



# HB Series Specifications

## Specifications

MODEL	NOM. TONS	4 ROW WATER	SHP WT	6 ROW WATER	SHIP WT	2 ROW WATER	1 ROW WATER	SHP WT**	FILTER(s)
HBB 04	1	3/4"	100	3/4"	105	7/8"	5/8"	10	12 X 25
HBB 06	1.5	3/4"	105	3/4"	110	7/8"	5/8"	10	12 X 25
HBB 08	2	3/4"	145	3/4"	165	7/8"	5/8"	13	16 X 32
HBB 12	3	3/4"	171	3/4"	190	7/8"	5/8"	18	16 X 32
HBB 16	4	7/8"	200	7/8"	227	7/8"	7/8"	25	(2) 20 X 20
HBB 20	5	1-1/8"	244	1-1/8"	263	1-1/8"	7/8"	30	(2) 20 X 20
HBB 30	7.5	1-1/8"	457	1-1/8"	475	1-1/8"	N/A	41	(2) 16 X 32 (1) 20 X 32
HBB 40	10	1-3/8"	512	1-3/8"	547	1-3/8"	N/A	53	(2) 16 X 32 (1) 20 X 32
HBA 60	15	1-3/8"	700	1-3/8"	787	1-3/8"	N/A	86	(2) 20 X 25 (4) 20X 20
HBA 80	20	(2) 1-5/8"	775	(2) 1-5/8"	856	(2) 1-5/8"	N/A	106	(2) 16 X 20 (2) 16X 25 (2) 20 X 25 (2) 20X 20

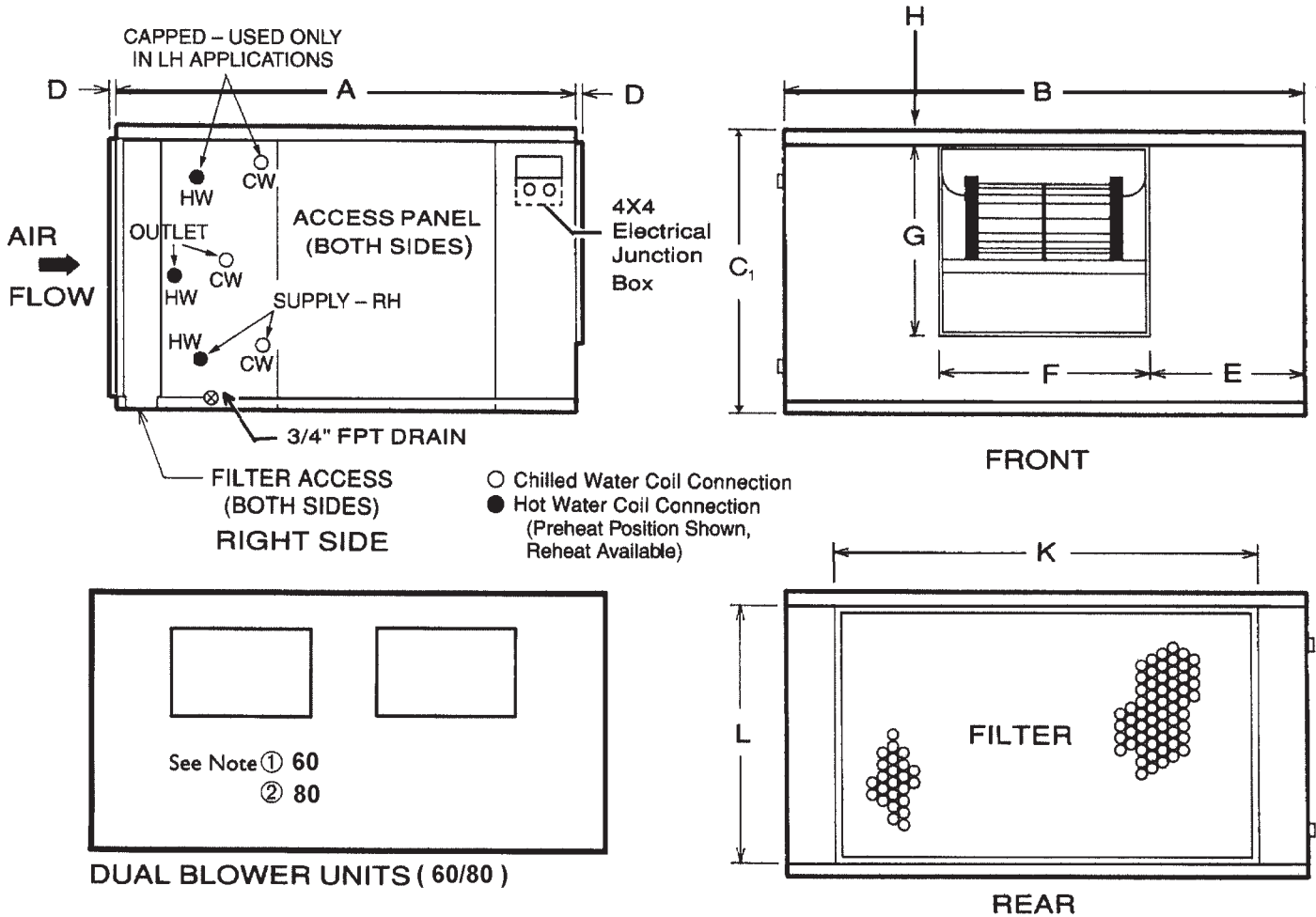
\*\* COIL ONLY

Coil Stubouts are listed in inches Outside Dimens

MODEL	NOM. TONS	Coil Face Area	Standard Capacity DX Coils					Hot Water Coils			FILTER(s)	
			Single Circuit		SHP WT	Dual Split		SHP WT	2 ROW	1 ROW		SHP WT**
			Liquid	Suction		Liquid (2)	Suction (2)					
HBB 04	1	1.13	3/8"	3/4"	100	N/A			7/8"	5/8"	13	12 X 25
HBB 06	1.5	1.19	3/8"	3/4"	105	N/A			7/8"	5/8"	13	12 X 25
HBB 08	2	2.05	3/8"	3/4"	136	N/A			7/8"	5/8"	13	16 X 32
HBB 12	3	3.05	3/8"	3/4"	154	N/A			7/8"	5/8"	18	16 X 32
HBB 16	4	4.03	1/2"	7/8"	179	Contact Factory			7/8"	7/8"	25	(2) 20 X 20
HBB 20	5	5	1/2"	1-1/8"	223				1-1/8"	7/8"	30	(2) 20 X 20
HBB 30	7.5	7.16	5/8"	1-1/8"	388	1/2"	7/8"	475	1-1/8"	N/A	41	(2) 16 X 32 (1) 20 X 32
HBB 40	10	10.22	5/8"	1-3/8"	481	1/2"	7/8"	547	1-3/8"	N/A	53	(2) 16 X 32 (1) 20 X 32
HBA 60	15	13.75	N/A			7/8"	1-1/8"	787	1-3/8"	N/A	86	(2) 20 X 25 (4) 20X 20
HBA 80	20	16.6	N/A			7/8"	1-3/8"	856	(2) 1-5/8"	N/A	106	(2) 16 X 20 (2) 16X 25 (2) 20 X 25 (2) 20X 20

\*\* COIL ONLY

Coil Stubouts are listed in inches Outside Dimension



### Unit Cabinet Dimensions

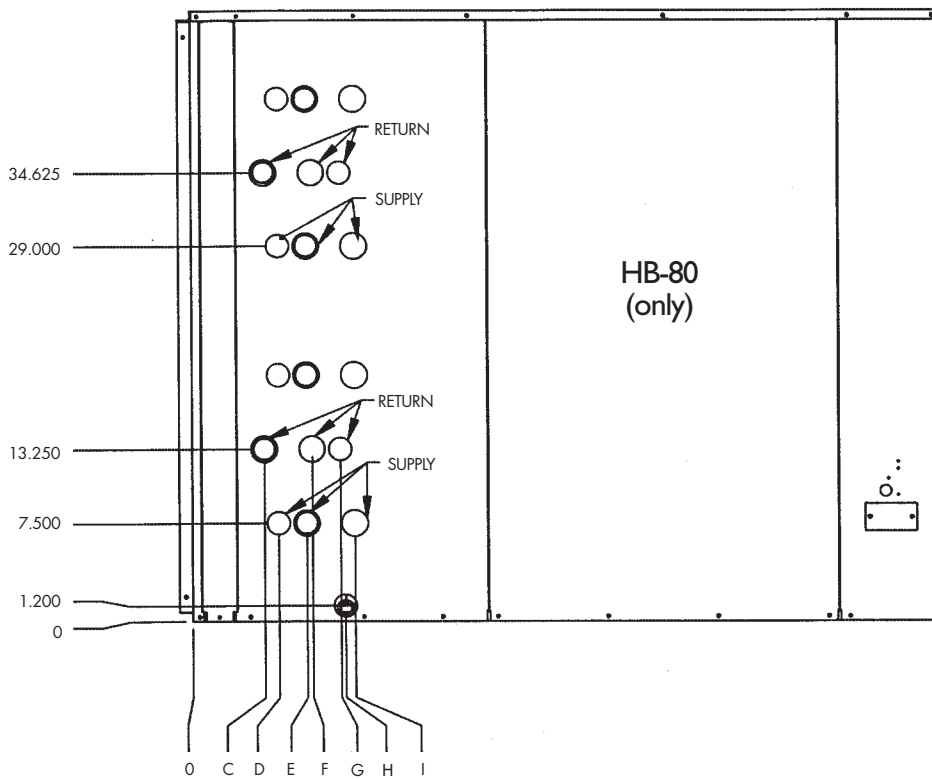
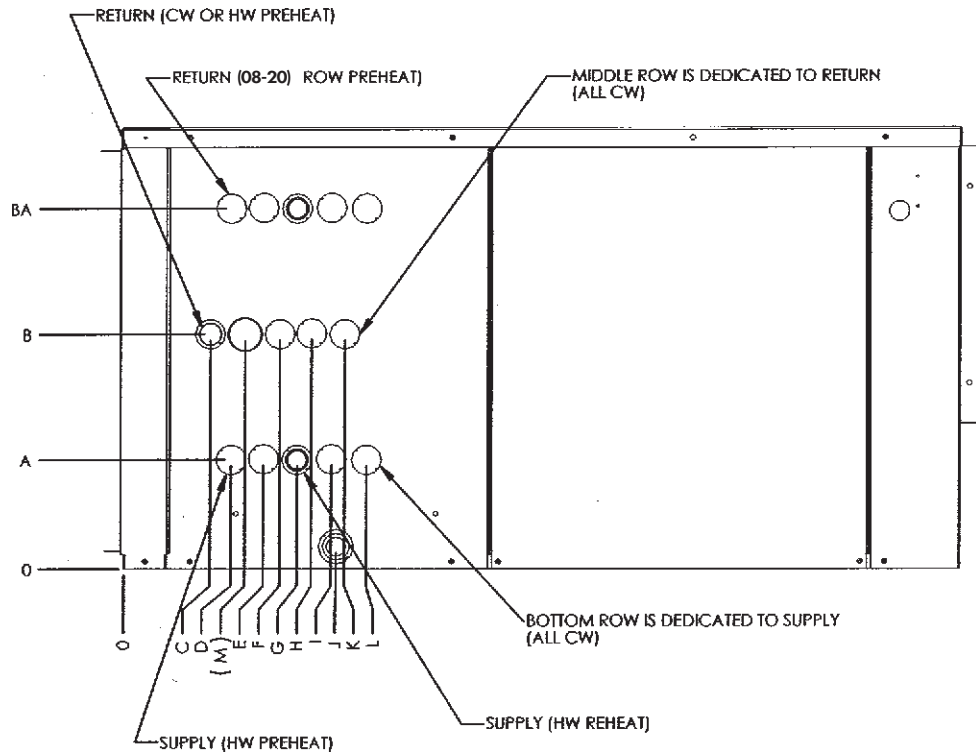
Model	Unit								Blower Opening		Return Duct Connection	
	A	B	C <sub>1</sub> **	C <sub>2</sub> **	C <sub>3</sub> **	D	E	H	F	G	K	L
<b>HBB 04/06</b>	38.0	28.0	14.1	15.1	N/A	1.0	9.6	1.0	8.6	10.6	22.0	12.3
<b>HBB 08/12</b>	37.1	36.6	18.1	19.0	25.0	1.0	14.1	1.0	8.4	10.6	27.6	16.4
<b>HBB 16</b>	42.0	45.0	22.1	23.0	29.9	1.0	17.9	1.0	9.1	13.8	36.0	20.0
<b>HBB 20</b>	42.0	45.0	22.1	23.0	29.9	1.0	14.3	1.0	12.5	13.8	36.0	20.0
<b>HBB 30/40</b>	52.5	57.0	34.8	34.8	41.6	1.0	21.8	9.1	13.4	16.2	48.0	32.2
<b>HBA 60</b>	57.5	67.2	43.0	43.0	52.6	N/A	11.4*	8.0	(2) 16.4*	(2) 16.4*	57.9	40.4
<b>HBA 80</b>	57.5	72.3	48.0	48.0	56.4	N/A	14.0*	13.0	(2) 16.4*	(2) 16.4*	66.0	45.7

#### NOTES:

\*1. HBA60 and 80 are twin blowers. Dimension "E" is to closest blower. Dimension "F" and "G" are typical for both fan outlets.

\*\*2. "C<sub>1</sub>" dimension is for standard unit. "C<sub>2</sub>" dimension is for double wall units. "C<sub>3</sub>" dimension is for single wall face & bypass units.

Add 1" to "C<sub>3</sub>" dimension" for sizes 04-20 for face and bypass double wall units.





# I through 20Ton Coil Stubout Dimensional Data

Unit Model	Coil(s) Rows	A	B	BA	C	D	E	F	G	H	I	J	K	L	M
HBB 04/06	4	3.30	7.55	11.80	5.13	-	7.75	-	-	-	-	11.50	-	-	-
HBB 04/06	4-1	3.30	7.55	11.80	5.13	-	7.75	8.63	9.50	-	-	11.50	-	-	-
HBB 04/06	4-2	3.30	7.55	11.80	5.13	-	7.75	8.63	9.50	-	-	11.50	-	-	-
HBB 04/06	1-4	3.30	7.55	11.80	5.13	5.75	-	-	9.50	-	-	11.50	-	-	6.88
HBB 04/06	2-4	3.30	7.55	11.80	5.13	5.75	-	-	9.50	-	-	11.50	-	-	6.88
HBB 04/06	6	3.30	7.55	11.80	5.13	-	-	-	9.50	-	-	11.50	-	-	-
HBB 04/06	6-4	3.30	7.55	11.80	5.13	-	-	-	9.50	10.58	-	11.50	-	9.50	-
HBB 04/06	6-2	3.30	7.55	11.80	5.13	-	-	-	9.50	10.58	11.30	11.50	-	-	-
HBB 04/06	1-6	3.30	7.55	11.80	5.13	5.75	-	-	-	-	11.30	11.50	-	-	6.88
HBB 04/06	2-6	3.30	7.55	11.80	5.13	5.75	-	-	-	-	11.30	11.50	-	-	6.88
HBB 08/12	4	5.50	9.75	-	4.40	-	7.00	-	7.00	-	-	9.50	-	-	-
HBB 08/12	4-1	5.50	9.75	14.00	4.40	-	7.00	-	7.00	-	10.50	9.50	-	-	-
HBB 08/12	4-2	5.50	9.75	-	4.40	-	7.00	-	7.00	9.38	10.50	9.50	-	-	-
HBB 08/12	1-4	5.50	9.75	-	-	5.40	-	7.88	-	-	10.50	9.50	-	-	-
HBB 08/12	2-4	5.50	9.75	14.00	4.40	5.40	-	7.88	-	-	10.50	9.50	-	-	-
HBB 08/12	6	5.50	9.75	-	4.40	-	8.75	-	8.75	-	-	9.50	-	-	-
HBB 08/12	6-4	5.50	9.75	14.00	4.40	-	8.75	-	8.75	-	12.25	9.50	-	-	-
HBB 08/12	6-2	5.50	9.75	-	4.40	-	8.75	-	8.75	11.13	12.25	9.50	-	-	-
HBB 08/12	1-6	5.50	9.75	14.00	-	5.40	-	7.88	-	-	12.25	9.50	-	12.13	-
HBB 08/12	2-6	5.50	9.75	-	4.40	5.40	-	7.88	-	-	12.25	9.50	-	12.13	-
HBB 16/20	4	5.50	11.75	-	4.40	-	7.00	-	7.00	-	-	9.50	-	-	-
HBB 16/20	4-1	5.50	11.75	18.00	4.40	-	7.00	-	7.00	-	10.50	9.50	-	-	-
HBB 16/20	4-2	5.50	11.75	-	4.40	-	7.00	-	7.00	9.38	10.50	9.50	-	-	-
HBB 16/20	1-4	5.50	11.75	18.00	-	5.40	-	7.88	-	-	10.50	9.50	-	-	-
HBB 16/20	2-4	5.50	11.75	-	4.40	5.40	-	7.88	-	-	10.50	9.50	-	-	-
HBB 16/20	6	5.50	11.75	-	4.40	-	8.75	-	8.75	-	-	9.50	-	-	-
HBB 16/20	6-4	5.50	11.75	18.00	4.40	-	8.75	-	8.75	-	12.25	9.50	-	-	-
HBB 16/20	6-2	5.50	11.75	-	4.40	-	8.75	-	8.75	11.13	12.25	9.50	-	-	-
HBB 16/20	1-6	5.50	11.75	18.00	-	5.40	-	7.88	-	-	12.25	9.50	-	12.13	-
HBB 16/20	2-6	5.50	11.75	-	4.40	5.40	-	7.88	-	-	12.25	9.50	-	12.13	-
HBB 30	4	5.50	14.25	-	4.40	-	7.75	-	7.75	-	-	10.63	-	-	-
HBB 30	4-2	5.50	14.25	-	4.40	-	7.75	-	7.75	10.38	11.38	10.63	-	-	-
HBB 30	2-4	5.50	14.25	-	4.40	5.40	-	8.19	-	-	11.38	10.63	-	-	-
HBB 30	6	5.50	14.25	-	4.40	-	9.88	-	9.88	-	-	10.63	-	-	-
HBB 30	6-2	5.50	14.25	-	4.40	-	9.88	-	9.88	12.50	13.50	10.63	-	-	-
HBB 30	2-6	5.50	14.25	-	4.40	5.40	-	8.19	-	-	13.50	10.63	-	-	-
HBB 40	4	4.75	17.50	-	4.40	-	7.75	-	7.75	-	-	10.63	-	-	-
HBB 40	4-2	4.75	17.50	-	4.40	-	8.13	-	8.13	10.38	11.38	10.63	-	-	-
HBB 40	2-4	4.75	17.50	-	4.40	5.40	-	8.19	-	-	11.38	10.63	-	-	-
HBB 40	6	4.75	17.50	-	4.40	-	9.88	-	9.88	-	-	10.63	-	-	-
HBB 40	6-2	4.75	17.50	-	4.40	-	9.88	-	9.88	12.50	13.50	10.63	-	-	-
HBB 40	2-6	4.75	17.50	-	4.40	5.40	-	8.19	-	-	13.50	10.63	-	-	-
HBA 60	4	6.80	21.50	-	4.40	-	8.63	-	8.63	-	-	11.70	-	-	-
HBA 60	4-2	6.80	21.50	-	4.40	-	8.63	-	8.63	11.38	12.38	11.70	-	-	-
HBA 60	2-4	6.80	21.50	-	4.40	6.50	-	9.13	-	-	12.38	11.70	-	-	-
HBA 60	6	6.80	21.50	-	4.40	-	10.80	-	10.80	-	-	11.70	-	-	-
HBA 60	6-2	6.80	21.50	-	4.40	-	10.80	-	10.80	13.50	14.50	11.70	-	-	-
HBA 60	2-6	6.80	21.50	-	4.40	6.50	-	9.13	-	-	14.50	11.70	-	-	-
HBA 80	4	-	-	-	5.50	6.50	7.60	-	-	10.70	-	-	-	-	-
HBA 80	4-2	-	-	-	5.50	5.50	7.60	-	10.20	10.70	11.30	-	-	-	-
HBA 80	2-4	-	-	-	5.50	5.50	-	8.10	-	10.70	11.30	-	-	-	-
HBA 80	6	-	-	-	5.50	5.50	9.80	-	-	10.70	-	-	-	-	-
HBA 80	6-2	-	-	-	5.50	5.50	9.80	-	12.50	10.70	13.50	-	-	-	-
HBA 80	2-6	-	-	-	5.50	5.50	-	8.10	-	10.70	13.50	-	-	-	-

# GUIDE SPECIFICATION

## Fan Coil Unit

### Horizontal Cabinet Model, Ducted HVAC Guide Specifications

Size Range: **400 to 8000 Nominal CFM**

MagicAire Model Number: HB

#### Part 1 — General

##### 1.01 SYSTEM DESCRIPTION

Horizontal, 2-pipe or 4-pipe, belt-driven fan coil unit. External parts are to be made with polyurethane based powder coated galvanealed, while internal parts are to be built from heavy gauge galvanized steel casing model fan coil unit for ducted installation above the ceiling, with full access to internal components.

##### 1.02 QUALITY ASSURANCE

Each coil shall be factory tested for leakage at minimum of 400 psig air pressure with coil submerged in water. Insulation and adhesive shall meet NFPA-90A requirements for flame spread and smoke generation.

##### 1.03 DELIVERY, STORAGE AND HANDLING

Unit shall be handled and stored in accordance with the manufacturer's instructions.

#### Part 2 — Products

##### 2.01 EQUIPMENT

###### A. General:

Factory-assembled, horizontal, draw-thru type fan coil unit suitable for ducted installation above the ceiling or exposed. Unit shall be complete with water, DX or steam coil(s); fan(s); motor; belt drive; drain pan; and filters.

###### B. Casing:

Construction shall be heavy gauge galvanealed steel, painted with baked on polyurethane based powder coating, colored beige, lined with one-in. thick fiberglass Exact-O-Kote thermal/acoustical insulation. Knockouts acceptable for 3/8-in threaded rod shall be provided at the top and bottom of all unit corners for hanging the unit. Supply and return duct connections shall be approx. one inch long (04 - 40 only). Removable side panels shall be provided for access to the fan/motor assembly. A molded plastic double-sloped IAQ drain pan shall extend under the full length and width of the coil(s) with a 3/4-in FPT connection. HBB 04 & 06, and HBA 60 & 80 standard drain pans are Type 304 stainless steel coated with Aquaban.

(Optional) Stainless steel drain pan for sizes HBB 08-40.

###### C. Fans:

Belt-driven, double-width fan wheels shall have forward-curved blades and be statically and dynamically balanced. Fan drive shall consist of variable-pitch motor pulley, fixed-pitch fan pulley and V-belt. Fans and scrolls shall be of galvanized steel.

###### D. Coils:

Unit shall be equipped with a standard capacity (4)-row CW/HW or DX coil for installation in a 2-pipe system. Additional coils shall be provided for installation in a 4-pipe system. Coils shall have 3/8-in. (sizes 04-20) and 1/2-in. (sizes 30-80) copper tubes with aluminum fins bonded to the tubes by mechanical expansion. Coil(s) shall have a working pressure of 400 psig at 200 F. Each coil shall have sweat connections for copper tubes. Water coil(s) shall have manual air vent(s).

###### E. Operating Characteristics:

A single-circuit coil unit installed in a 2-pipe CW/HW system shall be capable of providing heating or cooling. DX coils are suitable for R-22, R410A cooling only, or R-22 heat pump operation. A two coil unit installed in a 4-pipe system shall be capable of providing sequenced heating and cooling as determined by the controls provided by others.

###### F. Motor(s):

Fan motors shall be open, drip-proof, single-speed, 60 Hz, 1750 rpm single or 3-phase, suitable for continuous duty at 104-deg F (40 C) in 115, 208, 230, or 277 volts (60 Hz). Three-phase motors are available in 208, 230, or 460 volts (60 Hz). Single-phase motors shall be provided with resilient mount. Three-phase 575 volt motors are by others.

###### G. Electric Heat:

The electric discharge heater shall be constructed of high-grade resistance wire supported by ceramic insulators on plated steel brackets. These heat elements are suspended in front of the outlet, after the blower and coil. High limit thermal cutouts and non adjustable air proving switch shall protect the heat elements in the event of an air failure. Electric heaters are factory mounted and wired for single point power connection with heater access door interlock switch.

###### H. Filters:

- 2" throwaway filter(s) shall be installed in the unit.
- (Optional) 2" pleated filter(s), MERV-7, shall be installed as indicated on the equipment schedule.

###### I. Insulation:

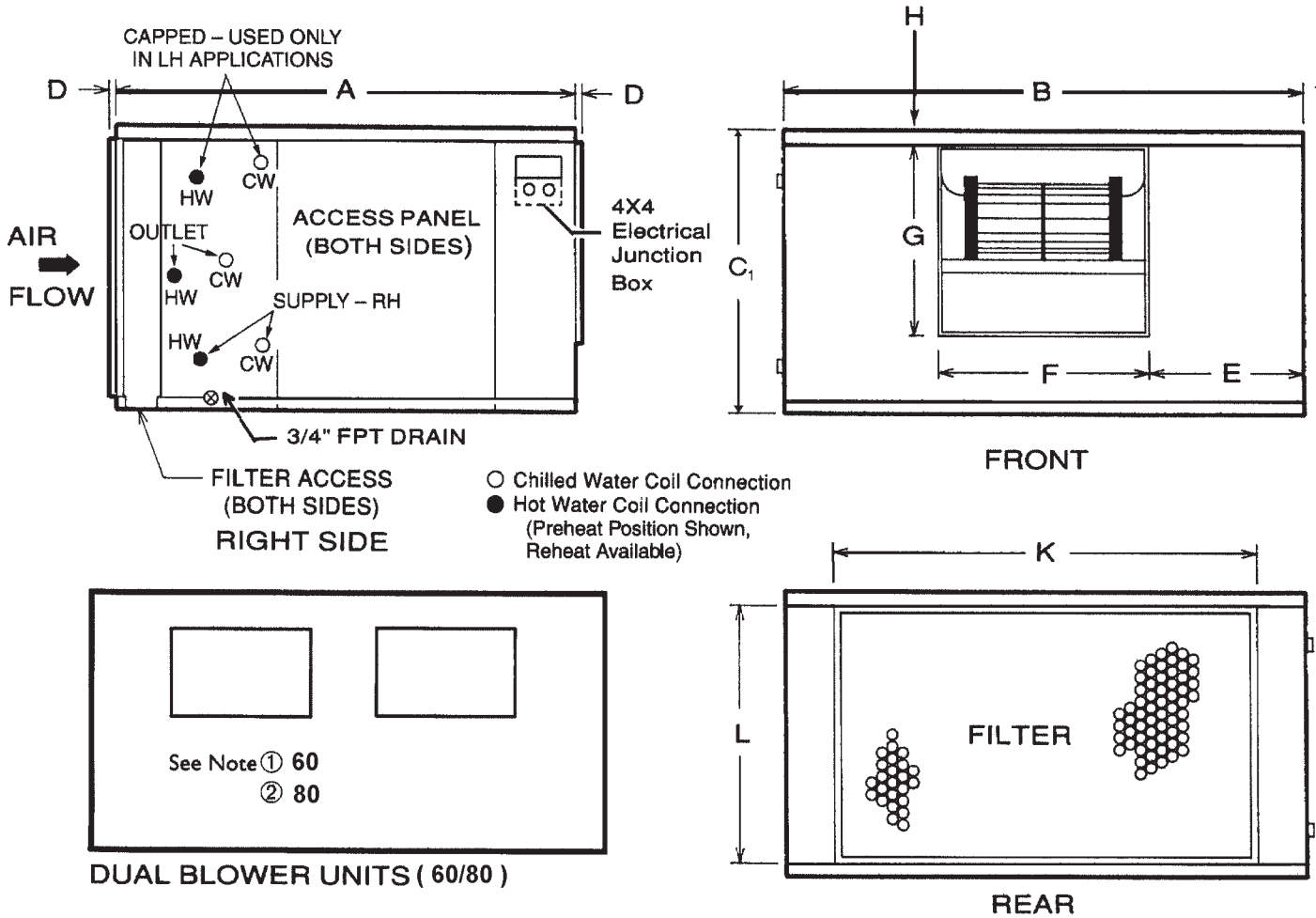
- Units shall be equipped with 1-in. thick, 1.5-lbs/ft<sup>3</sup>, Exact-O-Kote™ insulation.
- (Optional) 7/8" closed cell insulation
- (Optional) 1" double wall construction shall consist of 1" Exact-O-Kote™ insulation with a minimum 22-gauge galvanized steel liner with no fiberglass insulation exposed to the air stream.

###### J. Coil Options:

- Unit shall be equipped with a high-capacity coil for installation in a 2-pipe system.
- For installation in a 4-pipe CW/HW system, unit shall be equipped with either a 4-row cooling/1-row hot water heating coils, or a 4/2, 4/4, 6/1, 6/2, or 6/4 coils as required.
- Unit shall be equipped with either a standard capacity DX (direct expansion) cooling coil or a high capacity (single or split face) DX cooling coil as required.
- For installation in a 4-pipe system the unit shall be equipped with either a 3 or 4-row DX cooling/1-row heating coil or a 3 or 4/2, 3 or 4/4, 6/1, 6/2, or 6/4 coils as required. (Note: Hot water coil re-heat installation is requires using a heating coil low limit on units with DX cooling).
- Provide (High) (Low) capacity steam distributing coil

###### Optional Accessories:

- Unit shall be equipped with Face & Bypass Dampers, actuator by others.
- Mixing Boxes shall include low leak damper assemblies constructed of steel channel frames with 18 gauge galvanized steel blades, die formed stiffeners with stops. Vinyl blade seals to reduce leakage shall be standard. All hardware shall be zinc plated with brass pivot points and bronze oilite bearings. Shafts shall be corrosion resistant steel. Mixing box shall be fully insulated with 1-in. thick Exact-O-Kote™ insulation. Optional - Provide actuators suitable for field mounting for (1) 3-position or (2) fully modulating control packages.
- Units to be provided with ETL listed motor start stop station with 24v transformer, terminal strip and interlocking on-off switch with lockout/tagout capability. Motors without thermal overload will have motor starters with overload protection.
- Provide 4-way double deflection grille, painted with baked on polyurethane based powder coating, colored beige, lined with one-in. thick fiberglass Exact-O-Kote™ thermal/acoustical insulation.
- Provide spring isolator hanging kit.
- Provide return air grille with baked on polyurethane based powder coating, colored beige.



### Unit Cabinet Dimensions

Model	Unit								Blower Opening		Return Duct Connection	
	A	B	C1**	C2**	C3**	D	E	H	F	G	K	L
<b>HBB 04/06</b>	38.0	28.0	14.1	15.1	N/A	1.0	9.6	1.0	8.6	10.6	22.0	12.3
<b>HBB 08/12</b>	37.1	36.6	18.1	19.0	25.0	1.0	14.1	1.0	8.4	10.6	27.6	16.4
<b>HBB 16</b>	42.0	45.0	22.1	23.0	29.9	1.0	17.9	1.0	9.1	13.8	36.0	20.0
<b>HBB 20</b>	42.0	45.0	22.1	23.0	29.9	1.0	14.3	1.0	12.5	13.8	36.0	20.0
<b>HBB 30/40</b>	52.5	57.0	34.8	34.8	41.6	1.0	21.8	9.1	13.4	16.2	48.0	32.2
<b>HBA 60</b>	57.5	67.2	43.0	43.0	52.6	N/A	11.4*	8.0	(2) 16.4*	(2) 16.4*	57.9	40.4
<b>HBA 80</b>	57.5	72.3	48.0	48.0	56.4	N/A	14.0*	13.0	(2) 16.4*	(2) 16.4*	66.0	45.7

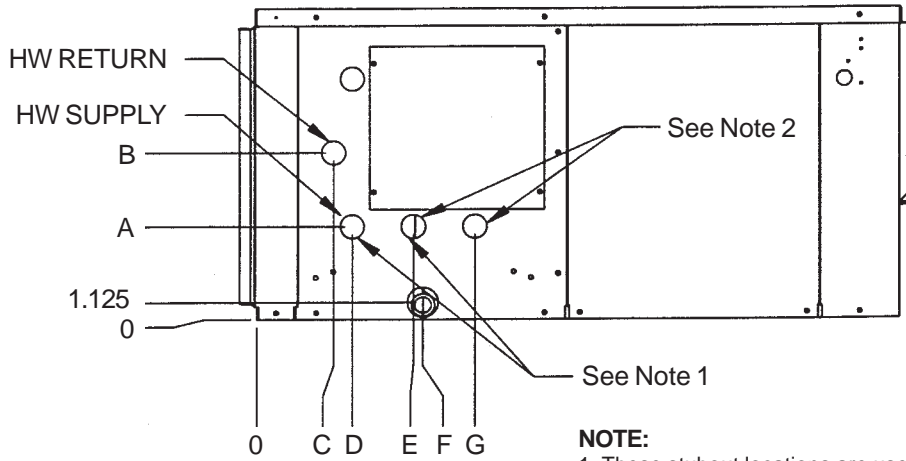
#### NOTES:

\*1. HBA60 and 80 are twin blowers. Dimension "E" is to closest blower. Dimension "F" and "G" are typical for both fan outlets.

\*\*2. "C1" dimension is for standard unit. "C2" dimension is for double wall units. "C3" dimension is for single wall face & bypass units.

Add 1" to "C3" dimension" for sizes 04-20 for face and bypass double wall units.

### SINGLE CIRCUIT COILS

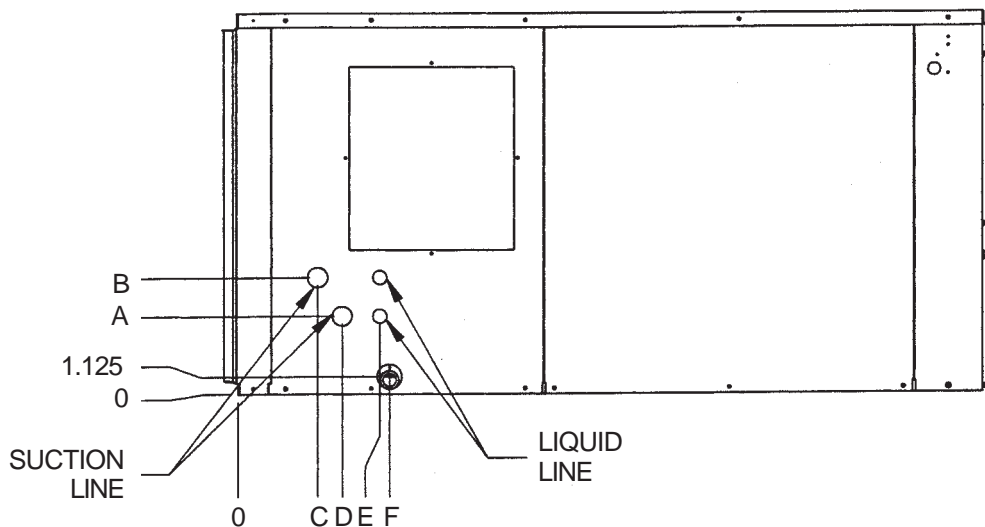


**NOTE:**

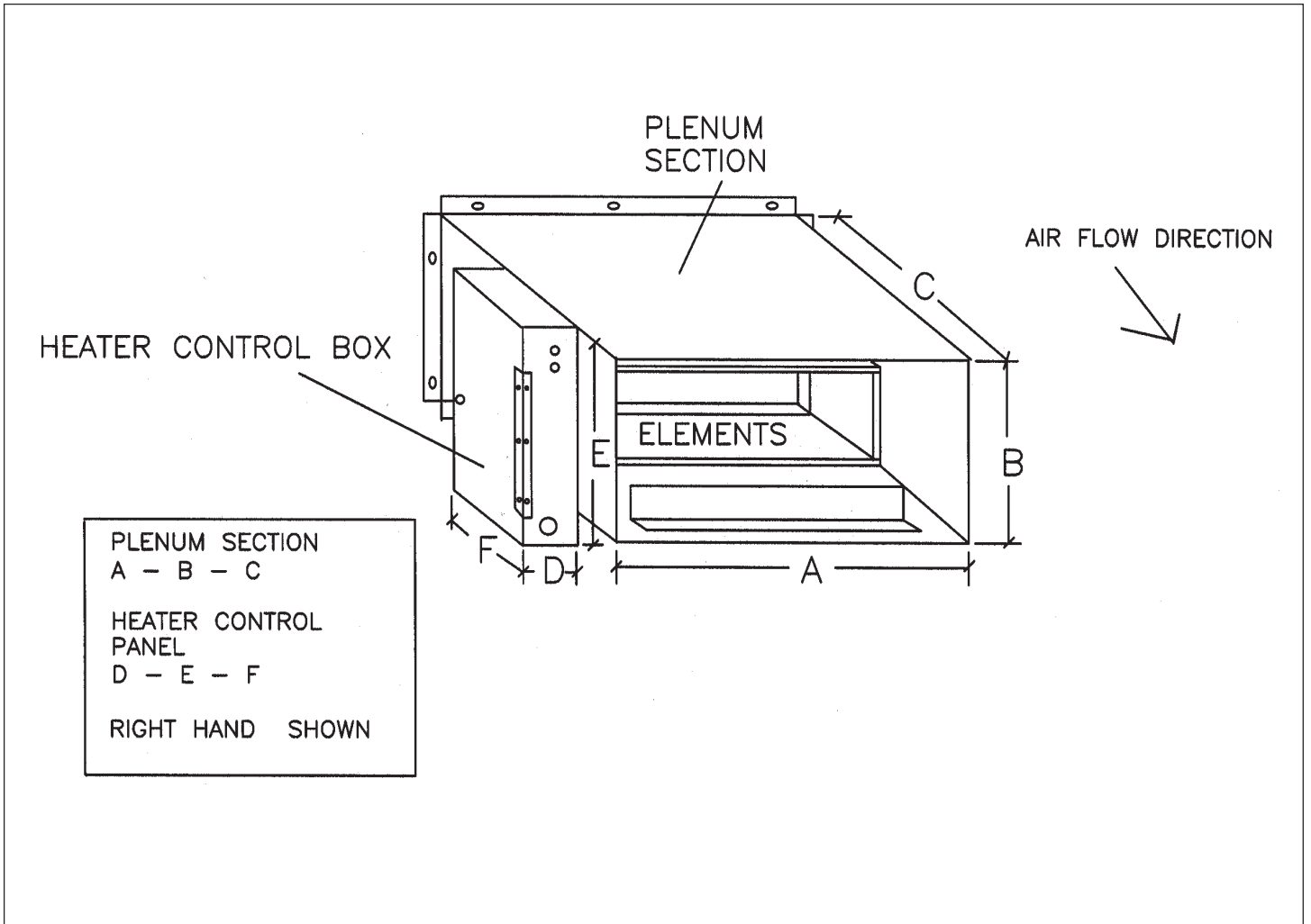
1. These stubout locations are used for the cooling coil if there is not a preheat coil.
2. These stubout locations are used for the cooling coil if there is a preheat coil.
3. Dimensions apply to single circuit coils only.

UNIT SIZE	A	B	C	D	E	F	G
<b>HBB 04/06</b>	3.300	7.500	5.125	5.750	7.750	11.500	9.500
<b>HBB 08/12</b>	5.400	9.750	4.400	5.500	9.000	9.500	12.500
<b>HBB 16/20</b>	5.400	11.750	4.400	5.500	9.000	9.500	12.500
<b>HBB 30/40</b>	4.750	17.500	4.400	5.500	9.300	10.625	13.000
<b>HBA 60</b>	6.800	21.500	5.400	6.500	10.200	11.700	14.000

### DUAL CIRCUIT COILS



UNIT SIZE	A	B	C	D	E	F
<b>HBB 30/40</b>	5.00	7.00	5.60	7.38	10.00	10.63
<b>HBA 60</b>	6.80	9.50	6.50	8.25	10.90	11.70
<b>HBA 80</b>	10.00	13.50	6.63	8.38	11.60	11.70



**NOTE: See Page 39 for Dimensions.**



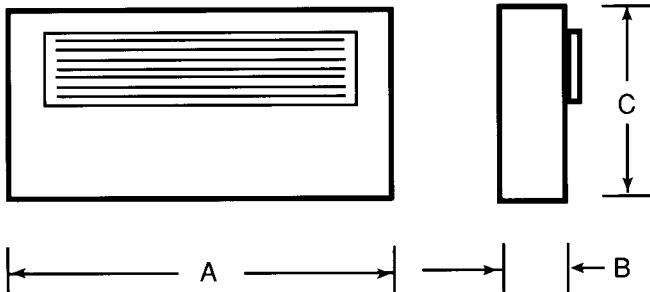
## FACTORY MOUNTED ELECTRIC HEAT

HBB Factory Installed EH List

Unit Size	Rated Volts	KW	Disc	No. Stages	A	B	C	D	E	F
			Size AMPS							
04	240-1	1-4	40	1	8.6	10.6	14	5.5	14	11.5
04	277-1	1-4	40	1	8.6	10.6	16	5.5	14	14
04	240-3	1-4	40	2	8.6	10.6	14	5.5	14	11.5
04	480-3	2-4	40	2	8.6	10.6	16	5.5	14	14
06	240-1	1-6	40	1	8.6	10.6	14	5.5	14	11.5
06	277-1	1-4	40	1	8.6	10.6	16	5.5	14	14
06	277-1	5-6	40	2	8.6	10.6	16	5.5	14	14
06	240-3	1-6	40	2	8.6	10.6	14	5.5	14	11.5
06	480-3	2-6	40	2	8.6	10.6	16	5.5	14	14
08	240-1	5-7	40	1	8.6	10.6	14	5.5	17	11.5
08	240-1	7-10	80	2	8.6	10.6	14	5.5	17	11.5
08	277-1	5	40	1	8.6	10.6	14	5.5	17	11.5
08	277-1	6-10	40	2	8.6	10.6	14	5.5	17	11.5
08	240-3	5-10	40	2	8.6	10.6	14	5.5	17	11.5
08	480-3	5-8	40	2	8.6	10.6	14	5.5	17	11.5
08	480-3	9-10	40	2	8.6	10.6	16	5.5	17	14
12	240-1	5-7	40	1	8.6	10.6	14	5.5	17	11.5
12	240-1	7-10	80	2	8.6	10.6	14	5.5	17	11.5
12	277-1	5	40	1	8.6	10.6	14	5.5	17	11.5
12	277-1	6-8	40	2	8.6	10.6	14	5.5	17	11.5
12	277-1	8-10	80	2	8.6	10.6	14	5.5	17	11.5
12	240-3	5-10	40	2	8.6	10.6	14	5.5	17	11.5
12	480-3	5-8	40	2	8.6	10.6	14	5.5	17	11.5
12	480-3	9-10	40	2	8.6	10.6	16	5.5	17	14
16	240-1	5-7	40	1	9.3	13.9	14	5.5	17	11.5
16	240-1	7-15	80	2	9.3	13.9	14	5.5	17	11.5
16	240-1	15-17	100	2	9.3	13.9	14	5.5	17	11.5
16	277-1	5	40	1	9.3	13.9	14	5.5	17	11.5
16	277-1	8-11	80	2	9.3	13.9	14	5.5	17	11.5
16	240-3	9-13	40	2	9.3	13.9	14	5.5	17	11.5
18	240-3	13-17	80	2	9.3	13.9	14	5.5	17	11.5
16	480-3	5-17	40	2	9.3	13.9	14	5.5	21	11.5
20	240-1	10-11	80	2	12.6	13.9	14	5.5	17	11.5
20	240-1	12-15	80	2	12.6	13.9	14	5.5	21	11.5
20	240-1	15-19	80	2	12.6	13.9	14	5.5	21	11.5
20	240-1	19	125	2	12.6	13.9	16	5.5	21	14
20	277-1	10-11	80	2	12.6	13.9	14	5.5	21	11.5
20	240-3	10-13	40	2	12.6	13.9	14	5.5	21	11.5
20	240-3	13-19	80	2	12.6	13.9	14	5.5	21	11.5
20	480-3	10-19	40	2	12.6	13.9	14	5.5	21	11.5
30	240-1	12-15	80	2	13.4	16.2	14	5.5	23	11.5
30	240-1	15-19	100	2	13.4	16.2	14	5.5	23	11.5
30	240-1	19-21	125	2	13.4	16.2	16	5.5	23	14
30	240-3	12	40	2	13.4	16.2	14	5.5	23	11.5
30	240-3	12-18	80	2	13.4	16.2	14	5.5	23	11.5
30	240-3	19-20	80	2	13.4	16.2	16	5.5	23	14
30	240-3	21	80	2	13.4	16.2	14	5.5	23	11.5
30	480-3	10-21	40	2	13.4	16.2	14	5.5	23	11.5
40	240-1	17-18	100	2	13.4	16.2	14	5.5	23	11.5
40	240-1	19-21	125	2	13.4	16.2	16	5.5	23	14
40	240-3	17-18	80	2	13.4	16.2	14	5.5	23	11.5
40	240-3	19-21	80	2	13.4	16.2	16	5.5	23	14
40	480-3	10-21	40	2	13.4	16.2	14	5.5	23	11.5

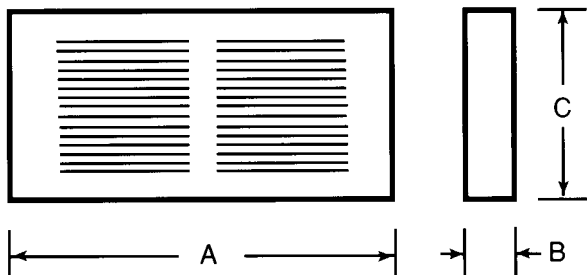
### Discharge Grille Plenum

Adjustable four way deflection.

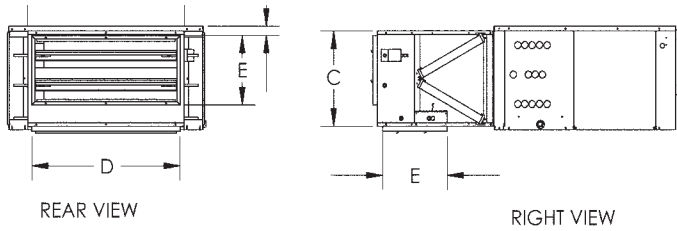


Model	A	B	C	WT.	Grille
<b>04/06 HBGP</b>	28.0	6.0	14.1	16	12 x 12
<b>08/12 HBGP</b>	36.5	6.0	18.0	20	12 x 20
<b>16/20 HBGP</b>	45.0	6.0	22.0	27	16 x 24
<b>30/40 HBGP</b>	57.0	6.0	34.0	58	12 x 48
<b>60 HBGP</b>	67.1	6.0	42.0	70	18 x 48
<b>80 HBGP</b>	72.0	6.0	47.0	70	4-12 x 30

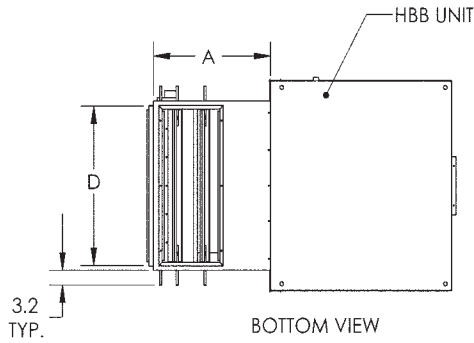
### Return Air Grille



Model	A	B	C	WT.
<b>04/06 BHRG</b>	22	2.0	12.25	5
<b>08/12 BHRG</b>	27.50	2.0	16.00	7
<b>16/20 BHRG</b>	36.00	2.0	20.00	9
<b>30/40 BHRG</b>	48.00	2.0	32.00	19
<b>60 BHRG</b>	57.75	2.0	40.25	23
<b>80 BHRG</b>	66.00	2.0	45.00	24

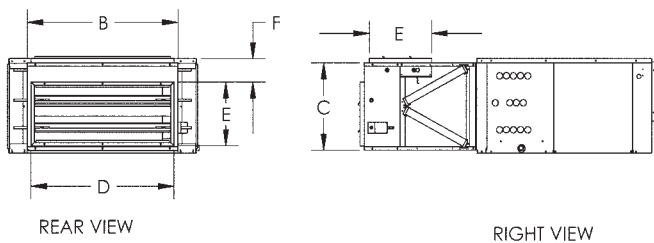


Size	Length	Width (centered)	Heigh (centered)	Duct Width	Duct Heigh	Top Clearance	Approx. Shipping Weight (lbs)	Filters	
								Size	Qty
04/06	A	B	C	D	E	F	40	14 x 20 x 2	2
08/12	22.1	22.1	12.3	20.4	7.6	2.0	90	16 x 25 x 2	2
16/20	27.0	27.7	16.4	25.9	11.6	2.0	140	16 x 32 x 2	2
30/40	27.0	36.2	20.4	34.3	15.0	2.0	200	20 x 24 x 2	4
60	32.0	48.2	32.4	46.3	15.0	9.7	260	20 x 25 x 2	4
								16 x 25 x 2	2
80	36.0	58.0	40.3	56.0	16.0	13.2	320	30 x 20 x 2	6

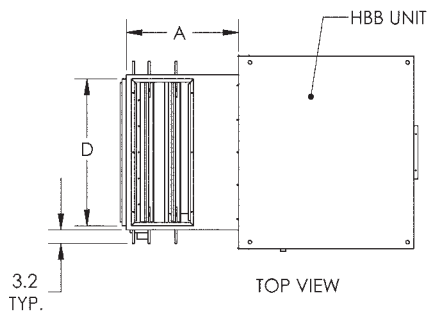


HBB Unit shown for reference.

For clarity, not all components are shown.



Size	Length	Width (centered)	Heigh (centered)	Duct Width	Duct Heigh	Top Clearance	Approx. Shipping Weight (lbs)	Filters	
								Size	Qty
04/06	A	B	C	D	E	F	40	14 x 20 x 2	2
08/12	22.1	22.1	12.3	20.4	7.6	4.8	90	16 x 25 x 2	2
16/20	27.0	27.7	16.4	25.9	11.6	4.9	140	16 x 32 x 2	2
30/40	27.0	36.2	20.4	34.3	15.0	5.5	200	20 x 24 x 2	4
60	32.0	48.2	32.4	46.3	15.0	9.7	260	20 x 25 x 2	4
								16 x 25 x 2	2
80	36.0	58.0	40.3	56.0	16.0	13.2	320	30 x 20 x 2	6





## HB FACE AND BYPASS

### Face and Bypass Damper Option

Face and bypass sections have opposed-acting damper blades in the face damper and opposed bypass damper.

All damper blades are galvanized steel, housed in a galvanized steel frame and mechanically fastened to a hex axle rod rotating in stainless steel bearings (premium dampers only). Dampers are sectionalized to limit blade

length to no more than 48 in. so as to minimize blade warpage. Neoprene blade seals are required to assure tight closure.

All dampers are rated for maximum leakage rate per square foot of 7 cfm at 1.0 in. wg.

SPECIFICATIONS								
MODEL	DAMPER AREA		UNIT SHIPPING WEIGHT		OPTIONAL FILTER SECTION			
	BYPASS	FACE	4 ROW SHIP WT	6 ROW SHIP WT	NOM. SIZE	W	H	D
HBB 08/12	4 X 27	12 X 27	180	200	1-16 X 32	27.50	23	9
HBB 16/20	4 X 35	16 X 35	258	277	2-20 X 20	36	27.25	9
HBB 30/40	5 X 46	29 X 46	541	576	3-16 X 32	48	39.50	9
HBA 60	7 X 54	38 X 54	739	826	6-20 X 25	58	51	10
HBA 80	7 X 60	38 X 60	822	903	2-16 X 20 2-16 X 25 2-20 X 20 2-20 X 25	66	54	10

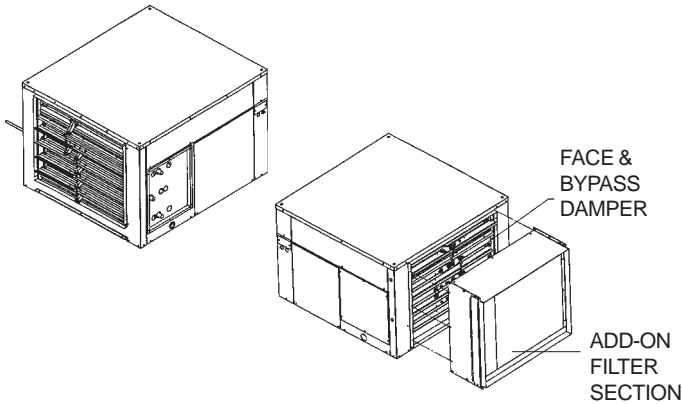
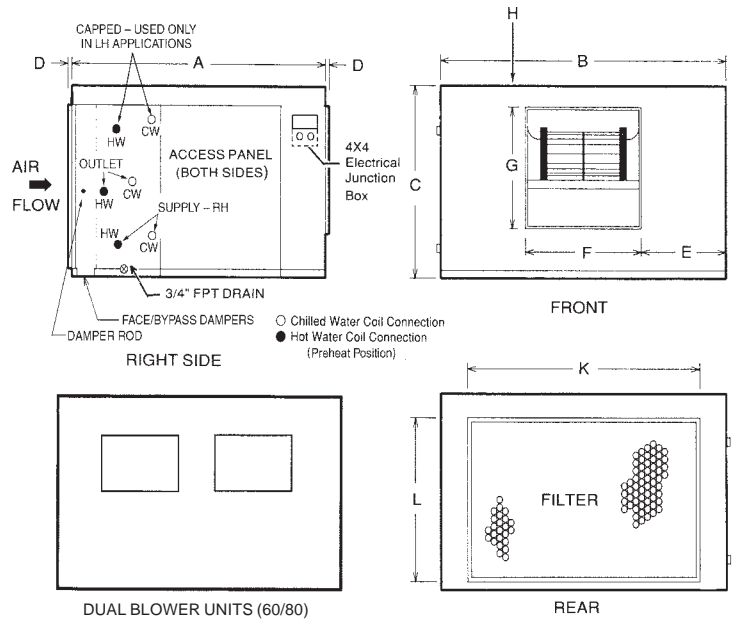
### Water Volume in Gallons for Hydronic Coils (8.34#/gallon)

MODEL/UNIT HORIZONTAL C/W		MODEL/UNIT HORIZONTAL C/W		HOT WATER COIL HORIZONTAL	
HBB 08	0.55 GAL	HBB 08-6	0.83 GAL	08 HBH-2	0.31 GAL
HBB 12	0.84 GAL	HBB 12-6	1.26 GAL	12 HBH-2	0.65 GAL
HBB 16	1.11 GAL	HBB 16-6	1.66 GAL	16 HBH-2	0.69 GAL
HBB 20	1.38 GAL	HBB 20-6	2.07 GAL	20 HBH-2	0.86 GAL
HBB 30	2.92 GAL	HBB 30-6	4.39 GAL	30 HBH-2	1.32 GAL
HBB 40	3.75 GAL	HBB 40-6	5.63 GAL	40 HBH-2	1.72 GAL
HBB 60	5.25 GAL	HBB 60-6	7.87 GAL	60 HBH-2	2.62 GAL
HBB 80	6.94 GAL	HBB 80-6	10.40 GAL	80 HBH-2	3.47 GAL

# HB Face and Bypass Dampers

**Face and bypass dampers** are widely accepted methods of coil freeze protection and humidity control. In northern climates, these dampers allow temperature control while running the preheat coil wide open. These same dampers can be used in south and southeastern climates that encounter extremely high humidity levels.

In cold climates the face and bypass damper is most often associated with a heating coil first in the air stream. The potential for a hot water heating coil to freeze exists when the space heating demand is minimal and the outside air temperature is at or below 32 degrees F. At this condition the water flow through the heating coil would likely be modulated down to a point where freezing could occur. By using a face and bypass damper the heating coil is allowed to operate with full hot water flow while the dampers modulate airflow around the coil to control the supply air temperature. When the outside air temperature is high enough such that coil freezing is unlikely, the bypass damper is closed and the coil hot water valve modulates to provide the correct supply air temperature. If the heating coil has no valve control, the coil operates wide open with the dampers providing the temperature control.



In regions where humidity control is required, this problem normally occurs at part-load conditions, providing the cooling coil is properly sized for full-load conditions in the space. By operating the cooling coil at full capacity, a percentage of the supply airflow is bypassed around the cooling coil while the balance of the air passing through the coil is cooled to a significantly lower dry bulb/wet bulb condition. By mixing the air off the cooling coil with the bypass air are supply air conditions that allow for a high latent cooling load, therefore maintaining control of the space relative humidity. This application works best with a major percentage of the air being returned from the conditioned space and a small percentage of outside air.

Face & Bypass Unit Cabinet Dimensions										
Model	Unit						Blower Opening Outlet		Return Duct Connection	
	A	B	C	D	E	H	F	G	K	L
<b>HBB 04/06</b>	N/A									
<b>HBB 08/12</b>	37.1	36.6	25.0	1.0	14.1	1.0	8.4	10.6	27.6	16.4
<b>HBB 16</b>	42.0	45.0	29.9	1.0	17.9	1.0	9.1	13.8	36.0	20.0
<b>HBB 20</b>	42.0	45.0	29.9	1.0	14.3	1.0	12.5	13.8	36.0	20.0
<b>HBB 30/40</b>	52.5	57.0	41.6	1.0	21.8	9.1	13.4	16.2	48.0	32.2
<b>HBA 60</b>	57.5	67.2	52.6	N/A	①	8.0	(2) 16.4	(2) 16.4	57.9	40.4
<b>HBA 80</b>	57.5	72.3	56.4	N/A	②	13.0	(2) 16.4	(2) 16.4	66.0	45.7

NOTE: Models 30-80 Top is always double wall.

- ① Blower opening 7" down from top of unit. Looking at discharge 14-3/8 left side, 11-3/8 center and 8-3/8 right side.
- ② Blower opening 11-7/8 down from top of unit. Looking at discharge 14-3/16 left side, 11-3/8 center and 13-5/16 right side.