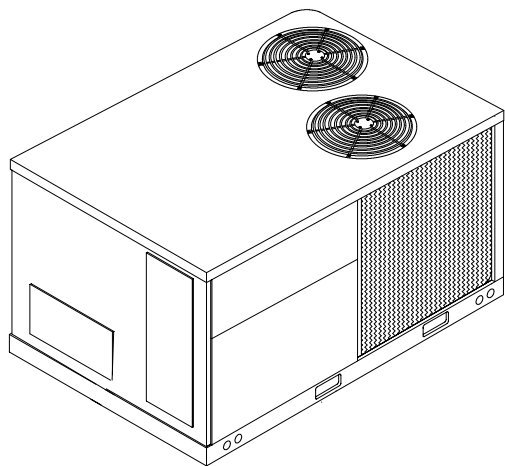


PAS SERIES

7- 1/2 to 12- 1/2 Ton



PAS090, 120, 150

Commercial Package Electric Cooling Units

Standard-Efficiency Single Package Rooftop Units with:

- Pre-painted galvanized steel cabinet for long life and quality appearance
- Commercial strength base rails with built-in rigging capability
- Convertible design for vertical or horizontal supply/return
- Non-corrosive, sloped condensate drain pan, meets ASHRAE 62
- Two-inch return-air filters
- High and low (loss-of-charge) pressure switches and freezestat
- Refrigerant filter drier
- Part load operation using two stages of cooling
- Quiet and efficient operation is provided by belt driven evaporator fans
- Thru-the-bottom utility connection capability allow power, control and wiring to be routed through unit base pan, minimizing roof penetrations.
- Warranty: Five year compressor, One year parts



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

513 71 1801 04
6/23/03

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MODEL NUMBER IDENTIFICATION GUIDE

MODEL NUMBER	P	A	S	090	H	000	A	Sales Code
PRODUCT FAMILY Package Units								
TYPE H= Heat Pump G = Gas/Electric A = Air Conditioner								OPTIONS
DESIGN SERIES								VOLTAGE / PHASE / HERTZ H = 208/230-3-60 L = 460-3-60 S = 575-3-60
								COOLING CAPACITY (NOMINAL BTUH) 090 = 7-1/2 120 = 10 Ton 150 = 12-1/2 Ton

UNIT SPECIFICATIONS (Legend on Next Page)				MODELS					
COOLING	PAS090H	PAS090L	PAS090S	PAS120H	PAS120L	PAS120S	PAS150H	PAS150L	PAS150S
ARI Rated Capacity Btuh (Net)	84,000			115,000			142,000		
Nominal Tons	7-1/2			10			12-1/2		
Standard CFM	2800			4000			4500		
EER	8.9			8.9			8.8		
IPLV	9.25			9.25			9.1		
Sound Rating (Bels)	8.7			8.8			8.7		
Unit Weight (lbs. / kg)	755 / 342			915 / 415			930 / 422		
ELECTRICAL	PAS090H	PAS090L	PAS090S	PAS120H	PAS120L	PAS120S	PAS150H	PAS150L	PAS150S
Volts/ 3 Phase/ 60Hertz	208/230	460	575	208/230	460	575	208/230	460	575
Voltage Range Min/Max	187 / 254	414 / 508	518 / 632	187 / 254	414 / 508	518 / 632	187 / 254	414 / 508	518 / 632
Power Supply MCA	40.1 / 40.1	18.4	14.9	43.1 / 43.1	21.0	17.9	65.2 / 65.2	29.6	23.6
Power Supply MOCPS*	45 / 45	20	20	50 / 50	25	20	70 / 70 **	40	30
COMPRESSOR	RECIPROCATING			RECIPROCATING			SCROLL		
Quantity	2 (CR42K6)			2 (GR20KN)			2 (SR*752AE)		
Oil (Oz.)	42 ea			54 ea			54 ea		
RLA / LRA	14.0 / 91.0	6.4 / 42.0	5.2 / 39.0	15.8 / 130	7.9 / 64.0	6.6 / 52.0	23 / 146.0	10.4 / 73.0	8.3 / 58.4
REFRIGERANT TYPE	R-22								
Expansion Device	Fixed Orifice Metering Device								
Operating Charge....lb. oz....Circuit 1	4 - 13			7 - 3			8 - 10		
...Circuit 2	4 - 14			7 - 13			8 - 6		
CONDENSER FAN	Propeller Type								
Nominal CFM	6400			7000			7000		
Quantity..Diameter (In.)	2...22			2...22			2...22		
Motor Hp...RPM	1/4...1100			1/4...1100			1/4...1100		
Watts Input (Total)	600			600			600		
FLA	1.4	0.7	0.7	1.4	0.7	0.7	1.4	0.7	0.7
CONDENSER COIL	Enhanced Copper Tubes, Aluminum Lanced fins								
Rows...Fin/In.	1...17			2...17			2...17		
Total Face Area (Sq. Ft.)	20.50			20.47			25.0		
EVAPORATOR COIL	Enhanced Copper Tubes, Aluminum Double Wavy Fins								
Rows...Fins/Inche	3...15			3...15			4...15		
Total Face Area (sq. ft.)	8.0			10.0			11.1		
EVAPORATOR FAN	Centrifugal Type								
Quantity...Size (in.)	1...15 x 15			1...15 x 15			1...15 x 15		
Type Drive	Belt			Belt			Belt		
Nominal CFM	3000			4000			5000		
Max. Continuous Brake Horsepower	2.4			2.4			3.7		
FLA-208-230/460/575V	5.8/2.6/2.6			5.8/2.6/2.6			10.6/4.8/4.8		
Motor Frame Size	56			56			56		
Fan RPM Range	590-840			685-935			860-1080		
Motor Bearing	Ball			Ball			Ball		
Maximum Allowable RPM	2100			2100			2100		
Motor Pulley Pitch / Diameter Min/Max. (in.)	2.4 / 3.4			2.8 / 3.8			4.0 / 5.0		
Motor Shaft Diameter (in.)	5/8			5/8			7/8		
Fan Pulley Pitch Diam (in)	7.0			7.0			8.0		
Belt, Quantity...Type... Length (in.)	1...A...49			1...A...49			1...A...52		
Pulley Center Line Distance (in)	16.75-19.25			15.85-17.50			15.85-17.50		
Speed Change per Full Turn of Movable Pulley Flange (RPM)	50			50			44		
Pulley Max. full Turns From Closed Postion	5			5			5		
Factory Setting	5			5			5		
Factory Speed Setting RPM	590			685			860		
Fan Shaft Diam. at Pulley	1			1			1		

UNIT SPECIFICATIONS (CONT)		MODELS		
		PAS090	PAS120	PAS150
HIGH-PRESSURE SWITCH (psig)				
Standard Compressor		450 +/- 50	450 +/- 50	500 +/- 50
Internal Relief (Differential) Cutout		428	428	428
Reset (Auto.)		320	320	320
LOSS-OF-CHARGE SWITCH (psig) (LOW-PRESS.)				
Cutout		7 +/- 3	7 +/- 3	7 +/- 3
Reset (Auto.)		22 +/- 7	22 +/- 7	22 +/- 7
FREEZE PROTECTION THERMOSTAT (F)				
Opens		30 +/- 5	30 +/- 5	30 +/- 5
Closes		45 +/- 5	45 +/- 5	45 +/- 5
RETURN-AIR FILTERS (THROWAWAY)				
Quantity...Size (in.)		4...16 x 20 x 2	4...20 x 20 x 2	4...20 x 20 x 2

LEGENDS AND NOTES

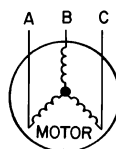
Bhp = Brake Horsepower

Legend

Bels	-	Sound Levels
EER	-	Energy Efficiency Ratio
IPLV	-	Integrated Part Load Values
MCA	-	Minimum Circuit Amps
MOCP	-	Maximum Over-current Protection
FLA	-	Full Load Amps
LRA	-	Locked Rotor Amps
*	-	Fuse or HACR circuit breaker
RLA	-	Rated Load Amps

NOTES: 1. Rated in accordance with ARI Standards 210/240, latest revision (for sizes 090 & 120) or 360, latest revision (for size 150).
2. ARI ratings are net values, reflecting the effects of circulating fan heat.
3. Ratings are based on:
Cooling Standard: 80F db, 67F wb indoor entering air temperature and 95F db air entering outdoor unit.
IPLV Standard: 80F db, 67F wb indoor entering air temperature and 80F db entering air temperature.

EXAMPLE: Supply voltage is 460-3-60.



AB = 452 v
BC = 464 v
AC = 455 v

$$\begin{aligned} \text{Average Voltage} &= \frac{452 + 464 + 455}{3} \\ &= \frac{1371}{3} \\ &= 457 \end{aligned}$$

NOTES:

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the over-current protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.

2. 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 percent voltage imbalance.

% Voltage Imbalance

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

Determine maximum deviation from average voltage.

(AB) 457 - 452 = 5 V

(BC) 464 - 457 = 7 V

(AB) 457 - 455 = 2 V

Maximum deviation is 7 v.

Determine percent voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{7}{457} \\ &= 1.53\% \end{aligned}$$

This 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 immediately.

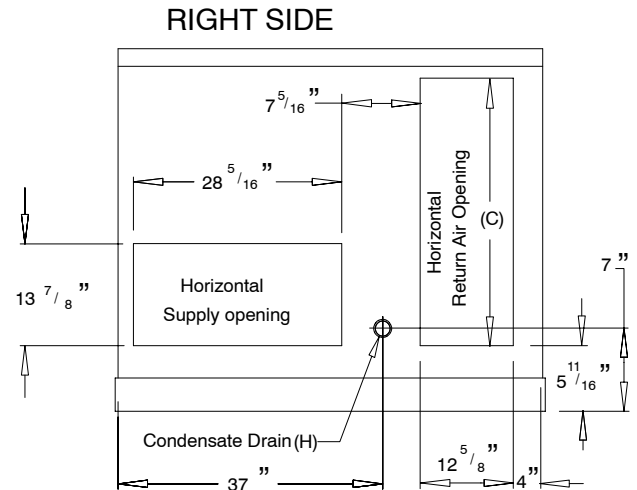
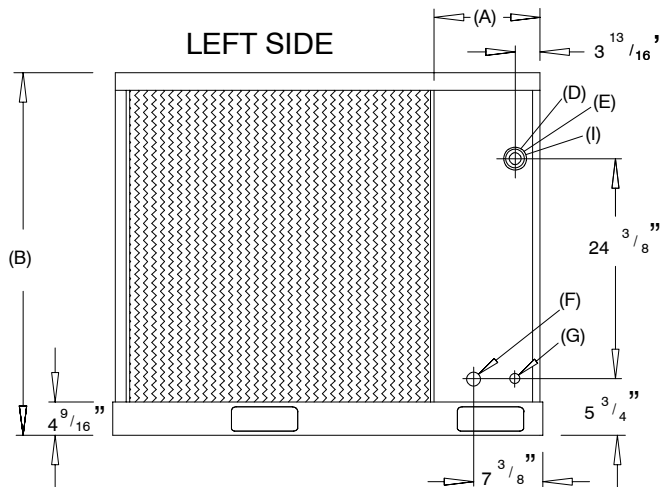
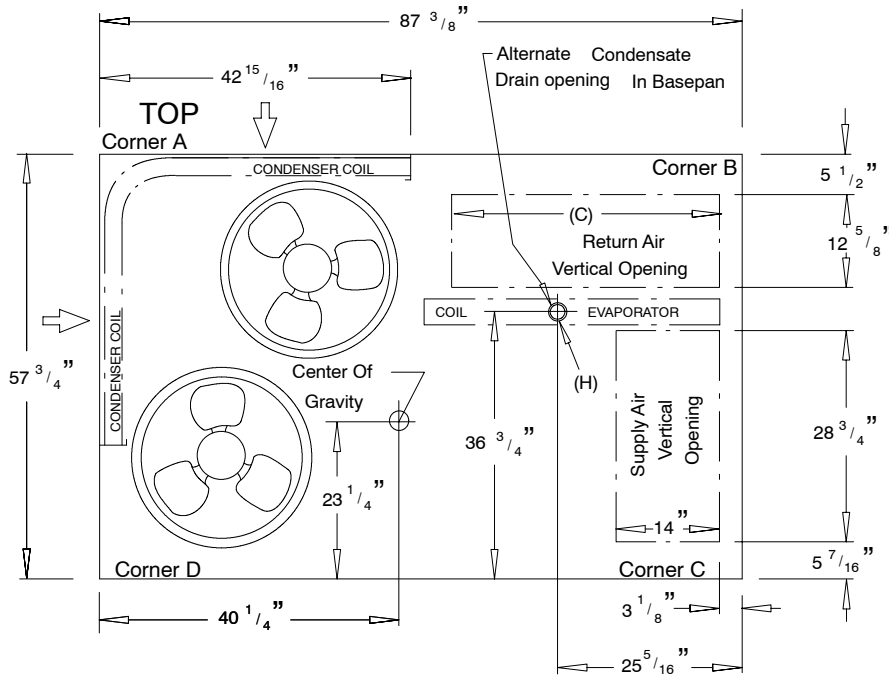
BASE UNIT DIMENSIONS PAS090-150

Unit	Total		Corner A		Corner B		Corner C		Corner D		Dim A		Dim B		Dim C	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	ft-in	mm	ft-in	mm	ft-in	mm
PAS090	755	342	164	74	140	64	208	94	243	110	1-2 ⁷ / ₈	378	3-5 ⁵ / ₁₆	1050	2-9 ¹¹ / ₁₆	856
PAS120	915	415	199	90	170	77	252	114	294	134	2-5 ⁷ / ₈	759	4-1 ¹⁵ / ₁₆	1253	3-0 ³ / ₈	924
PAS150	930	422	202	92	172	78	256	116	300	136	1-2 ⁷ / ₈	378	4-1 ¹⁵ / ₁₆	1253	3-0 ³ / ₈	924

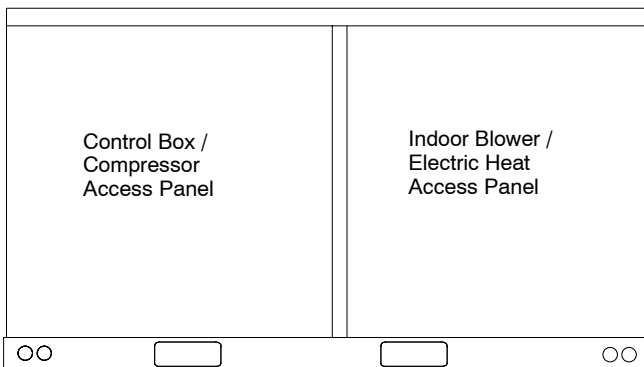
THREADED CONDUIT SIZE	WIRE USE	REQUIRED HOLE SIZES (MAX.)
1/2"	24	7/8" [22]
3/4"	Power*	1-1/8" [28.4]
1-1/4" FPT	Power*	1-3/4" [44.4]

* Select either 3/4" or 1-1/4" for power, depending on wire size.

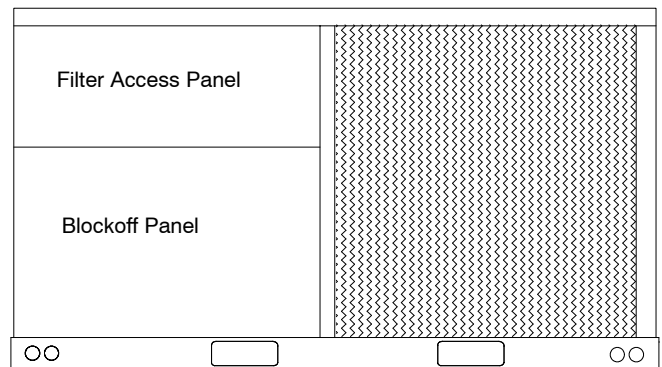
Connection Sizes	
D	1-3/8" Dia (35) Field Power Supply Hole
E	2-1/2" Dia (64) Power Supply Knockout
F	1-3/4" Dia (44) Charging Port Hole
G	7/8" Dia (22) Field Control Wiring Hole
H	3/4"-14 NPT Condensate Drain
I	2" Dia (51) Power Supply Knockout



FRONT



BACK



EXPANDED PERFORMANCE DATA (COOLING) 7-1/2 Ton (GROSS Capacity)

Airflow CFM IDB*(BF)			Outdoor Ambient Temperature - Degrees F, Dry Bulb														
			75			85			95			105			115		
			Entering Indoor Air Temperature - Degrees F, Wet Bulb														
			62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
80	3750 (0.12)	MBU	92.2	100.1	107.6	88.3	95.3	103.0	83.9	89.8	97.9	79.4	84.1	92.4	74.9	78.2	86.3
		S/T	0.99	0.76	0.53	1.00	0.79	0.54	1.00	0.82	0.56	1.00	0.85	0.58	1.00	0.89	0.60
		KW	6.76	7.07	7.35	7.29	7.56	7.86	7.80	8.04	8.37	8.29	8.51	8.85	8.81	8.96	9.34
	3000 (0.10)	MBU	89.4	97.5	104.8	84.7	93.0	101.1	80.0	87.7	96.1	74.9	82.1	90.2	69.9	76.2	84.3
		S/T	0.93	0.71	0.50	0.95	0.73	0.51	0.97	0.75	0.53	0.99	0.78	0.54	1.00	0.81	0.56
		KW	6.62	6.93	7.21	7.11	7.43	7.74	7.58	7.92	8.27	8.08	8.37	8.73	8.59	8.83	9.20
	2800 (0.09)	MBU	88.7	96.7	104.2	83.9	92.2	100.3	78.8	87.1	95.5	73.5	81.6	89.6	68.6	75.6	83.9
		S/T	0.91	0.69	0.50	0.93	0.71	0.51	0.97	0.73	0.52	0.99	0.76	0.53	1.00	0.79	0.54
		KW	6.58	6.88	7.17	7.07	7.39	7.70	7.53	7.88	8.23	8.02	8.33	8.67	8.51	8.79	9.16
	2250 (0.07)	MBU	84.9	93.4	101.3	80.4	88.8	96.7	75.5	83.9	92.4	69.7	78.6	87.1	65.0	72.7	81.6
		S/T	0.85	0.65	0.48	0.87	0.67	0.49	0.90	0.68	0.49	0.93	0.70	0.50	0.96	0.73	0.51
		KW	6.40	6.72	7.03	6.90	7.23	7.55	7.37	7.72	8.06	7.86	8.18	8.55	8.29	8.65	9.02

FORMULAS AND NOTES FOR USING EXPANDED PERFORMANCE DATA

To find leaving wet bulb and dry bulb from the expanded performance charts, use the following formulas.

1. Direct interpolation is permissible. Do not extrapolate.

2. The following formulas may be used:

$$t/db = t\ edb - \text{sensible capacity Btuh} / (1.10 \times \text{cfm})$$

$$t/wb = \text{Wet bulb temp. corresponding to enthalpy of air leaving evaporator coil (h /wb)}$$

$$h/wb = h\ ewb - \text{total capacity Btuh} / (4.5 \times \text{cfm})$$

where h ewb = Enthalpy of air entering evap. coil

3. The SHC is based on 80F edb of air entering evap coil.
Below 80F edb, subtract (corr factor x cfm) from SHC.
Above 80F edb, add (corr factor x cfm) to SHC.

LEGEND

MBH = Total Capacity (Gross)
S/T = Sensible to Total Ratio
KW = Compressor Motor Power Input.
IDB = Indoor Dry Bulb
edb = Entering Dry Bulb
ewb = Entering Wet Bulb
t/db = Leaving Dry Bulb
t/wb = Leaving Wet Bulb
h/wb = Enthalpy of Leaving Wet Bulb
SHC = Sensible Heat Capacity

BYPASS FACTOR (BF)	ENTERING AIR DRY BULB					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
	Correction Factor					
.05	1.04	2.07	3.11	4.14	5.18	Use formulas shown below
.10	0.98	1.96	2.94	3.92	4.90	
.20	0.87	1.74	2.62	3.49	4.36	
.30	0.76	1.53	2.29	3.05	3.82	

$$\text{Correction Factor} = 1.10 \times (1 - \text{BF}) \times (\text{edb} - 80).$$

EXPANDED PERFORMANCE DATA (COOLING) 10 Ton (GROSS Capacity)

Airflow CFM IDB*(BF)			Outdoor Ambient Temperature - Degrees F, Dry Bulb														
			75			85			95			105			115		
			Entering Indoor Air Temperature - Degrees F, Wet Bulb														
			62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
80	5000 (0.15)	MBU	121.8	132.2	144.3	117.0	126.0	137.9	112.4	120.2	130.8	106.4	113.4	124.1	101.3	108.2	120.8
		S/T	1.00	0.78	0.54	1.00	0.80	0.55	1.00	0.82	0.56	1.00	0.85	0.58	1.00	0.88	0.59
		KW	9.27	9.60	10.02	9.94	10.25	10.68	10.67	10.97	11.35	11.48	11.71	12.09	11.82	12.02	12.41
	4000 (0.125)	MBU	118.0	128.6	140.3	112.8	123.1	134.0	105.3	117.1	127.6	97.0	110.1	120.9	92.0	102.2	118.2
		S/T	0.94	0.72	0.51	0.96	0.73	0.52	0.99	0.76	0.53	1.00	0.78	0.55	1.00	0.82	0.55
		KW	9.13	9.47	9.85	9.79	10.13	10.51	10.47	10.83	11.21	11.24	11.56	11.95	11.60	11.88	12.29
	3000 (0.095)	MBU	110.3	122.9	133.8	102.4	117.8	128.1	95.2	112.0	122.2	86.6	103.0	116.3	82.9	96.5	113.3
		S/T	0.87	0.66	0.49	0.90	0.67	0.49	0.93	0.69	0.50	0.97	0.71	0.51	0.99	0.74	0.52
		KW	8.96	9.27	9.61	9.59	9.92	10.25	10.24	10.62	10.96	10.95	11.35	11.75	11.23	11.64	12.08

FORMULAS AND NOTES FOR USING EXPANDED PERFORMANCE DATA

To find leaving wet bulb and dry bulb from the expanded performance charts, use the following formulas.

- Direct interpolation is permissible. Do not extrapolate.
- The following formulas may be used:

$$t/db = t\ edb - \text{sensible capacity Btuh} / (1.10 \times \text{cfm})$$

$$t/wb = \text{Wet bulb temp. corresponding to enthalpy of air leaving evaporator coil (h/wb)}$$

$$h/wb = h\ ewb - \text{total capacity Btuh} / (4.5 \times \text{cfm})$$
 where h ewb = Enthalpy of air entering evap. coil
- The SHC is based on 80F edb of air entering evap coil.
Below 80F edb, subtract (corr factor x cfm) from SHC.
Above 80F edb, add (corr factor x cfm) to SHC.

LEGEND

MBH = Total Capacity (Gross)
 S/T = Sensible to Total Ratio
 KW = Compressor Motor Power Input.
 IDB = Indoor Dry Bulb
 edb = Entering Dry Bulb
 ewb = Entering Wet Bulb
 t/db = Leaving Dry Bulb
 t/wb = Leaving Wet Bulb
 h/wb = Enthalpy of Leaving Wet Bulb
 SHC = Sensible Heat Capacity

BYPASS FACTOR (BF)	ENTERING AIR DRY BULB					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
	Correction Factor					
.05	1.04	2.07	3.11	4.14	5.18	Use formulas shown below
.10	0.98	1.96	2.94	3.92	4.90	
.20	0.87	1.74	2.62	3.49	4.36	
.30	0.76	1.53	2.29	3.05	3.82	

Correction Factor = $1.10 \times (1 - BF) \times (edb - 80)$.

EXPANDED PERFORMANCE DATA (COOLING) 12-1/2 Ton (GROSS Capacity)

Airflow CFM IDB*(BF)			Outdoor Ambient Temperature - Degrees F, Dry Bulb														
			75			85			95			105			115		
			Entering Indoor Air Temperature - Degrees F, Wet Bulb														
			62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
80	6250 (0.12)	MBU	159.4	172.1	184.4	153.5	164.8	178.8	147.4	157.1	170.6	141.1	148.9	162.8	134.0	140.6	152.9
		S/T	0.99	0.77	0.55	1.00	0.80	0.56	1.00	0.82	0.57	1.00	0.85	0.58	1.00	0.88	0.60
		KW	10.71	11.02	11.32	11.64	11.96	12.34	12.59	12.91	13.34	13.56	13.86	14.36	14.51	14.79	15.26
	5000 (0.10)	MBU	154.1	167.6	180.2	147.5	160.6	174.2	140.7	153.4	167.0	133.0	145.4	158.5	125.9	137.3	150.0
		S/T	0.94	0.72	0.52	0.96	0.73	0.52	0.98	0.75	0.54	1.00	0.77	0.55	1.00	0.80	0.56
		KW	10.57	10.90	11.20	11.46	11.83	12.20	12.37	12.78	13.20	13.28	13.70	14.16	14.21	14.65	15.14
	4500 (0.09)	MBU	151.9	165.0	178.3	144.8	158.3	171.6	137.0	151.2	164.3	128.2	152.1	156.4	120.6	134.9	148.2
		S/T	0.91	0.69	0.50	0.93	0.71	0.51	0.96	0.72	0.52	0.98	0.70	0.53	1.00	0.77	0.54
		KW	10.53	10.84	11.15	11.41	11.76	12.13	12.27	12.70	13.10	13.15	13.61	14.10	14.04	14.54	15.07
	3750 (0.08)	MBU	147.0	159.8	173.0	138.5	153.4	166.8	130.0	146.7	159.5	121.2	139.2	152.6	111.4	130.2	144.0
		S/T	0.86	0.66	0.49	0.88	0.67	0.50	0.91	0.69	0.50	0.94	0.70	0.51	0.98	0.72	0.52
		KW	10.41	10.69	10.99	11.25	11.60	11.97	12.10	12.53	12.92	12.97	13.46	13.95	13.86	14.35	14.86

FORMULAS AND NOTES FOR USING EXPANDED PERFORMANCE DATA

To find leaving wet bulb and dry bulb from the expanded performance charts, use the following formulas.

1. Direct interpolation is permissible. Do not extrapolate.

2. The following formulas may be used:

$$t/db = t\ edb - \text{sensible capacity Btuh} / (1.10 \times \text{cfm})$$

$$t/wb = \text{Wet bulb temp. corresponding to enthalpy of air leaving evaporator coil (h/wb)}$$

$$h/wb = h\ ewb - \text{total capacity Btuh} / (4.5 \times \text{cfm})$$

where h ewb = Enthalpy of air entering evap. coil

3. The SHC is based on 80F edb of air entering evap coil. Below 80F edb, subtract (corr factor x cfm) from SHC. Above 80F edb, add (corr factor x cfm) to SHC.

LEGEND

MBH = Total Capacity (Gross)
 S/T = Sensible to Total Ratio
 KW = Compressor Motor Power Input.
 IDB = Indoor Dry Bulb
 edb = Entering Dry Bulb
 ewb = Entering Wet Bulb
 t/db = Leaving Dry Bulb
 t/wb = Leaving Wet Bulb
 h/wb = Enthalpy of Leaving Wet Bulb
 SHC = Sensible Heat Capacity

BYPASS FACTOR (BF)	ENTERING AIR DRY BULB					
	79	78	77	76	75	under 75
	81	82	83	84	85	over 85
	Correction Factor					
.05	1.04	2.07	3.11	4.14	5.18	Use formulas shown below
.10	0.98	1.96	2.94	3.92	4.90	
.20	0.87	1.74	2.62	3.49	4.36	
.30	0.76	1.53	2.29	3.05	3.82	

$$\text{Correction Factor} = 1.10 \times (1 - \text{BF}) \times (\text{edb} - 80).$$

PERFORMANCE DATA

CIRCULATING BLOWER PERFORMANCE - 7-1/2 TON UNITS (2.4 BHP Standard Motor w/590-840 rpm Drive Pkg)

CFM	EXTERNAL STATIC PRESSURE IN INCHES WATER COLUMN - DRY COIL WITH FILTER															
	0.3		0.5		0.7		0.9		1.1		1.3		1.5		1.7	
	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
2500	549	653	627	835	690	1031	750	1233	805	1456	855	1691	902	1927	949	2188
2750	589	795	659	981	725	1212	780	1426	833	1665	884	1923	930	2172	973	2428
3000	629	965	694	1156	759	1413	812	1665	862	1901	911	2171	957	2445	1000	2702
3250	671	1165	732	1383	792	1643	847	1923	894	2184	940	2445	986	2718	1031	2991
3500	712	1396	771	1639	824	1892	881	2206	928	2495	971	2759	1014	3009		

- NOTES:
- 1) Maximum motor Watts is 2120 for standard 2.4 HP motor.
 - 2) Maximum blower wheel speed is 1026 rpm.
 - 3) Motor drive range is 590 to 840 rpm.
 - 4) Air flow data based on dry coil with filters. Deduct 0.08 inches for wet coil performance.
 - 5) Operation in shaded areas requires accessory high static motor and drive kit sold separately.
 - 6) Boldface indicates field-supplied drive is required.

CIRCULATING BLOWER PERFORMANCE - 10 TON UNITS (2.4 BHP Standard Motor w/685-935 rpm Drive Pkg)

CFM	EXTERNAL STATIC PRESSURE IN INCHES WATER COLUMN - DRY COIL WITH FILTER															
	0.3		0.5		0.7		0.9		1.1		1.3		1.5		1.7	
	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
3500	596	867	663	1031	721	1190	777	1353	826	1517	871	1665	916	1831	956	2039
3750	629	1018	692	1203	750	1374	803	1552	852	1735	896	1897	939	2088	981	2286
4000	662	1190	722	1396	778	1578	829	1779	878	1962	922	2203	962	2371	1003	2560
4250	696	1392	753	1617	807	1814	857	2019	903	2269	948	2479	989	2689	1026	2877
4500	729	1621	785	1858	837	2076	885	2335	929	2569	973	2782	1015	2920	1051	3218

- NOTES:
- 1) Maximum motor Watts is 2120 for standard 2.4 HP motor.
 - 2) Maximum blower wheel speed is 1026 rpm.
 - 3) Motor drive range is 685-935 rpm.
 - 4) Air flow data based on dry coil with filters. Deduct 0.08 inches for wet coil performance.
 - 5) Operation in shaded areas requires accessory high static motor and drive kit sold separately.
 - 6) Boldface indicates field-supplied drive is required.

CIRCULATING BLOWER PERFORMANCE - 12-1/2 TONS (3.7 BHP Standard Motor w/860-1080 rpm Drive Pkg)

CFM	EXTERNAL STATIC PRESSURE IN INCHES WATER COLUMN - DRY COIL WITH FILTER															
	0.3		0.5		0.7		0.9		1.1		1.3		1.5		1.7	
	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
4000	697	1267	754	1448	806	1624	851	1785	895	1931	938	2123	979	2334	1020	2521
4500	770	1700	821	1923	871	2114	915	2325	955	2512	995	2683	1033	2882	1070	3138
5000	843	2246	892	2503	937	2746	980	2964	1019	3221	1055	3424	1091	3637	1126	3822
5500	918	2946	963	3212	1004	3516	1045	3757	1084	4027	1119	4307	1152	4549		
6000	993	3795	1035	4093	1074	4419	1112	4735								

- NOTES:
- 1) Maximum motor Watts is 3313 for standard 3.7 HP motor.
 - 2) Maximum blower wheel speed is 1280 rpm.
 - 3) Motor drive range is 860 to 1080 rpm.
 - 4) Air flow data based on dry coil with filters. Deduct 0.08 inches for wet coil performance.
 - 5) Operation in shaded areas requires accessory high static motor and drive kit sold separately.
 - 6) Boldface indicates field-supplied drive is required.

PERFORMANCE DATA (cont)
AIR QUANTITY LIMITS

UNIT PAS	MINIMUM CFM	MAXIMUM CFM
090	2250	3750
120	3000	5000
150	3750	6250

SOUND POWER (TOTAL UNIT)

UNIT PAS	SOUND RATING 60 Hz	A-WEIGHTED (dB)	OCTAVE BANDS							
			63	125	250	500	1000	2000	4000	8000
090	87 dB	86.4	83.2	87.4	83.5	82.8	83.0	77.7	71.8	67.0
120	88 dB	87.6	97.6	90.4	85.7	84.8	83.9	77.5	71.3	65.8
150	87 dB	86.4	83.7	87.2	83.4	82.8	83.0	77.7	71.8	67.0

FAN RPM AT MOTOR PULLEY SETTINGS*

UNIT PAS	MOTOR PULLEY TURNS OPEN												
	0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
090¹	840	815	790	765	740	715	690	655	635	615	590	-	-
090²	1080	1025	1007	988	970	952	933	915	897	878	860	-	-
120¹	935	910	885	860	835	810	785	760	735	710	685	-	-
120²	1130	1112	1087	1062	1037	1012	987	962	937	912	887	862	830
150¹	1080	1060	1035	1015	990	970	950	925	905	880	860	-	-
150²	1260	1220	1185	1155	1130	1100	1075	1045	1015	990	960	930	900

* Approximate fan rpm shown.

1 - Indicates standard motor and drive package.

2 - Indicates optional high static motor and drive package.

PERFORMANCE DATA (CONT.)

Evaporator-Fan Motor Efficiency	
PAS	Motor Efficiency (%)
090-120	80
150	87

All indoor-fan motors 5 hp and larger meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT) effective October 24, 1997.

EVAPORATOR-FAN MOTOR PERFORMANCE

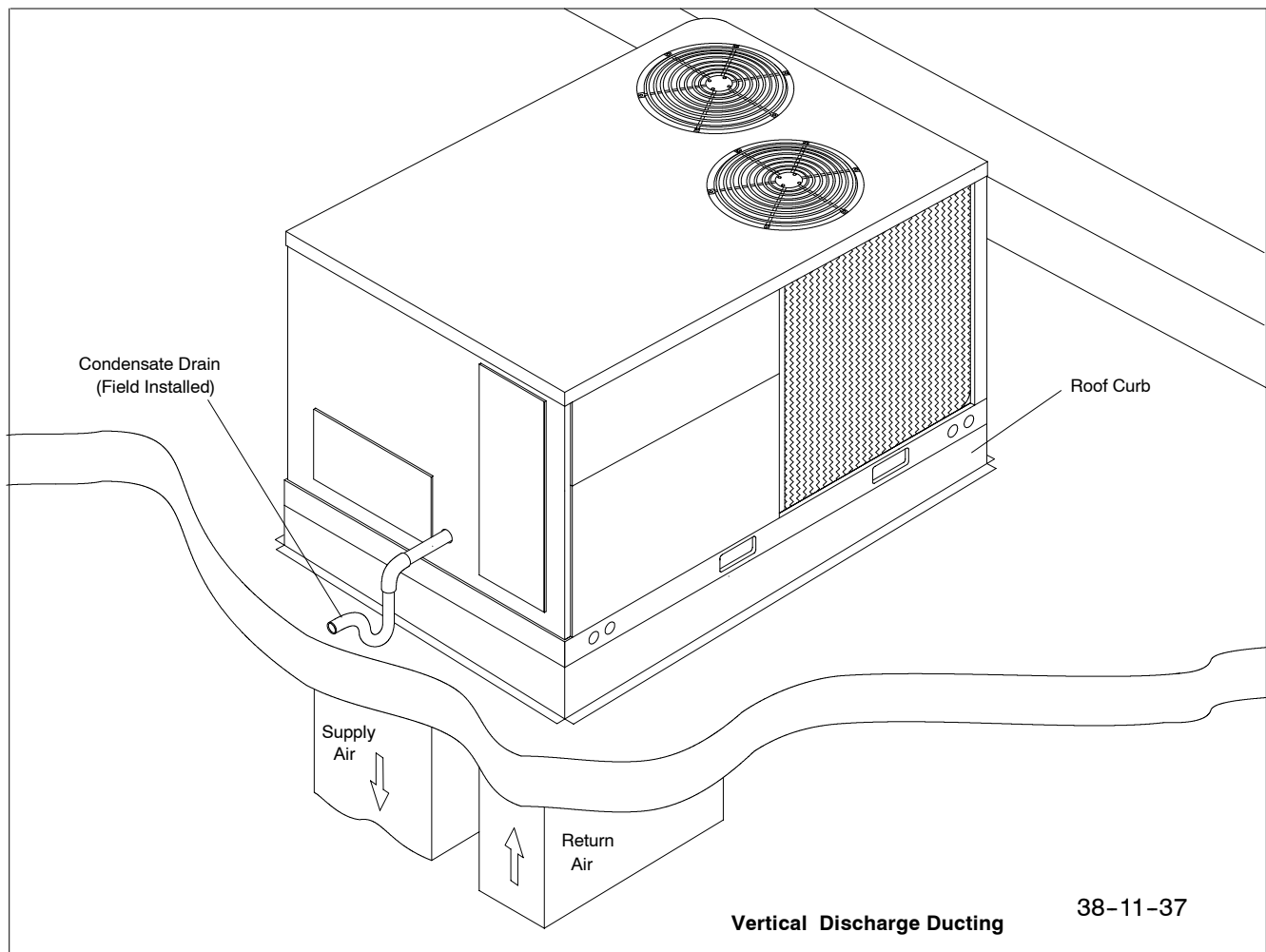
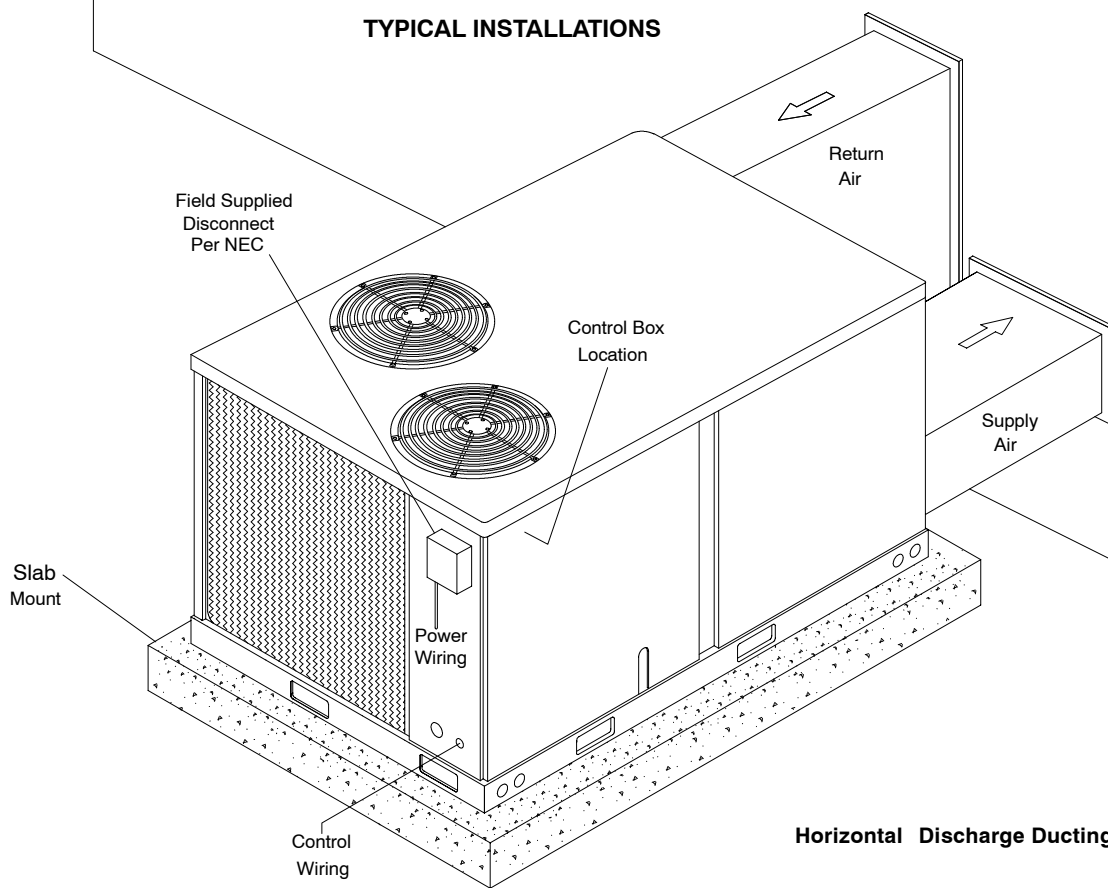
Unit PAS	Evaporator-Fan Motor	Unit Voltage	Max. Acceptable Continuous BHP*	Max. Acceptable Operating Watts	Max. AMP Draw
090	Standard	208/230	2.40	2120	6.7
		460			3.0
		575			3.0
	Optional High Static	208/230	3.70	3313	12.2
		460			5.5
		575			5.5
120	Standard	208/230	2.40	2120	6.7
		460			3.0
		575			3.0
	Optional High Static	208/230	5.25	4400	17.3
		460			8.5
		575			8.5
150	Standard	208/230	3.70	3313	12.2
		460			5.5
		575			5.5
	Optional High Static	208/230	5.25	4400	17.3
		460			8.5
		575			8.5

LEGEND

BHP = Brake Horsepower

* Extensive motor and electrical testing on these units ensures that the full horsepower range of the motors can be utilized with confidence. Using your fan motors up to the horsepower ratings shown in this table will not result in nuisance tripping or premature motor failure. Unit Warranty will not be affected.

TYPICAL INSTALLATIONS



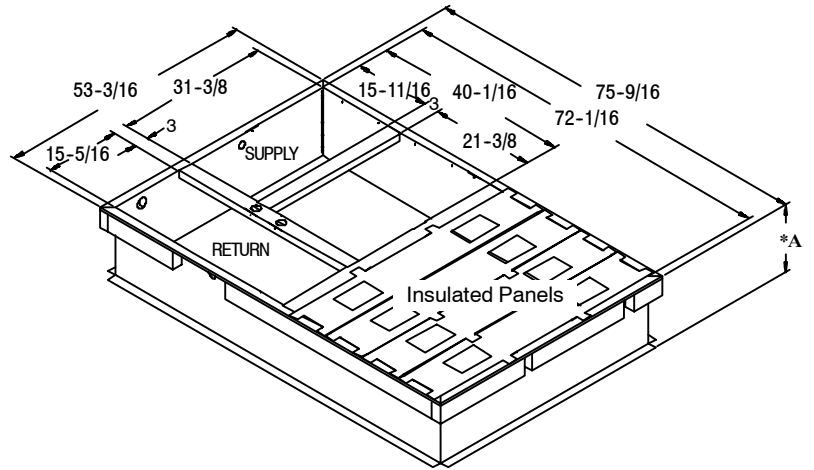
38-11-37

ACCESSORIES

ROOF CURBS

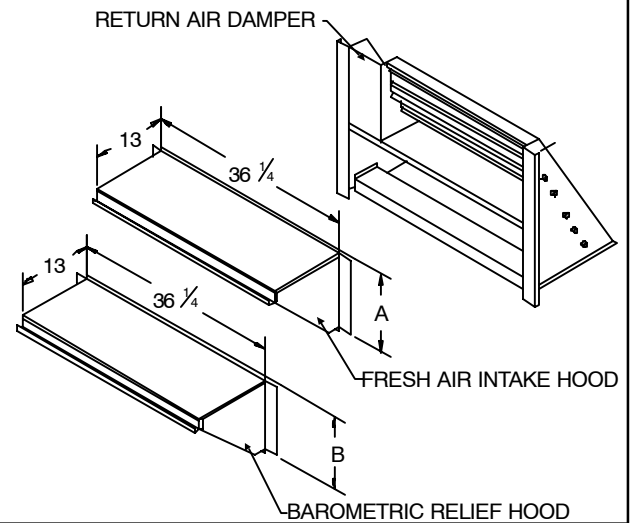
Description	Model Number	Where Used
8" High *	AXB045CLA	090, 120, 150
14" High *	AXB045CMA	090, 120, 150
24" High *	AXB045CHA	090, 120, 150

* A Dimension



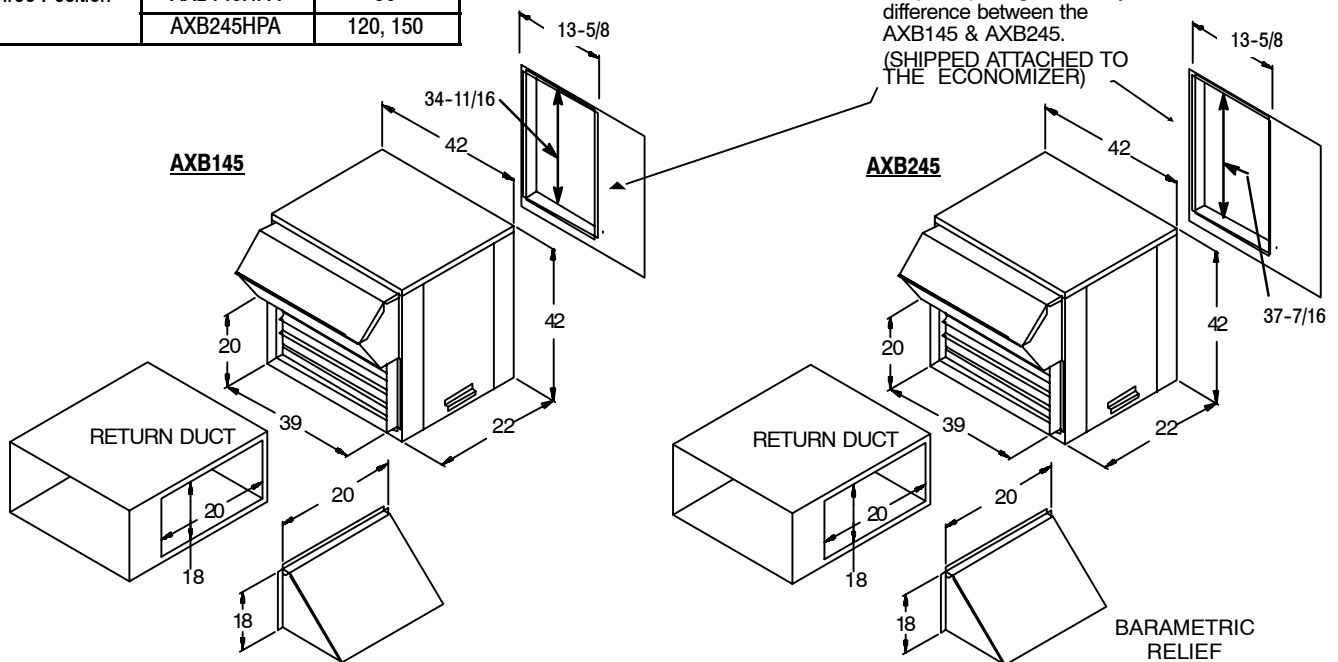
ECONOMIZER - DOWNFLOW

Description	Model Number	A Dimension	B Dimension	Where Used
Fully Modulating	AXB145EMA	13-3/4"	12-3/4"	90
	AXB245EMA	16-1/2"	17-3/4"	120, 150
Three Position	AXB145EPA	13-3/4"	12-3/4"	90
	AXB245EPA	16-1/2"	17-3/4"	120, 150



ECONOMIZER - HORIZONTAL

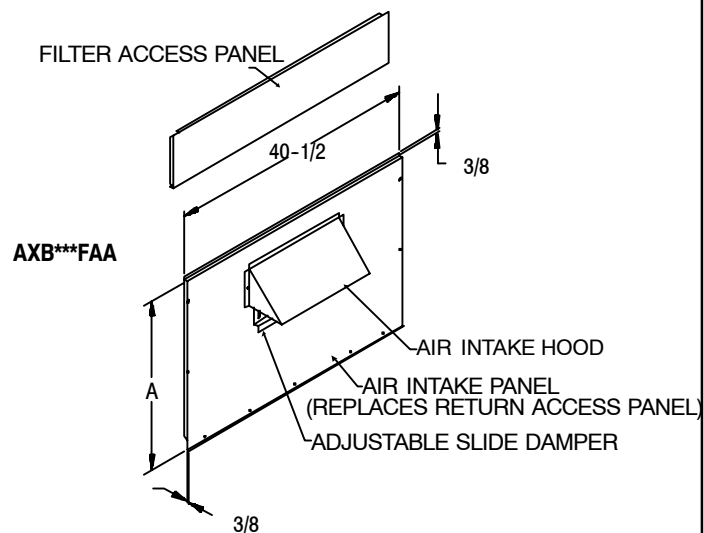
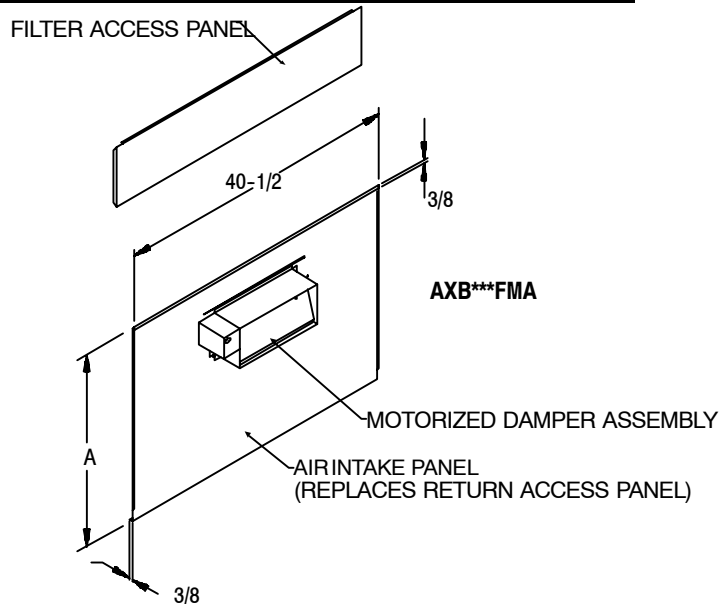
Description	Model Number	Where Used
Fully Modulating	AXB145HEA	90
	AXB245HEA	120, 150
Three Position	AXB145HPA	90
	AXB245HPA	120, 150



ACCESSORIES (CONT.)

FRESH AIR DAMPER

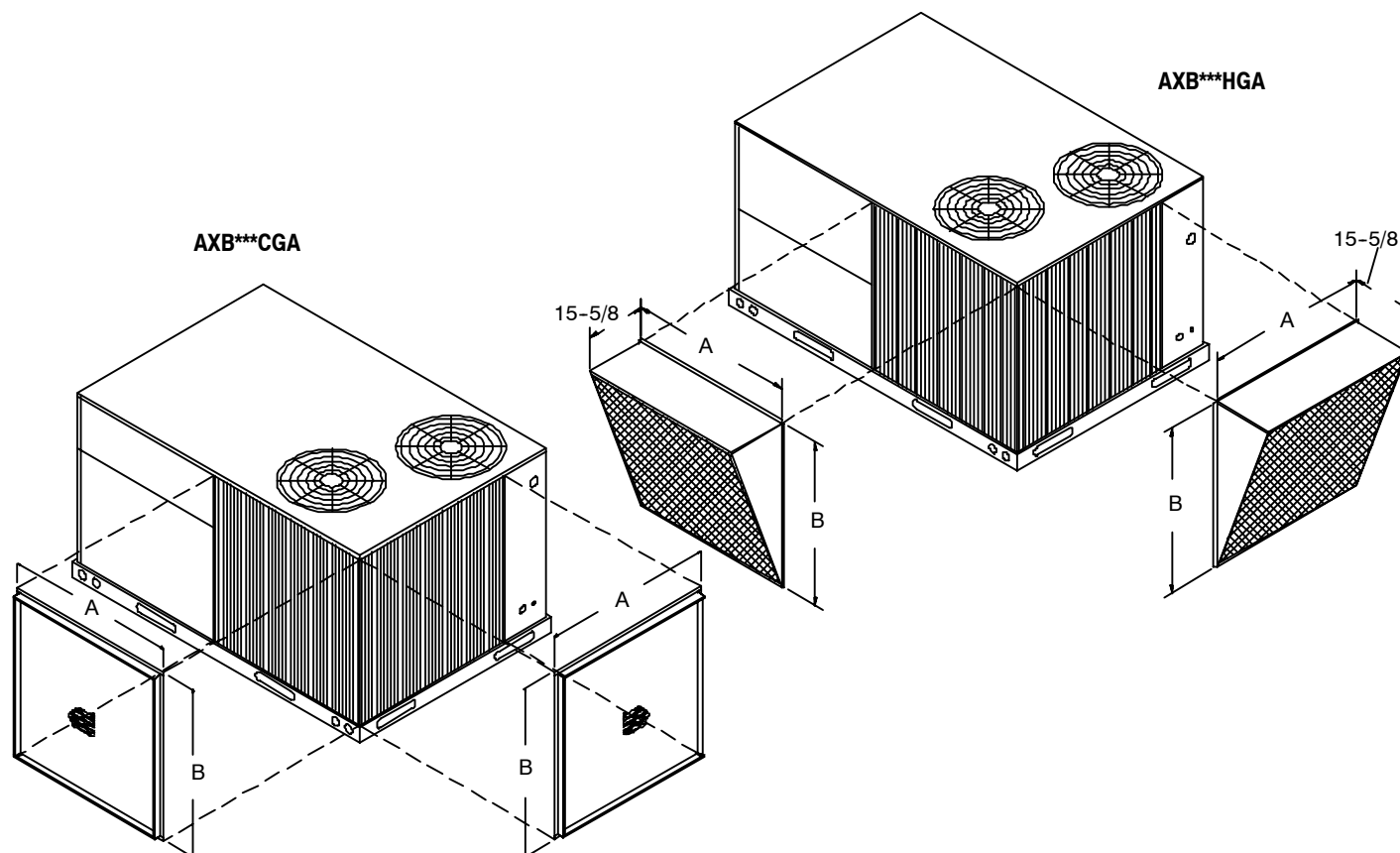
Description	Model Number	A Dimension	Where Used
Manual	AXB145FAA	27-15/16	90
	AXB245FAA	32-1/2	120, 150
Motorized	AXB145FMA	27-15/16	90
	AXB245FMA	32-1/2	120, 150



COIL PROTECTION

DIMENSIONS

Description	Model Number	Where Used	A	B
Coil Guard	AXB145CGA	90	44	37
	AXB245CGA	120, 150	45-3/8	45
Hail Guard	AXB145HGA	90	42	36
	AXB245HGA	120, 150	43-3/8	44



ACCESSORIES (CONT.)

CONCENTRIC DUCT KIT

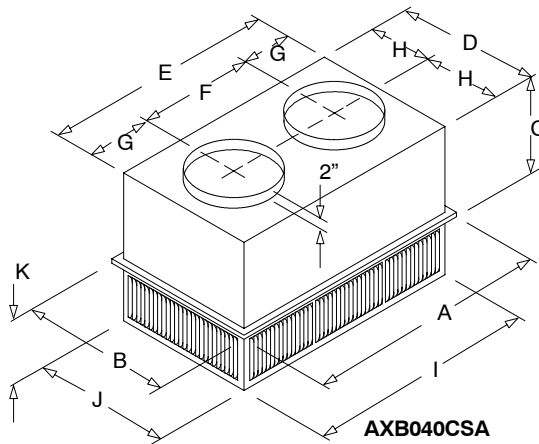
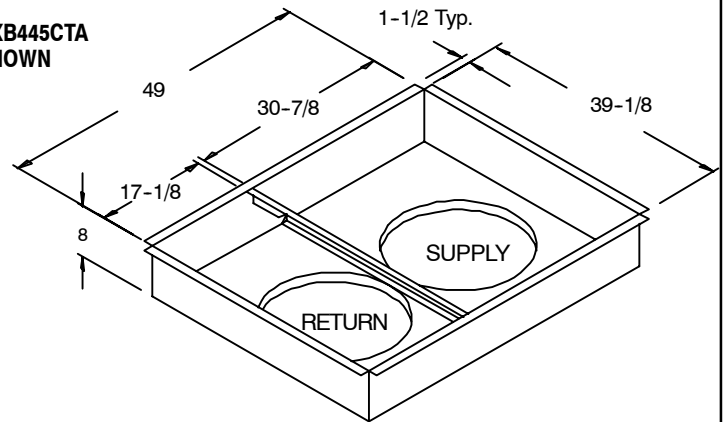
Description	Model Number	Where Used
20" Round	AXB445CTA	090
18" x 28" Rect.	AXB545CTA	120
18" x 32" Rect.	AXB645CTA	150

PERFORMANCE DATA ON NEXT PAGE

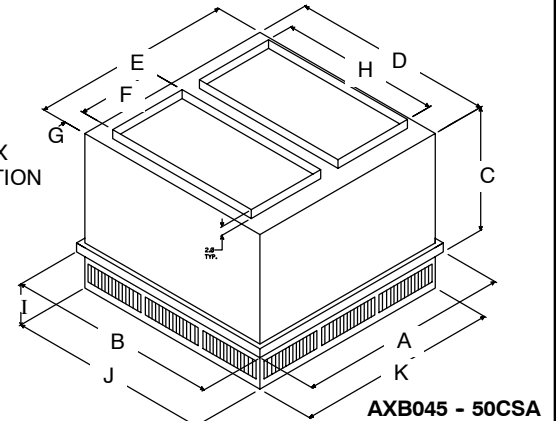
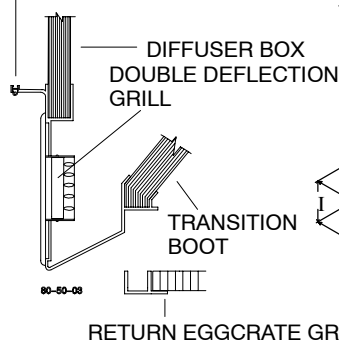
CONCENTRIC DIFFUSER

Description	Model Number	Used With
Flush Mount	AXB040CFA	AXB445CTA
Flush Mount	AXB045CFA	AXB545CTA
Flush Mount	AXB050CFA	AXB645CTA
Step Down	AXB040CSA	AXB445CTA
Step Down	AXB045CSA	AXB545CTA
Step Down	AXB050CSA	AXB645CTA

AXB445CTA
SHOWN

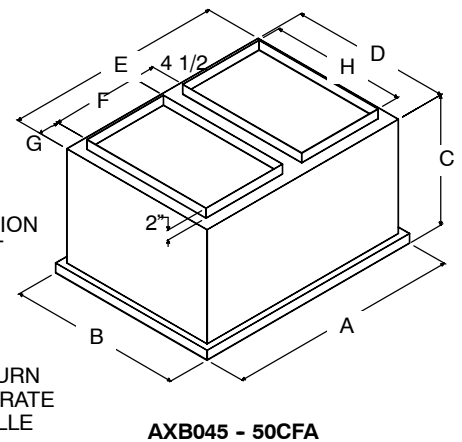
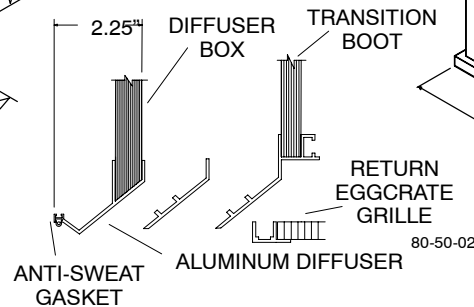
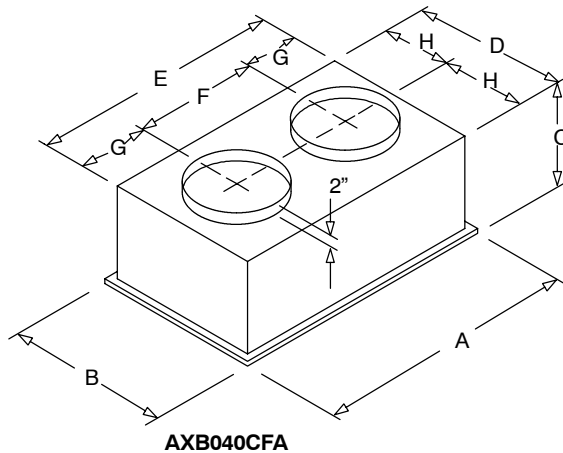


ANTI-SWEAT
GASKET



CONCENTRIC DIFFUSER (Step Down)

Model Number	A	B	C	D	E	F	G	H	I	J	K	Duct Size
AXB040CSA	47-5/8	23-5/8	14-3/8	27-1/2	45-1/2	22-1/2	11-1/2	13-3/4	45-1/2	27-1/2	8-1/8	20" RD
AXB045CSA	47-5/8	35-5/8	20-5/8	33-1/2	45-1/2	18	2-1/2	28	9-1/8	33-1/2	45-1/2	18 x 28
AXB050CSA	47-5/8	41-5/8	25-7/8	45-1/2	45-1/2	18	2-1/2	32	9-1/8	39-1/2	45-1/2	18 x 32



CONCENTRIC DIFFUSER (Flush Mount)

Model Number	A	B	C	D	E	F	G	H	Duct Size
AXB040CFA	47-5/8	29-5/8	16-5/8	27	45	22-1/2	11-1/4	13-1/2	20" RD
AXB045CFA	47-5/8	35-5/8	21-3/4	33	45	18	2-1/4	28	18 x 28
AXB050CFA	47-5/8	41-5/8	29-1/4	39	45	18	2-1/4	32	18 x 32

ACCESSORIES (CONT.)

CSA SERIES STEP-DOWN PERFORMANCE

Part No. AXB	CFM	Static Pressure In. WC	Throw Feet	Neck / Jet Velocity FPM	db Sound Levels
040CSA	2600	.17	24-29	669	20
	2800	.20	25-30	720	25
	3000	.25	27-33	772	25
	3200	.31	28-35	823	25
	3400	.37	30-37	874	30
045CSA	3600	.17	25-33	851	30
	3800	.18	27-35	898	30
	4000	.21	29-37	946	30
	4200	.24	32-40	993	30
	4400	.27	34-42	1040	30
050CSA	4400	.29	25-30	733	30
	4600	.31	26-31	767	30
	4800	.32	27-32	800	30
	5000	.34	28-33	833	30
	5200	.36	28-34	867	30
	5400	.39	29-35	900	30

CFA SERIES FLUSH MOUNT PERFORMANCE

Part No. AXB	CFM	Static Pressure In. WC	Throw Feet	Neck Velocity FPM	Jet Velocity FPM	db Sound Level
040CFA	2600	.17	19-24	663	1294	30
	2800	.20	20-28	714	1393	35
	3000	.25	21-29	765	1492	35
	3200	.31	22-29	816	1592	40
	3400	.37	22-30	867	1692	40
045CFA	3600	.17	22-29	844	1646	35
	3800	.18	22-30	891	1737	40
	4000	.21	24-33	938	1829	40
	4200	.24	26-35	985	1920	40
	4400	.27	28-37	1032	2011	40
050CFA	4600	.31	25-34	922	1795	40
	4800	.32	26-35	962	1873	40
	5000	.34	27-36	1002	1951	40
	5200	.36	30-39	1043	2029	45
	5400	.39	32-41	1083	2107	45

CSA/CFA NOTES:

1. All data is based on the Air Diffusion Council guidelines.
2. Throw data is based on Terminal Velocities of 75 FPM using isothermal air.
3. Throw is based on diffuser blades being directed in a straight pattern.
4. Actual sound levels are less than those shown.
5. Minimum height 9' above floor.

LOW AMBIENT KIT

Model Number	Used With
AXB045LAA	090, 150

THRU-THE-BASE POWER KIT

Model Number	Used With
AXB045PKA	090, 150

With 1-1/4" Power and 3/4" Gas Connections.

PART NUMBERS FOR APPROVED HIGH STATIC CONVERSIONS*

Unit Size	Voltage	Motor	Motor Pulley	Blower Pulley	Belt	Circuit Breaker	Circuit Breaker Bracket
7-1/2 Ton	All Voltages	1171340	1171423	1171415	1171514	N/A	N/A
10 Ton	208/230	1171312	1171424	1171417	1171512	1171080	1171063
10 Ton	460 & 575	1171312	1171424	1171417	1171512	1171079	1171063
12-1/2 Ton	208/230	1171312	1171424	1171417	1171512	1171080	1171063
12-1/2 Ton	460 & 575	1171312	1171424	1171417	1171512	1171079	1171063

* Available thru service parts only.

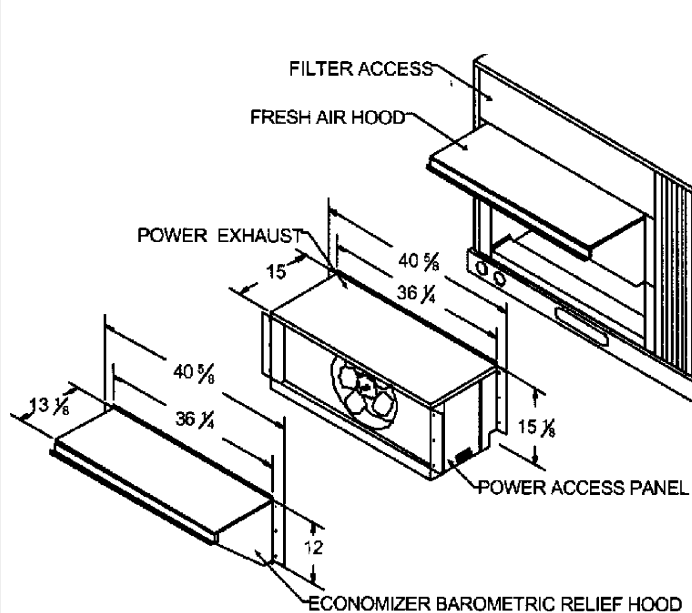
ACCESSORIES (CONT.)

POWER EXHAUST

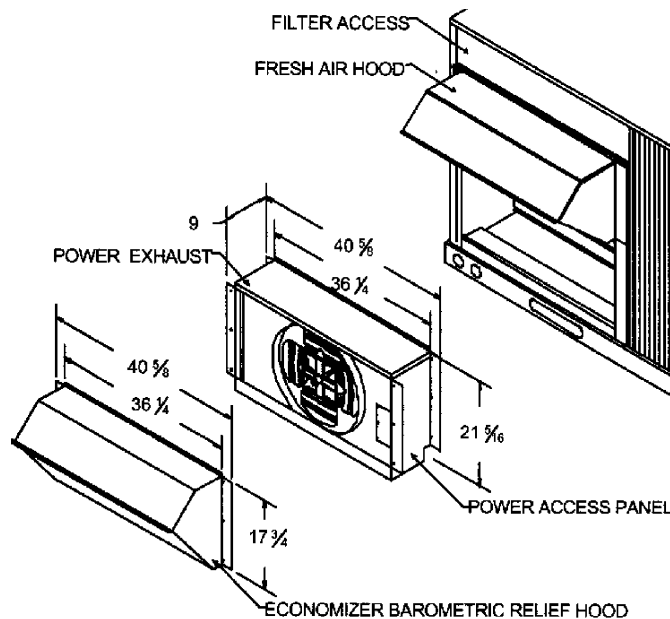
Description	Model Number	Where Used
208/230 Volt	AXB145PEH	090
460 Volt	AXB145PEL	090
575 Volt	AXB145PES	090
208/230 Volt	AXB245PEH	120, 150
460 Volt	AXB245PEL	120, 150
575 Volt	AXB245PES	120, 150

POWER EXHAUST PERFORMANCE DATA

Model	Volt/Phase/ Hertz	Motor			Unit									
		Qty	HP	RPM	Cir. Qty	LRA	FLA	MCA	Fuse Size	@0.0		@0.1	@0.3	
										CFM	RPM	CFM	CFM	RPM
AXB145PEH	208-230/1/60	1	1/2	1725	1	10.2	4.3	5.4	8	2400	1725	N/A	2100	1725
AXB145PEL	460/1/60	1	1/2	1625	1	4.1	1.7	2.2	5	2300	1625	N/A	2000	1625
AXB145PES	575/1/60	1	1/2	1625	1	4.1	1.7	2.2	5	2300	1625	N/A	2000	1625
AXB245PEH	208-230/1/60	1	3/4	1075	1	24.9	5.0	6.3	10	N/A	N/A	4800	N/A	N/A
AXB245PEL	460/1/60	1	3/4	1075	1	N/A	2.2	2.8	5	N/A	N/A	4800	N/A	N/A
AXB245PES	575/1/60	1	3/4	1050	1	N/A	1.5	1.9	4	N/A	N/A	4800	N/A	N/A



POWER EXHAUST DOWNFLOW, MODEL AXB145***



POWER EXHAUST DOWNFLOW, MODEL AXB245***

ELECTRICAL DATA - ELECTRIC HEAT ACCESSORY

Unit	Voltage	Qty	Model Number	Evap. Fan Motor FLA	Electric Heater *		Power Supply		Disconnect Size **		Single Point Kit Required
					Nominal kW	FLA	MCA	MOCP ***	FLA	LRA	
PAS090	208-3-60	1	AES010EHA	5.8	7.8	21.7	40.1	45	42	229	AXB006SPA
		1	AES016EHA		12.0	33.4	48.9	50	45		AXB006SPA
		1	AES024EHA		18.6	51.7	71.9	80	66		AXB007SPA
		1	AES032EHA		24.0	66.7	90.6	100	83		AXB007SPA
		1 ea.	AES032EHA, AES010EHA		31.9	88.4	117.7	125	108		AXB009SPA
PAS090	230-3-60	1	AES010EHA	5.8	10.4	25.0	40.1	45	42	229	AXB006SPA
		1	AES016EHA		16.0	38.5	55.4	60	51		AXB006SPA
		1	AES024EHA		24.8	59.7	81.8	90 #	75		AXB007SPA
		1	AES032EHA		32.0	77.0	103.5	110 #	95		AXB007SPA
		1 ea.	AES032EHA, AES010EHA		42.4	102.0	134.8	150 #	124		AXB009SPA
PAS090	460-3-60	1	AES014ELA	2.6	13.9	16.7	24.1	25	22	108	AXB006SPA
		1	AES016ELA		16.5	19.8	28.1	30	26		AXB006SPA
		1	AES027ELA		27.8	33.4	45.0	50	41		AXB006SPA
		1	AES033ELA		33.0	39.7	52.9	60	49		AXB006SPA
		1 ea.	AES014ELA, AES027ELA		41.7	50.2	65.9	70 #	61		AXB008SPA
PAS090	575-3-60	1	AES018ESA	2.6	17.0	17.1	23.9	25	22	97	AXB006SPA
		1	AES036ESA		34.0	34.1	45.3	50	42		AXB006SPA
PAS120	208-3-60	1	AES010EHA	5.8	7.8	21.7	43.1	50	45	307	AXB011SPA
		1	AES016EHA		12.0	33.4	48.9	60	45		AXB011SPA
		1	AES032EHA		24.0	66.7	90.6	100	83		AXB012SPA
		1 ea.	AES032EHA, AES010EHA		31.9	88.4	117.7	125	108		AXB015SPA
		1 ea.	AES032EHA, AES016EHA		37.5	104.2	137.5	150	127		AXB015SPA
PAS120	230-3-60	1	AES010EHA	5.8	10.4	25.0	43.1	50	45	307	AXB011SPA
		1	AES016EHA		16.0	38.5	55.4	60	51		AXB011SPA
		1	AES032EHA		32.0	77.0	103.5	110	95		AXB012SPA
		1 ea.	AES032EHA, AES010EHA		42.4	102.0	134.8	150	124		AXB015SPA
		1 ea.	AES032EHA, AES016EHA		50.0	120.3	127.5	150	145		AXB015SPA
PAS120	460-3-60	1	AES016ELA	2.6	16.5	19.8	28.1	30	26	152	AXB011SPA
		1	AES027ELA		27.8	33.4	45.0	50	41		AXB011SPA
		1	AES033ELA		33.0	39.7	52.9	60	49		AXB011SPA
		1 ea.	AES033ELA, AES014ELA		41.7	50.2	65.9	70	61		AXB014SPA
		1 ea.	AES033ELA, AES016ELA		50.0	60.1	63.4	70	72		AXB014SPA
PAS120	575-3-60	1	AES018ESA	2.6	17.0	17.1	23.9	25	22	107	AXB011SPA
		1	AES036ESA		34.0	34.1	45.3	50	42		AXB011SPA
		1 ea.	AES036ESA, AES018ESA		51.0	51.2	53.8	60	61		AXB014SPA
PAS150	208-3-60	1	AES010EHA	10.6	7.8	21.7	65.2	80	68	383	AXB012SPA
		1	AES016EHA		12.0	33.4	65.2	70	68		AXB012SPA
		1	AES032EHA		24.0	66.7	96.6	100	89		AXB012SPA
		1 ea.	AES032EHA, AES010EHA		31.9	88.4	123.7	125	114		AXB015SPA
		1 ea.	AES032EHA, AES016EHA		37.5	104.2	143.5	150	132		AXB015SPA
PAS150	230-3-60	1	AES010EHA	10.6	10.4	25.0	65.2	80	68	383	AXB012SPA
		1	AES016EHA		16.0	38.5	65.2	70	68		AXB012SPA
		1	AES032EHA		32.0	77.0	109.5	110	101		AXB012SPA
		1 ea.	AES032EHA, AES010EHA		42.4	102.0	140.8	150	129		AXB015SPA
		1 ea.	AES032EHA, AES016EHA		50.0	120.3	133.5	150	151		AXB015SPA
PAS150	460-3-60	1	AES016ELA	4.8	16.5	19.8	30.8	40	31	192	AXB011SPA
		1	AES027ELA		27.8	33.4	47.8	50	44		AXB011SPA
		1	AES033ELA		33.0	39.7	55.6	60	51		AXB011SPA
		1 ea.	AES027ELA, AES014ELA		41.7	50.2	68.7	70	63		AXB014SPA
		1 ea.	AES033ELA, AES018ELA		50.0	60.1	66.1	80	75		AXB014SPA
PAS150	575-3-60	1	AES018ESA	4.8	17.0	17.1	26.1	30	25	154	AXB011SPA
		1	AES036ESA		34.0	34.1	47.5	50	44		AXB011SPA
		1 ea.	AES036ESA, AES018ESA		51.0	51.2	56.0	60	63		AXB014SPA

NOTE: See legend and notes for accessories on next page.

ACCESSORY STATIC PRESSURE (in. wg)

Component	CFM									
	2250	2500	3000	3500	4000	4500	5000	5500	6000	6250
1 Heater Module	0.02	0.03	0.05	0.07	0.08	0.10	0.12	0.14	0.16	0.17
2 Heater Modules	0.03	0.05	0.07	0.09	0.12	0.14	0.16	0.19	0.21	0.20

The static pressure must be added to external static pressure. The sum and the evaporator entering-air cfm should then be used in conjunction with the Fan Performance tables to determine blower rpm and watts.

MULTIPLICATION FACTORS

Heater Rating Voltage	ACTUAL HEATER VOLTAGE									
	208	230	240	380	440	460	480	550	575	600
240 Volt	0.751	0.918	1.000							
480 Volt				0.626	0.840	0.918	1.000			
600 Volt								0.840	0.918	1.000

NOTE: The following equation converts kW of heat energy to Btuh: kW x 3.412 = Btuh.

LEGEND

FLA - Full Load Amps

MCA - Minimum Circuit Amps

MOCP - Maximum Overcurrent Protection

LRA - Locked Rotor Amps

NEC - National Electrical Code

* Heater capacity (kW) is based on heater voltage of 208 v, 240 v, 480 v, and 600 v. Heaters are rated at 240 v, 480 v, or 600 v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly. To determine heater capacity at actual voltage, multiply 240v, 480v or 600v capacity by multipliers found in table at top of this page

** Used to determine minimum disconnect size per NEC.

*** Fuse or HACR circuit breaker.

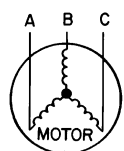
Fusing in the single point kit provides the required branch circuit protection.

NOTES

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.

2. 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 percent of voltage imbalance.

EXAMPLE: Supply voltage is 460-3-60.



AB = 452 v
BC = 464 v
AC = 455 v

$$\begin{aligned} \text{Average Voltage} &= \frac{452 + 464 + 455}{3} \\ &= \frac{1371}{3} = 457 \end{aligned}$$

Determine maximum deviation from average voltage.

$$(AB) 457 - 452 = 5 \text{ V}$$

$$(BC) 464 - 457 = 7 \text{ V}$$

$$(AC) 457 - 455 = 2 \text{ V}$$

Maximum deviation is 7 v.

Determine percent voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{7}{457} \\ &= 1.53\% \end{aligned}$$

This 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 company immediately.



CONTROLS

OPERATING SEQUENCE

Cooling, Units Without Economizer – When thermostat calls for cooling, terminals G and Y1 are energized. The indoor (evaporator) fan contactor (IFC), and compressor contactor no. 1 (C1) are energized and evaporator-fan motor, compressor no. 1 and condenser fans start. The liquid line solenoid valve for compressor no. 1 is deenergized to open. The condenser-fan motor runs continuously while unit is cooling. On 090–150 units, if the thermostat calls for a second stage of cooling by energizing Y2, compressor contactor no. 2 (C2) is energized and compressor no. 2 starts.

When the thermostat is satisfied, C1 and C1 are deenergized and the compressors and outdoor (condenser) fan motors (OFM) shut off. After a 30-second delay, the indoor (evaporator) fan motor (IFM) shuts off. If the thermostat fan selector switch is in the ON position, the evaporator-fan motor will run continuously.

APPLICATION DATA

1. **OUTDOOR INSTALLATION** — Units approved for outdoor installation only.
2. **DUCTWORK** — Secure vertical discharge ductwork to roofcurb. For horizontal discharge applications, either attach ductwork to unit, or use field-supplied flanges attached to the horizontal discharge openings and attach all ductwork to flanges.
3. **HORIZONTAL DISCHARGE** — To convert from vertical discharge to horizontal discharge
 - a. Remove economizer or two-position damper to gain access to return duct opening.
 - b. Move the horizontal-discharge duct opening covers to the vertical discharge openings.
 - c. Rotate economizer or two-position damper 90 degrees.
 - d. Rotate the barometric relief damper 90 degrees.
 - e. Install block-off plate over the opening on the access panel.
4. **THRU-THE-BOTTOM UTILITY CONNECTIONS** — For applications requiring thru-the-bottom connections, an accessory kit is required.
5. **THERMOSTAT** — Use of 2-stage heating and cooling thermostats recommended for all units.
6. **HEATING-TO-COOLING CHANGEOVER** — All units are automatic changeover from heating to cooling when automatic changeover thermostat and subbase are used.
7. **AIRFLOW** — Units are draw-thru on cooling and blow-thru on heating.
8. **MAXIMUM AIRFLOW** — To minimize the possibility of condensate blow-off from evaporator, airflow through units should not exceed 500 cfm/ton.
9. **MINIMUM AIRFLOW** — For cooling, minimum airflow is 300 cfm/ton.
10. **MINIMUM AMBIENT COOLING OPERATING TEMPERATURE** — The minimum temperature for standard units is 25° F.
11. **MAXIMUM OPERATING OUTDOOR-AIR TEMPERATURE** — For cooling, this temperature is 115° F.
12. **INTERNAL UNIT DESIGN** — Due to PAS's internal unit design (draw-thru over the motor), air path, and specially designed motors, the full horsepower (maximum continuous bhp) listed in the Physical Data table and the note following each Fan Performance table can be utilized with confidence. Using PAS motors with the values listed in the Physical and Fan Performance Data tables *will not* result in nuisance tripping or premature motor failure. The unit warranty will not be affected.

CABINET:

The cabinet shall be made of sturdy baked enamel coated galvanized steel. Base rails shall be 16 gauge steel and have fork lift slots and holes provided for lifting shackles. Unit shall be designed with convertible airflow and shipped ready for downflow applications with conversion to horizontal air flow accomplished by relocating two panels.

Return air compartments shall be insulated with not less than 1/2" of water resistant coated glass fiber and not less than 1/2" of aluminum foil faced glass fiber in the furnace/supply compartments.

COOLING SECTION:

Units shall be factory charged and operationally ready. Each refrigeration circuit shall have a compressor, with internal overload protection, high and low pressure switches, filter drier and copper tube/aluminum fin evaporator and condenser coils.

Units shall be capable of cooling operation down to 25°F as shipped from the factory.

COILS:

The evaporator and condenser coils shall be fabricated with aluminum fins mechanically bonded to copper tubing. Both coils shall be pressure tested prior to assembly into the unit and electronically leak tested after assembly onto the unit. The evaporator coil shall be protected from dust and debris on the return air side by factory installed 2" air filters.

CONDENSER FAN:

The unit shall have a single direct drive propeller fan/motor assembly mounted directly to a vertical-discharge grille panel that is easily removable. Motors shall have permanently lubricated sleeve bearings and inherent overload protection.

EVAPORATOR BLOWER:

The units shall have a single belt driven evaporator blower. The motor shall have permanently lubricated ball bearings and internal overload protection. An adjustable motor drive sheave for matching air flow requirements shall be standard. Additionally high static accessory kits shall be available for air flows above the standard requirement.