



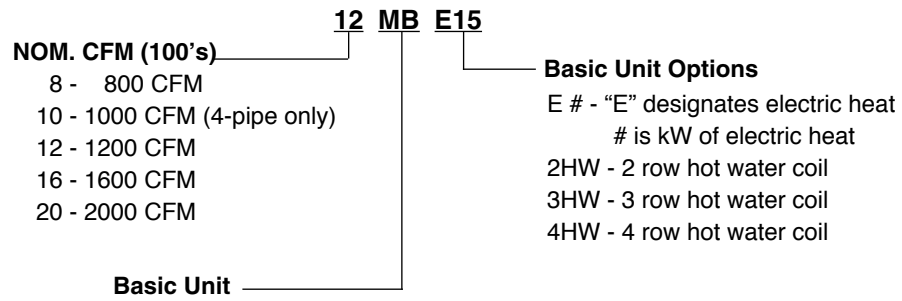
MB-HW

Multi-Position Chilled Water Fan Coil

- 120V Motor - No Control
- 4 Pipe Cooling and Heating
- Direct Drive Motor
- Up to 10kW Electric Heat



NOMENCLATURE



MB-HW

The **MB-HW** Series 4-pipe fan coil includes a 4 row cooling coil, a 2, 3, or 4 row heating coil installed in the reheat position, and a 120V multi-speed motor. No controls are furnished.

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 **PSC 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 throw away filters are factory installed.

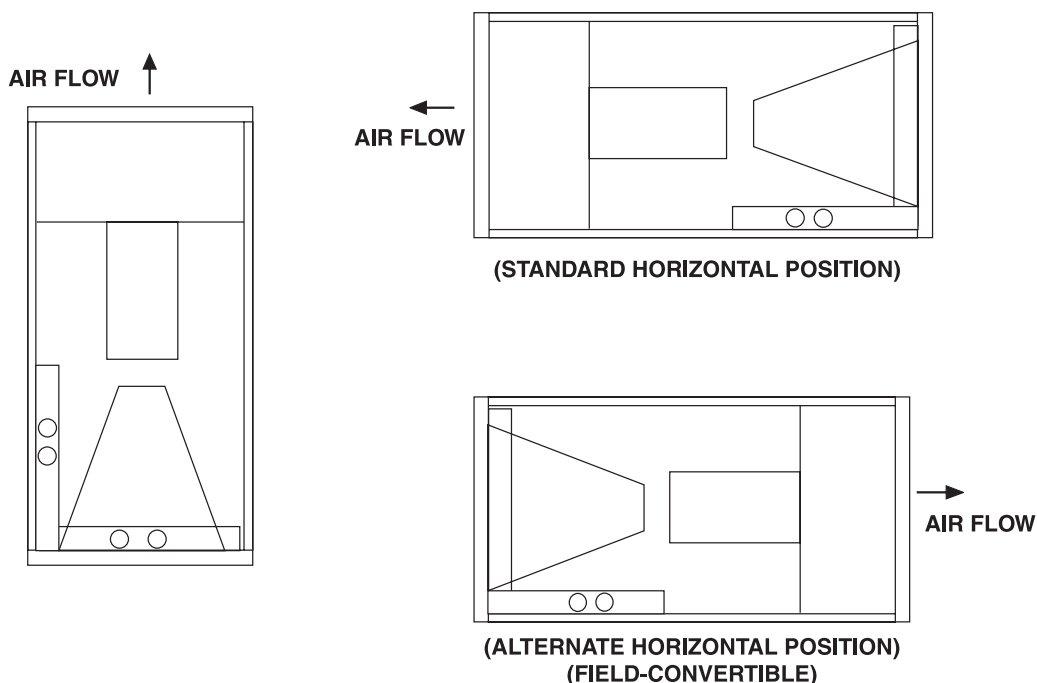
Agency Listing

All standard models are **ETL Listed**.

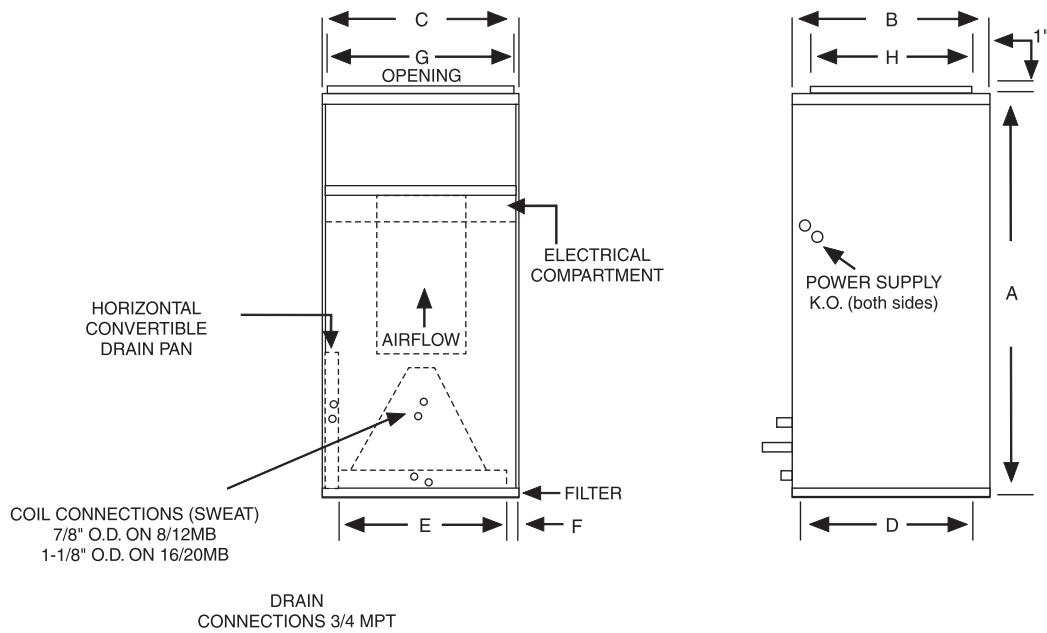
Optional "Autospeed 24V" control

The MB and MB-HW models are available with an optional 24V 3-speed control board and a 24V 3-speed digital wall thermostat. This option, called the "Autospeed 24V", provides maximum comfort and efficiency by automatically selecting the appropriate High, Medium, or Low fan speed, depending on room temperature and thermostat temperature setting.

3-WAY AIRFLOW



DIMENSIONS



PHYSICAL DIMENSIONS										
UNIT MODEL	A	B	C	D	E	F	G	H	FILTER SIZE	SHIP WT. (LBS)
8MB-HW	40	20	20	18-1/2	16	2	18	16	18 X 20 X 1	120
10/12MB-HW	42	23	20	21-1/2	16	2	18	19	20 X 22 X 1	135
16MB-HW	48	28	21-1/4	26-1/4	17-1/4	2	18	24	20 X 25 X 1	210
20MB-HW	52	28	25-1/4	26-1/2	21-1/4	2	22	24	14 X 24 X 1 (2 required)	260

Features:

1. Separate cooling and heating coils (4 row cooling coil)
2. 120V multi-speed motor
3. Vertical / Horizontal drain pan (right-to-left and left-to-right airflow)
4. Manual air vent
5. Throw away filter



In keeping with its policy of continuous progress and product improvement, First Operations reserves the right to make changes without notice.

HOT WATER COIL PERFORMANCE DATA							
UNIT MODEL	CFM	GPM	P.D. (FT. WTR.)	HEATING BTUH (1000) AT ENTERING WATER TEMPERATURE (1)			
				120°F	140°F	160°F	180°F
8MB-2HW	800	1	0.13	13.6	19.0	24.4	29.9
		2	0.51	18.6	26.0	33.4	40.9
		3	1.13	20.9	29.3	37.7	46.0
	600	1	0.13	12.5	17.5	22.5	27.5
		2	0.51	16.5	23.1	29.7	36.3
		3	1.13	18.3	25.6	32.9	40.2
8MB-3HW	800	1	0.22	16.5	23.1	29.7	36.3
		2	0.83	23.2	32.6	41.9	51.2
		3	1.83	26.4	37.0	47.6	58.1
	600	1	0.22	15.2	21.3	27.4	33.5
		2	0.83	20.5	28.7	36.9	45.1
		3	1.83	22.9	32.0	41.1	50.3
10MB-3HW	1000	2	1.04	26.1	36.5	46.9	57.4
		4	3.64	32.4	45.4	58.4	71.3
		6	7.55	35.1	49.1	63.1	77.2
	800	2	1.04	23.9	33.5	43.1	52.6
		4	3.64	29.0	40.6	52.2	63.8
		6	7.55	31.0	43.4	55.8	68.2
12MB-3HW	1200	2	1.04	27.6	38.7	49.8	60.8
		4	3.64	35.1	49.2	63.3	77.3
		6	7.55	38.4	53.8	69.2	84.5
	1000	2	1.04	26.1	36.5	46.9	57.4
		4	3.64	32.4	45.4	58.4	71.3
		6	7.55	35.1	49.1	63.1	77.2
16MB-4HW	1600	4	1.40	49.6	69.5	89.4	109.2
		6	2.89	56.5	79.1	101.7	124.3
		8	4.83	60.4	84.6	108.8	132.9
	1400	4	1.40	47.0	65.8	84.6	103.4
		6	2.89	52.9	74.1	95.3	116.4
		8	4.83	56.2	78.7	101.2	123.7
20MB-4HW	2000	5	1.86	61.7	86.4	111.1	135.8
		7	3.33	68.9	96.5	124.1	151.6
		9	5.15	73.4	102.8	132.2	161.5
	1700	5	1.86	57.8	80.9	104.0	127.1
		7	3.33	63.7	89.2	114.7	140.2
		9	5.15	67.4	94.4	121.4	148.3

BLOWER DATA									
UNIT MODEL	NOM. COOL TONS	MOTOR HP-AMP (120V)	MOTOR SPEED	CFM vs. EXTERNAL STATIC PRESSURE					
				0.05	0.10	0.20	0.30	0.40	0.50
8MB-HW	2	1/5-4.5	High	810	770	720	670	630	570
			Med	750	710	670	640	590	540
			Low	680	660	630	600	550	470
10MB-HW	2.5	1/5-4.5	High	990	970	950	880	840	800
			Med	830	810	790	770	740	700
			Low	650	620	610	590	570	540
12MB-HW	3	1/2-8.0	High	1270	1210	1160	1110	1050	970
			Med	1200	1170	1120	1070	990	930
			Low	1150	1110	1060	1000	950	890
16MB-HW	4	3/4-10.5	High	1570	1510	1460	1400	1340	1240
			Med	1440	1400	1350	1290	1220	1150
			Low	1230	1210	1170	1130	1090	1050
20MB-HW	5	1-10.4	High	1900	1840	1770	1700	1620	1500
			Med	1690	1630	1570	1510	1410	1340
			Low	1440	1400	1350	1270	1200	1140

(1) Contact factory for capacities at other conditions.

CHILLED WATER COOLING CAPACITY - 4 ROW (MB, MB-HW, MBE SERIES)															
UNIT MODEL	CFM	GPM	P.D. (FT. WTR.)	45° ENTERING WATER						42° ENTERING WATER					
				80° DB/67°F WB ENT. AIR			75° DB/63°F WB ENT. AIR			80° DB/67°F WB ENT. AIR			75° 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
8MB	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	15.3	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
10/12MB	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
16MB	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
20MB	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

NOTE:

1. All cooling coils have four rows.
2. Contact factory for capacities at other conditions.

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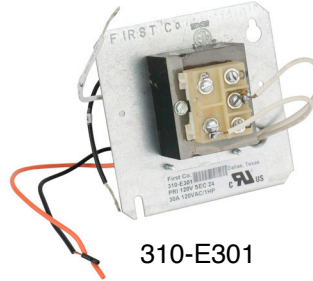
ACCESSORIES



Power Head



Valve Body
(2-way)



310-E301



CP905

ACCESSORIES (field installed) MB, MB-HW, MBE Series	
Power Heads: (two power heads required for 4-pipe) - For all units	
E50131180	24V
E50132180	110V/50Hz - 120V/60Hz
E50137180	277V
E50138180	220V/50Hz - 230/60Hz
Seperate Valve Bodies: (order power heads seperately)	
E421317	3/4" 2-way - For (PHYB, 8-12MB/MBE/MB-HW (and 8-16MB-HW htg.coil)
E431317	3/4" 3-way - For (PHYB, 8-12MB/MBE/MB-HW (and 8-16MB-HW htg.coil)
E421417	1" 2-way - For 16 - 20MB/MBE/MB-HW (and 20MB-HW htg. coil)
E431417	1" 3-way - For 16 - 20MB/MBE/MB-HW (and 20MB-HW htg. coil)
Hand Valves: (Combination balance / shut-off) (2 usually req'd per coil)	
CP90	3/4" For 8-12MB/MBE/MB-HW)8-16MB-HW Htg. coil)
CP905	1" For 16-20MB/MBE/MB-HW (16 and 20MB-HW Htg. coil)
Relay - Transformer	
310-E301	120 / 24V for ALL 120V motors

NOTE:

1. Power head leads are 18".

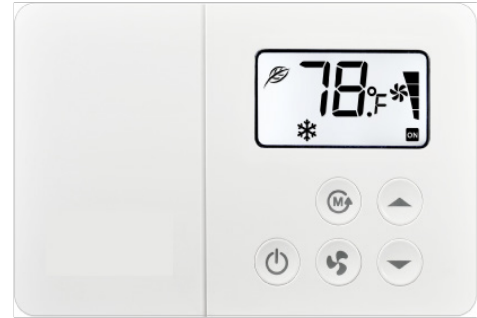


Autospeed 24V™ Thermostats

(Part #'s T200/T201)

Accurate, Efficient, and Quiet Fan Coil Operation

The new Autospeed 24V™ thermostat (part's # T200 and T201) provides 24V AC single stage temperature control of 2 pipe and 4 pipe fan coil applications. The T200/T201 thermostat offers maximum comfort and efficiency by **automatically selecting the appropriate High, Medium, or Low fan speed**, depending on room temperature and thermostat temperature setting. This automatic fan speed control not only brings the room temperature to the desired set point quickly, it maintains the room temperature with the most efficient fan speed selection. Once the desired room temperature is achieved the fan coil operates on low speed for extremely quiet operation. The fan coil control board (which is factory installed in all CW units) is a circuit board that provides control of a 3-speed line voltage fan motor. The control board allows the thermostat to control the fan motor even though, by itself, the thermostat does not have the amperage capability nor the voltage rating capability to control the fan motor.



(T200 shown with wall plate)

T200/T201 Thermostat Features

- Compatible with 2 pipe and 4 pipe fan coils:
Series HBC/PHBC/RHBC/CHBC,
MB/MB-HW, HYB/PHYB, and CW/CW-HW
- Cycle fan or continuous fan operation
- **T200**-Manual Heat / Cool changeover switch
- **T201**-Automatic Heat / Cool changeover switch
- Large LED digital display
- Allows less expensive 24V control wiring from the fan coil to the thermostat, rather than larger, more expensive line voltage wiring.
- 3-speed fan operation, with speed indicator lights
- Fan speed determination:
 - If room temperature is 4 degrees (F.) off thermostat set point, fan will operate on High speed.
 - If 3 degrees off set point, fan will operate on Medium speed.
 - If within 2 degrees of set point, fan will operate on Low speed.
- One or 3 hour Auto override - Fan speed defaults to "Auto" mode after 1 hour if the user manually changes it to a particular fan speed.
- Temperature set range: 64-88 degrees F.
- Adjustable high and low temperature set points
- Selectable Fahrenheit / Centigrade display
- Power switch turns system off/on
- Requires 7-wire 24V thermostat wire
- No batteries required
- Set points are permanently retained in memory in case of power interruption
- Simple operation
- Mercury Free
- Wall plate included

DISPLAY CODES		
DISPLAY	STEADY	FLASHING
P1	Auto fan timer - 1 hour (default)	Auto fan timer - 3 hour
P2	Continuous fan (default)	Cycled fan
P3	°F (default)	°C
P4	Cycled fan standard	Cycled fan overdrive (default)
P5	Low temp limit 64 °F (default)	Low temp limit 67 °F
P6	Hi temp limit 88 °F (default)	Hi temp limit 84 °F



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