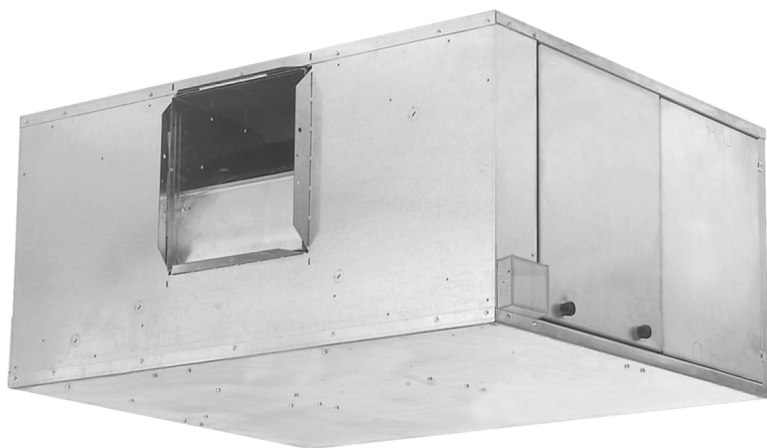




## Product Data

### Airstream™ System Fan Coils 600 to 4000 Nominal cfm



**42BHE UNIT**



**42BVE UNIT**

42BHE, BVE 06-40  
System Fan Coils

## The 42BHE, BVE belt drive fan coil units provide year-round comfort air conditioning with central station operating economy.

Carrier's versatile belted fan coil units satisfy design requirements:

- A selection of 8 sizes covers nominal capacities from 600 to 4000 cfm
- Choice of motors, from 1/4 to 3 hp, eliminates oversizing
- Wide range of coil options for 2-pipe or 4-pipe systems
- Optional DX (direct expansion) coils with expansion valve and distributor available via ETO
- Single and three-phase electric heat (1.0 to 39.9 kW)

## A variety of coil options reduces first cost

Four, six or eight-row (only available with cooling units) cooling coils combine needed capacities with the most efficient heat transfer surface. For 4-pipe systems, select from two split-coil options. Standard coils consist of aluminum fins securely bonded to 1/2 in. OD seamless copper tubes. Each fin's aluminum collar ensures accurate control of the fin spacing, while completely covering the tubes to lengthen coil life. All coils also feature manual air vents, with optional automatic air vents available. Special coils are also available with stainless steel end sheets and bottom coil baffles. For custom applications, special coils are available with lower pressure drops.

## Fan wheels are designed to provide low operating costs

The forward-curved, centrifugal, double-inlet fans are statically and dynamically balanced at the factory to minimize transmission of vibration to the building structure.

In addition, the blower is isolated from the cabinet by rubber isolators, and the blower is isolated from the duct connections by foam.

All motors (single and three phase) are UL (Underwriters Laboratories) listed or equivalent, factory wired, single speed with thermal overload protection and are continuous duty rated. Motors are supplied with permanently lubricated bearings, class-B insulation and are open drip-proof. The motor mount has an adjustable platform for easy belt adjustment. The motor is resilient mounted (up to 2 hp) or rigid base mounted (3 hp) for vibration free installation. Drives are pre-set at the factory for the specific airflow at static pressures as ordered. An adjustable pitch pulley allows cfm balancing to meet system requirements.

## Complete factory assembly minimizes on-the-jobsite costs and problems

Compact, lightweight units are designed for easy mounting. For horizontal units, knockouts designed to accept 3/8 in. threaded rods are provided on the top and bottom of each corner of the unit. External vibration isolation and flex connections for ducts is recommended. One-in. duct collars on discharge and on return are furnished standard. These integral duct

collars cut installation time and labor expense.

## Durable construction means easy-to-maintain units

The 42BHE,BVE fan coil casings are fabricated from heavy-gage galvanized G90 steel, reinforced for maximum rigidity and structural strength. Optional one-inch double wall construction, perforated or solid lined, is also available. Removable side panels with tool-less camlock fasteners allow easy access for servicing interior components.

One-inch matte surface, fiberglass thermal/acoustical insulation lines the fan coil cabinets to prevent sweating and to muffle sound transmission. Premium anti-microbial fiberglass, foil faced, and closed cell insulations are also available to address IAQ (indoor air quality) concerns.

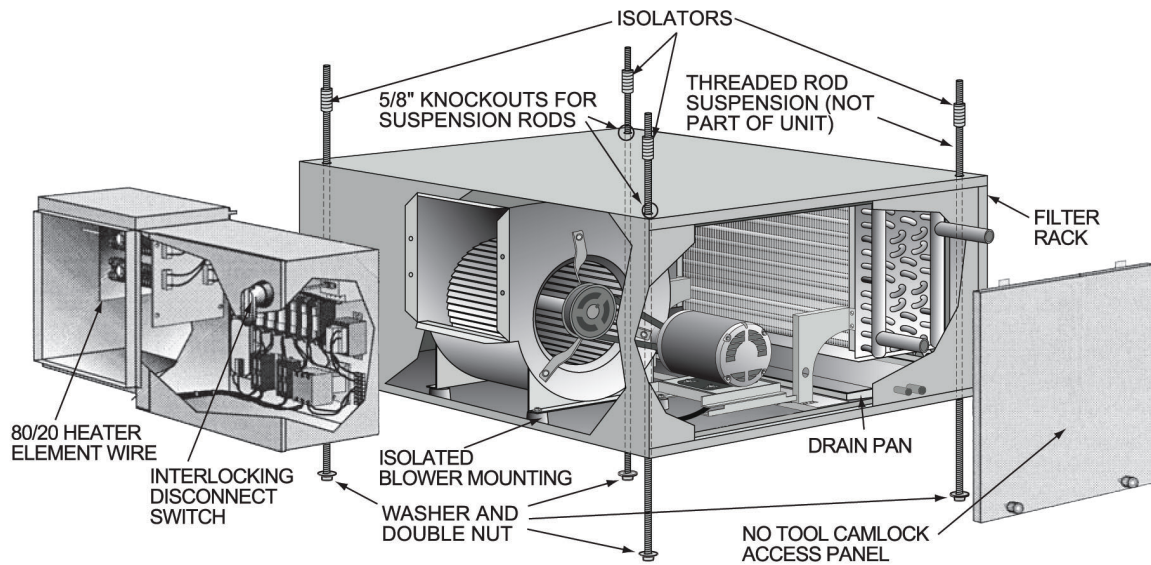
The stainless steel, double-sloped condensate drain pan is removable for ease of cleaning, and all models include primary and secondary drain connections to provide back up in case the main connection is plugged.

Slide-in return-duct collar filter makes it possible to remove and replace the filter without disturbing return air ductwork. A standard 2 in. and optional 4 in. filter rack allow different filter types, thickness, and efficiency to address IAQ requirements.

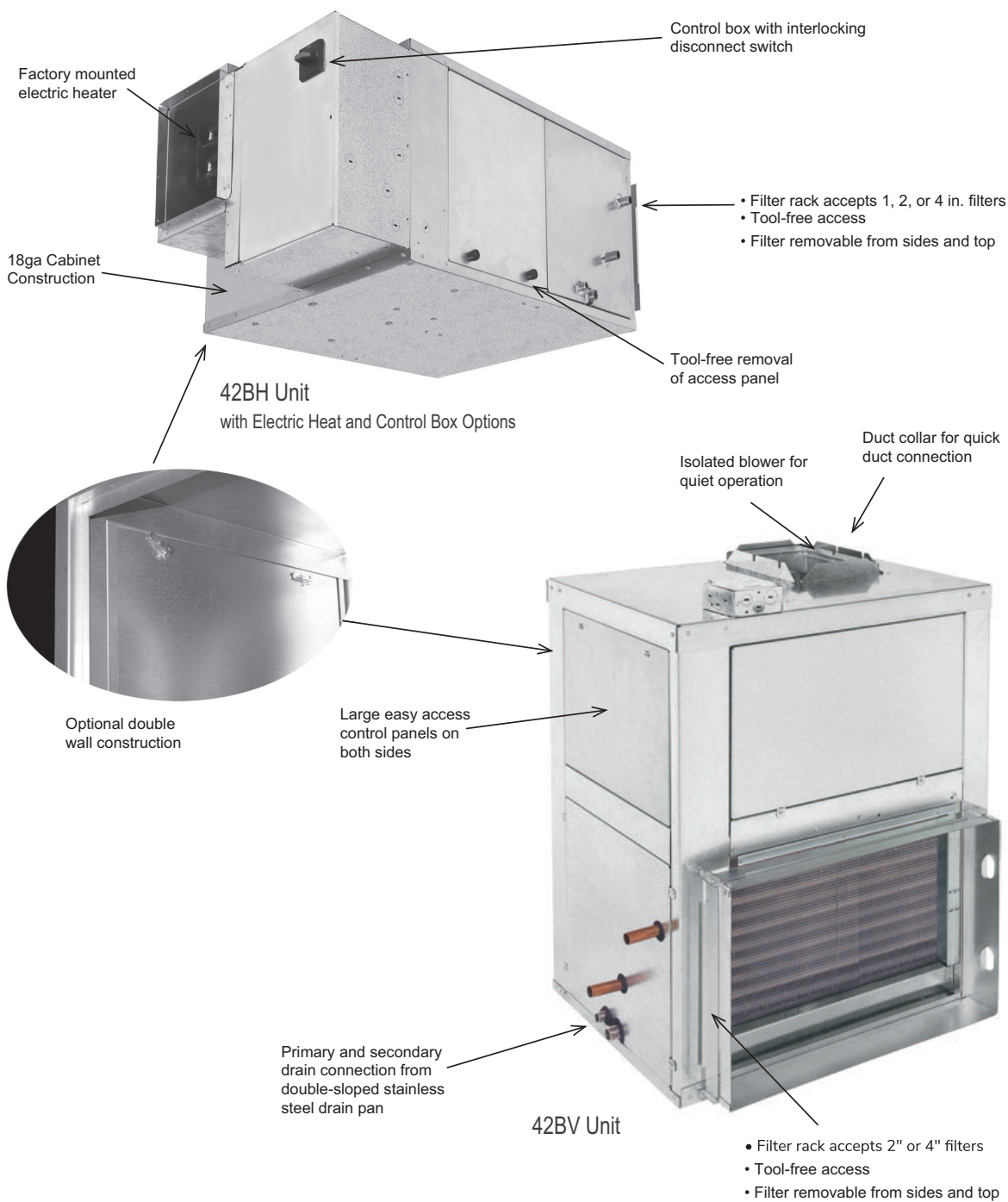
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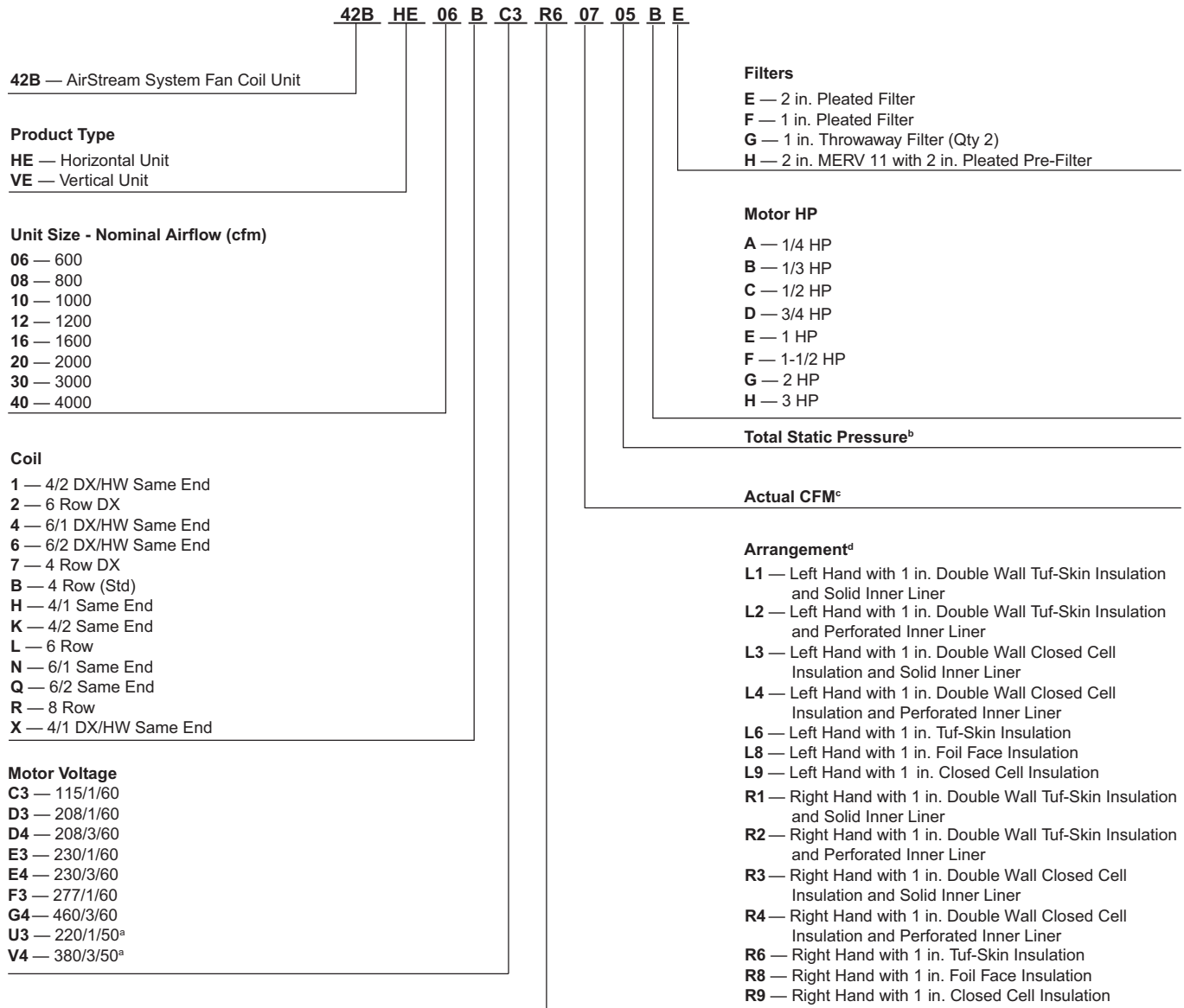
### Internal Features of a 42BHE Fan Coil Unit



## Internal Features of a 42BVE Fan Coil Unit



# Model number nomenclature



## LEGEND

DX — Direct Expansion  
HW — Hot Water

## NOTE(S):

- Data for 50 Hz motors can be found in Fan Coil Builder software program.
- To be determined by Carrier sales engineer.  
Example: 05=0.5 in. wg
- To be determined by Carrier sales engineer.  
Example: 07=700 actual CFM
- For epoxy-coated insulation option, submit ETO (Engineer to Order) request.

## 42B Physical Data

UNIT SIZE 42BHE, BVE	06	08	10	12	16	20	30	40
NOMINAL CFM	600	800	1000	1200	1600	2000	3000	4000
42BHE OPERATING WT (lb) (no heat/ with heat)	216/247	218/249	265/300	269/302	332/367	374/410	478/515	601/638
42BVE OPERATING WT (lb) (no heat/ with heat)	213/244	215/246	256/289	260/293	309/343	382/418	477/514	570/608
FILTERS (2 in. pleated)								
Number...Size (in.)	1...16-1/2 x 24	1...16-1/2 x 24	1...18-1/4 x 33	1...18-1/4 x 33	2...18-1/4 x 21-1/2	2...20-1/2 x 22	2...29 x 22	2...29 x 29
Face Area (sq ft)	2.8	2.8	4.2	4.2	5.5	6.3	8.9	11.7
HYDRONIC COILS								
Size (in.)	15 x 20	15 x 20	15 x 29	15 x 29	15 x 39	18 x 40	27 x 40	27 x 54
Face Area (sq ft)	2.1	2.1	3.0	3.0	4.1	4.9	7.7	10.3
Fins per inch	10							
Coil Water Volume (approx. gal. per row of coil)	0.240	0.240	0.324	0.324	0.420	0.492	0.768	1.020
FANS								
Qty...Size (in.)	1...9 x 4	1...9 x 6	1...10 x 4	1...10 x 7	1...11 x 10	1...12 x 9	1...12 x 12	1...15 x 12
HYDRONIC COIL CONN. in. (mm) 8 Row (Cooling)	1 (25.400) nominal, 1.125 (28.575) OD						1-1/2 (38.100) nominal, 1.625 (41.275) OD	
4 and 6 Row (Cooling) in. (mm)	3/4 (19.050) nominal, 0.875 (22.225) OD				1 (25.400) nominal, 1.125 (28.575) OD		1-1/2 (38.100) nominal, 1.625 (41.275) OD	
1 Row (Heating) in. (mm)	1/2 (17.700) nominal, 0.625 (15.875) OD						1-1/2 (38.100) nominal, 1.625 (41.275) OD	
2 Row (Heating) in. (mm)	1/2 (12.700) nominal, 0.625 (15.875) OD				1 (25.400) nominal, 1.125 (28.575) OD		1-1/2 (38.100) nominal, 1.625 (41.275) OD	
DX COIL CONN. LIQUID LINE in. (mm)	1/4 (6.350) nominal, 0.375 (9.525) OD						1/2 (12.700) nominal, 0.625 (15.875) OD	
DX COIL CONN. SUCTION LINE in. (mm)	3/4 (19.050) nominal, 0.875 (22.225) OD				1 (25.400) nominal, 1.125 (28.575) OD		1-1/2 (38.100) nominal, 1.625 (41.275) OD	
DRAIN CONN. SIZES in. (mm)	3/4 (19.050) MPT							



## 42BHE, BVE Options and Accessories

ITEM	OPTION <sup>a</sup>	ACCESSORY <sup>b</sup>
Automatic Air Vents	X	
Controls	X	
Electric Heat	X	
Filters	X	
Heating/Cooling Coils	X	
Insulation	X	
Mixing Boxes		X
Motors	X	
Double Wall Cabinet Construction	X	
Seismic Structural Upgrade (not available with double wall)	X	
Condensate Overflow Switch	X	
Motor Controls	X	
Disconnect Switch	X	

NOTE(S):

- a. Factory-installed option.  
b. Field-installed accessory.

The 42BHE and 42BVE fan coil units are designed to offer maximum flexibility in an application, accessibility for service, quiet operation and durability.

## Factory-installed options

### Automatic air vents

Automatic air vents have fiber washers, which allow air in the pipes to pass through, automatically bleeding the system. The fiber washers eliminate the need to manually remove air from the system. When wet, washers swell and seal the system.

### Coils

Coils are available in a choice of two-pipe system with 4-row cooling/heating or four-pipe system with 4, 6 or 8-row cooling and 1 or 2 row heating. Reheat operation is standard. Preheat is available as an option for hydronic coil. Preheat position is standard. Steam coils are available with a factory special quote.

### Controls

Factory-installed optional controls include an interlocking disconnect switch, heater power fusing, 24-v Class 2 transformer (40-va), 8-pole control terminal strip, auto reset temperature limit switch, airflow safety switch, motor power fusing, motor control contactor, and a 24-v condensate overflow switch.

### Electric heat

Total electric heat eliminates the requirement for a boiler. Heating and/or cooling may be available on an individual basis throughout the year. Resistance electric heat is available from 1.0 kW to 39.9 kW (refer to electric heater data table for availability per unit) with single-stage or multiple-stage, single power source.

Voltages:

- 115-v, 208-v, 230-v and 277-v single-phase 60 Hz
- 208-v, 230-v and 480-v three-phase 60 Hz
- 220-v single-phase 50 Hz
- 380-v three-phase 50 Hz

Electric heat is available with the following staging options (3-phase staging is balanced).

- 1 to 12 kW 1 stage only — single phase
- 3 to 12 kW 1 or 2 stage only — single phase
- 1 to 39.9 kW 1 stage only — 3 phase
- 4 to 39.9 kW 1 or 2 stage only — 3 phase
- 12 to 39.9 kW 1, 2, or 3 stage — 3 phase

Heater coils are constructed of high-grade resistance wire that is supported by ceramic insulators on plated steel brackets. These heat elements are suspended directly in front of the outlet after the blower and the coil. An auto and manual thermal limit switch protect the heater in the event of air failure.

### Filters

Two-in. pleated filters are standard. One-in. pleated, two 1 in. throwaway, or 2 in. MERV (minimum efficiency reporting value) 11 filters with 2-in. pleated pre-filter and 4 in. MERV 13 pleated filters are available. The 2 in. MERV 11 filters with 2-in. pleated pre-filter include a filter rack.

### Insulation

Tuf-Skin<sup>TM</sup> II (1 in. thick) insulation is standard. Also available is 1 in. closed cell, 1-in. epoxy coated fiberglass edge sealed, or 1 in. foil-faced insulation.

### Motors

A wide selection of standard motors provides efficient operation in ducted applications with excellent performance. All standard motors contain internal thermal overload protection. The overload automatically resets when the temperature returns to a safe limit. These thermal overloads, when coupled with the motor contactor, replace the need for a motor starter. Available motor options include:

- 115-v, 208-v, 230-v and 277-v single-phase 60 Hz
- 208-v, 230-v and 460-v three-phase 60 Hz
- 220-v single-phase 50 Hz
- 380-v three-phase 50 Hz
- Open drip-proof motors
- External junction box

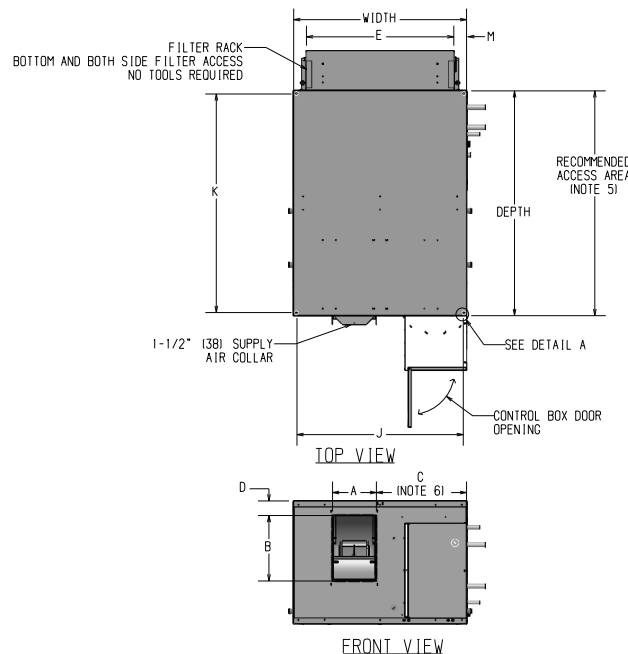
## Field-installed accessories

### Mixing boxes

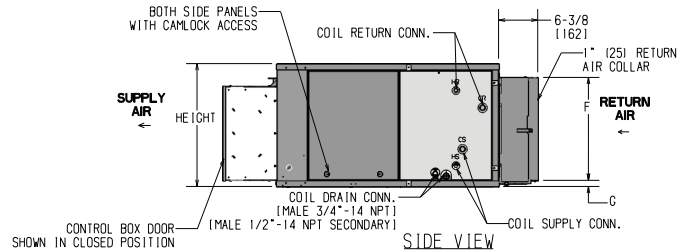
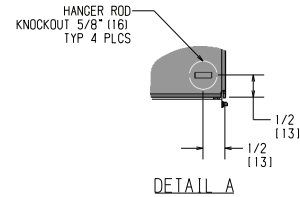
Mixing boxes can be used when outside air is required for ventilation. Pre-assembled at the factory and shipped separately with base rails for field installation, mixing boxes include a linkage kit consisting of two crank-arms, 2 swivels and either a 25 in. (635 mm) long (for sizes 06-16) or a 34 in. (863.6 mm) long (for sizes 20-40) 5/16 in. (7.94 mm) rod for field installation of an actuator.

1. Third-party trademarks and logos are the property of their respective owners.

## BH Basic Unit - Horizontal Belt Drive



Drawing is provided for reference only.  
Dimensions may vary with options ordered.



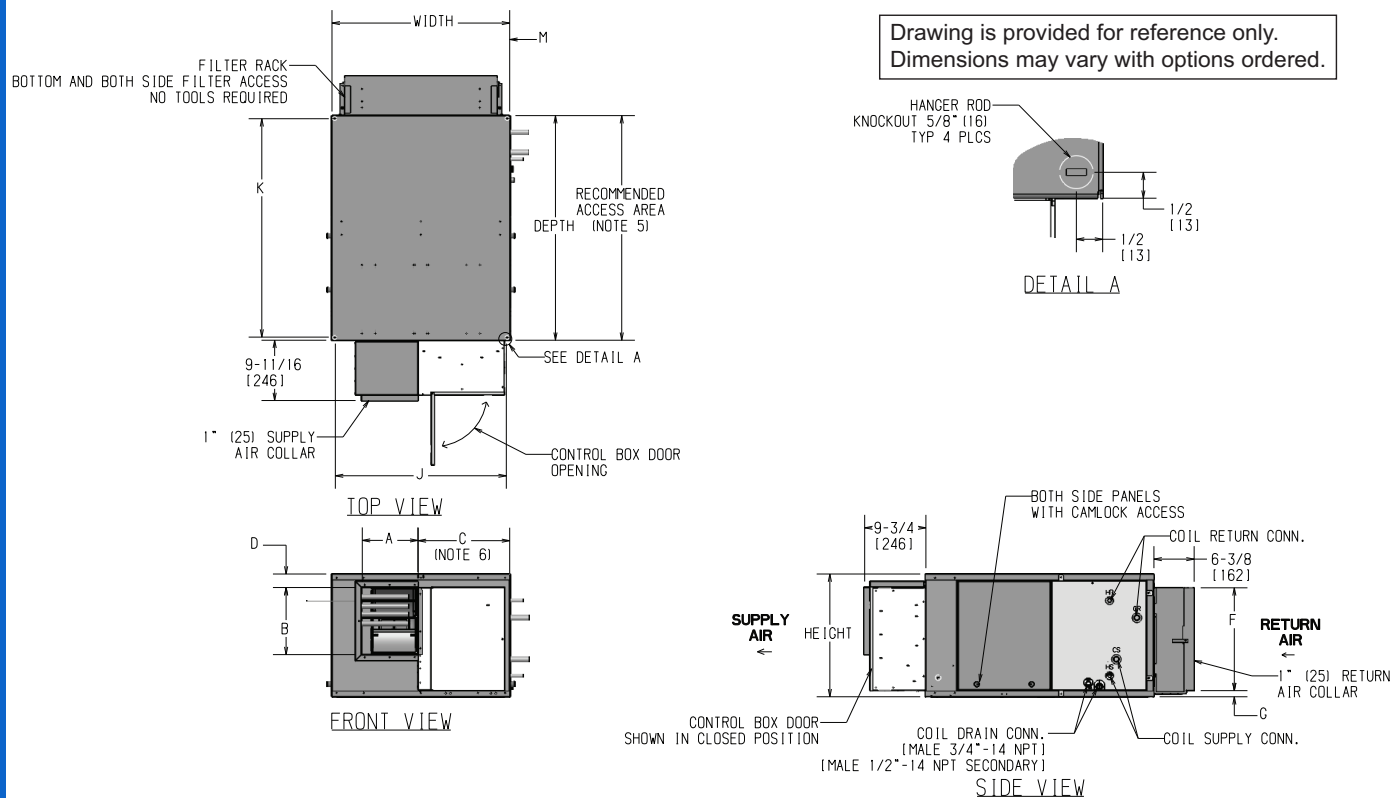
42BHE UNIT SIZE	FAN SIZE	DEPTH	WIDTH	HEIGHT	SUPPLY DUCT				RETURN DUCT			MOUNTING HOLES		M
					A	B	C	D	E	F	G	J	K	
06	9 x 4	36 (914)	28 (711)	19-3/4 (502)	7-1/8 (181)	10-1/2 (267)	14-1/2 (368)	2-1/4 (57)	24 (610)	16-1/2 (419)	1 (25)	27-1/4 (686)	35-1/4 (895)	2 (51)
08	9 x 6	36 (914)	28 (711)	19-3/4 (502)	8-1/2 (216)	10-1/2 (267)	14 (356)	2-1/4 (57)	24 (610)	16-1/2 (419)	1 (25)	27-1/4 (686)	35-1/4 (895)	2 (51)
10	10 x 4	37-1/2 (953)	37 (940)	21-1/2 (546)	7-1/8 (181)	11-5/8 (295)	15-1/4 (387)	2-1/4 (57)	33 (838)	18-1/4 (464)	1 (25)	36-1/4 (921)	37 (940)	2 (51)
12	10 x 7	37-1/2 (953)	37 (940)	21-1/2 (546)	10 (254)	11-5/8 (295)	14 (356)	2-1/4 (57)	33 (838)	18-1/4 (464)	1 (25)	36-1/4 (921)	37 (940)	2 (51)
16	11 x 10	37-3/4 (959)	47 (1194)	21-1/2 (546)	13-3/8 (340)	12-3/4 (324)	16-3/4 (425)	2-1/4 (57)	43 (1092)	18-1/4 (464)	1 (25)	46-1/4 (1175)	37 (940)	1-1/2 (38)
20	12 x 9	40-1/4 (1022)	48 (1219)	24 (610)	12-1/2 (216)	13-3/4 (349)	17-3/4 (451)	2-1/4 (57)	44 (1118)	20-3/4 (527)	1 (25)	47-1/4 (1200)	39-1/2 (1033)	2 (51)
30	12 x 12	40-1/4 (1022)	48 (1219)	32-1/4 (819)	15-7/8 (403)	13-3/4 (349)	16 (406)	7-1/4 (184)	44 (1118)	29 (737)	1 (25)	47-1/4 (1200)	39-1/2 (1033)	2 (51)
40	15 x 12	43-1/2 (1105)	62 (1575)	32-1/4 (819)	16-3/8 (416)	16-1/8 (410)	22-3/4 (578)	6-1/4 (159)	58 (1473)	29 (737)	1 (25)	61-1/4 (1556)	42-1/2 (1080)	2 (51)

### NOTES:

- Right hand shown, Left hand opposite.
- All dimensions are  $\pm 1/4$ -inch (6 mm).
- Unit measurements on drawings and in tables are shown in inches and (millimeters).
- Product specifications are subject to changes without notice.
- Allow adequate spacing for maneuverability around unit to allow service through recommended access area.
- "C" dimension is measured from coil side of unit.
- Mixing Box option will vary return duct dimensions.



## 42BHE Fan Coil with Motor Control Option

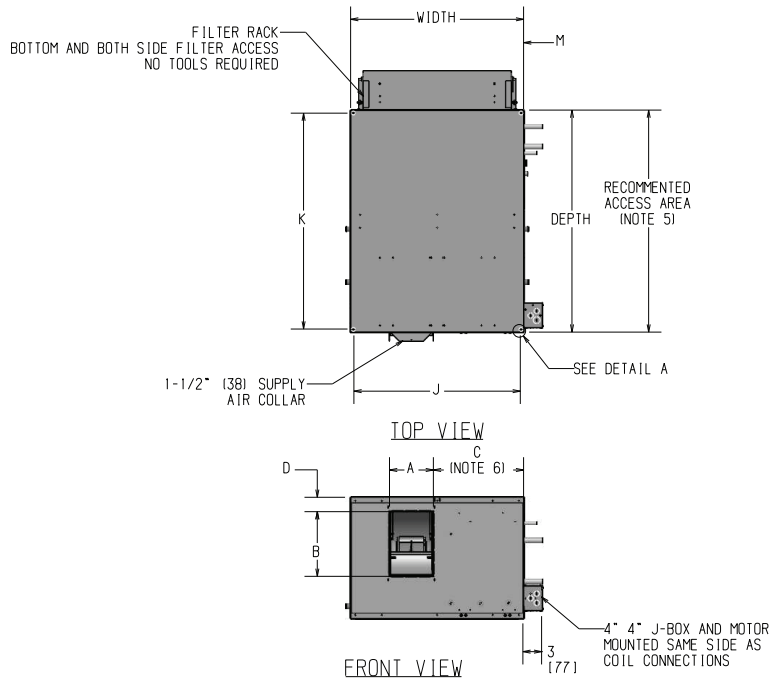


42BHE UNIT SIZE	SUPPLY DUCT DIMENSIONS – INCHES (MILLIMETERS)				M
	A	B	C	D	
06	8-7/8 (225)	10-1/2 (267)	14-1/2 (368)	2-1/4 (57)	2 (51)
08	8-7/8 (225)	10-1/2 (267)	14 (356)	2-1/4 (57)	2 (51)
10	10-3/8 (264)	11-5/8 (295)	15-1/4 (387)	2-1/4 (57)	2 (51)
12	10-3/8 (264)	11-5/8 (295)	14 (356)	2-1/4 (57)	2 (51)
16	13-7/8 (352)	12-3/4 (324)	16-3/4 (425)	2-1/4 (57)	2 (51)
20	13 (330)	13-3/4 (349)	17-3/4 (451)	2-1/4 (57)	2 (51)
30	16-1/4 (413)	13-3/4 (349)	16 (406)	7-1/4 (184)	2 (51)
40	16-3/4 (425)	16-1/8 (410)	22-3/4 (578)	6-1/4 (159)	2 (51)

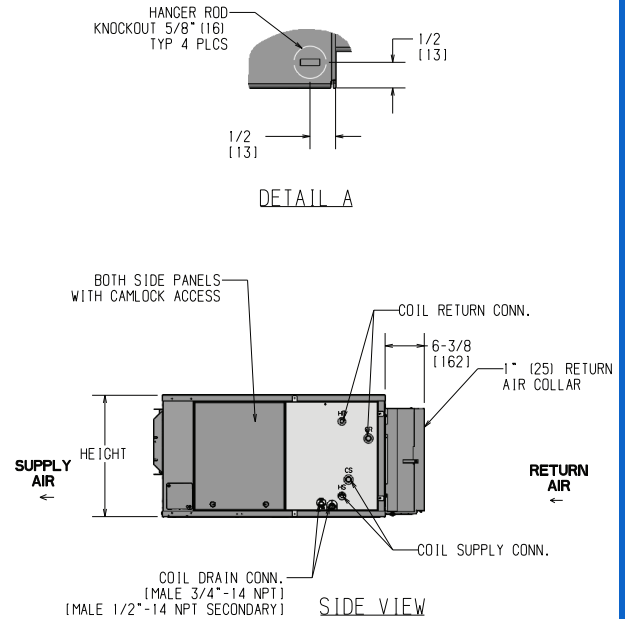
### NOTES:

1. Right hand shown, Left hand opposite.
2. All dimensions are  $\pm 1/4$  in. (6 mm).
3. Unit measurements on drawings and in tables are shown in inches and (millimeters).
4. Product specifications are subject to changes without notice.
5. Allow adequate spacing for maneuverability around unit to allow service through recommended access area.
6. "C" dimension is measured from coil side of unit.
7. Mixing Box option will vary return duct dimensions.
8. For dimensions not shown in this table see Base Unit dimensional drawing.

## 42BHE Fan Coil with Electric Heat Option



Drawing is provided for reference only.  
Dimensions may vary with options ordered.



42BHE UNIT SIZE	SUPPLY DUCT DIMENSIONS – INCHES (MILLIMETERS)				M
	A	B	C	D	
06	8-7/8 (225)	10-1/2 (267)	14-1/2 (368)	2-1/4 (57)	2 (51)
08	8-7/8 (225)	10-1/2 (267)	14 (356)	2-1/4 (57)	2 (51)
10	10-3/8 (264)	11-5/8 (295)	15-1/4 (387)	2-1/4 (57)	2 (51)
12	10-3/8 (264)	11-5/8 (295)	14 (356)	2-1/4 (57)	2 (51)
16	13-7/8 (352)	12-3/4 (324)	16-3/4 (425)	2-1/4 (57)	2 (51)
20	13 (330)	13-3/4 (349)	17-3/4 (451)	2-1/4 (57)	2 (51)
30	16-1/4 (413)	13-3/4 (349)	16 (406)	7-1/4 (184)	2 (51)
40	16-3/4 (425)	16-1/8 (410)	22-3/4 (578)	6-1/4 (159)	2 (51)

### NOTES:

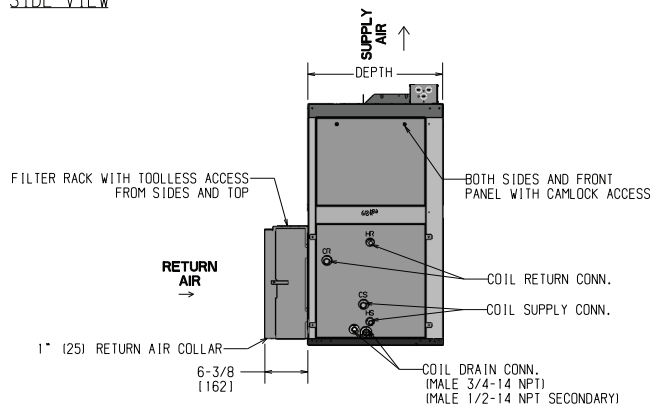
1. Right hand shown, Left hand opposite.
2. All dimensions are  $\pm 1/4$ -in. (6 mm).
3. Unit measurements on drawings and in tables are shown in inches and (millimeters).
4. Product specifications are subject to changes without notice.
5. Allow adequate spacing for maneuverability around unit to allow service through recommended access area.
6. "C" dimension is measured from coil side of unit.
7. Mixing Box option will vary return duct dimensions.
8. For dimensions not shown in this table see Base Unit dimensional drawing.

# Base unit dimensions (cont)

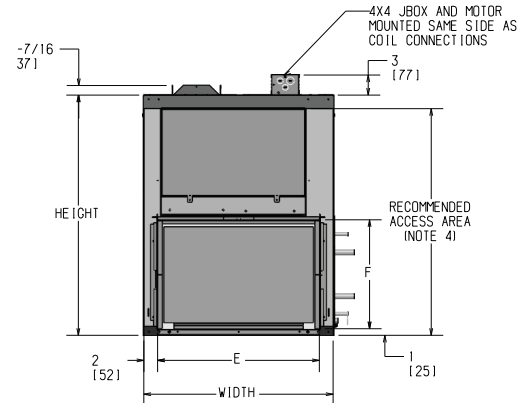


## 42BVE Fan Coil Base Unit (No Controls)

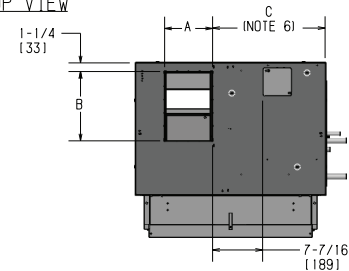
SIDE VIEW



FRONT VIEW



TOP VIEW



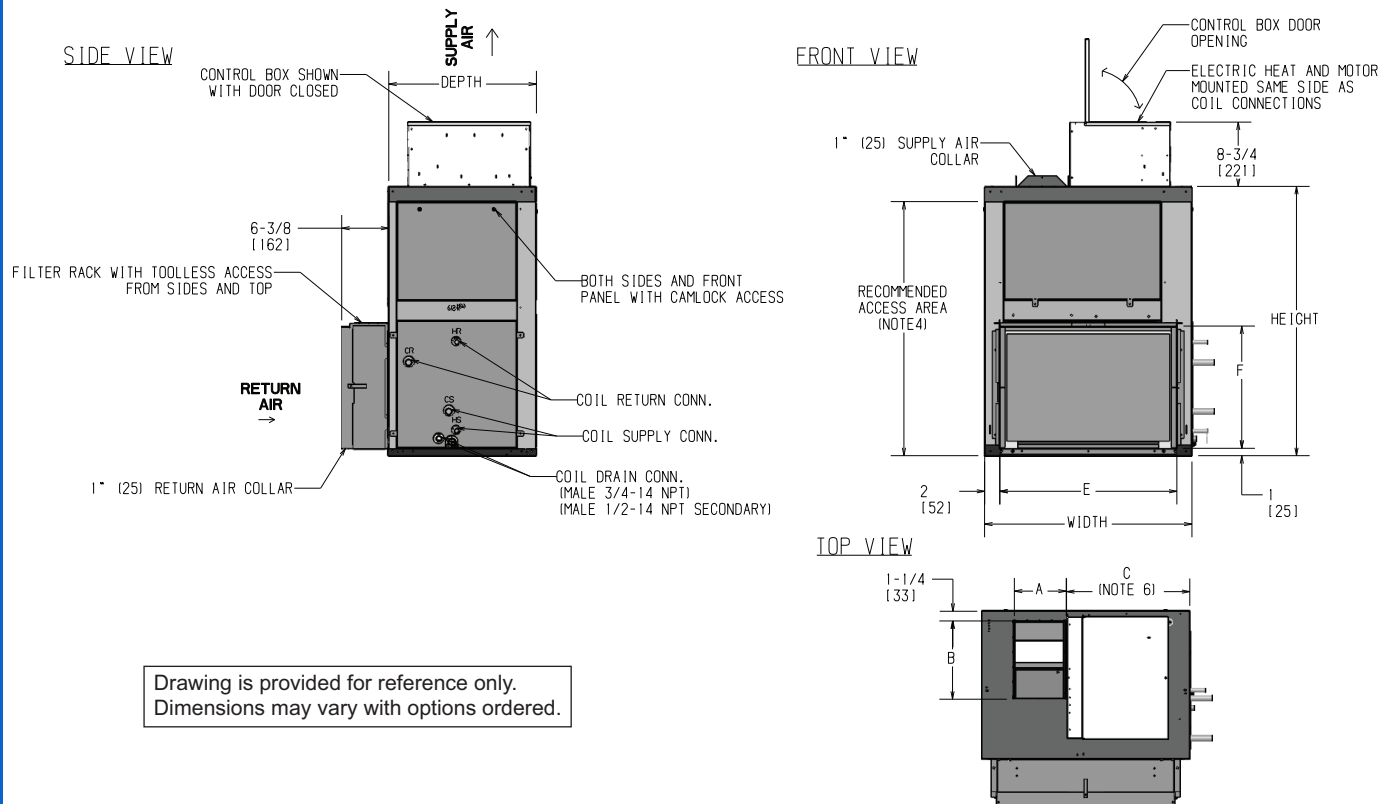
Drawing is provided for reference only.  
Dimensions may vary with options ordered.

42BVE UNIT SIZE	FAN SIZE	DEPTH	WIDTH	HEIGHT	SUPPLY DUCT			RETURN DUCT	
					A	B	C	E	F
06	9 x 4	20 (508)	28 (711)	36-1/2 (927)	7-1/8 (181)	10-1/2 (267)	16-3/4 (425)	24 (610)	16-1/2 (419)
08	9 x 6	20 (508)	28 (711)	36-1/2 (927)	8-1/2 (216)	10-1/2 (267)	15-1/4 (387)	24 (610)	16-1/2 (419)
10	10 x 4	22 (559)	37 (940)	39-3/8 (1000)	7-1/8 (181)	11-9/16 (294)	24-1/2 (622)	33 (838)	18-1/4 (464)
12	10 x 7	22 (559)	37 (940)	39-3/8 (1000)	9-15/16 (252)	11-9/16 (294)	21-1/2 (546)	33 (838)	18-1/4 (464)
16	11 x 10	22 (559)	47 (1194)	39-3/8 (1000)	13-3/8 (340)	12-3/4 (324)	16-3/4 (425)	43 (1092)	18-1/4 (464)
20	12 x 9	24 (610)	48 (1219)	45-1/8 (1146)	12-1/2 (318)	13-3/4 (349)	17-3/4 (451)	44 (1118)	20-3/4 (527)
30	12 x 12	28 (711)	48 (1219)	54-3/16 (1376)	15-7/8 (403)	13-3/4 (349)	16 (406)	44 (1118)	29 (737)
40	15 x 12	28 (711)	62 (1575)	57-5/8 (1464)	16-7/16 (418)	16-1/16 (408)	22-3/4 (578)	58 (1473)	29 (737)

### NOTES:

1. Right hand shown, Left hand opposite.
2. All dimensions are  $\pm 1/4$ -inch (6 mm).
3. Drain pan removal is on the piping side of the unit.
4. Allow adequate spacing or maneuverability of unit to allow service through recommended access area.
5. Unit measurements on drawings and in tables are shown in inches and (millimeters).
6. "C" dimension is measured from coil side of unit.
7. Product specifications are subject to change without notice.
8. Unit measurements on drawings and in tables are shown in inches and (millimeters).

## 42BVE Fan Coil with Motor Control Option



Drawing is provided for reference only.  
Dimensions may vary with options ordered.

42BVE UNIT SIZE	SUPPLY DUCT DIMENSIONS – INCHES (MILLIMETERS)		
	A	B	C
06	7-1/8 (181)	10-1/2 (267)	16-3/4 (425)
08	8-1/2 (216)	10-1/2 (267)	15-1/4 (387)
10	7-1/8 (181)	11-9/16 (294)	24-1/2 (622)
12	9-15/16 (252)	11-9/16 (294)	21-1/2 (546)
16	13-3/8 (340)	12-3/4 (324)	16-3/4 (425)
20	12-1/2 (216)	13-3/4 (349)	17-3/4 (451)
30	15-7/8 (403)	13-3/4 (349)	16 (406)
40	16-7/16 (418)	16-1/16 (408)	22-3/4 (578)

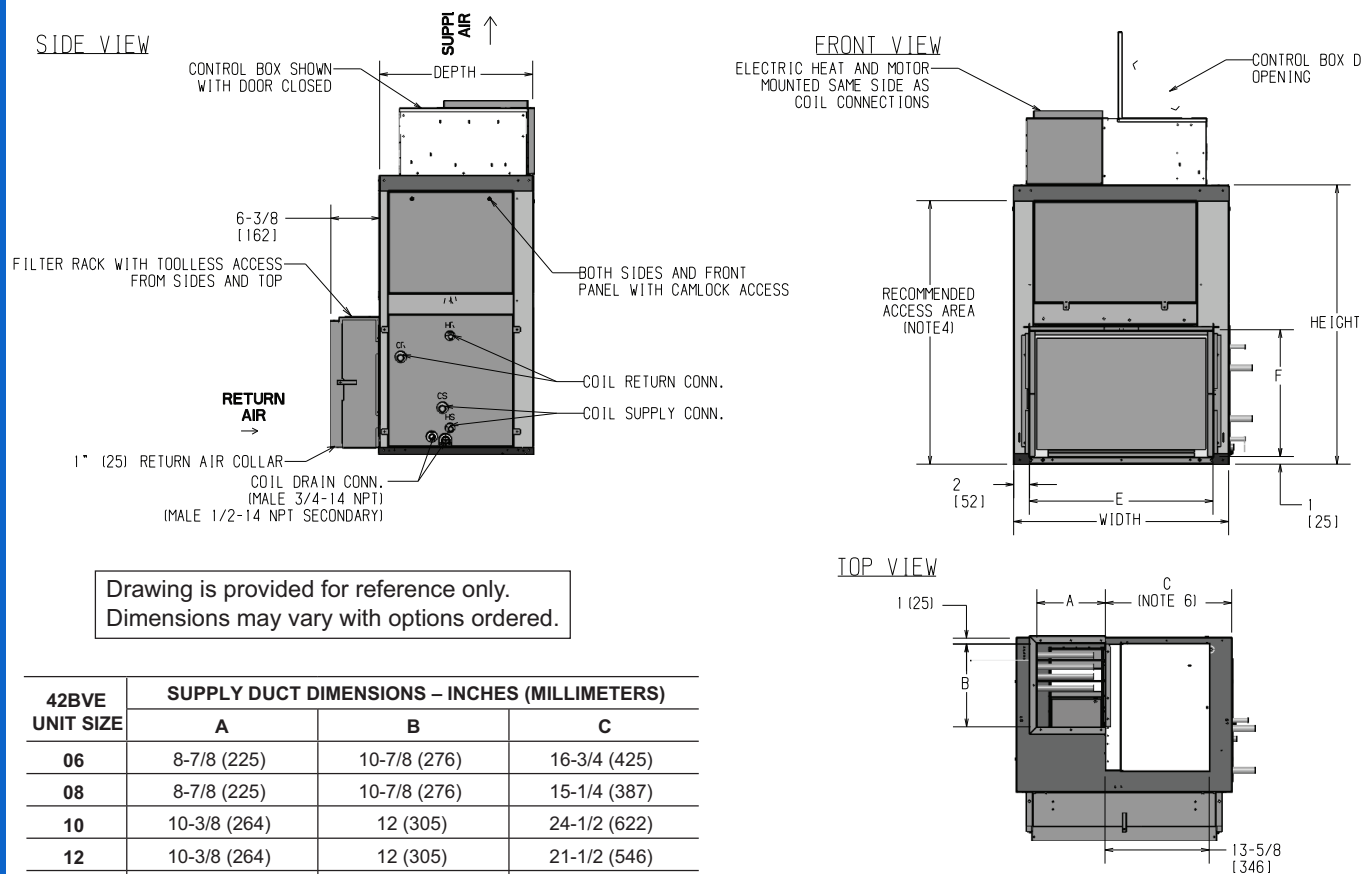
### NOTES:

1. Right hand shown, Left hand opposite.
2. All dimensions are  $\pm 1/4$ -inch (6 mm).
3. Drain pan removal is on the piping side of the unit.
4. Allow adequate spacing or maneuverability of unit to allow service through recommended access area.
5. Unit measurements on drawings and in tables are shown in inches and (millimeters).
6. "C" dimension is measured from coil side of unit.
7. Product specifications are subject to change without notice.
8. For dimensions not shown in this table see Base Unit dimensional drawing.

# Base unit dimensions (cont)



## 42BVE Fan Coil with Electric Heat Option

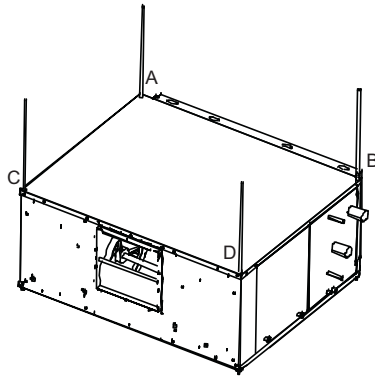


42BVE UNIT SIZE	SUPPLY DUCT DIMENSIONS – INCHES (MILLIMETERS)		
	A	B	C
06	8-7/8 (225)	10-7/8 (276)	16-3/4 (425)
08	8-7/8 (225)	10-7/8 (276)	15-1/4 (387)
10	10-3/8 (264)	12 (305)	24-1/2 (622)
12	10-3/8 (264)	12 (305)	21-1/2 (546)
16	13-7/8 (352)	13 (330)	16-3/4 (425)
20	13 (330)	14-1/8 (359)	17-3/4 (451)
30	16-1/4 (413)	14-1/8 (359)	16 (406)
40	16-3/4 (425)	16-3/8 (416)	22-3/4 (578)

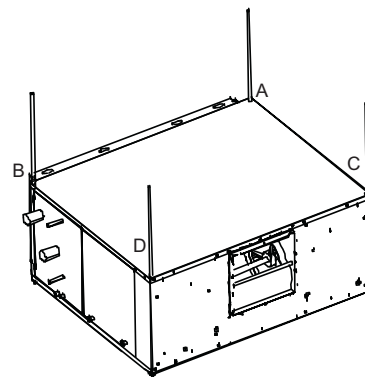
### NOTES:

1. Right hand shown, Left hand opposite.
2. All dimensions are  $\pm 1/4$ -inch (6 mm).
3. Drain pan removal is on the piping side of the unit.
4. Allow adequate spacing or maneuverability of unit to allow service through recommended access area.
5. Unit measurements on drawings and in tables are shown in inches and (millimeters).
6. "C" dimension is measured from coil side of unit.
7. Product specifications are subject to change without notice.
8. For dimensions not shown in this table see Base Unit dimensional drawing.

## 42BHE Unit Corner Weights (lb)



RIGHT HAND UNIT



LEFT HAND UNIT

UNIT 42BHE	NO ELECTRIC HEAT (lb)				TOTAL WEIGHT	WITH ELECTRIC HEAT (lb)				TOTAL WEIGHT
	A	B	C	D		A	B	C	D	
06	49	53	55	59	216	49	56	67	75	247
08	50	54	55	59	218	49	57	67	76	249
10	60	67	65	73	265	59	72	78	91	300
12	61	68	66	74	269	60	72	78	92	302
16	78	85	81	88	332	77	89	94	107	367
20	90	98	89	97	374	90	102	103	115	410
30	122	130	109	117	478	122	134	123	136	515
40	158	165	135	143	601	158	169	150	161	638

NOTE: Unit weights (shown in pounds)  $\pm 10\%$ , are based on the 8-row water filled coils, double wall cabinet construction, and 1 hp motor.

## Total Weight Unit Correction Factor (lb)

UNITS 42BHE	4 ROWS	5 ROWS	6 ROWS	7 ROWS	SINGLE WALL CONSTRUCTION
	Correction Factors (lb)				
06	-21	-16	-11	-5	-31
08	-21	-16	-11	-5	-31
10	-28	-21	-14	-7	-40
12	-28	-21	-14	-7	-40
16	-39	-29	-20	-10	-47
20	-46	-35	-23	-12	-58
30	-74	-55	-37	-18	-67
40	-98	-74	-49	-25	-82

NOTE: Corner weights are for 8-row water filled coils. For a different number of rows, total unit weight can be determined by the following procedure:

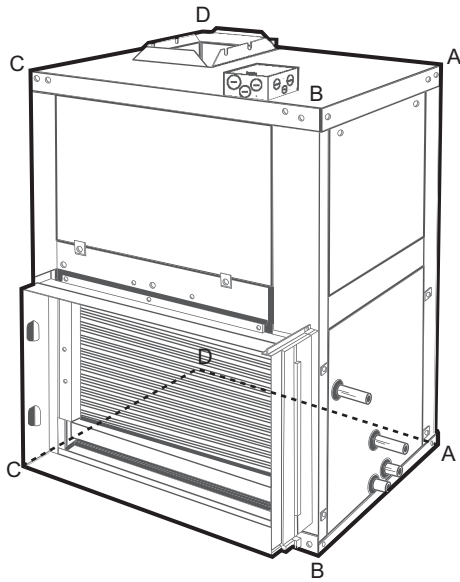
1. Identify the number of rows, the size of the unit, and cabinet construction.
2. Determine the total weight of the unit from the Corner Weight table above.
3. From the table above, identify the correction factors and deduct this from the total weight.
4. Motor, coil stub out, and control box are always located on same side of the unit.



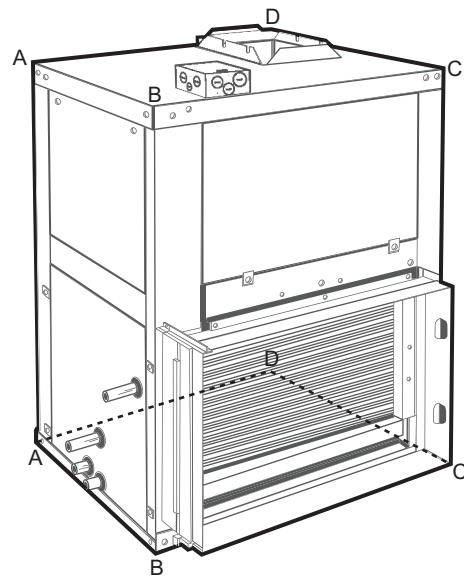
## Base unit dimensions (cont)



**42BVE Unit Corner Weights (lb)**



**RIGHT HAND UNIT**

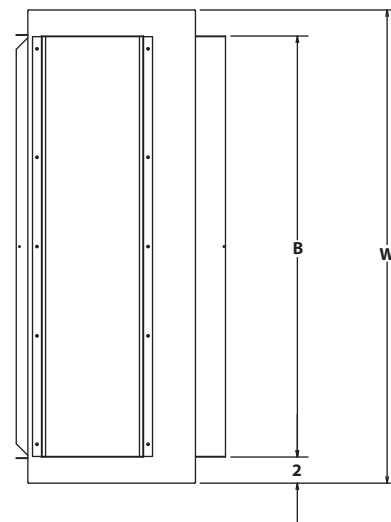
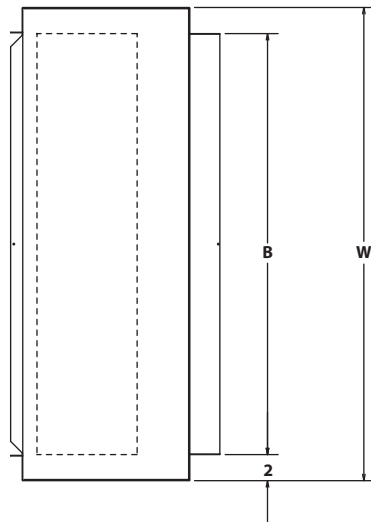


**LEFT HAND UNIT**

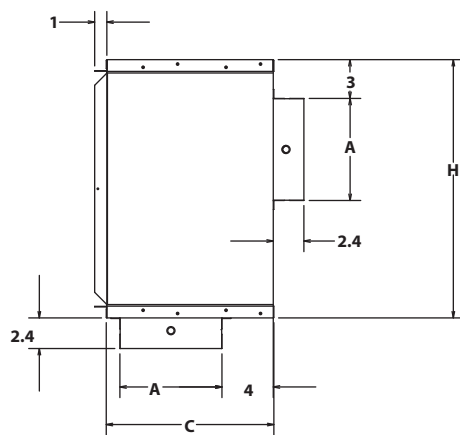
UNIT 42BVE	NO ELECTRIC HEAT (lb)				TOTAL WEIGHT	WITH ELECTRIC HEAT (lb)				TOTAL WEIGHT
	A	B	C	D		A	B	C	D	
06	51	52	59	51	213	57	63	69	55	244
08	52	53	59	51	215	57	64	70	55	246
10	60	65	71	60	256	66	77	82	64	289
12	61	66	72	61	260	67	78	83	65	293
16	72	83	84	70	309	78	96	96	73	343
20	90	108	101	83	382	95	123	114	86	418
30	114	142	123	98	477	119	158	137	100	514
40	134	175	146	115	570	138	193	161	116	608

NOTE: Unit weights (shown in pounds)  $\pm 10\%$ , are based on the 8-row water filled coils, double wall cabinet construction and 1 hp motor.

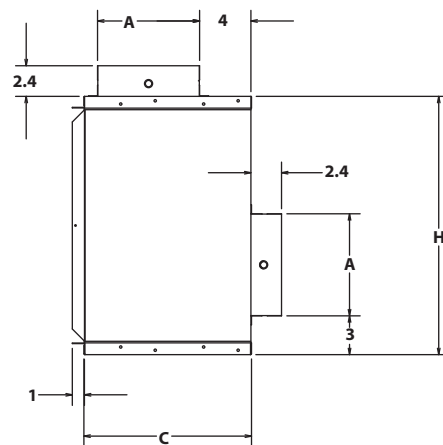
## Mixing Box



## TOP VIEWS



**BOTTOM/REAR INLET (42BHE)**  
**BOTTOM/FRONT INLET (42BVE)**



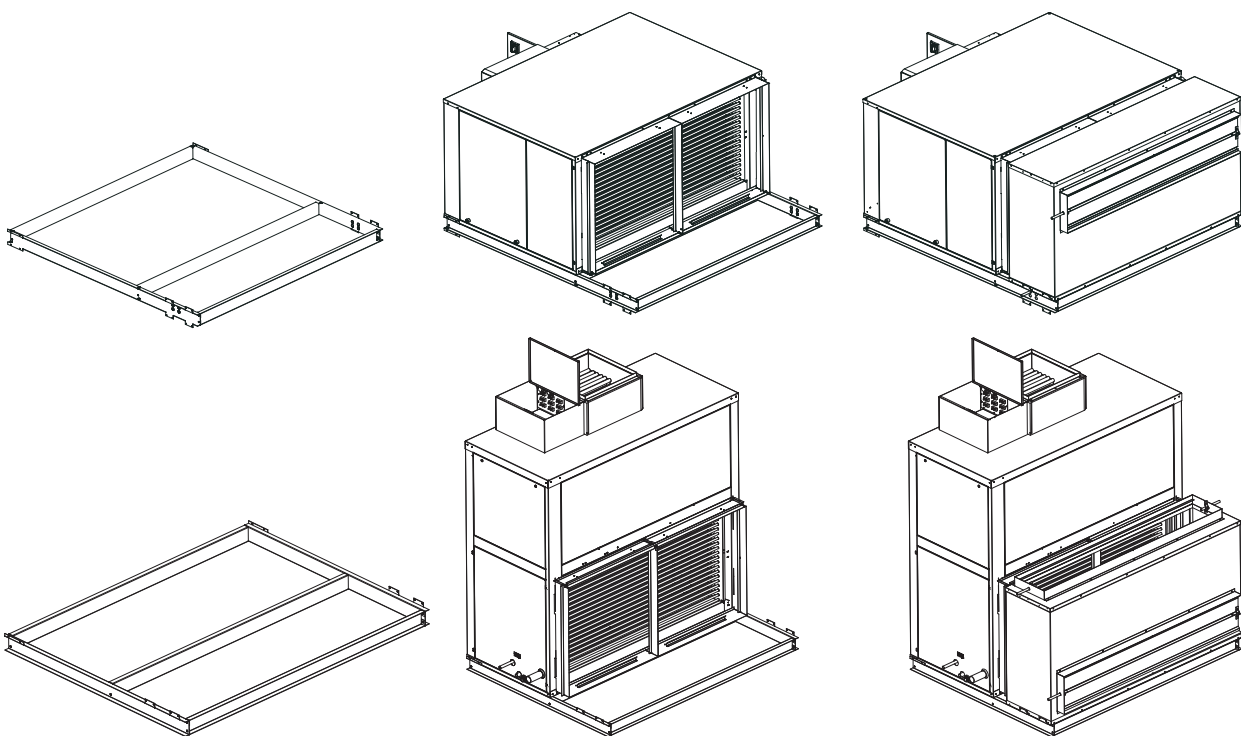
**TOP/REAR INLET (42BHE)**  
**TOP/FRONT INLET (42BVE)**

## RIGHT HAND SIDE VIEWS

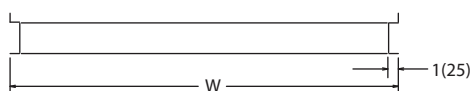
42BHE,BVE UNIT SIZE	DIMENSIONS - in. (mm)				
	H	W	A	B	C
<b>06</b>	18.5 (470)	28 (711)	6 (152)	24 (610)	11 (279)
<b>08</b>	18.5 (470)	28 (711)	6 (152)	24 (610)	11 (279)
<b>10</b>	20.25 (514)	37 (940)	8 (203)	33 (838)	13 (330)
<b>12</b>	20.25 (514)	37 (940)	8 (203)	33 (838)	13 (330)
<b>16</b>	20.25 (514)	47 (1194)	8 (203)	43 (1092)	13 (330)
<b>20</b>	22.75 (578)	48 (1219)	8 (203)	44 (1118)	13 (330)
<b>30</b>	31.0 (787)	48 (1219)	10 (254)	44 (1118)	15 (381)
<b>40</b>	31.0 (787)	62 (1575)	10 (254)	58 (1473)	15 (381)

NOTE: All dimensions in inches.

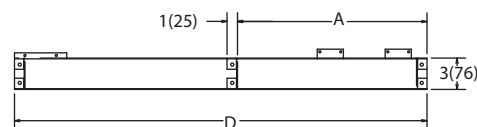
## Mixing Box Rails



**FRONT VIEW**



**SIDE VIEW**



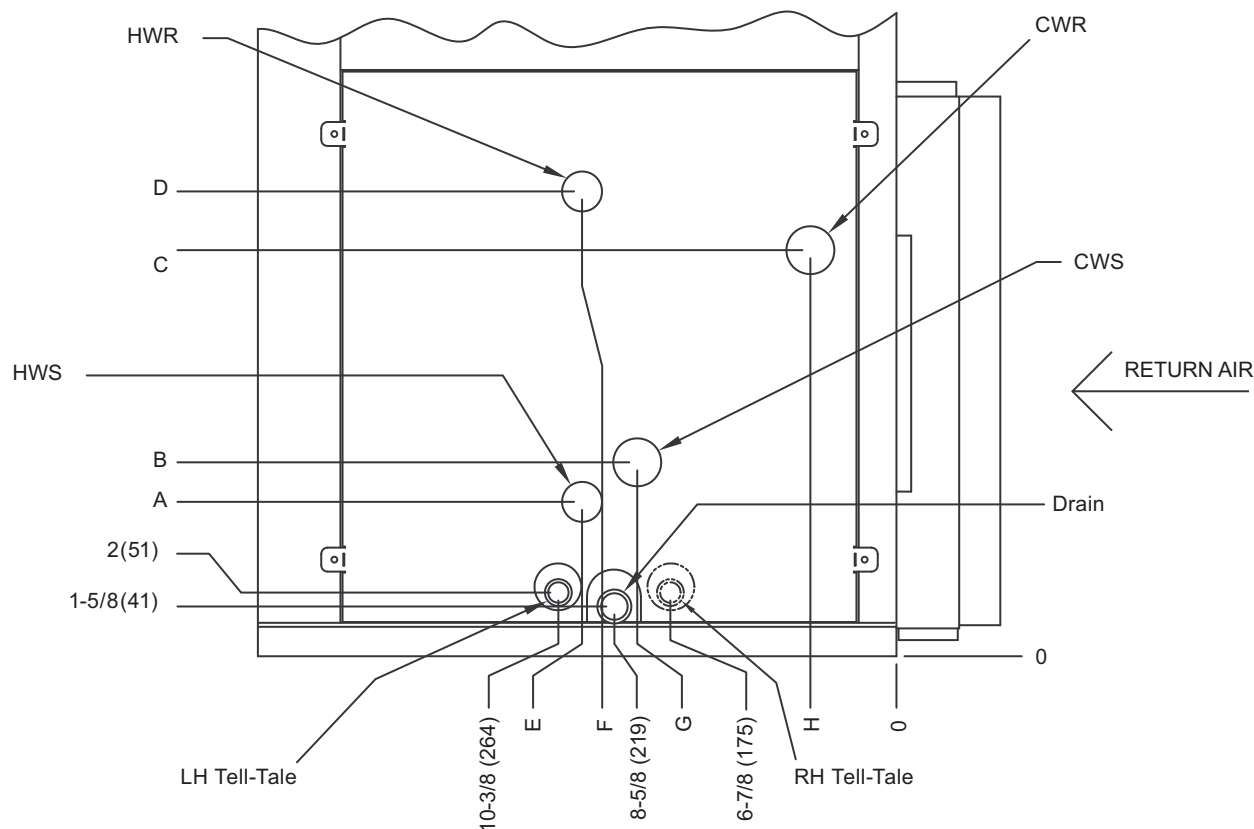
42BHE UNIT	DIMENSIONS - in. (mm)			WEIGHT (lb)	
	W	D	A	Mixing Box	Base Rail Box
06	28 (711)	53.6 (1361)	18.1 (460)	55	27
08	28 (711)	53.6 (1361)	18.1 (460)	55	27
10	37 (940)	57.2 (1453)	20.1 (511)	80	32
12	37 (940)	57.2 (1453)	20.1 (511)	80	32
16	47 (1194)	57.4 (1458)	20.1 (511)	100	36
20	48 (1219)	59.8 (1519)	20.1 (511)	105	37
30	48 (1219)	61.8 (1570)	22.1 (561)	130	37
40	62 (1575)	65.0 (1651)	22.1 (561)	165	44

42BVE UNIT	DIMENSIONS - in. (mm)			WEIGHT (lb)	
	W	D	A	Mixing Box	Base Rail Box
06	28 (711)	37.5 (953)	18.1 (460)	55	27
08	28 (711)	37.5 (953)	18.1 (460)	55	27
10	37 (940)	41.5 (1054)	20.1 (511)	80	32
12	37 (940)	41.5 (1054)	20.1 (511)	80	32
16	47 (1194)	41.5 (1054)	20.1 (511)	100	36
20	48 (1219)	43.5 (1105)	20.1 (511)	105	37
30	48 (1219)	49.5 (1257)	22.1 (561)	130	37
40	62 (1575)	49.5 (1257)	22.1 (561)	165	44

**NOTES:**

1. All dimensions are in inches (mm).
2. Base rails are letter coded for ease of assembly.
3. All hardware required for assembly is included.
4. Mixing box option adds 3 in. to the unit height due to the base rails.

**Piping Connection Location Diagram\* (Hydronic Cooling and Heating Only)**



42BHE,BVE UNIT SIZE	HYDRONIC COIL HEAD CONNECTION SIZES - in. (mm)									
	8 Row		6 Row		4 Row		2 Row		1 Row	
	Nom. Size	Actual OD	Nom. Size	Actual OD	Nom. Size	Actual OD	Nom. Size	Actual OD	Nom. Size	Actual OD
06-12	1 (25.400)	1-1/8 (28.575)	3/4 (19.050)	7/8 (22.225)	3/4 (19.050)	7/8 (22.225)	1/2 (12.700)	5/8 (15.875)	1/2 (12.700)	5/8 (15.875)
16-22	1 (25.400)	1-1/8 (28.575)	1 (25.400)	1-1/8 (28.575)	1 (25.400)	1-1/8 (28.575)	1 (25.400)	1-1/8 (28.575)	1/2 (12.700)	5/8 (15.875)
30-40	1-1/2 (38.100)	1-5/8 (41.275)	1-1/2 (38.100)	1-5/8 (41.275)	1-1/2 (38.100)	1-5/8 (41.275)	1-1/2 (38.100)	1-5/8 (41.275)	1-1/2 (38.100)	1-5/8 (41.275)

**LEGEND**

**CWR** — Cold Water Return  
**CWS** — Cold Water Supply  
**HWR** — Hot Water Return  
**HWS** — Hot Water Supply  
**LH** — Left Hand  
**RH** — Right Hand  
**SO** — Stub Out

\*Left-hand unit with re-heat coil shown.

**NOTES:**

1. All dimensions are in inches.
2. Use the Piping Connection Location table on page 19 to determine the location of the piping connections. For example, on a size 20 unit (with re-heat coil) with 4 rows and a left hand connection, the location of the chilled water supply line is determined by G (5-15/16 in.) and B (7-13/16 in.).

**Piping Connection Location (Hydronic Heating and Cooling)**

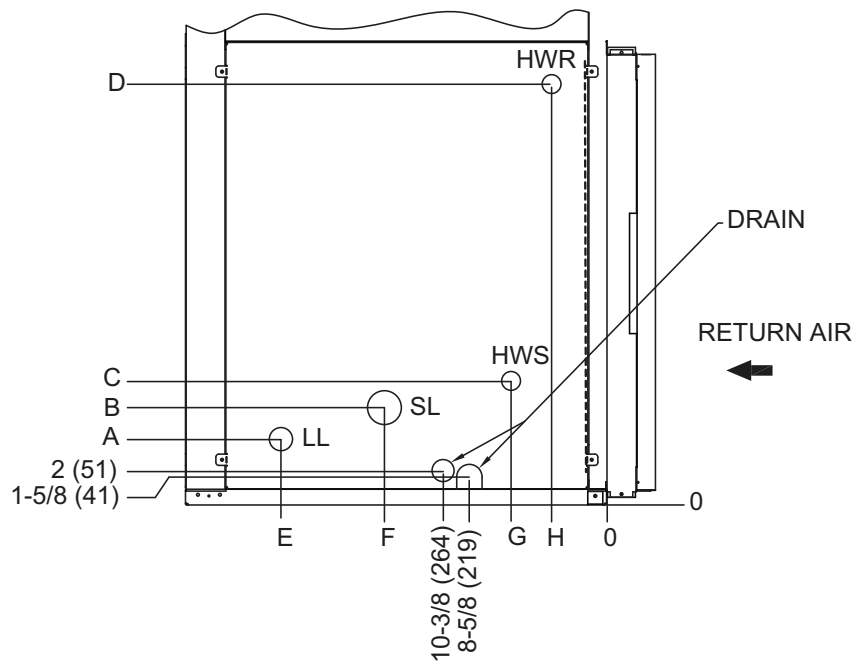
HEAT OPTIONS	42BHE,BVE UNIT SIZE	COIL ROWS		DIMENSIONS - in. (mm)							
		Cool	Heat	A	B	C	D	E	F	G	H
Re-heat	06, 08	4	0	—	6-1/8 (155.575)	12-3/4 (323.850)	—	—	—	5-15/16 (150.813)	2-11/16 (68.263)
			1	3-1/2 (88.900)	6-1/8 (155.575)	12-3/4 (323.850)	15-1/2 (393.700)	7 (177.80)	7 (177.80)	5-15/16 (150.813)	2-11/16 (68.263)
			2	3-13/16 (96.838)	6-1/8 (155.575)	12-3/4 (323.850)	15-13/16 (401.638)	7-9/16 (192.088)	7-9/16 (192.088)	5-15/16 (150.813)	2-11/16 (68.263)
		6	0	—	6-1/8 (155.575)	12-3/4 (323.850)	—	—	—	8-1/8 (206.375)	2-11/16 (68.263)
			1	3-1/2 (88.900)	6-1/8 (155.575)	12-3/4 (323.850)	15-1/2 (393.700)	9-3/16 (233.363)	9-3/16 (233.363)	8-1/8 (206.375)	2-11/16 (68.263)
			2	3-13/16 (96.838)	6-1/8 (155.575)	12-3/4 (323.850)	15-13/16 (401.638)	9-3/4 (247.650)	9-3/4 (247.650)	8-1/8 (206.375)	2-11/16 (68.263)
		8	0	—	6-1/8 (155.575)	12-3/4 (323.850)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
			0	—	7-3/4 (196.850)	14-3/8 (365.125)	—	—	—	5-15/16 (150.813)	2-11/16 (68.263)
			1	5-1/8 (130.175)	7-3/4 (196.850)	14-3/8 (365.125)	17-1/8 (434.975)	7 (177.80)	7 (177.80)	5-15/16 (150.813)	2-11/16 (68.263)
			2	5-7/16 (138.113)	7-3/4 (196.850)	14-3/8 (365.125)	17-7/16 (442.913)	7-9/16 (192.088)	7-9/16 (192.088)	5-15/16 (150.813)	2-11/16 (68.263)
	10, 12	4	0	—	7-3/4 (196.850)	14-3/8 (365.125)	—	—	—	8-1/8 (206.375)	2-11/16 (68.263)
			1	5-1/8 (130.175)	7-3/4 (196.850)	14-3/8 (365.125)	17-1/8 (434.975)	9-3/16 (233.363)	9-3/16 (233.363)	8-1/8 (206.375)	2-11/16 (68.263)
			2	5-27/61 (138.243)	7-3/4 (196.850)	14-3/8 (365.125)	17-7/16 (442.913)	9-3/4 (247.650)	9-3/4 (247.650)	8-1/8 (206.375)	2-11/16 (68.263)
		6	0	—	7-3/4 (196.850)	14-3/8 (365.125)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
			1	5-1/8 (130.175)	7-3/4 (196.850)	14-3/8 (365.125)	17-1/8 (434.975)	11-13/16 (300.038)	9-3/16 (233.363)	8-1/8 (206.375)	2-11/16 (68.263)
			2	5-27/61 (138.243)	7-3/4 (196.850)	14-3/8 (365.125)	17-7/16 (442.913)	11-13/16 (300.038)	9-3/16 (233.363)	8-1/8 (206.375)	2-11/16 (68.263)
		8	0	—	7-3/4 (196.850)	14-3/8 (365.125)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
			0	—	7-3/4 (196.850)	14-3/8 (365.125)	—	—	—	5-15/16 (150.813)	2-11/16 (68.263)
			1	LH 10-5/8 (269.875)	7-3/4 (196.850)	14-3/8 (365.125)	12 (304.800)	9-5/8 (244.475)	7 (177.80)	5-15/16 (150.813)	2-11/16 (68.263)
			2	RH 13-3/8 (339.725)	7-3/4 (196.850)	14-3/8 (365.125)	12 (304.800)	9-5/8 (244.475)	7 (177.80)	5-15/16 (150.813)	2-11/16 (68.263)
	16	4	0	—	7-3/4 (196.850)	14-3/8 (365.125)	—	—	—	5-15/16 (150.813)	2-11/16 (68.263)
			1	12 (304.800)	7 (177.800)	16-3/8 (415.925)	13-5/8 (346.075)	10-3/8 (363.525)	7-9/16 (192.088)	5-15/16 (150.813)	2-11/16 (68.263)
			2	—	7-3/4 (196.850)	15-5/8 (396.875)	—	—	—	8-1/8 (206.375)	2-11/16 (68.263)
		6	0	—	7-3/4 (196.850)	15-5/8 (396.875)	—	—	—	8-1/8 (206.375)	2-11/16 (68.263)
			1	LH 10-5/8 (269.875)	7-3/4 (196.850)	15-5/8 (396.875)	12 (304.800)	11-13/16 (300.038)	9-3/16 (233.363)	8-1/8 (206.375)	2-11/16 (68.263)
			2	RH 13-3/8 (339.725)	7-3/4 (196.850)	15-5/8 (396.875)	12 (304.800)	11-13/16 (300.038)	9-3/16 (233.363)	8-1/8 (206.375)	2-11/16 (68.263)
		8	0	—	7-3/4 (196.850)	15-5/8 (396.875)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
			0	—	9-1/2 (241.300)	15-5/8 (396.875)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
			1	—	9-1/2 (241.300)	15-5/8 (396.875)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
			2	—	9-1/2 (241.300)	15-5/8 (396.875)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
			3	—	9-1/2 (241.300)	15-5/8 (396.875)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
			4	—	9-1/2 (241.300)	15-5/8 (396.875)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)

### Piping Connection Location (Hydronic Heating and Cooling) (cont)

HEAT OPTIONS	42BHE,BVE UNIT SIZE	COIL ROWS		DIMENSIONS - in. (mm)							
		Cool	Heat	A	B	C	D	E	F	G	H
Re-heat	20	4	0	—	7-13/16 (198.438)	18-3/16 (461.963)	—	—	—	5-15/16 (150.813)	2-11/16 (68.263)
			1	LH 11-15/16 (303.213)	7-13/16 (198.438)	18-3/16 (461.963)	13-5/16 (338.138)	9-5/8 (244.475)	7 (177.80)	5-15/16 (150.813)	2-11/16 (68.263)
				RH 14-11/16 (373.063)	7-13/16 (198.438)	18-3/16 (461.963)	13-5/16 (338.138)	9-5/8 (244.475)	7 (177.80)	5-15/16 (150.813)	2-11/16 (68.263)
			2	11-9/16 (293.688)	7-7/8	18-3/16 (461.963)	13-5/16 (338.138)	9-1/16 (230.188)	7 (177.80)	5 (127.000)	2-11/16 (68.263)
		6	0	—	7-13/16 (198.438)	18-3/16 (461.963)	—	—	—	8-1/8 (206.375)	2-11/16 (68.263)
			1	LH 11-15/16 (303.213)	7-13/16 (198.438)	18-3/16 (461.963)	13-5/16 (338.138)	11-13/16 (300.038)	9-3/16 (233.363)	8-1/8 (206.375)	2-11/16 (68.263)
				RH 14-11/16 (373.063)	7-13/16 (198.438)	18-3/16 (461.963)	13-5/16 (338.138)	11-13/16 (300.038)	9-3/16 (233.363)	8-1/8 (206.375)	2-11/16 (68.263)
			2	11-9/16 (293.688)	7-7/8	18-3/16 (461.963)	15-13/16 (401.638)	11-1/4 (285.750)	9-3/16 (233.363)	7-1/8 (180.975)	2-11/16 (68.263)
		8	0	—	7-13/16 (198.438)	18-3/16 (461.963)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)
	30, 40	4	0	—	5-15/16 (150.813)	26-5/16 (668.338)	—	—	—	5-15/16 (150.813)	2-11/16 (68.263)
			1	7-1/16 (179.388)	5-15/16 (150.813)	26-5/16 (668.338)	25-13/16 (655.638)	9 (228.600)	7 (177.80)	4-7/8 (123.825)	2-11/16 (68.263)
				7-1/16 (179.388)	5-15/16 (150.813)	26-5/16 (668.338)	25-13/16 (655.638)	9 (228.600)	7 (177.80)	4-7/8 (123.825)	2-11/16 (68.263)
			2	10-5/16 (261.938)	5-15/16 (150.813)	26-5/16 (668.338)	25-13/16 (655.638)	9-1/8 (231.775)	7 (177.80)	4-7/8 (123.825)	2-11/16 (68.263)
		6	0	—	5-15/16 (150.813)	26-5/16 (668.338)	—	—	—	8-1/8 (206.375)	2-11/16 (68.263)
			1	7-1/16 (179.388)	5-15/16 (150.813)	26-5/16 (668.338)	25-13/16 (655.638)	11-1/8 (282.575)	9-1/8 (231.775)	7-1/16 (179.388)	2-11/16 (68.263)
				7-1/16 (179.388)	5-15/16 (150.813)	26-5/16 (668.338)	25-13/16 (655.638)	11-1/8 (282.575)	9-1/8 (231.775)	7-1/16 (179.388)	2-11/16 (68.263)
			2	10-5/16 (261.938)	5-15/16 (150.813)	26-5/16 (668.338)	25-13/16 (655.638)	11-5/16 (287.338)	9-1/8 (231.775)	7-1/16 (179.388)	2-11/16 (68.263)
		8	0	—	5-15/16 (150.813)	26-5/16 (668.338)	—	—	—	10-1/4 (260.350)	2-11/16 (68.263)



## Piping Connection Location (DX Cooling and Hydronic Heating)



COIL HEADER CONNECTION SIZE (Nominal OD in Inches)

42 BHE,BVE UNIT SIZE	LL		SL		2 Row HW		1 Row HW	
	Nom. Size	Actual OD	Nom. Size	Actual OD	Nom. Size	Actual OD	Nom. Size	Actual OD
06 - 12	1/4 (6.350)	0.375 (9.525)	3/4 (19.050)	0.875 (22.225)	1/2 (12.700)	0.625 (15.875)	1/2 (12.700)	0.625 (15.875)
16, 20	1/4 (6.350)	0.375 (9.525)	1 (25.400)	1.125 (28.575)	1 (25.400)	1.125 (28.575)	1/2 (12.700)	0.625 (15.875)
30, 40	1/2 (12.700)	0.625 (15.875)	1-1/2 (38.100)	1.625 (41.275)	1-1/2 (38.100)	1.625 (41.275)	1-1/2 (38.100)	1.625 (41.275)

### LEGEND

**CWR** — Cold Water Return  
**CWS** — Cold Water Supply  
**HWR** — Hot Water Return  
**HWS** — Hot Water Supply  
**LH** — Left Hand  
**RH** — Right Hand  
**SO** — Stub Out

\*Left-hand unit with re-heat coil shown.

### NOTES:

1. All dimensions are in inches.
2. Use the Piping Connection Location table on page 22 to determine the location of the piping connections. For example, on a size 20 unit (with re-heat coil) with 4 rows and a left hand connection, the location of the chilled water supply line is determined by G (5-15/16 in.) and B (7-13/16 in.).

# Piping Connection — DX Cooling and Hydronic Heating

HEAT OPTIONS	42BHE,BVE UNIT SIZE	COIL ROWS		DIMENSIONS - in. (mm)							
		Cool	Heat	A	B	C	D	E	F	G	H
Preheat <sup>a</sup>	06, 08	4	0	4-3/4 (120.650)	5-1/2 (139.700)	—	—	12-1/2 (317.500)	2-3/4 (69.850)	—	—
			1	4-3/4 (120.650)	5-1/2 (139.700)	6 (152.400)	18 (457.200)		3-3/4 (95.250)	2-5/8 (66.675)	2-5/8 (66.675)
			2	4-3/4 (120.650)	5-1/2 (139.700)	6 (152.400)	18 (457.200)		4-7/8 (123.825)	3-1/4 (82.550)	3-1/4 (82.550)
		6	0	4-3/4 (120.650)	5-1/2 (139.700)	—	—		2-3/4 (69.850)	—	—
			1	4-3/4 (120.650)	5-1/2 (139.700)	6 (152.400)	18 (457.200)		3-3/4 (95.250)	2-5/8 (66.675)	2-5/8 (66.675)
			2	4-3/4 (120.650)	5-1/2 (139.700)	6 (152.400)	18 (457.200)		4-7/8 (123.825)	3-1/4 (82.550)	3-1/4 (82.550)
	10, 12	4	0	6-1/2 (165.100)	7-1/8 (180.975)	—	—	12-1/2 (317.500)	2-3/4 (69.850)	—	—
			1	6-1/2 (165.100)	7-1/8 (180.975)	5-1/8 (130.175)	17-1/8 (434.975)		3-3/4 (95.250)	2-5/8 (66.675)	2-5/8 (66.675)
			2	6-1/2 (165.100)	7-1/8 (180.975)	5-1/8 (130.175)	17-1/8 (434.975)		4-7/8 (123.825)	3-1/4 (82.550)	3-1/4 (82.550)
		6	0	6-1/2 (165.100)	7-1/8 (180.975)	—	—		2-3/4 (69.850)	—	—
			1	6-1/2 (165.100)	7-1/8 (180.975)	5-1/8 (130.175)	17-1/8 (434.975)		3-3/4 (95.250)	2-5/8 (66.675)	2-5/8 (66.675)
			2	6-1/2 (165.100)	7-1/8 (180.975)	5-1/8 (130.175)	17-1/8 (434.975)		4-7/8 (123.825)	3-1/4 (82.550)	3-1/4 (82.550)
	16	4	0	6-1/2 (165.100)	7-1/8 (180.975)	—	—	12-1/2 (317.500)	2-3/4 (69.850)	—	—
			1	6-1/2 (165.100)	7-1/8 (180.975)	5-1/8 (130.175)	17-1/8 (434.975)		3-3/4 (95.250)	2-5/8 (66.675)	2-5/8 (66.675)
			2	6-1/2 (165.100)	6-3/8 (161.925)	10 (254.000)	13-5/8 (346.075)		6-3/4 (171.450)	4-1/8 (104.775)	2-5/8 (66.675)
		6	0	6-1/2 (165.100)	7-1/8 (180.975)	—	—		2-3/4 (69.850)	—	—
			1	6-1/2 (165.100)	7-1/8 (180.975)	5-1/8 (130.175)	17-1/8 (434.975)		3-3/4 (95.250)	2-5/8 (66.675)	2-5/8 (66.675)
			2	6-1/2 (165.100)	6-3/8 (161.925)	10 (254.000)	13-5/8 (346.075)		6-3/4 (171.450)	4-1/8 (104.775)	2-5/8 (66.675)
	20	4	0	6-1/2 (165.100)	7-1/8 (180.975)	—	—	12-1/2 (317.500)	2-3/4 (69.850)	—	—
			1	6-1/2 (165.100)	7-1/8 (180.975)	5-1/4 (133.350)	19-3/4 (501.650)		3-3/4 (95.250)	2-5/8 (66.675)	2-5/8 (66.675)
			2	6-3/4 (171.450)	7-1/4 (184.150)	11-5/8 (295.275)	15-7/8 (403.225)		6-3/4 (171.450)	4-1/4 (107.950)	2-5/8 (66.675)
		6	0	6-1/2 (165.100)	7-1/8 (180.975)	—	—		2-3/4 (69.850)	—	—
			1	6-1/2 (165.100)	7-1/8 (180.975)	5-1/4 (133.350)	19-3/4 (501.650)		3-3/4 (95.250)	2-5/8 (66.675)	2-5/8 (66.675)
			2	6-3/4 (171.450)	7-1/4 (184.150)	11-5/8 (295.275)	15-7/8 (403.225)		6-3/4 (171.450)	4-1/4 (107.950)	2-5/8 (66.675)
	30, 40	4	0	4-5/8 (117.475)	5-3/8 (136.525)	—	—	12-1/2 (317.500)	2-3/4 (69.850)	—	—
			1	4-7/8 (123.825)	6 (152.400)	12-1/8 (307.975)	25-7/8 (657.225)		6-1/8 (155.575)	4-1/2 (114.300)	2-5/8 (66.675)
			2	4-7/8 (123.825)	5-3/8 (136.525)	10-3/8 (263.525)	23-7/8 (606.425)		6-3/8 (161.3925)	4-1/2 (114.300)	2-5/8 (66.675)
		6	0	4-5/8 (117.475)	5-3/8 (136.525)	—	—		2-3/4 (69.850)	—	—
			1	4-7/8 (123.825)	6 (152.400)	12-1/8 (307.975)	25-7/8 (657.225)		6-1/8 (155.575)	4-1/2 (114.300)	2-5/8 (66.675)
			2	4-7/8 (123.825)	5-3/8 (136.525)	10-3/8 (263.525)	23-7/8 (606.425)		6-3/8 (161.3925)	4-1/2 (114.300)	2-5/8 (66.675)

NOTE(S):

a. Standard position with DX cooling coil.

Accessory dimensions (cont)



## Multitude of applications

These units can be floor or ceiling mounted, are available with a variety of options that can meet the design requirements, and provide a low cost solution for a multitude of applications.

### Standard horizontal and vertical blower coil applications

Where the application calls for cooling capacities or external static pressures that can not be met with standard or high performance direct drive fan coil units, use a Carrier standard horizontal or vertical blower coil.

### Outside air applications

With the availability of larger capacities, a variety of optional coils, mixing boxes, and the capability of delivering air through long duct runs, the belt drive units are ideal for handling outside air. When used as outside air units, the heating coil should be in the preheat location (consult Carrier's application engineering group).

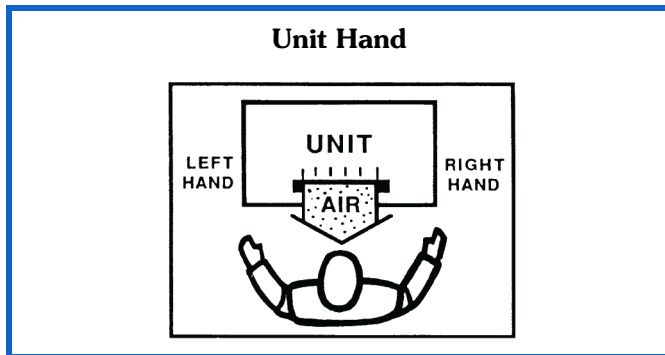
### Large public areas

These units are ideal for applications with a large common area such as restaurants, airports, sports arenas, stadiums, private boxes, gymnasiums, exercise areas, locker rooms, atriums and foyers, auditoriums, shopping malls, and casinos, to name a few.

## Basic definitions

### Unit hand

When facing the supply air outlet from the front of the unit (air blowing in your face), your right hand will be the right hand side of the unit and your left hand the left hand side of the unit.



## Installation considerations

The belt drive units are typically either suspended above the ceiling or installed in a closet or mechanical room.

Attention should be paid to having enough clearance around the units for service and maintenance.

Horizontal units are generally suspended above the ceiling using hanger rods that go through the corner knockouts provided in the units. External vibration isolation and flex connections for ducts are recommended.

Vertical units are typically installed on a pad. Ensure adequate pad height for proper trapping of the condensate drain.

## Acoustical considerations

With sound becoming more of a concern to design engineers, building owners, and occupants, proper consideration should be given to the selection and placement of these units.

Whenever possible, avoid placing these units above an occupied space. To further reduce the sound level, use additional measures such as: using flexible duct connectors; lining the main supply and return ducts with acoustical absorption material; locating the return-air grilles as far away from the unit as possible; and using three-phase motors.

## Operating limitations

The fan curves outline the airflow and static pressure range where it is acceptable to run these units. Running the belt drive units outside this range could lead to drastically reduced bearing life and premature wheel failure. In cooling applications, this could also result in moisture carry over. In addition, running the fan at its maximum fan speed will increase the power requirements and generate higher sound levels.




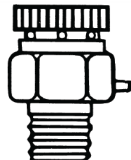
On units with electric heat, the minimum airflow shown on the fan curve must be maintained to prevent excessive discharge temperature and electric heat safety trips. For leaving discharge air temperatures greater than 104°F (40°C), contact the applications engineering group.

## Quality

Carrier's belt drive fan coil units are listed by Intertek Testing Services (ITS). ITS's C-ETL-US listing signifies that Carrier's belt drive fan coil units have been examined by ITS and comply with the minimum requirements of U.S. and Canadian national product safety standard, UL 60335-2-40/CSA C22.2 No. 236, and that the manufacturing site has been audited. ITS's re-examination service includes periodic visits to the factory to ensure continued compliance for all listed products.

Every unit is tested and inspected at the factory for trouble-free start-up.

## Piping Components

SYMBOL/SKETCH	DESCRIPTION	C <sub>v</sub> FACTOR		RATING <sup>a</sup>	
		1/2	3/4	PSIG	F
 	<b>MANUAL AIR VENT:</b> Threaded brass needle valve with screwdriver slot for adjustment. Application — Body brazed into high point of heating and cooling coils for bleeding air from coil. Standard item on all hydronic coils (not used on steam or DX coils). Should not be used in lieu of main system air vents.	N/A	N/A	400	100
 	<b>AUTOMATIC AIR VENT:</b> Nickel plated brass valve, fiber-disc type, with positive shut-off ballcheck and quick vent feature via knurled vent screw. Application — Optional replacement for manual air vent. Automatically passes minute quantities of air through the fiber discs which expand upon contact with water, completely sealing the valve. As air accumulates, the fiber discs dry and shrink, repeating the cycle. Not recommended for removing large quantities of air encountered during initial start-up or subsequent draining and refilling. Should not be used in lieu of main system air vents.	N/A	N/A	125	240

NOTE(S):

- a. Check all system component pressure ratings (coils, valves, pumps, etc.) with manufacturer and any applicable local or national piping codes prior to specifying system pressure rating.

### LEGEND

**C<sub>v</sub>** — Coefficient of Velocity  
**DX** — Direct Expansion

## 42BHE, BVE Nominal Cooling Capacities

UNIT SIZE 42BHE,BVE	NOMINAL CFM	COOLING CAPACITY (MBtuh) <sup>a</sup>		HEATING CAPACITY (MBtuh) <sup>b</sup>	
		Total	Sensible	Hydronic	Max Electric <sup>c</sup>
06	600	17.9 - 26.8	13.8 - 18.1	13.2 - 38.3	20
08	800	21.9 - 33.8	17.5 - 23.3	15.9 - 47.1	27
10	1000	31.6 - 46.4	23.7 - 31.0	21.8 - 62.8	34
12	1200	35.5 - 53.3	27.2 - 36.1	24.2 - 70.1	41
16	1600	46.5 - 71.4	35.9 - 48.3	31.4 - 94.2	55
20	2000	59.1 - 90.0	45.1 - 60.6	38.9 - 114.7	68
30	3000	87.8 - 135.1	67.6 - 91.1	56.3 - 174.9	102
40	4000	123.8 - 185.8	92.9 - 123.8	78.2 - 237.2	137

NOTE(S):

- Nominal cooling capacity range is based on 80°F dry bulb and 67°F wet bulb EAT (entering air temperature), 45°F EWT (entering water temperature) with 10°F water temperature rise for 4, 6, and 8 row coils.
- Nominal heating capacity range is based on 70°F EAT, 140°F to 180°F EWT with 20°F water temperature drop for 1 and 2 row coils.
- Electric heat capacity limit varies by power source.

### LEGEND

**MBtuh** — Btuh in Thousands

## 42BHE,BVE Component Static Resistance (in. wg)

42BHE,BVE UNIT SIZE	NOMINAL CFM	CABINET	WET COIL			DRY COIL					1-in. PLEATED MERV 8 FILTER	TWO 1-in. THROWAWAY FILTERS	2-in. PLEATED MERV 8 FILTER	2-in. PLEATED MERV 11 FILTER	MIXING BOX
			4 Row	6 Row	8 Row	1 Row	2 Row	4 Row	6 Row	8 Row					
06	400	0.02	0.08	0.12	0.16	0.01	0.02	0.04	0.06	0.08	0.03	0.02	0.03	0.06	0.02
	500	0.03	0.13	0.19	0.25	0.01	0.03	0.06	0.09	0.12	0.05	0.03	0.04	0.09	0.03
	600	0.04	0.18	0.27	0.36	0.02	0.04	0.08	0.13	0.17	0.08	0.04	0.06	0.12	0.04
	700	0.06	0.25	0.37	0.50	0.03	0.06	0.12	0.17	0.23	0.10	0.06	0.08	0.17	0.06
	800	0.08	0.32	0.49	0.65	0.04	0.08	0.15	0.23	0.30	0.14	0.08	0.11	0.22	0.08
08	600	0.04	0.18	0.27	0.36	0.02	0.04	0.08	0.13	0.17	0.08	0.04	0.06	0.12	0.04
	700	0.06	0.25	0.37	0.50	0.03	0.06	0.12	0.17	0.23	0.10	0.06	0.08	0.17	0.06
	800	0.08	0.32	0.49	0.65	0.04	0.08	0.15	0.23	0.30	0.14	0.08	0.11	0.22	0.08
	900	0.10	0.41	0.61	0.82	0.05	0.10	0.19	0.29	0.38	0.17	0.10	0.14	0.28	0.10
	1000	0.12	0.51	0.76	1.01	0.06	0.12	0.24	0.35	0.47	0.21	0.12	0.17	0.34	0.12
10	800	0.04	0.15	0.23	0.31	0.02	0.04	0.07	0.11	0.14	0.07	0.04	0.06	0.12	0.04
	900	0.05	0.19	0.29	0.39	0.02	0.05	0.09	0.14	0.18	0.09	0.05	0.07	0.15	0.05
	1000	0.06	0.24	0.36	0.48	0.03	0.06	0.11	0.17	0.22	0.11	0.06	0.09	0.18	0.06
	1100	0.08	0.29	0.44	0.58	0.03	0.07	0.14	0.20	0.27	0.14	0.08	0.11	0.22	0.08
	1200	0.09	0.35	0.52	0.69	0.04	0.08	0.16	0.24	0.32	0.16	0.09	0.13	0.26	0.09
12	1000	0.06	0.24	0.36	0.48	0.03	0.06	0.11	0.17	0.22	0.11	0.06	0.09	0.18	0.06
	1100	0.08	0.29	0.44	0.58	0.03	0.07	0.14	0.20	0.27	0.14	0.08	0.11	0.22	0.08
	1200	0.09	0.35	0.52	0.69	0.04	0.08	0.16	0.24	0.32	0.16	0.09	0.13	0.26	0.09
	1300	0.11	0.41	0.61	0.81	0.05	0.09	0.19	0.28	0.38	0.19	0.11	0.15	0.31	0.11
	1400	0.13	0.47	0.71	0.94	0.05	0.11	0.22	0.33	0.44	0.22	0.13	0.17	0.36	0.13
16	1400	0.07	0.26	0.39	0.52	0.03	0.06	0.12	0.18	0.24	0.13	0.07	0.10	0.21	0.07
	1500	0.09	0.30	0.45	0.60	0.03	0.07	0.14	0.21	0.28	0.15	0.09	0.12	0.24	0.09
	1600	0.10	0.34	0.51	0.68	0.04	0.08	0.16	0.24	0.32	0.17	0.10	0.13	0.27	0.10
	1700	0.11	0.38	0.58	0.77	0.04	0.09	0.18	0.27	0.36	0.19	0.11	0.15	0.31	0.11
	1800	0.12	0.43	0.65	0.86	0.05	0.10	0.20	0.30	0.40	0.21	0.12	0.17	0.35	0.12
20	1800	0.12	0.30	0.45	0.60	0.03	0.07	0.14	0.21	0.28	0.13	0.08	0.10	0.21	0.07
	1900	0.13	0.34	0.50	0.67	0.04	0.08	0.16	0.23	0.31	0.14	0.08	0.12	0.24	0.08
	2000	0.14	0.37	0.56	0.74	0.04	0.09	0.17	0.26	0.35	0.16	0.09	0.13	0.26	0.09
	2100	0.16	0.41	0.61	0.82	0.05	0.10	0.19	0.29	0.38	0.18	0.10	0.14	0.29	0.10
	2200	0.17	0.45	0.67	0.90	0.05	0.10	0.21	0.31	0.42	0.19	0.11	0.16	0.32	0.11
	2300	0.19	0.49	0.74	0.98	0.06	0.11	0.23	0.34	0.46	0.21	0.12	0.17	0.35	0.12
	2400	0.21	0.54	0.80	1.07	0.06	0.12	0.25	0.37	0.50	0.23	0.13	0.19	0.38	0.13
30	2400	0.11	0.22	0.33	0.43	0.03	0.05	0.10	0.15	0.20	0.13	0.07	0.10	0.21	0.07
	2600	0.13	0.25	0.38	0.51	0.03	0.06	0.12	0.18	0.24	0.15	0.09	0.12	0.24	0.09
	2800	0.15	0.29	0.44	0.59	0.03	0.07	0.14	0.21	0.27	0.17	0.10	0.14	0.28	0.10
	3000	0.18	0.34	0.51	0.68	0.04	0.08	0.16	0.24	0.31	0.20	0.12	0.16	0.32	0.11
	3200	0.20	0.39	0.58	0.77	0.04	0.09	0.18	0.27	0.36	0.23	0.13	0.18	0.37	0.13
	3400	0.23	0.43	0.65	0.87	0.05	0.10	0.20	0.30	0.40	0.25	0.15	0.20	0.42	0.15
40	3400	0.13	0.24	0.36	0.48	0.03	0.06	0.11	0.17	0.22	0.15	0.09	0.12	0.24	0.08
	3600	0.15	0.27	0.40	0.54	0.03	0.06	0.12	0.19	0.25	0.16	0.10	0.13	0.27	0.09
	3800	0.16	0.30	0.45	0.60	0.03	0.07	0.14	0.21	0.28	0.18	0.11	0.15	0.30	0.11
	4000	0.18	0.33	0.50	0.66	0.04	0.08	0.15	0.23	0.31	0.20	0.12	0.16	0.33	0.12
	4200	0.20	0.36	0.55	0.73	0.04	0.08	0.17	0.25	0.34	0.22	0.13	0.18	0.37	0.13
	4400	0.22	0.40	0.60	0.80	0.05	0.09	0.19	0.28	0.37	0.25	0.14	0.20	0.40	0.14

NOTE: Use dry coil and clean filter static resistance to determine motor selection.



## Sound Power Data

### Discharge Sound Ratings — A-Weighted Sound Power Level Ratings<sup>a,b</sup> (dB)

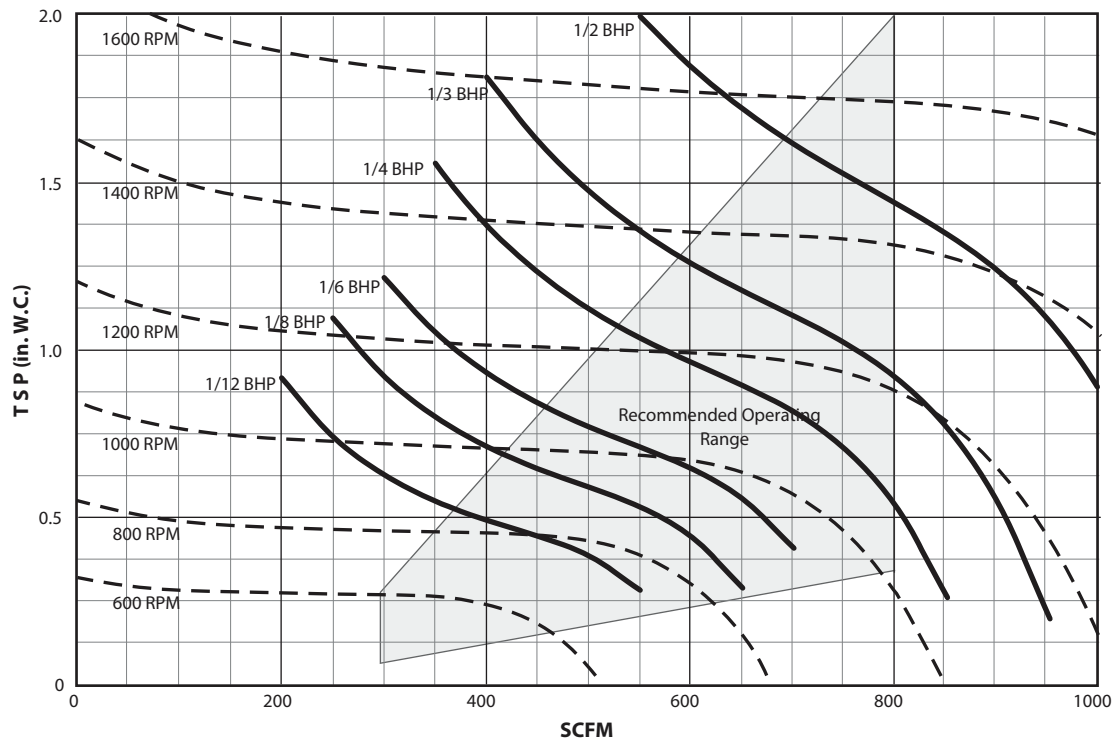
42BHE,BVE UNIT SIZE	NOMINAL CFM	CENTER FREQUENCY (Hz)						
		125	250	500	1000	2000	4000	8000
06	600	60	57	57	58	54	49	42
08	800	60	57	57	58	54	49	42
10	1000	68	65	65	66	62	57	50
12	1200	68	65	65	66	62	57	50
16	1600	69	66	66	67	63	58	51
20	2000	67	64	64	65	61	56	49
30	3000	70	67	67	68	64	59	52
40	4000	78	75	75	76	72	67	60

NOTE(S):

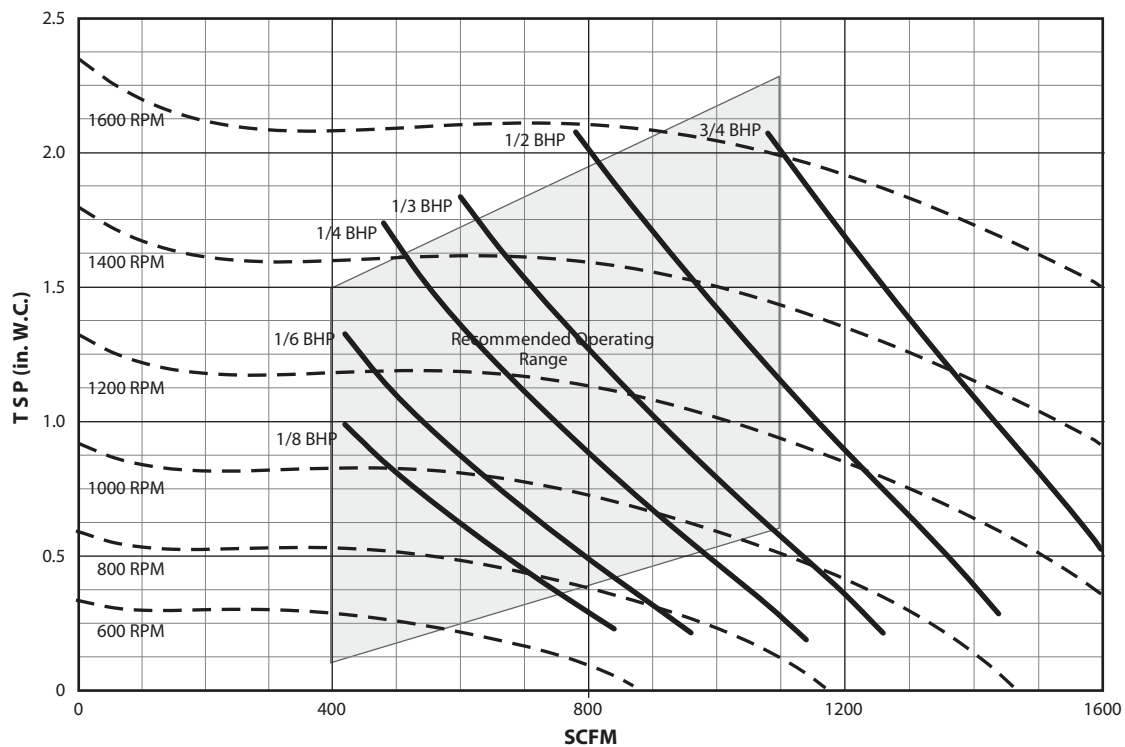
a. These noise ratings are calculated values, not actual test values, and apply only to the discharge of the unit, not the radiated sound levels.

b. Sound power is in decibels re 10e-12 w.

## 42BHE,BVE06 Fan Performance Curves



## 42BHE,BVE08 Fan Performance Curves

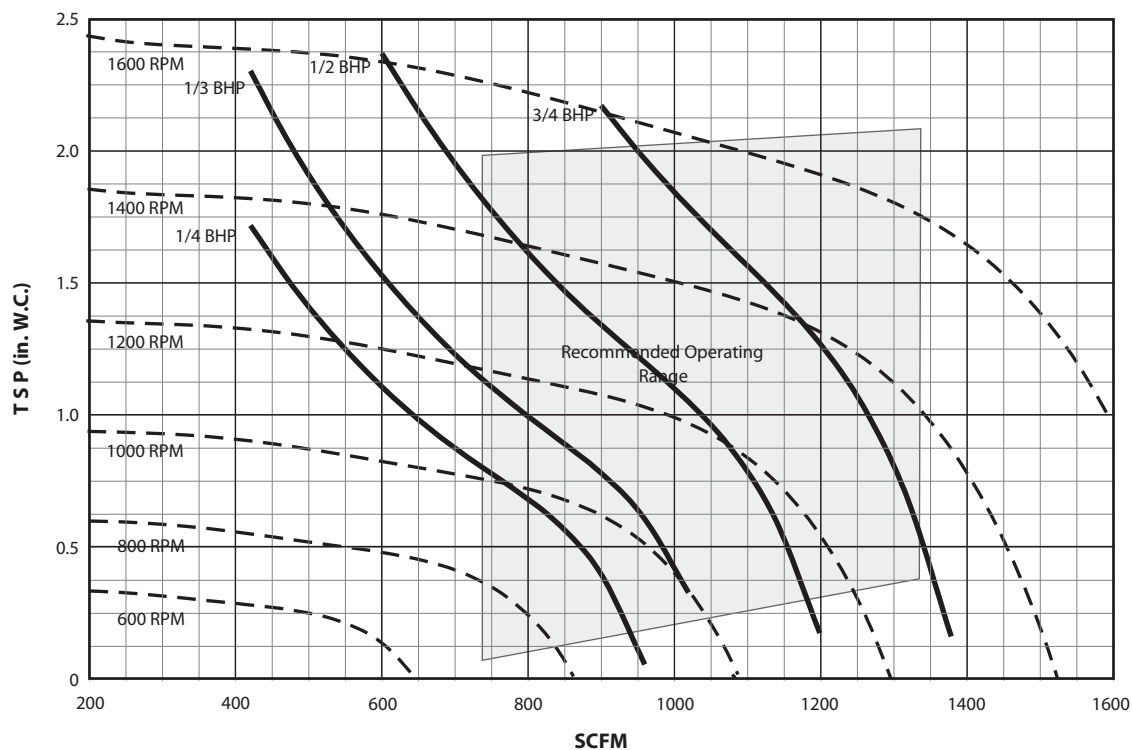


### LEGEND

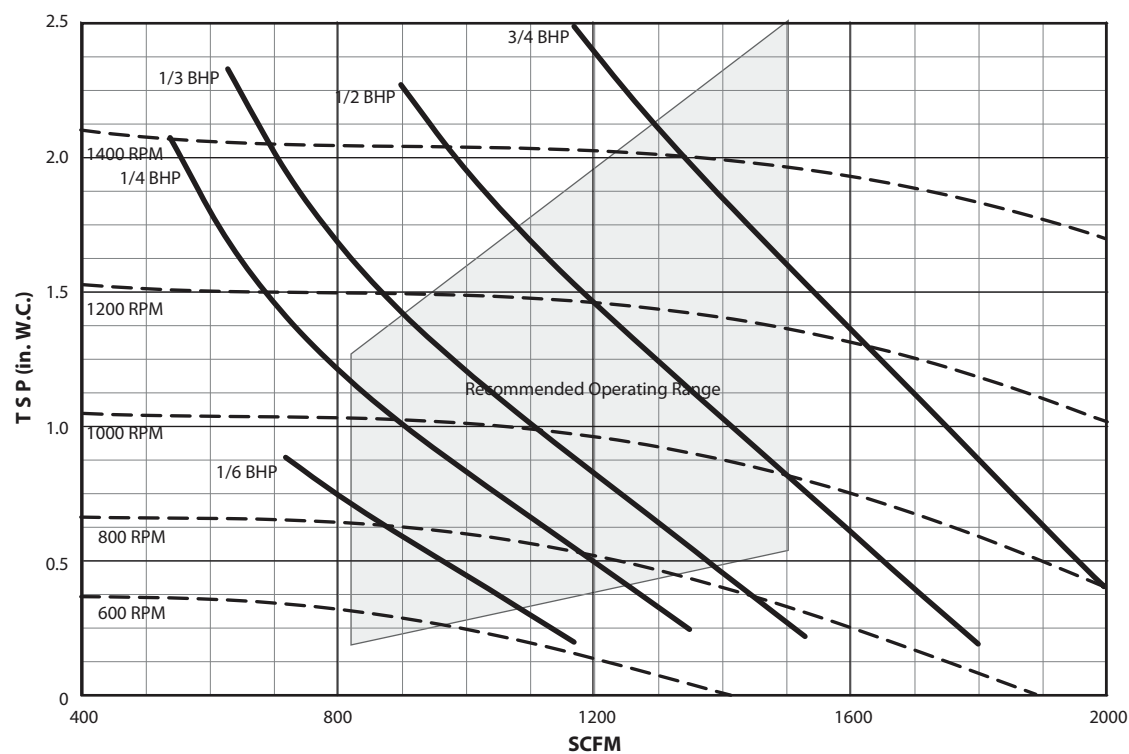
- BHP** — Brake Horsepower
- RPM** — Revolutions per Minute
- SCFM** — Standard Airflow (cfm)
- TSP** — Total Static Pressure (in. wg)

NOTE: The grey area indicates minimum and maximum cfm allowed.

## 42BHE,BVE10 Fan Performance Curves



## 42BHE,BVE12 Fan Performance Curves

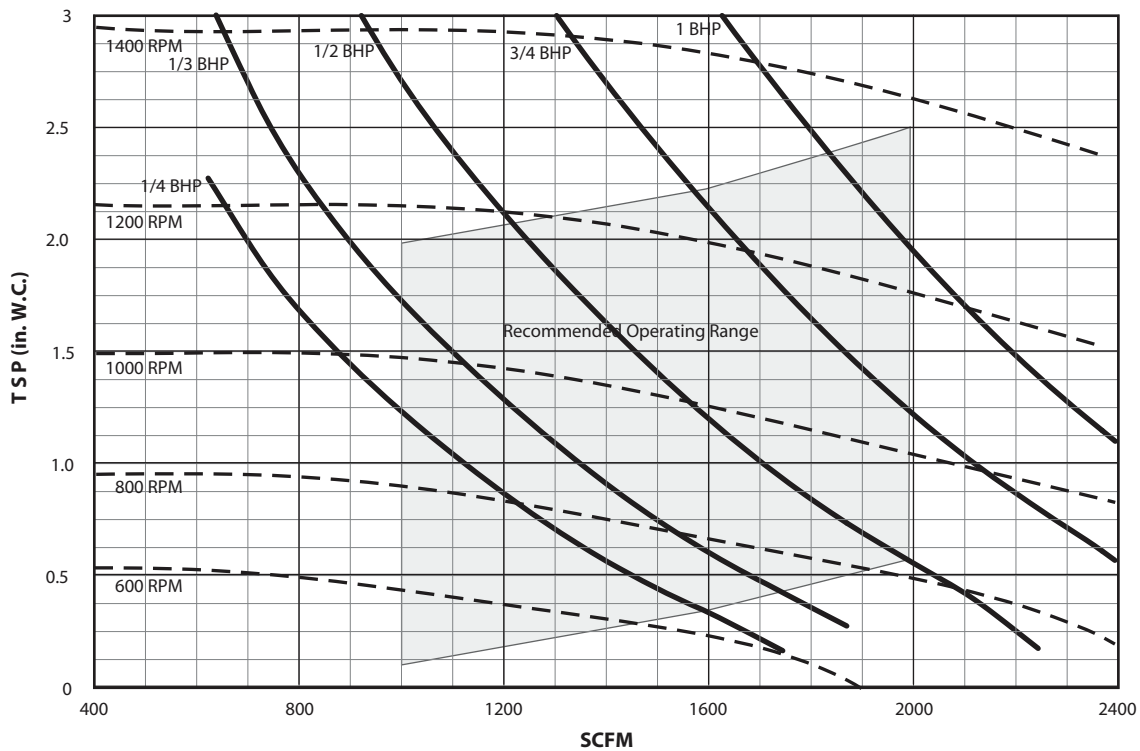


### LEGEND

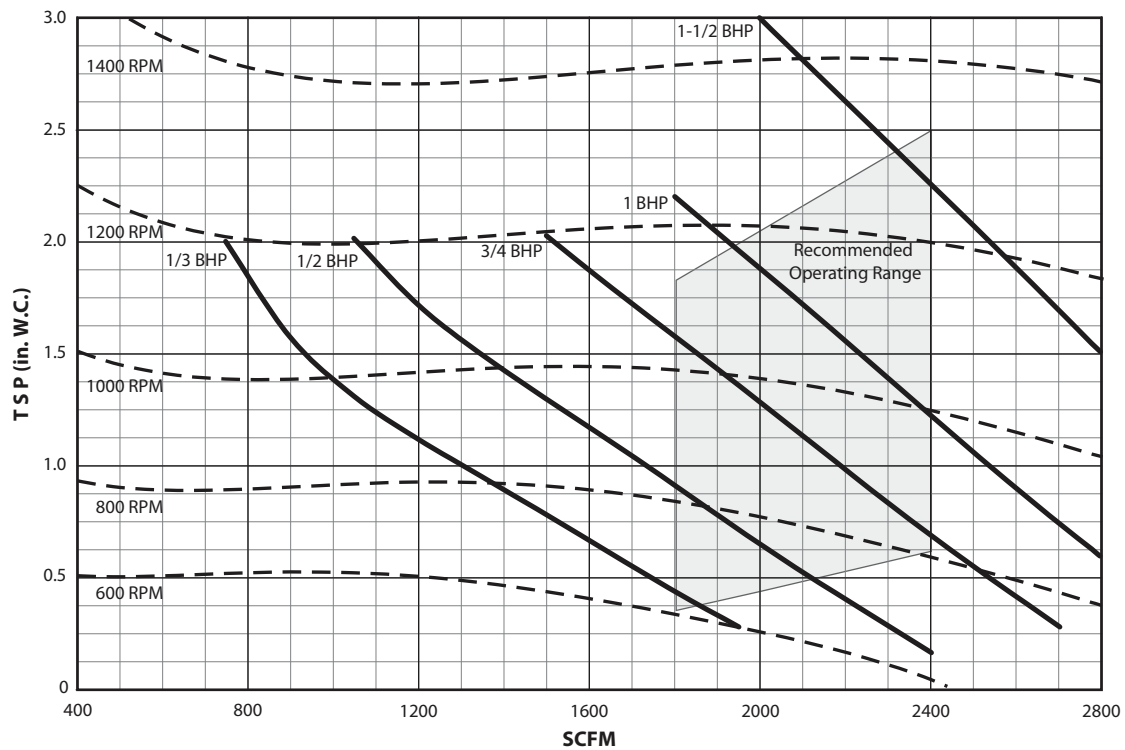
- BHP** — Brake Horsepower
- RPM** — Revolutions per Minute
- SCFM** — Standard Airflow (cfm)
- TSP** — Total Static Pressure (in. wg)

NOTE: The grey area indicates minimum and maximum cfm allowed.

## 42BHE,BVE16 Fan Performance Curves



## 42BHE,BVE20 Fan Performance Curves

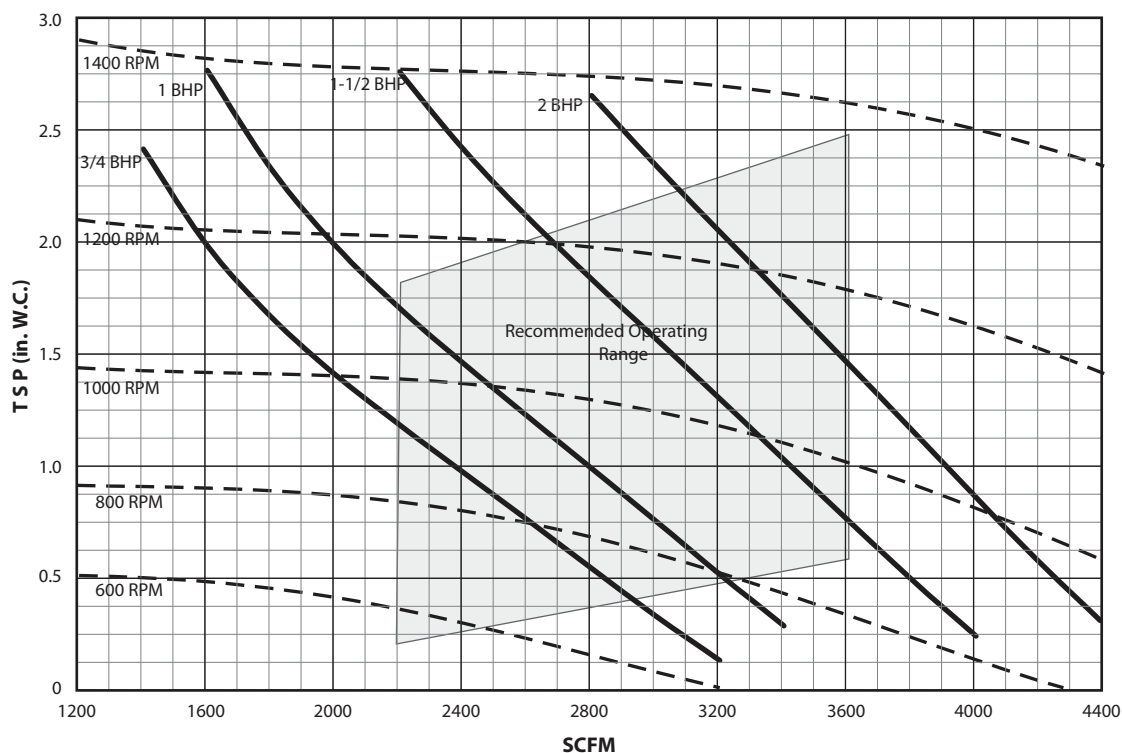


### LEGEND

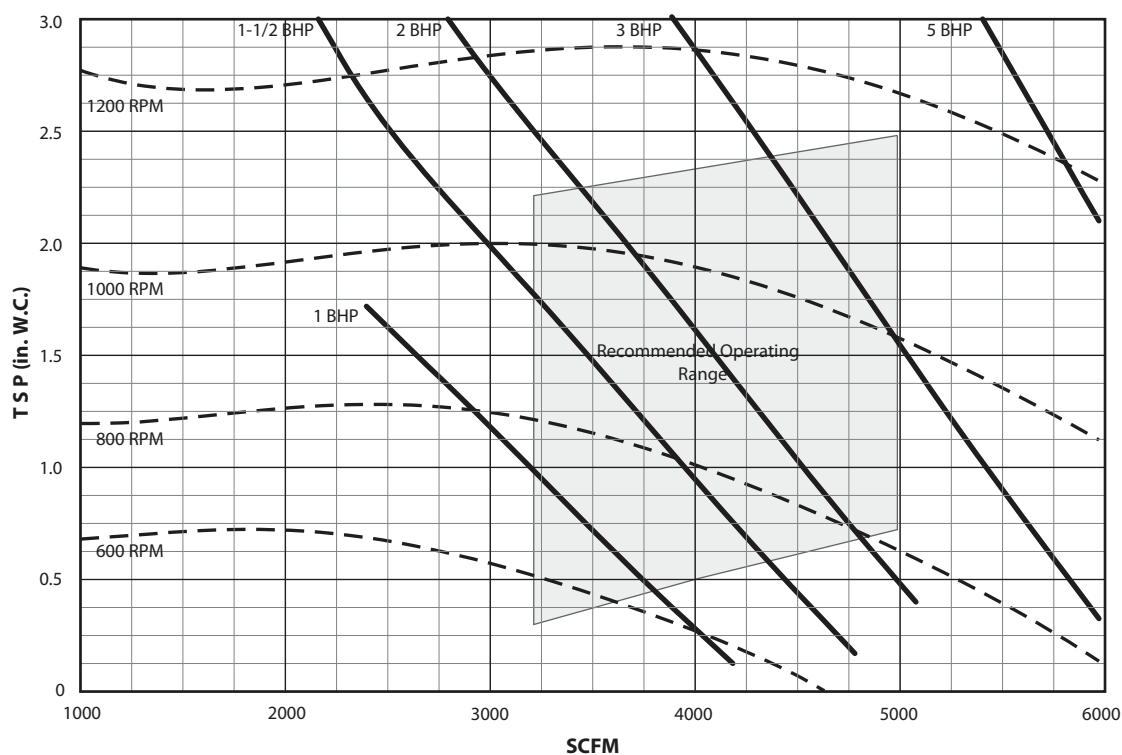
- BHP** — Brake Horsepower
- RPM** — Revolutions per Minute
- SCFM** — Standard Airflow (cfm)
- TSP** — Total Static Pressure (in. wg)

NOTE: The grey area indicates minimum and maximum cfm allowed.

## 42BHE,BVE30 Fan Performance Curves



## 42BHE,BVE40 Fan Performance Curves

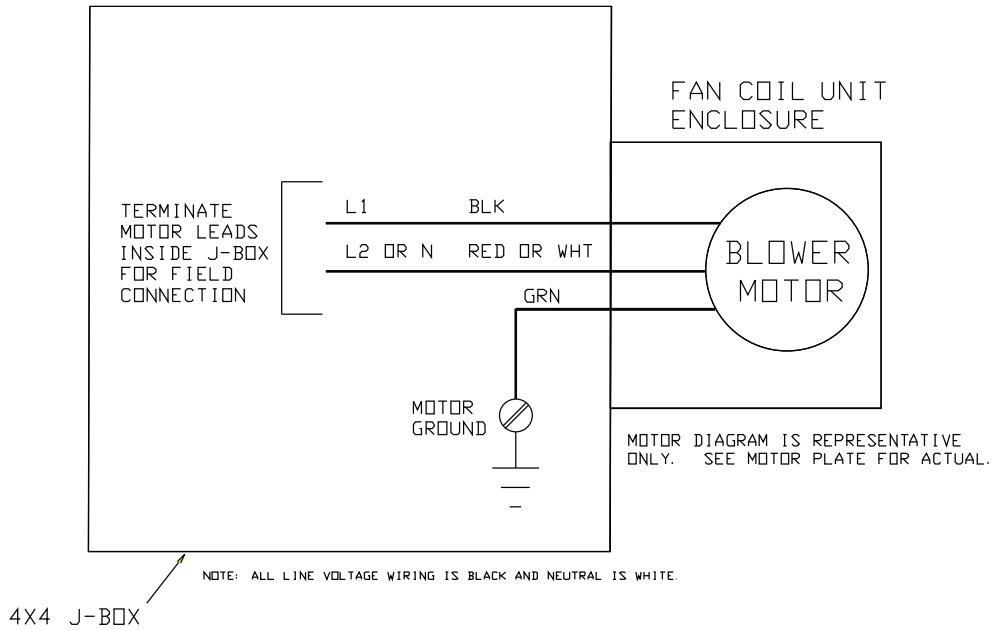


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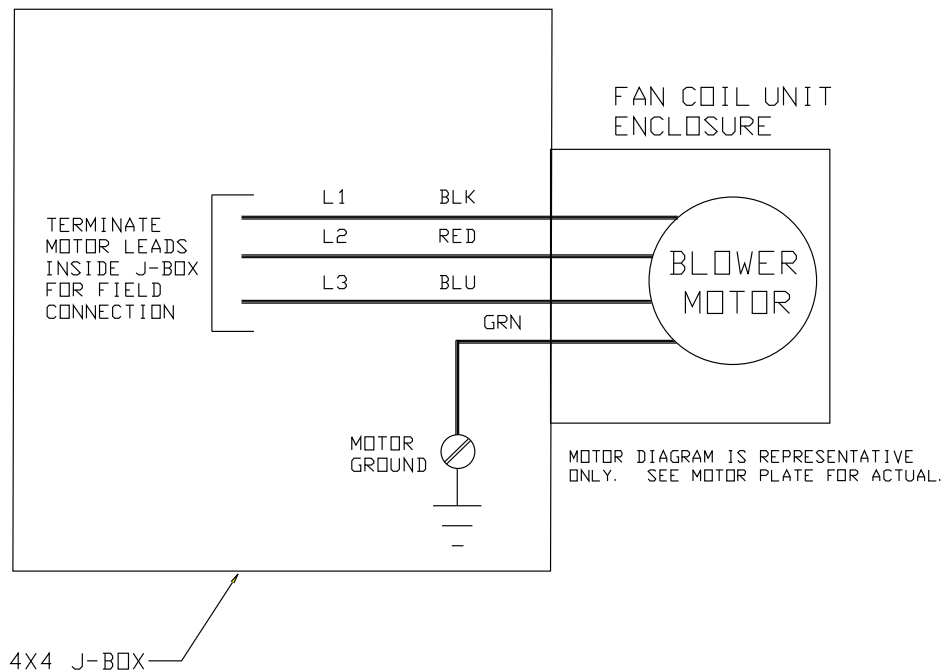
- BHP** — Brake Horsepower
- RPM** — Revolutions per Minute
- SCFM** — Standard Airflow (cfm)
- TSP** — Total Static Pressure (in. wg)

NOTE: The grey area indicates minimum and maximum cfm allowed.

## Base Unit, Single-Phase Power

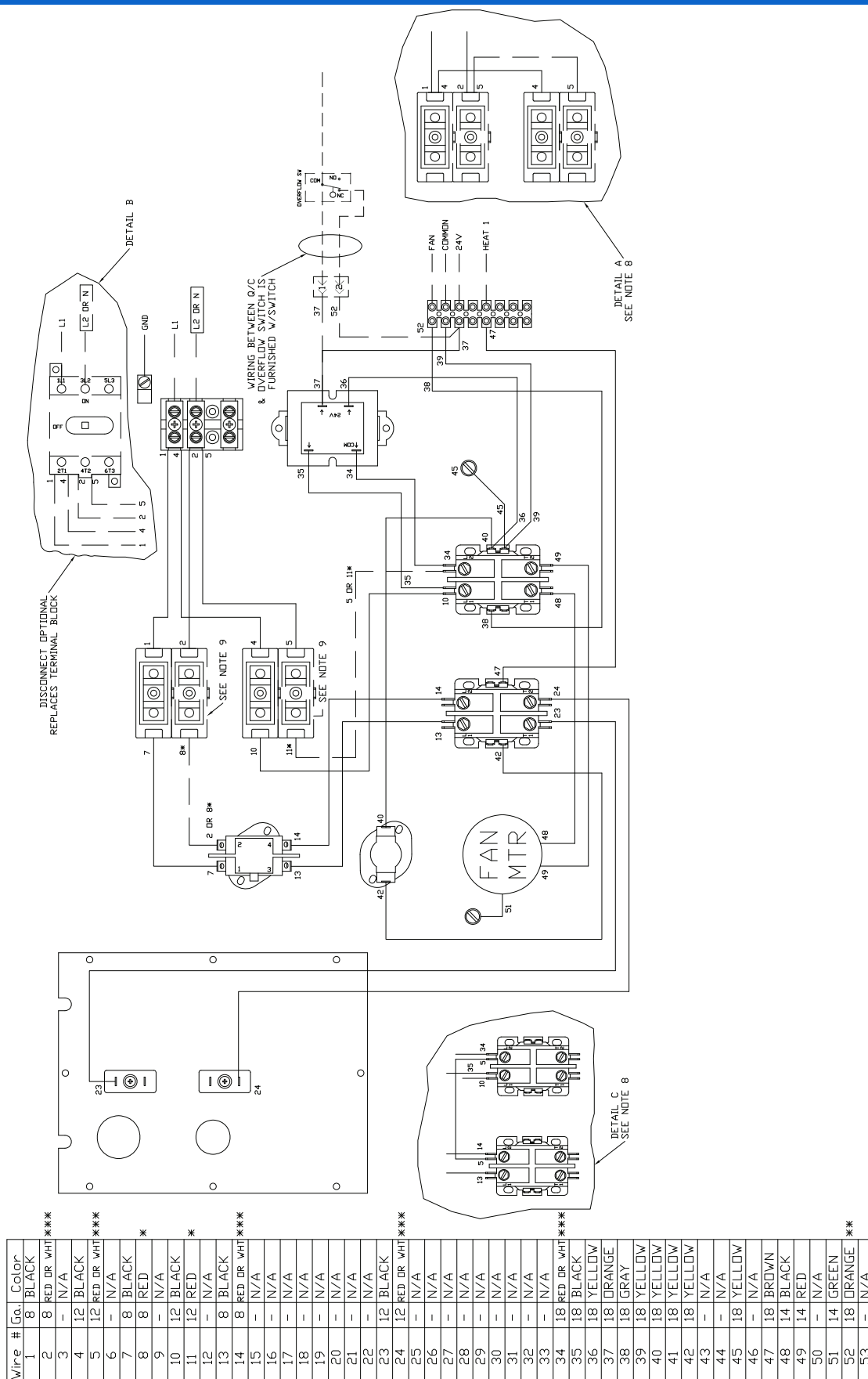


## Base Unit, Three-Phase Power





Wire #	Ga.	Color
1	8	BLACK
2	8	RED OR WHT
3	-	N/A
4	12	BLACK
5	12	RED OR WHT
6	-	N/A
7	8	BLACK
8	8	RED
9	-	N/A
10	12	BLACK
11	12	RED
12	-	N/A
13	8	BLACK
14	8	RED OR WHT
15	-	N/A
16	-	N/A
17	-	N/A
18	-	N/A
19	-	N/A
20	-	N/A
21	-	N/A
22	-	N/A
23	12	BLACK
24	12	RED OR WHT
25	-	N/A
26	-	N/A
27	-	N/A
28	-	N/A
29	-	N/A
30	-	N/A
31	-	N/A
32	-	N/A
33	-	N/A
34	18	RED OR WHT
35	18	BLACK
36	18	YELLOW
37	18	ORANGE
38	18	GRAY
39	18	YELLOW
40	18	YELLOW
41	18	YELLOW
42	18	YELLOW
43	-	N/A
44	-	N/A
45	18	YELLOW
46	-	N/A
47	18	BROWN
48	14	BLACK
49	14	RED
50	-	N/A
51	14	GREEN
52	18	ORANGE
53	-	N/A



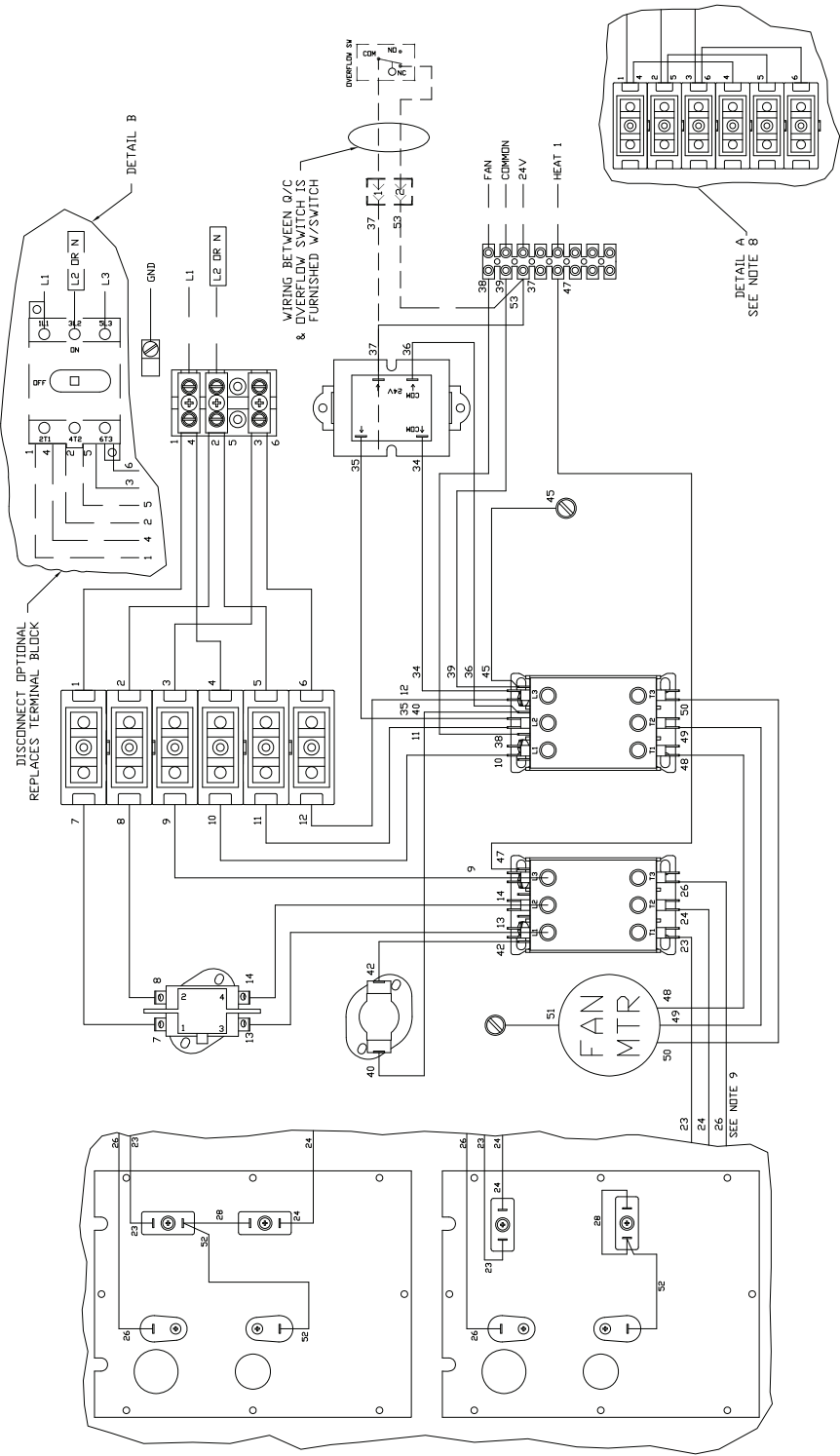
\* ONLY USED WITH FUSE  
 \*\* ONLY USED WITH OVERFLOW SWITCH  
 \*\*\* RED FOR 208/230, WHT FOR 120/277



Motor Controls / 3-Phase with Interlocking Disconnect and 1-Stage Electric Heater

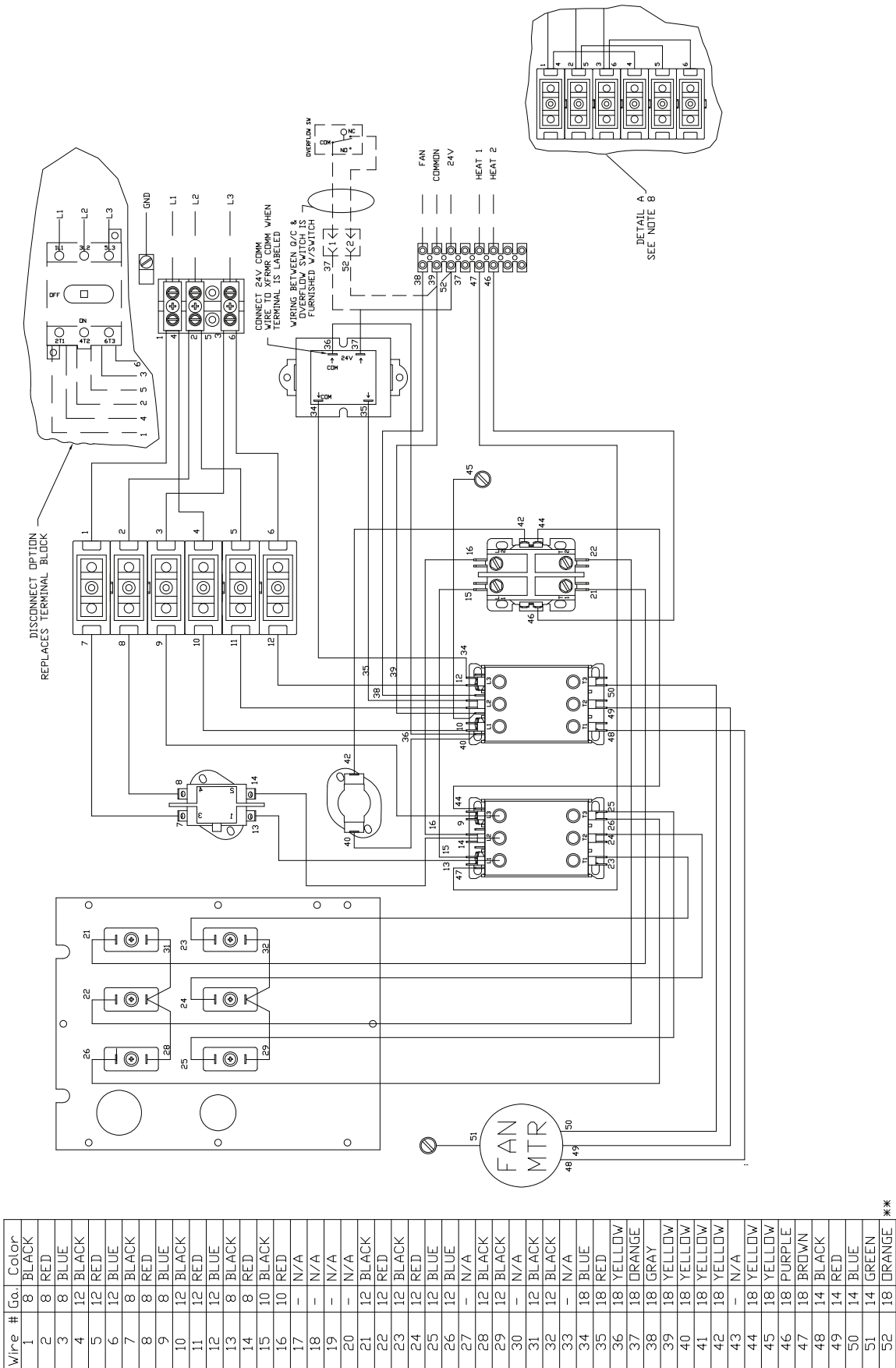
Wire#	Ga.	Color
1	8	BLACK
2	8	RED
3	8	BLUE
4	12	BLACK
5	12	RED
6	12	BLUE
7	8	BLACK
8	8	RED
9	8	BLUE
10	12	BLACK
11	12	RED
12	12	BLUE
13	8	BLACK
14	8	RED
15	-	N/A
16	-	N/A
17	-	N/A
18	-	N/A
19	-	N/A
20	-	N/A
21	-	N/A
22	-	N/A
23	12	BLACK
24	12	RED
25	-	N/A
26	12	BLUE
27	-	N/A
28	12	BLACK
29	-	N/A
30	-	N/A
31	-	N/A
32	-	N/A
33	-	N/A
34	18	BLUE
35	18	RED
36	18	YELLOW
37	18	ORANGE
38	18	GRAY
39	18	YELLOW
40	18	YELLOW
41	-	N/A
42	18	YELLOW
43	-	N/A
44	-	N/A
45	18	YELLOW
46	-	N/A
47	18	BROWN
48	14	BLACK
49	14	RED
50	14	BLUE
51	14	GREEN
52	12	BLACK
53	18	ORANGE

\*\*ONLY USED WITH OVERFLOW SWITCH.





Motor Controls / 3-Phase with Interlocking Disconnect and 2-Stage Electric Heater

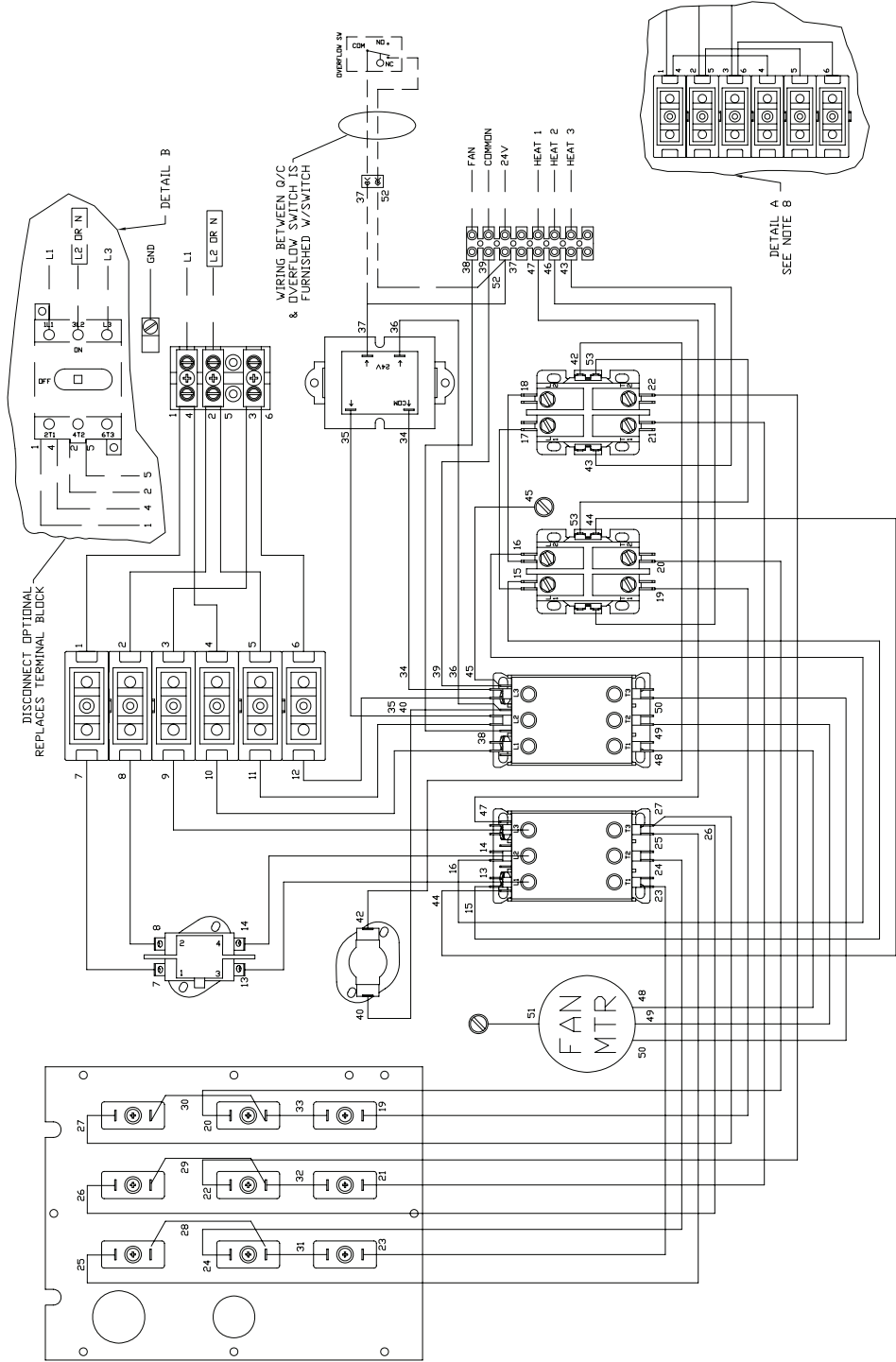


Wire #	Ga.	Color
1	8	BLACK
2	8	RED
3	8	BLUE
4	12	BLACK
5	12	RED
6	12	BLUE
7	8	BLACK
8	8	RED
9	8	BLUE
10	12	BLACK
11	12	RED
12	12	BLUE
13	8	BLACK
14	8	RED
15	10	BLACK
16	10	RED
17	-	N/A
18	-	N/A
19	-	N/A
20	-	N/A
21	12	BLACK
22	12	RED
23	12	BLACK
24	12	RED
25	12	BLUE
26	12	BLUE
27	-	N/A
28	12	BLACK
29	12	BLACK
30	-	N/A
31	12	BLACK
32	12	BLACK
33	-	N/A
34	18	BLUE
35	18	RED
36	18	YELLOW
37	18	ORANGE
38	18	GRAY
39	18	YELLOW
40	18	YELLOW
41	18	YELLOW
42	18	YELLOW
43	-	N/A
44	18	YELLOW
45	18	YELLOW
46	18	PURPLE
47	18	BROWN
48	14	BLACK
49	14	RED
50	14	BLUE
51	14	GREEN
52	18	ORANGE

\*\*ONLY USED WITH OVERFLOW SWITCH.



Motor Controls / 3-Phase with Interlocking Disconnect and 3-Stage Electric Heater



Wire #	Go	Color
1	8	BLACK
2	8	RED
3	8	BLUE
4	12	BLACK
5	12	RED
6	12	BLUE
7	8	BLACK
8	8	RED
9	8	BLUE
10	12	BLACK
11	12	RED
12	12	BLUE
13	8	BLACK
14	8	RED
15	10	BLACK
16	10	RED
17	10	BLACK
18	10	RED
19	12	BLACK
20	12	RED
21	12	BLACK
22	12	RED
23	12	BLACK
24	12	RED
25	12	BLUE
26	12	BLUE
27	12	BLUE
28	12	BLACK
29	12	BLACK
30	12	BLACK
31	12	BLACK
32	12	BLACK
33	12	BLACK
34	18	BLUE
35	18	RED
36	18	YELLOW
37	18	ORANGE
38	18	GRAY
39	18	YELLOW
40	18	YELLOW
41	18	YELLOW
42	18	YELLOW
43	18	PINK
44	18	YELLOW
45	18	YELLOW
46	18	PURPLE
47	18	BROWN
48	14	BLACK
49	14	RED
50	14	BLUE
51	14	GREEN
52	18	ORANGE
53	18	YELLOW

\*\*ONLY USED WITH OVERFLOW SWITCH.

## 42BHE,BVE Electric Heater Data Availability

kW	42BHE UNIT SIZE							
	06	08	10	12	16	20	30	40
1.0	●	●	—	—	—	—	—	—
1.5	●	●	—	—	—	—	—	—
2.0	●	●	—	—	—	—	—	—
2.5	●	●	—	—	—	—	—	—
3.0	●	●	—	—	—	—	—	—
3.5	●	●	—	—	—	—	—	—
4.0	●	●	—	—	—	—	—	—
4.5	●	●	—	—	—	—	—	—
5.0	●	●	—	—	—	—	—	—
6.0	●	●	—	—	—	—	—	—
7.0	—	●	—	—	—	—	—	—
8.0	—	●	—	—	—	—	—	—
9.9	—	—	—	—	—	—	—	—
12.0	—	—	—	—	—	—	—	—
14.0	—	—	—	—	—	—	—	—
15.0	—	—	—	—	—	—	—	—
16.0	—	—	—	—	—	—	—	—
18.0	—	—	—	—	—	—	—	—
19.9	—	—	—	—	—	—	—	—
25.0	—	—	—	—	—	—	—	—
30.0	—	—	—	—	—	—	—	—
35.0	—	—	—	—	—	—	—	—
39.9	—	—	—	—	—	—	—	—

### LEGEND

- — Standard Offering
- — Not Offered

### NOTES:

- Stages available:
  - Single phase: 1 to 12 kW, 1 stage only
  - 3 to 12 kW, 1 stage or 2 stage
  - Three phase: 1 to 39.9 kW, 1 stage only
  - 4 to 39.9 kW, 1 or 2 stage
  - 12 to 39.9 kW, 1, 2 or 3 stage
- Electric Heating Capacities (Btuh) = Heater kW x 3413
- Electric Heater Amperage for Single-phase Power = (Heater kW x 1000)/Applied Voltage  
Electric Heater Amp. for 3-phase Power = (Heater kW x 1000)/(Applied Voltage x 1.73).

## Motor Performance Data (Full Load Amps)

VOLTAGE V-Ph-Hz	Nominal HP							
	1/4	1/3	1/2	3/4	1	1-1/2	2	3
115-1-60	5.2	6.0	8.6	13.3	14.4	—	—	—
208-1-60	3.0	3.6	4.8	6.6	7.4	9.4	11.0	—
230-1-60	2.5	3.0	4.2	5.1	6.0	9.0	10.9	—
277-1-60	2.1	2.5	3.6	5.1	5.4	8.5	8.0	—
208-3-60	—	—	2.4	3.6	3.8	6.0	6.5	14.0
230-3-60	—	—	2.2	3.0	3.2	4.8	6.2	13.2
460-3-60	—	—	1.1	1.5	1.9	2.8	3.1	6.6

### NOTES:

- Motor full load amps refer to National Electric Code (NEC) amps; actual motor nameplate amps may vary.
- NEC data extrapolated for 277 v.
- Motors are open drip proof, ball bearing, single speed, 1750 rpm rated at continuous duty, 104°F ambient with reversible rotation.

## 42BHE,BVE Electric Heater Data

kW	FULL LOAD AMPS						
	Single-Phase				Three-Phase		
	115 V	208 V	240 V	277 V	208 V	240 V	480 V
1.0	8.3	4.8	4.2	3.6	2.8	2.4	1.2
1.5	12.5	7.2	6.3	5.4	4.2	3.6	1.8
2.0	16.7	9.6	8.3	7.2	5.6	4.8	2.4
2.5	20.8	12.0	10.4	9.0	6.9	6.0	3.0
3.0	25.0	14.4	12.5	10.8	8.3	7.2	3.6
3.5	29.2	16.8	14.6	12.6	9.7	8.4	4.2
4.0	33.3	19.2	16.7	14.4	11.1	9.6	4.8
4.5	37.5	21.6	18.8	16.2	12.5	10.8	5.4
5.0	—	24.0	20.8	18.1	13.9	12.0	6.0
6.0	—	28.8	25.0	21.7	16.7	14.4	7.2
7.0	—	33.7	29.2	25.3	19.4	16.8	8.4
8.0	—	38.5	33.3	28.9	22.2	19.2	9.6
9.9	—	—	—	35.7	27.5	23.8	11.9
12.0	—	—	—	43.3	33.3	28.9	14.4
14.0	—	—	—	—	38.9	33.7	16.8
15.0	—	—	—	—	41.6	36.1	18.0
16.0	—	—	—	—	—	38.5	19.2
18.0	—	—	—	—	—	—	21.7
19.9	—	—	—	—	—	—	23.9
25.0	—	—	—	—	—	—	30.1
30.0	—	—	—	—	—	—	36.1
35.0	—	—	—	—	—	—	42.1
39.9	—	—	—	—	—	—	48.0

- 5 hp motors available only on size 40 units.

## Service switches

The service switch is an On/Off switch on incoming power supply to unit. Proper amperage load must be determined before switch can be selected. The range of the fused or non-fused service switch is 0 to 40 amps.

MCA (minimum circuit amps) = 1.25 x sum of all loads.

MFS (maximum fuse size) = MCA rounded up to next available fuse size.



## Standard control features

- 4 in. x 4 in. junction box

NOTE: Motor leads are wired to the 4 in. x 4 in. junction box, mounted on the external panel. Field verification of the motor rotation is required on 3-phase applications.

## Motor control options

- Interlocking disconnect switch\*
- 24-v class 2 transformer (40 va)†
- 8-pole control terminal strip
- Motor power fusing\*
- Motor control contactor\*\*

## Motor and electric heat control options

NOTE: Electric heat option requires same voltage as motor and must include the control option. These control features are standard with electric heat options and control option.

- Interlocking disconnect switch\*
- Heater power fusing\*
- 24-v class 2 transformer (40 va)†

- 8-pole control terminal strip
- Auto reset temperature limit switch
- Manual reset backup temperature limit switch
- 80/20 heater element wire
- Motor power fusing\*
- Motor control contactor\*\*
- Agency listed for 0-in. clearance

## Electric heat options:

- Single-phase, 1 or 2 stage heat
- Three-phase, 1, 2 or 3 stage heat

\* Complies with NEC's requirement, Article 430 for disconnect, branch circuit protection motor controller and motor overload protection.

† No control fusing necessary.

\*\*Complies with NEC's requirement for a motor starter with internal heating elements when used with the factory's standard motors with integral thermal overload protection.

## System Fan Coil Unit

### HVAC Guide Specifications

Size Range: **600 to 4000 Nominal Cfm**

Carrier Model Numbers:

**42BHE (Horizontal Fan Coil Unit)**

**42BVE (Vertical Fan Coil Unit)**

#### Part 1 — General

##### 1.01 SYSTEM DESCRIPTION

Horizontal and vertical, 2-pipe or 4-pipe, belt-driven, galvanized casing model fan coil unit for ducted installation above the ceiling or within floor-mounted cabinet, with full access to internal components.

##### 1.02 QUALITY ASSURANCE

A. Unit shall be constructed in accordance with ETL and ETL, Canada standards. Units comply with the minimum requirements of the US and Canadian national product safety standard, UL 60335-2-40 /CSA C22.2 No. 236. Factory-installed motors and electric heaters shall be UL approved. Insulation and adhesive shall meet NFPA-90A requirements for flame spread and smoke generation.

B. Coils shall be tested in accordance with AHRI standard 410, latest edition. Each coil shall be factory tested for leakage at 300-psig air pressure with coil submerged in water.

##### 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 and vertical, draw-thru type fan coil unit for ducted installation above the ceiling or floor mounting. Unit shall be complete with water coils, fan(s), motor, belt drive, drain pan, and filter.

###### B. Casing:

Construction shall be heavy-gage galvanized steel, lined with one-in. thick fiberglass Tuf-Skin™ II thermal/acoustical insulation. Knockouts shall be provided for hanging the horizontal unit, that will accept 3/8-in. threaded rod at the top and bottom of all unit corners. Supply and return duct connections shall be 1 in. long. Removable side panels shall be provided for access to the fan/motor assembly. Access panels shall be easily removable with hex key tool on vertical unit, and without tools on horizontal unit. A double-sloped drain pan shall be constructed of stainless steel, extending under the full length and width of the coil(s) with a 3/4-in. male nominal pipe thread stainless steel drain connection and 1/2-in. male NPT stainless secondary drain connection (cap

when not required). The outside surface of the drain pan shall be insulated with 1/8-in. closed cell insulation. Drain pan is removable from cabinet from same end as coil connections for ease of cleaning.

###### 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-diameter blower sheave with keyed shaft, and V-belt. Fan drive shall be designed for 120% of rated fan horsepower. Fans and scrolls shall be of galvanized steel. Bearings are ball bearings, permanently lubricated and sealed for life. Bearings are isolated from the blower housing by rubber mounts set into heavy gage metal support system. The blower housing shall be isolated from the cabinet and motor.

###### D. Coils:

Standard unit shall be equipped with a 4-row coil for installation in a 2-pipe system and additional rows of coil shall be provided as an option for installation in a 4-pipe system. Coils shall have 1/2-in. copper tubes, aluminum fins bonded to the tubes by mechanical expansion and have a working pressure of 250 psig at 200°F. Each coil shall have a manual air vent and sweat connections for copper tubes.

###### E. Operating Characteristics:

A single-circuit coil unit installed in a 2-pipe system shall be capable of providing heating or cooling as determined by the operating mode of the central water supply system. A double-circuit coil unit installed in a 4-pipe system shall be capable of providing sequenced heating and cooling.

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

1. Fan motors shall be open, drip-proof, single-speed, single or 3 phase, suitable for continuous duty at 104°F (40°C). Single-phase motors are capacitor start, include automatic reset thermal overload protection and are available in 115, 208, 230, or 277 volts (60 Hz) or 220 volts (50 Hz). Three-phase motors are available in 208, 230, or 460 volts (60 Hz) or 380 volts (50 Hz).
2. Motors are Class B, continuous duty rated. Motors are resilient mounted (1/4 to 2 hp), rigid base mounted (3 and 5 hp), NEMA frame motors. Motors are factory wired to unit junction or control box. Motor bearings are permanently lubricated. Motors are mounted on an adjustable base for belt tensioning and alignment. The motor and drive are installed on the same end as the coil connection for ease of service.

###### G. Special Features:

1. Coils:
  - a. Unit coil(s) shall be equipped with automatic air vent(s).

1. Third-party trademarks and logos are the property of their respective owners.

## Guide specifications (cont)

- b. Unit shall be equipped with a high-capacity 6-row or 8-row coil for installation in a 2-pipe system.
  - c. For installation in a 4-pipe system, unit shall be equipped with either a 4-row cooling/ 1-row hot water heating split-circuit coil, or a 4/2, 6/1, or 6/2 split-circuit coil as required.
  - d. Unit shall be equipped with either a 4-row DX (direct expansion) cooling coil or a 6-row DX cooling coil as required.
  - e. Unit coil(s) shall be copper fin, copper tube with stainless steel end sheets and baffles.
2. Filters:
- a. A two-in. pleated filter shall be installed in the unit (standard).
  - b. One-in. pleated, two 1-in. throwaway or 2-in. pleated MERV 11 filters with 2-in. pre-filter shall be installed as indicated on the equipment schedule.
3. Insulation:
- a. Units shall be equipped with 1-in. thick Tuf-Skin™ II insulation (standard).
  - b. Units are available with 1-in. closed cell, 1-in. anti-microbial fiberglass, or 1-in. foil-faced insulation.
4. Controls:
- a. Unit shall be equipped with 24-v transformer, motor contactor and terminal strip for connection to field or factory provided controller.
  - b. Unit shall be equipped with interlocking door-disconnect switch with lock-out tag-out compatibility, touch-type fusing, 24-v transformer, motor contactor and terminal strip for connection to field provided controller.
  - c. Unit shall be equipped with interlocking door-disconnect switch with lock-out tag-out compatibility, separate motor and electric heater touch-type fusing, 24-v transformer, motor contactor and terminal strip for connection to field-provided or factory-provided controller.
  - d. Fuses comply with NFPA 70E/IP20.
5. Electric Heat:
- a. Electric heaters shall be constructed of high-grade resistance wire supported by ceramic insulators on plated steel brackets. The heat elements shall be suspended in front of the outlet, after the blower and coil. An auto and manual thermal limit switch shall protect the heat elements in the event of an air failure.
  - b. Single-phase heaters shall be available in 115, 208, 230, or 277 volts (60 Hz) or 220 volts (50 Hz). Three-phase electric heat shall be available in 208, 230, or 460 volts (60 Hz) or 380 volts (50 Hz).
  - c. Electric heaters can be controlled in single, 2, or 3 stages of operation.
6. Mixing Boxes:
- a. Mixing boxes shall be preassembled at the factory and shipped separately with base rails.
  - b. Mixing boxes shall include a linkage kit, which consists of two crankarms, 2 swivels and a rod, 25 in. long (for unit sizes 06-16) or 84 in. long (for unit sizes 20-40), for the field installation of the actuator.
7. Cabinet:
- a. Optional double wall construction with choice of 1-in. fiberglass or 1-in. closed cell insulation with solid or perforated inner liners. An antimicrobial coating can also be added.
  - b. Optional seismic structural upgrade to meet IBC-2009 and OSHPD seismic certification in accordance with ICC-ES-AS-156.