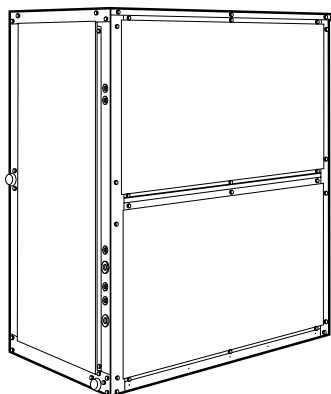


BAC / BHC SERIES

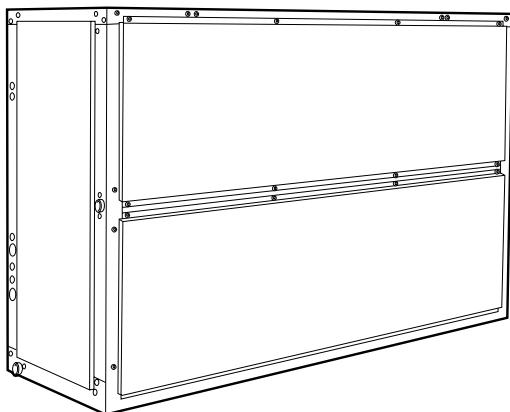
7- 1/2 to 20 Ton Air Handlers

TEMPSTAR®
Heating and Cooling Products

3 Phase, 50 Hz



BHC090, 120



**BAC240
BHC180**



COMMERCIAL SPLIT SYSTEM AIR HANDLER

FEATURES

CONSTRUCTION

- Die-formed galvanized steel casings provide durability and structural integrity.

HIGH STATIC DESIGN

- High static design meets a wider range of applications than competitive packaged air handler lines.

HORIZONTAL OR VERTICAL APPLICATIONS

- Multiposition design can be installed horizontally or vertically without modification.

COPPER TUBE/ALUMINUM FIN EVAPORATOR COILS

- Cooling coils with mechanically-bonded fins provide peak heat transfer

THERMAL EXPANSION VALVES

- Standard factory-installed thermostatic expansion valves (TXVs) on BAC units; BHC units include TXVs and check valves for heat pump applications.

COOLING COILS

- With mechanically bonded fins that provide peak heat transfer.

PITCHED DRAIN PAN

- Drain pan can be adjusted for a right or left hand connection to provide positive drainage and prevent standing condensate.

THERMAL INSULATION

- Insulation and drain pan contains an immobilized anti-microbial agent to inhibit the growth of bacteria and fungi. The anti-microbial agent is registered with the U.S. Environmental Protection Agency (EPA).

AIR FILTERS

- The two in. (51 mm) factory installed disposable filters remove dust and airborne particles from the occupied space to serviceable components

ACCESSORY ELECTRIC HEAT KITS

- 5 - 50 kW

SERVICE ACCESS

- Easy installation and maintenance; removal of one side panel allows access to serviceable components.

RESIDENTIAL AND COMMERCIAL SYSTEMS • SPLIT SYSTEMS • PACKAGED AIR CONDITIONERS • COMBINATION GAS / ELECTRIC UNITS • HEAT PUMPS • AIR HANDLERS • MANUFACTURED HOME AIR CONDITIONERS • GAS, OIL AND ELECTRIC FURNACES)

International Comfort Products
650 Heil-Quaker Avenue, Lewisburg, TN 37091

508 21 1502 01

2/2/01

ADDITIONAL FEATURES:

Cooling coils prevent the build-up of humidity in the room, even during part-load conditions. Unit sizes of 10 tons and above feature dual-circuit face-split coils.

Economy

All packaged air handlers have low initial costs, and they continue to save money by providing reduced installation expense and energy-efficient performance.

Quick installation is ensured by the multiposition design. Units can be installed in either the horizontal or vertical (upflow) configuration without modifications. All units have drain-pan connections on both sides, and pans can be pitched for right- or left-hand operation with a simple adjustment. Fan motors and contactors are pre-wired and TXVs are factory-installed on all models.

High efficiency, precision-balanced fans minimize air turbulence, surging, and unbalanced operation, thereby cutting operating expenses.

Economizer accessory precisely controls the blend of outdoor air and room air to achieve comfort levels. When the outside air enthalpy is suitable, outside air dampers can fully open to provide “free” cooling.

Rugged dependability

Die-formed galvanized steel panels ensure structural integrity under all operating conditions.

Galvanized steel fan housings are securely mounted to a die-formed galvanized steel deck.

Rugged pillow-block bearings (15 & 20 Ton) are securely fastened to the solid steel fan shaft with split collets and clamp locking devices. Smaller unit sizes have spider-type bearings.

Coil flexibility

All models (direct-expansion coils) and have galvanized steel casings; inlet and outlet connections are on the same end.

Direct expansion (DX) coils are designed for use with Refrigerant 22 and have copper tubes mechanically bonded to aluminum sine-wave fins. Direct-expansion coils include matched, factory-installed thermostatic expansion valves (TXVs) with matching distributor nozzles.

Easier installation and service

The multi-position design and component layout help you to get the unit installed and running quickly. The DX coils have factory-installed TXVs with matching distributor nozzles. Units can be converted from horizontal to vertical operation by simply repositioning the unit. Drain pan connections are duplicated on both sides of the unit. The filters, motor, drive, TXVs, and coil connections are easily accessed by removing a single side panel.

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MODEL NUMBER IDENTIFICATION GUIDE							
MODEL NUMBER	B	H	C	090	Z	1	A
PRODUCT FAMILY Air Handler Units							Engineering Digit
TYPE H= Heat Pump A = Air Conditioner							BLOWER DRIVE OPTIONS 1 = Medium Static Drive
DESIGN SERIES							VOLTAGE Z = 400-3-50
							COOLING CAPACITY (NOMINAL BTUH) 090 = 7-1/2 120 = 10 Ton 180 = 15 Ton 240 = 20 Ton

UNIT SIZE AVAILABILITY BY CAPACITY - Ton

UNIT	7-1/2	10	15	20
BAC				X
BHC	X	X	X	

MODEL NUMBERS	
AIR CONDITIONER MODELS - MED. STATIC	HEAT PUMP MODELS - MED. STATIC
BAC240Z1A	BHC090Z1A
	BHC120Z1A
	BHC180Z1A

PHYSICAL DATA: BAC SERIES - ENGLISH	
UNIT BAC	240
NOMINAL CAPACITY (Tons)	20
OPERATING WEIGHT (lb)	
Base Unit with TXV	690
Plenum	225
FANS	
Qty...Diam. (in.)	2...15
Nominal Airflow (cfm)	8000
Airflow Range (cfm)	6000-10,000
Nominal Motor Hp (Standard Motor) *	
400-3-50	5.0
Motor Speed (rpm)	
400-3-50	1425
REFRIGERANT	
R-22	
Operating charge (lb) (approx per circuit)†	3.5/3.5
DIRECT-EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine-Wave Fins
Max Working Pressure (psig)	435
Face Area (sq ft)	19.88
No. of Splits	2
Split Type...Percentage	Face...50/50
No. of Circuits per Split	13
Rows...Fins/in.	3...17
STEAM COIL	
Max Working Pressure (psig at 400 F)	175
Total Face Area (sq ft)	13.33
Rows...Fins/in.	1...10
HOT WATER COIL	
Max Working Pressure (psig)	150
Total Face Area (sq ft)	13.33
Rows...Fins/in.	2...8.5
Water Volume	
(gal)	13.9
(ft ³)	1.85
PIPING CONNECTIONS	
Quantity...Size (in.)	
DX Coil — Suction (ODF)	2...1 1/8
DX Coil — Liquid Refrigerant (ODF)	2...5/8
Steam Coil, In (MPT)	1...2 1/2
Steam Coil, Out (MPT)	1...1 1/2
Hot Water Coil, In (MPT)	1...2
Hot Water Coil, Out (MPT)	1...2
Condensate (PVC)	1...1 1/4 ODM/1 IDF
FILTERS	
Throwaway — Factory Supplied	
Quantity...Size (in.)	4...16 x 20 x 2 4...16 x 24 x 2
Access Location	Right or Left Side

* Refer to alternate Fan Motor Data Table, pages 33 and 34, for alternate motor data.

LEGEND

DX – Direct Expansion

TXV – Thermostatic Expansion Valve

†Units are shipped without refrigerant charge.

PHYSICAL DATA: BAC SERIES - SI	
UNIT BAC	240
NOMINAL CAPACITY (kW)	70
OPERATING WEIGHT (kg)	
Base Unit with TXV	313
Plenum	102
FANS	
Qty...Diam. (mm)	2...381
Nominal Airflow (L/s)	3775
Airflow Range (L/s)	2831-4719
Nominal Motor kW (Standard Motor) *	
400-3-50	3.73
Motor Speed (r/s)	
400-3-50	23.8
REFRIGERANT	R-22
Operating charge (kg) (approx per circuit)†	1.59/1.59
DIRECT-EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine-Wave Fins
Max Working Pressure (kPag)	2999
Face Area (sq m)	1.85
No. of Splits	2
No. of Circuits per Split	13
Split Type...Percentage	Face...50/50
Rows...Fins/m	3...670
STEAM COIL	
Max Working Pressure (kPag at 204.4 C)	1207
Total Face Area (sq m)	1.24
Rows...Fins/m	1...394
HOT WATER COIL	
Max Working Pressure (kPag)	1034
Total Face Area (sq m)	1.24
Rows...Fins/m	2...335
Water Volume	
(L)	52.6
(m³)	0.052
PIPING CONNECTIONS**	
Quantity...Size (in.)	
DX Coil — Suction (ODF)	2...1 ¹ / ₈
DX Coil — Liquid Refrigerant (ODF)	2... ⁵ / ₈
Steam Coil, In (MPT)	1...2 ¹ / ₂
Steam Coil, Out (MPT)	1...1 ¹ / ₂
Hot Water Coil, In (MPT)	1...2
Hot Water Coil, Out (MPT)	1...2
Condensate (PVC)	1...1 ¹ / ₄ ODM/1 IDF
FILTERS	Throwaway — Factory Supplied
Quantity...Size	4...406 x 508 x 51 4...406 x 610 x 51
Access Location	Right or Left Side

* Refer to alternate Fan Motor Data Table, pages 33 and 34, for alternate motor data.

LEGEND - DX - Direct Expansion, TXV - Thermostatic Expansion Valve

†Units are shipped without refrigerant charge.

**All piping sizes are OD inches; equivalent sizes in millimeters follow:

in.	mm
⁵ / ₈	15.9
1	25.4
1 ¹ / ₈	28.6
1 ¹ / ₄	31.8
1 ³ / ₈	34.9
1 ¹ / ₂	38.7
2	50.8
2 ¹ / ₈	54.0
2 ¹ / ₂	63.5

PHYSICAL DATA: BHC SERIES - ENGLISH			
UNIT BHC	090	120	180
NOMINAL CAPACITY (Tons)	7½	10	15
OPERATING WEIGHT (lb)			
Base Unit with TXV	385	427	713
Plenum	175	175	225
FANS			
Qty...Diam. (in.)	1...15	1...15	2...15
Nominal Airflow (cfm)	3000	4000	6000
Airflow Range (cfm)	2250-3750	3000-5000	4500-7500
Nominal Motor Hp (Standard Motor) *			
400-3-50	2.4	2.9	2.9
Motor Speed (rpm)			
400-3-50	1425	1425	1425
REFRIGERANT R-22			
Operating charge (lb) (approx per circuit)†	3.0	2.0/2.0	3.0/3.0
DIRECT-EXPANSION COIL Enhanced Copper Tubes, Aluminum Sine-Wave Fins			
Max Working Pressure (psig)	435		
Face Area (sq ft)	8.33	10.01	7.67
No. of Splits	1	2	2
Split Type...Percentage	—	Face...50/50	
No. of Circuits per Split	15	9	16
Rows...Fins/in.	3...15	4...15	4...15
STEAM COIL			
Max Working Pressure (psig at 400 F)	175		
Total Face Area (sq ft)	6.67	6.67	13.33
Rows...Fins/in.	1...9	1...9	1...10
HOT WATER COIL			
Max Working Pressure (psig)	150		
Total Face Area (sq ft)	6.67	6.67	13.33
Rows...Fins/in.	2...8.5	2...8.5	2...8.5
Water Volume			
(gal)	8.3		13.9
(ft³)	1.1		1.85
PIPING CONNECTIONS			
Quantity...Size (in.)			
DX Coil — Suction (ODF)	1...1⅛	2...1⅛	2...1⅛
DX Coil — Liquid Refrigerant (ODF)	1...⅝	2...⅝	2...⅝
Steam Coil, In (MPT)	1...2½	1...2½	
Steam Coil, Out (MPT)	1...1½	1...1½	
Hot Water Coil, In (MPT)	1...1½	1...1½	1...2
Hot Water Coil, Out (MPT)	1...1½	1...1½	1...2
Condensate (PVC)	1...1¼ ODM/1 IDF		
FILTERS Throwaway — Factory Supplied			
Quantity...Size (in.)	4...16 x 24 x 2		4...16 x 20 x 2 4...16 x 24 x 2
Access Location	Right or Left Side		

* Refer to alternate Fan Motor Data Table, pages 33 and 34, for alternate motor data.

LEGEND - DX - Direct Expansion, TXV - Thermostatic Expansion Valve

†Units are shipped without refrigerant charge.

PHYSICAL DATA: BHC SERIES - SI			
UNIT BHC	090	120	180
NOMINAL CAPACITY (kW)	26	35	52
OPERATING WEIGHT (kg)			
Base Unit with TXV	175	194	323
Plenum	80	80	102
FANS			
Qty...Diam. (mm)	1...381	1...381	2...381
Nominal Airflow (L/s)	1604	1888	2831
Airflow Range (L/s)	1203-2006	1416-2360	2124-3539
Nominal Motor kW (Standard Motor) *			
400-3-50	1.79	2.16	2.16
Motor Speed (r/s)			
400-3-50	23.8	23.8	23.8
REFRIGERANT R-22			
Operating charge (kg) (approx per circuit)†	1.36	0.91/0.91	1.36/1.36
DIRECT-EXPANSION COIL			
Max Working Pressure (kPag)	2999		
Face Area (sq m)	0.77	0.93	1.64
No. of Splits	1	2	2
No. of Circuits per Split	15	9	16
Split Type...Percentage	—	Face...50/50	
Rows...Fins/m	3...591	4...591	4...591
STEAM COIL			
Max Working Pressure (kPag at 204.4 C)	1207		
Total Face Area (sq m)	0.62	0.62	1.24
Rows...Fins/m	1...355	1...355	1...394
HOT WATER COIL			
Max Working Pressure (kPag)	1034		
Total Face Area (sq m)	0.62	0.62	1.24
Rows...Fins/m	2...335	2...335	2...335
Water Volume			
(L)	31.4		52.6
(m³)	0.031		0.052
PIPING CONNECTIONS**			
Quantity...Size (in.)			
DX Coil — Suction (ODF)	1...1 ¹ / ₈	2...1 ¹ / ₈	2...1 ¹ / ₈
DX Coil — Liquid Refrigerant (ODF)	1... ⁵ / ₈	2... ⁵ / ₈	2... ⁵ / ₈
Steam Coil, In (MPT)	1...2 ¹ / ₂	1...2 ¹ / ₂	
Steam Coil, Out (MPT)	1...1 ¹ / ₂	1...1 ¹ / ₂	
Hot Water Coil, In (MPT)	1...1 ¹ / ₂	1...1 ¹ / ₂	1...2
Hot Water Coil, Out (MPT)	1...1 ¹ / ₂	1...1 ¹ / ₂	1...2
Condensate (PVC)	1...1 ¹ / ₄ ODM/1 IDF		
FILTERS Throwaway — Factory Supplied			
Quantity...Size	4...406 x 610 x 51		4...406 x 508 x 51 4...406 x 610 x 51
Access Location	Right or Left Side		

* Refer to alternate Fan Motor Data Table, pages 33 and 34, for alternate motor data.

LEGEND - DX - Direct Expansion, TXV - Thermostatic Expansion Valve

†Units are shipped without refrigerant charge.

**All piping sizes are OD inches; equivalent sizes in millimeters follow:

in.	mm
⁵ / ₈	15.9
1	25.4
1 ¹ / ₈	28.6
1 ¹ / ₄	31.8
1 ³ / ₈	34.9
1 ¹ / ₂	38.7
2	50.8
2 ¹ / ₈	54.0
2 ¹ / ₂	63.5

OPTIONS AND ACCESSORIES

Field-installed accessories

Two-row hot water coils have copper tubes mechanically bonded to aluminum plate fins and non-ferrous headers.

One-row steam coil has copper tubes and aluminum fins. The Inner Distributing Tube (IDT) design provides uniform temperatures across the coil face. The steam coil has a broad operating pressure range; up to 175 psig (1207 kPag) at 400 F (204.4 C) and up to 300 psig (2069 kPag) at 300 F (148.9 C). The IDT steam coils are especially suited to applications where sub-freezing air enters the unit.

Electric resistance heat coils have an open-wire design and are mounted in a rigid frame. Safety cutouts for high temperature conditions are standard. Terminal block for single-point power connection is included.

Economizer (enthalpy controlled) provides ventilation air and “free” cooling if outside ambient temperature and

humidity are suitable. Can also be used with CO₂ sensors to help meet indoor air quality requirements.

Discharge plenum directs the air discharge directly into the occupied space; integral horizontal and vertical louvers enable redirection of airflow. Field assembly required.

Return-air grille provides a protective barrier over the return-air opening and gives a finished appearance to units installed in the occupied space.

Subbase provides a stable, raised platform and room for condensate drain trap connection for vertical floor-mounted units.

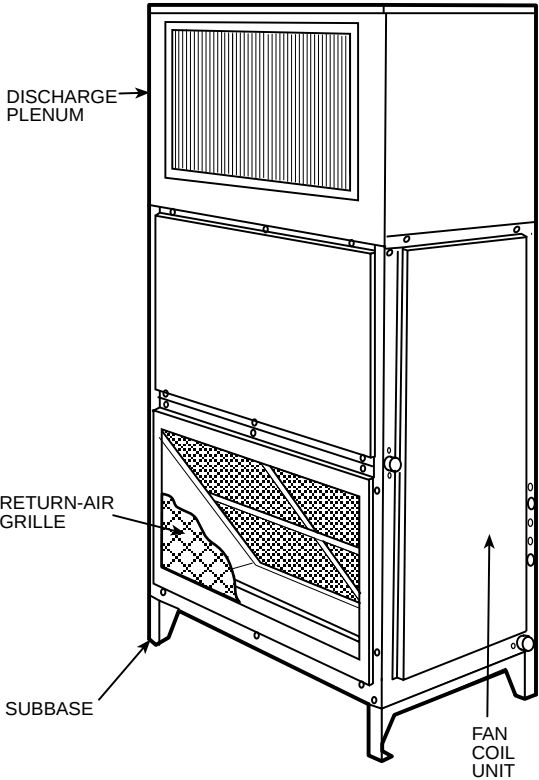
Overhead suspension package includes necessary brackets to support units in horizontal ceiling installations.

Condensate drain trap includes an overflow shutoff switch that can be wired to turn off the unit if the trap becomes plugged. Kit also includes a wire harness that can be connected to an alarm if desired. The transparent trap is designed for easy service and maintenance.

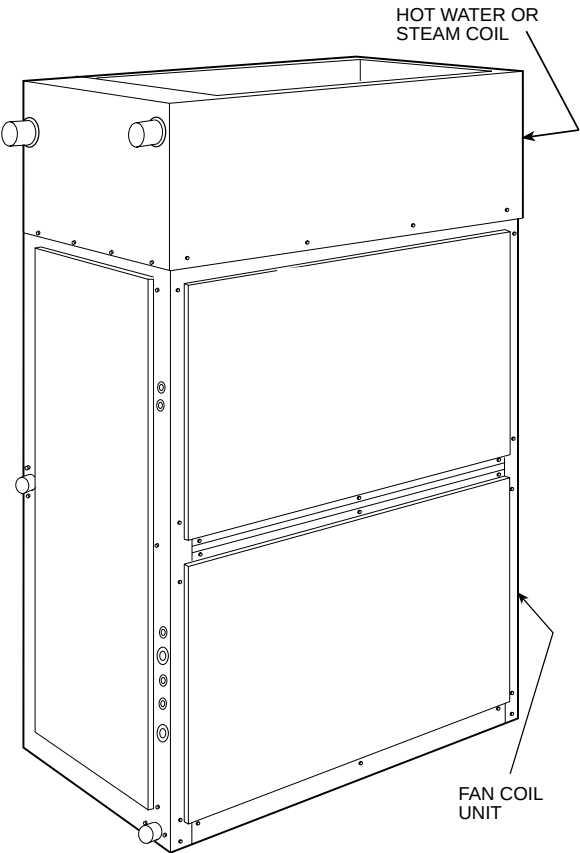
ACCESSORY MODEL NUMBERS ARE SHOWN ON PAGE 30.

OPTIONS AND ACCESSORIES

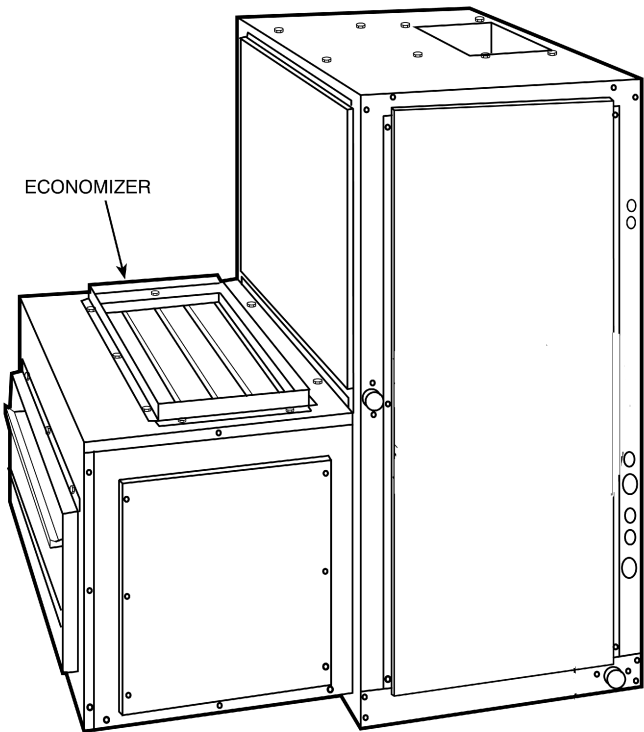
BAC WITH DISCHARGE PLENUM, RETURN-AIR GRILLE AND SUBBASE



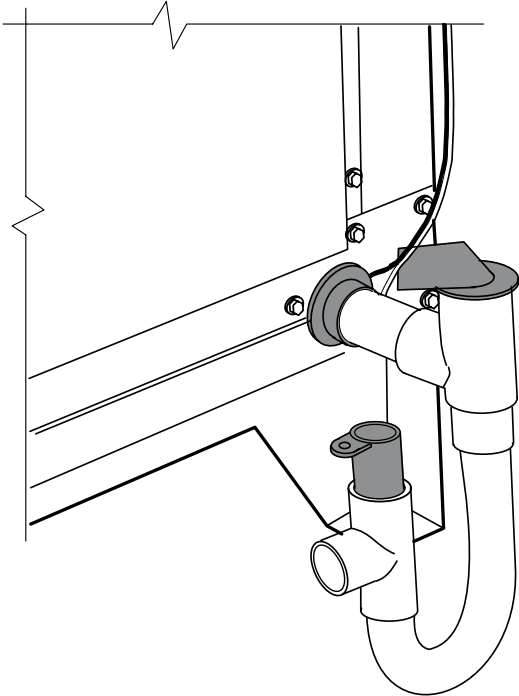
BAC WITH HOT WATER OR STEAM COIL



BAC WITH ECONOMIZER



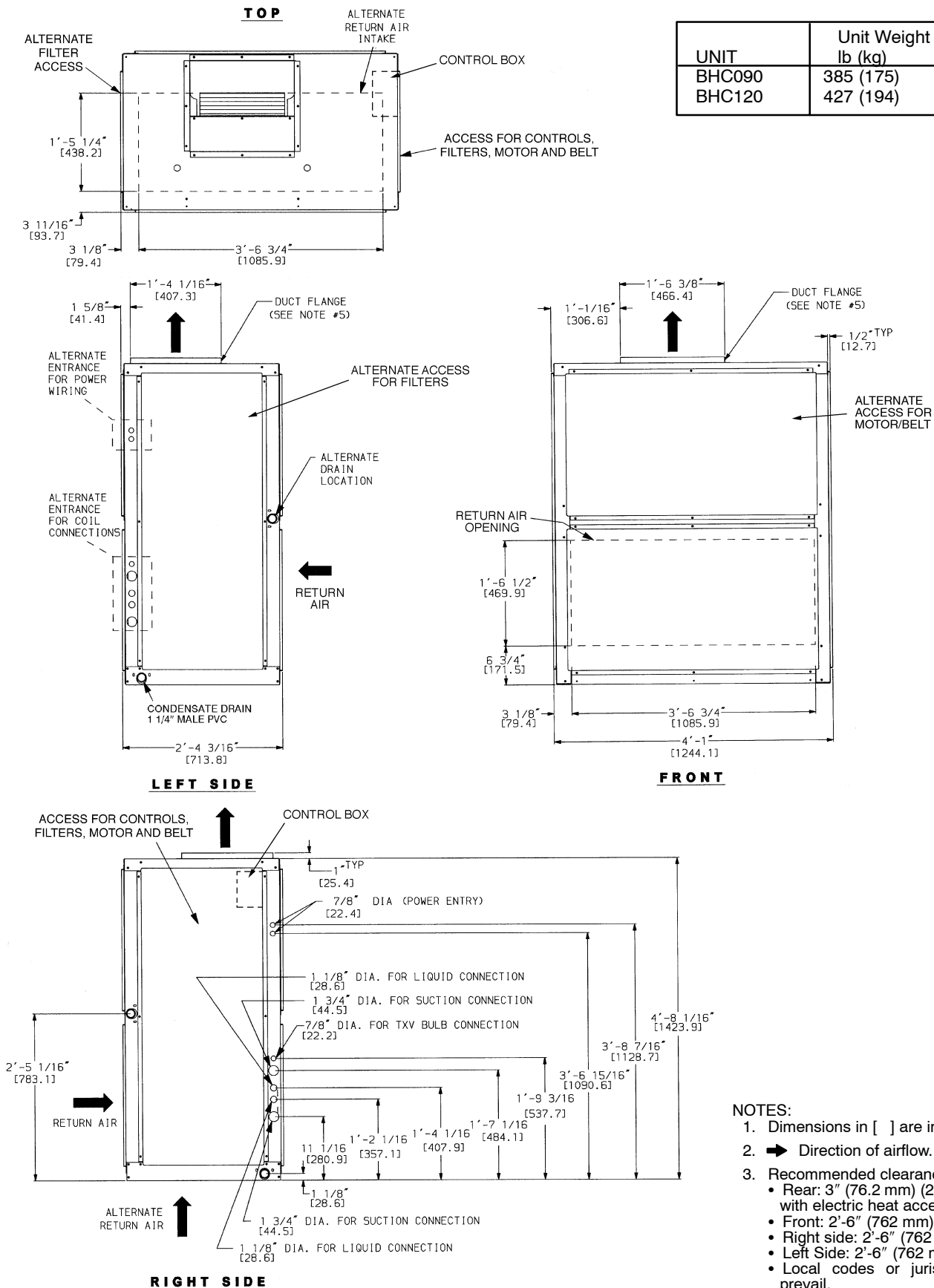
BAC WITH CONDENSATE TRAP



DIMENSIONS

BHC090-120

UNIT	Unit Weight lb (kg)
BHC090	385 (175)
BHC120	427 (194)

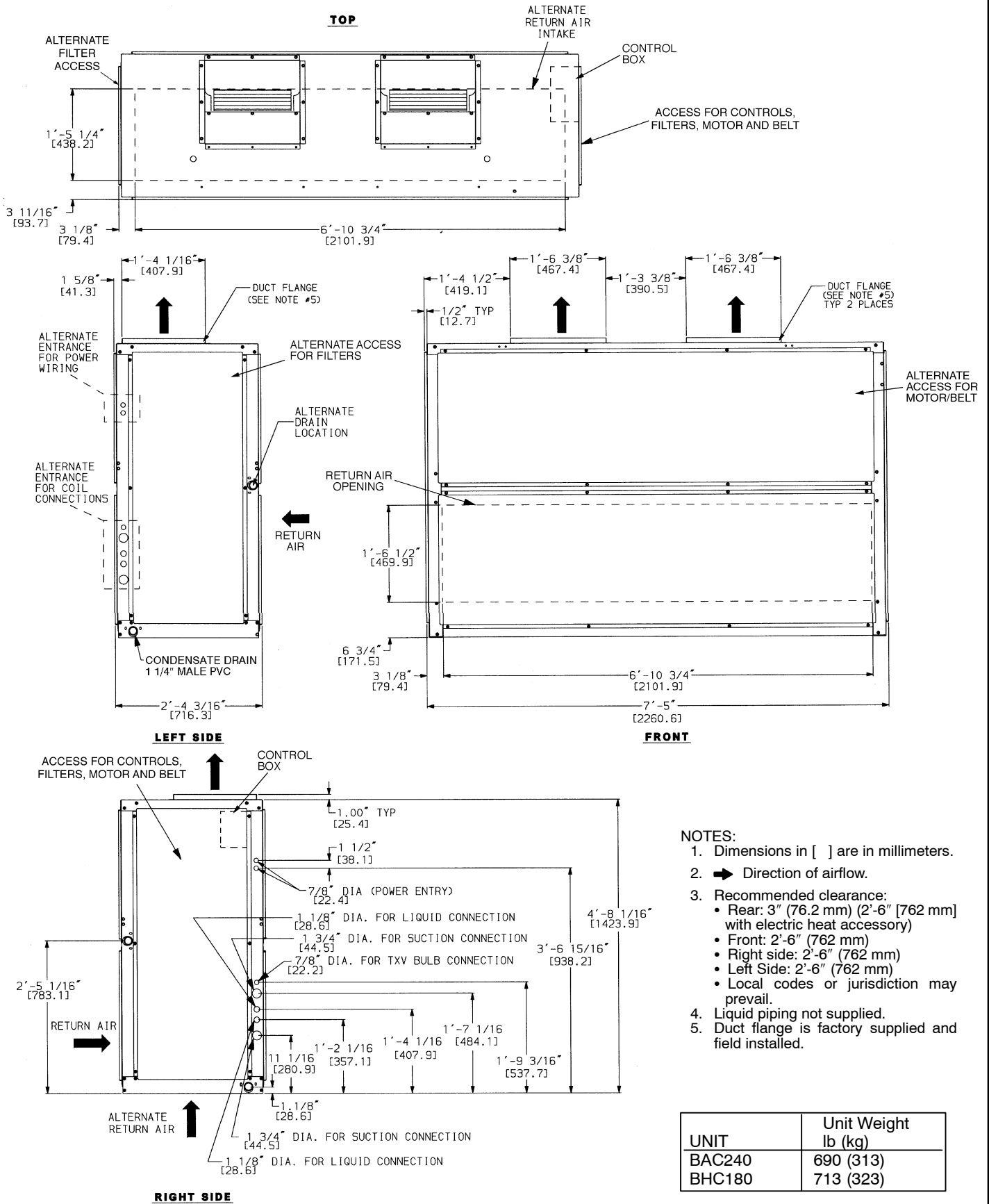


NOTES:

- Dimensions in [] are in millimeters.
- ➡ Direction of airflow.
- Recommended clearance:
 - Rear: 3" (76.2 mm) (2'-6" [762 mm] with electric heat accessory)
 - Front: 2'-6" (762 mm)
 - Right side: 2'-6" (762 mm)
 - Left Side: 2'-6" (762 mm)
 - Local codes or jurisdiction may prevail.
- Liquid piping not supplied.
- Duct flange is factory supplied and field installed.

DIMENSIONS

BAC240 BHC180



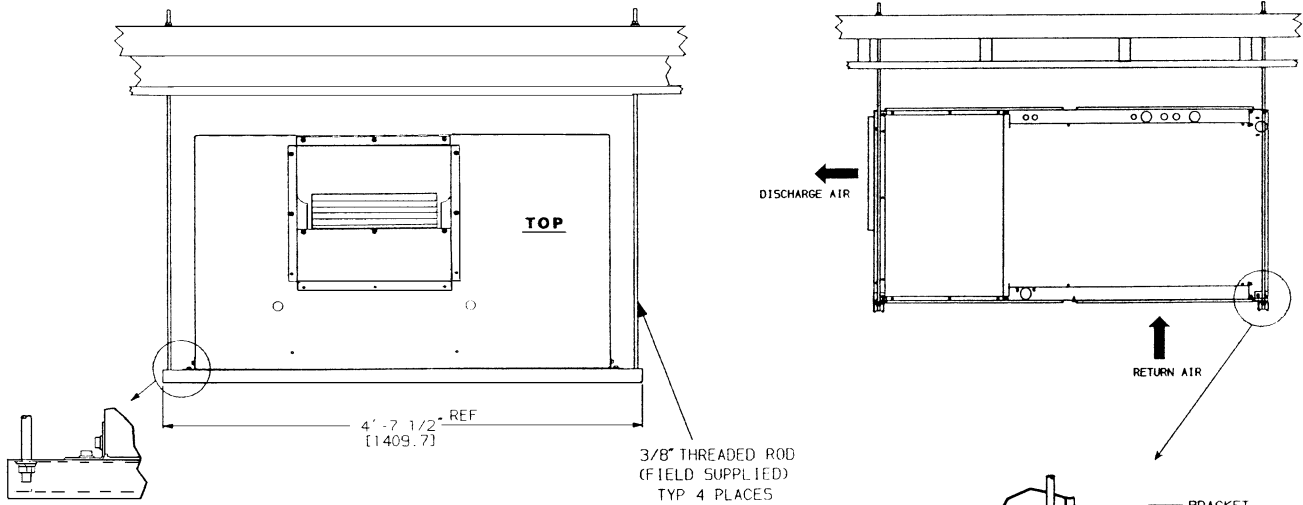
NOTES:

- Dimensions in [] are in millimeters.
- ➡ Direction of airflow.
- Recommended clearance:
 - Rear: 3" (76.2 mm) (2'-6" [762 mm] with electric heat accessory)
 - Front: 2'-6" (762 mm)
 - Right side: 2'-6" (762 mm)
 - Left Side: 2'-6" (762 mm)
 - Local codes or jurisdiction may prevail.
- Liquid piping not supplied.
- Duct flange is factory supplied and field installed.

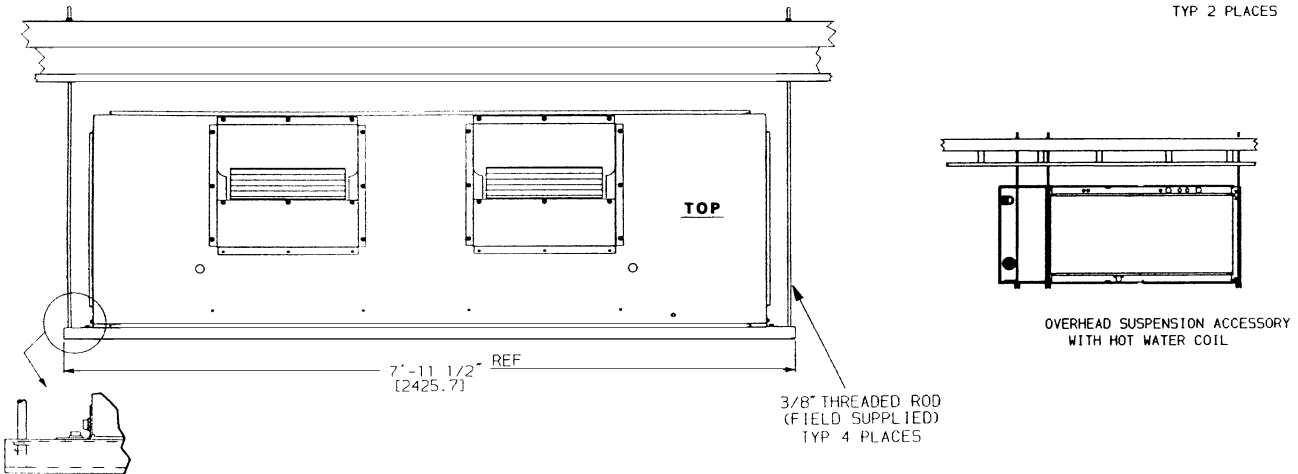
UNIT	Unit Weight lb (kg)
BAC240	690 (313)
BHC180	713 (323)

OVERHEAD SUSPENSION ACCESSORY

UNIT SIZES 090-120



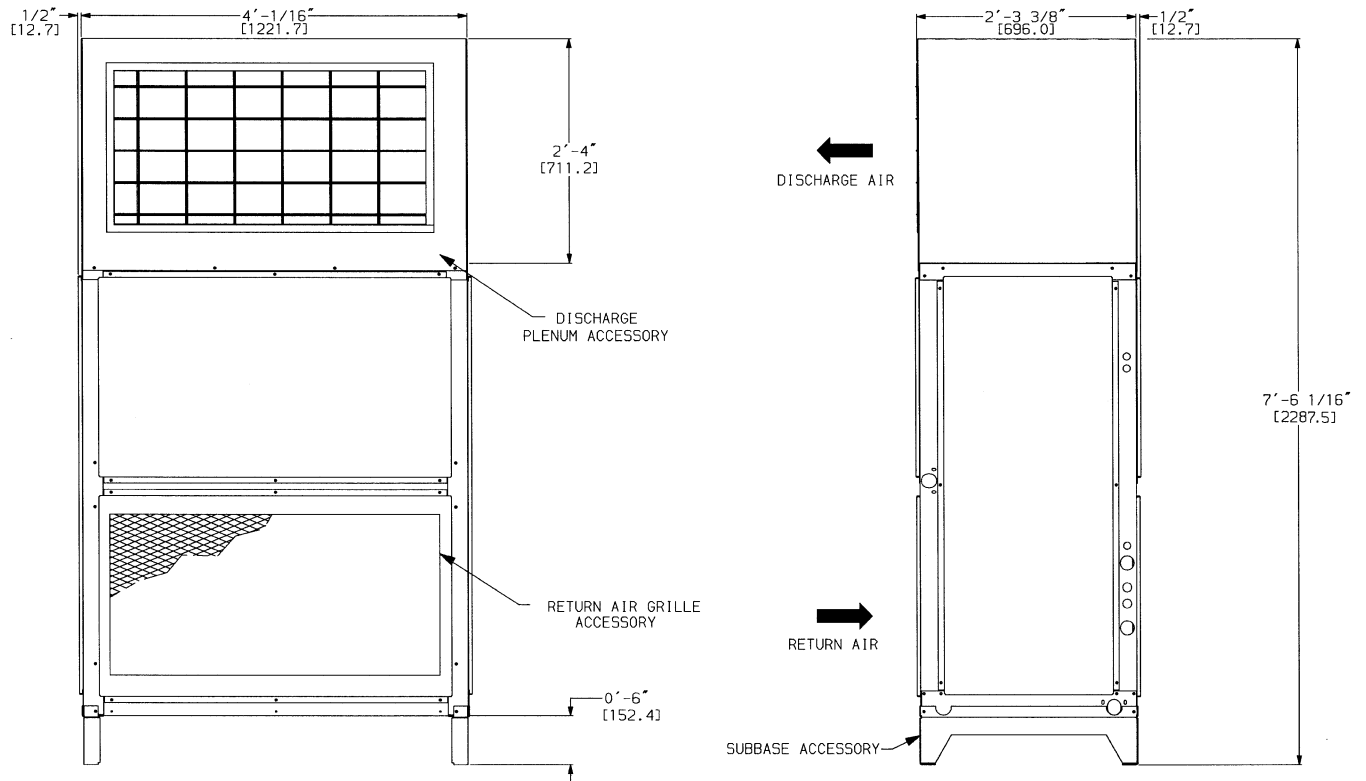
UNIT SIZES 180-240



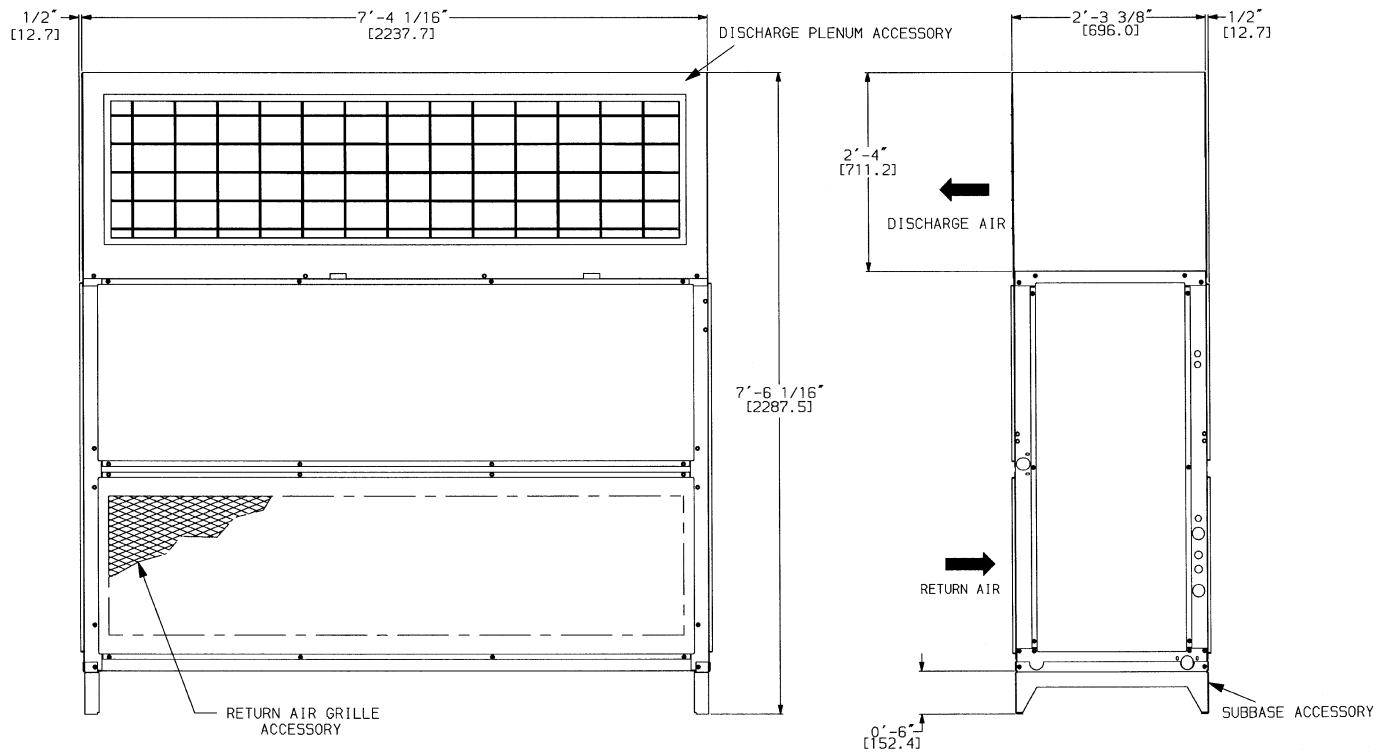
NOTE: Dimensions in [] are millimeters.

PLENUM, RETURN-AIR GRILLE, AND SUBBASE ACCESSORIES

UNIT SIZES 090-120



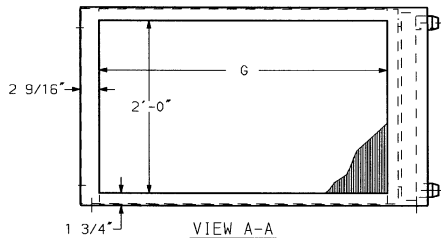
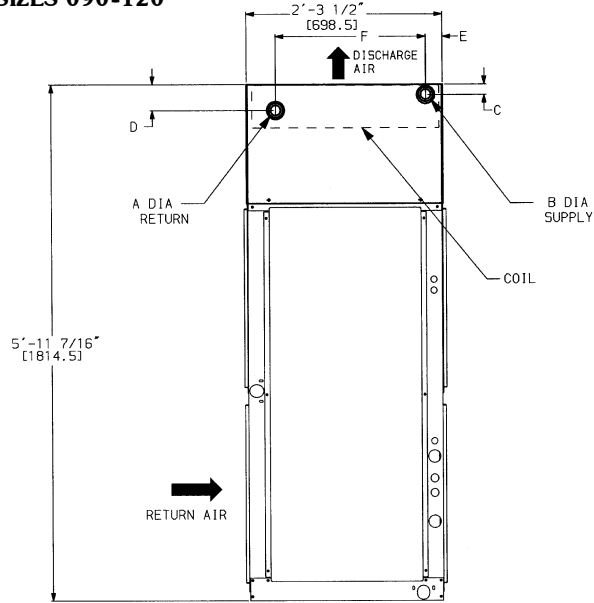
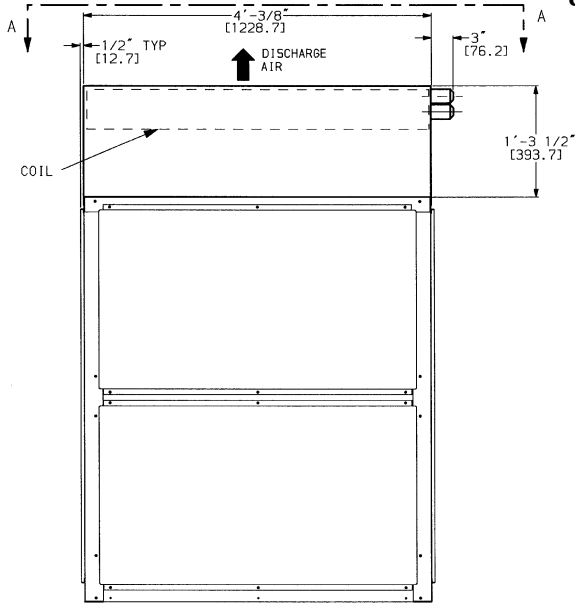
UNIT SIZES 180-240



NOTE: Dimensions in [] are millimeters.

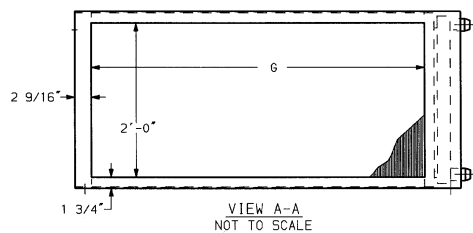
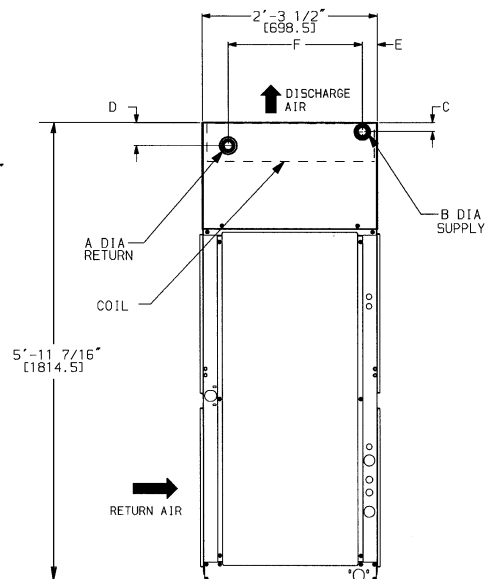
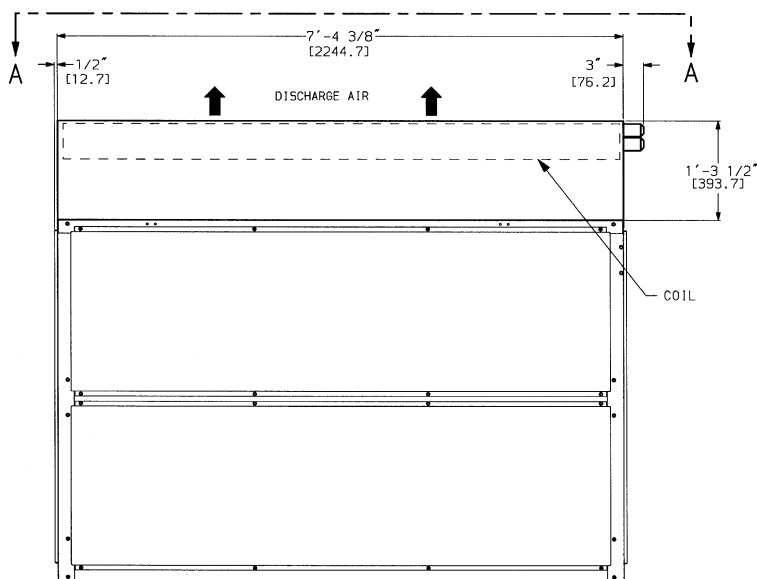
HOT WATER AND STEAM COIL ACCESSORIES

UNIT SIZES 090-120



Dimension	Hot Water Coil	Steam Coil
A	1-1/2" MPT (38.1)	1-1/2" MPT (38.1)
B	1-1/2" MPT (38.1)	2-1/2" MPT (63.5)
C	2-3/8" (60.3)	3-1/8" (79.4)
D	4-7/8" (123.8)	3-1/8" (79.4)
E	2-1/8" (54.0)	4-9/16" (115.8)
F	1'-11-1/4" (590.6)	1'-9" (584.2)
G	3'-4" (1016.0)	3'-4" (1016.0)

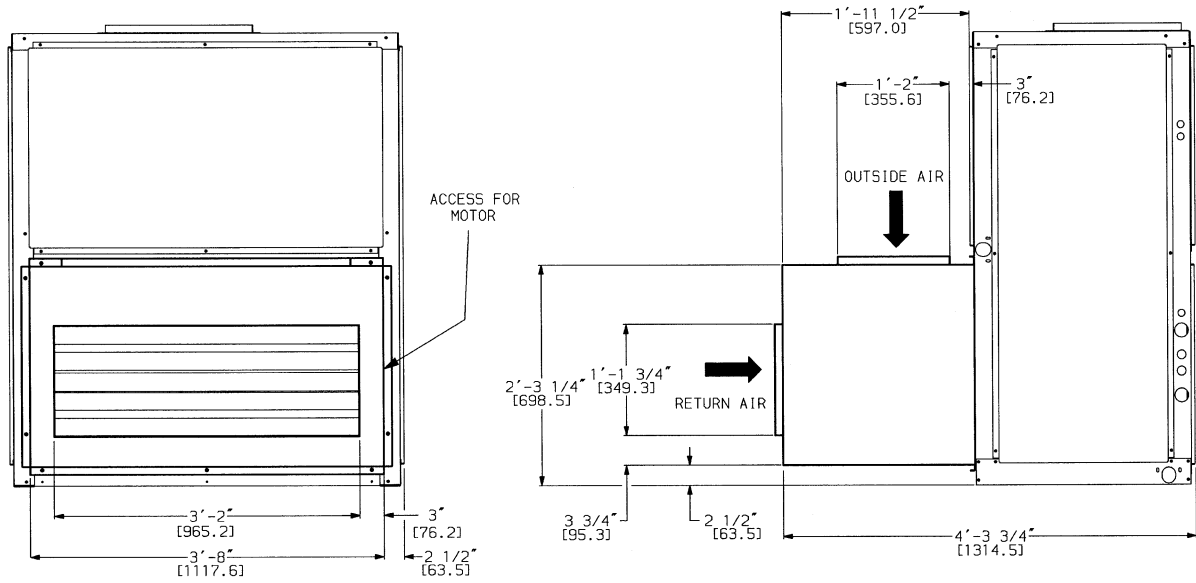
UNIT SIZES 180-240



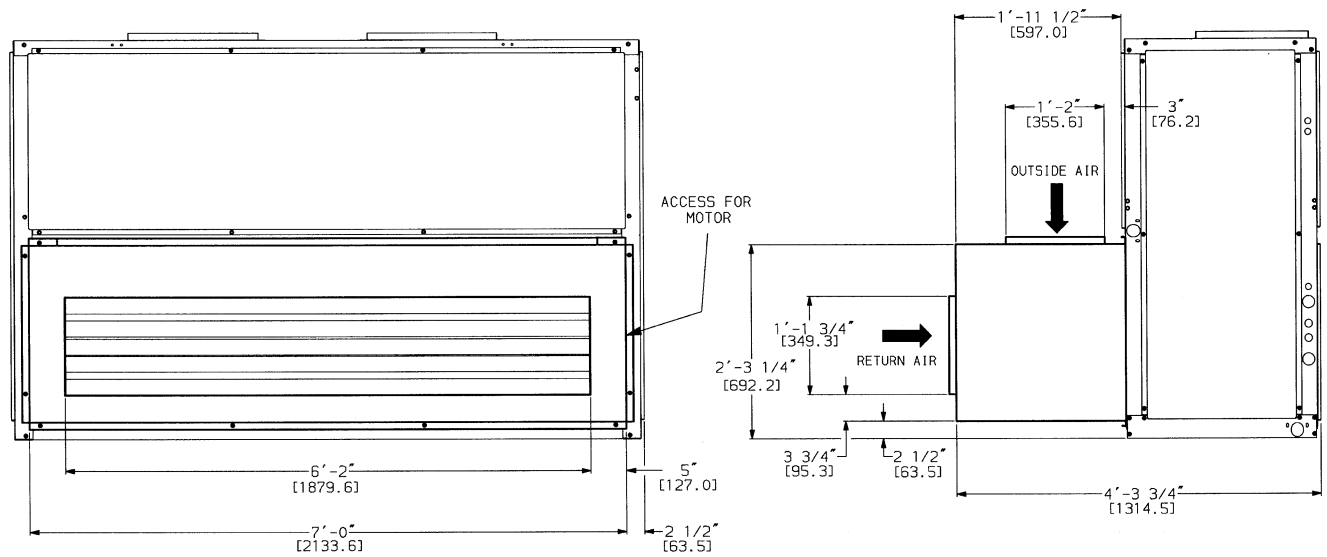
Dimension	Hot Water Coil	Steam Coil
A	1-1/2" MPT (38.1)	1-1/2" MPT (38.1)
B	1-1/2" MPT (38.1)	2-1/2" MPT (63.5)
C	2-3/8" (60.3)	3-1/8" (79.4)
D	4-7/8" (123.8)	3-1/8" (79.4)
E	2-1/8" (54.0)	4-9/16" (115.8)
F	1'-11-1/4" (590.6)	1'-9" (584.2)
G	6'-8" (2032.0)	6'-8" (2032.0)

NOTE: Dimensions in [] are millimeters.

ECONOMIZER ACCESSORY **UNIT SIZES 090-120**



UNIT SIZES 180-240

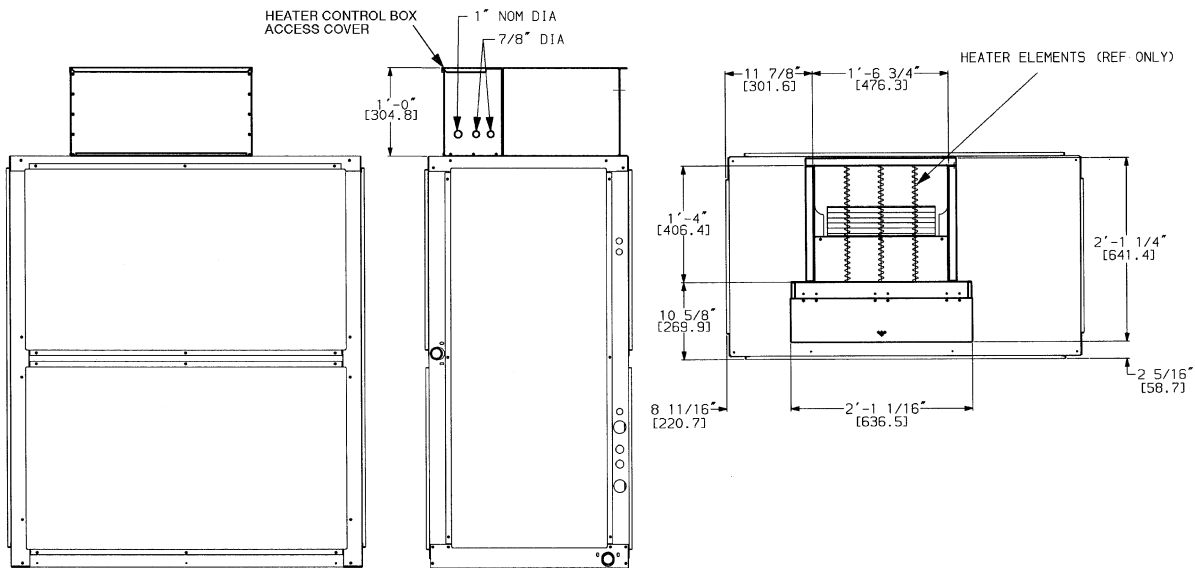


NOTE:

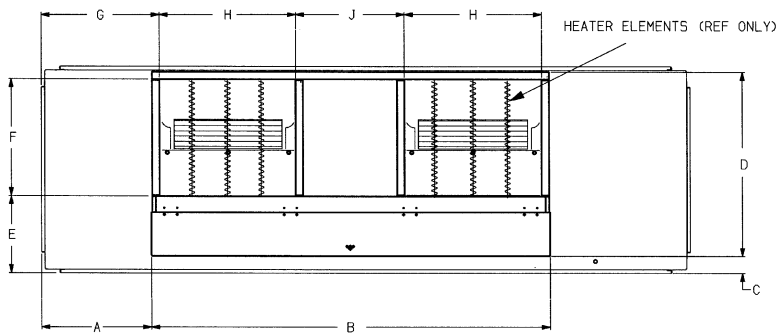
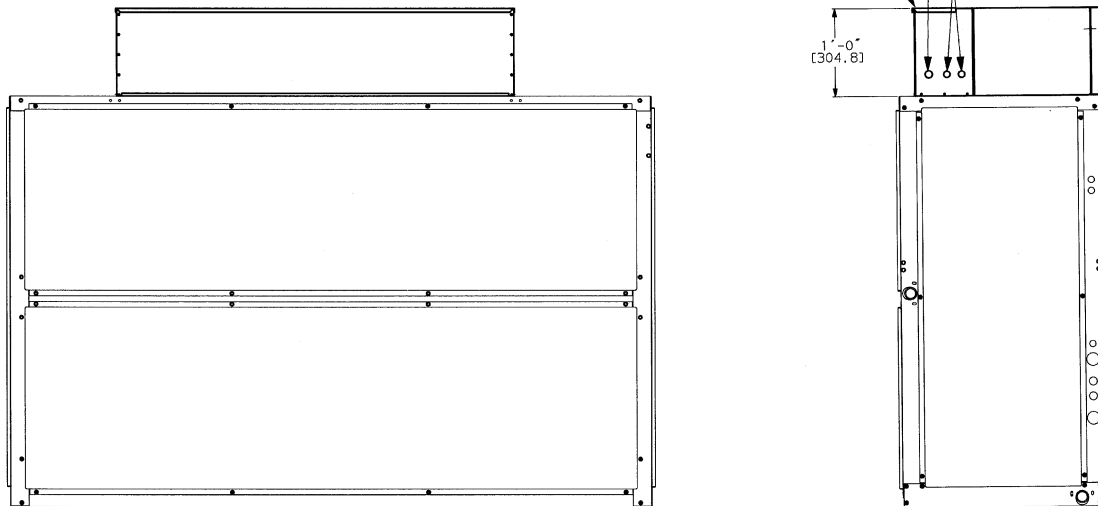
1. For horizontal unit applications, economizer can be attached to end of unit opposite duct connections.
2. Dimensions in [] are millimeters.

DIMENSIONS

ELECTRIC HEAT ACCESSORY UNIT SIZES 090-120



UNIT SIZES 180-240



NOTE: Dimensions in [] are millimeters.

Unit Size	A	B	C	D	E	F	G	H	J
090-240	1' 3-1/4" (387.4)	4' 6-3/8" (1381.1)	2-5/16" (58.7)	2' 1-1/4" (641.4)	10-5/8" (269.9)	1' 4" (406.4)	1' 4-5/16" (414.3)	1' 6-3/4" (476.3)	1-7/8" (327.0)

PERFORMANCE DATA: BAC SERIES, COOLING CAPACITIES — ENGLISH

UNIT BAC	EVAPORATOR AIR		COIL REFRIGERANT TEMP (F)									
	Airflow (Cfm) BF	Ewb (F)	30		35		40		45		50	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
240	6,000 0.03	72	365	174	330	161	296	147	254	131	206	114
		67	309	198	274	182	234	166	195	150	153	132
		62	250	216	221	200	186	182	155	155	132	132
	8,000 0.06	72	416	203	378	189	338	174	291	157	235	138
		67	354	237	305	217	269	202	224	183	179	163
		62	290	264	253	245	218	218	187	187	159	159
	10,000 0.07	72	454	228	413	213	373	198	319	179	259	160
		67	376	266	338	251	296	235	250	214	194	189
		62	316	303	279	278	244	244	213	213	182	182

LEGEND FOR PERFORMANCE TABLES - ENGLISH

BF - Bypass Factor
db - Dry-Bulb temp (F)
Ewb - Entering Wet-bulb Temp (F)
lwb - Leaving Wet-bulb Temp (F)
SHC - Sensible Heat Capacity (1000 Btuh)
TC - Total Capacity (1000 Btuh)

NOTES:

1. Direct interpolation is permissible. Do not extrapolate.
2. Evaporator fan heat not deducted from ratings.
3. Ratings based on approximately 15 F superheat leaving coil.
4. Dashes indicate coil loading limits are exceeded.
5. Formulas:

$$\text{Leaving db} = \text{entering db} - \frac{\text{sensible heat capacity (Btuh)}}{1.1 \times \text{cfm}}$$

$$\text{Leaving wb} = \text{wet-bulb temperature corresponding to enthalpy of air leaving coil (h}_{lwb}\text{)}$$

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

where h_{ewb} = enthalpy of air entering coil

6. SHC is based on 80 F db temperature of air entering evaporator coil. Below 80 F db, subtract (corr factor x cfm) from SHC.

Above 80 F db, add (corr factor x cfm) to SHC. See italic type below.

BYPASS FACTOR	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	Under 75
	81	82	83	84	85	Over 85
Correction Factor						
0.02	1.08	2.16	3.23	4.31	5.39	use formula shown below
0.05	1.05	2.09	3.14	4.18	5.23	
0.10	0.99	1.98	2.97	3.96	4.95	
0.15	0.94	1.87	2.81	3.74	4.68	
0.20	0.88	1.76	2.64	3.52	4.40	
0.25	0.83	1.65	2.48	3.30	4.13	
0.30	0.77	1.54	2.31	3.08	3.85	

Interpolation is permissible.

$$\text{Correction Factor} = 1.1 \times (1 - \text{BF}) \times (\text{db} - 80)$$

PERFORMANCE DATA: BAC SERIES, COOLING CAPACITIES — SI

BAC	EVAPORATOR AIR		COIL REFRIGERANT TEMP (C)													
	Airflow (L/s) BF	Ewb (C)	-1		0		2		4		6		8		10	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
240	2900 .03	22	106.58	52.05	102.62	50.46	94.70	47.29	86.78	44.13	78.85	40.98	70.92	37.84	62.99	34.74
		19	89.80	59.51	85.74	57.82	77.63	54.44	69.50	51.08	61.37	47.75	53.21	44.47	45.05	41.29
		16	71.75	68.29	68.44	65.88	61.79	61.08	55.13	55.13	48.45	48.45	41.75	41.75	35.03	35.03
	3800 .06	22	122.11	60.50	117.57	58.81	108.48	55.45	99.38	52.11	90.29	48.79	81.19	45.52	72.10	42.39
		19	99.07	69.97	94.89	68.20	86.53	64.66	78.16	61.17	69.79	57.74	61.41	54.46	53.03	51.58
		16	80.95	80.95	77.60	77.60	70.90	70.90	64.19	64.19	57.48	57.48	50.76	50.76	44.03	44.03
	4700 .072	21	33.27	67.86	128.35	66.08	118.51	62.52	108.68	58.97	98.84	55.46	89.00	52.01	79.16	48.77
		19	109.55	80.54	104.99	78.62	95.88	74.79	86.76	71.01	77.65	67.33	68.53	63.85	59.41	59.41
		16	88.34	88.34	84.97	84.97	78.24	78.24	71.50	71.50	64.76	64.76	58.02	58.02	51.28	51.28

LEGEND FOR PERFORMANCE TABLES - SI

LEGEND

BF — Bypass Factor
Edb — Entering Dry-Bulb
Ewb — Entering Wet-Bulb
Ldb — Leaving Dry-Bulb
Lwb — Leaving Wet-Bulb
SHC — Sensible Heat Capacity (kW)
TC — Total Capacity (kW)

NOTES:

1. Ratings based on approximately 8.3 C superheat leaving coil.
2. Direct interpolation is permissible. Do not extrapolate.
3. The SHC is based on 26.7 C db temperature of air entering the unit. At any other temperature, correct the SHC reading from the table of cooling capacities as follows:

$$\text{Correction factor} = 1.23 \times 10^{-3} \times (1 - \text{BF}) \times (\text{db} - 26.7)$$

Above 26.7 C, add SHC correction to SHC. Below 26.7 C, subtract SHC correction from SHC.

4. Gross capacities shown do not include a deduction for evaporator-fan motor heat.
5. Formulas (cooling):

$$t_{\text{ldb}} = t_{\text{edb}} - \frac{\text{sensible heat capacity (kW)}}{1.23 \times 10^{-3} \times (\text{L/s})}$$

$$t_{\text{lwb}} = \text{wet-bulb temperature corresponding to enthalpy of air leaving coil (} h_{\text{lwb}} \text{)}$$

$$h_{\text{lwb}} = \frac{h_{\text{ewb}} - \frac{\text{total capacity (kW)}}{1.20 \times 10^{-3} \times (\text{L/s})}}{1}$$

where h_{ewb} = enthalpy of air entering coil (kJ/kg)

PERFORMANCE DATA: BHC SERIES, COOLING CAPACITIES — ENGLISH

UNIT BHC	EVAPORATOR AIR		COIL REFRIGERANT TEMP (F)									
	Airflow (Cfm) BF	Ewb (F)	30		35		40		45		50	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
090	2250 0.06	72	144	69	130	63	116	57	99	50	80	43
		67	120	76	106	70	92	63	76	56	59	50
		62	100	83	87	76	71	69	57	57	49	49
	3000 0.10	72	169	81	151	75	135	68	114	61	94	53
		67	140	92	124	85	108	77	89	69	69	62
		62	118	101	102	94	84	84	70	70	59	59
	3750 0.12	72	187	92	168	85	150	78	127	70	104	61
		67	157	106	140	97	120	89	100	81	77	72
		62	132	118	112	108	94	94	80	80	68	68
120	3000 0.05	72	193	92	174	81	154	76	132	67	108	58
		67	161	102	143	93	123	85	102	76	79	67
		62	134	111	116	102	96	93	78	78	66	66
	4000 0.07	72	223	108	201	99	179	91	153	81	125	71
		67	186	122	166	113	143	104	119	93	92	82
		62	157	136	136	126	113	113	95	95	80	80
	5000 0.12	72	246	122	222	112	198	103	169	93	138	81
		67	207	140	185	131	159	120	132	109	102	97
		62	175	159	149	145	126	126	109	109	92	92
180	4500 0.04	72	310	147	282	135	250	122	212	107	175	93
		67	258	161	231	148	199	135	165	120	126	105
		62	213	175	185	161	154	146	122	122	102	102
	6000 0.04	72	366	176	331	161	293	146	248	130	205	114
		67	304	196	272	182	234	166	194	149	149	132
		62	254	217	219	201	181	181	148	148	125	125
	7500 0.05	72	409	199	371	185	327	168	277	150	228	132
		67	339	227	303	211	263	194	217	176	168	156
		62	285	255	244	236	205	205	172	172	146	146

PERFORMANCE DATA: BHC SERIES, COOLING CAPACITIES — SI

BHC	EVAPORATOR AIR		COIL REFRIGERANT TEMP (C)													
	Airflow (L/s) BF	Ewb (C)	-1		0		2		4		6		8		10	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
090	1000 .06	22	42.12	20.58	40.51	19.89	37.29	18.52	34.07	17.16	30.84	15.80	27.61	14.46	24.37	13.18
		19	34.64	23.22	33.11	22.48	30.05	21.01	26.97	19.55	23.89	18.12	20.80	16.74	17.71	15.49
		16	28.76	26.41	27.26	25.39	24.26	23.38	21.25	21.25	18.22	18.22	15.17	15.17	12.10	12.10
	1400 .10	22	49.07	24.22	47.14	23.49	43.29	22.02	39.43	20.56	35.57	19.12	31.71	17.72	27.85	16.48
		19	40.52	27.88	38.72	27.04	35.13	25.38	31.54	23.74	27.94	22.15	24.33	20.67	20.71	19.62
		16	33.30	32.38	31.70	31.12	28.48	28.48	25.25	25.25	22.01	22.01	18.76	18.76	15.50	15.50
	1800 .12	22	54.60	27.31	52.46	26.52	48.17	24.95	43.89	23.40	39.61	21.87	35.32	20.41	31.04	19.32
		19	45.87	31.43	43.80	30.60	39.68	28.96	35.55	27.35	31.42	25.81	27.28	24.47	23.14	23.14
		16	36.21	36.21	34.59	34.59	31.35	31.35	28.10	28.10	24.85	24.85	21.59	21.59	18.33	18.33
120	1450 .05	22	56.46	26.00	54.28	25.26	49.91	23.80	45.53	22.33	41.15	20.89	36.77	19.47	32.38	18.13
		19	46.83	30.42	44.73	29.53	40.53	27.76	36.32	26.01	32.10	24.29	27.87	22.64	23.64	21.21
		16	38.11	34.82	36.21	33.56	32.39	31.04	28.56	28.55	24.71	24.71	20.85	20.85	16.97	16.97
	1900 .07	22	65.14	31.89	62.64	30.94	57.64	29.05	52.64	27.17	47.63	25.30	42.62	23.47	37.61	21.73
		19	54.26	36.83	51.85	35.78	47.03	33.70	42.19	31.64	37.35	29.61	32.51	27.68	27.65	26.01
		16	44.18	43.13	42.12	41.49	37.99	37.99	33.85	33.85	29.71	29.71	25.55	25.55	21.37	21.37
	2350 .12	22	71.98	35.85	69.21	34.85	63.67	32.86	58.13	30.89	52.59	28.93	47.05	27.03	41.51	25.31
		19	60.62	42.44	57.89	41.30	52.41	39.02	46.93	36.77	41.45	34.59	35.97	32.55	30.49	30.49
		16	47.82	47.82	45.79	45.79	41.72	41.72	37.66	37.66	33.59	33.59	29.52	29.52	25.44	25.44
180	2100 .04	22	91.80	44.17	88.16	42.69	80.87	39.73	73.57	36.78	66.27	33.84	58.97	30.93	51.65	28.08
		19	75.66	48.99	72.28	47.51	65.51	44.55	58.73	41.62	51.94	38.73	45.13	35.92	38.31	33.27
		16	61.18	56.01	58.01	53.92	51.67	49.75	45.31	45.31	38.92	38.92	32.51	32.51	26.06	26.06
	2800 .04	22	107.87	52.14	103.54	50.51	94.89	47.27	86.24	44.04	77.57	40.86	68.91	37.79	60.23	35.23
		19	89.13	59.53	85.12	57.81	77.11	54.40	69.08	51.05	61.05	47.81	53.00	44.90	44.93	43.44
		16	71.93	69.52	68.35	66.73	61.19	61.19	54.01	54.01	46.81	46.81	39.59	39.59	32.34	32.34
	3500 .05	22	121.08	59.76	116.17	57.92	106.35	54.26	96.52	50.62	86.70	47.03	76.87	43.59	67.04	63.63
		19	99.24	68.38	94.81	66.56	85.93	62.96	77.04	59.43	68.15	56.05	59.26	53.09	50.35	50.35
		16	79.29	79.29	75.63	75.63	68.32	68.32	61.00	61.00	53.67	53.67	46.33	46.33	38.98	38.98

See Legend on page 18

HYDRONIC HEATING CAPACITIES — ENGLISH

UNIT	AIRFLOW (Cfm)	1-ROW STEAM*		2-ROW HOT WATER COIL†			
		Cap.	Ldb	Cap.	Ldb	Water Flow (Gpm)	PD
BHC090	2,250	168	129	174.0	133	17.4	4.0
	3,000	209	123	206.0	124	20.6	5.2
	3,750	240	117	238.0	118	23.8	6.5
BHC120	3,000	209	123	299.0	152	29.9	5.0
	4,000	243	115	275.0	124	27.5	6.6
	5,000	279	111	316.0	119	31.6	8.2
BHC180	4,500	402	141	412.0	145	41.2	4.5
	6,000	458	129	471.0	133	47.1	5.5
	7,500	479	118	529.0	125	52.9	6.6
BAC240	6,000	458	129	506.0	138	50.6	5.1
	8,000	487	115	584.0	128	58.4	6.3
	10,000	499	105	652.0	120	65.2	7.5

LEGEND

Cap. —Capacity (Btuh in thousands)

Ldb —Leaving-Air Dry-Bulb Temp (F)

PD —Pressure Drop (ft water)

*Based on 5 psig steam, 60 F entering-air temperature. All steam coils are non-freeze type.

†Based on 200 F entering water, 20 F water temperature drop, 60 F entering-air temperature.

NOTES:

- Maximum operating limits for heating coils: 175 psig at 400 F.
- Leaving db = ent db (F) + $\frac{\text{Capacity (Btuh)}}{1.1 \times \text{cfm}}$
- See Heating Correction Factors table.

HEATING CORRECTION FACTORS — ENGLISH

HOT WATER COIL						
Water Temp Drop (F)	Ent Water Temp (F)	Entering-Air Temp (F)				
		40	50	60	70	80
10	140	0.72	0.64	0.57	0.49	0.41
	160	0.89	0.81	0.74	0.66	0.58
	180	1.06	0.98	0.90	0.83	0.75
	200	1.22	1.15	1.07	1.00	0.92
	220	1.39	1.32	1.24	1.17	1.09
20	140	0.64	0.57	0.49	0.41	0.33
	160	0.81	0.74	0.66	0.58	0.51
	180	0.98	0.91	0.83	0.75	0.68
	200	1.15	1.08	1.00	0.93	0.85
	220	1.32	1.25	1.17	1.10	1.02
30	140	0.56	0.49	0.41	0.33	0.24
	160	0.74	0.66	0.58	0.51	0.43
	180	0.91	0.83	0.76	0.68	0.60
	200	1.08	1.00	0.93	0.85	0.78
	220	1.25	1.18	1.10	1.03	0.95

STEAM COIL					
Steam Pressure (psig)	Entering-Air Temp (F)				
	40	50	60	70	80
0	1.06	0.98	0.91	0.85	0.78
2	1.09	1.02	0.95	0.89	0.82
5	1.13	1.06	1.00	0.93	0.87

NOTE: Multiply capacity given in the Hydronic Heating Capacities table by the correction factor for conditions at which unit is actually operating. Correct leaving-air temperature using formula in Note 2 of Hydronic Heating Capacities table.

HYDRONIC HEATING CAPACITIES — SI

UNIT	AIRFLOW (L/s)	1-ROW STEAM*		2-ROW HOT WATER COIL†			
		Cap.	Ldb	Cap.	Ldb	Water Flow (L/s)	PD
BHC090	1000	48	55	50	56	1.1	11.5
	1400	59	50	60	50	1.3	15.3
	1800	71	47	70	47	1.5	19.5
BHC120	1450	62	50	88	65	1.9	15.0
	1900	72	46	90	54	2.0	24.7
	2350	82	44	93	48	2.0	24.5
BHC180	2100	117	61	120	62	2.6	13.3
	2800	129	53	137	55	3.0	16.2
	3500	140	48	154	51	3.3	19.5
BAC240	2900	135	53	150	58	3.3	15.6
	3800	140	46	170	52	3.7	18.6
	4700	146	41	191	49	4.1	22.3

LEGEND

Cap. —Capacity (kW)

Ldb —Leaving-Air Dry-Bulb Temp (C)

PD —Pressure Drop (kPa)

*Based on 34.5 kPag steam, 15.6 C entering-air temperature. All steam coils are non-freeze type.

†Based on 93.3 C entering water temperature, 11.1 C water temperature drop, 15.6 C entering-air temperature.

NOTES:

- Maximum operating limits for heating coils: 1207 kPag at 204.4 C.
- Leaving db = ent db (C) + $\frac{\text{Capacity (kw)}}{1.23 \times 10^{-3} \times \text{IL/s}}$
- See Heating Correction Factors table.

HEATING CORRECTION FACTORS — SI

HOT WATER COIL						
Water Temp Drop (C)	Ent Water Temp (C)	Entering-Air Temp (C)				
		4	10	16	20	25
5	60	0.72	0.64	0.55	0.50	0.43
	70	0.87	0.79	0.71	0.65	0.58
	80	1.02	0.94	0.86	0.80	0.73
	90	1.17	1.09	1.01	0.95	0.89
	100	1.32	1.24	1.16	1.10	1.04
11	60	0.65	0.56	0.48	0.42	0.35
	70	0.80	0.72	0.63	0.58	0.51
	80	0.95	0.87	0.79	0.73	0.66
	90	1.10	1.02	0.94	0.89	0.82
	100	1.26	1.18	1.09	1.04	0.97
16	60	0.56	0.48	0.39	0.33	0.26
	70	0.72	0.63	0.55	0.49	0.42
	80	0.87	0.79	0.70	0.65	0.58
	90	1.02	0.94	0.86	0.81	0.74
	100	1.18	1.10	1.02	0.97	0.90

STEAM COIL					
Steam Pressure (kPag)	Entering-Air Temp (C)				
	4	10	16	20	25
0	1.07	0.99	0.91	0.86	0.80
14	1.10	1.02	0.95	0.90	0.84
16	1.14	1.07	0.99	0.95	0.89

NOTE: Multiply capacity given in the Hydronic Heating Capacities table by the correction factor for conditions at which unit is actually operating. Correct leaving-air temperature using formula in Note 2 of Hydronic Heating Capacities table.

FAN PERFORMANCE DATA — 0.0-1.2 in. wg ESP — 50 Hz, ENGLISH

UNIT	AIRFLOW (Cfm)	EXTERNAL STATIC PRESSURE (in. wg)													
		0.0		0.2		0.4		0.6		0.8		1.0		1.2	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
BHC 090	2,250	359	0.32	472	0.44	560	0.55	634	0.65	700	0.75	<u>759</u>	<u>0.86</u>	<u>814</u>	<u>0.96</u>
	2,600	415	0.45	516	0.57	599	0.68	669	0.79	732	0.90	<u>790</u>	<u>1.01</u>	<u>843</u>	<u>1.11</u>
	3,000	478	0.62	569	0.75	645	0.86	712	0.98	<u>773</u>	<u>1.09</u>	<u>828</u>	<u>1.20</u>	<u>879</u>	<u>1.32</u>
	3,400	542	0.82	624	0.95	695	1.08	<u>758</u>	<u>1.20</u>	<u>815</u>	<u>1.31</u>	<u>869</u>	<u>1.43</u>	<u>918</u>	<u>1.55</u>
	3,750	598	1.03	673	1.17	<u>740</u>	<u>1.29</u>	800	<u>1.42</u>	<u>855</u>	<u>1.60</u>	<u>906</u>	<u>1.66</u>	<u>954</u>	<u>1.78</u>
BHC 120	3,000	471	0.61	564	0.74	642	0.86	710	0.97	771	1.09	827	1.20	<u>878</u>	<u>1.31</u>
	3,500	550	0.87	632	1.00	703	1.13	766	1.25	824	1.37	<u>877</u>	<u>1.49</u>	<u>926</u>	<u>1.60</u>
	4,000	628	1.17	701	1.31	766	1.44	825	1.57	<u>879</u>	<u>1.69</u>	<u>930</u>	<u>1.82</u>	<u>978</u>	<u>1.94</u>
	4,500	706	1.53	772	1.67	832	1.81	<u>887</u>	<u>1.94</u>	<u>938</u>	<u>2.07</u>	<u>987</u>	<u>2.20</u>	<u>1032</u>	<u>2.33</u>
	5,000	785	1.93	845	2.08	<u>900</u>	<u>2.22</u>	<u>952</u>	<u>2.36</u>	<u>1000</u>	<u>2.50</u>	<u>1045</u>	<u>2.63</u>	<u>1089</u>	<u>2.76</u>
BHC 180	4,500	405	0.54	507	0.79	592	1.03	667	1.28	<u>735</u>	<u>1.54</u>	<u>797</u>	<u>1.80</u>	<u>854</u>	<u>2.06</u>
	5,300	476	0.85	566	1.13	643	1.40	713	1.68	<u>776</u>	<u>1.97</u>	<u>835</u>	<u>2.26</u>	<u>890</u>	<u>2.55</u>
	6,000	539	1.20	620	1.50	691	1.81	<u>756</u>	<u>2.11</u>	<u>816</u>	<u>2.42</u>	<u>872</u>	<u>2.73</u>	<u>924</u>	<u>3.05</u>
	6,800	611	1.69	683	2.03	<u>748</u>	<u>2.36</u>	<u>809</u>	<u>2.69</u>	<u>865</u>	<u>3.03</u>	<u>918</u>	<u>3.37</u>	<u>968</u>	<u>3.71</u>
	7,500	674	2.22	<u>740</u>	<u>2.58</u>	<u>800</u>	<u>2.93</u>	<u>857</u>	<u>3.29</u>	<u>910</u>	<u>3.65</u>	<u>960</u>	<u>4.02</u>	<u>1008</u>	<u>4.38</u>
BAC 240	6,000	503	1.07	587	1.37	661	1.67	727	1.97	789	2.28	846	2.59	<u>900</u>	<u>2.90</u>
	7,000	586	1.64	660	1.98	726	2.31	787	2.65	844	2.99	<u>898</u>	<u>3.33</u>	<u>948</u>	<u>3.67</u>
	8,000	670	2.37	735	2.74	795	3.12	851	3.49	<u>904</u>	<u>3.86</u>	<u>954</u>	<u>4.23</u>	<u>1001</u>	<u>4.61</u>
	9,000	754	3.28	812	3.69	<u>867</u>	<u>4.09</u>	<u>918</u>	<u>4.50</u>	<u>967</u>	<u>4.90</u>	<u>1014</u>	<u>5.31</u>	<u>1059</u>	<u>5.72</u>
	10,000	838	4.39	<u>891</u>	<u>4.83</u>	<u>941</u>	<u>5.27</u>	<u>988</u>	<u>5.70</u>	<u>1034</u>	<u>6.14</u>	<u>1077</u>	<u>6.85</u>	<u>1120</u>	<u>7.02</u>

FAN PERFORMANCE DATA — 1.4-2.4 in. wg ESP — 50 Hz, ENGLISH

UNIT	AIRFLOW (Cfm)	EXTERNAL STATIC PRESSURE (in.wg)											
		1.4		1.6		1.8		2.0		2.2		2.4	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
BHC 090	2,250	<u>865</u>	<u>1.06</u>	<u>913</u>	<u>1.16</u>	<u>958</u>	<u>1.27</u>	<u>1001</u>	<u>1.37</u>	<u>1042</u>	<u>1.47</u>	—	—
	2,600	<u>893</u>	<u>1.22</u>	<u>940</u>	<u>1.33</u>	<u>984</u>	<u>1.43</u>	<u>1027</u>	<u>1.54</u>	<u>1067</u>	<u>1.65</u>	—	—
	3,000	<u>928</u>	<u>1.43</u>	<u>973</u>	<u>1.54</u>	<u>1017</u>	<u>1.65</u>	<u>1058</u>	<u>1.76</u>	<u>1098</u>	<u>1.87</u>	—	—
	3,400	<u>965</u>	<u>1.66</u>	<u>1010</u>	<u>1.78</u>	<u>1052</u>	<u>1.89</u>	<u>1092</u>	<u>2.00</u>	<u>1131</u>	<u>2.12</u>	—	—
	3,750	<u>1000</u>	<u>1.90</u>	<u>1043</u>	<u>2.02</u>	<u>1084</u>	<u>2.13</u>	<u>1124</u>	<u>2.25</u>	<u>1162</u>	<u>2.37</u>	—	—
BHC 120	3,000	<u>927</u>	<u>1.43</u>	<u>973</u>	<u>1.54</u>	<u>1017</u>	<u>1.65</u>	<u>1058</u>	<u>1.76</u>	<u>1098</u>	<u>1.87</u>	<u>1137</u>	<u>1.98</u>
	3,500	<u>973</u>	<u>1.72</u>	<u>1018</u>	<u>1.84</u>	<u>1060</u>	<u>1.95</u>	<u>1101</u>	<u>2.07</u>	<u>1139</u>	<u>2.18</u>	<u>1177</u>	<u>2.30</u>
	4,000	<u>1023</u>	<u>2.06</u>	<u>1066</u>	<u>2.19</u>	<u>1107</u>	<u>2.31</u>	<u>1146</u>	<u>2.43</u>	<u>1184</u>	<u>2.55</u>	—	—
	4,500	<u>1075</u>	<u>2.45</u>	<u>1116</u>	<u>2.58</u>	<u>1156</u>	<u>2.71</u>	<u>1194</u>	<u>2.83</u>	—	—	—	—
	5,000	<u>1130</u>	<u>2.90</u>	<u>1170</u>	<u>3.03</u>	—	—	—	—	—	—	—	—
BHC 180	4,500	<u>908</u>	<u>2.33</u>	<u>959</u>	<u>2.61</u>	<u>1008</u>	<u>2.89</u>	<u>1054</u>	<u>3.17</u>	<u>1098</u>	<u>3.46</u>	<u>1141</u>	<u>3.75</u>
	5,300	<u>941</u>	<u>2.84</u>	<u>991</u>	<u>3.14</u>	<u>1038</u>	<u>3.45</u>	<u>1082</u>	<u>3.75</u>	<u>1126</u>	<u>4.06</u>	<u>1167</u>	<u>4.38</u>
	6,000	<u>974</u>	<u>3.36</u>	<u>1022</u>	<u>3.69</u>	<u>1067</u>	<u>4.01</u>	<u>1111</u>	<u>4.34</u>	<u>1153</u>	<u>4.67</u>	<u>1193</u>	<u>5.00</u>
	6,800	<u>1015</u>	<u>4.05</u>	<u>1061</u>	<u>4.40</u>	<u>1104</u>	<u>4.75</u>	<u>1146</u>	<u>5.10</u>	<u>1187</u>	<u>5.46</u>	—	—
	7,500	<u>1054</u>	<u>4.75</u>	<u>1098</u>	<u>5.12</u>	<u>1140</u>	<u>5.49</u>	<u>1181</u>	<u>5.86</u>	—	—	—	—
BAC 240	6,000	<u>950</u>	<u>3.21</u>	<u>999</u>	<u>3.53</u>	<u>1045</u>	<u>3.85</u>	<u>1089</u>	<u>4.17</u>	<u>1131</u>	<u>4.50</u>	<u>1172</u>	<u>4.83</u>
	7,000	<u>996</u>	<u>4.02</u>	<u>1042</u>	<u>4.37</u>	<u>1086</u>	<u>4.72</u>	<u>1129</u>	<u>5.07</u>	<u>1169</u>	<u>5.43</u>	—	—
	8,000	<u>1047</u>	<u>4.99</u>	<u>1091</u>	<u>5.37</u>	<u>1133</u>	<u>5.75</u>	<u>1173</u>	<u>6.13</u>	—	—	—	—
	9,000	<u>1102</u>	<u>6.13</u>	<u>1143</u>	<u>6.54</u>	<u>1183</u>	<u>6.96</u>	—	—	—	—	—	—
	10,000	<u>1160</u>	<u>7.46</u>	<u>1200</u>	<u>7.91</u>	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure

Bold indicates field-supplied drive is required.

Plain type indicates standard motor and standard drive.

Underline indicates a different motor and drive combination other than the standard motor and standard drive combination is required. Refer to fan motor and drive tables, pages 33-36, to complete selection.

NOTES:

1. Fan performance is based on deductions for wet coil, clean 2-in. filters, and unit casing. See table at right for factory-supplied filter pressure drop.

Factory Supplied Filter Pressure Drop _ English

UNIT	AIRFLOW (Cfm)	PRESSURE DROP (in. wg)
BHC 090	2,250	0.07
	3,000	0.11
	3,750	0.15
BHC 120	3,000	0.11
	4,000	0.17
	5,000	0.23
BHC 180	4,500	0.08
	6,000	0.12
	7,500	0.17
BAC 0240	6,000	0.12
	8,000	0.19
	10,000	0.26

FAN PERFORMANCE DATA — 0-300 Pa ESP — 50 Hz, SI

UNIT	AIRFLOW (L/s)	EXTERNAL STATIC PRESSURE (Pa)													
		0		50		100		150		200		250		300	
		r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW
BHC090	1000	5.63	0.22	7.61	0.30	9.11	0.38	10.40	0.45	11.50	0.53	<u>12.50</u>	<u>0.61</u>	<u>13.40</u>	<u>0.68</u>
	1200	6.76	0.32	8.49	0.41	9.88	0.50	11.10	0.57	12.10	0.66	<u>13.10</u>	<u>0.74</u>	<u>14.00</u>	<u>0.82</u>
	1400	7.89	0.46	9.42	0.55	10.70	0.64	11.80	0.72	<u>12.80</u>	<u>0.81</u>	<u>13.80</u>	<u>0.89</u>	<u>14.60</u>	<u>0.97</u>
	1600	9.01	0.62	10.40	0.71	11.60	0.80	<u>12.60</u>	<u>0.89</u>	<u>13.60</u>	<u>0.98</u>	<u>14.50</u>	<u>1.07</u>	<u>15.30</u>	<u>1.16</u>
	1800	10.10	0.80	11.40	0.90	<u>12.50</u>	<u>0.10</u>	<u>13.50</u>	<u>1.09</u>	<u>14.40</u>	<u>1.18</u>	<u>15.20</u>	<u>1.27</u>	<u>16.00</u>	<u>1.36</u>
BHC120	1450	8.04	0.49	9.57	0.58	10.90	0.67	12.00	0.76	13.00	0.85	13.90	0.93	<u>14.80</u>	<u>1.02</u>
	1670	9.26	0.67	10.60	0.77	11.80	0.86	12.90	0.95	13.80	1.04	<u>14.70</u>	<u>1.13</u>	<u>15.50</u>	<u>1.22</u>
	1900	10.50	0.89	11.80	0.99	12.80	1.09	13.80	1.19	<u>14.70</u>	<u>1.28</u>	<u>15.60</u>	<u>1.38</u>	<u>16.40</u>	<u>1.47</u>
	2120	11.80	1.14	12.90	1.24	13.90	1.35	<u>14.80</u>	<u>1.45</u>	<u>15.60</u>	<u>1.55</u>	<u>16.40</u>	<u>1.64</u>	<u>17.20</u>	<u>1.74</u>
	2350	13.00	1.43	14.00	1.54	<u>15.00</u>	<u>1.65</u>	<u>15.80</u>	<u>1.75</u>	<u>16.60</u>	<u>1.85</u>	<u>17.40</u>	<u>1.95</u>	<u>18.10</u>	<u>2.05</u>
BHC180	2100	6.65	0.39	8.39	0.58	9.83	0.76	11.10	0.95	<u>12.20</u>	<u>1.13</u>	<u>13.30</u>	<u>1.31</u>	<u>14.20</u>	<u>1.50</u>
	2450	7.76	0.60	9.30	0.81	10.60	1.01	11.80	1.22	<u>12.90</u>	<u>1.43</u>	<u>13.80</u>	<u>1.63</u>	<u>14.80</u>	<u>1.84</u>
	2800	8.87	0.86	10.20	1.09	11.50	1.32	<u>12.50</u>	<u>1.55</u>	<u>13.60</u>	<u>1.78</u>	<u>14.50</u>	<u>2.01</u>	<u>15.40</u>	<u>2.24</u>
	3150	9.98	1.19	11.20	1.44	<u>12.30</u>	<u>1.70</u>	<u>13.40</u>	<u>1.95</u>	<u>14.30</u>	<u>2.20</u>	<u>15.20</u>	<u>2.45</u>	<u>16.00</u>	<u>2.70</u>
	3500	11.10	1.59	<u>12.20</u>	<u>1.86</u>	<u>13.20</u>	<u>2.14</u>	<u>14.20</u>	<u>2.41</u>	<u>15.10</u>	<u>2.68</u>	<u>15.90</u>	<u>2.95</u>	<u>16.70</u>	<u>3.22</u>
BAC240	2900	8.58	0.86	9.96	1.09	11.20	1.32	12.30	1.55	13.30	1.78	14.20	2.01	<u>15.10</u>	<u>2.25</u>
	3350	9.91	1.28	11.10	1.53	12.20	1.79	13.20	2.04	14.20	2.30	<u>15.10</u>	<u>2.55</u>	<u>15.90</u>	<u>2.81</u>
	3800	11.30	1.81	12.30	2.09	13.30	2.37	<u>14.30</u>	<u>2.64</u>	<u>15.10</u>	<u>2.93</u>	<u>16.00</u>	<u>3.21</u>	<u>16.80</u>	<u>3.49</u>
	4250	12.60	2.46	13.60	2.76	<u>14.50</u>	<u>3.07</u>	<u>15.30</u>	<u>3.37</u>	<u>16.10</u>	<u>3.67</u>	<u>16.90</u>	<u>3.98</u>	<u>17.70</u>	<u>4.28</u>
	4700	13.90	3.24	<u>14.80</u>	<u>3.57</u>	<u>15.60</u>	<u>3.90</u>	<u>16.40</u>	<u>4.22</u>	<u>17.20</u>	<u>4.55</u>	<u>17.90</u>	<u>4.88</u>	<u>18.60</u>	<u>5.21</u>

FAN PERFORMANCE DATA — 350-600 Pa ESP — 50 Hz, SI

UNIT	AIR-FLOW (L/s)	EXTERNAL STATIC PRESSURE (Pa)											
		350		400		450		500		550		600	
		r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW
BHC090	1000	<u>14.30</u>	<u>0.76</u>	<u>15.10</u>	<u>0.83</u>	<u>15.80</u>	<u>0.91</u>	<u>16.60</u>	<u>0.99</u>	<u>17.30</u>	<u>1.06</u>	—	—
	1200	<u>14.80</u>	<u>0.90</u>	<u>15.60</u>	<u>0.98</u>	<u>16.40</u>	<u>1.05</u>	<u>17.10</u>	<u>1.13</u>	<u>17.80</u>	<u>1.21</u>	—	—
	1400	<u>15.40</u>	<u>1.06</u>	<u>16.20</u>	<u>1.14</u>	<u>16.90</u>	<u>1.22</u>	<u>17.60</u>	<u>1.30</u>	<u>18.30</u>	<u>1.39</u>	—	—
	1600	<u>16.10</u>	<u>1.24</u>	<u>16.80</u>	<u>1.33</u>	<u>17.50</u>	<u>1.41</u>	<u>18.20</u>	<u>1.50</u>	<u>18.90</u>	<u>1.58</u>	—	—
	1800	<u>16.80</u>	<u>1.45</u>	<u>17.50</u>	<u>1.54</u>	<u>18.20</u>	<u>1.63</u>	<u>18.90</u>	<u>1.72</u>	<u>19.50</u>	<u>1.80</u>	—	—
BHC120	1450	<u>15.60</u>	<u>1.10</u>	<u>16.30</u>	<u>1.18</u>	<u>17.10</u>	<u>1.27</u>	<u>17.80</u>	<u>1.35</u>	<u>18.40</u>	<u>1.43</u>	<u>19.10</u>	<u>1.52</u>
	1670	<u>16.30</u>	<u>1.31</u>	<u>17.00</u>	<u>1.40</u>	<u>17.80</u>	<u>1.48</u>	<u>18.40</u>	<u>1.57</u>	<u>19.10</u>	<u>1.66</u>	<u>19.70</u>	<u>1.74</u>
	1900	<u>17.10</u>	<u>1.56</u>	<u>17.80</u>	<u>1.65</u>	<u>18.50</u>	<u>1.74</u>	<u>19.20</u>	<u>1.83</u>	<u>19.80</u>	<u>1.92</u>	—	—
	2120	<u>17.90</u>	<u>1.83</u>	<u>18.60</u>	<u>1.93</u>	<u>19.30</u>	<u>2.02</u>	<u>19.90</u>	<u>2.11</u>	—	—	—	—
	2350	<u>18.80</u>	<u>2.15</u>	<u>19.50</u>	<u>2.25</u>	—	—	—	—	—	—	—	—
BHC180	2100	<u>15.10</u>	<u>1.68</u>	<u>16.00</u>	<u>1.87</u>	<u>16.80</u>	<u>2.06</u>	<u>17.50</u>	<u>2.24</u>	<u>18.30</u>	<u>2.43</u>	<u>19.00</u>	<u>2.62</u>
	2450	<u>15.60</u>	<u>2.05</u>	<u>16.40</u>	<u>2.25</u>	<u>17.20</u>	<u>2.46</u>	<u>18.00</u>	<u>2.67</u>	<u>18.70</u>	<u>2.88</u>	<u>19.40</u>	<u>3.09</u>
	2800	<u>16.20</u>	<u>2.47</u>	<u>17.00</u>	<u>2.69</u>	<u>17.80</u>	<u>2.92</u>	<u>18.50</u>	<u>3.15</u>	<u>19.20</u>	<u>3.38</u>	<u>19.80</u>	<u>3.61</u>
	3150	<u>16.80</u>	<u>2.95</u>	<u>17.60</u>	<u>3.19</u>	<u>18.30</u>	<u>3.44</u>	<u>19.00</u>	<u>3.69</u>	<u>19.70</u>	<u>3.94</u>	—	—
	3500	<u>17.50</u>	<u>3.49</u>	<u>18.20</u>	<u>3.76</u>	<u>19.00</u>	<u>4.03</u>	<u>19.60</u>	<u>4.30</u>	—	—	—	—
BAC240	2900	<u>16.00</u>	<u>2.49</u>	<u>16.80</u>	<u>2.73</u>	<u>17.50</u>	<u>2.97</u>	<u>18.30</u>	<u>3.22</u>	<u>19.00</u>	<u>3.47</u>	<u>19.70</u>	<u>3.72</u>
	3350	<u>16.70</u>	<u>3.08</u>	<u>17.50</u>	<u>3.34</u>	<u>18.20</u>	<u>3.61</u>	<u>18.90</u>	<u>3.87</u>	<u>19.60</u>	<u>4.14</u>	—	—
	3800	<u>17.50</u>	<u>3.77</u>	<u>18.20</u>	<u>4.06</u>	<u>18.90</u>	<u>4.35</u>	<u>19.60</u>	<u>4.64</u>	—	—	—	—
	4250	<u>18.40</u>	<u>4.59</u>	<u>19.10</u>	<u>4.90</u>	<u>19.80</u>	<u>5.21</u>	—	—	—	—	—	—
	4700	<u>19.30</u>	<u>5.54</u>	<u>20.00</u>	<u>5.87</u>	—	—	—	—	—	—	—	—

LEGEND

ESP — External Static Pressure

Bold indicates field-supplied drive is required.

Plain type indicates standard motor and standard drive.

Underline indicates a different motor and drive combination other than the standard motor and standard drive combination is required. Refer to fan motor and drive tables, pages 33-36, to complete the selection.

NOTES:

- Fan performance is based on deductions for wet coil, clean 51-mm filters, and unit casing. See table at right for factory-supplied filter pressure drop.

FACTORY-SUPPLIED FILTER PRESSURE DROP — SI

UNIT	AIRFLOW (L/s)	PRESSURE DROP (Pa)
BHC090	1000	17
	1400	27
	1800	38
BHC012	1450	28
	1900	42
	2350	56
BHC180	2100	20
	2800	30
	3500	42
BAC240	2900	32
	3800	47
	4700	64

ACCESSORY PLENUM AIR THROW DATA — ENGLISH (Ft)

UNIT	AIRFLOW (Cfm)	VANE DEFLECTION		
		Straight	21-1/2°	45°
BHC090	3,000	45	38	28
BHC120	4,000	55	46	33
BHC180	6,000	50	43	31
BAC240	8,000	60	51	37

NOTE: Throw distances shown are for 75 fpm terminal velocity. Use the following multipliers to determine throw values for other terminal velocities.

TERMINAL VELOCITY (Fpm)	THROW FACTOR
50	X 1.50
100	X 0.75
150	X 0.50

ACCESSORY PLENUM AIR THROW DATA — SI (m)

UNIT	AIRFLOW (L/s)	VANE DEFLECTION		
		Straight	21-1/2°	45°
BHC090	1400	13.87	11.71	8.63
BHC120	1900	16.65	13.93	9.99
BHC180	2800	15.41	13.25	9.55
BAC240	3800	18.17	15.44	11.20

NOTE: Throw distances shown are for 0.381 m/sec terminal velocity. Use the following multipliers to determine throw values for other terminal velocities.

TERMINAL VELOCITY (m/sec)	THROW FACTOR
0.254	X 1.50
0.508	X 0.75
0.762	X 0.50

ACCESSORY PRESSURE DROP — ENGLISH (in. wg)

UNIT	AIRFLOW (Cfm)	DISCHARGE PLENUM	RETURN AIR GRILLE	HEATING COILS			ECONOMIZER
				Hot Water	Steam	Electric	
BHC090	2,250	0.09	0.01	0.15	0.15	0.06	0.06
	3,000	0.14	0.02	0.23	0.23	0.10	0.09
	3,750	0.21	0.03	0.35	0.35	0.15	0.15
BHC120	3,000	0.14	0.02	0.23	0.23	0.10	0.09
	4,000	0.22	0.04	0.37	0.37	0.17	0.17
	5,000	0.32	0.06	0.53	0.53	0.26	0.28
BHC180	4,500	0.10	0.01	0.15	0.15	0.06	0.06
	6,000	0.16	0.02	0.23	0.23	0.10	0.09
	7,500	0.23	0.03	0.33	0.33	0.15	0.15
BAC240	6,000	0.16	0.02	0.23	0.23	0.10	0.09
	8,000	0.26	0.04	0.37	0.37	0.17	0.17
	10,000	0.37	0.06	0.53	0.53	0.26	0.28

ACCESSORY PRESSURE DROP — SI (Pa)

UNIT	AIRFLOW (L/s)	DISCHARGE PLENUM	RETURN AIR GRILLE	HEATING COILS			ECONOMIZER
				Hot Water	Steam	Electric	
BHC090	1000	20	2	33	33	12	13
	1400	34	5	57	57	24	22
	1800	51	8	85	85	39	39
BHC120	1450	36	5	60	60	26	23
	1900	56	10	93	93	43	43
	2350	79	15	132	132	65	69
BHC180	2100	24	2	36	36	14	15
	2800	39	5	57	57	24	22
	3500	56	7	82	82	37	37
BAC240	2900	41	5	60	60	26	23
	3800	64	10	93	93	43	43
	4700	91	15	132	132	65	69

STANDARD MOTORS

See Legend.

UNIT	V*-PH-Hz	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	Minimum Circuit Amps	MOCP
BHC090	400-3-50	360-440	2.4 (1.79)	2.6	3.3	15
BHC120	400-3-50	360-440	2.9 (2.16)	3.4	4.3	15
BHC180	400-3-50	360-440	2.9 (2.16)	3.4	4.3	15
BAC240	400-3-50	360-440	5.0 (3.73)	7.6	9.5	15

ALTERNATE MOTORS

See Legend.

UNIT	V*-PH-Hz	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	Minimum Circuit Amps	MOCP
BHC090	400-3-50	360-440	2.9 (2.16)	3.4	4.3	15
BHC120	400-3-50	360-440	5.0 (3.73)	7.6	9.5	15
BHC180	400-3-50	360-440	5.0 (3.73)	7.6	9.5	15
BAC240	400-3-50	360-440	7.5 (5.59)	11.4	14.3	25

LEGEND

FLA — Full Load Amps

MOCP — Maximum Overcurrent Protection

*Motors are designed for satisfactory operation within 10% of nominal voltages shown. Voltages should not exceed the limits shown in the Voltage Limits column.

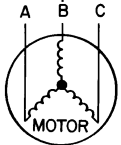
NOTES:

1. Minimum circuit amps (MCA) and MOCP values are calculated in accordance with NEC (National Electrical Code) (U.S.A. standard), Article 440.
2. Motor FLA values are established in accordance with UL (Underwriters' Laboratories) Standard 1995 (U.S.A. standard).
3. **Unbalanced 3-Phase Supply Voltage**
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the % of voltage imbalance.

% Voltage Imbalance =

$$100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example supply voltage is 460-3-60



AB = 393 v
BC = 403 v
AC = 396 v

$$\text{Average voltage} = \frac{393 + 403 + 396}{3}$$

$$= \frac{1192}{3}$$

$$= 397$$

Determine maximum deviation from average voltage

(AB) 397 - 393 = 4v

(BC) 403 - 397 = 6v

(AC) 397 - 396 = 1v

Maximum deviation is 6 v

Determine percent of voltage imbalance.

$$\begin{aligned} \text{\% of Voltage Imbalance} &= 100 \times \frac{6}{397} \\ &= 1.5\% \end{aligned}$$

The amount of phase imbalance is satisfactory as it is below the maximum allowable 2 %.

Important: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company.

TABLE 1 - ELECTRIC HEAT DATA

Heater Part Number	Unit Size (Tons)	V-PH-HZ	FAN MOTOR			ELECTRIC HEATERS					MCA*	MOCP*
						Nominal Capacity (kW)	Actual Capacity (kW)			FLA		
			Hp	kW	FLA		Stage 1	Stage 2	Total			
AAHC05ALA	7-1/2 & 10	400-3-50	2.4	1.79	2.6	5	3.5	-	3.5	5.0	9.5	15
			2.9	2.16	3.4	5	3.5	-	3.5	5.0	10.5	15
			5.0	3.73	7.6	5	3.5	-	3.5	5.0	15.8	20
AAHC10ALA	7-1/2 & 10	400-3-50	2.4	1.79	2.6	10	6.9	-	6.9	10.0	15.8	20
			2.9	2.16	3.4	10	6.9	-	6.9	10.0	16.8	20
			5.0	3.73	7.6	10	6.9	-	6.9	10.0	22.0	25
AAHC15ALA	7-1/2 & 10	400-3-50	2.4	1.79	2.6	15	10.4	-	10.4	15.0	22.0	25
			2.9	2.16	3.4	15	10.4	-	10.4	15.0	23.0	25
			5.0	3.73	7.6	15	10.4	-	10.4	15.0	28.3	30
AAHC25ALA	7-1/2 & 10	400-3-50	2.4	1.79	2.6	25	10.4	6.9	17.4	25.1	34.6	25
			2.9	2.16	3.4	25	10.4	6.9	17.4	25.1	35.6	40
			5.0	3.73	7.6	25	10.4	6.9	17.4	25.1	40.8	50
AAHC35CLA	7-1/2 & 10	400-3-50	2.4	1.79	2.6	35	13.9	10.4	24.3	35.1	47.1	50
			2.9	2.16	3.4	35	13.9	10.4	24.3	35.1	48.1	50
			5.0	3.73	7.6	35	13.9	10.4	24.3	35.1	53.4	60
AAHC10BLA	15 & 20	400-3-50	2.9	2.16	3.4	10	6.9	-	6.9	10.0	16.8	20
			5.0	3.73	7.6	10	6.9	-	6.9	10.0	22.0	25
			7.5	5.59	11.4	10	6.9	-	6.9	10.0	26.8	35
AAHC20BLA	15 & 20	400-3-50	2.9	2.16	3.4	20	13.9	-	13.9	20.0	29.3	30
			5.0	3.73	7.6	20	13.9	-	13.9	20.0	45.1	50
			7.5	5.59	11.4	20	13.9	-	13.9	20.0	49.2	50
AAHC30BLA	15 & 20	400-3-50	2.9	2.16	3.4	30	13.9	7.9	20.8	30.1	41.8	50
			5.0	3.73	7.6	30	13.9	7.9	20.8	30.1	47.1	50
			7.5	5.59	11.4	30	13.9	7.9	20.8	30.1	51.8	60
AAHC50DLA	15 & 20	400-3-50	2.9	2.16	3.4	50	20.8	13.9	34.7	50.1	66.9	70
			5.0	3.73	7.6	50	20.8	13.9	34.7	50.1	72.1	80
			7.5	5.59	11.4	50	20.8	13.9	34.7	50.1	76.9	80

FLA - Full Load Amps, **Hp** - Horsepower, **MCA** - Minimum Circuit Ampacity, **MOCP** - Maximum Overcurrent Protection (Amps)

* Values shown are for single-point connection of electric heat accessory and air handler.

NOTES: 1. The following equation converts kW of heat energy to Btuh: kW x 3.412 = Btuh. 2. Heater contactor coils are 24v and require 8 va holding current. 3. Electric heaters are tested and ETL approved at max. total external static pressure of 1.9 wg. MCA and MOCP values apply to both standard and alternate factory supplied motors.

Heater Rating Voltage	ACTUAL HEATER VOLTAGE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	-	-	-	-	-	-	-
480	-	-	-	-	0.694	0.84	0.918	1	-	-	-
575	-	-	-	-	-	-	-	-	0.915	1	1.089

FAN MOTOR DATA

Fan Motor Data - Medium Static - English					Fan Motor Data - Medium Static - SI			
UNIT	BHC090	BHC120	BHC180	BAC240	BHC090	BHC120	BHC180	BAC240
Volt-Ph-Hz	400-3-50				400-3-50			
Speed (rpm)	1725	1725	1725	1745	28.75	28.75	28.75	29.08
Hp	2.0	2.0	3.0	5.0	1.49	1.49	2.24	3.73
Frame (NEMA)	56HZ	56HZ	56HZ	184T	56HZ	56HZ	56HZ	184T
Shaft Dia (in.)	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{11}{8}$	22.2	22.2	22.2	28.6

LEGEND

NEMA — National Electrical Manufacturers Association (U.S.A.)

MEDIUM-STATIC DRIVE DATA, 50 Hz — ENGLISH

UNIT	BHC090	BHC120	BHC180	BAC240
MOTOR DRIVE				
Motor Pulley Pitch Diameter (in.)	3.4-4.4	3.4-4.4	3.7-4.7	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	2.5	3.0	3.0
FAN DRIVE				
Pulley Pitch Dia (in.)	8.0	8.0	8.6	9.4
Pulley Bore (in.)	1	1	$1\frac{7}{16}$	$1\frac{7}{16}$
Belt No. — Section	1—A	1—A	1—B	2—B
Belt Pitch (in.)	40.3	40.3	41.8	41.8
FAN SPEEDS (rpm)				
Factory Setting	794	926	756	916
Range	692 - 896	808 - 1045	667 - 848	814 - 1018
Max Allowable Speed (rpm)	1200	1200	1200	1200
Change per $\frac{1}{2}$ Turn of Moveable Motor Pulley Flange	20.4	23.7	15.1	20.4
MAX FULL TURNS FROM CLOSED POSITION	5	5	6	5
SHAFTS CENTER DISTANCE (in.)	10.44 - 12.32	10.44 - 12.32	10.44 - 12.32	9.16 - 10.99

MEDIUM-STATIC DRIVE DATA, 50 Hz — SI

UNIT	BHC090	BHC120	BHC180	BAC240
MOTOR DRIVE				
Motor Pulley Pitch Diameter (mm)	86.4- 111.8	86.4- 111.8	94.0- 119.4	109.2- 134.6
Pulley Factory Setting Full Turns Open	2.5	2.5	3.0	3.0
FAN DRIVE				
Pulley Pitch Dia (mm)	203	203	218	239
Pulley Bore (mm)	25.4	25.4	36.5	36.5
Belt No. — Section	1—A	1—A	1—B	2—B
Belt Pitch (mm)	1024	1024	1062	1062
FAN SPEEDS (r/s)				
Factory Setting	13.2	15.4	12.6	15.3
Range	11.5 - 14.9	13.5 - 17.4	11.1 - 14.1	13.6 - 17.0
Max Allowable Speed (r/s)	20.0	20.0	20.0	20.0
Change per $\frac{1}{2}$ Turn of Moveable Motor Pulley Flange	0.340	0.395	0.252	0.340
MAX FULL TURNS FROM CLOSED POSITION	5	5	6	5
SHAFTS CENTER DISTANCE (mm)	265-313	265-313	265-313	232-279

ACCESSORIES

ELECTRIC HEATER ACCESSORIES

Heater Part Number	kW	V-PH-HZ	Used on Unit Size (Tons)
AAHC05ALA	5	400-3-50	7-1/2 & 10
AAHC10ALA	10	400-3-50	7-1/2 & 10
AAHC15ALA	15	400-3-50	7-1/2 & 10
AAHC25ALA	25	400-3-50	7-1/2 & 10
AAHC35CLA	35	400-3-50	7-1/2 & 10
AAHC10BLA	10	400-3-50	15 & 20
AAHC20BLA	20	400-3-50	15 & 20
AAHC30BLA	30	400-3-50	15 & 20
AAHC50DLA	50	400-3-50	15 & 20

ACCESSORIES

Model Number	Description	Used on Unit Size (Tons)
AGRC01AA	RETURN AIR GRILLE	7-1/2 & 10
AGRC02BA	RETURN AIR GRILLE	15 & 20
ASPC01AA	STEAM COIL (1 ROW)	7-1/2 & 10 Ton
ASPC02BA	STEAM COIL (1 ROW)	15 & 20
ASBC01A	FLOOR MOUNT BASE (SUBBASE)	7-1/2 to 20
AHBC01A	OVERHEAD SUSPENSION BRACKETS	7-1/2 to 20
ACSC01A	CONDENSATE OVERFLOW SWITCH	7-1/2 to 20
APDC01AA	DISCHARGE PLENUM	7-1/2 & 10
APDC02BA	DISCHARGE PLENUM	15 & 20
AEMC01AA	ECONOMIZER	7-1/2 & 10
AEMC02BA	ECONOMIZER	15 & 20
AHWC01AA	HOT WATER COIL (2 ROW)	7-1/2 & 10
AHWC02BA	HOT WATER COIL (2 ROW)	15 & 20

GUIDE SPECIFICATIONS

Commercial Packaged Air-Handling Unit

HVAC Guide Specifications

Size Range: **2,400 to 8,000 Cfm (1150 to 3766 L/s), Nominal Airflow 7-1/2 to 20 Tons (21 to 70 kW), Nominal Cooling**

Model Numbers: **BAC (Direct-Expansion Coil) BHC (Direct-Expansion Heat Pump Coil)**

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

- A. Indoor, packaged air-handling unit for use in commercial split systems. Unit shall have a multiposition design and shall be capable of horizontal or vertical installation on a floor or in a ceiling, with or without ductwork. (Only vertical units are to be applied without ductwork.)
- B. Unit with direct-expansion coil shall be used in a refrigerant circuit with a matching air-cooled condensing unit.

1.02 QUALITY ASSURANCE

- A. Coils shall be designed and tested in accordance with ASHRAE 15 Safety Code for Mechanical Refrigeration (U.S.A.), latest edition.
- B. Unit shall be constructed in accordance with ETL (U.S.A.) and ETL, Canada, standards and shall carry the ETL and ETL, Canada, labels.
- C. Unit insulation and adhesive shall comply with NFPA-90A (U.S.A.) requirements for flame spread and smoke generation. Insulation shall contain an EPA-registered immobilized antimicrobial agent to effectively resist the growth of bacteria and fungi as proven by tests in accordance with ASTM standards G21 and 22 (U.S.A.).
- D. Unit shall be manufactured in a facility registered to the ISO 9002 manufacturing quality standard.
- E. Direct-expansion coils shall be burst and leak tested at 435 psi (2999 kPa).

1.03 DELIVERY AND STORAGE

Units shall be stored and handled per manufacturer's recommendations.

Part 2 - Products

2.01 EQUIPMENT

Indoor mounted, draw-thru, packaged air-handling unit that can be used in a suspended horizontal configuration or a vertical configuration. Unit shall consist of forward-curved belt-driven centrifugal fan(s), motor and drive assembly, prewired fan motor contactor, factory-installed refrigerant metering

devices (direct-expansion coil units), cooling coil, 2-in. (51-mm) disposable air filters, and condensate drain pans for vertical or horizontal configurations.

A. Base Unit:

- 1. Cabinet shall be constructed of mill-galvanized steel.
- 2. Cabinet panels shall be fully insulated with 1/2-in. (12.7-mm) fire-retardant material. Insulation shall contain an EPA registered immobilized antimicrobial agent to effectively resist the growth of bacteria and fungi as proven by tests in accordance with ASTM standards G21 and 22 (U.S.A.).
- 3. Unit shall contain PVC condensate drain pans for both vertical and horizontal applications. Drain pans shall have connections on right and left sides of unit to facilitate field connection. Drain pans shall have the ability to be sloped toward the right or left side of the unit to prevent standing water from accumulating in pans.
- 4. Unit shall have factory-supplied 2-in. (51 mm) throwaway-type filters installed upstream from the cooling coil. Filter access shall be from either the right or left side of the unit.

B. Coils:

Coils shall consist of 3 rows (BHC090), or 4 rows (BHC120) of copper tubes with sine-wave aluminum fins bonded to the tubes by mechanical expansion. Suction and liquid line connections or supply and discharge connections shall be made on the same side of the coil.

- 1. Direct-expansion coils shall feature factory-installed thermostatic expansion valves (TXVs) for refrigerant control. The TXVs shall be capable of external adjustment. Direct-expansion heat pump coils shall have a factory-installed bypass line and check valve assembly around the TXVs to allow liquid flow from the coil to the outdoor unit during the heating mode. Coil tubing shall be internally rifled to maximize heat transfer.

C. Operating Characteristics:

Unit shall be capable of providing _____ cfm (L/s) airflow at an external static pressure of _____ in. wg (kPag).

D. Motor:

Fan motor of the size and electrical characteristics specified on the equipment schedule shall be factory supplied and installed.

Motors rated at 1.3 through 3.7 hp (0.97 through 2.76 kW) shall have internal thermal overload protection. Motors rated at 5 and 7 1/2 hp (3.73 and 5.60 kW) shall be protected by a circuit breaker.

E. Factory-Installed Options:

1. Alternate Motor and Drive:

An alternate motor and/or medium- or high-static drive shall be available to meet the airflow and external static pressure requirements specified on the equipment schedule.

F. Field-Installed Accessories:

1. Hot Water Coil:

Coil shall be 2-row, U-bend coil with copper tubes and aluminum plate fins bonded to the tubes by mechanical expansion. Coil shall be mounted in a galvanized steel housing that shall be fastened to the unit's fan deck for blow-thru heating operation. Coil shall have maximum working pressure of 150 psig (1034 kPag).

2. Steam Distributing Coil:

Coil shall consist of one row of copper tubes with aluminum plate fins, and shall have inner steam distributing tubes. Coil shall be mounted in a galvanized steel housing and shall be fastened to the unit's fan deck for blow-thru heating operation. Coil shall have maximum working pressure of 175 psig at 400 F (1207 kPag at 204.4 C).

3. Electric Heaters:

Heaters for nominal 240, 480, or 575-volt, 3-phase, 60 Hz; power supply shall be factory-supplied for field installation as shown on the equipment drawings. Electric heat assembly shall be ETL (U.S.A.) and ETL, Canada, agency approved, and shall have single-point power wiring. Heater assembly shall include contactors with 24-v coils, power wiring, 24-v control wiring terminal blocks, and a hinged access panel. Electric heaters shall not be used with air discharge plenum.

4. Air Discharge Plenum:

Plenum shall be factory supplied to provide free-blow air distribution for vertical floor mounted units. A grille with moveable vanes for horizontal or vertical airflow adjustment shall be included. Plenum shall be field-assembled and field-installed on the unit's fan deck for blow-thru air distribution. Plenum shall not be used with electric heaters.

5. Return Air Grille:

Grille shall be factory supplied for field installation on the unit's return air opening.

6. Unit Subbase:

Subbase assembly shall be factory supplied for field installation. Subbase shall elevate floor-mounted vertical units to provide access for correct condensate drain connection.

7. Economizer:

Economizer for ventilation or "free" cooling shall be factory provided for field installation on either return air opening of air handler. For free cooling applications, economizer shall be compatible with separate thermostat; economizer dampers shall open when outdoor air enthalpy is suitable for free cooling. Economizer shall be compatible with separate CO₂ sensor accessory; economizer dampers shall open when indoor CO₂ level rises above predetermined set point. Economizer shall include enthalpy control and damper actuator.

8. Overhead Suspension Package:

Package shall include necessary brackets to support units in a horizontal ceiling installation.

9. Condensate Drain Trap:

Trap shall have transparent, serviceable design for easy cleaning. Kit shall include overflow shutoff switch and wiring harness for connection to an alarm if desired.