

**NOW EQUIPPED WITH MULTI-FUNCTION MICRO-PROCESSOR**

## **HBQB Series**

Vertical / Horizontal / Counterflow (Except 60HBQB)  
Combo Air Handler

**Cooling or Heat Pump / Hot Water Heating**  
**1-1/2 through 5 tons, up to 143,000 BTUH Heating**



MEETS 2006  
DOE REQUIREMENTS (1)

### **Description :**

This "Combo" air handler converts a properly sized gas or oil-fired water heater into a highly efficient space heating appliance that can heat your home as well as provide domestic hot water. Compared to other heating systems, combo heaters offer high efficiency, greater installation flexibility, cost less to install, and are much easier to service.

The **HBQB Series** incorporates a **Multi-function Micro-processor** that not only reduces the number of components but adds a number of standard system functions that would not normally be available, such as an automatic pump timer, and blower delay, just to name a few. The **HBQB** air handler is the *only* product available with these high quality features! Cooling efficiencies up to 14 SEER.

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

Proper water heater sizing is required to ensure adequate hot water supply for both domestic use and space heating. Contact the factory for sizing information.

### **NOW WITH 2-SPEED FAN OPERATION** **(High Speed-Cool, Medium Speed-Heat)**

#### **FEATURES:**

##### **Heating Cycle**

1. **Automatic pump timer:** The circulating pump automatically energizes four times daily for 30 seconds each cycle to purge the hot water coil and piping (pump timer cycle is skipped while compressor is operating).
2. **Blower-on delay:** On a call for heat, the hot water coil is preheated for 45 seconds before the blower energizes.
3. **Blower-off delay:** Blower continues to operate for 20 seconds after thermostat is satisfied, extracting more heat from the heating coil and increasing heating performance.

##### **Cooling Cycle**

1. **Blower-off delay:** Blower continues to operate for 45 seconds after thermostat is satisfied, extracting more cooling from the cooling coil and maximizing cooling efficiency.

**Optional features** (logic for the following options is built into the micro-processor circuit board but each option requires an optional field installed switch. (Contact factory)

1. **Freeze protection:** Circuit board has terminals for optional freeze protector switch. Freeze protector energizes the circulating pump if water coil temperature falls below 40 degrees.
2. Factory or field installed R22 or R410A TXV's.

##### **Additional features**

1. **4-way airflow** (kit required for counterflow – 60HBQB not approved for counterflow installation)
2. Built-in **circulating pump, air purge valve, and easy access hot water check valve.**
3. **Blower door safety switch** (except 60HBQB)
4. Compatible with all major brands of **split condensing units and heat pumps**
5. **Slide out hot water coil assembly** for easier service
6. **Fully insulated** galvanized steel cabinet
7. **High efficiency** copper tube/aluminum fin heating and cooling coils
8. Primary and secondary **drain connections** on cooling coil
9. **Factory installed filter**
10. **Easy access hot water check valve**



# HBQB Series

## COOLING or HEAT PUMP

### HOT WATER HEATING

#### Efficiency:

The **HBQB** series air handler is the latest state-of-the-art air handler for hot water heating. Depending on the water heater efficiency and the condensing unit used, heating efficiency can exceed 90% and cooling efficiency can exceed 14 SEER (depending on the selected outdoor unit). Cooling coils have either piston type metering devices or R22 or R410A TXV's and are circuited for cooling or heat pump operation.

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#### Components:

Each air handler includes a high efficiency cooling coil, a separate hot water coil, circulating pump, air purge valve, anti-thermosyphon check valve, blower door safety switch (except 60HBQB), 120V blower motor, throw away filter, and 24V transformer.

#### Cabinets:

Cabinets are fully insulated and painted with an attractive, baked-on powder coating (light gray).

#### Installation:

No modification is required for vertical or horizontal (right-to-left) airflow. A horizontal drain pan is factory installed for right-to-left airflow and can be re-positioned within the cabinet to offer left-to-right airflow. An optional counterflow conversion kit is available for downflow installations.

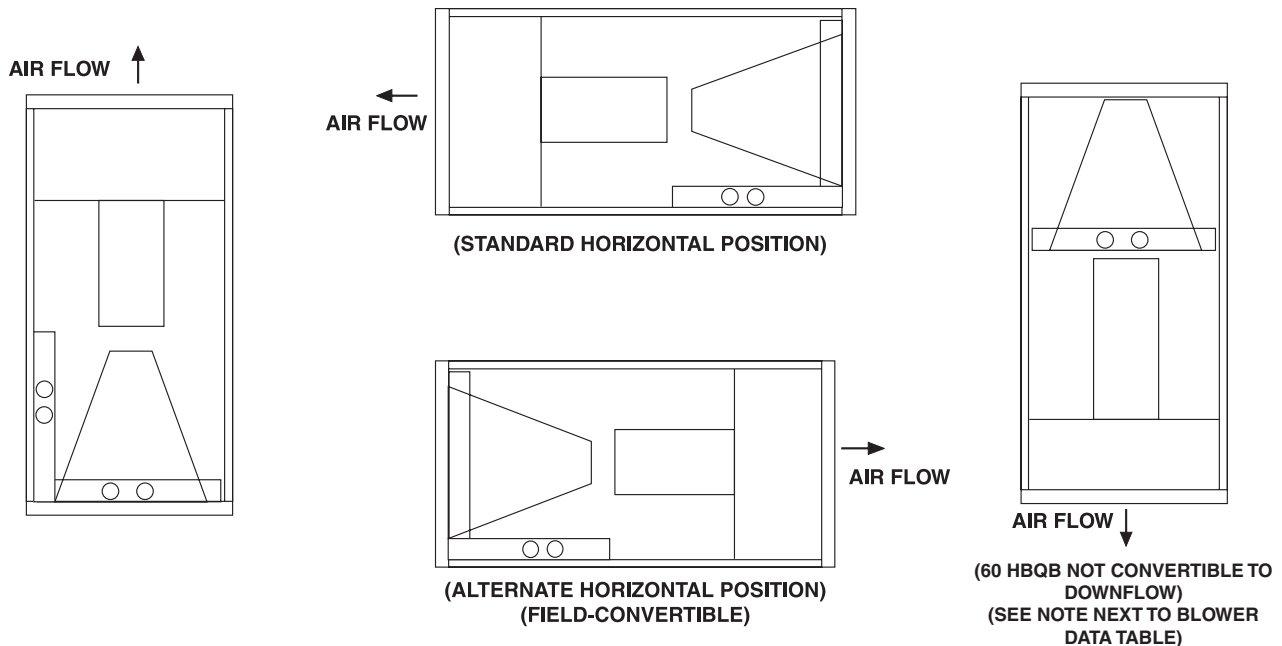
#### Operation:

When space heating is needed, the wall thermostat energizes the circulating pump which circulates hot water from the water heater to the hot water coil in the air handler. As the blower motor forces cool return air from the home over the hot water coil, the air absorbs heat from the hot water. This warm air (105 to 110 degrees) is then circulated throughout the duct system and into the home. The water loses only about 15 degrees of temperature while it circulates through the coil and is then returned to the water heater to be reheated.

#### Accessories:

Accessories include counterflow conversion kits, TXV expansion valve kits, and freeze protector.

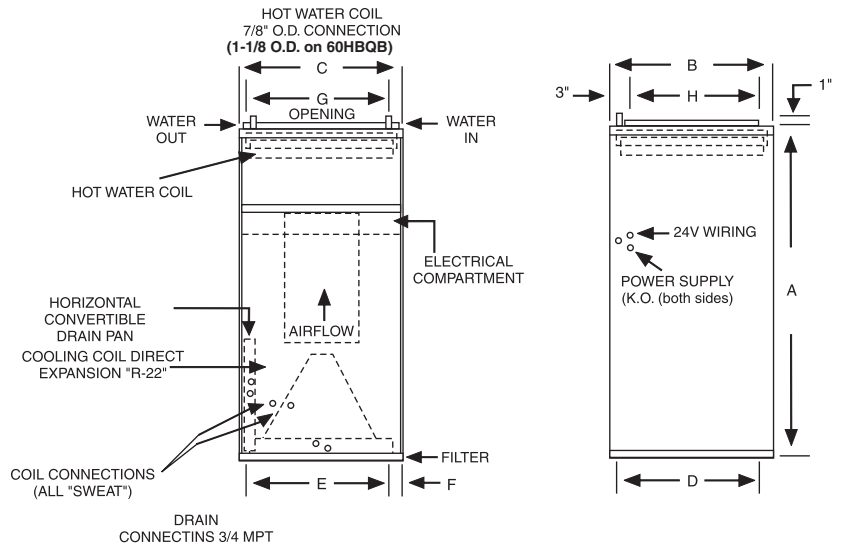
### 4-WAY AIRFLOW



# HBQB Series

## COOLING or HEAT PUMP HOT WATER HEATING

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



(See P.4 for Model Numbers)

PERFORMANCE DATA								
UNIT MODEL	NOMINAL COOLING BTUH	COIL # (2)	GPM (HTG.)	P.D. (FT. WTR.)	BTUH (1000) AT ENT. WATER TEMP.			
					120°F	130°F	140°F	180°F
18HBQB	18,000	USM318AP	3-1/2	4.3	24.2	29.1	33.9	53.3
24HBQB	24,000	USM424AP	3-1/2	4.3	25.2	30.3	35.3	55.5
30HBQB	30,000	USM330AP	3-1/2	5.0	31.1	37.4	43.6	68.5
36HBQB	36,000	USM436A	3-1/2	5.0	35.4	42.4	49.5	77.8
48HBQB	42,000/ 48,000	USM348AP	3-1/2	3.4	45.9	55.0	64.2	100.8
60HBQB	60,000	USM460BP	7	8.8	65.0	78.0	91.0	143.0

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

- Use 48HBQB for 3.5 ton applications and field-convert fan motor to low speed.
- See "USM" data sheet for additional coil information.

### NOTES:

- Heating output of fan coil will not exceed net output of water heater.
- Approved for installation with 0" clearance to combustible materials.
- Heat BTUH is at 70°F entering air temperature.

ELECTRICAL DATA					
UNIT MODEL	MOTOR HP (120V)	AMPS		MIN. CIR. AMPACITY	MAX. HACR BREAKER
		MOTOR	PUMP		
18HBQB	1/5	2.8	0.57	5	15
24HBQB	1/5	5.1	0.57	7	15
30HBQB	1/5	5.1	0.57	7	15
36HBQB	1/2	8.5	0.57	12	15
48HBQB	3/4	10.7	0.57	14	15
60HBQB	1	11.5	0.75	16	20

BLOWER DATA			UPFLOW / HORIZONTAL ONLY						DOWNFLOW ONLY				
UNIT MODEL	MOTOR HP-AMP (120V)	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
18HBQB	1/5-2.8	HIGH MED. HIGH MED. LOW 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	325	220	160	---	330	310	260	220	200
24HBQB	1/5-5.1	HIGH MED LOW	950	920	855	790	720	645	760	730	680	620	590
			860	835	785	720	650	580	720	690	640	590	550
			780	755	705	650	590	510	680	655	600	550	525
			1120	1095	1045	995	940	880	1080	1060	1010	950	920
30HBQB	1/5-5.1	HIGH MED LOW	850	840	810	780	740	590	885	860	830	800	770
			680	670	655	625	585	510	730	720	690	660	640
			1340	1310	1250	1190	1120	1050	1090	1070	1010	950	925
			1290	1260	1200	1140	1080	1000	1060	1030	980	920	890
36HBQB	1/2-8.5	HIGH MED LOW	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
48HBQB	3/4-10.7	HIGH MED LOW	2160	2125	2055	1980	1895	1810	2050	2005	1930	1840	1760
			1865	1840	1785	1710	1620	1525	1525	1525	1525	1525	1525
			1560	1540	1490	1435	1365	1260	1260	1260	1260	1260	1260
			60HBQB is not approved for downflow conversion										



**NOTE:**  
For downflow applications, select air handler 1/2 ton larger than the outdoor unit in order to achieve nominal airflow.

## Model Numbers:

		FACTORY INSTALLED TXV'S	
MODEL SIZE (BTU)	MODEL (PISTON)	MODEL (R22 TXV)	MODEL (R410A TXV)
18,000	18HBQB	18HBQB w/R22 TXV	18HBQB w/R410A TXV
24,000	24HBQB	24HBQB w/R22 TXV	24HBQB w/R410A TXV
30,000	30HBQB	30HBQB w/R22 TXV	30HBQB w/R410A TXV
36,000	36HBQB	36HBQB w/R22 TXV	36HBQB w/R410A TXV
42,000/48,000	48HBQB	48HBQB w/R22 TXV	48HBQB w/R410A TXV
60,000	60HBQB	60HBQB w/R22 TXV	60HBQB 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/EfficiencyRatings.aspx](http://www.firstco.com/EfficiencyRatings.aspx) or contact the factory for assistance.

## ACCESSORIES - (all field installed)

EXPANSION VALVE KITS (Field installed) (cooling only or heat pump)	
PART NUMBER	FITS
<b>R22</b>	
9EVR22-4	18/24HBQB
9EVR22-5	30/36HBQB
9EVR22-6	48/60HBQB
<b>R410A</b>	
9EVR410-3	18/24HBQB
9EVR410-4	30/36HBQB
9EVR410-5	48/60HBQB

**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.

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](http://www.firstco.com).

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

**Notes:**

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

MISCELLANEOUS		
COMPONENT	DESCRIPTION	PART NUMBER
Freeze Protector	Energizes pump when coil temperature falls below 38°F	941-1
Thermostat	24V Heat/Cool	T334

**Notes:**

- Freeze protector attaches to hot water coil and wires to low voltage (24V) circuit.

Catalog No. HBQB1105 (Replaces HBQB905NP)