

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

## HBQB Series

Vertical / Horizontal / Counterflow

Combo Air Handler

Heat Pump or DX Cooling / Hot Water Heating

1-1/2 through 5 tons, up to 143,000 BTUH Heating

**TOTAL  
COMFORT  
SOLUTION INC.**  
"Energy Efficient Mechanical Systems"

THE BEST  
JUST GOT BETTER

### 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, blower delay, and short cycle condenser timer, just to name a few. The **HBQB** air handler is the *only* product available with these high quality features! Cooling efficiencies are 13+ SEER. 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

- NEW** 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).
- NEW** 2. **Blower-on delay:** On a call for heat, the hot water coil is preheated for 45 seconds before the blower energizes.
- NEW** 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

- NEW** 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)

- NEW** 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.
- NEW** 2. **Priority control:** Circuit board has terminals for optional priority switch. The priority switch de-energizes the air handler during periods of hot water domestic draw, maximizing the amount of hot water available for showers, etc.
- NEW** 3. **Cold weather fan control:** Circuit board has terminals for optional cold weather fan switch. When the outdoor temperature falls below the fan control set point, the fan control switches the blower from low to high speed

##### 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. **Piston-type** metering device on cooling coil
- 7. **Fully insulated** galvanized steel cabinet
- 8. **High efficiency** copper tube/aluminum fin heating and cooling coils
- 9. Primary and secondary **drain connections** on cooling coil



# HBQB Series

## DX COOLING

## HOT WATER HEATING

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### 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 13.0 SEER. Cooling coils are also circuited for heat pump operation.

### Components:

Each air handler includes a high efficiency cooling coil, a separate hot water coil, circulating pump, air purge valve, anti-thermosyphon check valve, flue gas 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:

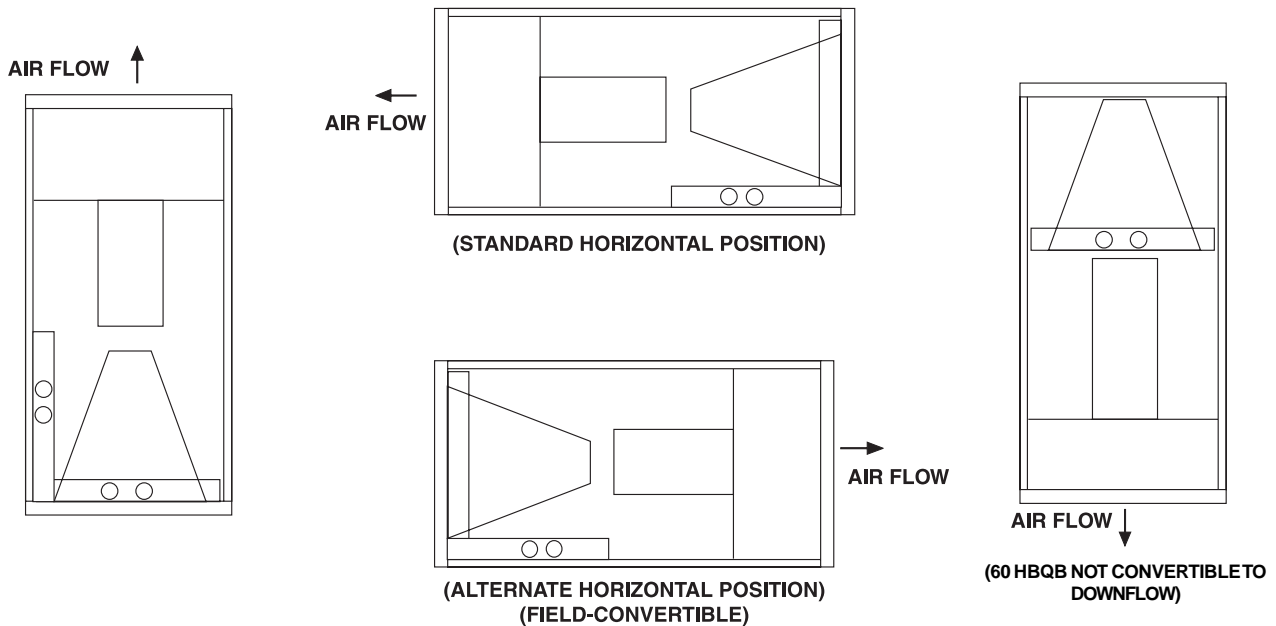
When space heating is needed, the wall thermostat energizes the circulating pump which circulates hot water from the water heater to the hot water coil in the air handler. As the blower motor forces cool return air from the home over the hot water coil, the air absorbs heat from the hot water. This warm 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, DX expansion valve kits, heat pump expansion valve kits and freeze protector.

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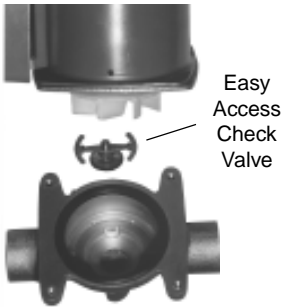
### 4-WAY AIRFLOW



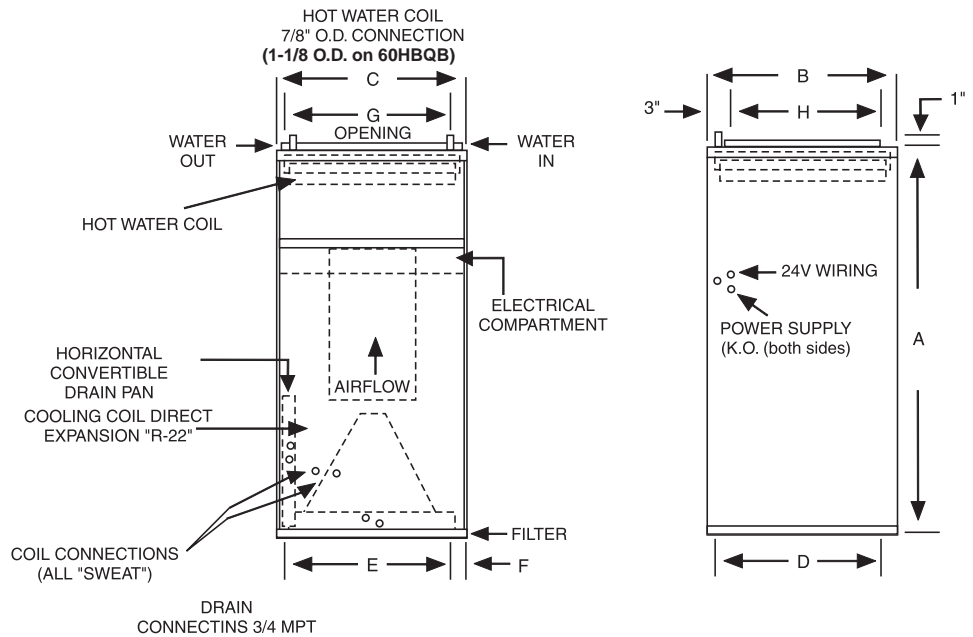
# HBQB Series

## DX COOLING

## HOT WATER HEATING



Easy Access Check Valve



COIL CONNECTIONS	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
18HBQB 24HBQB	40	20	20	18-1/2	16	2	18	16	18 X 20 X 1
30HBQB 36HBQB	42	23	20	21-1/2	16	2	18	19	20 X 22 X 1
48HBQB	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)

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	USM436AP	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 49.1	55.0 59.0	64.2 68.8	100.8 108.1
60HBQB	60,000	USM460BP	7	8.8	65.0	78.0	91.0	143.0

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

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

### NOTES:

1. Heating output of fan coil will not exceed net output of water heater.
2. Approved for installation with 0" clearance to combustible materials.
3. 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

## ACCESSORIES - (all field installed)

EXPANSION VALVE KITS	
PART NO.	FOR
R22	
978-5HP	18, 24HBQB (1-1/2 & 2 TON)
978-6HP	30, 36HBQB (2-1/2 & 3 TON)
978-7HP	48,60HBQB (3-1/2, 4 & 5 TON)

### NOTES:

1. Above expansion valve kits are approved for both straight cool (non heat pump) or heat pump applications.
2. Valves are external equalizing, internal bleed.
3. Valves will install inside the air handler cabinet.

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

### Notes:

1. Counterflow conversion not recommended where the air handler is installed above the finished ceiling.
2. 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:

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

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