

BOILER LOOP AIR HANDLERS

MBXR-HW Series

Vertical / Horizontal / Counterflow Air Handler

Heat Pump / DX cooling / Boiler heating

1-1/2 through 5 tons, up to 148,400 BTUH Heating



Description :

The **MBXR-HW** series air handler offers **high efficiency DX cooling** as well as **high efficiency hydronic heating** for single family homes. The **MBXR-HW** includes two new features to further enhance the product and increase comfort levels. On a call for heat, the fan motor has a **30 to 45 second delay** to preheat the coil before airflow begins. In addition, the fan operates on **medium speed for heating** and high speed for cooling.

COOLING: These air handlers are completely compatible with all split system condensing units and heat pumps. Cooling coils in the **MBXR-HW** air handlers are extra-large and engineered to offer cooling efficiencies **exceeding 12 SEER**, depending on the outside condensing unit used.

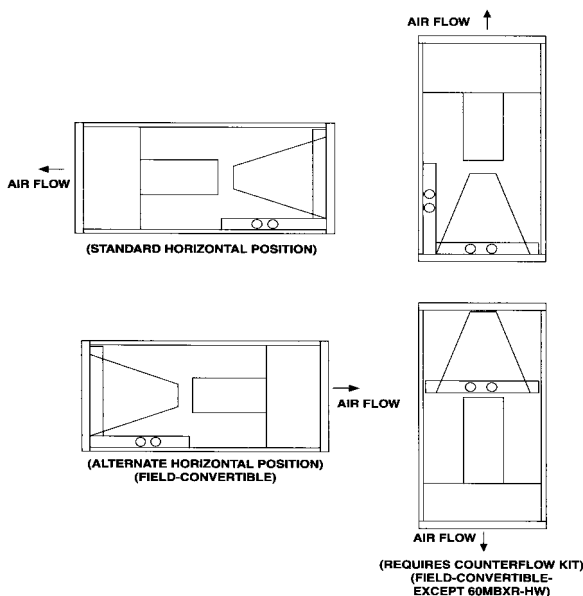
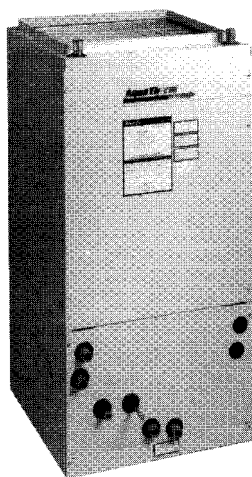
HEATING: Multiple air handlers may be connected to a single, high efficiency natural gas or oil-fired hot water boiler to provide complete, whole house hydronic space heating. Each air handler includes a high efficiency cooling coil, a separate hot water coil, horizontal drain pan, flue gas door switch (except **60MBXR-HW**), an all-new 120V **multi - speed blower motor**, throw away filter, and 24V relay/transformer. The new blower-on delay feature preheats the heating coil.

ACCESSORIES: (see p. 2)

Optional field installed accessories include expansion valve kits, counterflow conversion kits, and a "zone control box" for multiple air handler connection.

NOW WITH 2-SPEED FAN OPERATION

(High Speed-Cool, Medium Speed-Heat)

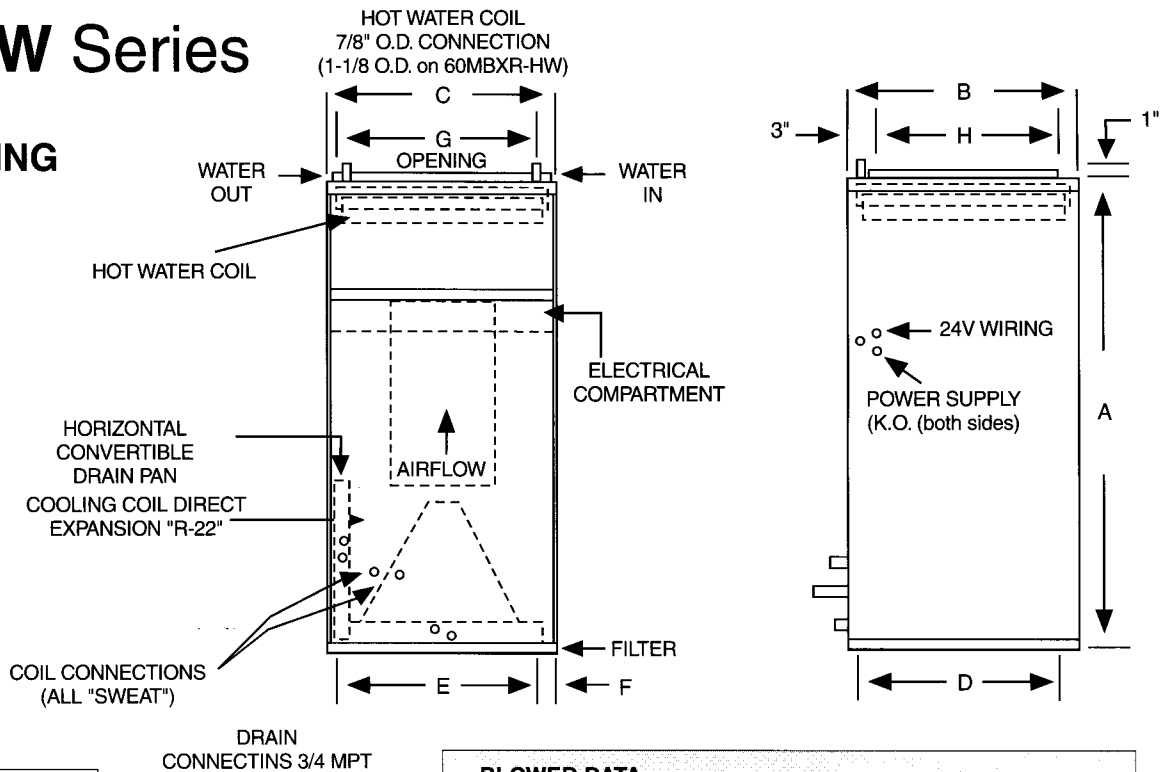


FEATURES:

1. **Blower-on delay** preheats coil on call for heat.
 2. **Medium speed fan** operation in heat cycle.
 3. Factory installed **horizontal drain pan** (re-position within cabinet for left-to-right airflow)
 4. **Piston-type** metering device on cooling coil
 5. Manual **air vent** on hot water coil
 6. **Flue gas door switch** (except 60MBXR-HW)
 7. **Slide out hot water coil** assembly for easier service
 8. **Copper tube** heating and cooling coils
 9. Compatible with most major brands of **split condensing units**
 10. Factory installed throw away **filter**
 11. Primary and secondary **drain connections** on cooling coil
 12. Attractive **baked-on finish**
 13. Optional **expansion valve kits** for cooling coil (field installed)
 14. Optional **Counterflow Conversion Kits** (see Precautionary Notes) (Not available for 60MBXR)
- Note: Counterflow not recommended when unit is installed above a finished ceiling.**

MBXR-HW Series

DX COOLING
BOILER HEATING



COIL CONNECTIONS		
UNIT SIZE	LIQUID	SUCTION
18/24	3/8	5/8
30/36	3/8	3/4
48/60	1/2	7/8

PHYSICAL DIMENSIONS									
UNIT MODEL	A	B	C	D	E	F	G	H	FILTER SIZE
18MBXR-HW 24MBXR-HW	40	20	20	18-1/2	16	2	18	16	18 X 20 X 1
30MBXR-HW 36MBXR-HW	42	23	20	21-1/2	16	2	18	29	20 X 22 X 1
48MBXR-HW	48	28	21-1/4	26-1/4	17-1/4	2	18	24	20 X 25 X 1
60MBXR-HW	52	28	25-1/4	26-1/2	21-1/4	2	22	24	14 X 24 X 1 (2 required)

BLOWER DATA									
UNIT MODEL	MOTOR HP-AMPS (120V)	MOTOR SPEED CONN.	CFM vs. EXTERNAL STATIC PRESSURE						
			0.05	0.10	0.20	0.30	0.40	0.50	
18MBXR-HW	1/5 - 2.8	HIGH	810	780	715	650	580	500	
		MED.	680	655	600	545	490	420	
		MED. LOW	530	505	460	415	360	295	
24MBXR-HW	1/5 - 5.1	LOW	350	325	270	220	160	---	
		HIGH	950	920	855	790	720	645	
		MED.	860	835	785	720	650	580	
30MBXR-HW	1/5 - 5.1	LOW	780	755	705	650	590	510	
		HIGH	1120	1095	1045	995	940	880	
		MED.	850	840	810	780	740	690	
36MBXR-HW	1/2 - 8.5	LOW	680	670	655	625	585	510	
		HIGH	1340	1310	1250	1190	1120	1050	
		MED.	1290	1260	1200	1140	1080	1000	
48MBXR-HW	3/4 - 10.7	LOW	1200	1170	1120	1070	1010	940	
		HIGH	1810	1780	1720	1660	1590	1530	
		MED.	1570	1550	1510	1460	1400	1340	
60MBXR-HW	1 - 11.5	LOW	1280	1260	1220	1180	1130	1050	
		HIGH	2160	2125	2055	1980	1895	1810	
		MED.	1865	1840	1785	1710	1620	1525	
		LOW	1560	1540	1490	1435	1365	1260	

(1) Use 48MBXR-HW for 3.5 ton applications and field-convert fan motor to medium speed.

NOTES:

1. Approved for installation with 0" clearance to combustible materials.

ACCESSORIES (field installed)

EXPANSION VALVE KITS		
PART NO.		FITS
DX (Straight Cool)	HEAT PUMP OR DX	
978-5	978-5HP	18, 24MBXR-HW (1-1/2 & 2 TON)
978-6	978-6HP	30, 36MBXR-HW (2-1/2 & 3 TON)
978-7	978-7HP	48MBXR-HW (3-1/2 & 4 TON)
978-8		60MBXR-HW (5 TON)

NOTE:

1. Valves are external equalizing, internal bleed type
2. Valves will install inside the air handler cabinet

COUNTERFLOW KITS	
KIT NUMBER	FITS
919-11	18, 24MBXR-HW
919-12	30, 36MBXR-HW
919-13	48MBXR-HW

NOTE:

1. Counterflow conversion **not** recommended where the air handler is installed above a finished ceiling.
2. No kit available for 60MBXR-HW. This model is not approved for counterflow installation.

PERFORMANCE DATA								
UNIT MODEL	NOM. COOLING BTUH (COIL #) (1)	MOTOR SPEED CONN.	CFM @ .3 ESP	GPM (HTG.)	P.D. (FT. WTR.)	BTUH (1000) AT ENTERING WATER TEMPERATURE		
						120°F	140°F	180°F
18MBXR-2HW	18,000 (USM318AP)	HIGH	650	3	1.13	16.8	23.5	37.0
				2	0.51	15.5	21.7	34.1
				1	0.13	11.6	16.3	25.6
		MED.	550	3	1.13	15.3	21.4	33.6
				2	0.51	14.1	19.8	31.1
				1	0.13	10.8	15.1	23.8
		MED. LOW	420	3	1.13	12.9	18.1	28.4
				2	0.51	12.1	16.9	26.6
				1	0.13	9.5	13.2	20.8
18MBXR-3HW	18,000 (USM318AP)	HIGH	650	3	1.83	21.2	29.7	46.7
				2	0.83	19.5	27.4	43.0
				1	0.22	14.7	20.6	32.4
		MED.	550	3	1.83	19.1	26.8	42.1
				2	0.83	17.8	24.9	39.1
				1	0.22	13.6	19.0	29.9
		LOW	420	3	1.83	16.1	22.5	35.4
				2	0.83	15.1	21.1	33.2
				1	0.22	11.8	16.5	26.0
24MBXR-2HW	24,000 (USM424AP)	HIGH	800	3	1.13	18.9	26.5	41.6
				2	0.51	17.4	24.3	38.2
				1	0.13	13.0	18.2	28.6
		MED.	725	3	1.13	18.0	25.1	39.5
				2	0.51	16.5	23.2	36.4
				1	0.13	12.5	17.5	27.5
		LOW	650	3	1.13	16.8	23.5	37.0
				2	0.51	15.5	21.7	34.1
				1	0.13	11.7	16.4	25.7
24MBXR-3HW	24,000 (USM424AP)	HIGH	800	3	1.83	24.2	33.9	53.2
				2	0.83	22.2	31.1	48.8
				1	0.22	16.6	23.2	36.5
		MED.	725	3	1.83	22.8	31.9	50.2
				2	0.83	21.0	29.4	46.2
				1	0.22	15.9	22.2	34.9
		LOW	650	3	1.83	21.2	29.7	46.7
				2	0.83	19.5	27.4	43.0
				1	0.22	14.7	20.6	32.4
30MBXR-3HW	30,000 (USM330AP)	HIGH	1000	6	7.55	32.8	45.9	72.2
				4	3.64	30.7	43.0	67.6
				2	1.04	26.3	36.8	57.8
		MED.	780	6	7.55	28.0	39.1	61.5
				4	3.64	26.3	36.8	57.9
				2	1.04	22.7	31.8	50.0
		LOW	625	6	7.55	24.1	33.8	53.1
				4	3.64	22.9	32.0	50.3
				2	1.04	20.1	28.1	44.2
36MBXR-3HW	36,000 (USM436AP)	HIGH	1200	6	7.55	36.8	51.5	81.0
				4	3.64	34.3	48.0	75.5
				2	1.04	29.1	40.7	64.0
		MED.	1140	6	7.55	35.7	50.0	78.5
				4	3.64	33.3	46.6	73.3
				2	1.04	28.4	39.7	62.4
		LOW	1070	6	7.55	34.3	48.0	75.5
				4	3.64	32.1	45.0	70.7
				2	1.04	27.5	38.5	60.5
48MBXR-4HW	48,000 (USM348AP)	HIGH	1660	6	2.90	54.2	75.9	119.2
				4	1.40	49.8	69.7	109.6
				2	0.41	38.7	54.2	85.2
		MED.	1460	6	2.90	49.7	69.6	109.4
				4	1.40	45.9	64.3	101.0
				2	0.41	35.9	50.3	79.0
		LOW	1180	6	2.90	43.0	60.2	94.6
				4	1.40	39.9	55.9	87.8
				2	0.41	31.6	44.2	69.5
60MBXR-4HW	60,000 (USM460BP)	HIGH	1980	9	5.15	67.5	94.4	148.4
				7	3.33	64.4	90.2	141.7
				5	1.86	60.0	84.0	132.0
		MED.	1710	9	5.15	61.1	85.6	134.5
				7	3.33	58.6	82.0	128.9
				5	1.86	54.9	76.8	120.7
		LOW	1430	9	5.15	54.1	75.8	119.1
				7	3.33	52.0	72.7	114.3
				5	1.86	48.8	68.3	107.4

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

- (1) See "USM" data sheet for additional coil information.
- (2) Heat BTU is at 70° entering water temperature.
- (3) Units are shipped with motors connected to high speed for cooling and medium speed for heating.

APPLICATION GUIDELINES

Zone Valves

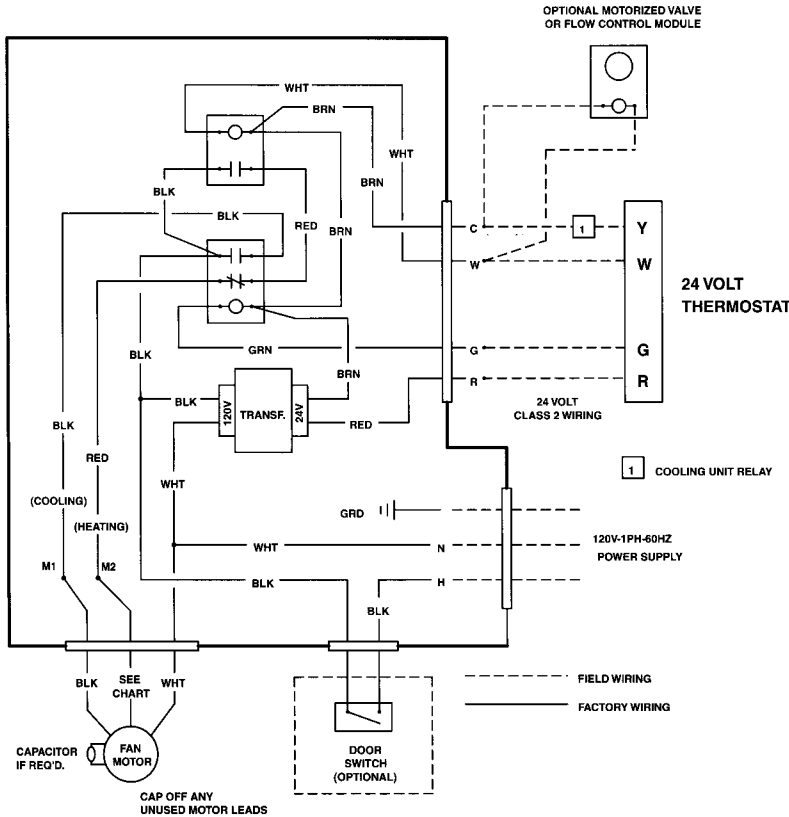
Install a motorized zone valve with each air handler to control flow to that zone as required.

Thermostat

Any standard gas furnace thermostat can be used. "Electric heat" type thermostats are NOT required with the **MBXR-HW** series.

Zone Control Box

Simplifies connection of multiple air handlers to a single hot water boiler.



MOTOR LEAD COLOR CODE	
SPEED	COLOR
HIGH	BLACK
MED-HI	BLUE
MED-LO	ORANGE
LOW	RED

* CAP OFF ANY UNUSED MOTOR LEAD

ZONE CONTROL BOX INFORMATION:

Description:

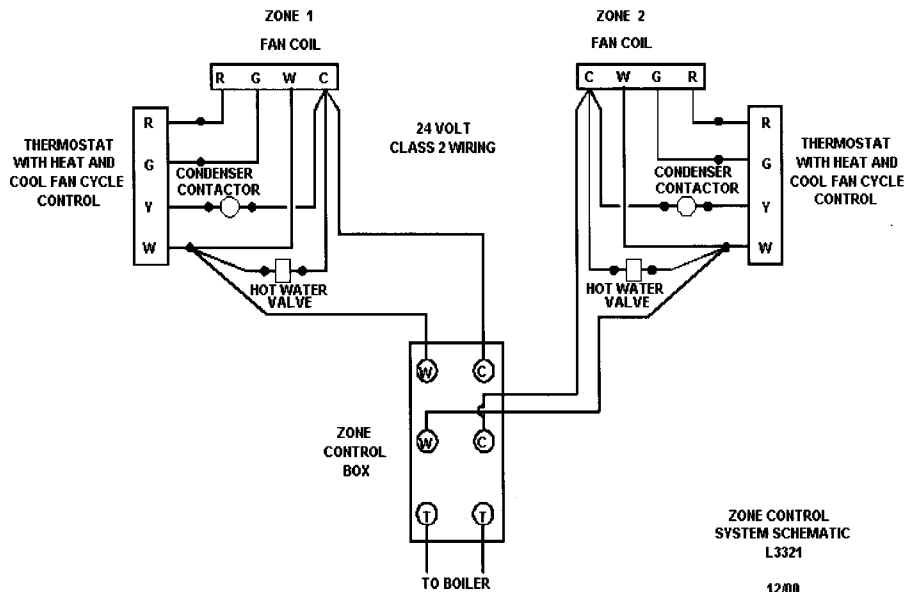
The "Zone Control Box" simplifies connection of one or two air handlers to a single boiler. The control box includes a relay and terminal block for each air handler in a galvanized steel enclosure. For applications requiring more than two air handlers, multiple zone control boxes can be connected in parallel.

Installation Instructions:

Mount control box near boiler and route two conductor Class 2 (24V) thermostat wiring from each air handler and the boiler to the appropriate terminal block located inside the zone control box. Caution: This zone control box may not be compatible with air handlers manufactured by others. See above for thermostat information and additional application guidelines.

ZONE CONTROL BOX	
KIT NUMBER	DIMENSIONS
	H x W x D
943	7" x 4" x 5"

TYPICAL WIRING SCHEMATIC



TYPICAL WIRING SCHEMATIC (with zone control box)