
Adjust profile (+) will increase airflow by 10%, while tap (-) will decrease airflow by 10%

In keeping with its policy of continuous progress and product improvement, First Operations reserves the right to make changes without notice. Maintenance for all First Co. products is available under "Product Maintenance" at www.firstco.com.

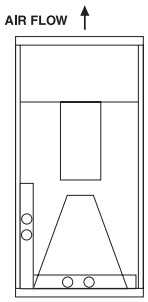
COOLING PERFORMANCE DATA

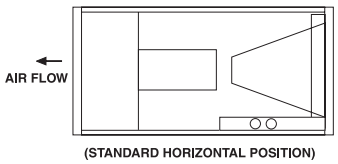
UNIT MODEL	NOM. CFM	GPM	P.D. (FT. WTR.)	45°F ENTERING WATER						42°F ENTERING WATER					
				80°F DB/67°F WB ENT. AIR			75°F DB/63°F WB ENT. AIR			80°F DB/67°F WB ENT. AIR			75°F DB/63°F WB ENT. AIR		
				TOTAL MBH	SENS. MBH	TEMP. RISE	TOTAL MBH	SENS. MBH	TEMP. RISE	TOTAL MBH	SENS. MBH	TEMP. RISE	TOTAL MBH	SENS. MBH	TEMP. RISE
8VMB-3HW	600	3.0	2.5	19.0	13.8	12.7	14.5	12.1	9.7	20.7	14.4	13.8	15.8	12.6	10.5
		4.5	5.5	22.4	15.1	9.9	17.1	13.1	7.6	24.4	15.9	10.8	18.6	13.7	8.3
		6.0	9.5	24.4	15.9	8.2	18.7	13.7	6.2	26.6	16.8	8.9	20.3	14.4	6.8
	800	3.5	3.4	23.1	17.3	13.2	17.6	15.2	10.1	25.2	18.1	14.4	19.2	15.8	11.0
		5.0	6.7	26.9	18.7	10.7	20.5	16.3	8.2	29.3	19.6	11.7	22.4	17.1	8.9
		6.5	11.0	29.2	19.6	9.0	22.3	17.0	6.9	31.8	20.6	9.8	24.3	17.8	7.5
12VMB-3HW	1000	4.0	2.4	28.3	21.6	14.1	21.6	19.0	10.8	30.8	22.5	15.4	23.6	19.7	11.8
		6.0	4.8	33.9	23.7	11.3	25.9	20.6	8.6	36.9	24.8	12.3	28.2	21.6	9.4
		8.0	7.9	37.3	25.0	9.3	28.5	21.7	7.1	40.6	26.3	10.2	31.0	22.7	7.8
	1200	5.0	3.5	33.7	25.5	13.5	25.8	22.4	10.3	36.8	26.6	14.7	28.1	23.3	11.3
		6.5	5.5	38.0	27.1	11.7	29.1	23.7	8.9	41.5	28.4	12.8	31.7	24.7	9.7
		8.0	7.9	41.0	28.2	10.3	31.3	24.6	7.8	44.7	29.6	11.2	34.1	25.7	8.5
16VMB-4HW	1400	4.5	2.0	36.2	29.2	16.1	27.7	25.8	12.3	39.5	30.3	17.6	30.1	26.7	13.4
		6.0	3.3	42.4	31.4	14.1	32.4	27.6	10.8	46.2	32.8	15.4	35.3	28.7	11.8
		7.5	4.8	46.9	33.1	12.5	35.8	28.9	9.6	51.1	34.7	13.6	39.0	30.2	10.4
	1600	6.0	3.3	44.2	34.1	14.7	33.8	30.0	11.3	48.2	35.5	16.1	36.8	31.2	12.3
		8.0	5.4	51.0	36.6	12.7	38.9	32.0	9.7	55.5	38.3	13.9	42.4	33.4	10.6
		10.0	7.9	55.7	38.4	11.1	42.5	33.4	8.5	60.7	40.3	12.1	46.3	34.9	9.3
20VMB-4HW	1600	6.5	3.8	46.1	34.8	14.2	35.2	30.6	10.8	50.3	36.3	15.5	38.4	31.8	11.8
		8.5	6.0	52.3	37.1	12.3	39.9	32.4	9.4	57.0	38.8	13.4	43.5	33.8	10.2
		10.5	8.6	56.6	38.7	10.8	43.2	33.7	8.2	61.7	40.7	11.8	47.1	35.2	9.0
	2000	7.0	4.3	52.4	40.9	15.0	40.0	36.1	11.4	57.1	42.6	16.3	43.6	37.4	12.5
		10.0	7.9	61.7	44.3	12.3	47.1	38.8	9.4	67.3	46.4	13.5	51.4	40.5	10.3
		13.0	12.5	67.5	46.5	10.4	51.6	40.5	7.9	73.6	48.8	11.3	56.2	42.4	8.6

HEATING PERFORMANCE DATA

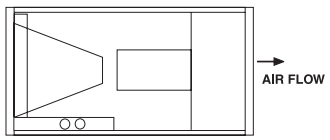
UNIT MODEL	NOM. COOLING BTUH	NOM. CFM	GPM (HTG)	P.D. (FT. WATER)	BTUH (1000) AT ENTERING WATER TEMPERATURE			
					120°F	140°F	160°F	180°F
8VMB-3HW	18,000/ 24,000	800	3	1.8	26.4	37.0	47.6	58.1
			2	0.8	23.3	32.6	41.9	51.2
			1	0.5	20.7	29.0	37.3	45.6
		700	3	1.8	24.8	34.7	44.6	54.5
			2	0.8	22.0	30.8	39.6	48.4
			1	0.5	19.7	27.6	35.5	43.4
		600	3	1.8	22.9	32.0	41.1	50.3
			2	0.8	20.5	28.7	36.9	45.1
			1	0.5	18.6	26.0	33.4	40.9
		500	3	1.8	20.5	28.7	36.9	45.1
			2	0.8	18.7	26.2	33.7	41.2
			1	0.5	17.1	24.0	30.9	37.7
12VMB-3HW	30,000/ 36,000	1200	6	7.5	38.4	53.8	69.2	84.5
			4	3.6	35.1	49.2	63.3	77.3
			2	1.0	27.6	38.7	49.8	60.8
		1050	6	7.5	37.2	51.0	64.9	78.9
			4	3.6	34.2	46.9	59.8	72.7
			2	1.0	27.2	37.4	47.7	58.0
		900	6	7.5	33.1	46.4	59.7	72.9
			4	3.6	30.8	43.1	55.4	67.7
			2	1.0	25.1	35.1	45.1	55.2
		750	6	7.5	29.9	41.8	53.7	65.7
			4	3.6	28.0	39.2	50.4	61.6
			2	1.0	23.3	32.6	41.9	51.2
16VMB-4HW	42,000/ 48,000	1600	8	4.8	60.4	84.6	108.8	132.9
			6	2.9	56.5	79.1	101.7	124.3
			4	1.4	49.6	69.5	89.4	109.2
		1400	8	4.8	56.2	78.7	101.2	123.7
			6	2.9	52.9	74.1	95.3	116.4
			4	1.4	47.0	65.8	84.6	103.4
		1200	8	4.8	51.4	71.9	92.4	113.0
			6	2.9	48.7	68.2	87.7	107.2
			4	1.4	43.9	61.4	78.9	96.5
		1000	8	4.8	45.8	64.1	82.4	100.7
			6	2.9	43.8	61.3	78.8	96.3
			4	1.4	40.1	56.1	72.1	88.2
20VMB-4HW	48,000/ 60,000	2000	9	5.1	73.4	102.8	132.2	161.5
			7	3.3	68.9	96.5	124.1	151.6
			5	1.9	61.7	86.4	111.1	135.8
		1750	9	5.1	71.1	97.7	124.4	151.2
			7	3.3	67.0	92.1	117.3	142.7
			5	1.9	60.4	83.0	105.9	128.8
		1500	9	5.1	62.8	87.9	113.0	138.1
			7	3.3	59.7	83.6	107.5	131.4
			5	1.9	54.6	76.4	98.2	120.1
		1250	9	5.1	58.0	79.5	101.1	---
			7	3.3	55.5	76.2	97.0	---
			5	1.9	51.3	70.5	89.8	109.2

3-WAY AIRFLOW





(STANDARD HORIZONTAL POSITION)



(ALTERNATE HORIZONTAL POSITION)
(FIELD-CONVERTIBLE)

NOTES:

(1) Heat BTU is at 65° Entering Air Temperature.

VMB-HW SERIES

General Construction Features

Basic Unit

All models are manufactured with heavy gauge galvanized steel to resist corrosion. Each cabinet is fully insulated. Coil connections are stubbed out the cabinet for easier installation.

Coils

Coils have 3/8 inch copper tubing expanded to high efficiency aluminum fins. Manual air vents are provided and all coils are pressure tested to 350 psig.

Drain Pans

All fan coils can be installed vertically or horizontally (right-to-left airflow) with no modification. Horizontal drain pans can be repositioned within the cabinet to allow horizontal installation with left-to-right airflow. Each drain pan is coated with a "mastic" material to reduce corrosion. Threaded primary and secondary drain connections are also provided.

Motors

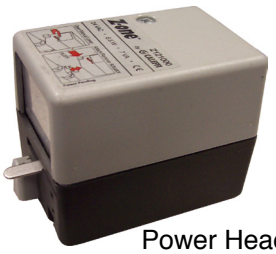
Standard motors are variable speed type with internal thermal overload protection and are mounted with rubber isolation bushings. Blower wheels are centrifugal, forward curved, and dynamically balanced.

Filters

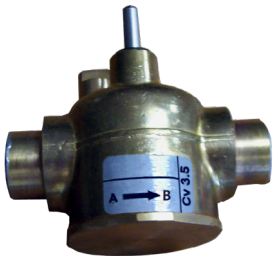
One inch pleated filters are factory installed.

Agency Listing

All standard models are ETL Listed.



Power Head



Valve Body (2-way)

ACCESSORIES: (for chilled water coil)	
Power Heads:	
E50131180	24V
Separate Valve Bodies: (order power heads separately) (mount outside cabinet)	
E421317 E431317 E421417 E431417	3/4" 2-way - For 8-12VMBE-277 3/4" 3-way - For 8-12VMBE-277 1" 2-way - For 16-20VMBE-277 1" 3-way - For 16-20VMBE-277
Hand Valves: (Combination balance / shut-off) (2 usually req'd per coil)	
CP90 CP905	For 8-12VMBE-277 For 16-20VMBE-277

CP905

NOTE:

1. Power head leads are 18".

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