Belt Drive Series
FAN COIL TECHNICAL CATALOG

IEC International Environmental

A NIBE GROUP MEMBER

HBD/VBA

- **Cost Effective Solution**
- **Easy to Install/Service**
- **Variety of Sizes/Applications**

These compact blower coils are ideally suited for a variety of ducted applications that require a nominal CFM range of 600 to 4000 (actual CFM of 300 to 4200) and total static pressures of up to 2.5 inches w.g. Units can be floor or ceiling mounted, and are available with a variety of IAQ options to meet today's design requirements. IEC's Belt Drive series with large access panels, removable, double-sloped stainless steel drain pan and high efficiency filtration option is a perfect, cost-effective solution for meeting rooms in hotels, motels, schools, churches, apartment complexes, universities or any application with large common areas.

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Table of Contents

Portfolio

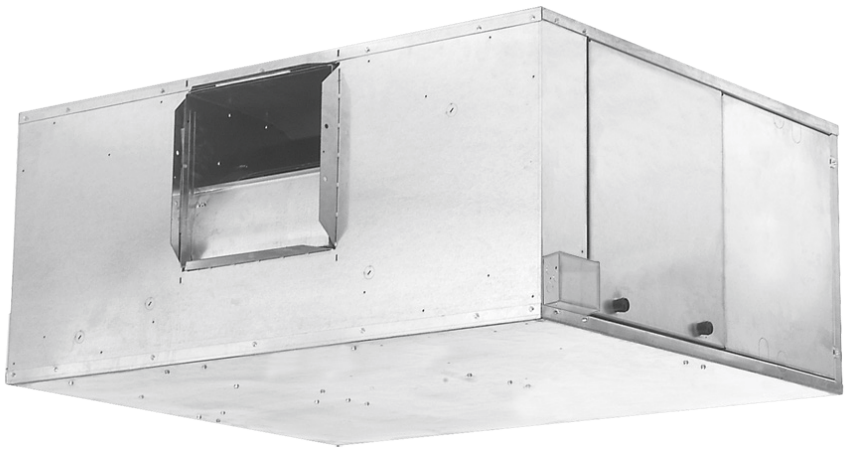
Horizontal and Vertical Drive Units – 300 to 4200 CFM (600 to 4000 Nominal)

Versatile Units

These compact blower coils are ideally suited for a variety of ducted applications that require a range of 300 to 5000 CFM, capacities between 1.5 tons to 10 tons, and total static pressures of up to 2.5 inches w.g. These units provide comfort cooling and heating while offering a broad range of application flexibility between the traditional fan coil unit and a central station air handling unit. Several configurations are available to meet the needs of different climates and applications. The HBD/VBA units can be ordered as a:

- 2-pipe system
- 2-pipe system with electric heat
- 2-pipe system with steam heating (consult factory)
- 4-pipe system

VBA Unit



HBD Unit

Portfolio

Multitude of Applications

These units can be floor or ceiling mounted, and 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 an IEC 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 pre-heat location (consult factory).

- **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, equipment or mechanical rooms, and casinos, to name a few.

Installation Considerations

The HBD/VBA 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 knock-outs provided in the units. External vibration isolation and flex connections for ducts are recommended.

Vertical units are typically installed on a pad. Ensure that you have 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, 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 3-phase motors.

Running a unit at lower speeds with a high capacity coil, or running an oversized unit at less than nominal CFM may provide acoustical benefits.

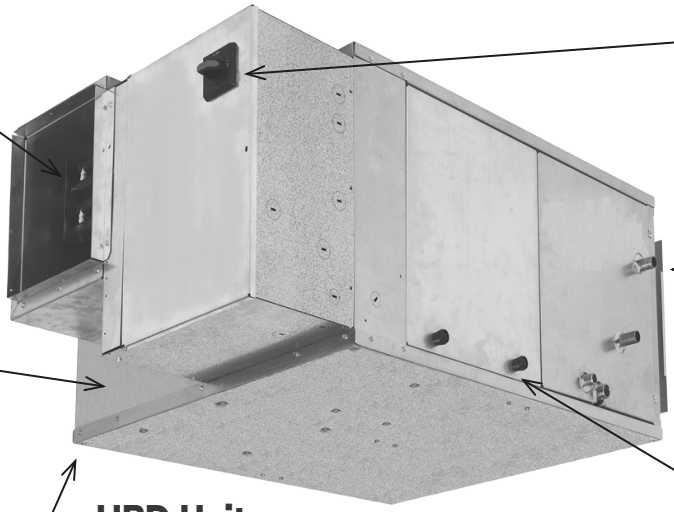
Operating Limitations

The fan curves outline the airflow and static pressure range where it is acceptable to run these units. Running the HBD/VBA 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 130°F (54.4°C), contact the factory.

Features and Benefits



Control box with interlocking disconnect switch

Factory mounted electric heater

- Filter rack accepts 1-, 2-, or 4-inch filters
- Tool-free access
- Filter removable from sides and bottom

18ga Cabinet Construction

Tool-free removal of access panel

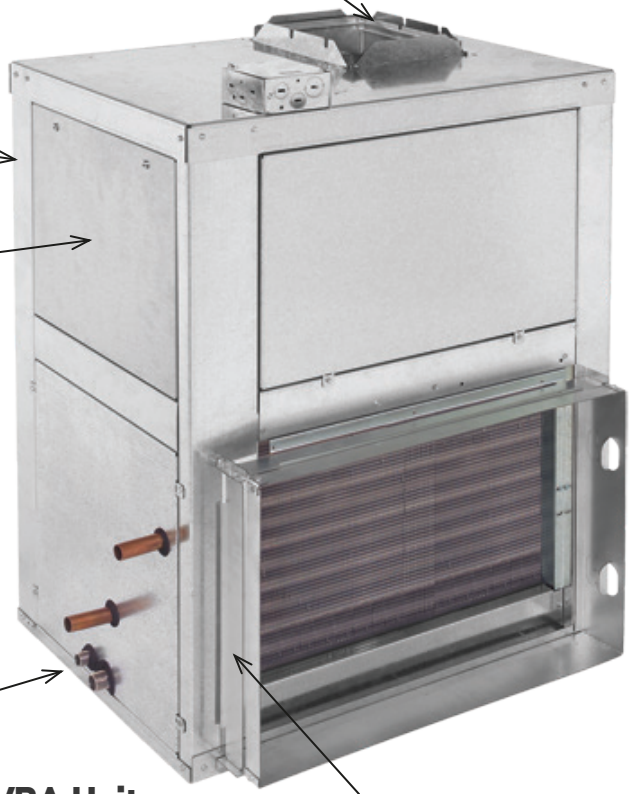
HBD Unit

with Electric Heat and Control Box Options

Optional double wall construction

Isolated blower for quiet operation

Duct collar for quick duct connection



Large easy access control panels on both sides

Primary and secondary drain connection from double-sloped stainless steel drain pan

VBA Unit

- Filter rack accepts 1-, 2-, or 4-inch filters
- Tool-free access
- Filter removable from sides and top

Features and Benefits

Application Fit

- Horizontal and vertical configurations, with 16 different sizes to meet a multitude of room layouts and ventilation needs
- Wide variety of coil options including 100% outside air applications.
- Three forms of isolation: blower from the cabinet by rubber isolators; blower from the duct connections by foam; and resilient mounted motors (up to 2 HP) for quiet and vibration free installations

Design Flexibility

- Optional 1-inch double wall construction, perforated or solid lined
- Removable double-sloped stainless steel drain pan for ease of cleaning and for better IAQ performance; all models include primary and secondary drain connections to provide back-up if the main drain is plugged; an optional float switch is available for meeting the requirements of certain building codes
- Wide variety of coil sizes (4, 6, 8-Rows) for a better match to the heating and cooling loads of the space; coils with different materials (copper fins with stainless steel end sheets and bottom coil baffles) and lower pressure drops available to meet the needs of custom applications
- Motors ranging from 1/4 to 3 HP in a variety of voltages, in both single- and 3-phase, with adjustable variable pitch sheave drive kits to meet static pressure requirements; drives pre-set at factory for specific air flow at static pressures as ordered
- A standard filter rack allow different filter types, thickness, and efficiency to address IAQ requirements
- In addition to the standard fiberglass cabinet insulation that meets the requirements of most applications, premium IAQ fiberglass, foil faced, and closed cell insulation are also available as options to meet most IAQ concerns
- Heating provided by a hot water coil, steam coil, or electric heat to meet varying application needs as well as climates
- Mixing boxes available for outside air applications
- Ratings program to speed up project design and selection of equipment

Ease of Installation

- Units preassembled with factory installed optional electric heater controls reduce the field labor required and provide a single point of responsibility
- 24V control may eliminate the need to run control wiring in conduits
- Corner knock-outs for hanger rods and isolators facilitate quick and easy installation of horizontal units.
- Duct collars for supply and return air provided for ease of installation
- Optional factory installed controls eliminate the need for motor starters

Ease of Service

- Tool-free and easily accessible filters from multiple sides for ease of maintenance
- Large access panels (tool-free on horizontal units) on both sides for ease of maintenance
- Motors mounted on an adjustable base for ease of belt tightening

Quality and Safety

- Optional seismic structural upgrade to meet IBC-2009 seismic certification
- Every unit tested and inspected at the factory for trouble-free startup
- Motors have built in thermal overload protection or are fused
- ETL and CETL listed

Unit Model Key

Code Items	01	02	03	04	04a	05	06	07
Code	H B	D	0 8	B 6 S Y	C D Y A	C 3	R 6	B P 1 J
	UNIT	VINTAGE	SIZE	COILS[2]	ELECTRIC HEAT	MOTOR	HAND/ ARRANGEMENT	CONTROLS

UNIT VINTAGE

HBD • Horizontal Belt Drive
VBA • Vertical Belt Drive
(Available both single and double wall)

SIZE

(Nominal CFM)
06 • 600 CFM
08 • 800 CFM
10 • 1000 CFM
12 • 1200 CFM
16 • 1600 CFM
20 • 2000 CFM
30 • 3000 CFM
40 • 4000 CFM

COILS

2-pipe Cooling and Heating or 4-pipe Cooling

Hydronic
B • 4-Row
K • 6-Row
L • 8-Row

4-pipe Heating
Y • None
6 • 1-Row
7 • 2-Row

Coil Connection
Y • None
S • Same End

Coil Construction
Y • Std.
S • SS Wrapper

ELECTRIC HEAT

Voltage
C • 120 V, 1-Phase
D • 208 V, 1-Phase
E • 240 V, 1-Phase
F • 277 V, 1-Phase
N • 208 V, 3-Phase
P • 240 V, 3-Phase
G • 480 V, 3-Phase
Y • None

kW[4]
BY • 1.0 kW
CY • 1.5 kW
DY • 2.0 kW
EY • 2.5 kW
FY • 3.0 kW
FA • 3.5 kW
GY • 4.0 kW
GA • 4.5 kW
HY • 5.0 kW
JY • 6.0 kW
KY • 7.0 kW
LY • 8.0 kW
NY • 9.9 kW
PY • 12.0 kW
QY • 14.0 kW
NH • 15.0 kW
NJ • 16.0 kW
NL • 18.0 kW
RY • 19.9 kW
RH • 25.0 kW
SY • 30.0 kW
SH • 35.0 kW
TY • 39.9 kW
YY • None

Stages (single power source)
A • Single-Stage, 1-Phase
B • 2-Stage, 1-Phase
C • Single-Stage, 3-Phase
D • 2-Stage, 3-Phase
E • 3-Stage, 3-Phase
Y • None

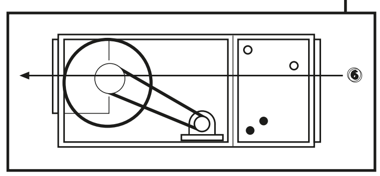
MOTOR

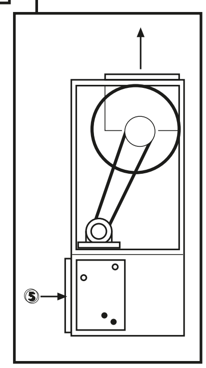
Voltage (open drip proof motor)
C3 • 115-1-60
D3 • 208-1-60
E3 • 230-1-60
F3 • 277-1-60
N4 • 208-3-60
P4 • 230-3-60
G4 • 460-3-60

HAND/ARRANGEMENT

Hand[5]
R • Right
L • Left

Arrangement
6
5





CONTROLS

Voltage
Y • None
B • 24 V

Type of Control
A • Motor
P • Electric Heat and Motor

Phase
1 • 1-Phase
3 • 3-Phase

Fusing and Disconnect
Y • None
J • 40 amp appropriate fuse
K • 40 amp disconnect
H • 41-60 amp disconnect
L • 61-80 amp disconnect

NOTES:

1. For additional details, refer to Price Guide.
2. Total rows allowed is 8.
3. Contact factory for 2-Row heating only application.
4. Note that kWs depend on voltage and unit size. Motor and heater voltage must match. Dual power sources are not available.
5. Standing in front of the unit, hand is determined by looking into the air supply and assigning the hand to match the location of the cooling coil connections.
6. Contact factory for DX applications.

Nominal Capacity and Listing

C-ETL-US Listing

IEC's Belt Drive Series blower coil units are listed by Intertek Testing Services (ITS). ITS's C-ETL-US listing signifies that IEC's blower coil units have been examined by ITS and comply with the minimum requirements of U.S. and Canadian national product safety standard, UL 1995/ CSA C22.2 No. 236, and that IEC's manufacturing site has been audited. ITS's re-examination service includes periodic visits to IEC's factory to ensure continued compliance for all listed products.

Seismic Certification

IEC's Belt Drive Series blower coil units with seismic structural upgrade option are independently tested and certified in accordance with IBC-2009.

HBD Nominal Capacity Range

Unit Size	Coil Rows	Nominal CFM	Water Pressure Drop (ft.water)	Cooling Capacity[1] (Btuh)		Power Input (Watts)
				Total	Sensible	
06	4	600	1.8	19,900	13,800	85
06	6	600	3.8	25,000	16,000	120
06	8	600	4.8	26,000	16,000	120
08	4	800	2.9	24,900	17,800	160
08	6	800	5.5	31,000	20,100	175
08	8	800	8.4	34,800	21,200	205
10	4	1,000	5.7	33,700	23,200	220
10	6	1,000	10.7	40,500	25,900	240
10	8	1,000	15.9	45,100	27,500	260
12	4	1,200	7.2	38,400	26,800	335
12	6	1,200	14.7	47,600	30,700	350
12	8	1,200	20.5	52,000	31,800	380
16	4	1,600	4.7	49,000	35,300	410
16	6	1,600	10.0	61,500	39,700	420
16	8	1,600	14.2	67,100	41,400	520
20	4	2,000	5.5	62,100	45,000	445
20	6	2,000	11.2	78,000	51,300	465
20	8	2,000	17.0	87,400	55,400	510
22	4	2,200	8.0	65,000	47,200	575
22	6	2,200	15.0	83,800	54,900	600
22	8	2,200	23.0	95,500	59,000	660
30	4	3,000	6.1	98,500	71,100	790
30	6	3,000	10.7	123,900	80,400	860
30	8	3,000	18.4	140,000	88,500	890
40	-	4,000	-	123,800-185,800	92,900-123,800	-

NOTES: 1. Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) water temperature rise ,high fan speed, motor voltage 115/1/60, and airflow under dry coil conditions.
2. For all application ratings, use IEC's computer selection program, the quick-selection ratings provided in this catalog, or contact your local IEC representative.
3. Ratings are based on the Standard Coil Circuit and FPI option

VBA Nominal Capacity Range

Unit Size	Nominal CFM	Cooling Capacity[1] (MBH)		Heating Capacity (MBH)	
		Total	Sensible	Hydronic[2]	Max Electric[3]
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

NOTES: 1. Nominal cooling capacity range is based on 80° F (26.7° C) DB and 67° F (19.4° C) WB EAT, 45° F (7.2° C) EWT at 10° F (5.6° C) water temperature rise for 4, 6, and 8 row coils.
2. Nominal hydronic heating capacity range is based on 70° F (21.1° C) EAT and 140° F (60° C) to 180° F (82.2° C) EWT at 20° F(11.1° C) water temperature drop for 1 and 2 row heating coils.
3. Electric heat capacity limit varies by power source. See Electric Heat Selection on page 22.
4. Ratings are based on the Standard Coil Circuit and FPI option.

Cooling Capacity Table

Unit Size	CFM	Rows	EAT (°F) DB/WB	EWT (°F)	ΔT (°F)	Total (MBH)	Sensible (MBH)	GPM	WPD (ft. wg.)
06	500	4	80 / 67	45	10	16.9	12.4	3.4	1.6
					12	14.9	11.5	2.5	1.8
			75 / 63	45	10	12.5	10.6	2.5	1.0
					12	11.1	10.0	1.8	0.6
		6	80 / 67	45	10	20.9	14.2	4.1	3.3
					12	19.0	13.4	3.2	3.6
			75 / 63	45	10	15.3	11.9	3.0	2.0
					12	14.0	11.4	2.3	1.3
		8	80 / 67	45	10	22.9	15.1	4.5	5.1
					12	21.1	14.3	3.5	3.3
			75 / 63	45	10	16.7	12.6	3.3	3.1
					12	15.5	12.0	2.6	2.1
	600	4	80 / 67	45	10	19.5	14.5	3.9	1.9
					12	17.4	13.7	2.9	1.2
			75 / 63	45	10	14.6	12.5	2.9	1.2
					12	13.1	11.9	2.2	0.8
		6	80 / 67	45	10	24.5	16.8	4.9	4.2
					12	22.4	16.0	3.7	2.8
			75 / 63	45	10	18.1	14.2	3.6	2.6
					12	16.7	13.6	2.8	1.7
		8	80 / 67	45	10	27.1	18.0	5.4	6.6
					12	25.1	17.2	4.2	4.4
			75 / 63	45	10	20.0	15.1	4.0	4.1
					12	18.6	14.5	3.1	2.7
	700	4	80 / 67	45	10	21.9	16.5	4.3	2.3
					12	19.7	15.7	3.3	1.5
			75 / 63	45	10	16.6	14.3	3.3	1.5
					12	15.1	13.7	2.5	1.0
		6	80 / 67	45	10	27.9	19.3	5.5	5.2
					12	25.6	18.4	4.2	3.4
			75 / 63	45	10	20.8	16.4	4.1	3.3
					12	19.2	15.8	3.2	2.2
		8	80 / 67	45	10	31.2	20.9	6.2	8.3
					12	29.1	20.0	4.8	5.5
			75 / 63	45	10	23.2	17.6	4.6	5.2
					12	21.7	16.9	3.6	3.5

NOTE: Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, or 75°F (23.9°C) DB and 63°F (17.2°C) WB; 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) or 12°F Ω (6.7°C Ω) water temperature rise.

Cooling Capacity Table.

Unit Size	CFM	Rows	EAT (°F) DB/WB	EWT (°F)	ΔT (°F)	Total (MBH)	Sensible (MBH)	GPM	WPD (ft. wg.)
08	700	4	80 / 67	45	10	21.9	16.5	4.3	2.3
					12	19.7	15.7	3.3	1.5
			75 / 63	45	10	16.6	14.3	3.3	1.5
					12	15.1	13.7	2.5	1.0
		6	80 / 67	45	10	27.9	19.3	5.5	5.2
					12	25.6	18.4	4.2	3.4
			75 / 63	45	10	20.8	16.4	4.1	3.3
					12	19.2	15.8	3.2	2.2
		8	80 / 67	45	10	31.2	20.9	6.2	8.3
					12	29.1	20.0	4.8	5.5
			75 / 63	45	10	23.2	17.6	4.6	5.2
					12	21.7	16.9	3.6	3.5
	800	4	80 / 67	45	10	24.2	18.5	4.8	2.7
					12	21.9	17.6	3.6	1.7
			75 / 63	45	10	18.5	16.2	3.7	1.8
					12	16.9	15.5	2.8	1.2
		6	80 / 67	45	10	31.1	21.8	6.2	6.1
					12	28.8	20.8	4.8	4.1
			75 / 63	45	10	23.4	18.7	4.6	3.9
					12	21.8	18.0	3.6	2.6
		8	80 / 67	45	10	35.2	23.7	7.0	10.0
					12	33.0	22.7	5.5	6.7
			75 / 63	45	10	26.3	20.1	5.2	6.3
					12	24.7	19.3	4.1	4.3
	900	4	80 / 67	45	10	26.4	20.4	5.2	3.1
					12	23.9	19.5	4.0	2.0
			75 / 63	45	10	20.4	17.9	4.0	2.1
					12	18.6	17.2	3.1	1.4
		6	80 / 67	45	10	34.2	24.2	6.8	7.1
					12	31.7	23.2	5.2	4.7
			75 / 63	45	10	25.9	20.8	5.1	4.6
					12	24.2	20.1	4.0	3.1
		8	80 / 67	45	10	39.2	26.5	7.8	11.8
					12	36.7	25.4	6.1	8.0
			75 / 63	45	10	29.4	22.5	5.8	7.5
					12	27.6	21.7	4.6	5.1

NOTE: Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, or 75°F (23.9°C) DB and 63°F (17.2°C) WB; 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) or 12°F Ω (6.7°C Ω) water temperature rise.

Cooling Capacity Table

Unit Size	CFM	Rows	EAT (°F) DB/WB	EWT (°F)	ΔT (°F)	Total (MBH)	Sensible (MBH)	GPM	WPD (ft. wg.)
10	900	4	80 / 67	45	10	33.9	23.6	6.0	4.8
					12	30.3	21.7	5.6	6.6
			75 / 63	45	10	22.6	18.6	4.5	3.1
					12	20.8	17.9	3.4	2.0
		6	80 / 67	45	10	36.5	24.8	7.2	9.9
					12	33.9	23.6	5.6	6.6
			75 / 63	45	10	27.0	20.9	5.4	6.1
					12	25.2	20.1	4.2	4.1
		8	80 / 67	45	10	38.6	25.7	7.7	14.4
					12	35.9	24.6	5.9	9.6
			75 / 63	45	10	28.3	21.5	5.6	8.8
					12	26.6	20.8	4.4	6.0
	1000	4	80 / 67	45	10	32.7	23.8	6.5	5.5
					12	30.0	22.7	5.0	3.6
			75 / 63	45	10	24.7	20.4	4.9	3.5
					12	22.8	19.7	3.8	2.3
		6	80 / 67	45	10	39.4	27.2	7.9	11.4
					12	37.1	26.1	6.1	7.6
			75 / 63	45	10	29.6	23.0	5.9	7.1
					12	27.8	22.2	4.6	4.8
		8	80 / 67	45	10	42.6	28.4	8.4	16.8
					12	39.7	27.2	6.6	11.3
			75 / 63	45	10	31.4	23.9	6.2	10.4
					12	29.5	23.1	4.9	7.1
	1100	4	80 / 67	45	10	35.2	25.8	7.0	6.2
					12	32.4	24.7	5.4	4.0
			75 / 63	45	10	26.7	22.3	5.3	4.0
					12	24.7	21.5	4.1	2.6
		6	80 / 67	45	10	43.4	29.7	8.6	12.9
					12	40.3	28.4	6.7	8.6
			75 / 63	45	10	32.4	25.2	6.4	8.2
					12	30.4	24.4	5.0	5.5
		8	80 / 67	45	10	46.5	31.2	9.2	19.3
					12	43.3	29.8	7.2	12.9
			75 / 63	45	10	34.4	26.2	6.8	12.0
					12	32.5	25.4	5.4	8.2

NOTE: Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, or 75°F (23.9°C) DB and 63°F (17.2°C) WB; 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) or 12°F Ω (6.7°C Ω) water temperature rise.

Cooling Capacity Table.

Unit Size	CFM	Rows	EAT (°F) DB/WB	EWT (°F)	ΔT (°F)	Total (MBH)	Sensible (MBH)	GPM	WPD (ft. wg.)
12	1100	4	80 / 67	45	10	35.2	25.8	7.0	6.2
					12	32.4	24.7	5.4	4.0
			75 / 63	45	10	26.7	22.3	5.3	4.0
					12	24.7	21.5	4.1	2.6
		6	80 / 67	45	10	43.4	29.7	8.6	12.9
					12	40.3	28.4	6.7	8.6
			75 / 63	45	10	32.4	25.2	6.4	8.2
					12	30.4	24.4	5.0	5.5
		8	80 / 67	45	10	46.5	31.2	9.2	19.3
					12	43.3	29.8	7.2	12.9
			75 / 63	45	10	34.4	26.2	6.8	12.0
					12	32.5	25.4	5.4	8.2
	1200	4	80 / 67	45	10	37.7	27.8	7.5	6.8
					12	34.7	26.6	5.7	4.5
			75 / 63	45	10	28.7	24.1	5.7	4.5
					12	26.7	23.3	4.4	3.0
		6	80 / 67	45	10	46.6	32.1	9.2	14.4
					12	43.4	30.8	7.2	9.7
			75 / 63	45	10	35.0	27.4	6.9	9.2
					12	32.8	26.5	5.4	6.2
		8	80 / 67	45	10	50.3	33.9	10.0	21.8
					12	47.1	32.5	7.8	14.7
			75 / 63	45	10	37.5	28.6	7.4	13.8
					12	35.4	27.7	5.8	9.4
	1300	4	80 / 67	45	10	39.9	29.7	7.9	7.5
					12	37.0	28.6	6.1	5.0
			75 / 63	45	10	30.6	25.9	6.1	4.9
					12	28.5	25.0	4.7	3.3
		6	80 / 67	45	10	49.9	34.5	9.9	16.1
					12	46.6	33.2	7.7	10.8
			75 / 63	45	10	37.5	29.5	7.4	10.3
					12	35.4	28.6	5.8	7.0
		8	80 / 67	45	10	54.0	36.5	10.7	24.4
					12	50.8	35.1	8.4	16.6
			75 / 63	45	10	40.4	30.9	8.0	15.5
					12	38.2	30.0	6.3	10.6

NOTE: Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, or 75°F (23.9°C) DB and 63°F (17.2°C) WB; 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) or 12°F Ω (6.7°C Ω) water temperature rise.

Cooling Capacity Table

Unit Size	CFM	Rows	EAT (°F) DB/WB	EWT (°F)	ΔT (°F)	Total (MBH)	Sensible (MBH)	GPM	WPD (ft. wg.)
16	1400	4	80 / 67	45	10	42.2	31.9	8.4	3.5
					12	38.4	30.4	6.4	2.3
			75 / 63	45	10	32.1	27.7	6.4	2.3
					12	29.4	26.6	4.9	1.5
		6	80 / 67	45	10	50.5	35.8	10.0	7.0
					12	46.9	34.3	7.8	4.7
			75 / 63	45	10	37.9	30.6	7.5	4.5
					12	35.4	29.6	5.9	3.0
		8	80 / 67	45	10	54.3	37.4	10.8	10.5
					12	50.3	35.7	8.3	7.0
			75 / 63	45	10	40.3	31.7	7.99	6.6
					12	37.8	30.6	6.3	4.5
	1600	4	80 / 67	45	10	46.7	35.8	9.3	4.1
					12	42.9	34.3	7.1	2.7
			75 / 63	45	10	36.0	31.3	7.1	2.7
					12	33.2	30.2	5.5	1.8
		6	80 / 67	45	10	56.8	40.6	11.3	8.4
					12	52.7	38.9	8.7	5.6
			75 / 63	45	10	42.9	34.9	8.5	5.4
					12	40.3	33.8	6.7	3.7
		8	80 / 67	45	10	61.6	42.6	12.2	12.9
					12	57.5	40.9	9.5	8.6
			75 / 63	45	10	46.0	36.3	9.1	8.1
					12	43.3	356.1	7.2	5.5
	1800	4	80 / 67	45	10	51.2	39.7	10.2	4.7
					12	47.4	38.2	7.8	3.1
			75 / 63	45	10	39.8	34.9	7.9	3.2
					12	36.8	33.7	6.1	2.1
		6	80 / 67	45	10	62.7	45.2	12.4	9.8
					12	58.5	43.5	9.7	6.6
			75 / 63	45	10	47.6	39.0	9.5	6.4
					12	44.9	37.9	7.4	4.4
		8	80 / 67	45	10	68.5	47.7	13.6	15.2
					12	64.1	45.9	10.6	10.2
			75 / 63	45	10	51.5	40.8	10.2	9.7
					12	48.8	39.7	8.1	6.7

NOTE: Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, or 75°F (23.9°C) DB and 63°F (17.2°C) WB; 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) or 12°F Ω (6.7°C Ω) water temperature rise.

Cooling Capacity Table

Unit Size	CFM	Rows	EAT (°F) DB/WB	EWT (°F)	ΔT (°F)	Total (MBH)	Sensible (MBH)	GPM	WPD (ft. wg.)
20	1800	4	80 / 67	45	10	57.3	42.6	11.4	4.5
					12	52.6	40.8	8.7	2.9
			75 / 63	45	10	43.8	37.1	8.7	3.0
					12	40.4	35.7	6.7	1.9
		6	80 / 67	45	10	70.0	48.7	13.9	9.3
					12	65.2	46.7	10.8	6.3
			75 / 63	45	10	52.7	41.6	10.5	6.0
					12	49.4	40.2	8.2	4.1
		8	80 / 67	45	10	89.6	57.4	17.77	18.49
					12	84.3	55.0	13.9	12.6
			75 / 63	45	10	66.3	47.7	13.1	11.5
					12	62.2	45.9	10.3	7.8
	2000	4	80 / 67	45	10	61.9	46.5	12.28	5.08
					12	57.1	44.6	9.43	3.34
			75 / 63	45	10	47.6	40.6	9.4	3.4
					12	44.1	39.1	7.3	2.2
		6	80 / 67	45	10	76.4	53.5	15.2	10.7
					12	71.2	51.3	11.8	7.2
			75 / 63	45	10	57.8	45.9	11.5	6.9
					12	54.2	44.4	9.0	4.7
		8	80 / 67	45	10	93.2	61.0	18.5	19.7
					12	87.7	58.5	14.5	13.4
			75 / 63	45	10	69.2	51.1	13.7	12.3
					12	65.2	49.3	10.8	8.4
	2200	4	80 / 67	45	10	66.4	50.3	13.2	5.7
					12	61.3	48.3	10.1	3.7
			75 / 63	45	10	51.2	44.0	10.2	3.8
					12	47.6	42.5	7.9	2.5
		6	80 / 67	45	10	82.6	58.2	16.4	12.1
					12	77.2	56.0	12.8	8.2
			75 / 63	45	10	62.8	50.1	12.5	7.9
					12	59.1	48.5	9.8	5.4
		8	80 / 67	45	10	95.2	63.9	18.8	20.3
					12	89.4	61.4	14.8	13.8
			75 / 63	45	10	71.3	54.2	14.1	12.9
					12	67.4	52.4	11.1	8.9

NOTE: Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, or 75°F (23.9°C) DB and 63°F (17.2°C) WB; 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) or 12°F Ω (6.7°C Ω) water temperature rise.

Cooling Capacity Table

Unit Size	CFM	Rows	EAT (°F) DB/WB	EWT (°F)	ΔT (°F)	Total (MBH)	Sensible (MBH)	GPM	WPD (ft. wg.)
30	2800	4	80 / 67	45	10	91.9	68.6	18.2	4.6
					12	84.8	65.9	14.0	3.1
			75 / 63	45	10	70.6	59.9	14.0	3.1
					12	65.4	57.8	10.8	2.0
		6	80 / 67	45	10	116.4	80.4	23.1	10.2
					12	109.5	77.5	18.1	7.0
			75 / 63	45	10	88.5	69.1	17.6	6.7
					12	83.3	66.8	13.8	4.5
		8	80 / 67	45	10	131.4	87.4	26.1	16.6
					12	124.7	84.6	20.6	11.5
			75 / 63	45	10	99.5	74.4	19.7	10.7
					12	94.2	72.1	15.6	7.4
	3000	4	80 / 67	45	10	96.4	72.5	19.1	5.0
					12	89.2	69.7	14.7	3.3
			75 / 63	45	10	74.4	63.4	14.8	3.3
					12	69.1	61.2	11.4	2.2
		6	80 / 67	45	10	122.5	85.1	24.3	11.1
					12	115.4	82.2	19.1	7.6
			75 / 63	45	10	93.5	73.3	18.5	7.2
					12	88.1	71.0	14.6	4.9
		8	80 / 67	45	10	139.4	93.0	27.7	18.2
					12	131.9	89.8	21.8	12.5
			75 / 63	45	10	105.5	79.2	20.9	11.8
					12	100.0	76.8	16.5	8.1
	3200	4	80 / 67	45	10	100.8	76.3	20.0	5.4
					12	93.4	73.4	15.4	3.6
			75 / 63	45	10	78.1	66.9	15.5	3.6
					12	72.7	64.6	12.0	2.4
		6	80 / 67	45	10	128.6	89.8	25.5	12.0
					12	121.2	86.8	20.0	8.2
			75 / 63	45	10	98.3	77.5	19.5	7.8
					12	92.9	75.2	15.4	5.4
		8	80 / 67	45	10	146.6	982.3	29.1	19.7
					12	138.6	94.9	22.9	13.5
			75 / 63	45	10	111.1	83.8	22.0	12.8
					12	105.6	81.4	17.5	8.8

NOTE: Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, or 75°F (23.9°C) DB and 63°F (17.2°C) WB; 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) or 12°F Ω (6.7°C Ω) water temperature rise.

Cooling Capacity Table

Unit Size	CFM	Rows	EAT (°F) DB/WB	EWT (°F)	ΔT (°F)	Total (MBH)	Sensible (MBH)	GPM	WPD (ft. wg.)
40	3800	4	80 / 67	45	10	120.0	89.4	24.0	9.4
					12	111.0	86.0	18.5	5.6
			75 / 63	45	10	89.1	77.0	17.8	5.2
					12	81.2	73.8	13.5	3.0
		6	80 / 67	45	10	157.1	108.3	31.4	24.4
					12	147.9	104.5	24.6	15.0
			75 / 63	45	10	117.2	92.3	23.4	13.6
					12	109.2	89.0	18.2	8.2
		8	80 / 67	45	10	178.7	118.6	35.7	20.4
					12	169.4	114.7	28.2	12.7
			75 / 63	45	10	133.6	100.6	26.7	11.5
					12	124.9	96.9	20.8	7.0
	4000	4	80 / 67	45	10	123.8	92.9	24.8	10.0
					12	114.6	89.3	19.1	6.0
			75 / 63	45	10	92.0	80.0	18.4	5.6
					12	84.0	76.8	14.0	3.2
		6	80 / 67	45	10	162.8	112.8	32.6	26.2
					12	153.2	108.9	25.5	16.1
			75 / 63	45	10	121.5	96.2	24.3	14.7
					12	113.2	92.8	18.9	8.8
		8	80 / 67	45	10	185.8	123.8	37.2	22.1
					12	176.0	119.7	29.3	13.8
			75 / 63	45	10	138.9	105.1	27.8	12.4
					12	129.8	101.2	21.6	7.5
	4200	4	80 / 67	45	10	127.4	96.2	25.5	10.6
					12	117.9	92.5	19.7	6.3
			75 / 63	45	10	94.9	83.0	19.0	5.9
					12	86.7	79.7	14.5	3.4
		6	80 / 67	45	10	168.3	117.1	33.7	28.0
					12	158.2	113.0	26.4	17.2
			75 / 63	45	10	125.6	100.0	25.1	15.7
					12	117.1	96.5	19.5	9.5
		8	80 / 67	45	10	192.6	128.9	38.5	23.8
					12	182.3	124.5	30.4	14.8
			75 / 63	45	10	144.0	109.5	28.8	13.3
					12	134.6	105.5	22.4	8.1

NOTE: Ratings are based on 80°F (26.7°C) DB and 67°F (19.4°C) WB EAT, or 75°F (23.9°C) DB and 63°F (17.2°C) WB; 45°F (7.2°C) EWT, 10°F Ω (5.6°C Ω) or 12°F Ω (6.7°C Ω) water temperature rise.

Heating Capacity Table

Unit Size	CFM	Rows	EWT (°F)	ΔT (°F)	MBH	LAT (°F)	GPM	WPD (ft. wg.)
06	500	1	140	40	7.8	84.2	0.4	0.2
				20	11.3	90.7	1.1	1.4
			180	40	16.8	100.6	0.8	0.8
				20	19.7	106.0	2.0	4.1
		2	140	40	13.2	94.1	0.7	0.1
				20	18.9	104.6	1.9	1.0
			180	40	28.2	121.6	1.4	0.5
				20	32.6	129.6	3.3	2.8
	600	1	140	40	9.1	83.9	0.5	0.2
				20	13.2	90.2	1.3	2.0
			180	40	19.6	99.9	1.0	1.0
				20	23.1	105.2	2.3	5.6
		2	140	40	15.6	93.8	0.8	0.2
				20	22.2	103.9	2.2	1.4
			180	40	33.1	120.5	1.7	0.7
				20	38.3	128.4	3.8	3.9
	700	1	140	40	10.2	83.3	0.5	0.3
				20	14.7	89.3	1.5	2.4
			180	40	21.8	98.5	1.1	1.3
				20	25.7	103.6	2.6	7.0
		2	140	40	17.6	93.0	0.9	0.2
				20	25.0	102.6	2.5	1.7
			180	40	37.2	118.6	1.9	0.9
				20	43.1	126.4	4.3	4.9
08	700	1	140	40	10.2	83.3	0.5	0.3
				20	14.7	89.3	1.5	2.4
			180	40	21.8	98.5	1.1	1.3
				20	25.7	103.6	2.6	7.0
		2	140	40	17.6	93.0	0.9	0.2
				20	25.0	102.6	2.5	1.7
			180	40	37.2	118.6	1.9	0.9
				20	43.1	126.4	4.3	4.9
	800	1	140	40	11.0	82.6	0.6	0.3
				20	15.9	88.2	1.6	2.8
			180	40	23.5	96.9	1.2	1.5
				20	27.8	101.8	2.8	8.2
		2	140	40	19.2	92.0	1.0	0.3
				20	27.2	101.1	2.7	2.1
			180	40	40.5	116.3	2.0	1.1
				20	47.1	123.8	4.7	5.8
	900	1	140	40	11.6	81.8	0.6	0.4
				20	16.8	87.1	1.7	3.1
			180	40	24.8	95.2	1.2	1.6
				20	29.4	99.9	2.9	9.1
		2	140	40	20.4	90.8	1.0	0.3
				20	29.0	99.5	2.9	2.3
			180	40	43.1	113.8	2.2	1.2
				20	50.3	121.1	5.0	6.7

NOTES: 1. Based on 70°F (21.1°C) entering air temperature.
2. For leaving air temperature above 130°F (54.4°C) consult the factory.

Heating Capacity Table

Unit Size	CFM	Rows	EWT (°F)	ΔT (°F)	MBH	LAT (°F)	GPM	WPD (ft. wg.)
10	900	1	140	40	14.9	85.1	0.7	0.8
				20	20.2	90.6	2.0	6.0
			180	40	30.1	100.6	1.5	3.2
				20	34.8	105.4	3.5	16.8
		2	140	40	25.6	96.1	1.3	0.6
				20	34.0	104.6	3.4	4.2
			180	40	50.9	121.7	2.5	2.3
				20	57.9	128.9	5.8	11.6
	1000	1	140	40	16.0	84.6	0.8	1.0
				20	21.8	89.9	2.2	6.9
			180	40	32.4	99.6	1.6	3.7
				20	37.5	104.3	3.8	19.4
		2	140	40	27.7	95.3	1.4	0.7
				20	36.8	103.7	3.7	4.9
			180	40	55.0	120.3	2.8	2.6
				20	62.8	127.4	6.3	13.6
	1100	1	140	40	16.9	84.1	0.8	1.1
				20	23.1	89.2	2.3	7.8
			180	40	34.3	98.5	1.7	4.1
				20	39.8	103.1	4.0	21.8
		2	140	40	29.5	94.5	1.5	0.8
				20	39.3	102.6	3.9	5.6
			180	40	58.6	118.8	2.9	3.0
				20	67.0	125.7	6.7	15.5
12	1100	1	140	40	16.9	84.1	0.8	1.1
				20	23.1	89.2	2.3	7.8
			180	40	34.3	98.5	1.7	4.1
				20	39.8	103.1	4.0	21.8
		2	140	40	29.5	94.5	1.5	0.8
				20	39.3	102.6	3.9	5.6
			180	40	58.6	118.8	2.9	3.0
				20	67.0	125.7	6.7	15.5
	1200	1	140	40	17.7	83.5	0.9	1.2
				20	24.2	88.4	2.4	8.5
			180	40	35.9	97.3	1.8	4.5
				20	41.7	101.7	4.2	24.0
		2	140	40	31.0	93.6	1.5	0.9
				20	41.4	101.5	4.1	6.2
			180	40	61.8	117.1	3.1	3.3
				20	70.7	123.9	7.1	17.2
	1300	1	140	40	18.3	82.9	0.9	1.2
				20	25.0	87.6	2.5	9.1
			180	40	37.2	96.1	1.9	4.8
				20	-	-	-	-
		2	140	40	32.3	92.7	1.6	1.0
				20	43.2	100.4	4.3	6.8
			180	40	64.4	115.3	3.2	3.6
				20	73.8	121.9	7.4	18.8

NOTES: 1. Based on 70°F (21.1°C) entering air temperature.
2. For leaving air temperature above 130°F (54.4°C) consult the factory.

Heating Capacity Table

Unit Size	CFM	Rows	EWT (°F)	ΔT (°F)	MBH	LAT (°F)	GPM	WPD (ft. wg.)
16	1400	1	140	40	19.9	83.0	1.0	0.2
				20	29.1	89.0	2.9	1.9
			180	40	43.1	98.2	2.2	1.0
				20	51.0	103.3	5.1	5.6
		2	140	40	37.4	94.5	1.9	0.5
				20	50.6	103.0	5.1	3.5
			180	40	75.5	119.3	3.8	1.8
				20	86.5	126.5	8.7	5.4
	1600	1	140	40	21.4	82.2	1.1	0.3
				20	31.4	87.9	3.1	2.2
			180	40	46.4	96.5	2.3	1.2
				20	54.9	101.4	5.5	6.4
		2	140	40	40.6	93.2	2.0	0.6
				20	55.0	101.4	5.5	4.1
			180	40	82.0	116.9	4.1	2.2
				20	94.2	123.8	9.4	11.4
	1800	1	140	40	22.6	81.5	1.1	0.3
				20	33.0	86.8	3.3	2.5
			180	40	48.8	94.8	2.4	1.3
				20	57.8	99.4	5.8	7.2
		2	140	40	43.1	91.9	2.2	0.6
				20	58.5	99.7	5.8	4.6
			180	40	87.1	114.3	4.4	2.5
				20	100.4	121.0	10.0	12.9
20	1800	1	140	40	26.2	83.3	1.3	0.5
				20	36.9	88.8	3.7	3.7
			180	40	54.7	97.8	2.7	1.9
				20	64.1	102.6	6.4	10.5
		2	140	40	43.7	92.2	2.2	0.3
				20	61.9	101.5	6.2	2.2
			180	40	92.1	116.8	4.6	1.2
				20	107.3	124.5	10.7	6.3
	2000	1	140	40	27.6	82.6	1.4	0.5
				20	38.9	87.8	3.9	4.1
			180	40	57.6	96.3	2.9	2.2
				20	67.6	100.9	6.8	11.7
		2	140	40	46.4	91.2	2.3	0.3
				20	65.8	100.1	6.6	2.5
			180	40	97.8	114.7	4.9	1.3
				20	114.2	122.2	11.4	7.1
	2200	1	140	40	28.7	81.9	1.4	0.6
				20	40.4	86.8	4.0	4.4
			180	40	59.9	94.9	3.0	2.3
				20	70.3	99.2	7.0	12.7
		2	140	40	48.5	90.2	2.4	0.4
				20	69.0	98.7	6.9	2.7
			180	40	102.5	112.6	5.1	1.5
				20	119.8	119.8	12.0	7.9

NOTES: 1. Based on 70°F (21.1°C) entering air temperature.
2. For leaving air temperature above 130°F (54.4°C) consult the factory.

Heating Capacity Table

Unit Size	CFM	Rows	EWT (°F)	ΔT (°F)	MBH	LAT (°F)	GPM	WPD (ft. wg.)
30	2800	1	140	40	30.0	79.8	1.5	0.1
				20	54.3	87.7	5.4	0.7
			180	40	79.8	96.1	4.0	0.4
				20	97.1	101.7	9.7	2.2
		2	140	40	67.9	92.2	3.4	0.2
				20	96.9	101.6	9.7	1.8
			180	40	144.2	117.1	7.2	0.9
				20	167.7	124.8	16.8	5.0
	3000	1	140	40	31.5	79.6	1.6	0.1
				20	56.3	87.1	5.6	0.8
			180	40	82.7	95.2	4.1	0.4
				20	100.7	100.7	10.1	2.3
		2	140	40	70.8	91.6	3.5	0.2
				20	101.0	100.8	10.1	1.9
			180	40	150.2	115.8	7.5	1.0
				20	174.9	123.3	17.5	5.5
	3200	1	140	40	32.7	79.4	1.6	0.1
				20	57.9	86.6	5.8	0.8
			180	40	85.1	94.3	4.3	0.4
				20	103.7	99.6	10.4	2.5
		2	140	40	73.3	91.0	3.7	0.3
				20	104.6	99.9	10.5	2.1
			180	40	155.5	114.4	7.8	1.1
				20	181.4	121.8	18.1	5.9
40	3800	1	140	40	50.8	82.2	2.5	0.2
				20	76.2	88.3	7.6	1.8
			180	40	112.5	97.1	5.6	1.0
				20	133.8	102.2	13.4	5.3
		2	140	40	99.9	94.0	5.0	0.6
				20	134.3	102.3	13.4	4.4
			180	40	200.5	118.3	10.0	2.3
				20	229.8	125.3	23.0	12.2
	4000	1	140	40	52.2	81.9	2.6	0.2
				20	78.2	87.9	7.8	1.9
			180	40	115.5	96.4	5.8	1.0
				20	137.5	101.4	13.8	5.6
		2	140	40	103.0	93.5	5.1	0.7
				20	138.5	101.7	13.9	4.7
			180	40	206.7	117.3	10.3	2.5
				20	237.2	124.2	23.7	13.0
	4200	1	140	40	53.5	81.7	2.7	0.2
				20	80.1	87.4	8.0	2.0
			180	40	118.2	95.7	5.9	1.1
				20	140.8	100.7	14.1	5.9
		2	140	40	105.7	93.0	5.3	0.7
				20	142.4	101.0	14.2	4.9
			180	40	212.4	116.3	10.6	2.6
				20	244.0	123.1	24.4	13.7

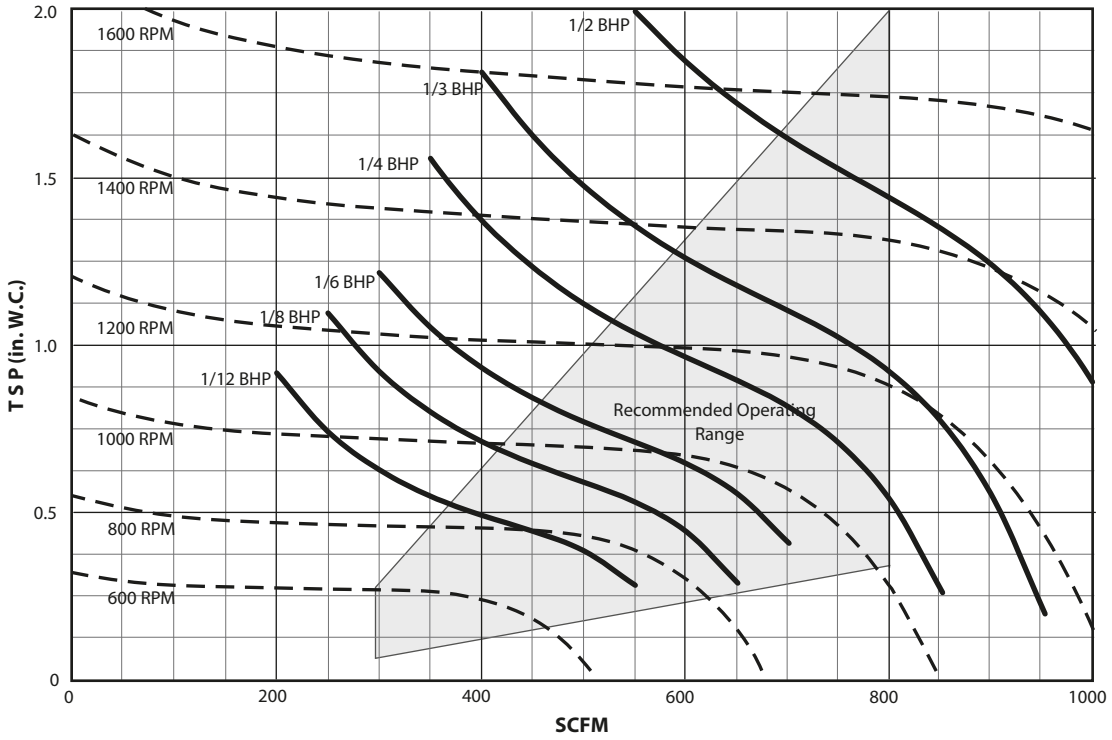
NOTES: 1. Based on 70°F (21.1°C) entering air temperature.
2. For leaving air temperature above 130°F (54.4°C) consult the factory.

Component Static Resistance (in w.c.)

Unit Size	Nominal CFM	Coil(includes cabinet)					Filters							Mixing Box
		Dry												
		4 Row	5 Row	6 Row	7 Row	8 Row	1" Throw-away	1" MERV 8 Pleated	(Qty. 2) 1" Throw-away	2" MERV 8 Pleated	2" MERV 11 w/Prefilter	4" MERV 11 Pleated	4" MERV 13 Pleated	
06	400	0.07	0.08	0.10	0.11	0.12	0.04	0.07	0.05	0.04	0.04	0.03	0.04	0.02
	500	0.11	0.13	0.16	0.18	0.19	0.06	0.11	0.07	0.05	0.06	0.05	0.06	0.03
	600	0.15	0.19	0.22	0.24	0.27	0.08	0.14	0.09	0.06	0.07	0.06	0.08	0.04
	700	0.20	0.24	0.28	0.31	0.34	0.10	0.17	0.11	0.08	0.09	0.08	0.10	0.06
	800	0.24	0.29	0.34	0.38	0.42	0.12	0.21	0.14	0.09	0.11	0.09	0.12	0.08
08	600	0.15	0.19	0.22	0.24	0.27	0.08	0.14	0.09	0.06	0.07	0.06	0.08	0.04
	700	0.20	0.24	0.28	0.31	0.34	0.10	0.17	0.11	0.08	0.09	0.08	0.10	0.06
	800	0.24	0.29	0.34	0.38	0.42	0.12	0.21	0.14	0.09	0.11	0.09	0.12	0.08
	900	0.28	0.34	0.40	0.45	0.49	0.14	0.24	0.16	0.10	0.12	0.10	0.14	0.10
	1000	0.33	0.40	0.46	0.52	0.57	0.16	0.27	0.18	0.12	0.14	0.12	0.16	0.12
10	800	0.12	0.14	0.16	0.18	0.21	0.06	0.10	0.08	0.06	0.13	0.05	0.05	0.04
	900	0.15	0.18	0.21	0.24	0.26	0.07	0.12	0.09	0.07	0.16	0.06	0.06	0.05
	1000	0.19	0.22	0.26	0.29	0.32	0.09	0.14	0.11	0.08	0.18	0.07	0.07	0.06
	1100	0.22	0.26	0.30	0.34	0.37	0.10	0.16	0.13	0.09	0.21	0.08	0.08	0.08
	1200	0.25	0.30	0.35	0.39	0.43	0.11	0.18	0.14	0.10	0.23	0.09	0.09	0.09
12	1000	0.19	0.22	0.26	0.29	0.32	0.09	0.14	0.11	0.08	0.18	0.07	0.07	0.06
	1100	0.22	0.26	0.30	0.34	0.37	0.10	0.16	0.13	0.09	0.21	0.08	0.08	0.08
	1200	0.25	0.30	0.35	0.39	0.43	0.11	0.18	0.14	0.10	0.23	0.09	0.09	0.09
	1300	0.29	0.34	0.40	0.44	0.48	0.13	0.19	0.16	0.11	0.25	0.10	0.10	0.11
	1400	0.32	0.38	0.44	0.49	0.54	0.14	0.21	0.18	0.12	0.28	0.11	0.11	0.13
16	1400	0.19	0.23	0.28	0.31	0.34	0.11	0.14	0.17	0.10	0.21	0.09	0.09	0.07
	1500	0.22	0.26	0.31	0.35	0.38	0.12	0.16	0.19	0.10	0.24	0.10	0.10	0.09
	1600	0.24	0.29	0.35	0.38	0.42	0.13	0.17	0.21	0.11	0.26	0.11	0.11	0.10
	1700	0.27	0.32	0.38	0.42	0.47	0.14	0.19	0.22	0.12	0.28	0.12	0.12	0.11
	1800	0.29	0.35	0.42	0.46	0.51	0.15	0.20	0.24	0.13	0.30	0.12	0.13	0.12
20	1800	0.22	0.27	0.32	0.37	0.42	0.11	0.18	0.17	0.11	0.24	0.10	0.13	0.07
	1900	0.24	0.30	0.36	0.41	0.46	0.12	0.19	0.18	0.12	0.26	0.11	0.14	0.08
	2000	0.27	0.33	0.39	0.45	0.50	0.13	0.21	0.20	0.13	0.28	0.12	0.15	0.09
	2100	0.29	0.36	0.42	0.49	0.55	0.14	0.22	0.21	0.13	0.30	0.13	0.16	0.10
	2200	0.31	0.39	0.46	0.53	0.59	0.15	0.24	0.23	0.14	0.32	0.14	0.17	0.11
	2300	0.34	0.42	0.49	0.57	0.64	0.16	0.25	0.25	0.15	0.34	0.15	0.18	0.12
	2400	0.36	0.44	0.53	0.60	0.68	0.17	0.27	0.26	0.16	0.36	0.16	0.20	0.13
30	2400	0.17	0.21	0.24	0.28	0.33	0.09	0.15	0.14	0.10	0.19	0.07	0.11	0.07
	2600	0.20	0.24	0.28	0.33	0.38	0.10	0.16	0.16	0.11	0.22	0.08	0.13	0.09
	2800	0.23	0.27	0.32	0.38	0.43	0.11	0.18	0.17	0.12	0.24	0.09	0.14	0.10
	3000	0.26	0.31	0.36	0.42	0.49	0.13	0.20	0.19	0.14	0.26	0.10	0.16	0.11
	3200	0.29	0.34	0.40	0.47	0.54	0.14	0.22	0.21	0.15	0.28	0.12	0.18	0.13
	3400	0.32	0.38	0.44	0.52	0.59	0.15	0.24	0.23	0.16	0.31	0.13	0.19	0.15
40	3400	0.11		0.17		0.22		0.15	0.09	0.12	0.24			0.08
	3600	0.12		0.19		0.25		0.16	0.10	0.13	0.27			0.09
	3800	0.14		0.21		0.28		0.18	0.11	0.15	0.30			0.11
	4000	0.15		0.23		0.31		0.20	0.12	0.16	0.33			0.12
	4200	0.17		0.25		0.34		0.22	0.13	0.18	0.37			0.13
	4400	0.19		0.28		0.37		0.25	0.14	0.20	0.40			0.14

HBD/VBA Fan Curves

HBD/VBA-06



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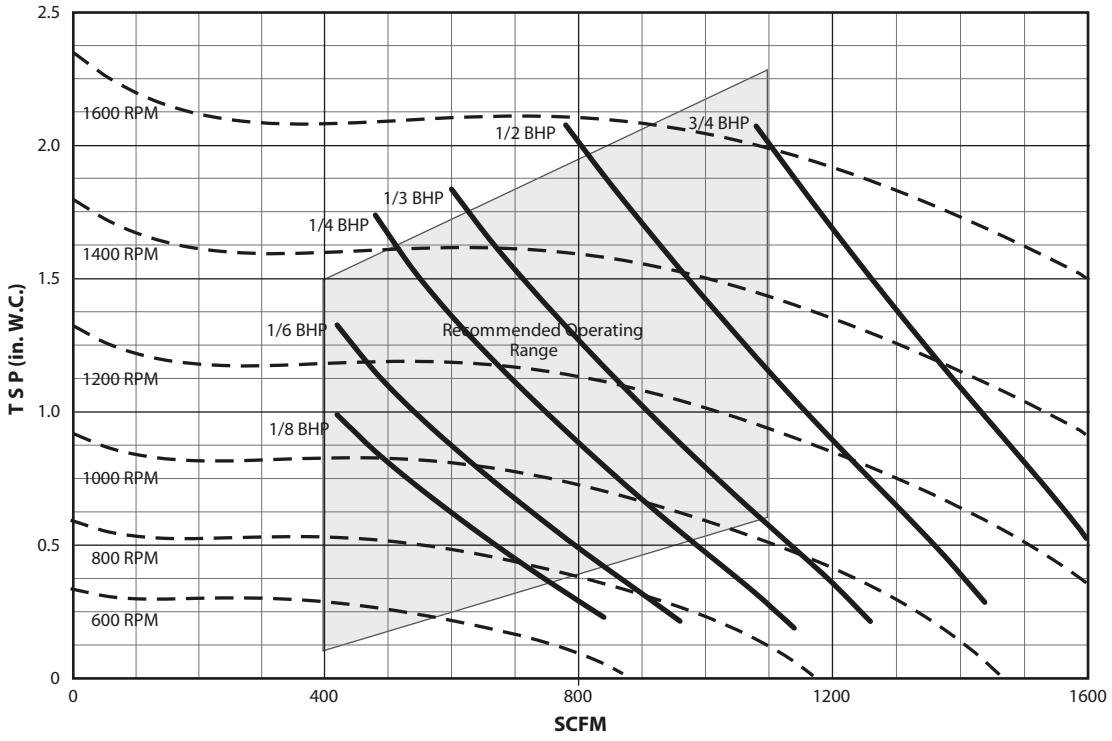
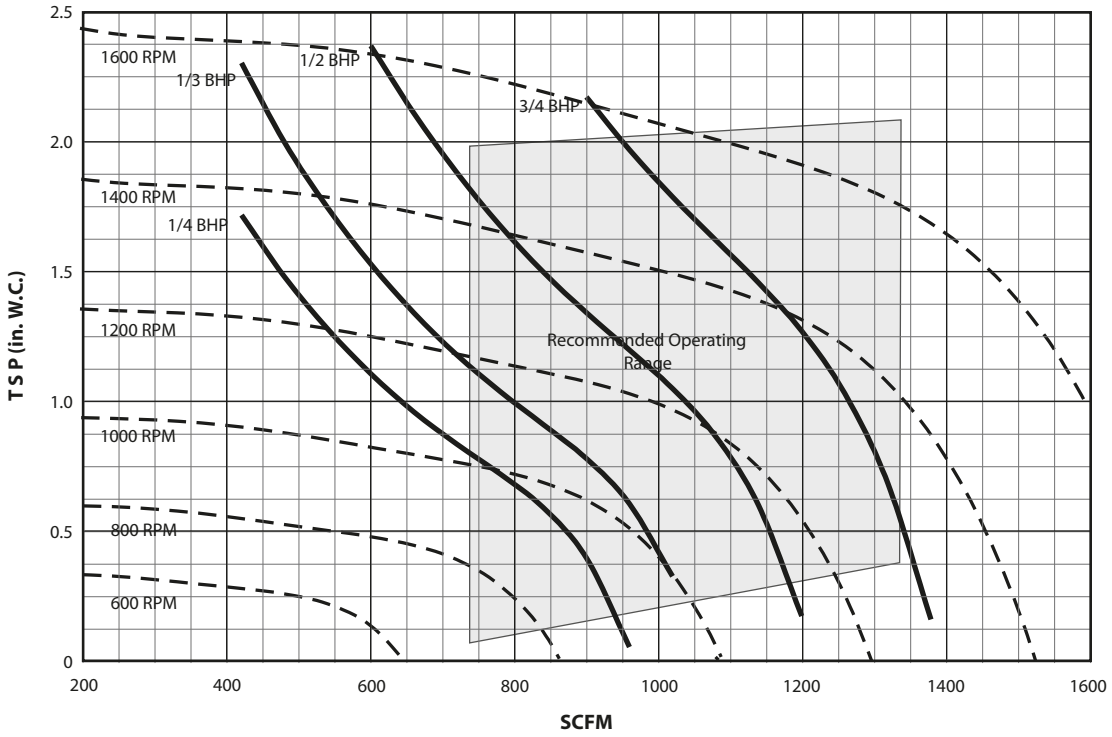


HBD/VBA Fan Curves

HBD/VBA-10



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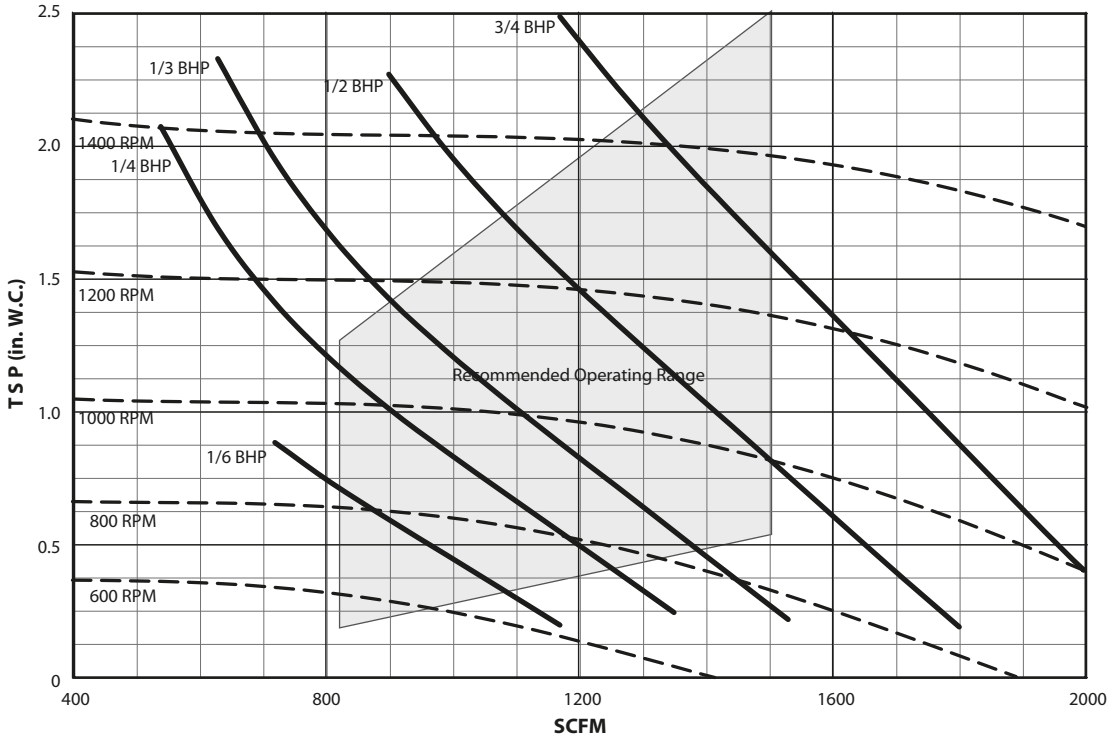
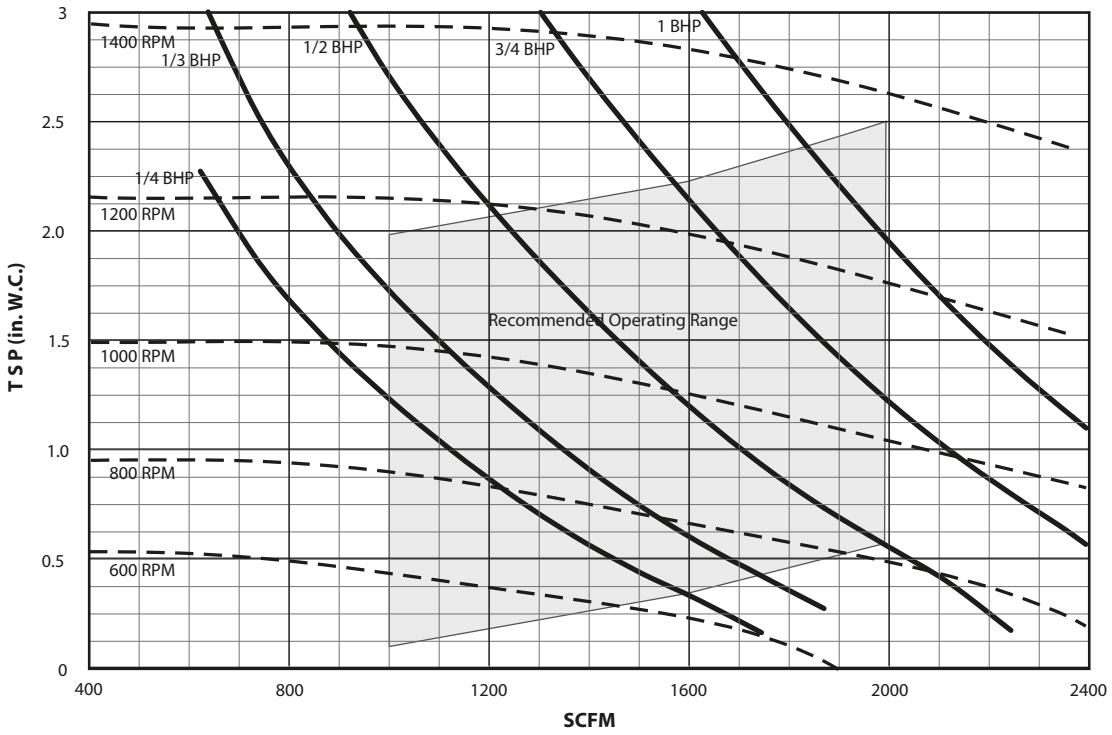


HBD/VBA Fan Curves

HBD/VBA-16



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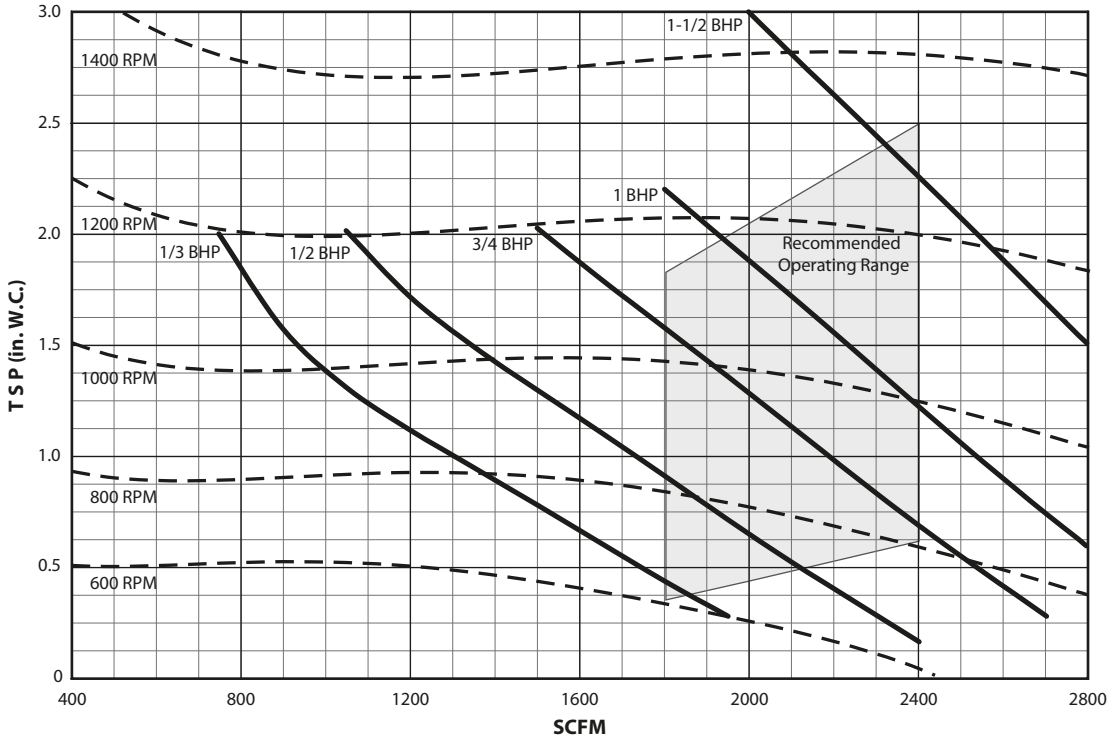
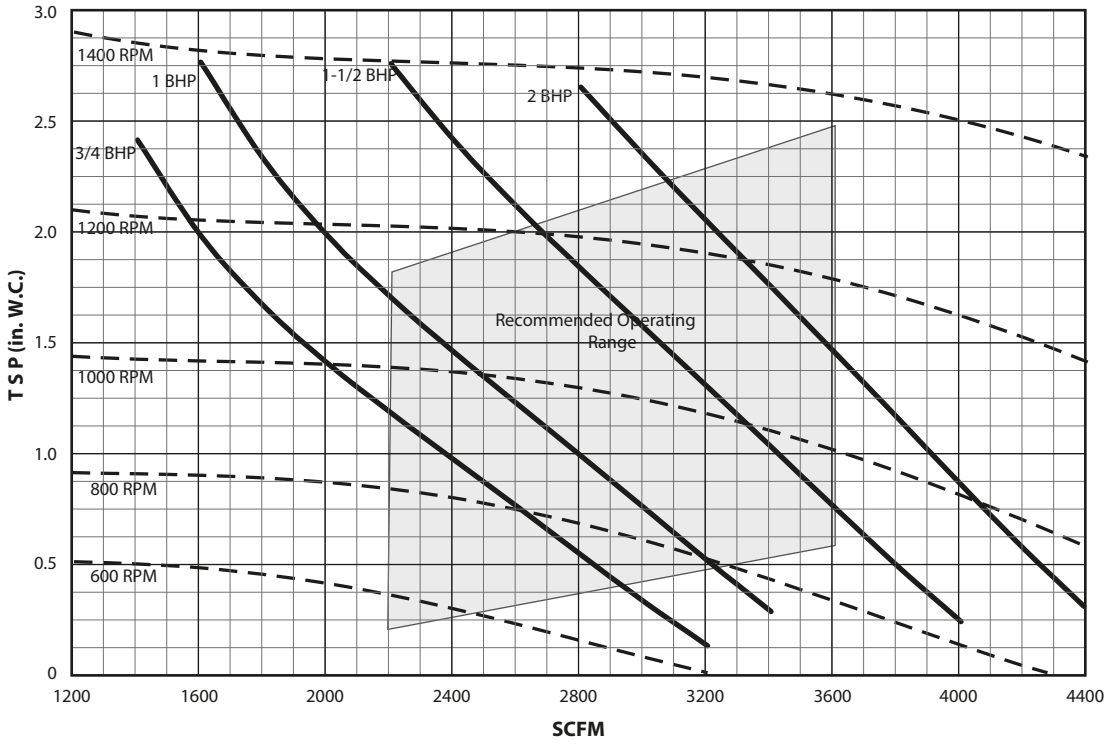


HBD/VBA Fan Curves

HBD/VBA-30



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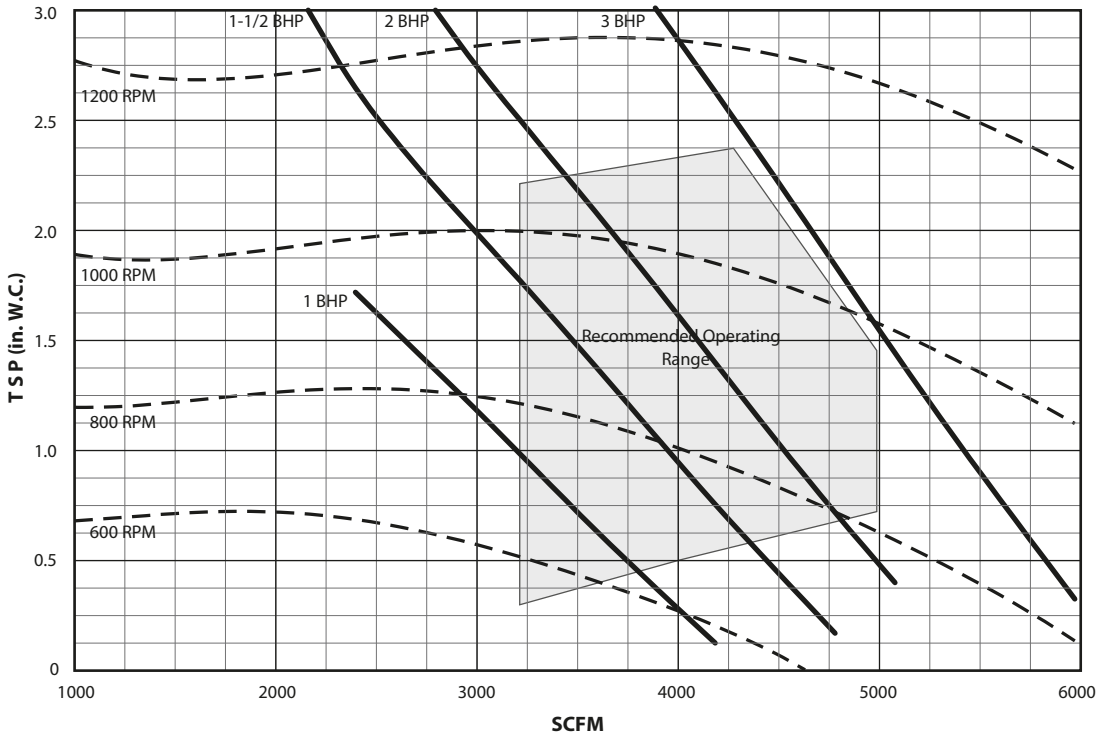


Motor Data

Thermal Overload Protection

All standard motors on belt-driven units furnished by IEC contain internal thermal overload protection. The overload automatically resets when the temperature returns to a safe limit. These thermal overloads, when coupled with motor contactors, replace the need for motor starters.

Motor Full Load Amps Data - HBD/VBA

Voltage	Nominal HP							
	1/4	1/3	1/2	3/4	1	1-1/2	2	3
115V 60 Hz 1-Phase	5.2	6.0	8.6	13.3	14.4	-	-	-
208V 60 Hz 1-Phase	3.0	3.6	4.8	6.6	7.4	9.4	11.0	-
230V 60 Hz 1-Phase	2.5	3.0	4.2	5.1	6.0	9.0	10.9	-
277V 60 Hz 1-Phase	2.1	2.5	3.6	5.1	5.4	8.5	8.0	-
208V 60 Hz 3-Phase	-	-	2.4	3.6	3.8	6.0	6.5	8.2
230V 60 Hz 3-Phase	-	-	2.2	3.0	3.2	4.8	6.2	8.4
460V 60 Hz 3-Phase	-	-	1.1	1.5	1.9	2.8	3.1	4.2

NOTES: 1. Motor full load Amps refer to National Electric Code (NEC) Amps; actual motor nameplate amps may vary.
2. NEC data extrapolated for 277V.
3. Motors are open drip proof, ball bearing, single speed, 1750 RPM rated at continuous duty, 40°C (104°F) ambient with reversible rotation.

Inverter Duty Motor Full Load Amps Data - HBD/VBA

Voltage	Nominal HP							
	1/4	1/3	1/2	3/4	1	1-1/2	2	3
208V 60 Hz 3-Phase	-	-	-	2.4	3.1	4.5	5.8	8.5
230V 60 Hz 3-Phase	-	-	-	3.0	3.2	4.8	6.2	8.4
460V 60 Hz 3-Phase	-	-	-	-	1.9	2.8	3.1	4.2

NOTES: 1. Motor full load amps refer to National Electric Code (NEC) Amps; actual motor nameplate amps may vary.
2. Motors are open drip proof, ball bearing, single speed, 1750 RPM rated at continuous duty, 104°F (40°C) ambient with reversible rotation.

Motor and Drive Selection

Use IEC's Rating Program to determine motor and drive selection for your specific applications. If the Rating Program is not available, follow these steps:

- To determine motor and drive selection requirements for a given airflow, the total static pressure (TSP) for that airflow must be determined. The TSP is the sum of the internal static pressure (ISP) and the external static pressure (ESP) measured in inches of water column. ISP is the sum of the static resistance of the components of the unit – the cabinet, coil and filter. ESP is the static resistance of the external components of the unit, including, but not limited to, mixing boxes, ductwork, grilles and additional filtration. For non-ducted, non-mixing box applications, the ESP is 0 inches.

- After the TSP has been calculated (see the following example), use the Fan Curves (pages 23 through 26) to determine the brake horsepower (BHP) and the corresponding RPM for your Belt Drive unit. HP offerings are limited to 1/4, 1/3, 1/2, 3/4, 1, 1-1/2, 2, and 3. The standard selection for the motor is the nearest offering above the actual BHP shown in the Fan Curve.

- Drive sheaves and the required belt assembly will be provided to meet your design requirements. Drive sheaves are set at the factory.

Example

Calculate the HP and drive selection required to deliver 1500 CFM on an HBD 16 equipped with a 4-row hydronic cooling coil and a 2-inch pleated filter in a ducted application at 0.38-inch ESP, including duct and grille losses.

Using the Component Static Resistance Table on the next page, calculate the ISP as follows:

Cabinet	0.09”
4-Row Wet Coil	0.30”
2” Pleated Filter	+ 0.12”
ISP	0.51”
ESP	+ 0.38”
TSP	0.89”

Round the TSP to 0.9 inch. From fan cure on page 29, a BHP of 0.38 and RPM of 890 is required. A nominal 1/2 HP motor will be required. Supply the CFM and external static pressure with your order.

Sound Power Data – HBD

UNIT SIZE	RATING	FAN SPEED	CFM	SOUND POWER LEVEL, Lw (dB reference one picowatt)							A-wgt (dBA)
				125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	
6 (Note 4)	CASING RADIATED (Note 2)	1050	600	76	65	62	56	51	45	40	64
	DUCTED DISCHARGE (Note 3)			70	61	59	59	56	53	47	64
8	CASING RADIATED (Note 2)	1125	880	70	67	60	57	52	46	40	63
	DUCTED DISCHARGE (Note 3)			65	60	61	60	58	56	50	65
10	CASING RADIATED (Note 2)	1225	1000	76	75	65	64	60	54	49	70
	DUCTED DISCHARGE (Note 3)			78	73	71	71	66	63	58	75
12	CASING RADIATED (Note 2)	970	1200	70	66	59	58	55	50	44	64
	DUCTED DISCHARGE (Note 3)			68	62	63	62	58	57	50	66
16	CASING RADIATED (Note 2)	835	1600	69	67	58	57	53	47	40	63
	DUCTED DISCHARGE (Note 3)			69	63	63	64	58	56	47	67
20	CASING RADIATED (Note 2)	860	2085	75	68	62	59	56	51	43	66
	DUCTED DISCHARGE (Note 3)			69	66	69	65	63	62	54	71
30	CASING RADIATED (Note 2)	850	3000	77	70	66	63	59	55	47	69
	DUCTED DISCHARGE (Note 3)			70	70	70	66	65	64	57	73
40	CASING RADIATED (Note 2)	715	4050	73	68	68	63	60	61	46	70
	DUCTED DISCHARGE (Note 3)			69	70	72	66	65	64	56	73

NOTES:
1. Unit Test Configuration: Rear Return/Front Supply, 4 Row, 10 FPI Coil, 460/3 PH/60 Hz VAC Motor, 1-inch dual density fiberglass insulations.
2. Testing per AHRI 260-2001: 4.2.2.3 Casing radiated with free inlet, Sound Rating of Ducted Air Moving and Conditioning Equipment.
3. Testing per AHRI 260-2001: 4.2.2.1 Ducted discharge, Sound Rating of Ducted Air Moving and Conditioning Equipment.
4. Size 06 Unit Test Configuration: Rear Return/Front Supply, 4 Row, 10 FP1 Coil, 230/1 PH/60 Hz VAC PSC Motor.
5. Sound power data is expressed in decibels, dB RE: 1 x 10-12 w(picowatts).

Sound Power Data – VBA

UNIT SIZE	RATING	FAN SPEED	CFM	SOUND POWER LEVEL, Lw (dB reference one picowatt)							A-wgt (dBA)
				125 Hz	250 Hz	500 Hz	1K Hz	2K Hz	4K Hz	8K Hz	
6 (Note 4)	CASING RADIATED (Note 2)	1050	640	79	73	66	60	58	60	56	70
	DUCTED DISCHARGE (Note 3)			74	66	57	62	58	52	44	62
8	CASING RADIATED (Note 2)	1055	800	76	67	62	58	53	50	47	65
	DUCTED DISCHARGE (Note 3)			69	64	54	54	52	49	41	61
10	CASING RADIATED (Note 2)	1205	1055	79	74	64	61	58	54	47	69
	DUCTED DISCHARGE (Note 3)			76	73	68	72	68	63	57	70
12	CASING RADIATED (Note 2)	980	1170	73	68	61	58	53	45	41	64
	DUCTED DISCHARGE (Note 3)			68	61	62	65	61	56	50	63
16	CASING RADIATED (Note 2)	920	1660	77	72	64	62	56	49	44	68
	DUCTED DISCHARGE (Note 3)			71	66	68	69	60	56	47	66
20	CASING RADIATED (Note 2)	855	2010	76	66	59	58	54	47	41	65
	DUCTED DISCHARGE (Note 3)			71	66	71	67	63	59	51	66
30	CASING RADIATED (Note 2)	915	3085	79	70	65	63	59	54	48	69
	DUCTED DISCHARGE (Note 3)			72	71	75	72	66	64	56	70
40	CASING RADIATED (Note 2)	790	4145	78	67	63	61	57	54	43	67
	DUCTED DISCHARGE (Note 3)			70	73	74	72	68	65	58	71

NOTES: 1. Unit Test Configuration: Rear Return/Front Supply, 4 Row, 10 FPI Coil, 460/3 PH/60 Hz VAC Motor, 1-inch dual density fiberglass insulations.
2. Testing per AHRI 260-2001: 4.2.2.3 Casing radiated with free inlet, Sound Rating of Ducted Air Moving and Conditioning Equipment.
3. Testing per AHRI 260-2001: 4.2.2.1 Ducted discharge, Sound Rating of Ducted Air Moving and Conditioning Equipment.
4. Size 06 Unit Test Configuration: Rear Return/Front Supply, 4 Row, 10 FP1 Coil, 230/1 PH/60 Hz VAC PSC Motor.
5. Sound power data is expressed in decibels, dB RE: 1 x 10-12 w(picowatts).

Electrical Resistance Heating

Electric heaters are available on IEC Belt Drive blower coils for total electric heat and 2-pipe CW/HW with auxiliary electric heat applications.

Total Electric Heat

Total electric heat eliminates the requirement for a boiler and provides heating and/or cooling on an individual basis throughout the year. Electric heat is available only for single source power (motor and heater voltage the same).

Heater Construction

The heater coils of high-grade resistance wire are 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 a manual thermal limit switch protect the heater in the event of air failure. For electric heat control options refer to page 39.

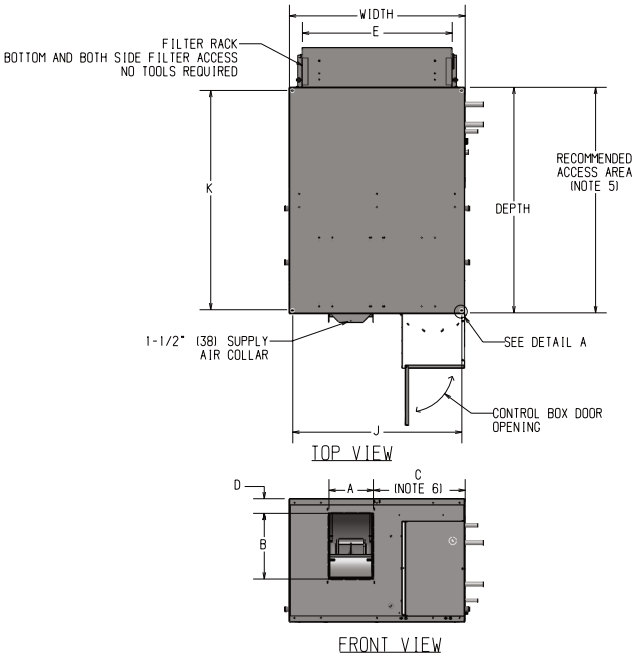
Electric Heater Selection

kW	Heater Availability								Full Load Amps						
									Single Phase				Three Phase		
	6	8	10	12	16	20	30	40	120V	208V	240V	277V	208V	240V	480V
1	•	•	-	-	-	-	-	-	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	•	•	•	•	-	-	-	-	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	•	•	•	•	•	-	-	-	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	•	•	•	•	•	•	-	-	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	•	•	•	•	•	•	-	-	-	24.0	20.8	18.1	13.9	12.0	6.0
6	•	•	•	•	•	•	•	•	-	28.8	25.0	21.7	16.7	14.4	7.2
7	-	•	•	•	•	•	•	•	-	33.7	29.2	25.3	19.4	16.8	8.4
8	-	•	•	•	•	•	•	•	-	38.5	33.3	28.9	22.2	19.2	9.6
9.9	-	-	•	•	•	•	•	•	-	-	-	35.7	27.5	23.8	11.9
12	-	-	-	•	•	•	•	•	-	-	-	43.3	33.3	28.9	14.4
14	-	-	-	-	•	•	•	•	-	-	-	-	38.9	33.7	16.8
15	-	-	-	-	•	•	•	•	-	-	-	-	41.6	36.1	18.0
16	-	-	-	-	•	•	•	•	-	-	-	-	-	38.5	19.2
18	-	-	-	-	-	•	•	•	-	-	-	-	-	-	21.7
19.9	-	-	-	-	-	•	•	•	-	-	-	-	-	-	23.9
25	-	-	-	-	-	-	•	•	-	-	-	-	-	-	30.1
30	-	-	-	-	-	-	•	•	-	-	-	-	-	-	36.1
35	-	-	-	-	-	-	-	•	-	-	-	-	-	-	42.1
39.9	-	-	-	-	-	-	-	•	-	-	-	-	-	-	48.0

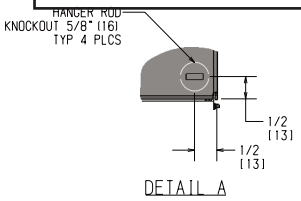
NOTES: 1. Electric heaters are available for 1-stage (single-stage), 2-stage, or 3-stage applications depending on power phase and heater kW.
Single-Phase Power:
1-12 kW: 1-stage available
3-12 kW: 2-stage available
3-Phase Power:
1-39.9 kW: 1-stage available
4-39.9 kW: 2-stage available
12-39.9 kW: 3-stage available
2. Electric Heating Capacities (Btuh) = Heater kW x 3413
3. Electric Heater Amperage for Single-Phase Power = (Heater kW x 1000)/Applied Voltage
Electric Heater Amperage for 3-Phase Power = (Heater kW x 1000)/(Applied Voltage x 1.73)

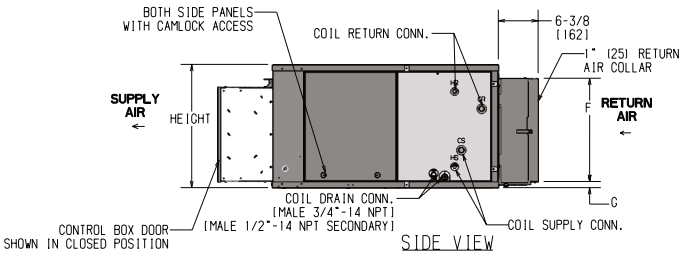
Physical Data

HBD Basic Unit – Horizontal Belt Drive



Drawing is provided for reference only. Dimensions may vary with options ordered. Consult IEC website for submittal drawings.





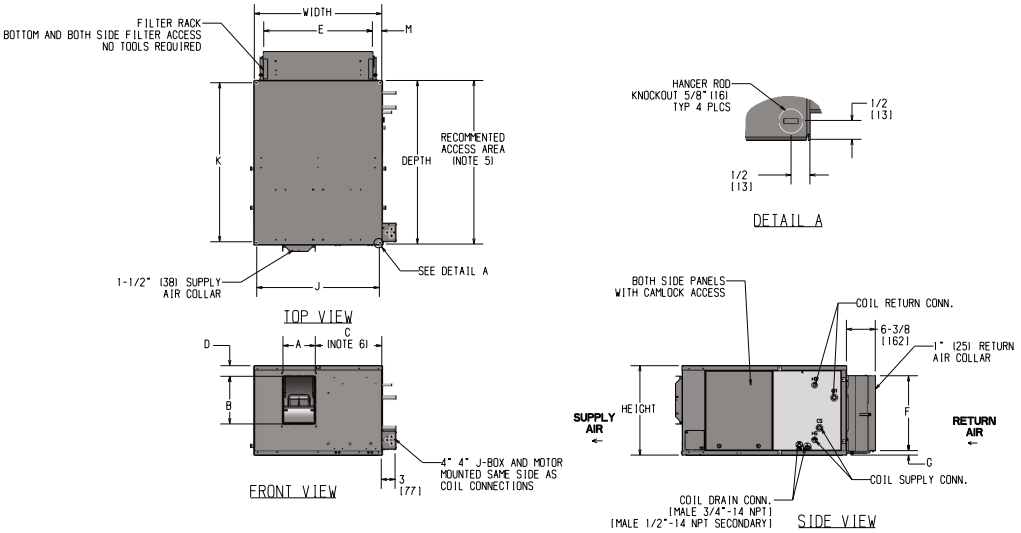
Unit Size	Fan Size	Depth	Width	Height	Supply Duct				Return Duct			Mounting Holes		M
					A	B	C	D	E	F	G	J	K	
06	9 x 4	36 (914)	28 (711)	19-3/4 (502)	7-1/8 (181)	10-1/2 (267)	14-1/2 (368)	2-1/4 (57)	24 (610)	16-1/2 (419)	1 (25)	27-1/4 (686)	35-1/4 (895)	2 (51)
08	9 x 6	36 (914)	28 (711)	19-3/4 (502)	8-1/2 (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: * Unit measurements on drawings and in tables are shown in inches and (millimeters).

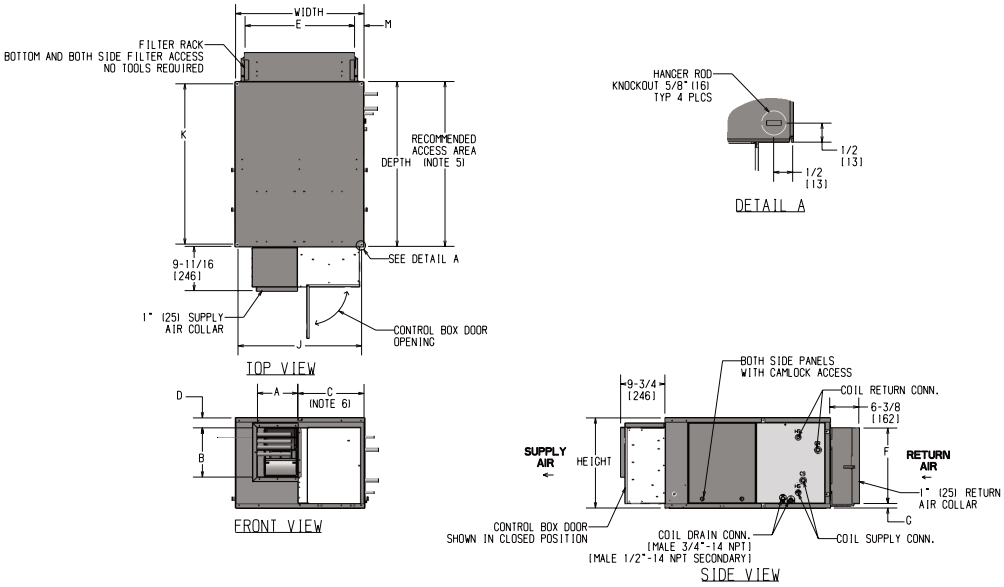
1. Right hand shown, Left hand opposite.
2. All dimensions are +/- ¼-inch (6 mm).
3. Dimensions in parenthesis are in millimeters.
4. Product specifications are subject to changes without notice.
5. Allow adequate spacing for maneuverability around unit to allow service through recommended access area.
6. "C" dimension is measured from coil side of unit.
7. Mixing Box option will vary return duct dimensions, refer to mixing box submittal.

Physical Data

HBD Unit with Optional Electric Heat



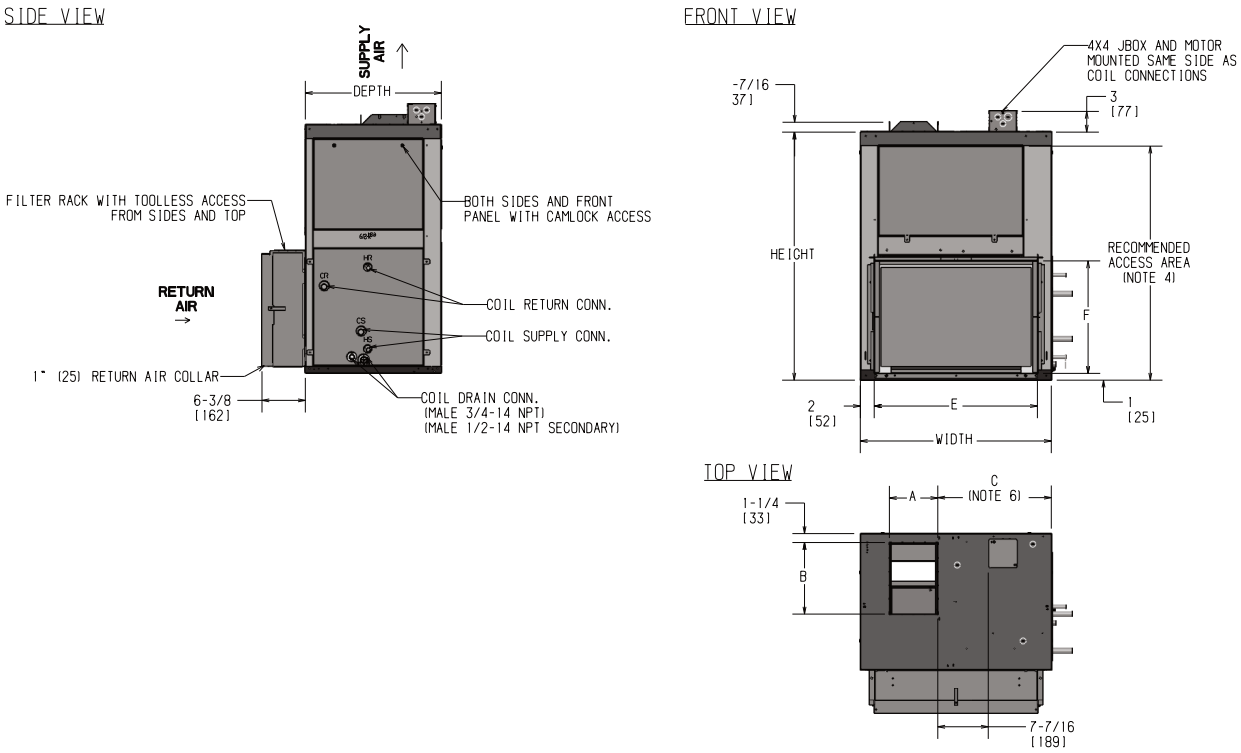
HBD Unit with Optional Motor Controls



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)

Physical Data

VBA Basic Unit – Vertical Belt Drive



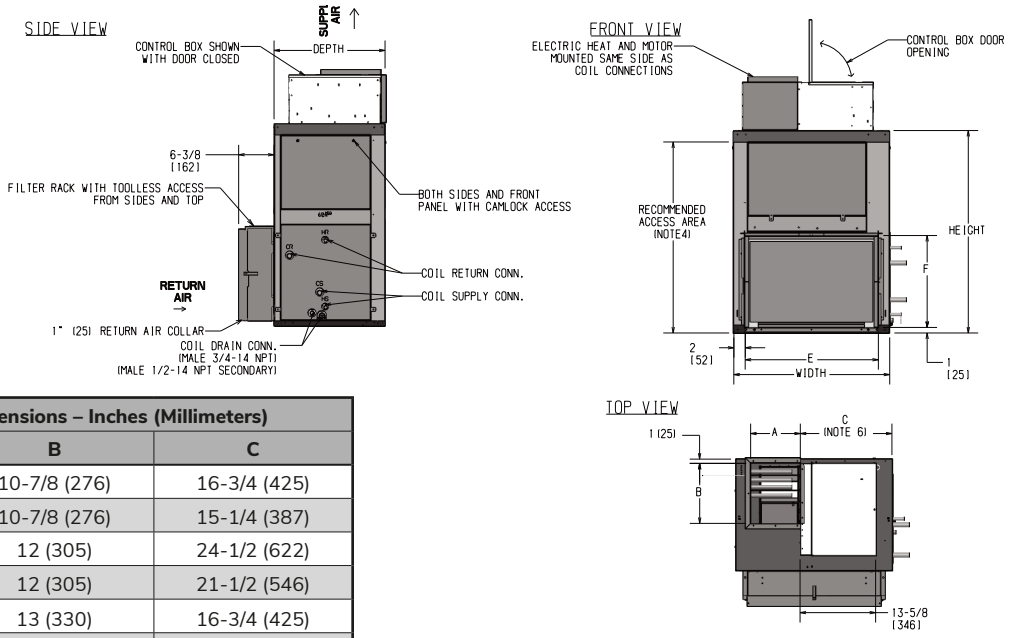
Unit Size	Fan Size	Depth	Width	Height	Supply Duct			Return Duct	
					A	B	C	E	F
06	9 x 4	20 (508)	28 (711)	36-1/2 (927)	7-1/8 (181)	10-1/2 (267)	16-3/4 (425)	24 (610)	16-1/2 (419)
08	9 x 6	20 (508)	28 (711)	36-1/2 (927)	8-1/2 (216)	10-1/2 (267))	15-1/4 (387)	24 (610)	16-1/2 (419)
10	10 x 4	22 (559)	37 (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 +/- ¼-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. Dimensions in parenthesis are in millimeters.
6. "C" dimension is measured from coil side of unit.
7. Product specifications are subject to change without notice.

Drawing is provided for reference only. Dimensions may vary with options ordered. Consult IEC website for submittal drawings.

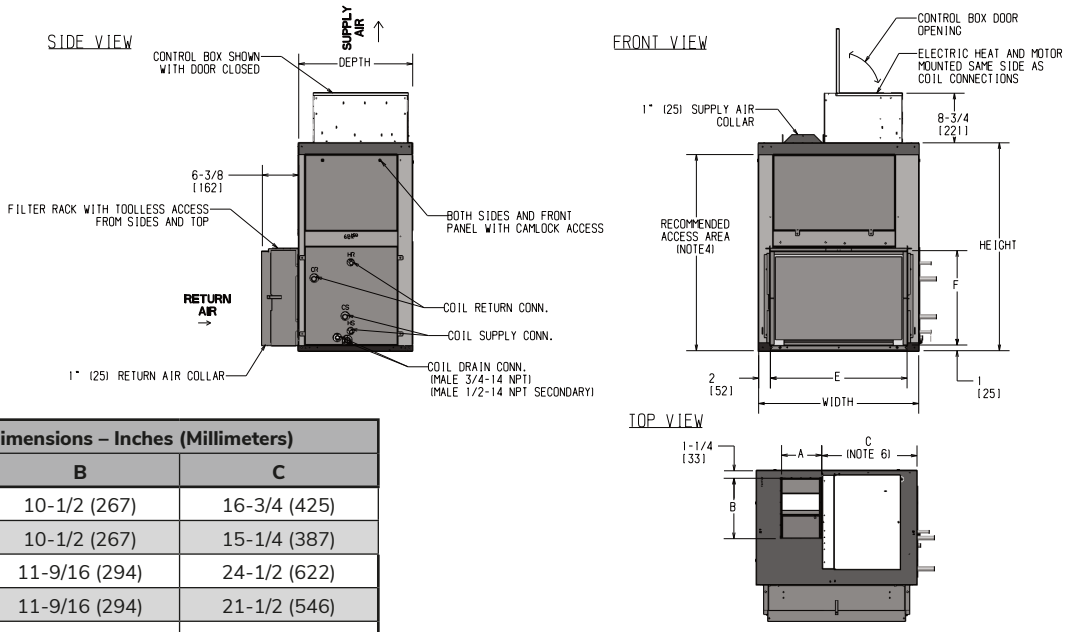
Physical Data

VBA Unit with Optional Electric Heat



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)

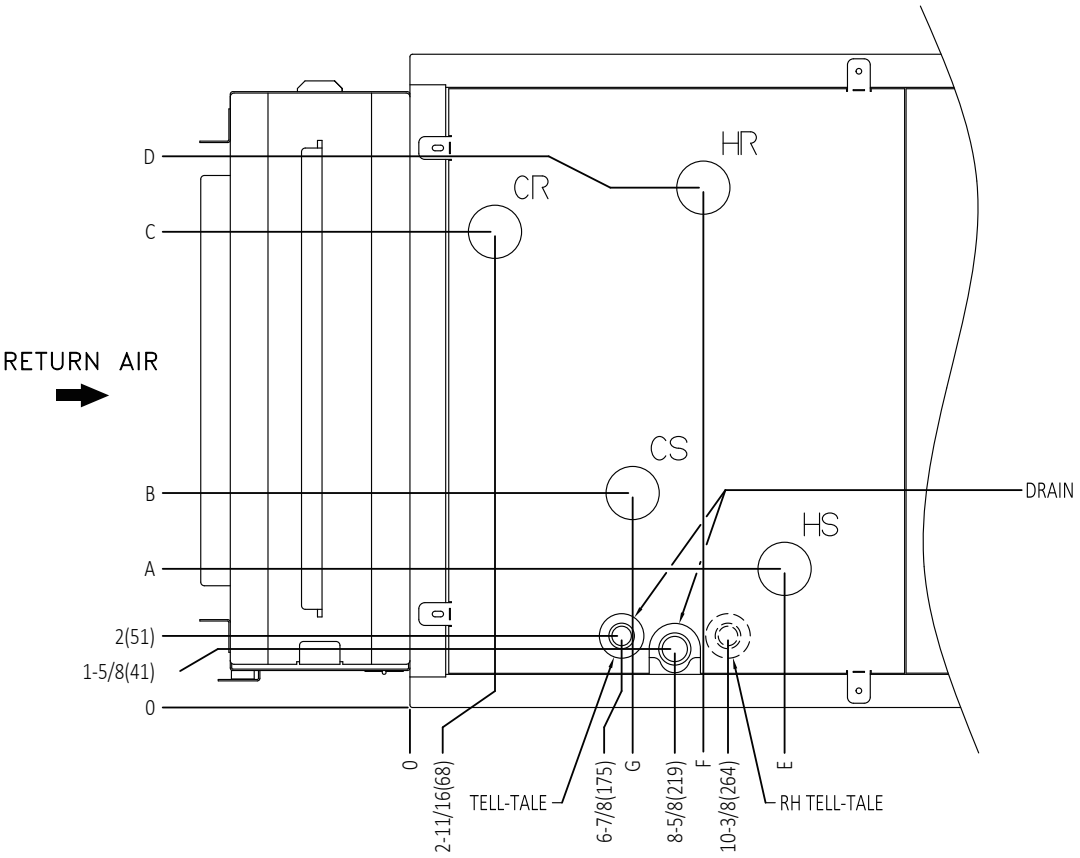
VBA Unit with Optional Motor Controls



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)

Physical Data Stub-Out Location

Piping Connection Location (Centerline to Centerline): Hydronic Cooling and Heating Coils



CR - Cold Water Return
HR - Hot Water Return
CS - Cold Water Supply
HS - Hot Water Supply
RH - Right Hand
LH - Left Hand

Horizontal, left hand unit with re-heat coil shown.

Coil Header Connection Size										
Unit Size	DIMENSIONS - INCHES (MILLIMETERS)									
	8 Row		6 Row		4 Row		2 Row HW		1 Row HW	
	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)

Physical Data Stub-Out Location

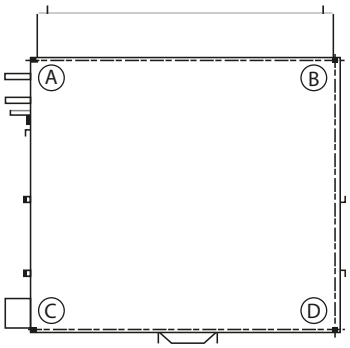
Piping Connection Location (Centerline to Centerline): Hydronic Cooling and Heating Coils

Unit Size	Coil Rows		DIMENSIONS - INCHES (MILLIMETERS)						
	Cool	Heat	A	B	C	D	E	F	G
06/08	4	–	–	6-1/8 (155.575)	12-3/4 (323.850)	–	–	–	5-15/16 (150.813)
		1	3-1/2 (88.900)			15-1/2 (393.700)	7 (177.800)	7 (177.800)	
		2	3-13/16 (96.838)			15-13/16 (401.638)	7-9/16 (192.088)	7-9/16 (192.088)	
	6	–	–			–	–	–	8-1/8 (206.375)
		1	3-1/2 (88.900)			15-1/2 (393.700)	9-3/16 (233.363)	9-3/16 (233.363)	
		2	3-13/16 (96.838)			15-13/16 (401.638)	9-3/4 (247.650)	9-3/4 (247.650)	
	8	–	–			–	–	–	10-1/4 (260.350)
10/12	4	–	–	7-3/4 (196.850)	14-3/8 (365.125)	–	–	–	5-15/16 (150.813)
		1	5-1/8 (130.175)			17-1/8 (434.975)	7 (177.800)	7 (177.800)	
		2	5-7/16 (138.113)			17-7/16 (442.913)	7-9/16 (192.088)	7-9/16 (192.088)	
	6	–	–			–	–	–	8-1/8 (206.375)
		1	5-1/8 (130.175)			17-1/8 (434.975)	9-3/16 (233.363)	9-3/16 (233.363)	
		2	5-27/61 (138.243)			17-7/16 (442.913)	9-3/4 (247.650)	9-3/4 (247.650)	
	8	–	–			–	–	–	10-1/4 (260.350)
16	4	–	–	7-3/4 (196.850)	15-5/8 (396.875)	–	–	–	5-15/16 (150.813)
		1	LH 10-5/8 (269.875)	7-3/4 (196.850)		12 (304.800)	9-5/8 (244.475)	7 (177.800)	
			RH 13-3/8 (339.725)				9-5/8 (244.475)	7 (177.800)	
		2	12 (304.800)	7 (177.800)	16-3/8 (415.925)	13-5/8 (346.075)	10-3/8 (263.525)	7-9/16 (192.088)	
	6	–	–	7-3/4 (196.850)	15-5/8 (396.875)	–	–	–	8-1/8 (206.375)
		1	LH 10-5/8 (269.875)	7-3/4 (196.850)		12 (304.800)	11-13/16 (300.038)	9-3/16 (233.363)	
			RH 13-3/8 (339.725)				11-13/16 (300.038)	9-3/16 (233.363)	
		2	12 (304.800)	7 (177.800)	16-3/8 (415.925)	13-5/8 (346.075)	12-1/2 (317.500)	9-3/4 (247.650)	
	8	–	–	9-1/2 (241.300)	15-5/8 (396.875)	–	–	–	10-1/4 (260.350)
20	4	–	–	7-13/16 (198.438)	18-3/16 (461.963)	–	–	–	5-15/16 (198.438)
		1	LH 11-15/16 (303.213)	7-13/16 (198.438)		13-5/16 (338.138)	9-5/8 (244.475)	7 (177.800)	
			RH 14-11/16 (373.063)						
		2	11-9/16 (293.688)	7-7/8 (200.025)		15-13/16 (401.638)	9-1/16 (230.188)		5 (127.000)
	6	–	–	7-13/16 (198.438)		–	–	–	8-1/8 (206.735)
		1	LH 11-15/16 (303.213)	7-13/16 (198.438)		13-5/16 (338.138)	11-13/16 (300.038)	9-3/16 (233.363)	
			RH 14-11/16 (373.063)						
		2	11-9/16 (293.688)	7-7/8 (200.025)		15-13/16 (401.638)	11-1/4 (285.750)		7-1/8 (180.975)
	8	–	–	7-13/16 (198.438)		–	–	–	10-1/4 (260.350)
30/40	4	–	–	5-15/16 (150.813)	26-5/16 (668.338)	–	–	–	5-15/16 (150.813)
		1	7-1/16 (179.388)			25-13/16 (655.638)	9 (228.600)	7 (177.800)	4-7/8 (123.825)
		2	10-5/16 (261.938)			23-13/16 (604.838)	9-1/8 (231.775)		
	6	–	–			–	–	–	8-1/8 (206.375)
		1	7-1/16 (179.388)			25-13/16 (655.638)	11-1/8 (282.575)	9-1/8 (231.775)	7-1/16 (179.388)
		2	10-5/16 (261.938)			23-13/16 (604.838)	11-5/16 (287.338)		
	8	–	–			–	–	–	10-1/4 (260.350)

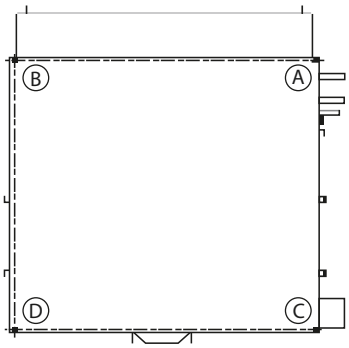
Distributed Weight Calculations

The following operating weight information is based on 8-row water-filled coils and double wall cabinet construction. For different coil and cabinet options, use the weight correction factor table.

Horizontal Units (Top View)



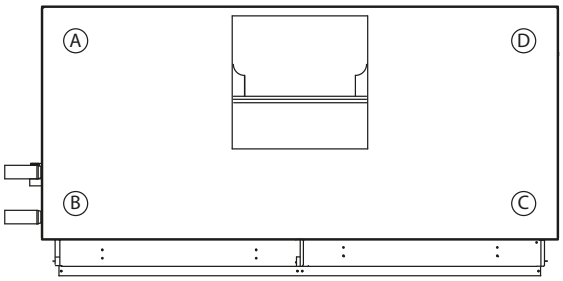
LH COIL



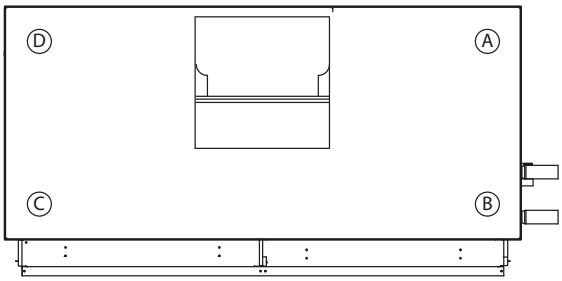
RH COIL

HBD Unit	No Electric Heat (lb)					With Electric Heat (lb)				
	A	B	C	D	Total	A	B	C	D	Total
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

Vertical Units (Top View)



LH COIL



RH COIL

VBA Unit	No Electric Heat (lb)					With Electric Heat (lb)				
	A	B	C	D	Total	A	B	C	D	Total
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

Distributed Weight Calculations

Total Weight Unit Correction Factor (lb) – HBD/VBA

The weights on the previous page are for 8-row water-filled coils and double wall construction. For a different number of rows, total unit weight can be determined by:

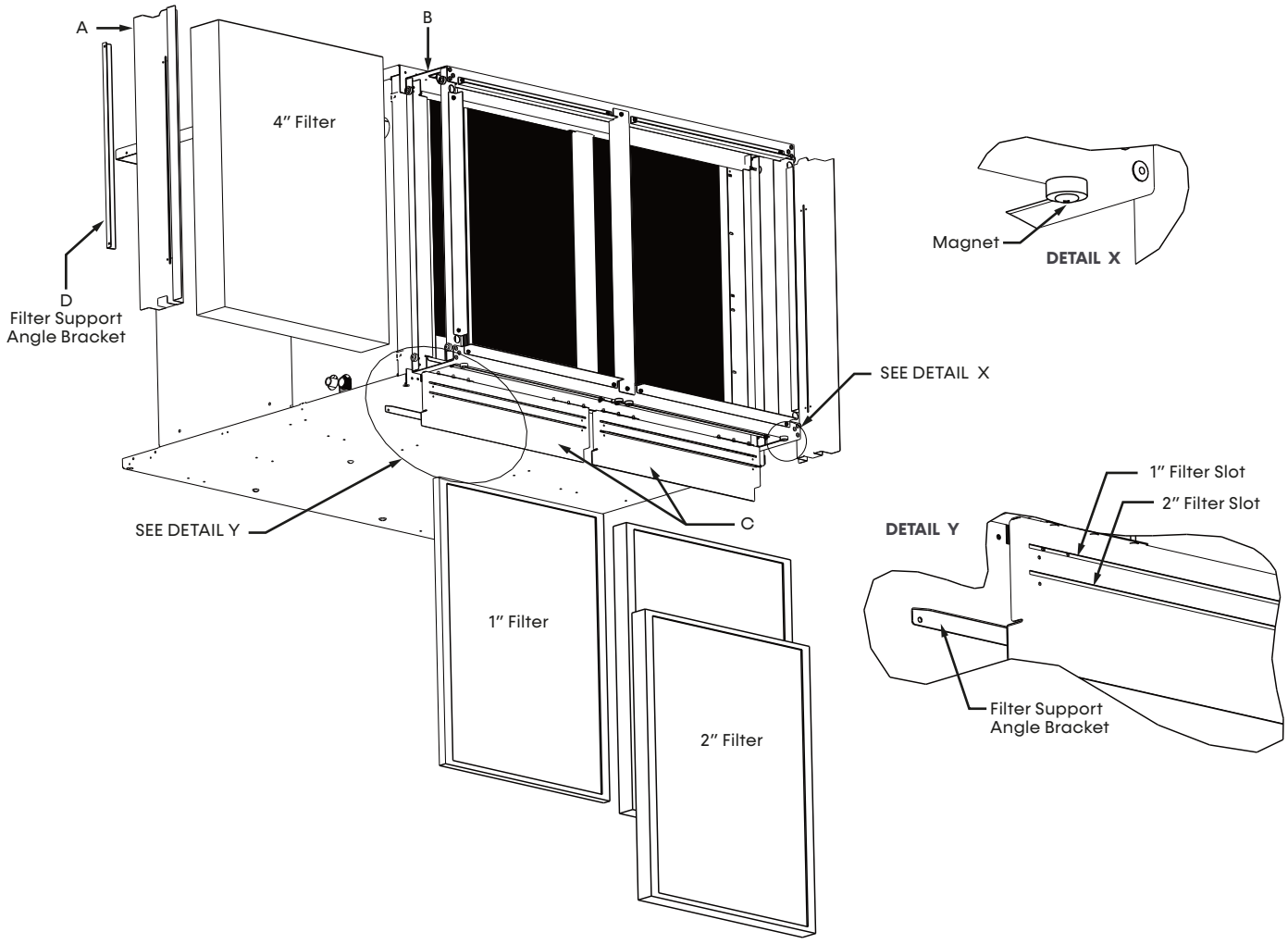
Total unit weight can be adjusted by:

a. Identify the size of unit and number of rows.
b. Use the tables on page 38 to find the total unit weight.
c. From the table below, identify the correction factor and deduct this factor from the total weight

Options	6	8	10	12	16	20	30	40
4-Row Coil	-21	-21	-28	-28	-39	-46	-74	-98
5-Row Coil	-16	-16	-21	-21	-29	-35	-55	-74
6-Row Coil	-11	-11	-14	-14	-20	-23	-37	-49
7-Row Coil	-5	-5	-7	-7	-10	-12	-18	-25
Single Wall Construction	-31	-31	-40	-40	-47	-58	-67	-82

NOTES: 1. Unit weights (shown in pounds), ± 10%, are based on the largest water-filled coil and a 1 HP motor.

HBD Filter Rack Design



Filters

Filters

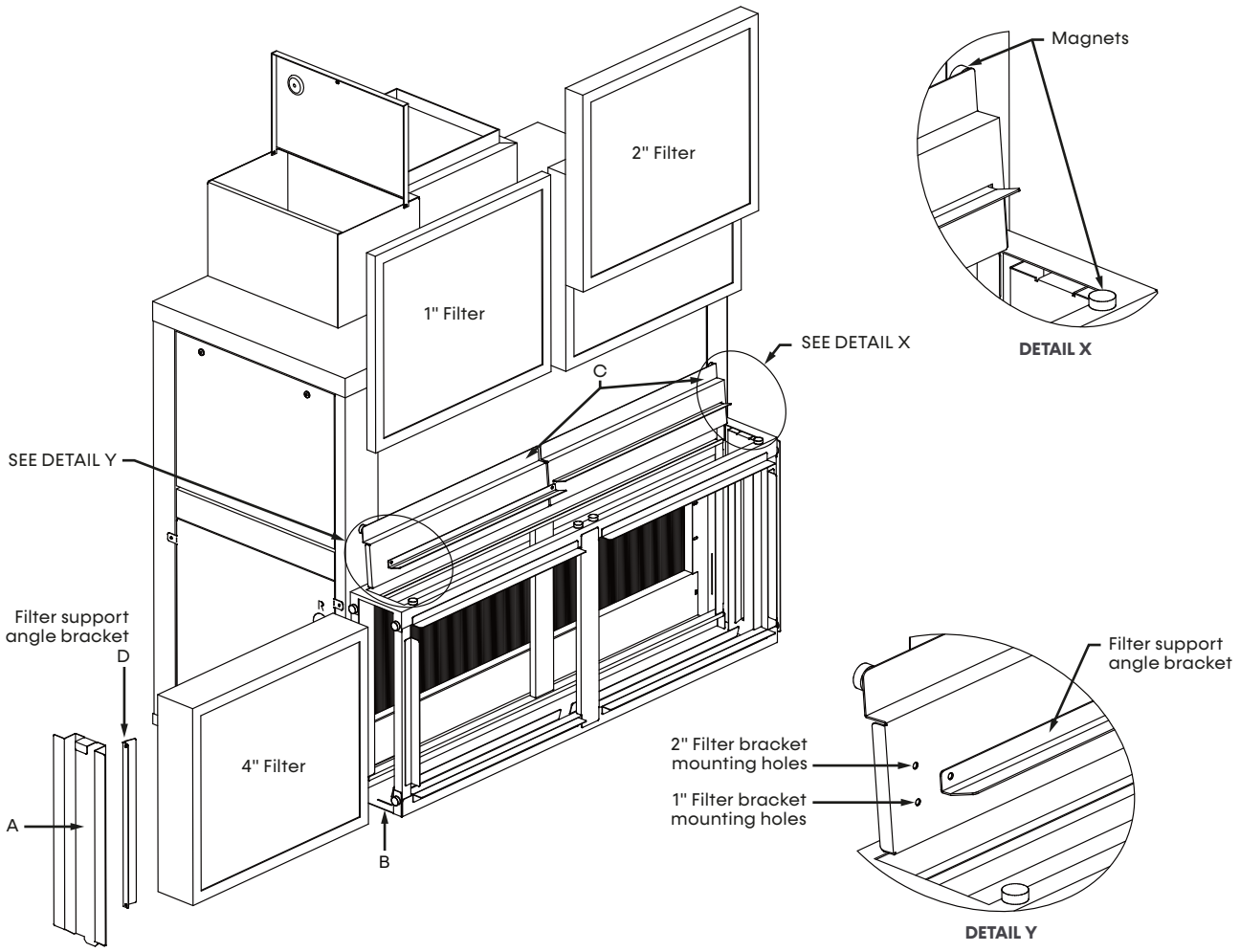
The Belt Drive cabinet model unit has a 2-inch non-woven synthetic pleated filter furnished as standard equipment.

Unit Size	Filter Quantity	Nominal Filter Sizes – Inches (Millimeters)
		HBD/VBA
06	1	16-1/2" x 24" (419 x 610)
08	1	16-1/2" x 24" (419 x 610)
10	1	18-1/4" x 33" (464 x 838)
12	1	18-1/4" x 33" (464 x 838)
16	2	18-1/4" x 21-1/2" (464 x 546)
20	2	20-1/2" x 22" (521 x 559)
30	2	29" x 22" (737 x 559)
40	2	29" x 29" (737 x 737)

Universal Filter Rack Design - Features & Benefits

- Side and bottom filter removal for HBD (See previous page)
- Side and top filter removal for VBA (Below)
- No tools needed for easy filter change
- Choice of 1-, 2- or 4-inch filters
- Easy to modify in the field for either 1-, 2- or 4-inch filters
- Robust design eliminates unit's sagging

VBA Filter Rack Design



Bipolar Ionizer

Bipolar Ionizer Specifications

SPECIFICATIONS:

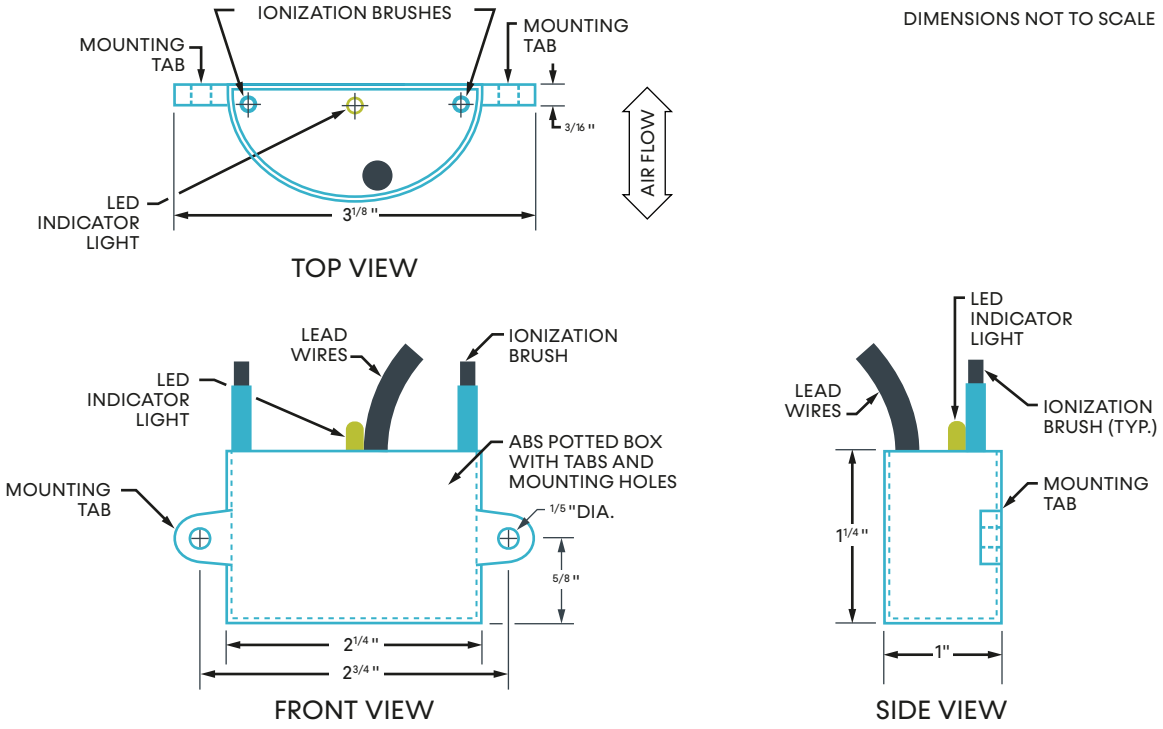
Airflow Capacity: ..... 2,400 CFM
Pressure Drop: ..... Less than 0.01 In. WG
Housing Material: ..... ABS
Weight: ..... 0.2 lbs.
Maximum Operating Temperature: ..... 200° F (93°C)
Electrical:
- Voltage: 24VAC (602)
- Power Consumptions: ..... Less than 1 watt
- Frequency: ..... 50/60 hertz
- Over Current Protection: . 500mA Glass Cartridge Fuse
- Lead Wires ..... .50-inch (L)

Ionization Output:
- Mode of Operation ..... .Needlepoint Type
- Needle Configuration: ..... Brush Type

DIMENSIONS: See Figure 1

APPROVALS: Intertek/ETL Standard UL 867

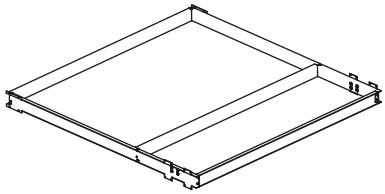
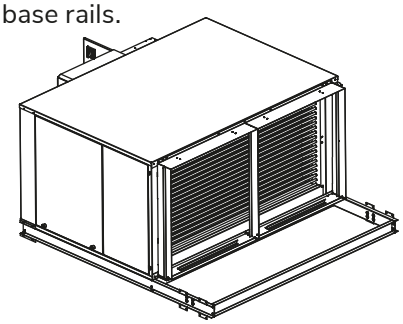
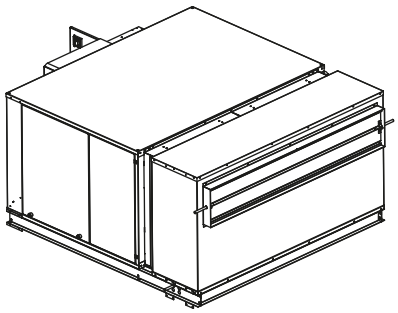
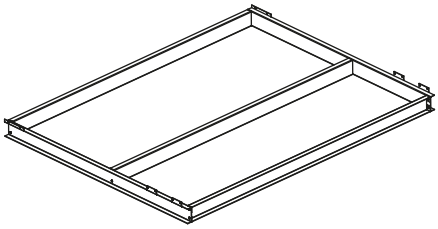
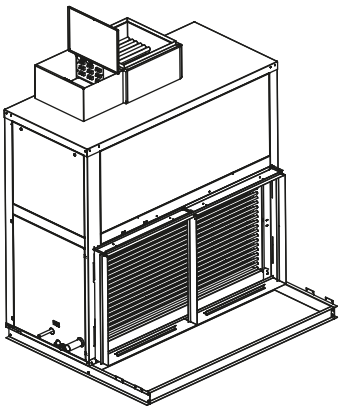
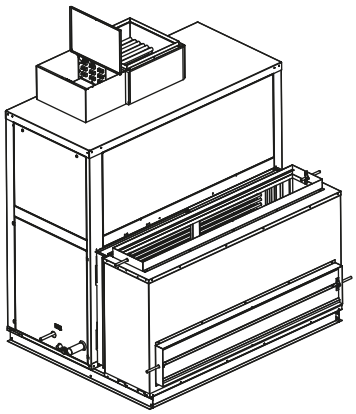
Figure 1.



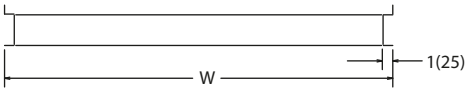
Options – Mixing Box

Mixing Box with Base Rails

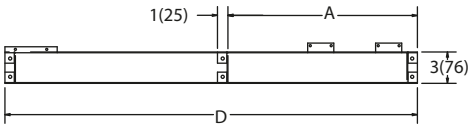
Mixing box option includes 1.) knockdown base rails for field assembly, and 2.) pre-assembled mixing box. Base rails are letter coded for ease of assembly and all hardware required for assembly is included. Linkage kit consists of two crank arms, two swivels, and either a 25-inch (sizes 06-16) or a 34-inch (sizes 20-40) length of 5/16-inch rod provided for field installation of actuator. Consult factory for the 24V damper actuator option. Mixing box option adds 3 inches to the unit height due to the base rails.

Base Rail Details



FRONT VIEW



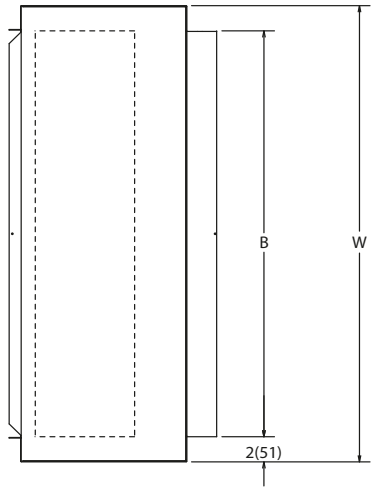
SIDE VIEW

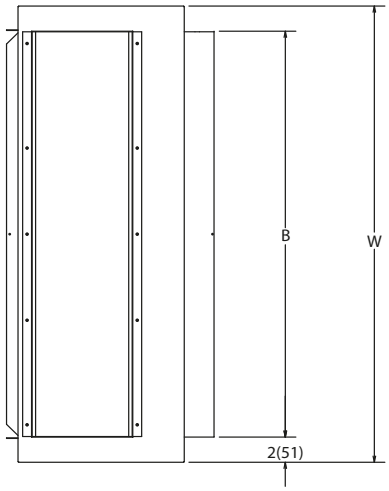
Horizontal Units – Dimensions - Inches (Millimeters)			
Unit Type and Size	W	D	A
HBD06	28 (711)	53.6 (1361)	18.1 (460)
HBD08	28 (711)	53.6 (1361)	18.1 (460)
HBD10	37 (940)	57.2 (1453)	20.1 (511)
HBD12	37 (940)	57.2 (1453)	20.1 (511)
HBD16	47 (1194)	57.4 (1458)	20.1 (511)
HBD20	48 (1219)	59.8 (1519)	20.1 (511)
HBD30	48 (1219)	61.8 (1570)	22.1 (561)
HBD40	62 (1575)	65.0 (1651)	22.1 (561)

Vertical Units – Dimensions - Inches (Millimeters)			
Unit Type and Size	W	D	A
VBA06	28 (711)	37.5 (953)	18.1 (460)
VBA08	28 (711)	37.5 (953)	18.1 (460)
VBA10	37 (940)	41.5 (1054)	20.1 (511)
VBA12	37 (940)	41.5 (1054)	20.1 (511)
VBA16	47 (1194)	41.5 (1054)	20.1 (511)
VBA20	48 (1219)	43.5 (1105)	20.1 (511)
VBA30	48 (1219)	49.5 (1257)	22.1 (561)
VBA40	62 (1575)	49.5 (1257)	22.1 (561)

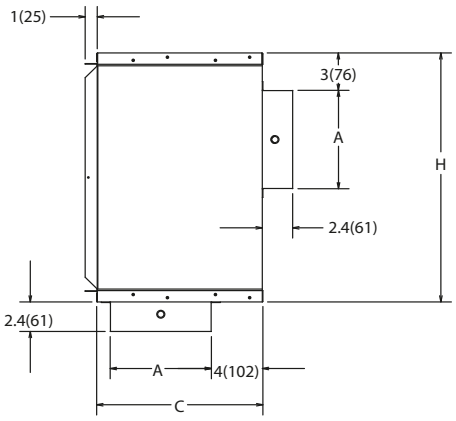
Options – Mixing Box

Mixing Box Details

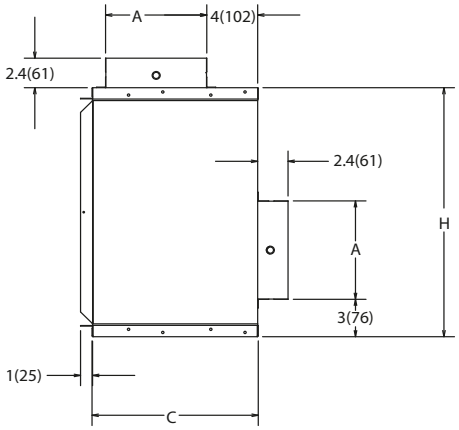




TOP VIEWS



BTM/REAR INLET - HBD
BTM/FRONT INLET FOR - VBA



TOP/REAR INLET - HBD
TOP/FRONT INLET FOR - VBA

RIGHT HAND SIDE VIEWS

Dimensions - Inches (Millimeters)					
Unit Size	**H**	**W**	**A**	**B**	**C**
06	18.5 (470)	28 (711)	6 (152)	24 (610)	11 (279)
08	18.5 (470)	28 (711)	6 (152)	24 (610)	11 (279)
10	20.25 (514)	37 (940)	8 (203)	33 (838)	13 (330)
12	20.25 (514)	37 (940)	8 (203)	33 (838)	13 (330)
16	20.25 (514)	47 (1194)	8 (203)	43 (1092)	13 (330)
20	22.75 (578)	48 (1219)	8 (203)	44 (1118)	13 (330)
30	31 (787)	48 (1219)	10 (254)	44 (1118)	15 (381)
40	31 (787)	62 (1575)	10 (254)	58 (1473)	15 (381)

Standard Features and Options

Features and Options	Standard	Factory	Field Installed	Factory Special
Air Flow Arrangement				
Rear Return/Front Supply (HBD)	X			
Front Return/Top Supply (VBA)	X			
Coil Options				
4-Row 2-Pipe	X			
6 or 8-Row 2-Pipe		X		
4/1 or 4/2-Row 4-Pipe (CW/HW)		X		
6/1 or 6/2-Row 4-Pipe (CW/HW)		X		
Hydronic Heating Coils in preheat position		X		X
4/1 or 4/2-Row 4-Pipe (CW/Steam)		X		X
6/1 or 6/2-Row 4-Pipe (CW/Steam)		X		X
Direct Expansion (DX) – 2-Pipe Systems Only		X		
Anti-Corrosive Epoxy Coating		X		
Connection				
Right	X			
Left	X			
Drain Pan				
Removable, double sloped, stainless steel	X			
Fin Material				
Aluminum w/ Galvanized End Sheets	X			
Copper w/ Stainless Steel End Sheets and Bottom Coil Baffle		X		X
Alternate fins per inch		X		X
Electric Heat (1-40 KW, Controls, Stages)		**X**		
Indoor Air Quality				
2 Sets of 1" Throwaway		X		
1" MERV 8 Pleated		X		
2" MERV 8 Pleated	X			
2" MERV 11 + 2" Pleated Prefilter		X		
4" MERV 11		X	X	
4" MERV 13		X	X	
Biopolar Ionization		X		
Insulation				
1" Standard Fiberglass	X			
1" Premium IAQ Fiberglass (not available with Double Wall)		X		
1" Foil Face (not available with Double Wall)		X		
1" Closed Cell		X		
Cabinet Construction				
18 gauge Single Wall	X			
Double Wall (with solid or perforated liner)		X		
Double Wall with antimicrobial treatment				X
Seismic Structural Upgrade (not available with Double Wall)		X		

Table continued on next page

Standard Features and Options

Table continued on next page

Features and Options	Standard	Factory	Field Installed	Factory Special
Motor Type				
ODP Single Speed, 1-Phase	X			
ODP Single Speed, 3-Phase	X			
Premium Efficency Inverter Duty, 3-Phase		X		
Motor Voltage				
120-208-230-277/1/60	X			
208-230-460/3/60	X			
Paint Options				
Bright White, Arctic White, Polar White, Flat Black, Ermine Gray, Champagne Beige, Toffee Brown		X		
Special Color				X
Options				
Mixing Box			X	
24V Damper Actuator for mixing box			X	X
24V Condensate Float Switch		X		
Low Temperature Limit Switch		X		X
Filter Change Indicator		X		X
Basic Motor Controls		X		
Deluxe Motor Controls		X		
Interlocking Disconnect Switch		X		

Standard Features and Options

Factory Installed Options

Controls:

Motor Controls – Units with no electric heat

Standard units have the motors wired to the J box. Two optional controls schemes are available:

- Basic motor control (24V) include the transformer, motor contactor and a terminal strip.
- Deluxe motor controls adds motor fusing and interlocking disconnect switch to the basic control package

Basic motor controls are recommended whenever valve packages are orders.

Electric Heat Controls

Electric heaters come standard with a transformer, heater and motor contactors, motor and electric heat fusing, and a terminal strip.

An optional interlocking disconnect switch is available.

Condensate Float Switch

A water-level sensing device designed to prevent drain pan overflow. The standard switch is wired normally closed. **Switches are available only in 24V.** It is recommended at least basic motor control is ordered if this option is required.

Field Installed Options

Mixing Boxes

Mixing boxes can be used when outside air is required. Mixing boxes come with base rails. Refer to the drawings on pages 44 and 45 for additional information.

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Belt Drive Series
FAN COIL TECHNICAL CATALOG

Contact your local IEC Sales Representative for further details and pricing applicable to this product. Visit our website (www.iec-okc.com) to find your local IEC Sales Rep.

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