

CONVERTIBLE SINGLE PACKAGE AIR CONDITIONER

COMMERCIAL PACKAGE A/C FEATURES

CAPACITY

- 20 Ton Cooling

SINGLE PACKAGE

• Single package cooling, self contained for year-round comfort. Systems can be installed on rooftop or ground level with the new convertible design.

CONSTRUCTION

• G-90 galvanized steel, phosphate coated with an epoxy based primer and a polyester finish coat for long lasting weatherproof construction. Access panels for easy for easy service. Side by side supply and return. Heavy 16 gauge base rails.

CABINET

- Sturdy galvanized steel, phosphate-coated with a tough Electro Powder Coated Polyester finish.

INTEGRAL BASE RAILS

- Fork-lift access on three sides. Holes provided for lifting lugs makes rooftop installation easier.

IMPROVED INSULATION

- Dual density insulation improves temperature separation.

COPPER TUBE/ALUMINUM FIN COILS

- Enhanced aluminium fins mechanically bonded to copper tubes for improved heat transfer.

FILTER DRIERS

- To insure refrigerant cleanliness.

HIGH & LOW PRESSURE SWITCHES

- To provide excellent compressor protection.

EXTERNALLY-MOUNTED GAUGE PORTS

- Allows for more accurate reading of operating conditions while servicing.

INNOVATIVE EVAPORATOR BLOWER DESIGN

• "No Difference" Design allows the evaporator blower to deliver the same static capability for either horizontal or down discharge applications.

INTERNAL AIR FILTERS

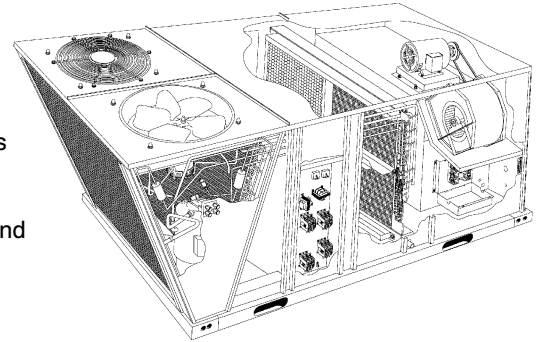
- Easy access air filters to maintain a clean evaporator coil.

PRE-WIRED FOR ECONOMIZER

- Designed for slide-in, plug-in economizer installation.

ACCESSORY ELECTRIC HEAT KITS

- 10 - 75 KW



Twenty Ton Unit



Rated in accordance with ARI Standard 210.



Listed By Underwriters' Laboratories

513 31 1103 01

UNIT SPECIFICATIONS			
	MODELS		
Cooling	RAMA20H001	RAMA20F00A	RAMA20N001
ARI Rated Capacity	240,000	240,000	240,000
EER	8.5	8.5	8.5
IPLV	8.3	8.3	8.3
Stages	2	2	2
Electrical			
Volts / Phase Hertz	208/230-3-60	460-3-60	575-3-60
Voltage Range Min / Max	187 / 253	414 / 506	518 / 632
Minimum Circuit Ampacity	127.1	59.7	43.3
Total Unit Amps	117.7	55.4	40.2
Time Delay Fuse Size	140	70	50
Max. Fuse / HACR Breaker Size	160	70	50
Compressor			
Number of Independent Circuits	2	2	2
1st RLA /2nd RLA	37.8 / 37.8	17.2 / 17.2	12.4 / 12.4
1st LRA /2nd LRA	239.0 / 239.0	125.0 / 125.0	80.0 / 80.0
Number / Type	2 / Scroll	2 / Scroll	2 / Scroll
Condenser Fan Data			
Quantity	2	2	2
Volts / Phase □ Hertz	208/230-3-60	460-3-60	575-3-60
1st FLA /2nd FLA	5.4 / 5.4	2.6 / 2.6	1.6 / 1.6
1st LRA /2nd LRA	23.0 / 23.0	11.5 / 11.5	8.0 / 8.0
Blades/Diameter / Pitch	5/24/40	5/24/40	5/24/40
Hp / Rpm / Speeds	1.5 / 1140 / 1	1.5 / 1140 / 1	1.5 / 1140 / 1
Bearing Type	Ball	Ball	Ball
Rotation (Shaft End)	CCW	CCW	CCW
Nominal CFM	16,000	16,000	16,000
Condenser Coil			
Rows / Fins per Inch	2 / 20	2 / 20	2 / 20
Total Face Area	2/19.83	2/19.83	2/19.83
Tube Diameter	3/8 Inch	3/8 Inch	3/8 Inch
Refrigerant			
Type	R-22	R-22	R-22
Ounces, Circuit 1 / Circuit 2	260/260	260/260	260/260
Expansion Device	(2)TXV	(2)TXV	(2)TXV

UNIT SPECIFICATIONS

Evaporator Fan	MODELS		
	RAMA20H00	RAMA20F00	RAMA20N00
Quantity	1	1	1
Volts / Phase / Hertz	208/230-3-60	460-3-60	575-3-60
Size / Class	15x15A	15x15A	15x15A
Type Drive (Belt or Direct)	Belt	Belt	Belt
Nominal CFM	8000	8000	8000
Max Continuous Bhp	11.5	11.5	11.5
FLA	31.4	15.7	12.4
Frame Size	215T	215T	215T
Fan Rpm Range	1314 - 1556	1314 - 1556	1314 - 1556
Bearing Type	Ball	Ball	Ball
Max. Fan Rpm	1800	1800	1800
Motor Pulley, Browning #	1VP71	1VP71	1VP71
Motor Shaft Diameter	1-3/8	1-3/8	1-3/8
Blower Pulley, Browning #	BK80	BK80	BK80
Blower Shaft Diameter	1-1/4	1-1/4	1-1/4
Belt Type, Browning #	BX-71	BX-71	BX-71
Rows / Fins per Inch	4 / 14	4 / 14	4 / 14
Total Face Area	16.11	16.11	16.11
Tube Diameter	3/8	3/8	3/8
Controls			
Transformer VA	75	75	75
Compressor IPR Valve (psi)	450	450	450
High Press. Switch Auto Reset - Open / Close (psi)	420 / 300	420 / 300	420 / 300
Low Press. Switch Auto Reset - Open / Close (psi)	5 / 20	5 / 20	5 / 20
Compressor Anti Cycle Timer	5 Min.	5 Min.	5 Min.
Evaporator Freeze Thermostat Open / Close (F)	30 / 50	30 / 50	30 / 50
Misc.			
Air Filters Size & (Quantity)	20x25x2 (4)	20x25x2 (4)	20x25x2 (4)
Unit Shipping Weight	1750	1750	1750
Unit Operating Weight	1730	1730	1730

ELECTRICAL DATA - ELECTRIC HEAT ACCESSORY

Voltage	Heater Model - Weight	kw	Nominal BTUH	Heater Amps	Motor Amps	Total Amps	Min. Circuit Amp.	Fuse
240-3-60	AEB030EHA - 62	30	102,420	72.3	25.3	97.6	122.0	150
	AEB045EHA - 68	45	153,630	108.4		133.7	167.1	200
	AEB060EHA - 69	60	204,840	144.5		169.8	212.2	250
	AEB075EHA - 83	75	256,050	180.6		205.9	257.3	300
480-3-60	AEB030ELA - 62	30	102,420	36.1	12.7	48.8	61.0	80
	AEB045ELA - 68	45	153,630	54.2		66.9	83.6	100
	AEB060ELA - 69	60	204,840	72.3		85.0	106.2	110
	AEB075ELA - 83	75	256,050	90.3		103.0	128.7	150
600-3-60	AEB030ESA - 62	30	102,420	28.9	11.5	40.4	50.5	50
	AEB045ESA - 68	45	153,630	43.4		54.9	68.6	80
	AEB060ESA - 69	60	204,840	57.8		69.3	86.6	100
	AEB075ESA - 83	75	256,050	72.3		83.8	104.7	110

EXPANDED PERFORMANCE DATA (COOLING) - 20 Ton - (GROSS Capacity)

Table with columns for Airflow (IDB* CFM), Outdoor Ambient Temperature (65, 75, 85, 95, 105, 115), and Entering Indoor Temperature (59, 63, 67, 71). Rows include performance metrics like MBh, S/T, and KW for various CFM ratings (8064, 7200, 6336).

*Entering Indoor Temperature-Degrees F. DryBulb StandardRating

FORMULAS AND NOTES FOR USING EXPANDED PERFORMANCE DATA

To find leaving wet bulb and dry bulb from the expanded performance charts on the next two pages, use the following formulas. Direct interpolation is permissible. Do not extrapolate.

t/db = t_edb - sensible capacity (Btu/h) / (1.10 x cfm)

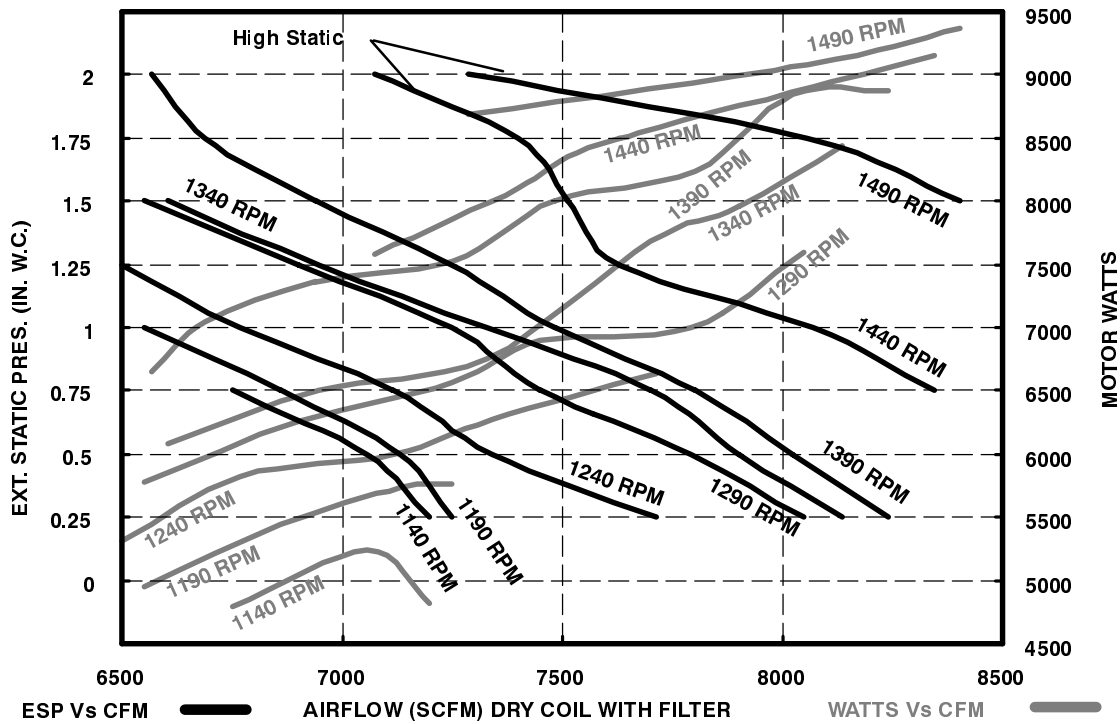
t/wb = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h/wb).

h/wb = h_ewb - sensible capacity (Btu/h) / (4.5 x cfm)

Where: h_ewb = Enthalpy of air entering evaporator coil.

LEGEND: MBh = Total Capacity (Gross), KW = Unit Operating Watts, t/db = Leaving Dry Bulb, edb = Entering Dry Bulb, h/wb = Enthalpy of leaving wet bulb, S/T = Sensible to Total Ratio, IDB = Indoor Dry Bulb, t/wb = Leaving Wet Bulb, ewb = Entering Wet Bulb.

CIRCULATING BLOWER PERFORMANCE DATA - 20 TON UNITS



NOTES: 1) Maximum motor Watts is 12,275 Watts. 2) Maximum blower wheel speed is 1800 RPM. 3) Contact factory for applications requiring operation outside standard cooling operating range. 4) Airflow data based on dry coil with filters. For wet coil add 0.08 inches to ESP. Downflow has the same ESP as horizontal flow. 5) Add 0.20 inches to ESP for horizontal economizer, downflow economizer, or manual air dampers. 6) Pulley turns refers to turns out. In other words, 0 turns is a narrower sheave than 5 turns. 7) Blower speed MUST be set to give the correct air temperature rise through the unit as marked on the Rating Plate.

CFM	EXTERNAL STATIC PRESSURE IN INCHES WATER COLUMN (PASCALS)																
	.25 (62)		.50 (124)		.75 (186)		1.0 (249)		1.25 (311)		1.50 (373)		1.75 (435)		2.0 (497)		
	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	
6750														1390	7100	1410	7300
7000					1220	5800	1265	6250	1350	6650	1380	7200	1410	7400	1430	7600	
7250	1190	5760	1220	5920	1260	6300	1290	6550	1390	7500	1410	7700	1425	7750	1480	8600	
7500	1220	6150	1255	6500	1300	6950	1390	8010	1420	8250	1440	8400	1460	8650			
7750	1250	6750	1280	6850	1360	8000	1420	8450	1450	8700	1460	9750	1475	8800			
8000	1280	7300	1380	8800	1420	8800	1433	8870	1455	8950	1470	9000	1480	9050			
8250	1400	8890	1420	9150	1432	9200	1455	9250	1470	9270	1480	9300					

High Static Data / Standard

NOTE: DO NOT EXCEED LISTED AMPS ON BLOWER MOTOR AT ANY POINT
31.8 AMPS / 208-230V, 14.7 AMPS / 460V, 13.4 AMPS / 575V

PULLEY TURNS OPEN		0	1	2	3	4	5	6
FAN	STD PULLEY	1556	1518	1481	1439	1398	1357	1314
RPM	LOW STATIC PULLEY	1332	1289	1246	1204	1162	1119	1076

AIRFLOW CORRECTION FACTORS - 20 TON					
CFM - ACTUAL	5760	6480	7200	7920	8640
TOTAL MBH	0.95	0.98	1.00	1.02	1.05
SENSIBLE MBH	0.90	0.95	1.00	1.05	1.10
POWER KW	0.98	0.99	1.00	1.01	1.02

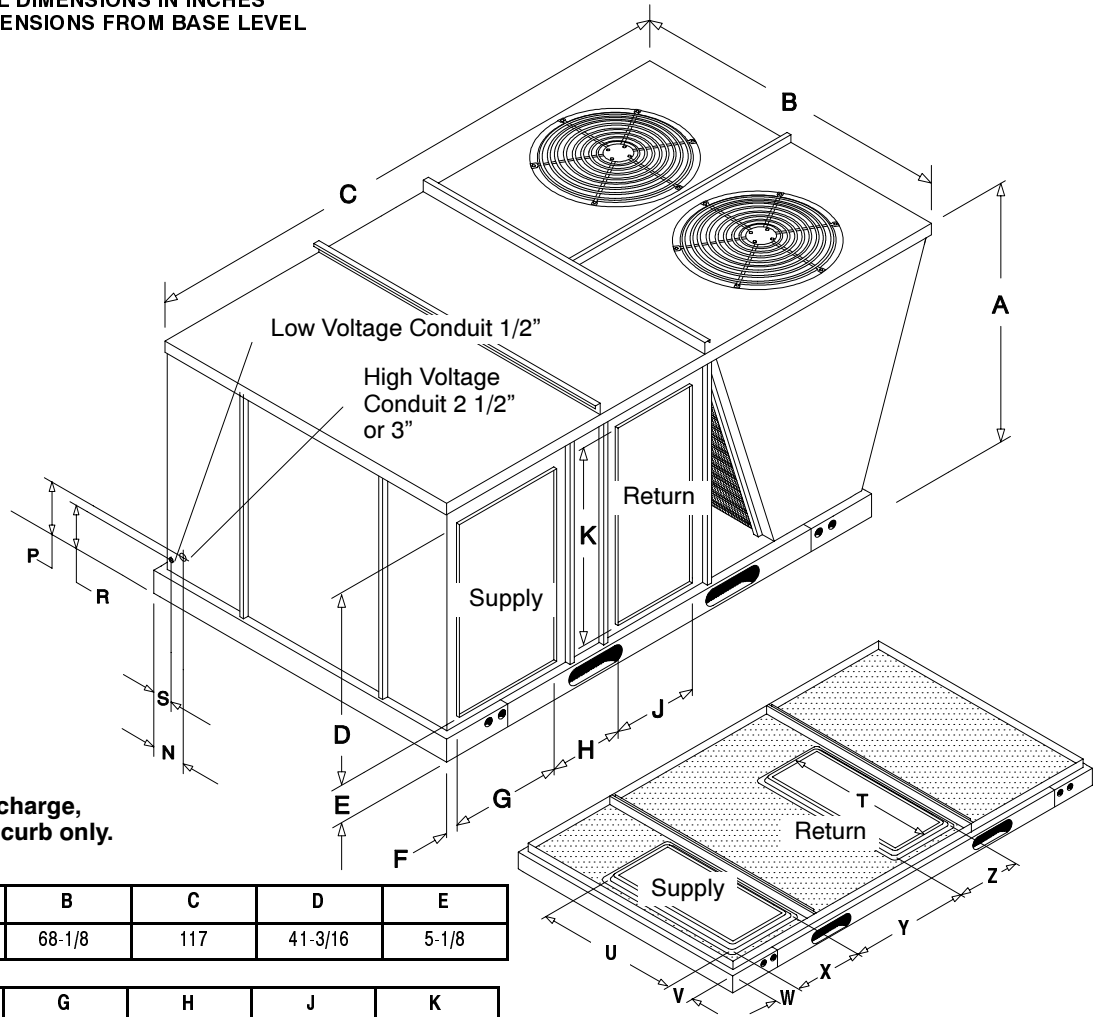
FACTORY SETTING TURNS OPEN	
10 HP STD PULLEY	5
10 HP LOW STATIC PULLEY	See NOTE

NOTE: Low static pulleys are field installed and MUST be adjusted by the installing technician.

NOTES: 1) Multiply correction factor times gross performance data. 2) Resulting sensible capacity cannot exceed total capacity.

UNIT DIMENSIONS

ALL DIMENSIONS IN INCHES
DIMENSIONS FROM BASE LEVEL



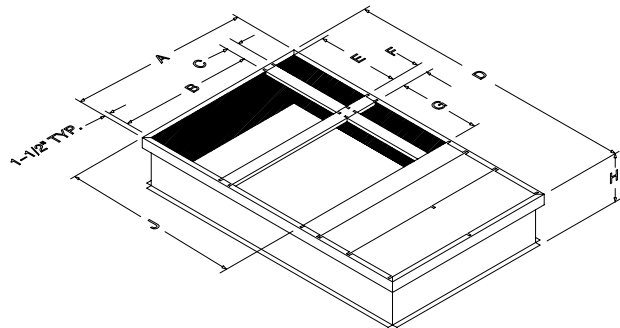
NOTE: For down discharge, duct connections to curb only.

Unit Size	A	B	C	D	E
20 Ton	48-13/16	68-1/8	117	41-3/16	5-1/8

Unit Size	F	G	H	J	K
20 Ton	4-1/2	21-9/16	15-1/4	21-9/16	41-3/16

Unit Size	L	M	N	P	R	S	T	U	V	W	X	Y	Z
20 Ton	14	5-1/2	6	8-1/4	7-1/8	2-3/4	45-1/16	45-1/16	3-1/2	3-1/2	24-1/2	11-13/16	24-1/2

ACCESSORIES

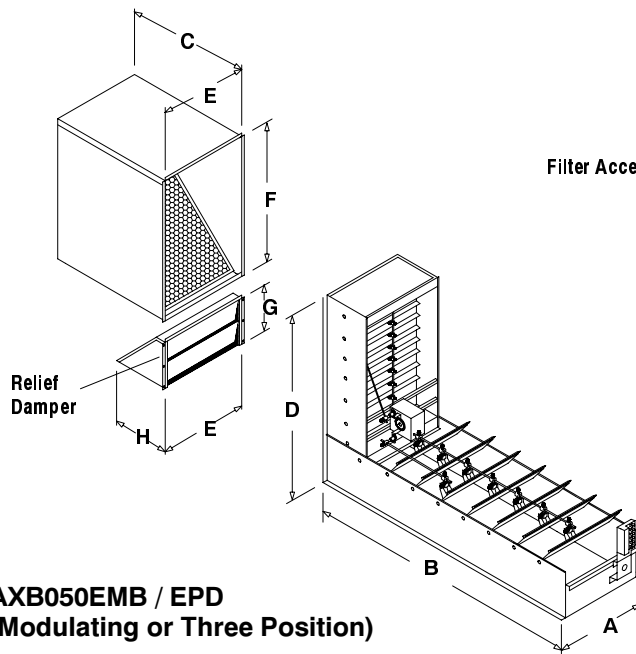


ROOF CURB DIMENSIONS

Model No.	Unit Size	A	B	C	D	E	F	G	H	J
AXB050C*A	20 Ton	61-1/2	44	3-1/2	93-3/8	28-1/2	3-1/4	28-1/2	*	61-3/4

* Roof Curbs come in 3 heights: Model # Letter L = 8", M = 14", H = 24"

ECONOMIZERS / DOWNFLOW



**AXB050EMB / EPD
(Modulating or Three Position)**

Model No.	A	B	C	D	E	F	G	H
AXB050E**	23 3/4	56	25 1/2	41-3/4	23 11/16	31-3/4	9-1/2	11 1/2

Description	Model Number	Used on
Fully Modulating (1)	AXB050EMB	20 Ton
Three Position (2)	AXB050EPD	
Entry Level Three Position (3)	AXB050ECA	

- (1) - Ambient/Enthalpy Control; Includes Return Air Damper & Relief Damper.
- (2) - Ambient Control Only; Includes Return Air Damper & Relief Damper.
- (3) - Ambient Control Only; No Return Air Damper; No Relief Damper.

All Economizers Feature Enthalpy and/or ambient temperature control providing outdoor air ventilation and "free cooling" when outdoor conditions are favorable.

Return Air and Pressure Relief dampers for proper air balance, on most models.

Interconnecting wiring furnished.

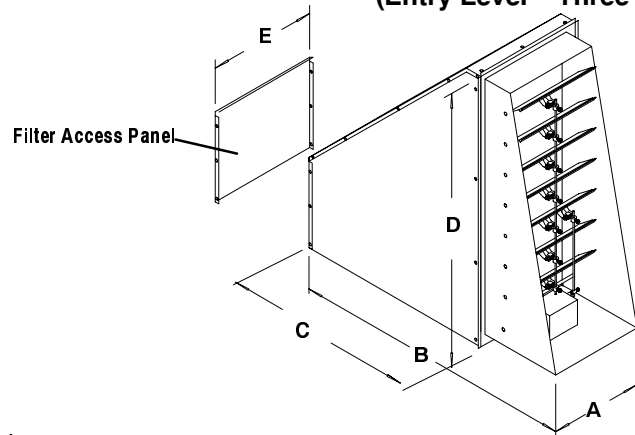
Center controlled dual action dampers with gaskets to provide proper seal.

Description	Model Number	Used on
Fully Modulating (1)	AXB050HEB	20 Ton
Three Position (2)	AXB050HPD	

NOTES:

- (1) - Ambient/Enthalpy Control; Includes Return Air Damper & Relief Damper.
- (2) - Ambient Control Only; Includes Return Air Damper & Relief Damper.

**AXB050ECA
(Entry Level - Three Position)**



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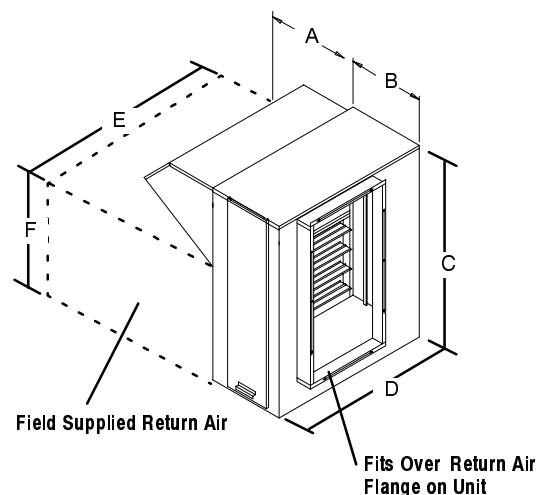
Model No.	A	B	C	D	E
AXB050ECA	18-1/2	37	26	42 1/2	21

ALL DIMENSIONS IN INCHES

NOTES:

ECONOMIZERS / HORIZONTAL

AXB050H**



Fits Over Return Air Flange on Unit

HORIZONTAL ECONOMIZER DIMENSIONS						
Model No.	A	B	C	D	E	F
AXB050	20-7/8	20-1/8	50-3/8	42-1/2	40-13/16	21-1/4

ACCESSORIES (CONT...)

FOR DETAILED INFORMATION ON ACCESSORIES, SEE SYSTEM ACCESSORY GUIDE P.N. 401 10 1001 00.

ALL WEIGHTS ARE INSTALLED & IN POUNDS

ROOF CURBS

Description	Model Number / Weight	Used on
8"	AXB050CLA / 100	20 Ton
14"	AXB050CMA / 124	20 Ton
24"	AXB050CHA / 167	20 Ton

ECONOMIZERS - DOWNFLOW

Description	Model Number / Weight	Used on
Fully Modulating	AXB050EMB / 175	20 Ton
Three Position, no Return Air Damper	AXB050ECA / 140	20 Ton
Three Position, with Return Air Damper	AXB050EPC / 175	20 Ton

ECONOMIZERS - HORIZONTAL

Description	Model Number / Weight	Used on
Fully Modulating	AXB050HEB / 250	20 Ton
Three Position	AXB050HPC / 250	20 Ton

PART NUMBERS FOR APPROVED HIGH/LOW STATIC CONVERSIONS*

Unit Size	Motor	Motor Pulley	Blower Pulley	Belt
20 Ton	No Change	1083410	No Change	No Change

* Available through Service Parts

OUTDOOR AIR DAMPERS

Description	Model Number / Weight	Used on
Manual 0- 25%	AXB050FAB / 26	20 Ton
Motorized- 25%	AXB050FMB / 41	20 Ton

MODEL NUMBER IDENTIFICATION GUIDE

MODEL NUMBER	R	A	M	A	20	H	00	1	Blower Option
R = Package Rooftop									Heating Input (BTUH)
Fuel Type									00 = No Heat (A/C & HP Models)
G = Gas A = Cooling									Voltage
Multi Position									H = 208 / 230-60-3 F = 460-60-3 N = 575-60-3
Series									Nominal Capacity (Tons)
									20 = 20 TON

LOW AMBIENT CONTROLS *

Description	Model Number - Weight	Used on
To 0° F	1082357 / 5	20 Ton

* Available through Service Parts

CONCENTRIC DIFFUSER (FLUSH MOUNT)

Description	Model Number / Weight	Used on
Concentric Diffuser (F.M.)	AXB058CFA / 335	20 Ton

CONCENTRIC DIFFUSER (STEP DOWN)

Description	Model Number / Weight	Used on
Concentric Diffuser (S.D.)	AXB058CSA / 360	20 Ton

GUIDE SPECIFICATION

CABINET

The cabinet shall be made of sturdy G-90 galvanized steel, phosphate coated with an epoxy based primer and polyester finish coat for long lasting weatherproof construction. Base rails shall be made of 16 gauge steel and have fork lift slots plus holes provided for lifting shackles. Unit shall be designed with convertible airflow and are shipped ready for downflow applications with conversion to horizontal airflow being accomplished by relocating two panels. The indoor blower compartment interior cabinet surfaces shall be insulated with a minimum 1/2" thick, flexible glass fiber insulation, coated on the air side. Aluminum foil faced glass fiber insulation shall be used in the furnace compartment.

COOLING SECTION

Units shall be factory charged and operationally ready upon delivery. The unit shall have two independent refrigerant systems providing two stage cooling operation. Each refrigerant circuit shall have a high efficiency, fully hermetic compressor with internal overload protection, high and low pressure switches, filter drier, and copper tube / aluminum fin evaporator and condenser coils. The unit shall be designed for two-stage cooling operation down to 40° F. as shipped, as well as pre-wired for economizer-type accessories.

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 into the unit. The evaporator coil shall be protected from dust and debris on the return air side by factory installed 2" low velocity glass fiber air filters. Filter face velocity shall not exceed 480 FPM for the 20 ton at nominal airflows.

CONDENSER FAN(S)

The 20 ton units shall have two condenser fan assemblies. The assemblies shall be mounted directly to a vertical-discharge grille that is easily removable for service. Motors shall be rated at 1100 RPM and shall have permanently lubricated ball bearings and internal overload protection.

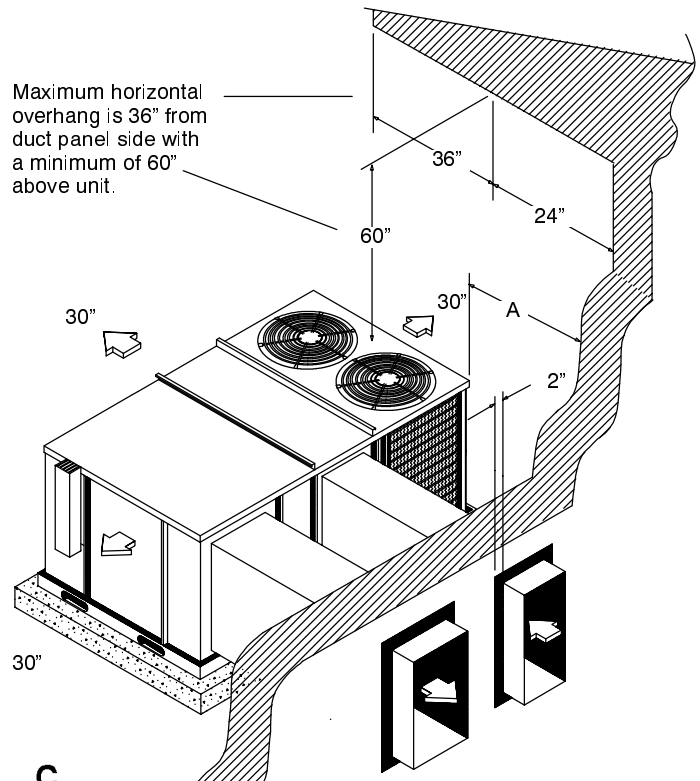
EVAPORATOR BLOWER

The 20 ton units shall have a single belt driven evaporator blower (56 frame) and it 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 kits shall be available for air flows above the standard requirement. The external static capability of the unit shall be the same for horizontal and downflow discharge.

HEATING SECTION

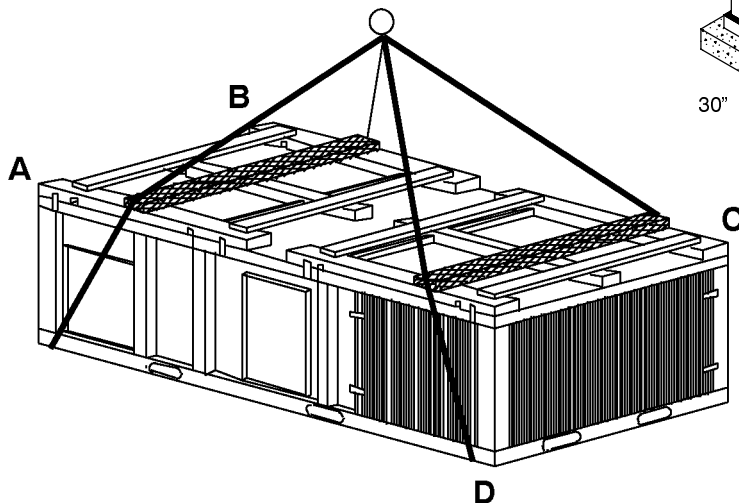
The units shall have aluminized steel tubular heat exchangers located on the discharge side of the evaporator blower and equipped with a two stage gas valve. The units shall have in-shot burners that are ignited by an electronic spark with flame proving feature and protected by both a limit switch and flame roll-out switch. The induced draft blower shall have a two-speed motor and shall be interlocked with a proven air pressure safety device.

INSTALLATION CLEARANCES



A = 24" with no economizer; 48" with economizer;
On 20 ton models, 30" is suggested to allow adequate compressor service clearance.

RIGGING DETAILS



UNIT SIZE (Ton)	A	B	C	D	OPERATING WEIGHT TOTAL
20	315	415	510	510	1,750