Comfortmaker®
Air Conditioning & Heating

PAD4
Product Specifications

Up to 14.5 SEER, 12 EER PACKAGE AIR CONDITIONER, 2 to 5 TONS
208/230–1–60 Single Phase
208/230–3–60 & 460–3–60 Three Phase

REFRIGERATION CIRCUIT
- Environmentally sound R–410A refrigerant
- Copper tube/aluminum fin condenser and evaporator coils
- Scroll compressor standard on all models
- Dehumidification mode (airflow reduction) on all models

EASY TO INSTALL AND SERVICE
- Installs easily on a rooftop or at ground level
- Easy three–panel accessibility for maintenance and installation
- Easily converts to down discharge applications

BUILT TO LAST
- High efficiency ECM indoor blower motor on all models
- Vertical condenser fan discharge
- Full perimeter steel base rails
- High and low pressure switches provide added reliability for the compressor
- Single phase models available with optional factory installed tin–coated copper evaporator coil with 3/8" spacing wire grilles standard as hail guard. All other models have 2" spacing wire grilles including 3 phase models (These models are identified with letters TP in the 11th and 12th positions in the model number)

AHRI CERTIFIED™ www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org .

ENERGY STAR PARTNER

As an Energy Star® Partner, International Comfort Products has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

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LIMITED WARRANTY*
1 Phase PAD4 "D" Models
- 3 year No Hassle Replacement™ limited warranty for tin–coated 'TP' models
- 10 year parts limited warranty (including compressor and coils) with timely registration
- 5 year parts limited warranty if not registered within 90 days of original installation

3 Phase PAD4 "D" Models
- 5 year compressor limited warranty
- 1 year parts limited warranty

* See warranty certificate for complete details and restrictions

UNIT PERFORMANCE DATA

Model Number	COOLING Capacity BTU/h	SEER	EER	Unit Dimensions Height x Width x Depth in (mm)	Operating Weight lbs (kg)
208/230–1–60					
PAD424000KTP0D	23,600	14.5	12.0	$42^{1}/_{8}$ x $48^{3}/_{16}$ x $32^{5}/_{8}$ (1070 x 1224 x 829)	288 (131)
PAD430000KTP0D	28,600	14.5	12.0	$44^{1}/_{8}$ x $48^{3}/_{16}$ x $32^{5}/_{8}$ (1121 x 1224 x 829)	300 (136)
PAD436000KTP0D	34,200	14.5	12.0	$46^{1}/_{8}$ x $48^{3}/_{16}$ x $32^{5}/_{8}$ (1172 x 1224 x 829)	358 (162)
PAD442000KTP0D	41,000	14.5	12.0	$44^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1137 x 1226 x 1123)	412 (187)
PAD448000KTP0D	47,000	14.2	12.0	$48^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1238 x 1226 x 1123)	430 (195)
PAD460000KTP0D	57,000	14.2	12.0	$52^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1340 x 1226 x 1123)	458 (208)
208/230–1–60 and 208/230–3–60					
PAD424000K000D	23,600	14.5	12.0	$42^{1}/_{8}$ x $48^{3}/_{16}$ x $32^{5}/_{8}$ (1070 x 1224 x 829)	288 (131)
PAD430000‡000D	28,600	14.5	12.0	$44^{1}/_{8}$ x $48^{3}/_{16}$ x $32^{5}/_{8}$ (1121 x 1224 x 829)	300 (136)
PAD436000‡000D	34,200	14.5	12.0	$46^{1}/_{8}$ x $48^{3}/_{16}$ x $32^{5}/_{8}$ (1172 x 1224 x 829)	358 (162)
PAD442000‡000D	41,000	14.5	12.0	$44^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1137 x 1226 x 1123)	412 (187)
PAD448000‡000D	47,000	14.2	12.0	$48^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1238 x 1226 x1123)	430 (195)
PAD460000‡000D	57,000	14.2	12.0	$52^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1340 x 1226 x 1123)	458 (208)
460–3–60					
PAD436000L000D	34,200	14.5	12.0	$46^{1}/_{8}$ x $48^{3}/_{16}$ x $32^{5}/_{8}$ (1172 x 1224 x 829)	410 (186)
PAD442000L000D	41,000	14.5	12.0	$44^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1137 x 1226 x 1123)	482 (219)
PAD448000L000D	47,000	14.2	12.0	$48^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1238 x 1226 x 1123)	505 (229)
PAD460000L000D	57,000	14.2	12.0	$52^{3}/_{4}$ x $48^{1}/_{4}$ x $44^{3}/_{16}$ (1340 x 1226 x 1123)	541 (245)

‡ – K = 208/230–1–60, H = 208/230–3–60

MODEL NOMENCLATURE

MODEL SERIES	1	2	3	4	5,6	7,8,9	10	11,12	13	14	15
	P	A	D	4	36	000	K	00	0	D	1

P = Package

A = Air Conditioner

D = Standard

TIER

3 = 13

4 = 14

5 = 15

SEER

24 = 24,000 BTUH = 2 Tons

30 = 30,000 BTUH = 2.5 Tons

36 = 36,000 BTUH = 3 Tons

42 = 42,000 BTUH = 3.5 Tons

48 = 48,000 BTUH = 4 Tons

60 = 60,000 BTUH = 5 Tons

NOMINAL COOLING CAPACITY

000 = no factory heat

NOMINAL HEATING BTUH (input)

K = 208/230–1–60
H = 208/230–3–60
L = 460–3–60

VOLTAGE

00 = No options
TP = Tin Plated Evaporator Main Tubes

FACTORY INSTALLED OPTIONS

0 = Standard

FEATURE CODE

Sales Model Digit

Engineering Digit

AHRI* CAPACITIES

Cooling Capacities and Efficiencies

UNIT SIZE	NOMINAL TONS	STANDARD CFM	COOLING CAPACITY	EER	SEER
24	2	800	23600	12.0	14.5
30	2.5	1000	28600	12.0	14.5
36	3	1200	34200	12.0	14.5
42	3.5	1400	41000	12.0	14.5
48	4	1600	47000	12.0	14.2
60	5	1750	57000	12.0	14.2

LEGEND
dB–Sound Levels (decibels)
db—Dry Bulb
SEER—Seasonal Energy Efficiency Ratio
wb—Wet Bulb
COP–Coefficient of Performance
* Air Conditioning, Heating & Refrigeration Institute.
**At "A" conditions–80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.
† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F (26.7°C) db, 67°F wb (19.4°C) indoor entering–air temperature and 95°F db (35°C) outdoor entering–air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

A–Weighted Sound Power Level (dBA)

UNIT SIZE	SOUND RATING	TYPICAL OCTAVE BAND SPECTRUM (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	76	58.0	65.5	71.5	71.0	65.5	60.5	53.0
30	73	62.0	64.0	67.5	67.5	65.0	60.0	54.5
36	76	64.5	66.5	70.0	70.0	67.5	61.0	54.0
42	77	70.5	68.0	70.5	70.5	68.0	62.5	58.0
48	77	71.5	65.0	71.0	67.5	67.5	63.0	57.5
60	77	73.5	65.5	68.5	67.5	66.5	62.0	58.0

NOTE: Tested in accordance with AHRI Standard 270–1995 (not listed in AHRI).

PHYSICAL DATA

UNIT SIZE	24	30	36	42	48	60
NOMINAL CAPACITY (ton)	2	2−1/2	3	3−1/2	4	5
SHIPPING WEIGHT* lb. **SHIPPING WEIGHT* (kg)**	295 134	307 139	365 166	421 191	439 199	467 212
COMPRESSORS	Scroll					
Quantity	1					
REFRIGERANT (R−410A)						
Quantity lb Quantity (kg)	6.0 2.7	5.6 2.5	9.5 4.3	8.8 4.0	9.5 4.3	12.3 5.6
REFRIGERANT METERING DEVICE	TXV					
OUTDOOR COIL						
Rows...Fins/in. Face Area (sq ft)	1...21 11.9	1...21 13.6	2...21 15.4	2...21 13.6	2...21 17.5	2...21 21.4
OUTDOOR FAN						
Nominal Cfm Diameter in. Diameter (mm) Motor Hp (Rpm)	2500 24 609.6 1/10 (810)	2700 24 609.6 1/10 (810)	2800 24 609.6 1/5 (810)	3000 26 660.4 1/5 (810)	3200 26 660.4 1/5 (810)	3600 26 660.4 1/5 (810)
INDOOR COIL						
Rows...Fins/in. Face Area (sq ft)	3...17 3.7	3...17 3.7	3...17 3.7	3...17 4.7	3...17 4.7	3...17 5.7
INDOOR BLOWER						
Nominal Cooling Airflow (Cfm) Size in. Size (mm.) Motor HP (RPM)	800 10x10 254x254 1/2 (1050)	1000 10x10 254x254 1/2 (1050)	1200 11x10 279.4x254 3/4 (1000)	1400 11x10 279.4x254 3/4 (1075)	1600 11x10 279.4x254 1.0 (1075)	1750 11x10 279.4x254 1.0 (1040)
HIGH−PRESSURE SWITCH (psig) Cut−out Reset (Auto)	650 +/− 15 420 +/− 25					
LOSS−OF−CHARGE / LOW−PRESSURE SWITCH (Liquid Line) (psig) cut−out Reset (auto)	20 +/− 5 45 +/− 10					
RETURN−AIR FILTERS†‡						
Throwaway Size in. Throwaway Size (mm)	20x20x1 508x508x25	20x24x1 508x610x25	24x30x1 610x762x25		24x36x1 610x914x25	

*For 460 volt units add 14 lb (6.35 kg) to the shipping weight.

† Required filter sizes shown are based on the larger of the AHRI (Air Conditioning, Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/minute for throwaway type or 450 ft/minute for high−capacity type. Air filter pressure drop for non−standard filters must not exceed 0.08 in. W.C.

‡ If using accessory filter rack refer to the filter rack installation instructions for correct filter sizes and quantity.

Electric Heat Pressure Drop Tables (IN. W.C.)

Small Cabinet: 24−36

STATIC	CFM											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
5 kW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07
10 kW	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.09	0.10	0.11
15 kW	0.00	0.00	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20 kW	0.00	0.00	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19

Large Cabinet: 42−60

STATIC	CFM														
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5 kW	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
10 kW	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
15 kW	0.00	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
20 kW	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16

Electric Heaters

CATALOG ORDERING NO.	NOMINAL CAPACITY (kW)	FUSE QTY	USED WITH SIZES					
			24	30	36	42	48	60
ELECTRIC HEATERS (208/230 — SINGLE PHASE — 60 Hz)								
CPHEATER052A0*	5.0	—	X	X	X	X	X	X
CPHEATER064A0*	5.0	4	X	X	X	X	X	X
CPHEATER069A0*	7.2	—	X	X	X	X	X	X
CPHEATER070A0*	7.2	4	X	X	X	X	X	X
CPHEATER065A0*	10.0	—	X	X	X	X		
CPHEATER050A0*	10.0	4	X	X	X	X	X	X
CPHEATER051A0*	15.0	4		X	X	X		
CPHEATER066A0*	15.0	6		X	X	X	X	X
CPHEATER053A0*	20.0	6				X	X	X
CPHEATER054A0*	20.0	6				X	X	X
ELECTRIC HEATERS (208/230 — THREE PHASE — 60 Hz)								
CPHEATER055A0*	5.0	—		X	X	X	X	X
CPHEATER056A0*	10.0	—		X	X	X	X	X
CPHEATER068A0*	10.0	6		X	X	X	X	X
CPHEATER057A0*	15.0	—		X	X	X	X	X
CPHEATER058A0*	20.0	6		X	X	X	X	X
CPHEATER059A0*	20.0	6				X	X	X
ELECTRIC HEATERS (460 — THREE PHASE — 60 Hz)								
CPHEATER061A0*	10.0	—			X	X	X	X
CPHEATER062A0*	15.0	—			X	X	X	X
CPHEATER063A0*	20.0	—				X	X	X

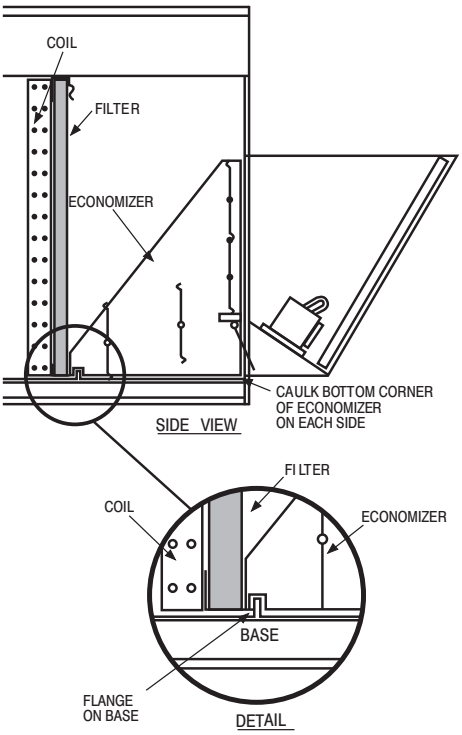
NOTE: Electric heaters are rated at 240v. Refer to Multiplication Factors table for other voltages.
X = Approved combinations.

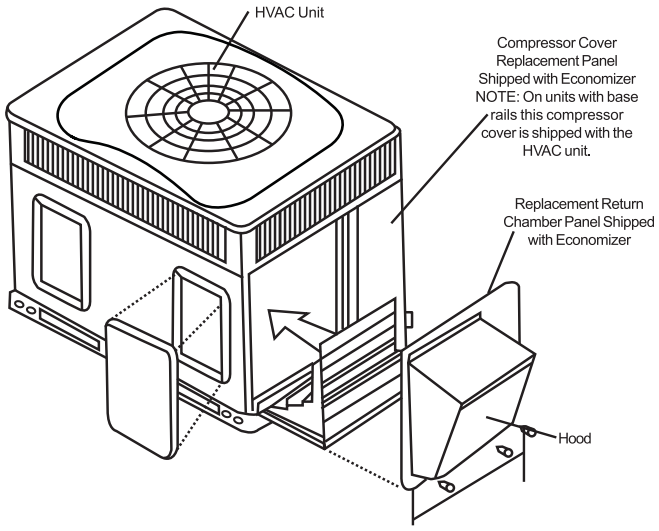
Minimum Airflow for Safe Electric Heater Operation (CFM)

SIZE	24	30	36	42	48	60
Cfm	800	1000	1200	1400	1600	1750

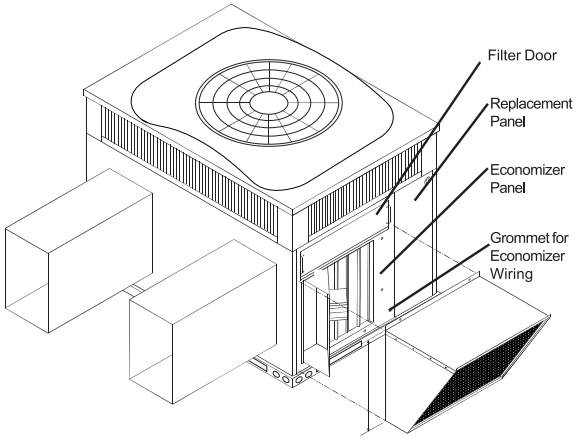
Specifications subject to change without notice.

ECONOMIZER



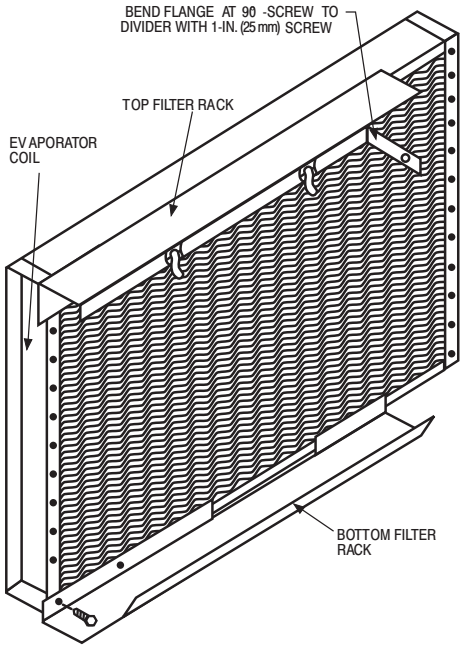


Vertical Economizer

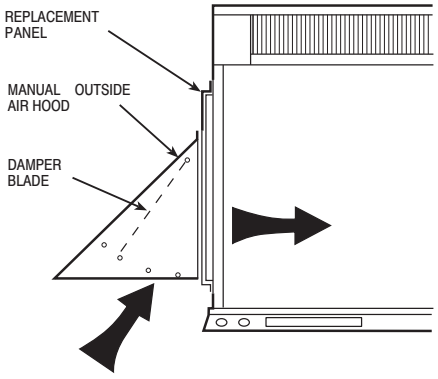


Horizontal Economizer

FILTER RACK



MANUAL OUTSIDE AIR DAMPER



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UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.		UNIT HEIGHT IN/MM	CENTER OF GRAVITY IN/MM					
		LB	KG	"A"	X		Y		Z	
PAD424000K(00/TP)0D1	208/230-1-60	288	130.5	42-1/8	1070	20-1/2	520.7	15-3/4	400.1	16-5/8	422.3
PAD430000(K/H)(00/TP)0D1	208/230-1, 208/230-3-60	300	136.0	44-1/8	1121	20-1/2	520.7	15-3/4	400.1	16-5/8	422.3
PAD436000(K/H)(00/TP)0D1	208/230-1, 208/230-3-60	358	162.3	46-1/8	1172	20-1/2	520.7	15-3/4	400.1	17-3/8	441.3
PAD436000L000D1	460-3-60	410	185.9	46-1/8	1172	20-1/2	520.7	15-3/4	400.1	17-3/8	441.3

UNITS	VOLTAGE	CORNER WEIGHT LB/KG							
		"1"		"2"		"3"		"4"	
PAD424000K(00/TP)0D1	208/230	57.6	26.1	46.0	20.9	69.1	31.4	115.1	52.3
PAD430000(K/H)(00/TP)0D1	208/230	60.0	27.2	48.0	21.8	71.9	32.7	119.9	54.4
PAD436000(K/H)(00/TP)0D1	208/230	71.6	32.5	57.2	26.0	85.9	39.0	143.1	65.0
PAD436000L000D1	460	71.6	32.5	57.2	26.0	94.9	43.1	148.1	67.2

NOTE:
1. ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER
2. PICTORIALLY GRILLES MAY VARY BETWEEN MODELS

REQUIRED CLEARANCES TO COMBUSTIBLE MATL. INCHES [MM]

TOP OF UNIT.....14 [355.6]
DUCT SIDE OF UNIT.....2 [50.8]
SIDE OPPOSITE DUCTS.....14 [355.6]
BOTTOM OF UNIT.....0 [0.0]
ELECTRICAL PANEL.....36 [914.4]

NEC. REQUIRED CLEARANCES. INCHES [MM]

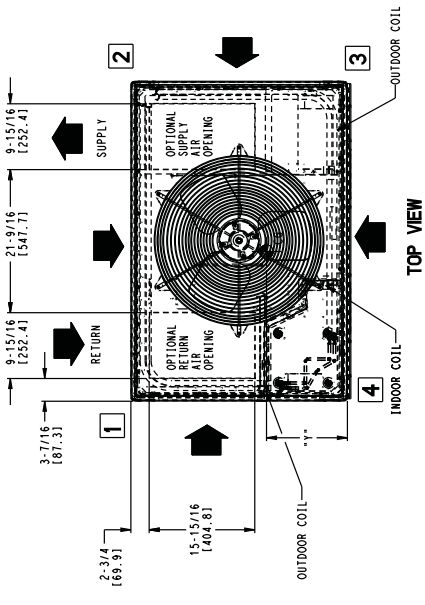
BETWEEN UNITS, POWER ENTRY SIDE.....42 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE.....36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE.....42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING INCHES [MM]

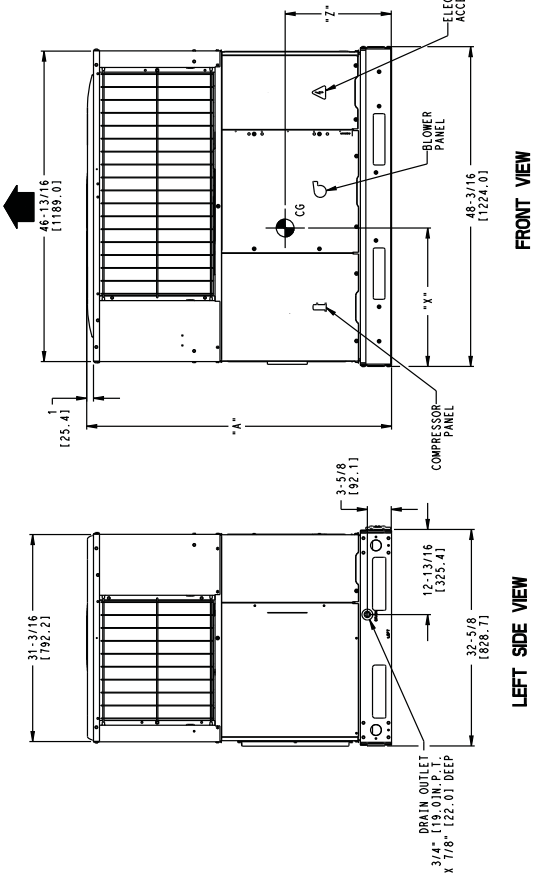
EVAP. COIL ACCESS SIDE.....36 [914.0]
POWER ENTRY SIDE.....42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)
UNIT TOP.....48 [1219.2]
SIDE OPPOSITE DUCTS.....36 [914.0]
DUCT PANEL.....12 [304.8]*

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

DIMENSIONS IN [] ARE IN MILLIMETERS

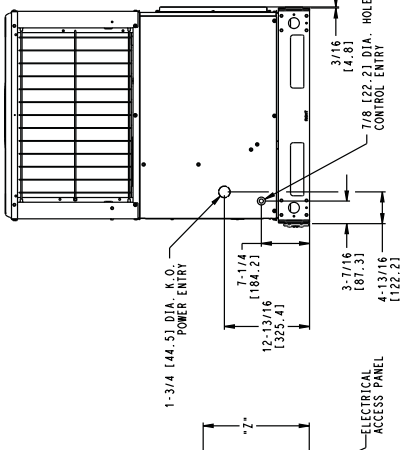


TOP VIEW

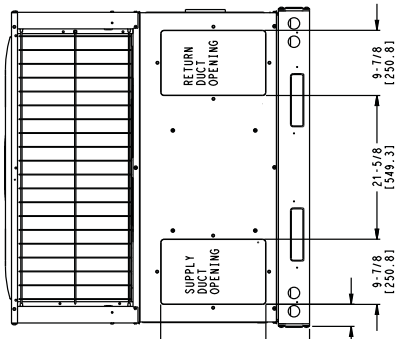


FRONT VIEW

LEFT SIDE VIEW



RIGHT SIDE VIEW



REAR VIEW

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UNIT DIMENSIONS – 42–60

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.		UNIT HEIGHT IN/MM	CENTER OF GRAVITY IN/MM					
		LB	KG	"A"	X		Y		Z	
PAD442000(K/H)(00/TP)0D1	208/230-1, 208/230-3-60	412	187.0	44-3/4 1137	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
PAD442000L000D1	460-3-60	482	218.7	44-3/4 1137	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
PAD448000(K/H)(00/TP)0D1	208/230-1, 208/230-3-60	430	195.2	48-3/4 1238	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
PAD448000L000D1	460-3-60	505	229.2	48-3/4 1238	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
PAD460000(K/H)(00/TP)0D1	208/230-1, 208/230-3-60	458	207.9	52-3/4 1340	20-1/4	514.4	17-1/2	444.5	18	457.2
PAD460000L000D1	460-3-60	541	245.5	52-3/4 1340	20-1/4	514.4	17-1/2	444.5	18	457.2

UNIT	VOLTAGE	CORNER WEIGHTS LB/KG							
		"1"		"2"		"3"		"4"	
PAD442000(K/H)(00/TP)0D1	208/230	82.4	37.4	66.0	29.9	98.9	44.9	164.9	74.9
PAD442000L000D1	460	82.4	37.4	66.0	29.9	107.9	49.0	169.9	77.1
PAD448000(K/H)(00/TP)0D1	208/230	86.0	39.1	68.8	31.3	103.3	46.9	172.1	78.1
PAD448000L000D1	460	86.0	39.1	68.8	31.3	112.3	51.0	177.1	80.4
PAD460000(K/H)(00/TP)0D1	208/230	91.6	41.6	73.3	33.3	110.0	49.9	183.3	83.2
PAD460000L000D1	460	91.6	41.6	73.3	33.3	119.0	54.0	188.3	85.5

NOTE:
1. ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER
2. PICTORIALLY GRILLES MAY VARY BETWEEN MODELS

REQUIRED CLEARANCES TO COMBUSTIBLE MATL. INCHES [MM]

TOP OF UNIT	14 [355.6]
DUCT SIDE OF UNIT	2 [50.8]
SIDE OPPOSITE DUCTS	14 [355.6]
BOTTOM OF UNIT	0 [0.0]
ELECTRICAL PANEL	36 [914.4]

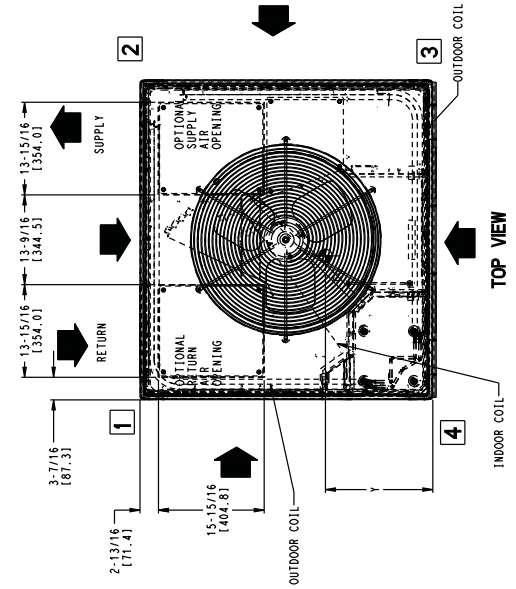
NEC. REQUIRED CLEARANCES. INCHES [MM]

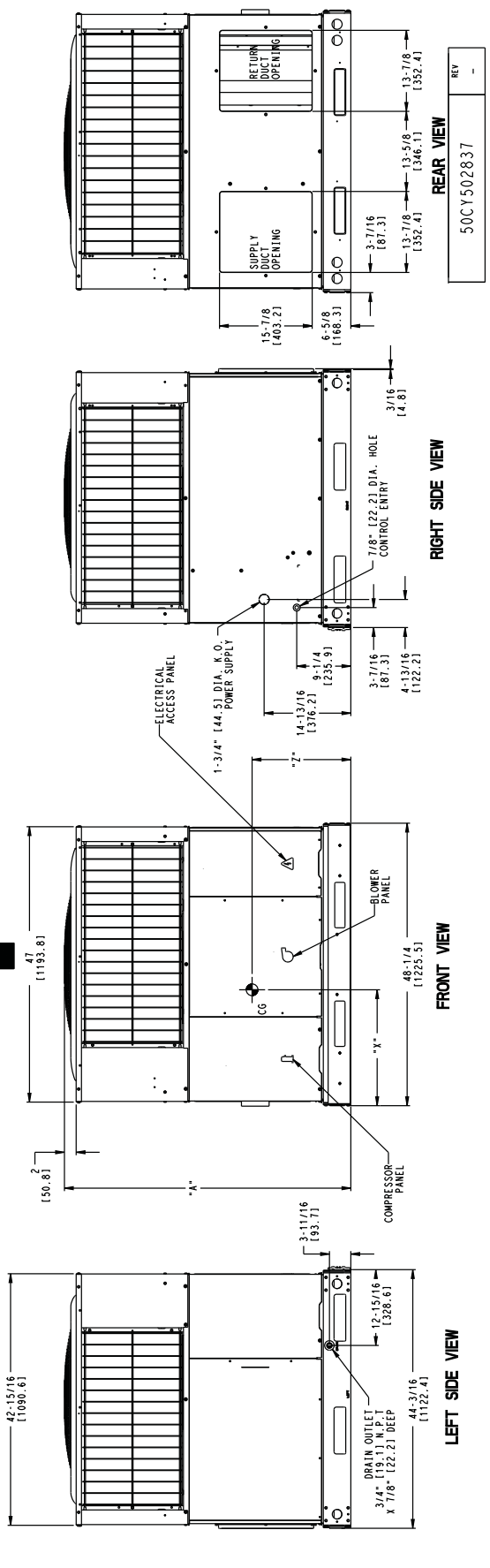
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING INCHES [MM]

EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE (EXCEPT FOR NEC REQUIREMENTS)	42 [1066.8]
UNIT TOP	48 [1219.2]
SIDE OPPOSITE DUCTS	36 [914.0]
DUCT PANEL	12 [304.8]*

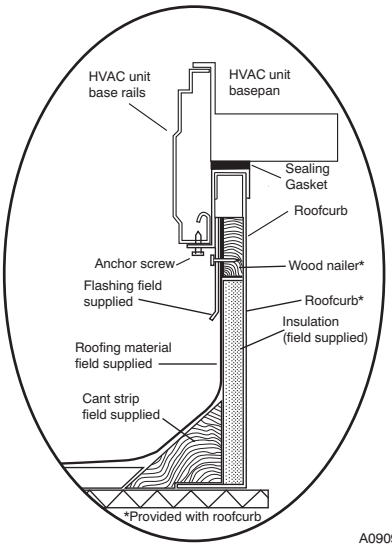
*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.
DIMENSIONS IN [ ] ARE IN MM



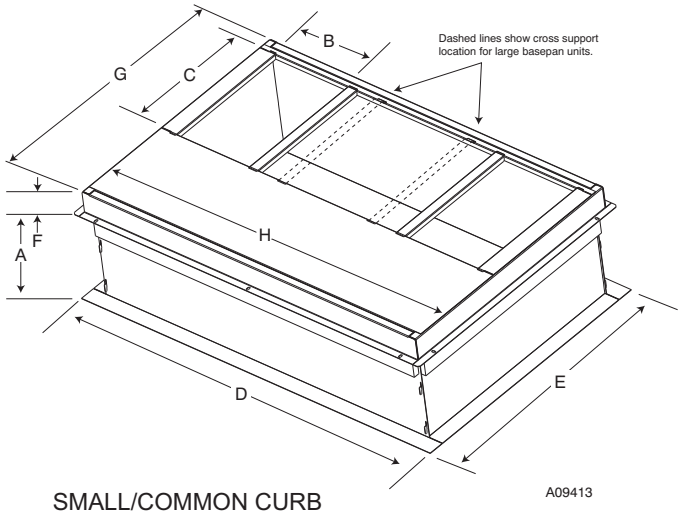


A14422

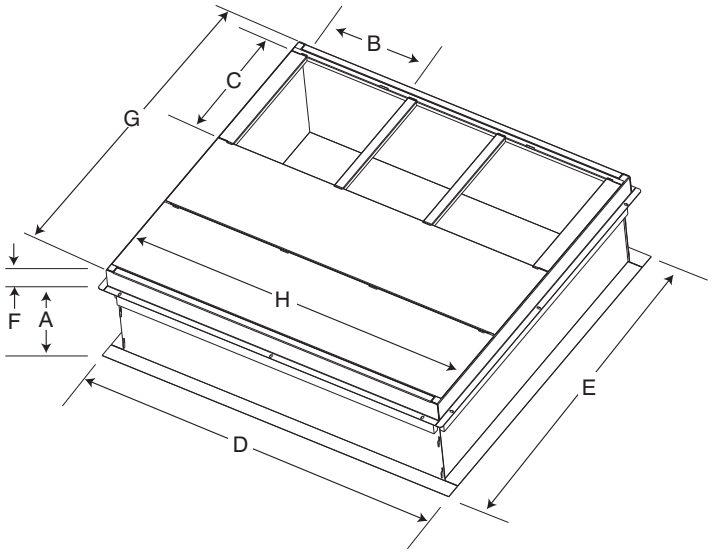
ROOF CURB ACCESSORY – 24–60



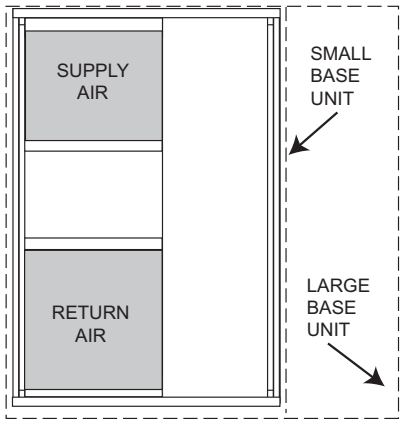
ROOF CURB DETAIL



SMALL/COMMON CURB



LARGE CURB



UNIT PLACEMENT ON COMMON CURB

SMALL OR LARGE BASE UNIT

A09414

UNIT SIZE	CATALOG NUMBER	A IN. (mm)	B (small/common base) IN. (mm)*	B (large base) IN. (mm)*	C IN. (mm)	D IN. (mm)	E IN. (mm)	F IN. (mm)	G IN. (mm)	H IN. (mm)
Small or Large	CPRFCURB010A00	11 (279)	10 (254)	14 (356)	16 (406)	47.8 (1214)	32.4 (822)	2.7 (69)	30.6 (778)	46.1 (1170)
	CPRFCURB011A00	14 (356)								
Large	CPRFCURB012A00	11 (279)	14 (356)				43.9 (1116)		42.2 (1072)	
	CPRFCURB013A00	14 (356)								

* Part Numbers CPRCURB010A00 and CPRCURB011A00 can be used on both small and large basepan units. The cross supports must be located based on whether the unit is a small basepan or a large basepan.

NOTES:

1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied, as required, to unit being installed.
3. Roof curb is made of 16–gauge steel.
4. Attach ductwork to curb (flanges of duct rest on curb).
5. Insulated panels: 1–in. (25.4 mm) thick fiberglass 1 lb. density.

Specifications subject to change without notice.

SELECTION PROCEDURE (WITH EXAMPLE)

1. Determine cooling and heating requirements at design conditions:

Given:

Required Cooling Capacity (TC) ..... 34,000 Btuh
Sensible Heat Capacity (SHC) ..... 24,000 Btuh
Required Heating Capacity ..... 12,500 Btuh
Condenser Entering Air Temperature .... 95°F(35°C)
Indoor−Air Temperature ..... 80°F (26°C) edb
67°F (19°C) ewb
Evaporator Air Quantity ..... 1200 CFM
External Static Pressure ..... 0.20 IN. W.C.
Electrical Characteristics ..... 230−1−60

2. Select unit based on required cooling capacity.

Enter Net Cooling Capacities table at condenser entering temperature of 95°F (35°C), indoor air entering at 1200 cfm and 67°F (19°C) ewb (entering wet bulb). The unit will provide a total capacity of 34,200 Btuh and a SHC of 24,500 Btuh.

3. Select electric heat.

The required heating capacity is 15,000 Btuh.

Determine additional electric heat capacity in kW.

$$\frac{15{,}000 \text{ Btuh}}{3{,}414 \text{ Btuh/kW}} = 4.4\text{kW of heat required}$$

Enter the electric Heater Packages table for 208/240, single−phase, 36 unit. The 5 kW heater at 240v most closely satisfies the heating required. To calculate kW at the 208v, multiply the heater kW by multiplication factor 0.75 found in the Wattage Multiplication Factors table.

5 kW x 0.75 = 3.75 kW

3.75 kW x 3414 = 12802.50 Btuh

4. Determine fan speed and power requirements at design conditions.

Before entering the air delivery tables, calculate the total static pressure required. From the given example, the Wet Coil Pressure Drop Table, and the Filter Pressure Drop Table:

External Static Pressure	0.200 IN. W.C.
Filter	0.000 IN. W.C.
Wet Coil Pressure Drop	0.130 IN. W.C.
Total Static Pressure	0.330 IN. W.C.

Enter the table for Wet Coil Air Delivery—horizontal discharge, 230. At 0.33 IN. W.C. ESP (external static pressure) and medium speed, the fan will deliver 1293 cfm. Adjusting for 208v, the motor delivers 114 cfm (deduct 10%).

5. Select unit that corresponds to power source available.

The Electrical Data Table shows that the unit is designed to operate at 208−1−60.

PERFORMANCE DATA

24 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM/BF	EWB °F (°C)	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
700/0.02	57 (13.8)	22.98	22.98	1.47	21.68	21.68	1.68	20.31	20.31	1.90	18.78	18.78	2.14	17.08	17.08	2.40	15.36	15.36	2.68
	62(16.6)	23.82	21.37	1.48	22.23	20.56	1.68	20.58	19.70	1.91	18.81	18.81	2.14	17.11	17.11	2.40	15.39	15.39	2.68
	63*(17.2)	24.35	17.47	1.49	22.73	16.72	1.69	21.04	15.94	1.91	19.13	15.07	2.15	16.92	14.08	2.39	14.70	13.09	2.66
	67(19.4)	26.42	18.21	1.49	24.76	17.49	1.71	23.03	16.75	1.95	21.14	15.93	2.20	18.89	14.98	2.44	16.58	14.01	2.71
	72(22.2)	28.85	14.79	1.50	27.32	14.23	1.72	25.63	13.61	1.96	23.80	12.93	2.23	21.65	12.14	2.52	19.22	11.24	2.79
800/0.03	57(13.8)	24.12	24.12	1.50	22.76	22.76	1.71	21.34	21.34	1.94	19.80	19.80	2.18	17.99	17.99	2.43	16.19	16.19	2.72
	62(16.6)	24.50	23.07	1.50	22.90	22.19	1.71	21.38	21.38	1.94	19.84	19.84	2.18	18.02	18.02	2.44	16.22	16.22	2.72
	63*(17.2)	25.00	18.69	1.50	23.32	17.92	1.72	21.58	17.12	1.94	19.66	16.24	2.18	17.37	15.21	2.42	15.09	14.18	2.69
	67(19.4)	27.05	19.46	1.51	25.38	18.76	1.72	23.60	18.00	1.97	21.66	17.17	2.23	19.36	16.20	2.47	17.00	15.20	2.74
	72(22.2)	29.34	15.47	1.53	27.83	14.96	1.74	26.14	14.36	1.98	24.31	13.70	2.25	22.19	12.94	2.54	19.67	12.02	2.83
900/0.04	57(13.8)	25.11	25.11	1.52	23.69	23.69	1.74	22.22	22.22	1.97	20.65	20.65	2.22	18.78	18.78	2.47	16.90	16.90	2.76
	62(16.6)	25.16	25.16	1.52	23.73	23.73	1.74	22.26	22.26	1.97	20.68	20.68	2.22	18.81	18.81	2.47	16.93	16.93	2.76
	63*(17.2)	25.49	19.84	1.52	23.79	19.07	1.74	22.01	18.25	1.97	20.08	17.36	2.21	17.74	16.30	2.45	15.43	15.18	2.72
	67(19.4)	27.52	20.63	1.53	25.83	19.96	1.74	24.04	19.20	1.98	22.07	18.37	2.25	19.75	17.37	2.50	17.35	16.33	2.77
	72(22.2)	29.68	16.09	1.55	28.19	15.62	1.76	26.50	15.05	2.00	24.67	14.41	2.27	22.61	13.70	2.57	20.03	12.76	2.86

30 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM/BF	EWB °F (°C)	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
875/0.03	57(13.8)	26.99	26.99	1.86	26.03	26.03	2.08	24.84	24.84	2.31	23.28	23.28	2.55	21.63	21.63	2.82	19.83	19.83	3.11
	62(16.6)	27.80	26.01	1.87	26.54	25.26	2.08	25.04	24.35	2.31	23.33	23.33	2.55	21.67	21.67	2.82	19.87	19.87	3.11
	63*(17.2)	28.37	21.21	1.87	27.09	20.50	2.09	25.54	19.70	2.32	23.41	18.68	2.55	21.13	17.63	2.81	18.66	16.51	3.08
	67(19.4)	30.73	22.07	1.86	29.48	21.44	2.10	27.98	20.72	2.35	25.91	19.78	2.59	23.61	18.78	2.85	21.10	17.72	3.13
	72(22.2)	33.46	17.78	1.87	32.40	17.30	2.10	31.09	16.72	2.36	29.42	16.04	2.64	27.07	15.10	2.93	24.52	14.14	3.21
1000/0.04	57(13.8)	28.26	28.26	1.89	27.27	27.27	2.12	26.09	26.09	2.36	24.45	24.45	2.59	22.72	22.72	2.87	20.84	20.84	3.16
	62(16.6)	28.57	27.98	1.89	27.32	27.32	2.13	26.13	26.13	2.36	24.49	24.49	2.60	22.76	22.76	2.87	20.87	20.87	3.16
	63*(17.2)	29.05	22.65	1.89	27.73	21.95	2.13	26.16	21.15	2.36	23.97	20.11	2.59	21.65	19.03	2.85	19.13	17.84	3.12
	67(19.4)	31.37	23.54	1.89	30.12	22.95	2.12	28.60	22.25	2.38	26.53	21.33	2.63	24.15	20.29	2.89	21.60	19.20	3.18
	72(22.2)	33.95	18.56	1.90	32.92	18.14	2.14	31.61	17.60	2.39	30.05	16.99	2.68	27.65	16.09	2.98	25.04	15.12	3.26
1125/0.05	57(13.8)	29.32	29.32	1.92	28.31	28.31	2.15	27.10	27.10	2.41	25.45	25.45	2.64	23.65	23.65	2.91	21.70	21.70	3.21
	62(16.6)	29.36	29.36	1.92	28.35	28.35	2.15	27.14	27.14	2.41	25.49	25.49	2.64	23.68	23.68	2.92	21.73	21.73	3.21
	63*(17.2)	29.55	24.01	1.92	28.22	23.33	2.15	26.63	22.53	2.40	24.43	21.47	2.62	22.07	20.33	2.88	19.66	19.66	3.17
	67(19.4)	31.84	24.91	1.92	30.59	24.37	2.15	29.08	23.70	2.41	27.00	22.80	2.68	24.60	21.73	2.93	22.02	20.55	3.22
	72(22.2)	34.29	19.27	1.94	33.28	18.91	2.17	31.97	18.40	2.43	30.44	17.85	2.71	28.11	17.06	3.01	25.43	16.05	3.31

See Legend and Notes on Page 18.

Specifications subject to change without notice.

PERFORMANCE DATA (CONT)

36 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM/BF	EWB °F (°C)	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1050/0.04	57(13.8)	32.04	32.04	2.19	31.05	31.05	2.46	29.67	29.67	2.74	27.89	27.89	3.04	25.97	25.97	3.38	23.86	23.86	3.76
	62(16.6)	32.91	27.48	2.20	31.59	27.24	2.46	29.83	29.66	2.74	27.93	27.93	3.04	26.01	26.01	3.38	23.90	23.90	3.76
	63*(17.2)	33.62	22.38	2.21	32.24	22.10	2.47	30.40	21.63	2.75	27.88	20.90	3.04	25.18	20.09	3.37	22.23	19.16	3.72
	67(19.4)	36.45	23.33	2.21	35.13	23.14	2.49	33.48	22.83	2.80	30.96	22.18	3.09	28.22	21.45	3.42	25.24	20.62	3.78
	72(22.2)	39.67	18.74	2.22	38.63	18.63	2.50	37.24	18.38	2.81	35.25	17.95	3.16	32.48	17.21	3.51	29.45	16.41	3.88
1200/0.05	57(13.8)	33.50	33.50	2.25	32.48	32.48	2.53	31.16	31.16	2.81	29.25	29.25	3.11	27.24	27.24	3.46	25.04	25.04	3.83
	62(16.6)	33.79	29.49	2.25	32.53	32.53	2.53	31.22	31.22	2.82	29.30	29.30	3.11	27.28	27.28	3.46	25.08	25.08	3.84
	63*(17.2)	34.36	23.89	2.25	32.96	23.65	2.53	31.14	23.23	2.81	28.52	22.48	3.10	25.75	21.66	3.43	22.79	20.63	3.79
	67(19.4)	37.19	24.89	2.25	35.85	24.76	2.54	34.20	24.50	2.85	31.64	23.89	3.16	28.84	23.16	3.49	25.80	22.30	3.85
	72(22.2)	40.13	19.52	2.27	39.14	19.50	2.55	37.77	19.31	2.86	35.97	19.03	3.21	33.15	18.34	3.58	30.03	17.54	3.95
1350/0.06	57(13.8)	34.72	34.72	2.30	33.67	33.67	2.58	32.38	32.38	2.89	30.42	30.42	3.18	28.32	28.32	3.53	26.03	26.03	3.91
	62(16.6)	34.77	34.77	2.30	33.72	33.72	2.58	32.42	32.42	2.89	30.47	30.47	3.19	28.36	28.36	3.53	26.07	26.07	3.91
	63*(17.2)	34.95	25.34	2.30	33.50	25.12	2.58	31.73	24.75	2.88	29.03	23.98	3.16	26.24	23.10	3.49	23.49	23.49	3.85
	67(19.4)	37.71	26.36	2.30	36.39	26.30	2.58	34.73	26.08	2.90	32.19	25.52	3.22	29.33	24.77	3.55	26.31	23.80	3.92
	72(22.2)	40.41	20.21	2.32	39.47	20.28	2.60	38.09	20.14	2.91	36.46	20.02	3.26	33.65	19.42	3.64	30.47	18.63	4.02

42 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM/BF	EWB °F (°C)	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1225/0.03	57(13.8)	39.61	39.61	2.72	37.75	37.75	3.11	35.18	35.18	3.47	32.60	32.60	3.87	29.87	29.87	4.29	27.01	27.01	4.72
	62(16.6)	41.07	38.45	2.67	38.75	36.39	3.09	35.55	33.89	3.46	32.66	32.66	3.87	29.92	29.92	4.29	27.06	27.06	4.72
	63*(17.2)	41.95	31.44	2.64	39.60	29.62	3.07	36.33	27.46	3.45	32.90	25.32	3.87	29.27	23.19	4.30	25.42	21.06	4.73
	67(19.4)	45.37	32.67	2.53	43.06	30.92	2.96	39.97	28.94	3.40	36.45	26.82	3.83	32.72	24.71	4.27	28.81	22.62	4.72
	72(22.2)	49.27	26.39	2.42	46.93	24.87	2.85	44.47	23.37	3.31	41.33	21.77	3.74	37.56	19.92	4.23	33.52	18.06	4.71
1400/0.04	57(13.8)	41.50	41.50	2.69	39.58	39.58	3.11	36.97	36.97	3.49	34.25	34.25	3.90	31.39	31.39	4.32	28.40	28.40	4.76
	62(16.6)	42.21	41.36	2.67	39.89	39.13	3.10	37.03	37.03	3.49	34.31	34.31	3.89	31.45	31.45	4.32	28.45	28.45	4.76
	63*(17.2)	42.97	33.53	2.65	40.58	31.68	3.08	37.25	29.48	3.49	33.72	27.26	3.90	29.98	25.02	4.34	26.10	22.75	4.77
	67(19.4)	46.35	34.80	2.54	43.98	33.00	2.97	41.00	31.10	3.42	37.31	28.90	3.87	33.50	26.70	4.31	29.50	24.50	4.76
	72(22.2)	50.00	27.51	2.44	47.63	26.00	2.87	45.07	24.46	3.33	42.19	23.04	3.76	38.40	21.21	4.25	34.25	19.32	4.76
1575/0.05	57(13.8)	43.07	43.07	2.68	41.12	41.12	3.10	38.51	38.51	3.52	35.67	35.67	3.92	32.70	32.70	4.36	29.59	29.59	4.80
	62(16.6)	43.17	43.17	2.68	41.17	41.17	3.10	38.57	38.57	3.52	35.73	35.73	3.92	32.75	32.75	4.36	29.63	29.63	4.80
	63*(17.2)	43.75	35.51	2.67	41.32	33.62	3.10	37.99	31.40	3.52	34.37	29.08	3.94	30.58	26.74	4.37	26.77	26.77	4.81
	67(19.4)	47.03	36.77	2.56	44.64	34.95	2.99	41.77	33.12	3.44	38.00	30.88	3.90	34.12	28.58	4.35	30.10	26.23	4.80
	72(22.2)	50.51	28.53	2.47	48.10	27.01	2.90	45.48	25.44	3.37	42.80	24.21	3.79	39.02	22.42	4.27	34.83	20.52	4.79

See Legend and Notes on Page 18.

Specifications subject to change without notice.

PERFORMANCE DATA (CONT)

48 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM/BF	EWB °F (°C)	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1400/0.04	57(13.8)	45.84	45.84	2.98	43.32	43.32	3.39	40.27	40.27	3.79	36.93	36.93	4.23	33.57	33.57	4.70	30.16	30.16	5.21
	62(16.6)	47.63	42.40	3.00	44.58	40.08	3.40	40.96	37.50	3.80	36.99	36.99	4.23	33.63	33.63	4.70	30.21	30.21	5.21
	63*(17.2)	48.63	34.72	3.00	45.52	32.68	3.41	41.85	30.46	3.82	37.52	28.03	4.23	33.20	25.66	4.69	28.77	23.31	5.18
	67(19.4)	52.66	36.12	2.99	49.43	34.10	3.41	46.02	32.06	3.86	41.50	29.66	4.31	37.03	27.31	4.77	32.47	24.99	5.27
	72(22.2)	57.51	29.34	2.99	54.21	27.62	3.41	50.75	25.85	3.86	46.93	24.09	4.35	42.34	22.07	4.88	37.63	20.03	5.42
1600/0.05	57(13.8)	47.96	47.96	3.06	45.32	45.32	3.47	42.32	42.32	3.89	38.76	38.76	4.32	35.24	35.24	4.80	31.66	31.66	5.31
	62(16.6)	48.90	45.54	3.06	45.80	43.03	3.47	42.41	42.41	3.89	38.82	38.82	4.32	35.30	35.30	4.80	31.72	31.72	5.32
	63*(17.2)	49.79	37.01	3.06	46.56	34.90	3.47	42.93	32.66	3.90	38.42	30.10	4.31	33.97	27.62	4.77	29.47	25.14	5.26
	67(19.4)	53.81	38.48	3.05	50.48	36.40	3.46	47.00	34.30	3.92	42.43	31.88	4.39	37.88	29.44	4.86	33.20	27.00	5.35
	72(22.2)	58.37	30.60	3.05	55.05	28.87	3.47	51.47	27.05	3.93	47.81	25.40	4.41	43.22	23.43	4.94	38.39	21.38	5.50
1800/0.06	57(13.8)	49.74	49.74	3.12	47.00	47.00	3.53	44.06	44.06	3.98	40.29	40.29	4.41	36.64	36.64	4.89	32.92	32.92	5.41
	62(16.6)	50.02	49.61	3.11	47.06	47.06	3.53	44.13	44.13	3.98	40.35	40.35	4.41	36.69	36.69	4.89	32.97	32.97	5.41
	63*(17.2)	50.68	39.21	3.11	47.38	37.03	3.53	43.79	34.77	3.98	39.13	32.09	4.38	34.61	29.48	4.84	30.08	26.75	5.33
	67(19.4)	54.66	40.72	3.10	51.27	38.58	3.52	47.75	36.43	3.97	43.18	34.03	4.47	38.53	31.47	4.93	33.83	28.88	5.44
	72(22.2)	58.98	31.74	3.11	55.61	30.01	3.53	51.97	28.16	3.99	48.35	26.51	4.48	43.87	24.71	4.99	38.98	22.66	5.56

60 SIZE

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
CFM/BF	EWB °F (°C)	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
1750/0.19	57(13.8)	57.97	57.97	3.80	55.02	55.02	4.21	51.93	51.93	4.68	48.68	48.68	5.21	45.23	45.23	5.81	41.56	41.56	6.49
	62(16.6)	59.45	53.94	3.82	55.93	51.73	4.22	52.32	49.43	4.68	48.74	48.74	5.21	45.29	45.29	5.81	41.61	41.61	6.49
	63*(17.2)	60.48	43.88	3.83	56.84	41.90	4.23	53.09	39.89	4.69	49.17	37.85	5.21	45.08	35.75	5.80	40.81	33.61	6.47
	67(19.4)	65.05	45.58	3.88	61.08	43.55	4.29	57.00	41.50	4.75	52.75	39.41	5.27	48.31	37.28	5.86	43.70	35.10	6.52
	72(22.2)	71.36	36.96	3.97	66.97	35.08	4.38	62.43	33.17	4.83	57.72	31.22	5.35	52.82	29.25	5.94	47.74	27.24	6.59
2000/0.23	57(13.8)	60.36	60.36	3.91	57.19	57.19	4.32	53.88	53.88	4.79	50.41	50.41	5.31	46.72	46.72	5.91	42.83	42.83	6.59
	62(16.6)	60.82	57.92	3.91	57.29	57.29	4.32	53.96	53.96	4.79	50.47	50.47	5.32	46.78	46.78	5.92	42.88	42.88	6.59
	63*(17.2)	61.65	46.80	3.92	57.84	44.73	4.33	53.93	42.64	4.78	49.88	40.51	5.30	45.65	38.32	5.89	41.27	36.06	6.56
	67(19.4)	66.24	48.72	3.98	62.11	46.60	4.39	57.86	44.46	4.85	53.47	42.28	5.36	48.88	40.05	5.95	44.14	37.77	6.61
	72(22.2)	72.62	38.94	4.06	68.04	36.99	4.47	63.32	35.02	4.93	58.45	33.03	5.45	53.38	30.99	6.03	48.15	28.93	6.68
2250/0.27	57(13.8)	62.35	62.35	4.01	58.99	58.99	4.43	55.49	55.49	4.89	51.82	51.82	5.42	47.93	47.93	6.02	43.84	43.84	6.69
	62(16.6)	62.44	62.44	4.01	59.07	59.07	4.43	55.56	55.56	4.89	51.88	51.88	5.42	47.99	47.99	6.02	43.88	43.88	6.69
	63*(17.2)	62.51	49.60	4.01	58.59	47.45	4.42	54.57	45.27	4.87	50.40	43.04	5.39	46.08	40.74	5.98	41.62	38.30	6.65
	67(19.4)	67.13	51.74	4.07	62.86	49.53	4.48	58.50	47.31	4.94	53.98	45.03	5.46	49.29	42.69	6.04	44.47	40.24	6.70
	72(22.2)	73.55	40.84	4.16	68.82	38.84	4.57	63.97	36.82	5.02	58.95	34.76	5.54	53.76	32.68	6.12	48.40	30.58	6.77

* At 75°F (24°C) entering dry bulb–Tennessee Valley Authority (TVA) rating conditions; all others at 80°F (27°C) dry bulb.

LEGEND
BF— Bypass Factor
edb— Entering Dry–Bulb
Ewb— Entering Wet–Bulb
kW — Total Unit Power Input
SHC— Sensible Heat Capacity (1000 Btuh)
TC — Total Capacity (1000 Btuh) (net)
rh—Relative Humidity

COOLING NOTES:
1. Ratings are net; they account for the effects of the evaporator–fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. The following formulas may be used:

$$^{t}ldb = {}^{t}edb - \frac{\text{Sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

$$^{t}lwb = \text{Wet–bulb temperature corresponding to enthalpy air leaving evaporator coil } (^{h}lwb)$$

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

Where: ^{h}ewb = Enthalpy of air entering evaporator coil

4. The SHC is based on 805 F (26.6°C) edb temperature of air entering evaporator coil. Below 80°F (26.6°C) edb, subtract (corr factor x cfm) from SHC.
Above 80° F (26.6°C) edb, add (corr factor x cfm) to SHC.
Correction Factor = 1.10 x (1 + BF) x (edb – 80).
5. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Specifications subject to change without notice.

PERFORMANCE DATA (CONT)

Multiplication Factors

HEATER kW RATING	VOLTAGE DISTRIBUTION V/3/60	MULTIPLICATION FACTOR
240	200	0.69
	208	0.75
	230	0.92
	240	1.00

Dry Coil Air Delivery* – Horizontal Discharge – Unit 24–60

UNIT SIZE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)								
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
24	Low	Blue	CFM	754	650	538	429	---	---	---	---	---
	Med-Low	Pink	CFM	851	777	675	591	475	---	---	---	---
	Medium[1]	Red	CFM	941	851	774	684	576	479	---	---	---
	Med-High	Orange	CFM	1009	917	840	759	667	577	447	---	---
	High	Black	CFM	1241	1167	1111	1036	969	881	818	731	640
30	Low	Blue	CFM	741	638	547	415	---	---	---	---	---
	Med-Low	Pink	CFM	973	887	823	733	665	538	451	---	---
	Medium	Red	CFM	1088	1023	954	881	800	723	658	563	461
	Med-High[1]	Orange	CFM	1140	1064	996	915	840	758	687	564	480
	High	Black	CFM	1202	1140	1082	1015	961	881	810	732	631
36	Low	Blue	CFM	1234	1168	1093	1021	961	894	825	759	687
	Med-Low	Pink	CFM	1290	1223	1154	1090	1027	977	894	828	762
	Medium[1]	Red	CFM	1354	1290	1226	1158	1102	1046	981	918	843
	Med-High	Orange	CFM	1606	1546	1489	1430	1371	1316	1258	1208	1140
	High	Black	CFM	1630	1580	1517	1463	1407	1339	1277	1210	1131
42	Low	Blue	CFM	1295	1234	1182	1126	1075	1016	955	898	857
	Med-Low	Pink	CFM	1345	1282	1235	1194	1140	1095	1027	974	921
	Medium	Red	CFM	1505	1452	1413	1358	1323	1282	1234	1169	1130
	Med-High[1]	Orange	CFM	1545	1492	1449	1411	1362	1313	1278	1231	1188
	High	Black	CFM	1705	1643	1607	1568	1518	1483	1448	1404	1360
48	Low	Blue	CFM	1402	1351	1311	1263	1224	1172	1136	1080	1041
	Med-Low	Pink	CFM	1457	1404	1367	1318	1284	1233	1197	1144	1104
	Medium[1]	Red	CFM	1736	1695	1642	1601	1553	1512	1465	1427	1381
	Med-High	Orange	CFM	2149	2111	2062	2026	1980	1945	1905	1864	1793
	High	Black	CFM	2344	2306	2259	2203	2141	2070	1991	1902	1803
60	Med-Low	Pink	CFM	1678	1635	1602	1558	1513	1474	1438	1404	1349
	Medium[1]	Red	CFM	1962	1915	1880	1843	1794	1753	1711	1675	1628
	Med-High	Orange	CFM	2131	2088	2065	2013	1982	1941	1888	1860	1785
	High	Black	CFM	2461	2409	2339	2286	2192	2140	2062	1968	1874

* Air delivery values are without air filter and are for dry coil (See Wet Coil Pressure Drop table).

[1] Factory–shipped cooling speed

Note: Deduct field–supplied air filter pressure drop and wet coil pressure drop to obtain external static pressure available for ducting.

Shaded areas indicate speed/static combinations that are not permitted for dehumidification speed.

Note: Deduct 10% for 208 volt operation.

Specifications subject to change without notice.

Dry Coil Air Delivery – Downflow Discharge

UNIT SIZE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)									
				0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.0
24	Low	Blue	CFM	809	664	554	447	--	--	--	--	--	--
			WATTS	85	82	87	95	--	--	--	--	--	--
			BHP	0.09	0.09	0.09	0.10	--	--	--	--	--	--
	MedLow	Pink	CFM	875	787	693	612	498	392	--	--	--	--
			WATTS	101	111	115	125	131	142	--	--	--	--
			BHP	0.11	0.12	0.12	0.13	0.14	0.15	--	--	--	--
	Medium[1]	Red	CFM	939	860	748	663	591	472	399	--	--	--
			WATTS	119	124	134	138	147	155	164	--	--	--
			BHP	0.13	0.13	0.14	0.15	0.16	0.17	0.18	--	--	--
	MedHigh	Orange	1026	1026	949	873	786	694	604	516	--	--	--
			146	146	151	161	167	177	183	195	--	--	--
			BHP	0.16	0.16	0.17	0.18	0.19	0.20	0.21	--	--	--
	High	Black	1264	1264	1202	1134	1070	1002	931	870	806	699	610
			250	250	261	274	279	290	296	308	319	328	332
			BHP	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36
30	Low	Blue	CFM	756	669	548	457	--	--	--	--	--	--
			WATTS	84	90	96	106	--	--	--	--	--	--
			BHP	0.09	0.10	0.10	0.11	--	--	--	--	--	--
	MedLow	Pink	CFM	1002	928	842	733	660	560	450	--	--	--
			WATTS	144	155	161	173	185	192	203	--	--	--
			BHP	0.15	0.17	0.17	0.19	0.20	0.21	0.22	--	--	--
	Medium	Red	CFM	1110	1025	967	879	814	706	611	509	--	--
			WATTS	188	195	205	211	223	236	243	255	--	--
			BHP	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	--	--
	MedHigh[1]	Orange	CFM	1160	1091	1004	945	866	804	699	615	496	--
			WATTS	213	225	232	243	249	261	273	285	291	--
			BHP	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.31	0.31	--
	High	Black	CFM	1240	1173	1110	1031	966	902	821	726	626	--
			WATTS	254	266	274	284	295	302	315	327	331	--
			BHP	0.27	0.29	0.29	0.30	0.32	0.32	0.34	0.35	0.35	--
36	Low	Blue	CFM	1277	1215	1147	1094	1045	992	932	874	826	757
			WATTS	285	289	299	305	314	319	328	335	347	352
			BHP	0.31	0.31	0.32	0.33	0.34	0.34	0.35	0.36	0.37	0.38
	MedLow	Pink	CFM	1312	1260	1203	1153	1095	1050	995	943	889	829
			WATTS	314	324	329	340	344	355	361	372	382	387
			BHP	0.34	0.35	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42
	Medium[1]	Red	CFM	1381	1326	1269	1212	1161	1121	1070	1019	974	912
			WATTS	358	365	375	383	391	395	406	418	424	434
			BHP	0.38	0.39	0.40	0.41	0.42	0.42	0.44	0.45	0.45	0.47
	MedHigh	Orange	CFM	1631	1579	1525	1477	1423	1372	1336	1284	1233	1166
			WATTS	567	576	581	592	598	609	617	619	613	598
			BHP	0.61	0.62	0.62	0.63	0.64	0.65	0.66	0.66	0.66	0.64
	High	Black	CFM	1681	1633	1575	1526	1478	1415	1366	1312	1249	1159
			WATTS	618	626	636	644	652	653	649	642	627	602
			BHP	0.66	0.67	0.68	0.69	0.70	0.70	0.70	0.69	0.67	0.65

Specifications subject to change without notice.

Dry Coil Air Delivery – Downflow Discharge

UNIT SIZE	MOTOR SPEED	WIRE COLOR		EXTERNAL STATIC PRESSURE (IN. W.C.)									
				0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.0
42	Low	Blue	CFM	1365	1324	1284	1233	1181	1127	1084	1039	984	939
			WATTS	177	189	201	210	222	236	248	261	269	281
			BHP	0.19	0.20	0.22	0.23	0.24	0.25	0.27	0.28	0.29	0.30
	MedLow	Pink	CFM	1425	1384	1339	1301	1254	1199	1151	1104	1065	1015
			WATTS	197	210	223	235	248	257	271	284	296	305
			BHP	0.21	0.23	0.24	0.25	0.27	0.28	0.29	0.30	0.32	0.33
	Medium	Red	CFM	1582	1549	1509	1469	1433	1392	1346	1300	1249	1213
			WATTS	267	280	294	308	322	336	344	359	374	387
			BHP	0.29	0.30	0.32	0.33	0.35	0.36	0.37	0.38	0.40	0.42
	MedHigh[1]	Orange	CFM	1623	1586	1553	1511	1470	1433	1393	1350	1309	1261
			WATTS	285	299	312	324	335	349	363	378	393	407
			BHP	0.31	0.32	0.33	0.35	0.36	0.37	0.39	0.41	0.42	0.44
	High	Black	CFM	1775	1736	1696	1660	1622	1588	1557	1516	1472	1426
			WATTS	371	386	401	410	424	439	453	468	483	497
			BHP	0.40	0.41	0.43	0.44	0.45	0.47	0.49	0.50	0.52	0.53
48	Low	Blue	CFM	1503	1457	1423	1374	1330	1287	1241	1199	1153	1111
			WATTS	225	233	246	254	269	282	292	307	314	329
			BHP	0.24	0.25	0.26	0.27	0.29	0.30	0.31	0.33	0.34	0.35
	MedLow	Pink	CFM	1556	1508	1461	1432	1388	1346	1302	1256	1221	1168
			WATTS	244	261	268	281	290	305	319	330	345	353
			BHP	0.26	0.28	0.29	0.30	0.31	0.33	0.34	0.35	0.37	0.38
	Medium[1]	Red	CFM	1861	1822	1786	1758	1716	1688	1660	1619	1583	1539
			WATTS	400	417	426	441	452	467	482	492	507	519
			BHP	0.43	0.45	0.46	0.47	0.48	0.50	0.52	0.53	0.54	0.56
	MedHigh	Orange	CFM	2319	2291	2255	2230	2193	2166	2118	2057	1992	1887
			WATTS	758	769	787	799	808	823	822	805	780	737
			BHP	0.81	0.82	0.84	0.86	0.87	0.88	0.88	0.86	0.84	0.79
	High	Black	CFM	2532	2487	2444	2391	2330	2259	2179	2111	2033	1949
			WATTS	1014	1022	1015	994	965	935	898	858	823	786
			BHP	1.09	1.10	1.09	1.07	1.03	1.00	0.96	0.92	0.88	0.84
60	Low	Blue	CFM	1479	1436	1387	1346	1298	1253	1206	1160	1114	1061
			WATTS	224	239	247	262	270	284	300	307	319	330
			BHP	0.24	0.26	0.26	0.28	0.29	0.30	0.32	0.33	0.34	0.35
	MedLow	Pink	CFM	1841	1796	1761	1724	1690	1651	1616	1578	1527	1478
			WATTS	425	434	453	460	476	485	501	508	525	542
			BHP	0.46	0.47	0.49	0.49	0.51	0.52	0.54	0.54	0.56	0.58
	Medium[1]	Red	CFM	1944	1913	1872	1838	1801	1771	1731	1698	1655	1613
			WATTS	486	501	511	529	537	554	565	578	595	603
			BHP	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65
	MedHigh	Orange	CFM	2178	2148	2105	2073	2036	2002	1967	1919	1845	1751
			WATTS	674	691	703	717	733	743	758	754	734	701
			BHP	0.72	0.74	0.75	0.77	0.79	0.80	0.81	0.81	0.79	0.75
	High	Black	CFM	2480	2432	2375	2322	2236	2161	2085	2006	1917	1808
			WATTS	1029	1012	995	975	941	908	869	836	796	751
			BHP	1.10	1.09	1.07	1.05	1.01	0.97	0.93	0.90	0.85	0.81

*Air delivery values are without air filter and are for dry coil (See Wet Coil Pressure Drop table).
[1] Factory–shipped cooling speed.
NOTE: Deduct field–supplied air filter pressure drop and wet coil pressure drop to obtain external static pressure available for ducting.
Shaded areas indicate speed/static combinations that are not permitted.

PERFORMANCE DATA (CONT)

Wet Coil Pressure Drop (IN. W.C.)

UNIT SIZE	STANDARD CFM (SCFM)																
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
24	0.03	0.04	0.04	0.05	0.06												
30				0.05	0.06	0.07	0.08	0.11									
36				0.06	0.06	0.09	0.10	0.11	0.14								
42					0.05	0.05	0.06	0.07	0.08	0.08	0.09	0.09	0.11				
48							0.04	0.06	0.09	0.10	0.10	0.11	0.12	0.13	0.14		
60										0.06	0.07	0.01	0.08	0.09	0.10	0.12	0.13

Economizer with 1–in. Filter Pressure Drop (IN. W.C.)

FILTER SIZE IN. (MM)	COOLING TONS	STANDARD CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600–1400CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0, 2.5, 3.0	–	–	0.09	0.14	0.16	0.18	0.25	0.28	0.3	–	–	–	–	–	–	–	–
1200–1800 CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.5, 4.0	–	–	–	–	–	–	0.10	0.11	0.12	0.13	0.14	0.16	0.16	–	–	–	–
1500–2200 CFM 16x24x1+18x24x1 (406x610x25+457x610x25)	5.0	–	–	–	–	–	–	–	–	–	0.15	0.17	0.18	0.20	0.21	0.22	0.23	0.23

Horizontal and Downflow Filter Pressure Drop Table (IN. W.C.)

FILTER SIZE IN. (MM)	COOLING TONS	STANDARD CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600–1400CFM 12x20x1+12x20x1 (305x508x25+305x508x25	2.0, 2.5, 3.0	0.03	0.05	0.06	0.08	0.10	0.11	0.13	0.14	0.16	–	–	–	–	–	–	–	–
1200–1800 CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.5, 4.0	–	–	–	–	–	–	0.07	0.08	0.09	0.09	0.10	0.11	0.12	–	–	–	–
1500–2200 CFM 16x24x1+18x24x1 (406x610x25+457x610x25)	5.0	–	–	–	–	–	–	–	–	–	0.04	0.06	0.08	0.10	0.11	0.13	0.14	0.15

Electric Heat Pressure Drop Tables (IN. W.C.)

Small Cabinet: 24–36

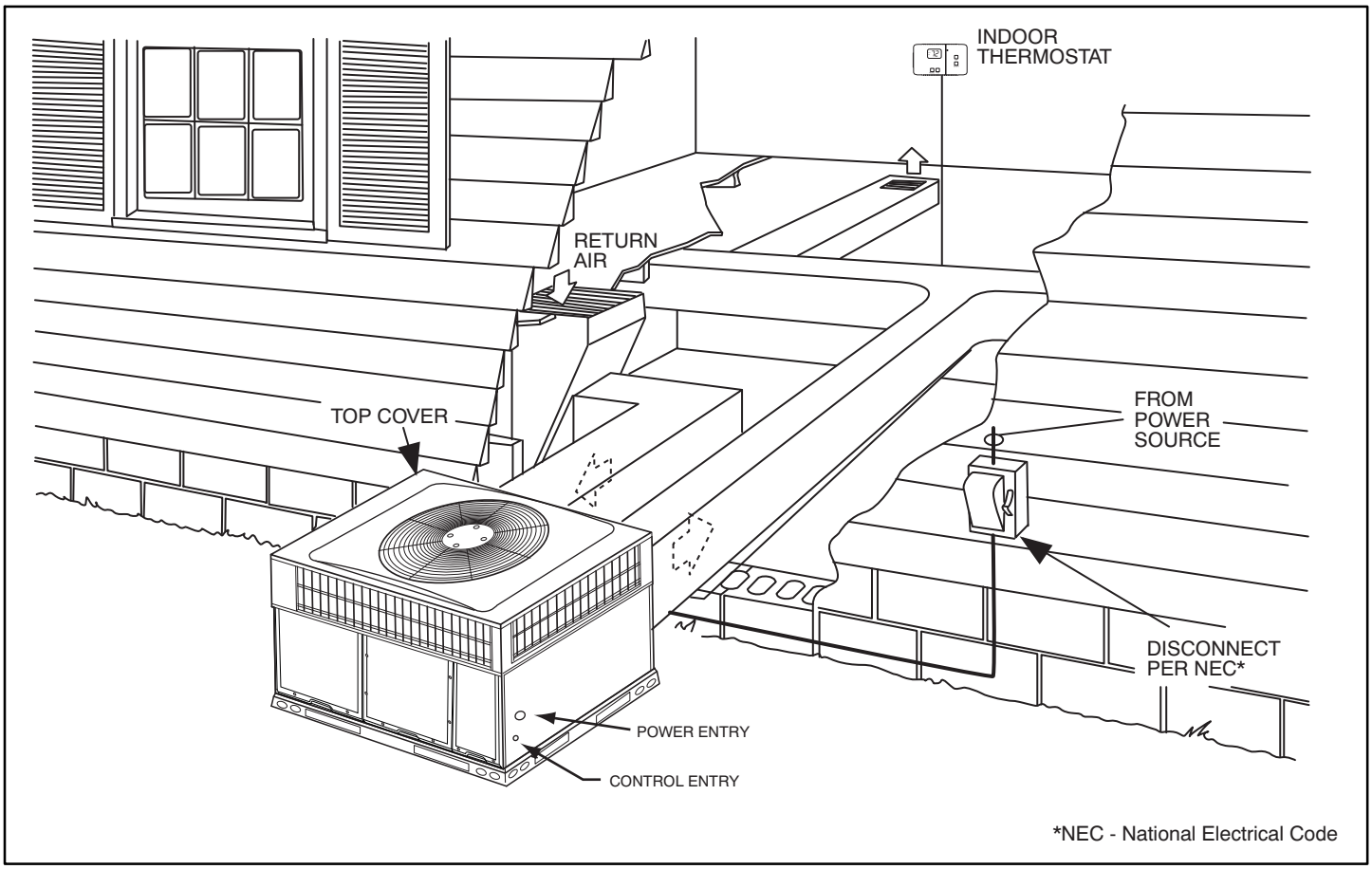
STATIC	STANDARD CFM (SCFM)											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
5 kW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07
10 kW	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.09	0.10	0.11
15 kW	0.00	0.00	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20 kW	0.00	0.00	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19

Large Cabinet: 42–60

STATIC	STANDARD CFM (SCFM)														
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5 kW	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
10 kW	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
15 kW	0.00	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
20 kW	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16

Specifications subject to change without notice.

TYPICAL PIPING AND WIRING



A09240

APPLICATION DATA

Condensate trap — A 2–in. (50.8 mm) condensate trap must be field supplied.

Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory–installed inserts in the downflow openings. Removal of the inserts is similar to removing an electrical knock–out.

Maximum cooling airflow — To minimize the possibility of condensate blow–off from the evaporator, airflow through the units should not exceed 450 cfm per ton.

Minimum cooling airflow — Minimum cooling airflow is 350 cfm per ton.

Minimum ambient cooling operation temperature — All standard units have a minimum ambient operating temperature of 40°F (4°C). With accessory low ambient temperature kit, units can operate at temperatures down to 0°F (–17°C).

ELECTRICAL DATA

NOMINAL SIZE	V–Ph–Hz	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	ELECTRIC HEAT		POWER SUPPLY	
		MIN	MAX	RLA	LRA	FLA	FLA	NOMINAL kW	FLA	MCA	MOCP
24	208/230-1-60	197	253	13.5	58.3	0.7	4.1	-/-	-/-	21.7	30
								3.8/5	18.1/20.8	27.8/31.1	30/35
								5.4/7.2	25.9/30	37.5/42.6	40/45
								7.5/10	36.1/41.7	50.3/57.3	60/60
30	208/230-1-60	197	253	12.8	64	0.7	4.1	-/-	-/-	20.8	30
								3.8/5	18.1/20.8	27.8/31.1	30/35
								5.4/7.2	25.9/30	37.5/42.6	40/45
								7.5/10	36.1/41.7	50.3/57.3	60/60
								11.3/15	54.2/62.5	72.9/83.3	80/90
	208/230-3-60	197	253	8.3	77	0.7	4.1	-/-	-/-	15.2	20
								3.8/5	10.4/12	18.1/20.1	20/25
								7.5/10	20.8/24.1	31.1/35.3	35/40
								11.3/15	31.2/36.1	44.1/50.3	45/60
36	208/230-1-60	197	253	14.1	77	1.2	6.0	-/-	-/-	24.8	35
								3.8/5	18.1/20.8	30.1/33.5	35/35
								5.4/7.2	25.9/30	39.9/45	40/45
								7.5/10	36.1/41.7	52.6/59.6	60/60
								11.3/15	54.2/62.5	75.3/85.6	80/90
	208/230-3-60	197	253	9	77	1.2	6.0	-/-	-/-	18.5	25
								3.8/5	10.4/12	20.5/22.5	25/25
								7.5/10	20.8/24.1	33.5/37.6	35/40
								11.3/15	31.2/36.1	46.5/52.6	50/60
	460-3-60	414	506	5.6	38	0.5	3.0	-/-	-/-	10.5	15
								3.8/5	6	11.3/11.3	15
								7.5/10	12	18.8/18.8	20
								11.3/15	18	26.3/26.3	30
42	208/230-1-60	197	253	17.9	112	1.2	6.0	-/-	-/-	29.6	40
								3.8/5	18.1/20.8	30.1/33.5	40/40
								5.4/7.2	25.9/30	39.9/45	40/45
								7.5/10	36.1/41.7	52.6/59.6	60/60
								11.3/15	54.2/62.5	75.3/85.6	80/90
								15/20	72.2/83.3	97.8/111.6	100/125
	208/230-3-60	197	253	13.5	112	1.2	6.0	-/-	-/-	24.1	35
								3.8/5	10.4/12	24.1/24.1	35/35
								7.5/10	20.8/24.1	33.5/37.6	35/40
								11.3/15	31.2/36.1	46.5/52.6	50/60
								15/20	41.4/47.9	59.3/67.4	60/70
	460-3-60	414	506	6	44	0.5	3.0	-/-	-/-	11.0	15
								3.8/5	6	11.3/11.3	15
								7.5/10	12	18.8/18.8	20
								11.3/15	18	26.3/26.3	30
								15/20	24.1	33.9/33.9	35
48	208/230-1-60	197	253	21.8	117	1.2	7.6	-/-	-/-	36.1	50
								3.8/5	18.1/20.8	36.1/36.1	50/50
								5.4/7.2	25.9/30	41.9/47	50/50
								7.5/10	36.1/41.7	54.6/61.6	60/70
								11.3/15	54.2/62.5	77.3/87.6	80/90
								15/20	72.2/83.3	99.8/113.6	100/125
	208/230-3-60	197	253	13.7	117	1.2	7.6	-/-	-/-	25.9	35
								3.8/5	10.4/12	25.9/25.9	35/35
								7.5/10	20.8/24.1	35.5/39.6	40/40
								11.3/15	31.2/36.1	48.5/54.6	50/60
								15/19.91	41.4/47.9	61.3/69.4	70/70
	460-3-60	414	506	6.2	41	0.5	3.8	-/-	-/-	12.1	15
								3.8/5	6	12.3/12.3	15
								7.5/10	12	19.8/19.8	20
								11.3/15	18	27.3/27.3	30
								15/20	24.1	34.9/34.9	35
60	208/230-1-60	197	253	26.4	134	1.2	7.6	-/-	-/-	41.8	60
								3.8/5	18.1/20.8	41.8/41.8	60/60
								5.4/7.2	25.9/30	41.9/47	60/60
								7.5/10	36.1/41.7	54.6/61.6	60/70
								11.3/15	54.2/62.5	77.3/87.6	80/90
								15/20	72.2/83.3	99.8/113.6	100/125
	208/230-3-60	197	253	16	134	1.2	7.6	-/-	-/-	28.8	40
								3.8/5	10.4/12	28.8/28.8	40/40
								7.5/10	20.8/24.1	35.5/39.6	40/40
								11.3/15	31.2/36.1	48.5/54.6	50/60
								15/19.91	41.4/47.9	61.3/69.4	70/70
60	460-3-60	414	506	7.8	52	0.5	3.8	-/-	-/-	14.1	20
								3.8/5	6	14.1/14.1	20
								7.5/10	12	19.8/19.8	20
								11.3/15	18	27.3/27.3	30
								15/20	24.1	34.9/34.9	35

Specifications subject to change without notice.

LEGEND

FLA - Full Load Amps
IDM - Inducer Motor
IFM - Indoor Fan Motor
LRA -Locked Rotor Amps
MCA - Minimum Circuit Amps
MOCP - Maximum Over Current Protection
OFM - Outdoor Fan Motor
RLA - Rated Load Amps

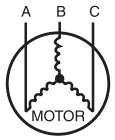
NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
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 percentage of voltage imbalance

   % Voltage imbalance

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

EXAMPLE: Supply voltage is 230-3-60.



AB = 228 v
BC = 231 v
AC = 227 v

$$\text{Average Voltage} = \frac{228 + 231 + 227}{3}$$

$$= \frac{686}{3}$$

$$= 229$$

Determine maximum deviation from average voltage.
(AB) 229 - 228 = 1 v
(BC) 231 - 229 = 2 v
(AC) 229 - 227 = 2 v

Maximum deviation is 2 v.

Determine percent of voltage imbalance

$$\% \text{ Voltage Imbalance} = 100 \times \frac{2}{229}$$

$$= 0.8\%$$

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

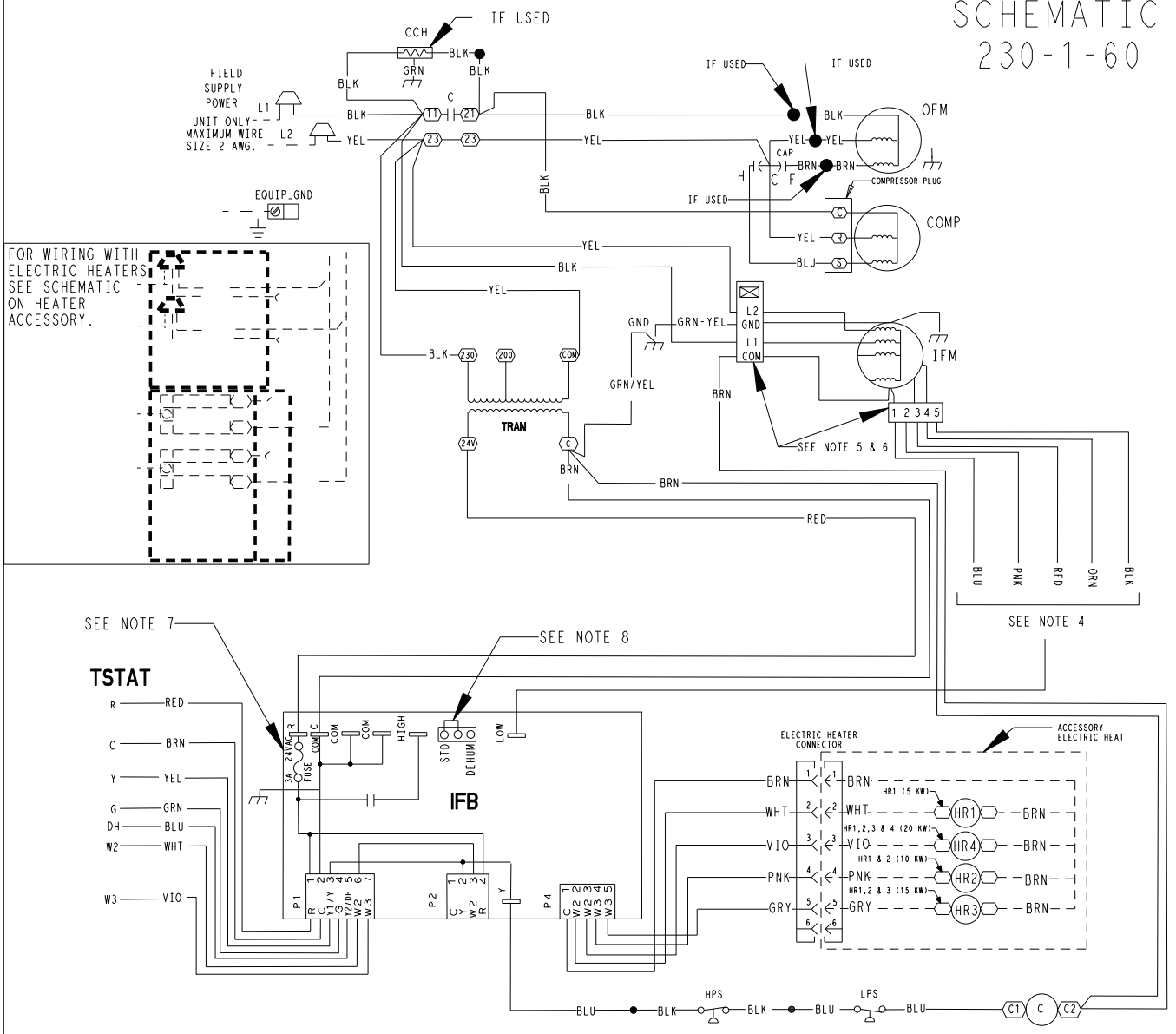
IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

A06564

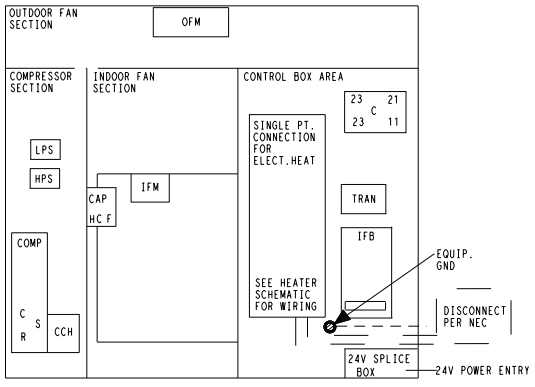
CONNECTION WIRING DIAGRAM

DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

SCHEMATIC 230-1-60



UNIT COMPONENT ARRANGEMENT



LEGEND

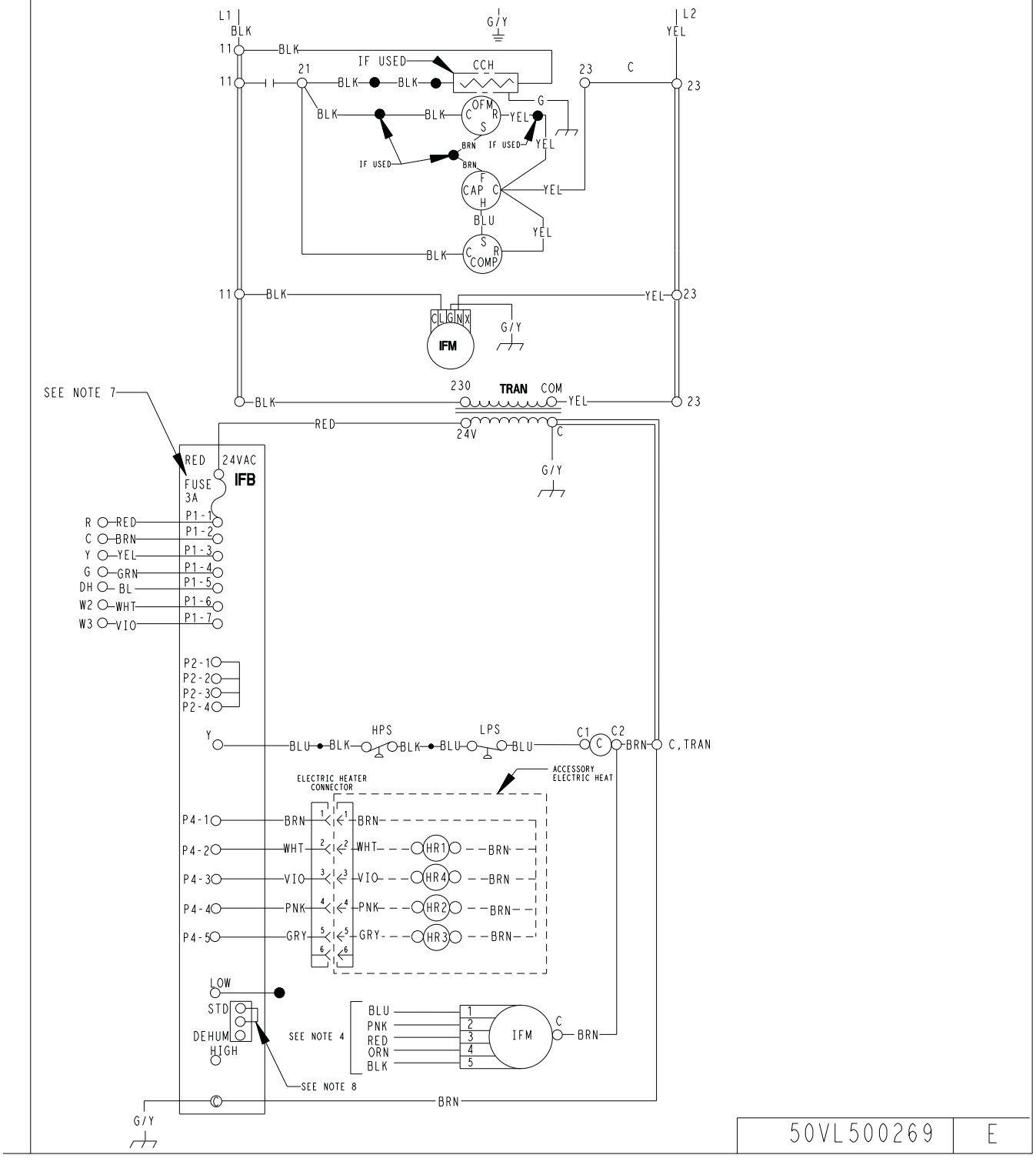
△ FIELD SPLICE	C CONTACTOR
⬭ TERMINAL (MARKED) ENERGIZED	CAP CAPACITOR
○ TERMINAL (UNMARKED)	CCH CRANK CASE HEATER
● SPLICE (IF USED)	COMP COMPRESSOR MOTOR
⬭ SPLICE (MARKED)	DEHUM DEHUMIDIFICATION MODE
—— FACTORY WIRING	GND GROUND
– – FIELD CONTROL WIRING	HPS HIGH PRESSURE SWITCH
—– – FIELD POWER WIRING	HR HEATER RELAY
– – – ACCESSORY OR OPTIONAL WIRING	IFB INTERFACE FAN BOARD
—— TO INDICATE COMMON POTENTIAL ONLY: NOT TO REPRESENT WIRING	IFM INDOOR FAN MOTOR
	LPS LOW PRESSURE SWITCH
	OFM OUTDOOR FAN MOTOR
	STD STANDARD
	TRAN TRANSFORMER

NOTES:

1. IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED, IT MUST BE REPLACED WITH TYPE 90 DEGREE C WIRE OR IT'S EQUIVALENT.
2. SEE PRICE PAGES FOR THERMOSTAT AND SUBBASES.
3. USE 75 DEGREE COPPER CONDUCTORS FOR FIELD INSTALLATION.
4. REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT SPEED SELECTION OF IFM.
5. RELOCATION OF SPEED TAPS MAY BE REQUIRED WHEN USING FIELD INSTALLED ELECTRIC HEATERS, CONSULT INSTALLATION INSTRUCTIONS TO DETERMINE CORRECT SPEED TAP SETTING.
6. "DO NOT DISCONNECT PLUG UNDER LOAD."
7. THIS FUSE IS MANUFACTURED BY LITTELFUSE, P/N 257003.
8. UNIT FACTORY-SHIPPED IN STD MODE.

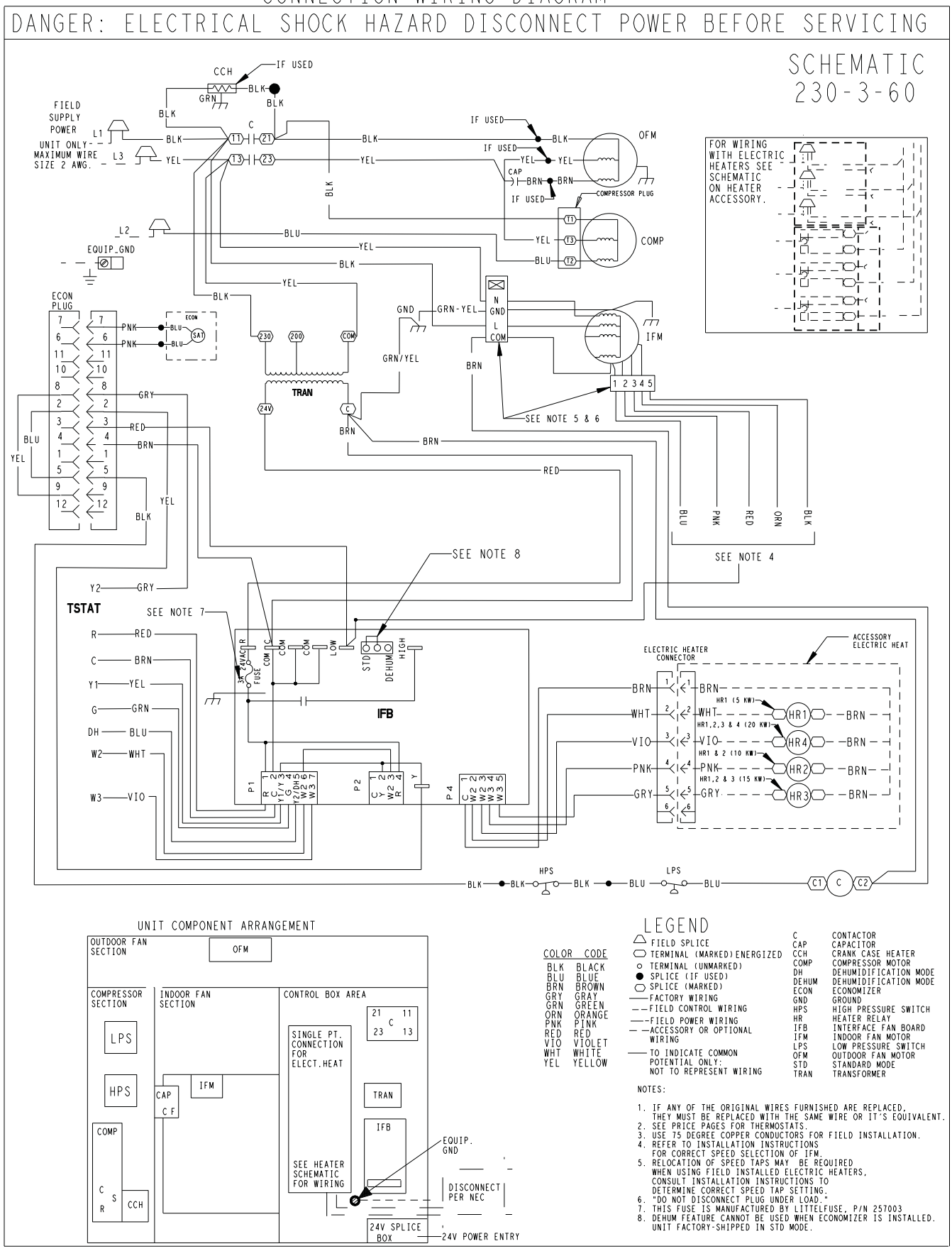
A11004

LADDER WIRING SCHEMATIC 208/230–1–60



A11003

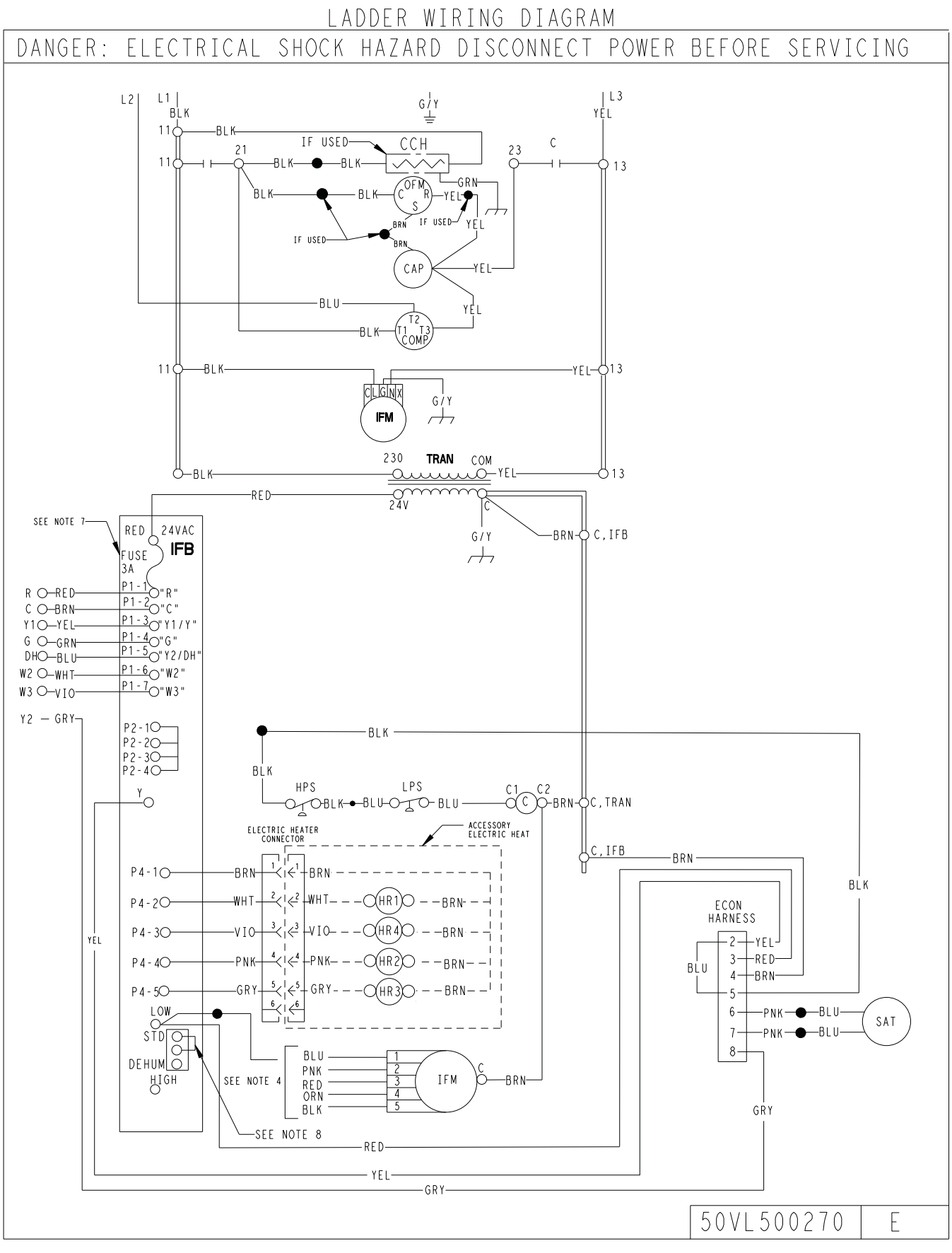
CONNECTION WIRING SCHEMATIC 208/230–3–60



A11010

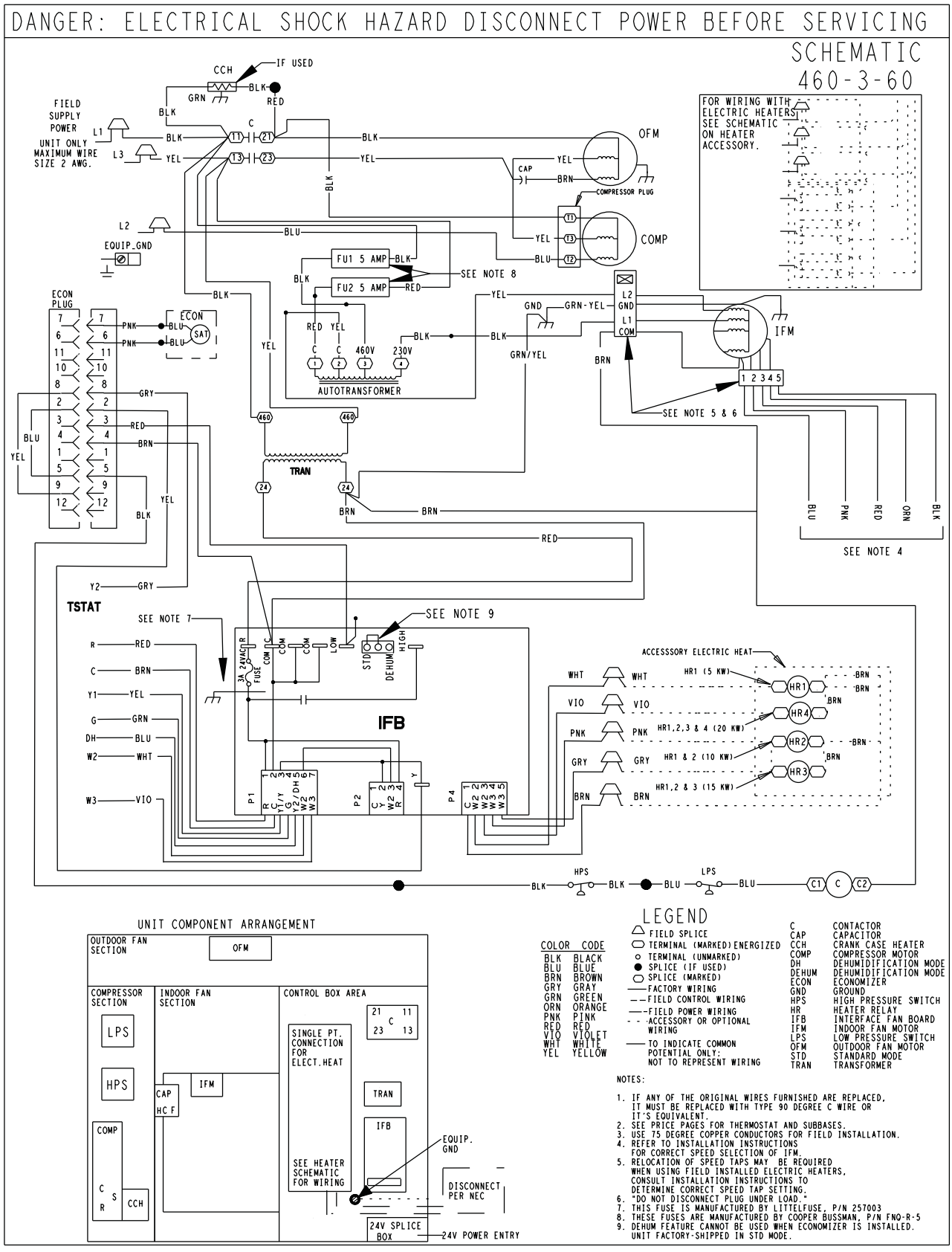
Specifications subject to change without notice.

LADDER WIRING SCHEMATIC 208/230–3–60



A11009

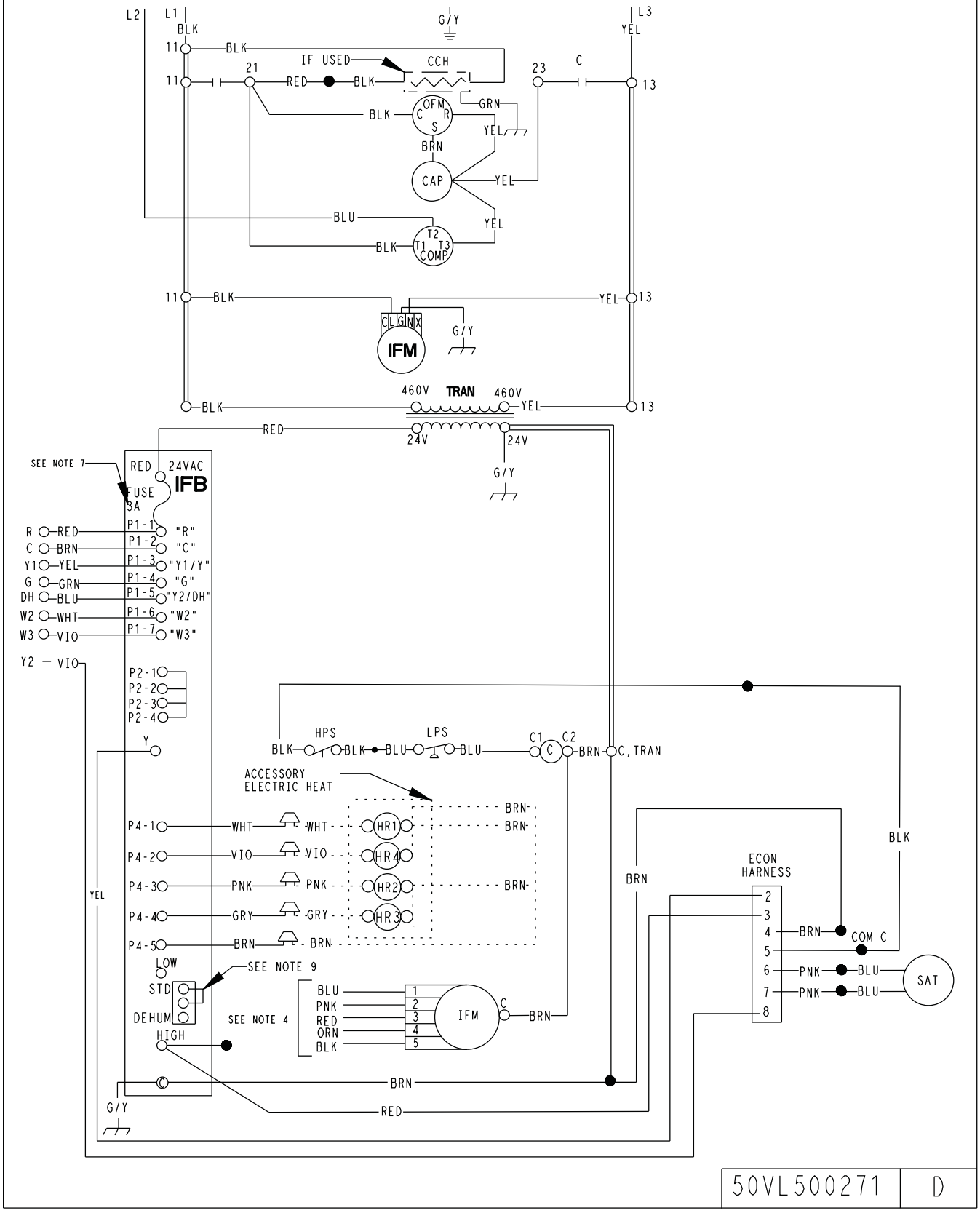
CONNECTION WIRING SCHEMATIC 460–3–60



A10204C

Specifications subject to change without notice.

LADDER WIRING SCHEMATIC 460–3–60



A10204L

CONTROLS

Operating sequence

Cooling — When the system thermostat calls for cooling, 24 V is supplied to the “Y” and “G” terminals of the thermostat. This completes the circuit to the contactor coil (C) and indoor (evaporator) fan relay (IFR). The normally open contacts of energized C close and complete the circuit through compressor motor (COMP) to outdoor (condenser) fan motor (OFM). Both motors start instantly. The set of normally open contacts of energized IFR close and complete the circuit through IFM. The IFM starts instantly.

On the loss of the thermostat call for cooling, 24 V is removed from both the “Y” and “G” terminals (provided the fan switch is in the “AUTO” position) de−energizing the compressor contactor and opening the contacts supplying power to compressor/OFM. After a 90−second delay, the IFM shuts off. If the thermostat fan selector switch is in the “ON” position, the IFM will run continuously. For the 460 V units there is a step down autotransformer supplying 230 V to the Indoor Fan Motor.

NOTE: On units with a Time Guard® II device: Once the compressor has started and then stopped, it cannot be restarted again until 5 minutes have elapsed.

Heating — If accessory electric heaters are installed, on a call for heat, circuit R−W is made through the thermostat contacts. Circuit R−G is made which energizes the IFR. If the heaters are staged, then the thermostat closes a second set of contacts (W2) when second stage is required. When thermostat is satisfied, contacts open, deenergizing the heater relay and the IFR.

GUIDE SPECIFICATIONS

Packaged Air Conditioner System
Constant Volume Application
HVAC Guide Specifications

Size Range: **2 to 5 Tons, Nominal Cooling**

SYSTEM DESCRIPTION

Outdoor rooftop mounted or ground mounted, electric cooling unit utilizing a hermetic scroll compressor for cooling duty. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Condenser fan/coil section shall have a draw−thru design with vertical discharge for minimum sound levels.

QUALITY ASSURANCE

A. Unit shall be rated in accordance with AHRI Standards 210/240 and 270−1995.

B. Unit shall be designed in accordance with UL Standard 1995.

C. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.

D. Unit shall be UL listed and c−UL certified as a total package for safety requirements.

E. Roof curb shall be designed to conform to NRCA Standards.

F. Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.

G. Cabinet insulation shall meet ASHRAE Standard 62P.

DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled per manufacturer’s recommendations.

Part 2 — Products

EQUIPMENT

A. General:

Factory−assembled, single−piece, heating and cooling unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge with R−410A refrigerant, and special features required prior to field start−up.

B. Unit Cabinet:

1. Unit cabinet shall be constructed of phosphated, zinc−coated, pre−painted steel capable of with−standing 500 hours in salt spray.
2. Normal service shall be through a single removable cabinet panel.
3. The unit shall be constructed on a rust proof unit base that has an externally trapped, integrated sloped drain.
4. Evaporator fan compartment top surface shall be insulated with a minimum 1/2−in. (12.7 mm) thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The evaporator wall sections will be insulated with a minimum semi−rigid foil−faced board capable of being wiped clean. Aluminum foil−faced fiberglass insulation shall be used in the entire indoor air cavity section.
5. Unit shall have a field−supplied condensate trap.

C. Fans:

1. The evaporator fan shall be an ECM Motor.
2. Fan wheel shall be made from steel, be double−inlet type with forward curved blades with corrosion resistant finish. Fan wheel shall be dynamically balanced.
3. Condenser fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

D. Compressor:

1. Fully hermetic compressors with factory−installed vibration isolation.
2. Scroll compressors shall be standard on all units.

E. Coils:

Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. Tube sheet openings shall be belled to prevent tube wear.

F. Refrigerant Components:

Refrigerant expansion device shall be of the TXV (thermostatic expansion valve) type.

G. Filters:

Filter section shall consist of field−installed, throwaway, 1−in. (25 mm) thick fiberglass filters of commercially available sizes.

H. Controls and Safeties:

1. Unit controls shall be complete with a self−contained low voltage control circuit.
2. Compressors shall incorporate a solid−state compressor protector that provides reset capability.

I. Operating Characteristics:

1. Unit shall be capable of starting and running at 125°F (51°C) ambient outdoor temperature per maximum load criteria of AHRI Standard 210.
2. Compressor with standard controls shall be capable of operation down to 40°F (4°C) ambient outdoor temperature.
3. Units shall be provided with fan time delay to prevent cold air delivery before the heat exchanger warms up.
4. Unit shall be provided with 90−second fan time delay after the thermostat is satisfied.

J. Electrical Requirements:

All unit power wiring shall enter the unit cabinet at a single location.

K. Motors:

1. Compressor motors shall be of the refrigerant−cooled type with line−break thermal and current overload protection.

2. All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.

L. Special Features:

1. Coil Options:
   Base unit with tin plated indoor coil hairpins.
2. Compressor Start Kit (single phase units only):
   Shall provide additional starting torque for single−phase compressors.
3. Thermostat:
   To provide for one−stage heating and cooling in addition manual or automatic changeover and indoor fan control.
4. Crankcase Heater:
   Shall provide anti−floodback protection for low−load cooling applications.
5. Economizer:
   (Horizontal − Field installed accessory)
   (Vertical − Field installed accessory or factory installed option.)
   a. Economizer controls capable of providing free cooling using outside air.
   b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 IN. W.C. pressure differential.
   c. Spring return motor shuts off outdoor damper on power failure.
6. Electric Heaters:
   a. Electric heater shall be availabel as a field−installed option.
   b. Heater elements shall be open wire type, adequately supported and insulated with ceramic bushings.
   c. Electric heater packages must provide single point power connection capability.
7. Filter Rack Kit:
   Shall provide filter mounting for downflow applications. Offered as an accessory or a factory installed option.
8. Flat Roof Curb:
   Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
9. Low Ambient Package:
   Shall consist of a solid−state control and condenser coil temperature sensor for controlling condenser−fan motor operation, which shall allow unit to operate down to 0°F (−17.7°C) outdoor ambient temperature when properly installed.
10. Manual Outdoor Air Damper:
    Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year−round ventilation.
11. Square−To−Round Duct Transitions (24−48 size):
    Shall have the ability to convert the supply and return openings from rectangular to round.
12. Time Guard II
    Automatically prevents the compressor from restarting for at least 4 minutes and 45 seconds after shutdown of the compressor. Not required when a corporate programmable thermostat is applied or with a RTU−MP control.
13. Dual Point Electric Heaters
    Allows you to power the electric heater and unit contactor separately by having two individual field power supply circuits connected respectively.

PAD4 ACCESSORIES

Accessory Model Number	Description	Use With
CURBS		
CPRFCURB010A00	Roof Curb, 11” High	24 – 60
CPRFCURB011A00	Roof Curb, 14” High	24 – 60
CPRFCURB012A00	Roof Curb, 11” High	42 – 60
CPRFCURB013A00	Roof Curb, 14” High	42 – 60
Note: CPRFCURB010A00 AND CPRFCURB011A00 can be used with 42–60 size units with some overhang.		
ADAPTER CURBS*		
CPADCURB001A00	Adapter curb for use with NPRFCURB006A00 & NPRFCURB007A00	24 – 36
CPADCURB002A00	Adapter curb for use with NPRFCURB008A00 & NPRFCURB009A00	42 – 60
* Can also be used when replacing other manufacturer’s older generation units that contain a composite base without a metal base rail.		
CONCENTRIC ADAPTERS – (Use with curb only)		
NPCONADP001A00	For 18” round duct (use with curbs CPRFCURB010A00, CPRFCURB011A00)	Small Curb
NPCONADP002A00	For 18” round duct (use with curbs CPRFCURB012A00, CPRFCURB013A00)	Large Curb
ECONOMIZERS		
CPECOMZR007A00	Dedicated Vertical Economizer – Internal with solid state controller, gear driven, fully modulating damper, spring return actuator, up to 50% barometric relief, supply and dry bulb outdoor air sensors. Includes filter rack with 1” filters*.	24 – 36
CPECOMZR008A00		42 – 48
CPECOMZR009A00		60
CPECOMZR010A00	Dedicated Horizontal Economizer – Internal with solid state controller, fully modulating damper, spring return actuator, supply and dry bulb outdoor air sensor, and low ambient compressor lockout switch included. Includes filter rack with 1–inch filters*.	24 – 36
CPECOMZR011A00		42 – 48
CPECOMZR012A00		60
AXB078ENT	Outdoor Enthalpy Control	ALL
* Outdoor enthalpy available as field installed accessory; Filter rack and 1” filter, same as CPFILTRK kit		
DAMPERS		
CPMANDPR007A00	Manual Outside Air Damper – (Includes filter rack and 1” filter, same as CPFILTRK kit)	24 – 36
CPMANDPR008A00		42 – 48
CPMANDPR009A00		60
INTERNAL FILTER RACKS		
CPFILTRK007A00	Internal Filter Rack (includes 1–inch filters)	24 – 36
CPFILTRK008A00		42 – 48
CPFILTRK009A00		60
LOW AMBIENT, ANTI–CYCLE TIMER, COMPRESSOR START ASSIST		
CPLOWAMB001A00 (AXB035LAA)	Low Ambient Control – enables cooling system to operate down to 0 Deg. F by cycling condenser fan on and off.	ALL
NRTIMEGD001A00	Five Minute Compressor Delay	ALL
CPHSTART002A00	PTC Compressor Start Assist Kit	ALL
CRANKCASE HEATER – BELLY BAND TYPE		
NPCRKHTR008A00	240V Crankcase Heater single or 3–phase	24 – 36
NPCRKHTR004A00	240V Crankcase Heater single or 3–phase	42 – 48
NPCRKHTR004A00	60 single phase (60 3–phase factory installated)	60
CPCRKHTR009A00	460V Crankcase Heater	36
NPCRKHTR005A00	460V Crankcase Heater	42 – 48
HAIL GUARDS / COIL PROTECTION (Factory installed on PAD000K<u>TP</u> models)**		
NAPA00501GR	3/8” spacing dense wire grilles	24
NAPA00701GR	3/8” spacing dense wire grilles	30
NAPA00901GR	3/8” spacing dense wire grilles	36
NAPA00601GR	3/8” spacing dense wire grilles	42
NAPA01001GR	3/8” spacing dense wire grilles	48
NAPA01201GR	3/8” spacing dense wire grilles	60
DUCT TRANSITIONS		
NPDUCFLG002A00	Square to Round (1 set of 2, use with horizontal duct flanges only)	24–48

PAD4 ACCESSORIES (Continued)

ELECTRIC HEATERS	Voltage / Nominal Capacity kW / Fuses			
PART NO.	NOMINAL CAPACITY (kW)	FUSED	STAGES	USED WITH
208/230V – 1 PHASE – 60 HZ				
CPHEATER052A0*	3.8 / 5.0	NO	1	ALL
CPHEATER064A0*	3.8 / 5.0	YES	1	ALL
CPHEATER069A0*	5.4 / 7.2	NO	2	ALL
CPHEATER070A0*	5.4 / 7.2	YES	2	ALL
CPHEATER065A0*	7.5 / 10.0	NO	2	24 – 42
CPHEATER050A0*	7.5 / 10.0	YES	2	ALL
CPHEATER051A0*	11.3 / 15.0	YES	2	30 – 42
CPHEATER066A0*	11.3 / 15.0	YES	2	30 – 60
CPHEATER053A0*	15.0 / 20.0	YES	2	42
CPHEATER054A0*	15.0 / 20.0	YES	2	42 – 60
208/230V – 3 PHASE – 60 HZ				
CPHEATER055A0*	3.8 / 5.0	NO	2	30 – 60
CPHEATER056A0*	7.5 / 10.0	NO	2	30 – 60
CPHEATER068A0*	7.5 / 10.0	YES	2	30 – 60
CPHEATER057A0*	11.3 / 15.0	NO	2	30 – 60
CPHEATER058A0*	11.3 / 15.0	YES	2	30 – 60
CPHEATER059A0*	15.0 / 20.0	YES	2	42 – 60
460V – 3 PHASE – 60 HZ				
CPHEATER061A0*	3.8 / 5.0	NO	1	36 – 60
CPHEATER062A0*	7.5 / 10.0	NO	2	36 – 60
CPHEATER063A0*	7.5 / 10.0	NO	2	42 – 60

***** Denotes digit can be 0, 1, or 2

NOTE: If installing an accessory heater, the thermostat must have capability to energize “G” (fan) on a call for “W” (electric heat). TSTAT0406 and TSTAT0408 contain this feature.

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