

BOILER LOOP AIR HANDLERS



HBXB-HW Series

Vertical / Horizontal / Counterflow (Except 60HBXB-HW) Air Handler

Cooling or Heat Pump / Boiler heating

1-1/2 through 5 tons, up to 131,700 BTUH Heating

Description :

The new **HBXB-HW** series air handler has been fitted with a **Multi-Function MicroProcessor** that reduces the number of electrical parts in the unit while adding **many new integrated features**.

HEATING: Air handlers can now be directly wired from the boiler to the air handler without adding any additional relays or related controls. 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 60HBXB-HW), 120V three or four speed blower motor, throwaway filter, microprocessor, and a 24V transformer. (Note: If connecting to a circulator, it must have a circulator relay).

COOLING: These air handlers are completely compatible with all split system type condensing units and heat pumps. Cooling coils in the **HBXB-HW** air handlers are extra-large and engineered to offer cooling efficiencies to **14 SEER**, depending on the outside condensing unit used.

(1) First Co's customer is ultimately responsible for confirming which fan coil models are compatible with selected outdoor units(s) and which expansion valves (if any) are required. To determine approved indoor/outdoor matches, go to www.firstco.com or contact the factory.

ACCESSORIES: (see P. 2) Optional field installed accessories include TXV Kits, Flow Control Modules, Counterflow Conversion Kits, and Freeze Protector.

NOW WITH "DIRECT CONNECT" FROM THE BOILER TO THE AIR HANDLER

FEATURES:

Heating Cycle

1. **Boiler Start Relay:** Eliminates field installed boiler relay, allowing direct wiring from the boiler to the air handler.
2. **Heating Cycle Blower Delay:** 45 second delay of the blower start to allow the coil to be preheated before the blower energizes. It also operates the fan motor 20 seconds after shutdown, increasing heating efficiency.
3. **Blower Jumper:** Set from the factory for low speed heating and high speed cooling. This can be field changed to high speed on heating and cooling for higher capacity out-put.
4. **Microprocessor:** Allows either 24V or 120V power for field installed motorized valves.

Cooling Cycle

1. **Cooling Cycle Blower Delay:** Maximizes cooling efficiency by allowing the blower to operate 45 seconds after the thermostat is satisfied.
2. **Horizontal Drain Pan:** Factory installed. (re-positions within the cabinet for left-to-right airflow)
3. **Piston-type** metering device or factory installed R22 or R410a TXV on cooling coil.
4. **Drain Connections:** Primary and secondary on cooling coil.

Optional Features

1. **Freeze Protector:** (Optional freeze protector switch required) Reduces the possibility of the water coil freezing by switching the unit to the heating mode if the water temperature is nearing a freezing condition.
2. Factory or field installed R22 or R410a TXV's.

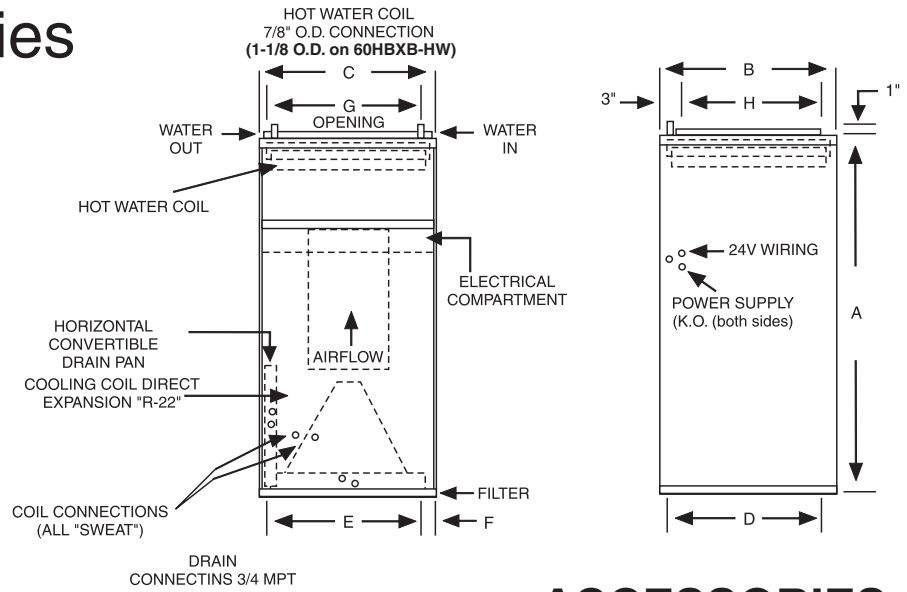
Additional Standard Features

1. Manual **air vent** on hot water coil
2. **Blower door safety switch** (except 60HBXB-HW)
3. **Slide out hot water coil assembly** for easier service
4. **Copper tube** heating and cooling coils
5. Compatible with all major brands of **split condensing units** and **heat pumps**
6. **Factory installed filter**
7. Attractive **baked-on finish**
8. Primary and secondary **drain connections** on cooling coil



HBXB-HW Series

DX COOLING
BOILER HEATING



(See P.4 for Model Numbers)

BLOWER DATA					UPFLOW / HORIZONTAL ONLY					DOWNFLOW ONLY																																						
UNIT MODEL	MOTOR HP-AMPS (120V)	MIN. CKT. AMPACITY	MAX. CKT. PROTECTION	MOTOR SPEED CONN.	CFM vs. EXTERNAL STATIC PRESSURE																																											
					0.05	0.10	0.20	0.30	0.40	0.50	0.05	0.10	0.20	0.30	0.35																																	
18HBXB-HW	1/5 - 2.8	3.5	15	HIGH MED. LOW	810	780	715	650	580	500	710	690	630	570	540	680	655	600	545	490	420	640	620	575	520	490	530	505	460	415	360	295	480	460	420	380	350	350	325	270	220	160	---	330	310	260	220	200
					950	920	855	790	720	645	760	730	880	620	590	550	860	835	785	720	650	580	720	690	640	590	525	780	755	705	650	590	510	680	655	600	550											
					1120	1095	1045	995	940	880	1080	1060	1010	950	920	850	840	810	780	740	690	885	860	830	800	770	680	670	655	625	585	510	730	720	690	660	640											
24HBXB-HW	1/5 - 5.1	6.38	15	HIGH MED. LOW	1340	1310	1250	1190	1120	1050	1090	1070	1010	950	925	1290	1260	1200	1140	1080	1000	1060	1030	980	920	890	1200	1170	1120	1070	1010	940	1020	990	940	890	860											
					1810	1780	1720	1660	1590	1530	1510	1480	1430	1380	1350	1570	1550	1510	1460	1400	1340	1270	1240	1190	1150	1120	1280	1260	1220	1180	1130	1050	1005	980	930	890	860											
					2160	2125	2055	1980	1895	1810	60HBXB-HW is not approved for downflow conversion	1865	1840	1785	1710	1620	1525	1560	1540	1490	1435	1365	1260																									

NOTES:

- All models are approved for installation with 0" clearance to combustible materials.
- For downflow applications, select air handler 1/2 ton larger than the outdoor unit in order to achieve nominal airflow.
- Use 48HBXB-HW for 3.5 ton applications and field-convert fan motor to medium speed.

ACCESSORIES (field installed)

FLOW CONTROL MODULES	
PART NUMBER	FOR
940-3CV	18 - 48HBXB-HW
940-2CV	60HBXB-HW

NOTE:

Flow Control Modules are required when connecting to individual gas water heaters.

EXPANSION VALVE KITS (Field installed) (cooling only or heat pump)

PART NUMBER	R22	FITS	
9EVR22-4		18/24HBXB-HW	
9EVR22-5		30/36HBXB-HW	
9EVR22-6		48/60HBXB-HW	
R410a			
9EVR410-3		18/24HBXB-HW	
9EVR410-4		30/36HBXB-HW	
9EVR410-5		48/60HBXB-HW	

NOTES:

- Above expansion valve kits are approved for both cooling only (non heat pump) and heat pump applications.
- Valves are external equalizing, internal bleed.
- Valves have screw-on connections.

PHYSICAL DIMENSIONS									
UNIT MODEL	A	B	C	D	E	F	G	H	FILTER SIZE
18HBXB-HW 24HBXB-HW	40	20	20	18-1/2	16	2	18	16	18 X 20 X 1
30HBXB-HW 36HBXB-HW	42	23	20	21-1/2	16	2	18	19	20 X 22 X 1
48HBXB-HW	48	28	21-1/4	26-1/4	17-1/4	2	18	24	20 X 25 X 1
60HBXB-HW	52	28	25-1/4	26-1/2	21-1/4	2	22	24	14 X 24 X 1 (2 required)

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

FREEZE PROTECTOR	
KIT NUMBER	FOR
941-1	18 - 60HBXB-HW

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

NOTES:

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

Model Numbers:

FACTORY INSTALLED TXV'S			
MODEL SIZE (BTU)	MODEL (PISTON)	MODEL (R22 TXV)	MODEL (R410a TXV)
18,000	18HBXB-HW	18HBXB-HW w/R22 TXV	18HBXB-HW w/R410a TXV
24,000	24HBXB-HW	24HBXB-HW w/R22 TXV	24HBXB-HW w/R410a TXV
30,000	30HBXB-HW	30HBXB-HW w/R22 TXV	30HBXB-HW w/R410a TXV
36,000	36HBXB-HW	36HBXB-HW w/R22 TXV	36HBXB-HW w/R410a TXV
42,000/48,000	48HBXB-HW	48HBXB-HW w/R22 TXV	48HBXB-HW w/R410a TXV
60,000	60HBXB-HW	60HBXB-HW w/R22 TXV	60HBXB-HW w/R410a TXV

All TXV's are approved for cooling only or heat pump operation.

NOTE:

Expansion valve requirement depends on the selected outdoor unit.
Go to www.firstco.com or contact the factory for assistance.

PERFORMANCE DATA								
UNIT MODEL	NOM. COOLING BTUH	MOTOR SPEED CONN.	CFM @ .3 ESP	GPM (HTG.)	P.D. (FT. WTR.)	BTUH (1000) AT ENTERING WATER TEMPERATURE		
						140°F	160°F	180°F
18HBXB-HW	18,000	HIGH	650	3	1.13	24.6	31.6	38.7
				2	0.51	22.7	29.2	35.7
				1	0.13	17.0	21.9	26.8
		MED.	550	3	1.13	22.4	28.7	35.1
				2	0.51	20.7	26.6	32.5
				1	0.13	15.8	20.4	24.9
		MED. LOW	420	3	1.13	18.9	24.3	29.7
				2	0.51	17.7	22.8	27.8
				1	0.13	13.8	17.8	21.7
24HBXB-HW	24,000	HIGH	800	3	1.13	27.7	35.6	43.5
				2	0.51	25.4	32.7	39.9
				1	0.13	19.0	24.5	29.9
		MED.	725	3	1.13	26.3	33.8	41.3
				2	0.51	24.2	31.1	38.1
				1	0.13	18.3	23.5	28.8
		LOW	650	3	1.13	24.6	31.6	38.7
				2	0.51	22.7	29.2	35.7
				1	0.13	17.1	22.0	26.9
30HBXB-HW	30,000	HIGH	1000	6	7.55	37.5	48.2	58.9
				4	3.64	35.1	45.2	55.2
				2	1.04	30.0	38.6	47.2
		MED.	780	6	7.55	32.3	41.6	50.8
				4	3.64	30.5	39.2	47.9
				2	1.04	26.3	33.9	41.4
		LOW	625	6	7.55	28.2	36.3	44.3
				4	3.64	26.7	34.3	41.9
				2	1.04	23.5	30.2	36.9
36HBXB-HW	36,000	HIGH	1200	6	7.55	41.5	53.4	65.2
				4	3.64	38.7	49.8	60.8
				2	1.04	32.8	42.2	51.5
		MED.	1140	6	7.55	40.3	51.8	63.4
				4	3.64	37.7	48.5	59.3
				2	1.04	32.1	41.3	50.5
		LOW	1070	6	7.55	39.0	50.1	61.3
				4	3.64	36.5	47.0	57.4
				2	1.04	31.3	40.2	49.1
48HBXB-HW	48,000	HIGH	1660	6	2.90	66.6	85.6	104.7
				4	1.40	61.7	79.4	97.0
				2	0.41	48.0	61.8	75.5
		MED.	1460	6	2.90	62.3	80.1	97.9
				4	1.40	57.4	73.8	90.2
				2	0.41	45.0	57.8	70.7
		LOW	1180	6	2.90	54.5	70.1	85.7
				4	1.40	50.6	65.0	79.5
				2	0.41	40.1	51.6	63.0
60HBXB-HW	60,000	HIGH	1980	9	5.15	83.8	107.8	131.7
				7	3.33	80.0	102.9	125.8
				5	1.86	74.5	95.8	117.1
		MED.	1710	9	5.15	76.8	98.7	120.6
				7	3.33	73.5	94.5	115.5
				5	1.86	68.9	88.5	108.2
		LOW	1430	9	5.15	68.5	88.1	107.7
				7	3.33	65.8	84.6	103.4
				5	1.86	61.8	79.5	97.1

NOTES:

- (1) Heat BTU is at 65° Entering Air Temperature.
- (2) Units are shipped with motors connected to high speed for cooling and medium speed for heating.
- (3) 190° EWT would increase the 180° EWT heating capacities by 9.1%. 200° EWT would increase the 180° EWT heating capacities by 18.2%.

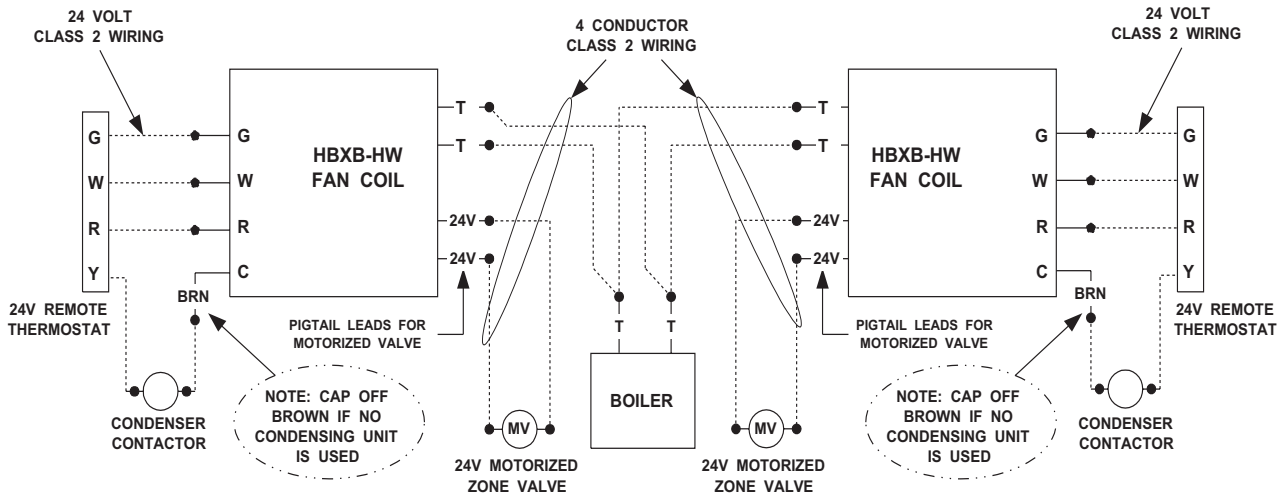
In keeping with its policy of continuous progress and product improvement, First Operations reserves the right to make changes without notice. Maintenance for all First Co. products is available under "Product Maintenance" at www.firstco.com.

APPLICATION GUIDELINES

Zone Valves

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

TYPICAL WIRING SCHEMATIC FOR MULTIPLE ZONE CONNECTIONS WITH ZONE VALVES



TYPICAL WIRING SCHEMATIC FOR MULTIPLE ZONE CONNECTIONS TO TACO SR-504/506 SWITCHING RELAY

