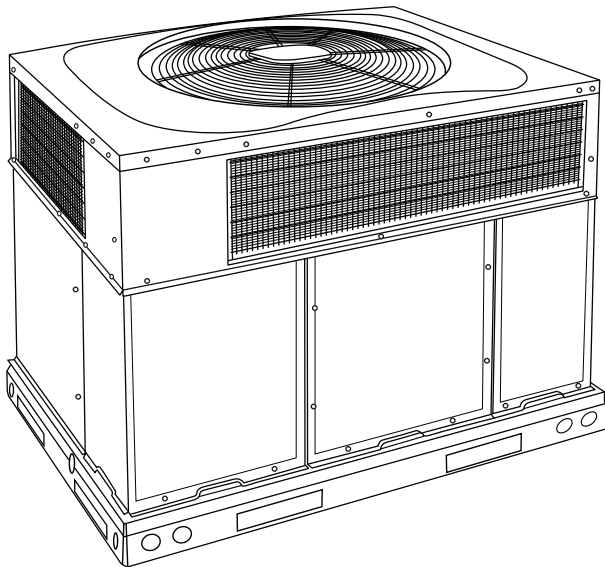


**50VL-C**  
**Comfort™ 14 SEER Single-Packaged**  
**Air Conditioner System with Puron® (R-410A)**  
**Refrigerant**  
**Single Phase 2-5 Nominal Tons (Sizes 24-60)**  
**Three Phase 3-5 Nominal Tons (Sizes 36-60)**



## Product Data



A170030

**Fig. 1 - Unit 50VL-C**

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- 14.0 SEER / 11.5 EER
- ECM Motor-Standard
- Low Sound Levels
- Dense Wire Condenser Coil Guard-Standard
- Cabinet air leakage of 2.0% or less at .5 in. W.C. when tested in accordance with ASHRAE standard 193. (Low leak FIOP models only.)

### FEATURES/BENEFITS

One-piece cooling unit with optional electric heater, low sound levels, easy installation, low maintenance, and dependable performance.

**Puron** is Carrier's unique refrigerant designed to be environmentally balanced. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems proving highly reliable and is non-ozone depleting.

#### Easy Installation

Factory-assembled package is a compact, fully self-contained, electric cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

#### Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

#### Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

**Efficient operation High-efficiency design** offers SEER (Seasonal Energy Efficiency Ratios) of 14.0. (See page 4.)

#### Durable, dependable components

**ECM Motor** is standard on all models.

**Direct-drive PSC (Permanent Split Capacitor) condenser-fan motors** are designed to help reduce energy consumption and provide for cooling operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

**Refrigerant system** is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

**High Pressure Switch** provide added reliability for the compressor.

**Indoor and Outdoor coils** are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

**Low sound ratings** ensure a quiet indoor and outdoor environment with sound ratings as low as 73dBA. (See Page 4.)

**Easy to service cabinets** provide easy 3 panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with a mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 mm) wide perimeter flange makes frame mounting on a rooftop easy.

**Standard horizontal metal duct covers** with insulation come with the unit and cover the horizontal duct openings. These can be left in place if the units are converted to downflow.

**Cabinets** are constructed of heavyduty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/heat exchanger compartment are insulated with cleanable semi-rigid insulation board, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain. An external drain is provided.

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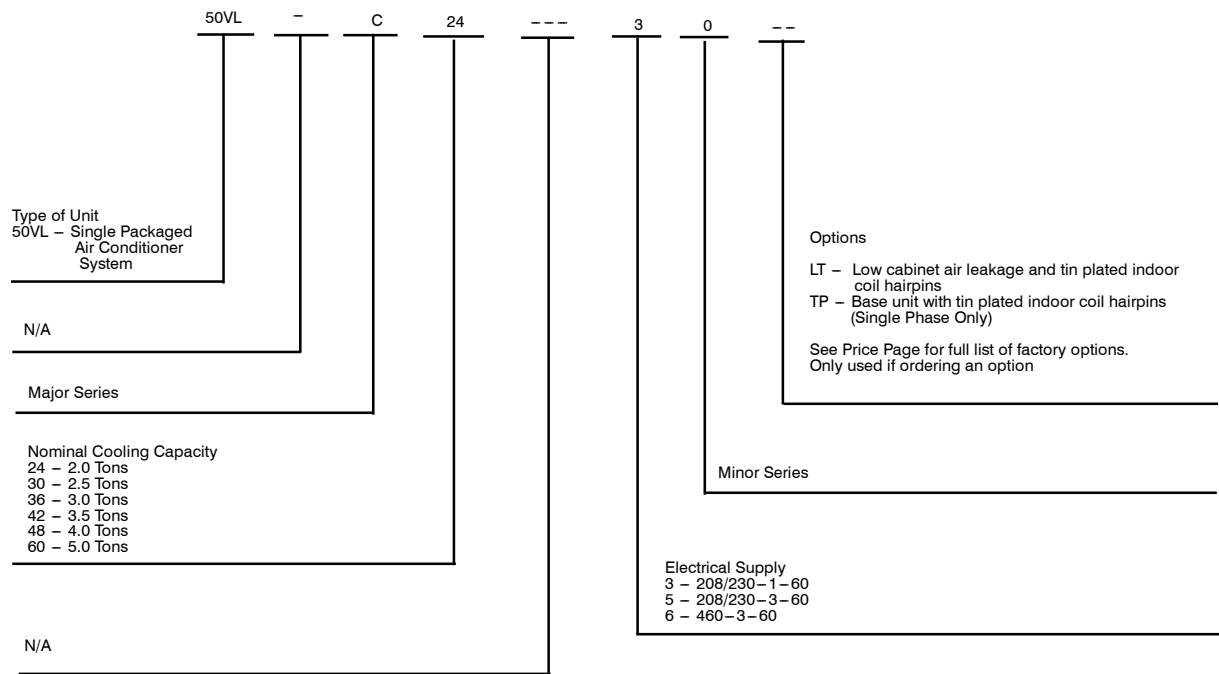
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MODEL NUMBER NOMENCLATURE



50VL–C



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](http://www.ahridirectory.org).



# AHRI\* CAPACITIES

## Cooling Capacities and Efficiencies

| UNIT SIZE | NOMINAL TONS | STANDARD CFM | COOLING CAPACITY | EER  | SEER |
|-----------|--------------|--------------|------------------|------|------|
| 24        | 2            | 800          | 23000            | 11.5 | 14.0 |
| 30        | 2.5          | 1000         | 28600            | 11.5 | 14.0 |
| 36        | 3            | 1150         | 34800            | 11.5 | 14.0 |
| 42        | 3.5          | 1350         | 40000            | 11.5 | 14.0 |
| 48        | 4            | 1550         | 46000            | 11.5 | 14.0 |
| 60        | 5            | 1750         | 56000            | 11.5 | 14.0 |

### 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.

50VL—C

## A-WEIGHTED SOUND POWER LEVEL (dBA)

| UNIT SIZE | SOUND RATING | TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment) |      |      |      |      |      |      |
|-----------|--------------|------------------------------------------------------------|------|------|------|------|------|------|
|           |              | 125                                                        | 250  | 500  | 1000 | 2000 | 4000 | 8000 |
| 24        | <b>73</b>    | 54.3                                                       | 61.3 | 55.2 | 54.8 | 57.1 | 53.6 | 43.1 |
| 30        | <b>73</b>    | 58.1                                                       | 59.4 | 61.2 | 64.1 | 59.2 | 56.8 | 50.9 |
| 36        | <b>74</b>    | 58.7                                                       | 62.8 | 65.7 | 67.8 | 63.7 | 58.9 | 51.7 |
| 42        | <b>74</b>    | 54.4                                                       | 59.0 | 61.2 | 62.1 | 58.9 | 53.5 | 46.7 |
| 48        | <b>73</b>    | 57.1                                                       | 57.6 | 60.5 | 62.7 | 58.2 | 56.4 | 50.7 |
| 60        | <b>76</b>    | 64.4                                                       | 59.7 | 59.6 | 60.6 | 59.8 | 55.5 | 47.8 |

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.                                               | 329                      | 361           | 390        | 455                                                   | 480         | 497                                                   |
| SHIPPING WEIGHT (kg)                                              | 149                      | 164           | 177        | 206                                                   | 218         | 225                                                   |
| COMPRESSORS                                                       | Rotary                   | Reciprocating | Scroll     |                                                       |             |                                                       |
| Quantity                                                          | 1                        |               |            |                                                       |             |                                                       |
| REFRIGERANT (R-410A)                                              |                          |               |            |                                                       |             |                                                       |
| Quantity lb                                                       | 5.3                      | 5.5           | 8.2        | 6.2                                                   | 9.2         | 9.8                                                   |
| Quantity (kg)                                                     | 2.4                      | 2.5           | 3.7        | 2.8                                                   | 4.2         | 4.5                                                   |
| REFRIGERANT METERING DEVICE                                       | Orifice                  |               | TXV        | Orifice                                               |             |                                                       |
| ORIFICE ID in./mm                                                 | .059 / 1.5               | .061 / 1.55   | N/A        | .073 / 1.85                                           | .080 / 2.03 | .084 / 2.14                                           |
| OUTDOOR COIL                                                      |                          |               |            |                                                       |             |                                                       |
| Rows...Fins/in.                                                   | 1...21                   | 1...21        | 1...21     | 1...21                                                | 1...21      | 1...21                                                |
| Face Area (sq ft)                                                 | 11.9                     | 13.6          | 18.8       | 13.6                                                  | 21.4        | 23.3                                                  |
| OUTDOOR FAN                                                       |                          |               |            |                                                       |             |                                                       |
| Nominal Cfm                                                       | 2500                     | 2700          | 3200       | 3600                                                  | 3600        | 4200                                                  |
| Diameter in.                                                      | 24                       | 24            | 24         | 26                                                    | 26          | 26                                                    |
| Diameter (mm)                                                     | 609.6                    | 609.6         | 609.6      | 660.4                                                 | 660.4       | 660.4                                                 |
| Motor Hp (Rpm)                                                    | 1/12 (810)               | 1/10 (810)    | 1/5 (810)  | 1/5 (810)                                             | 1/5 (810)   | 1/5 (810)                                             |
| INDOOR COIL                                                       |                          |               |            |                                                       |             |                                                       |
| Rows...Fins/in.                                                   | 3...17                   | 3...17        | 3...17     | 3...17                                                | 3...17      | 3...17                                                |
| Face Area (sq ft)                                                 | 3.7                      | 3.7           | 3.7        | 4.7                                                   | 4.7         | 5.6                                                   |
| INDOOR BLOWER                                                     |                          |               |            |                                                       |             |                                                       |
| Nominal Cooling Airflow (Cfm)                                     | 800                      | 1000          | 1150       | 1350                                                  | 1550        | 1750                                                  |
| Size in.                                                          | 10x10                    | 10x10         | 11x10      | 11x10                                                 | 11x10       | 11x10                                                 |
| Size (mm.)                                                        | 254x254                  | 254x254       | 279.4x254  | 279.4x254                                             | 279.4x254   | 279.4x254                                             |
| Motor HP (RPM)                                                    | 1/2 (1050)               | 1/2 (1050)    | 3/4 (1000) | 1/2 (1075)                                            | 1.0 (1075)  | 1.0 (1040)                                            |
| HIGH-PRESSURE SWITCH (psig) Cut-out Reset (Auto)                  | 650 +/- 15<br>420 +/- 25 |               |            |                                                       |             |                                                       |
| LOSS-OF-CHARGE / LOW-PRES-SURE SWITCH (psig) cut-out Reset (auto) | 20 +/- 5<br>45 +/- 10    | N/A           |            |                                                       |             |                                                       |
| RETURN-AIR FILTERS†‡                                              |                          |               |            | 1 each 24x14x1<br>610x356x25<br>24x15x1<br>610x406x25 |             | 1 each 24x16x1<br>610x406x25<br>24x18x1<br>610x457x25 |
| Throwaway Size in.                                                | 2 each 20x12x1           |               |            |                                                       |             |                                                       |
| Throwaway Size (mm)                                               | 508x305x25               |               |            |                                                       |             |                                                       |

† 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 to 350 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 |

## OPTIONS AND ACCESSORIES

| ITEM                                | DESCRIPTION                                                                                                                                                                                                              | FACTORY<br>INSTALLED<br>OPTION | FIELD<br>INSTALLED<br>ACCESSORY |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------|
| Coil Options                        | Base unit with tin plated indoor coil hairpins                                                                                                                                                                           | X                              |                                 |
| Compressor Start Kit                | Compressor Start Kit assists compressor start-up by providing additional starting torque on sing phase units only.                                                                                                       |                                | X                               |
| Corporate Thermostats               | Thermostats provide control for the system heating and cooling functions.                                                                                                                                                |                                | X                               |
| Crankcase Heater                    | Crankcase Heater provides anti-floodback protection for low-load cooling applications.                                                                                                                                   |                                | X*                              |
| Economizer                          | Horizontal Economizer with solid state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.                                              |                                | X                               |
|                                     | Vertical Economizer with solid state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.                                                |                                | X                               |
| Electric Heaters                    | Electric Heat Supplement                                                                                                                                                                                                 |                                | X                               |
| Filter Rack                         | Filter Rack features easy installation, serviceability, and high-filtering performance for vertical applications. Includes 1-in. filter.                                                                                 |                                | X                               |
| Flat Roof Curb                      | 14-in. (356 mm) Flat Roof Curb is available for roof mounted applications.                                                                                                                                               |                                | X                               |
| Low Ambient Kit                     | Low Ambient Kit (Motormaster II Control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F (-18°C) when properly installed.                                                                |                                | X                               |
| Manual Outside Air Damper           | Manual Outside Air Damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.                                                                                                          |                                | X                               |
| Square-to-Round Duct Transition Kit | Square-to-Round Duct Transition Kit enable 24-48 size units to be fitted to 14 in (356 mm). round ductwork.                                                                                                              |                                | X                               |
| 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. |                                | X                               |
| 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.                                                                       |                                | X                               |
| Low Cabinet Air Leakage             | Cabinet air leakage of 2.0% or less at .5 in. W.C. when tested in accordance with ASHRAE standard 193.                                                                                                                   | X                              |                                 |
| Louver Metal Outdoor Coil Grilles   | Louver Metal Outdoor Coil Grilles provide hail and vandalism protection.                                                                                                                                                 |                                | X                               |
| Low Pressure Switch Kit             | This kit is designed for use when a low pressure control is desired.                                                                                                                                                     |                                | X                               |

\*Refer to Price Page for application detail.

### Electric Heaters

| CATALOG<br>ORDERING NO.                           | NOMINAL<br>CAPACITY (kW) | FUSE<br>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  |    |    |
| CPHEATER054A0*                                    | 20.0                     | 6           |                 |    |    | X  | X  | X  |
| ELECTRIC HEATERS (208/230 — THREE PHASE — 60 Hz)  |                          |             |                 |    |    |    |    |    |
| CPHEATER055A0*                                    | 5.0                      | —           |                 |    | X  | X  | X  | X  |
| CPHEATER056A0*                                    | 10.0                     | —           |                 |    | X  | X  | X  | X  |
| CPHEATER068A0*                                    | 10.0                     | 6           |                 |    | X  | X  | X  | X  |
| CPHEATER057A0*                                    | 15.0                     | —           |                 |    | X  | X  | X  | X  |
| CPHEATER058A0*                                    | 15.0                     | 6           |                 |    | X  | X  | X  | X  |
| CPHEATER059A0*                                    | 20.0                     | 6           |                 |    |    |    | 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  |

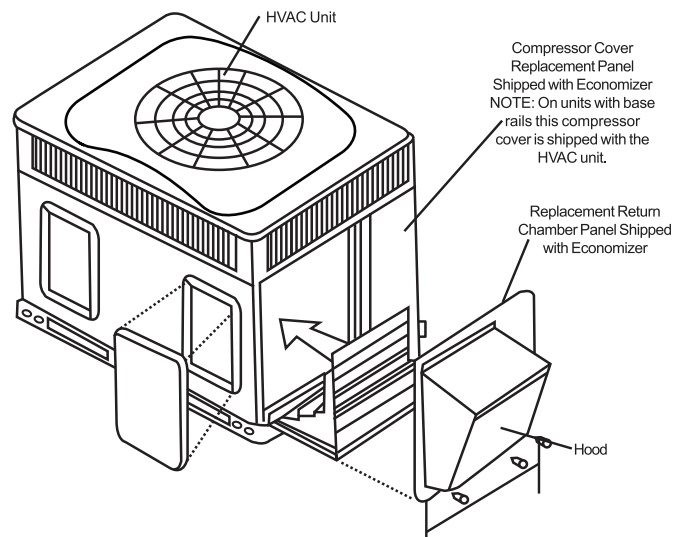
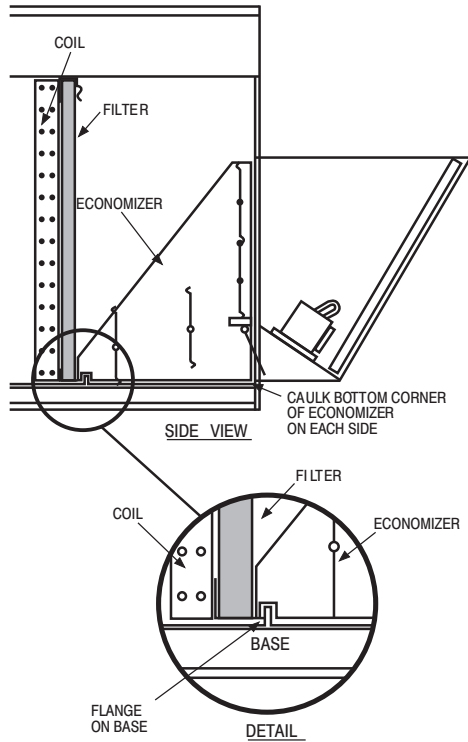
NOTE: Electric heaters are rated at 240v. Refer to Multiplication Factors table for other voltages.

X = Approved combinations.

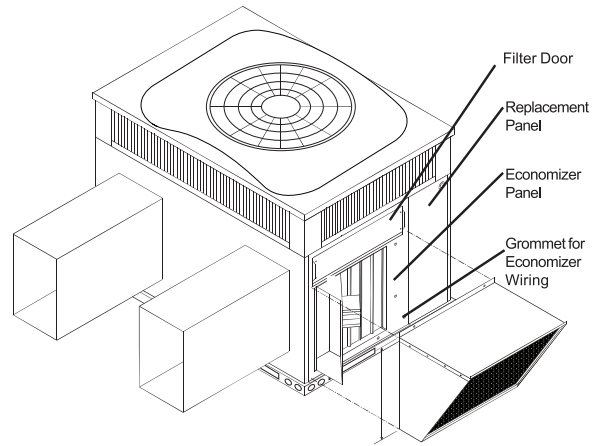
### Minimum Airflow for Safe Electric Heater Operation (CFM)

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

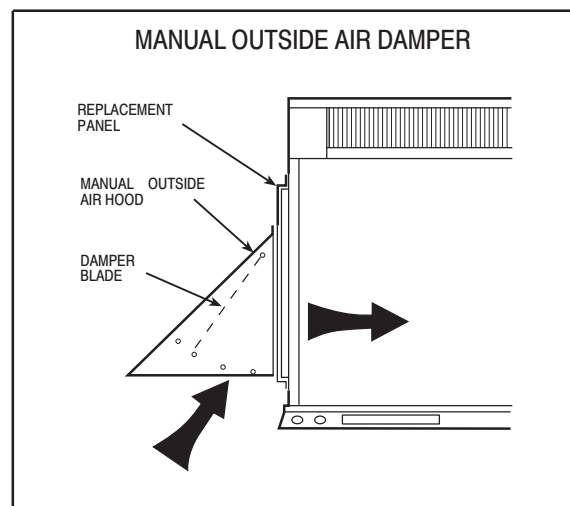
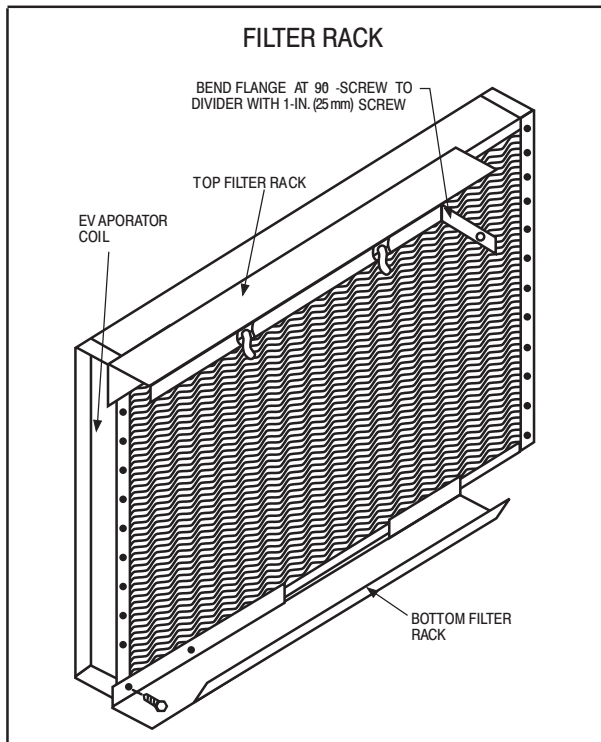
## ECONOMIZER



Vertical Economizer



Horizontal Economizer



A09375

50VL-C

UNIT DIMENSIONS - 24-36

| UNIT        | ELECTRICAL CHARACTERISTICS | UNIT WT. |       | UNIT HEIGHT IN/MM |      |        |        | CENTER OF GRAVITY IN/MM |        |       |
|-------------|----------------------------|----------|-------|-------------------|------|--------|--------|-------------------------|--------|-------|
|             |                            | LB       | KG    | "A"               | "B"  | X      | Y      | Z                       |        |       |
| 50VL-C24-30 | 208/230-1-60               | 304      | 138.0 | 43-3/4            | 1111 | 20-1/2 | 15-3/4 | 400.1                   | 16-5/8 | 422.3 |
| 50VL-C30-30 | 208/230-1-60               | 336      | 152.0 | 45-3/4            | 1162 | 20-1/2 | 15-3/4 | 400.1                   | 16-5/8 | 422.3 |
| 50VL-C36-30 | 208/230-1-60               | 349      | 158.0 | 51-3/4            | 1315 | 20-1/2 | 15-3/4 | 400.1                   | 17-3/8 | 441.3 |

| UNIT | VOLTAGE     | CORNER WEIGHT LB/KG |      |      |      |
|------|-------------|---------------------|------|------|------|
|      |             | "1"                 | "2"  | "3"  | "4"  |
| 24   | 208/230     | 45.6                | 20.7 | 60.8 | 27.6 |
| 30   | 208/230     | 50.4                | 22.9 | 67.2 | 30.5 |
| 36   | 208/230/460 | 52.4                | 23.7 | 69.8 | 31.7 |

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

|                          |            |
|--------------------------|------------|
| 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.

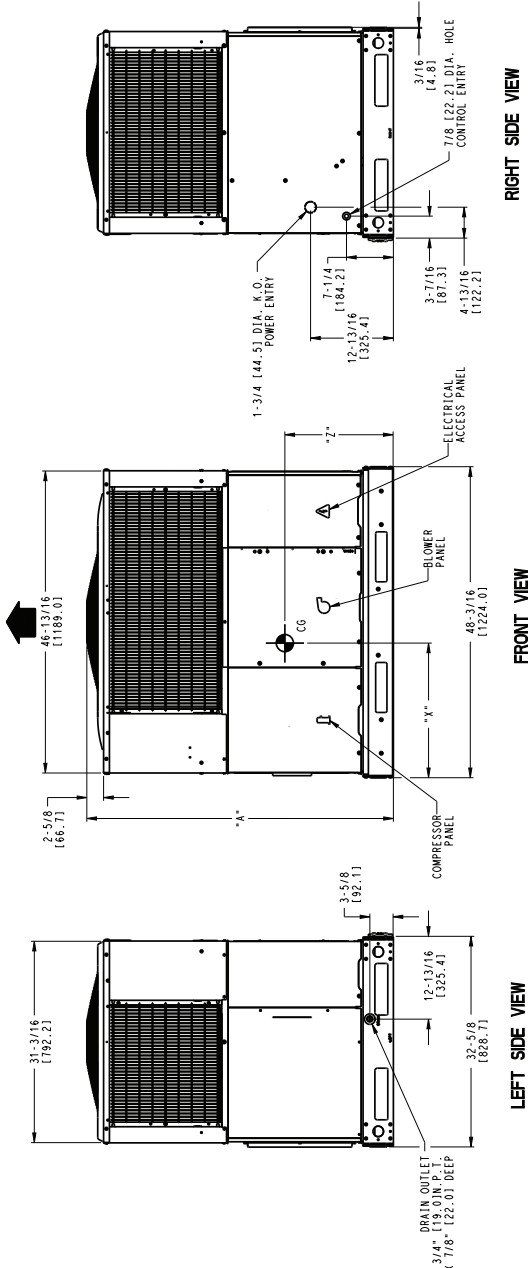
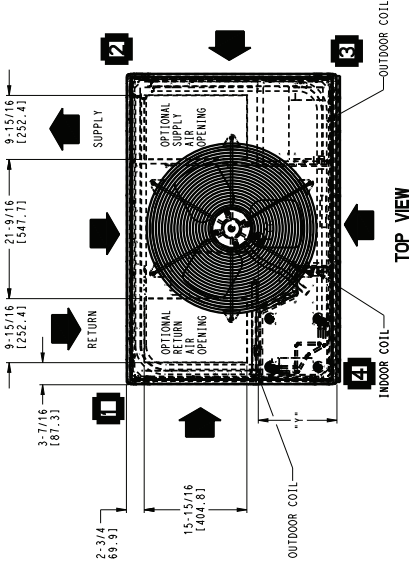
|                                                                                     |             |
|-------------------------------------------------------------------------------------|-------------|
| BETWEEN UNITS, POWER ENTRY SIDE.....                                                | 42 [1066.8] |
| 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

|                               |             |
|-------------------------------|-------------|
| 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 MAY BE COMPROMISED.

DIMENSIONS IN [ ] ARE IN MILLIMETERS



|            |   |
|------------|---|
| 50VL500566 | - |
|------------|---|

# UNIT DIMENSIONS - 42-60

| UNIT                   | ELECTRICAL CHARACTERISTICS           | UNIT WT. |       | UNIT HEIGHT IN/MM |      | CENTER OF GRAVITY IN/MM |       |        |       |
|------------------------|--------------------------------------|----------|-------|-------------------|------|-------------------------|-------|--------|-------|
|                        |                                      | LB       | KG    | "A"               | X    | Y                       | Z     |        |       |
| 50VL-C42----(3/5/6/10) | 208/230-1-60, 208/230-3-60, 460-3-60 | 413      | 187.0 | 44-3/4            | 1137 | 20-1/4                  | 514.4 | 11-1/2 | 444.5 |
| 50VL-C48----(3/5/6/10) | 208/230-1-60, 208/230-3-60, 460-3-60 | 438      | 199.0 | 52-3/4            | 1340 | 20-1/4                  | 514.4 | 11-1/2 | 444.5 |
| 50VL-C60----(3/5/6/10) | 208/230-1-60, 208/230-3-60, 460-3-60 | 455      | 206.0 | 54-3/4            | 1391 | 20-1/4                  | 514.4 | 11-1/2 | 444.5 |

| UNIT | CORNER WEIGHTS LB/KG |      |      |      |
|------|----------------------|------|------|------|
|      | VOLTAGE              | "1"  | "2"  | "4"  |
| 42   | 208/230/460          | 62.0 | 28.1 | 82.6 |
| 48   | 208/230/460          | 65.7 | 29.8 | 87.6 |
| 60   | 208/230/460          | 68.3 | 31.0 | 91.0 |

## 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]  |

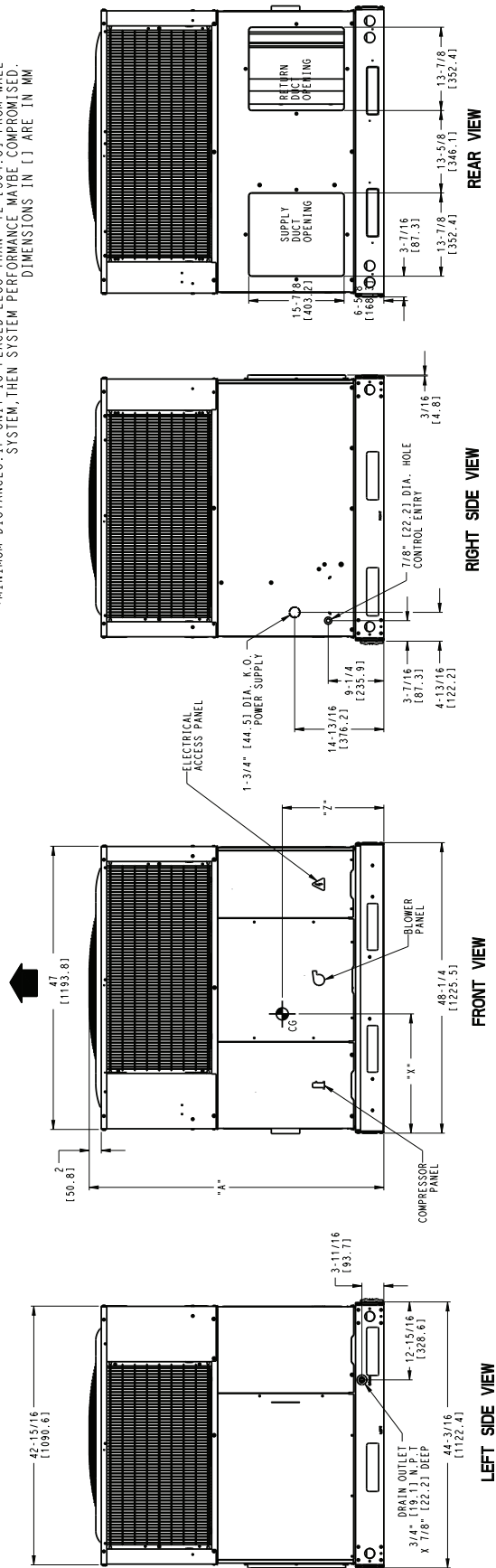
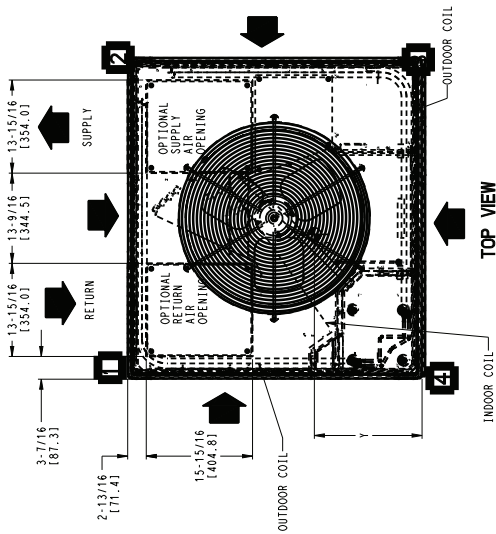
## NEC. REQUIRED CLEARANCES.

|                                                                                     | 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 MM

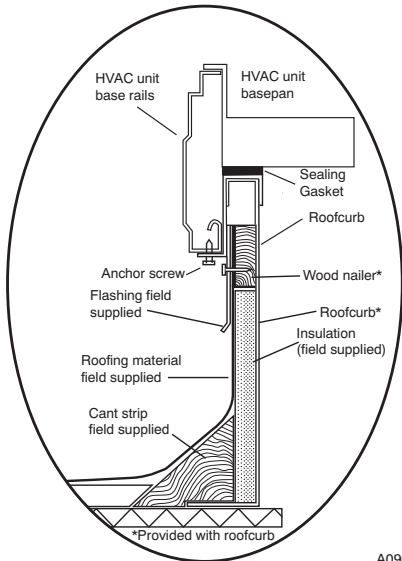


|            |   |
|------------|---|
| 50VL500567 | - |
|------------|---|

50VL-C

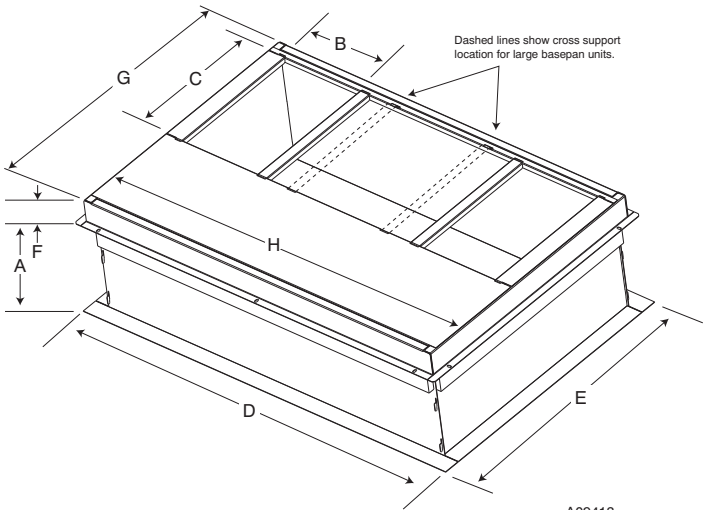
# ROOF CURB ACCESSORY - 24-60

50VL-C



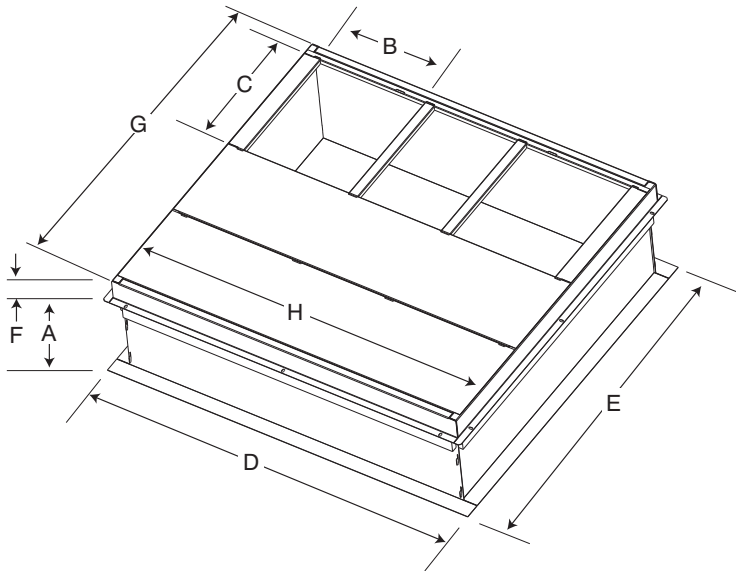
A09090

ROOF CURB DETAIL



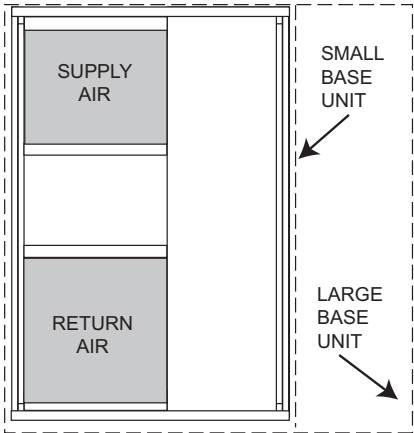
A09413

SMALL/COMMON CURB



A09415

LARGE CURB



A09094

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 | CPRFCURB011A00 | 14 (356)   | 10 (254)                        | 14 (356)                 | 16 (406)   | 47.8 (1214) | 32.4 (822)  | 2.7 (69)   | 30.6 (778)  | 46.1 (1170) |
| Large          | CPRFCURB013A00 | 14 (356)   | 14 (356)                        |                          |            |             | 43.9 (1116) |            | 42.2 (1072) |             |

\* Part Number CPRFCURB011A00 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.

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.

15,000 Btuh = 4.4kW of heat required  
3,414 Btuh/kW

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.

$5\text{ kW} \times 0.75 = 3.75\text{ kW}$

$3.75\text{ kW} \times 3414 = 12802.50\text{ Btuh}$

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   | <u>0.130 IN. W.C.</u> |
| 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<br>AIR |     | CONDENSER ENTERING AIR TEMPERATURES °F (°C) |       |                    |                   |       |                    |                   |       |                    |                   |       |                    |                   |       |                    | 125 (51.7)        |       |       |
|-------------------|-----|---------------------------------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|-------|
|                   |     | 75 (23.9)                                   |       |                    | 85 (29.4)         |       |                    | 95 (35)           |       |                    | 105 (40.6)        |       |                    | 115 (46.1)        |       |                    | Capacity<br>MBtuh |       |       |
|                   |     | Capacity<br>MBtuh                           |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW |                   |       |       |
| 700               | CFM | EWB<br>F (°C)                               | Total | Sens               | Total             | Sens  | Total              | Total             | Sens  | Total              | Total             | Sens  | Total              | Total             | Sens  | Total              | Total             | Sens  | Total |
|                   |     |                                             | 23.62 | 23.62              | 1.55              | 21.90 | 21.90              | 20.07             | 20.07 | 1.95               | 17.88             | 17.88 | 2.14               | 15.87             | 15.87 | 2.38               | 14.01             | 14.01 | 2.64  |
|                   |     |                                             | 24.47 | 21.38              | 1.56              | 22.45 | 20.24              | 19.02             | 20.32 | 1.96               | 17.92             | 17.92 | 2.14               | 15.90             | 15.90 | 2.38               | 14.03             | 14.03 | 2.64  |
|                   |     |                                             | 24.99 | 17.43              | 1.56              | 22.88 | 16.39              | 15.32             | 20.71 | 1.96               | 18.05             | 14.06 | 2.15               | 15.56             | 12.87 | 2.36               | 13.28             | 11.77 | 2.61  |
|                   |     |                                             | 27.02 | 18.13              | 1.55              | 24.79 | 17.09              | 16.03             | 22.51 | 1.98               | 19.92             | 14.86 | 2.20               | 17.28             | 13.67 | 2.42               | 14.91             | 12.59 | 2.67  |
| 800               | CFM | EWB<br>F (°C)                               | 29.59 | 14.70              | 1.55              | 27.20 | 13.77              | 12.86             | 24.84 | 1.99               | 22.48             | 11.95 | 2.24               | 19.68             | 10.89 | 2.51               | 17.14             | 9.92  | 2.77  |
|                   |     |                                             | 24.74 | 24.74              | 1.57              | 22.92 | 22.92              | 21.02             | 21.02 | 1.99               | 18.78             | 18.78 | 2.19               | 16.65             | 16.65 | 2.42               | 14.70             | 14.70 | 2.69  |
|                   |     |                                             | 25.14 | 23.06              | 1.57              | 23.07 | 21.80              | 21.05             | 21.05 | 1.99               | 18.81             | 18.81 | 2.19               | 16.68             | 16.68 | 2.42               | 14.72             | 14.72 | 2.69  |
|                   |     |                                             | 25.59 | 18.60              | 1.57              | 23.43 | 17.53              | 16.43             | 21.18 | 1.99               | 18.51             | 15.14 | 2.18               | 15.93             | 13.90 | 2.39               | 13.61             | 12.73 | 2.64  |
|                   |     |                                             | 27.63 | 19.36              | 1.56              | 25.32 | 18.28              | 17.20             | 23.00 | 2.00               | 20.41             | 16.03 | 2.24               | 17.67             | 14.78 | 2.45               | 15.25             | 13.64 | 2.71  |
| 900               | CFM | EWB<br>F (°C)                               | 30.16 | 15.42              | 1.56              | 27.69 | 14.48              | 13.55             | 25.27 | 2.01               | 22.88             | 12.64 | 2.26               | 20.12             | 11.62 | 2.53               | 17.47             | 10.60 | 2.80  |
|                   |     |                                             | 25.69 | 25.69              | 1.58              | 23.77 | 23.77              | 21.80             | 21.80 | 2.01               | 19.55             | 19.55 | 2.23               | 17.32             | 17.32 | 2.46               | 15.29             | 15.29 | 2.73  |
|                   |     |                                             | 25.74 | 25.74              | 1.58              | 23.81 | 23.81              | 21.84             | 21.84 | 2.01               | 19.58             | 19.58 | 2.23               | 17.35             | 17.35 | 2.46               | 15.31             | 15.31 | 2.73  |
|                   |     |                                             | 26.07 | 19.72              | 1.58              | 23.84 | 18.62              | 17.49             | 21.55 | 2.01               | 18.84             | 16.17 | 2.20               | 16.24             | 14.87 | 2.42               | 13.92             | 13.92 | 2.67  |
|                   |     |                                             | 28.08 | 20.52              | 1.58              | 25.72 | 19.42              | 18.31             | 23.37 | 2.02               | 20.82             | 17.17 | 2.26               | 17.98             | 15.84 | 2.48               | 15.54             | 14.63 | 2.74  |
|                   | CFM | EWB<br>F (°C)                               | 30.58 | 16.10              | 1.58              | 28.07 | 15.15              | 14.21             | 25.58 | 2.02               | 23.17             | 13.29 | 2.28               | 20.45             | 12.30 | 2.56               | 17.73             | 11.25 | 2.83  |

See Legend and Notes on Page 18.

# PERFORMANCE DATA (CONT)

## 30 SIZE

| EVAPORATOR<br>AIR |               | CONDENSER ENTERING AIR TEMPERATURES °F (°C) |       |                    |                   |       |                    |                   |       |                    |                   |       |                    |
|-------------------|---------------|---------------------------------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|
|                   |               | 75 (23.9)                                   |       |                    | 85 (29.4)         |       |                    | 95 (35)           |       |                    | 105 (40.6)        |       |                    |
|                   |               | Capacity<br>MBtuh                           |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW |
| CFM               | EWB<br>F (°C) | Total                                       | Sens  |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens  |                    |
| <b>875</b>        | 57<br>(13.8)  | 29.53                                       | 29.53 | 1.96               | 27.08             | 27.08 | 2.16               | 24.69             | 24.69 | 2.37               | 22.28             | 22.28 | 2.58               |
|                   | 62<br>(16.6)  | 30.79                                       | 26.57 | 1.97               | 27.80             | 24.83 | 2.18               | 24.94             | 23.09 | 2.38               | 22.32             | 22.32 | 2.58               |
|                   | 63*<br>(17.2) | 31.48                                       | 21.67 | 1.98               | 28.41             | 20.10 | 2.19               | 25.42             | 18.58 | 2.39               | 22.40             | 17.07 | 2.58               |
|                   | 67<br>(19.4)  | 34.28                                       | 22.60 | 1.99               | 31.11             | 21.08 | 2.22               | 27.95             | 19.57 | 2.45               | 24.83             | 18.09 | 2.67               |
|                   | 72<br>(22.2)  | 37.52                                       | 18.32 | 2.02               | 34.41             | 17.04 | 2.25               | 31.17             | 15.74 | 2.49               | 27.94             | 14.44 | 2.73               |
| <b>1000</b>       | 57<br>(13.8)  | 31.03                                       | 31.03 | 2.01               | 28.44             | 28.44 | 2.22               | 25.91             | 25.91 | 2.44               | 23.40             | 23.40 | 2.66               |
|                   | 62<br>(16.6)  | 31.72                                       | 28.62 | 2.01               | 28.67             | 26.73 | 2.23               | 25.96             | 25.96 | 2.45               | 23.44             | 23.44 | 2.67               |
|                   | 63*<br>(17.2) | 32.32                                       | 23.12 | 2.01               | 29.14             | 21.51 | 2.23               | 26.02             | 19.93 | 2.44               | 22.95             | 18.37 | 2.64               |
|                   | 67<br>(19.4)  | 35.07                                       | 24.07 | 2.03               | 31.85             | 22.55 | 2.26               | 28.60             | 21.00 | 2.49               | 25.37             | 19.46 | 2.72               |
|                   | 72<br>(22.2)  | 38.18                                       | 19.12 | 2.05               | 35.03             | 17.87 | 2.29               | 31.75             | 16.57 | 2.53               | 28.42             | 15.25 | 2.78               |
| <b>1125</b>       | 57<br>(13.8)  | 32.29                                       | 32.29 | 2.04               | 29.60             | 29.60 | 2.27               | 26.94             | 26.94 | 2.50               | 24.33             | 24.33 | 2.73               |
|                   | 62<br>(16.6)  | 32.53                                       | 30.43 | 2.05               | 29.65             | 29.65 | 2.27               | 26.98             | 26.98 | 2.50               | 24.37             | 24.37 | 2.73               |
|                   | 63*<br>(17.2) | 32.95                                       | 24.48 | 2.05               | 29.71             | 22.85 | 2.27               | 26.51             | 21.21 | 2.49               | 23.38             | 19.60 | 2.70               |
|                   | 67<br>(19.4)  | 35.66                                       | 25.45 | 2.06               | 32.37             | 23.93 | 2.29               | 29.08             | 22.34 | 2.53               | 25.80             | 20.77 | 2.76               |
|                   | 72<br>(22.2)  | 38.66                                       | 19.84 | 2.08               | 35.48             | 18.63 | 2.32               | 32.15             | 17.34 | 2.57               | 28.78             | 16.01 | 2.82               |
|                   | 57<br>(13.8)  | 16.70                                       | 16.70 | 2.78               | 19.59             | 19.59 | 2.78               | 19.59             | 19.59 | 2.78               | 16.70             | 16.70 | 2.97               |
|                   | 62<br>(16.6)  | 16.73                                       | 16.73 | 2.78               | 19.63             | 19.63 | 2.78               | 19.63             | 19.63 | 2.78               | 16.73             | 16.73 | 2.98               |
|                   | 63*<br>(17.2) | 15.25                                       | 15.25 | 2.74               | 18.92             | 18.92 | 2.74               | 18.92             | 18.92 | 2.74               | 15.25             | 15.25 | 2.90               |
|                   | 67<br>(19.4)  | 17.54                                       | 17.54 | 2.87               | 21.50             | 21.50 | 2.87               | 21.50             | 21.50 | 2.87               | 17.54             | 17.54 | 3.02               |
|                   | 72<br>(22.2)  | 20.76                                       | 20.76 | 2.98               | 24.64             | 24.64 | 2.98               | 24.64             | 24.64 | 2.98               | 20.76             | 20.76 | 3.20               |
|                   | 57<br>(13.8)  | 17.58                                       | 17.58 | 2.87               | 20.68             | 20.68 | 2.87               | 20.68             | 20.68 | 2.87               | 17.58             | 17.58 | 3.06               |
|                   | 62<br>(16.6)  | 17.61                                       | 17.61 | 2.87               | 20.72             | 20.72 | 2.87               | 20.72             | 20.72 | 2.87               | 17.61             | 17.61 | 3.06               |
|                   | 63*<br>(17.2) | 15.73                                       | 15.73 | 2.80               | 19.44             | 19.44 | 2.80               | 19.44             | 19.44 | 2.80               | 15.73             | 15.73 | 2.96               |
|                   | 67<br>(19.4)  | 16.02                                       | 16.02 | 2.94               | 21.99             | 21.99 | 2.94               | 21.99             | 21.99 | 2.94               | 16.02             | 16.02 | 3.08               |
|                   | 72<br>(22.2)  | 21.25                                       | 21.25 | 3.02               | 25.07             | 25.07 | 3.02               | 25.07             | 25.07 | 3.02               | 21.25             | 21.25 | 3.27               |
|                   | 57<br>(13.8)  | 18.32                                       | 18.32 | 2.96               | 21.55             | 21.55 | 2.96               | 21.55             | 21.55 | 2.96               | 18.32             | 18.32 | 3.14               |
|                   | 62<br>(16.6)  | 18.35                                       | 18.35 | 2.96               | 21.59             | 21.59 | 2.96               | 21.59             | 21.59 | 2.96               | 18.35             | 18.35 | 3.14               |
|                   | 63*<br>(17.2) | 16.36                                       | 16.36 | 2.86               | 19.89             | 19.89 | 2.86               | 19.89             | 19.89 | 2.86               | 16.36             | 16.36 | 3.03               |
|                   | 67<br>(19.4)  | 18.31                                       | 18.31 | 2.99               | 22.40             | 22.40 | 2.99               | 22.40             | 22.40 | 2.99               | 18.31             | 18.31 | 3.15               |
|                   | 72<br>(22.2)  | 21.59                                       | 21.59 | 3.07               | 25.36             | 25.36 | 3.07               | 25.36             | 25.36 | 3.07               | 21.59             | 21.59 | 3.31               |

See Legend and Notes on Page 18.

50VL--C

## PERFORMANCE DATA (CONT)

## 36 SIZE

| EVAPORATOR<br>AIR |       | CONDENSER ENTERING AIR TEMPERATURES °F (°C) |               |                    |                   |           |                    |                   |       |                    |                   |       |                    |                   |       |                    |                   |            |                    |                   |      |                    |       |      |      |
|-------------------|-------|---------------------------------------------|---------------|--------------------|-------------------|-----------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|------------|--------------------|-------------------|------|--------------------|-------|------|------|
|                   |       | 75 (23.9)                                   |               |                    |                   | 85 (29.4) |                    |                   |       | 95 (35)            |                   |       |                    | 105 (40.6)        |       |                    |                   | 115 (46.1) |                    |                   |      | 125 (51.7)         |       |      |      |
|                   |       | Capacity<br>MBtuh                           |               | Total<br>Sys<br>KW | Capacity<br>MBtuh |           | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |            | Total<br>Sys<br>KW | Capacity<br>MBtuh |      | Total<br>Sys<br>KW |       |      |      |
| Total             | Sens  | Total                                       | Sens          |                    | Total             | Sens      |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens       |                    | Total             | Sens |                    |       |      |      |
| 1000              | CFM   | EWB<br>F (°C)                               | 57<br>(13.8)  | 34.58              | 34.58             | 2.40      | 2.40               | 32.46             | 32.46 | 2.66               | 2.66              | 30.31 | 30.31              | 28.08             | 28.08 | 3.27               | 3.27              | 25.78      | 25.78              | 3.65              | 3.65 | 23.44              | 23.44 | 4.08 | 4.08 |
|                   |       |                                             | 62<br>(16.6)  | 36.10              | 31.44             | 2.41      | 2.41               | 33.65             | 29.92 | 2.67               | 2.67              | 31.16 | 28.38              | 26.75             | 26.75 | 3.27               | 3.27              | 26.05      | 25.03              | 3.65              | 3.65 | 23.48              | 23.48 | 4.08 | 4.08 |
|                   |       |                                             | 63*<br>(17.2) | 36.53              | 25.60             | 2.42      | 2.42               | 34.01             | 24.25 | 2.67               | 2.67              | 31.48 | 22.90              | 21.49             | 21.49 | 3.28               | 3.28              | 26.20      | 20.05              | 3.65              | 3.65 | 23.49              | 18.58 | 4.08 | 4.08 |
|                   |       |                                             | 67<br>(19.4)  | 39.44              | 26.70             | 2.43      | 2.43               | 36.74             | 25.34 | 2.69               | 2.69              | 34.00 | 23.95              | 31.20             | 22.53 | 3.30               | 3.30              | 28.34      | 21.07              | 3.67              | 3.67 | 25.45              | 19.58 | 4.09 | 4.09 |
|                   |       |                                             | 72<br>(22.2)  | 43.05              | 21.95             | 2.46      | 2.46               | 40.11             | 20.71 | 2.72               | 2.72              | 37.12 | 19.45              | 18.16             | 18.16 | 3.32               | 3.32              | 30.95      | 16.85              | 3.69              | 3.69 | 27.81              | 15.51 | 4.11 | 4.11 |
| 1150              | CFM   | EWB<br>F (°C)                               | 57<br>(13.8)  | 36.19              | 36.19             | 2.46      | 2.46               | 33.98             | 33.98 | 2.71               | 2.71              | 31.67 | 31.67              | 29.30             | 29.30 | 3.32               | 3.32              | 26.84      | 26.84              | 3.70              | 3.70 | 24.34              | 24.34 | 4.12 | 4.12 |
|                   |       |                                             | 62<br>(16.6)  | 37.15              | 33.84             | 2.46      | 2.46               | 34.60             | 32.19 | 2.72               | 2.72              | 32.03 | 30.46              | 29.41             | 29.41 | 3.32               | 3.32              | 26.90      | 26.90              | 3.70              | 3.70 | 24.38              | 24.38 | 4.12 | 4.12 |
|                   |       |                                             | 63*<br>(17.2) | 37.52              | 27.28             | 2.47      | 2.47               | 34.89             | 25.86 | 2.72               | 2.72              | 32.23 | 24.43              | 22.95             | 22.95 | 3.33               | 3.33              | 26.72      | 21.43              | 3.70              | 3.70 | 23.92              | 19.88 | 4.12 | 4.12 |
|                   |       |                                             | 67<br>(19.4)  | 40.47              | 28.51             | 2.48      | 2.48               | 37.67             | 27.07 | 2.74               | 2.74              | 34.80 | 25.60              | 31.88             | 24.11 | 3.35               | 3.35              | 28.91      | 22.56              | 3.72              | 3.72 | 25.90              | 20.99 | 4.14 | 4.14 |
| 1300              | CFM   | EWB<br>F (°C)                               | 72<br>(22.2)  | 44.12              | 23.06             | 2.51      | 2.51               | 41.04             | 21.76 | 2.77               | 2.77              | 37.93 | 20.44              | 19.10             | 19.10 | 3.38               | 3.38              | 31.54      | 17.73              | 3.74              | 3.74 | 28.28              | 16.32 | 4.16 | 4.16 |
|                   |       |                                             | 57<br>(13.8)  | 37.56              | 37.56             | 2.51      | 2.51               | 35.24             | 35.24 | 2.77               | 2.77              | 32.79 | 32.79              | 30.30             | 30.30 | 3.38               | 3.38              | 27.71      | 27.71              | 3.75              | 3.75 | 25.08              | 25.08 | 4.17 | 4.17 |
|                   |       |                                             | 62<br>(16.6)  | 38.06              | 35.99             | 2.51      | 2.51               | 35.47             | 34.14 | 2.77               | 2.77              | 32.84 | 32.84              | 30.34             | 30.34 | 3.38               | 3.38              | 27.75      | 27.75              | 3.75              | 3.75 | 25.12              | 25.12 | 4.17 | 4.17 |
|                   |       |                                             | 63*<br>(17.2) | 38.23              | 28.87             | 2.51      | 2.51               | 35.57             | 27.41 | 2.77               | 2.77              | 32.80 | 25.90              | 24.35             | 24.35 | 3.38               | 3.38              | 27.14      | 22.76              | 3.75              | 3.75 | 24.25              | 21.11 | 4.17 | 4.17 |
|                   |       |                                             | 67<br>(19.4)  | 41.26              | 30.24             | 2.53      | 2.53               | 38.33             | 28.73 | 2.79               | 2.79              | 35.38 | 27.20              | 25.62             | 25.62 | 3.40               | 3.40              | 29.31      | 24.01              | 3.76              | 3.76 | 26.22              | 22.34 | 4.18 | 4.18 |
| 72<br>(22.2)      | 44.94 | 24.09                                       | 2.56          | 2.56               | 41.77             | 22.75     | 2.82               | 2.82              | 38.55 | 21.38              | 19.98             | 19.98 | 3.43               | 3.43              | 31.96 | 18.56              | 3.79              | 3.79       | 28.62              | 17.10             | 4.21 | 4.21               |       |      |      |

See Legend and Notes on Page 18.

PERFORMANCE DATA (CONT)

42 SIZE

| EVAPORATOR<br>AIR |                | CONDENSER ENTERING AIR TEMPERATURES ° F (° C) |       |                    |                   |       |                    |                   |       |                    |                   |       |                    |                   |       |                    |
|-------------------|----------------|-----------------------------------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|
|                   |                | 75 (23.9)                                     |       |                    | 85 (29.4)         |       |                    | 95 (35)           |       |                    | 105 (40.6)        |       |                    | 115 (46.1)        |       |                    |
|                   |                | Capacity<br>MBtuh                             |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW |
| CFM               | EWB<br>F (° C) | Total                                         | Sens  |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens  |                    |
| 1175              | 57<br>(13.8)   | 38.66                                         | 38.66 | 2.51               | 36.66             | 36.66 | 2.87               | 34.60             | 34.60 | 3.30               | 32.45             | 32.45 | 3.80               | 30.07             | 30.07 | 4.39               |
|                   | 62<br>(16.6)   | 40.29                                         | 35.16 | 2.54               | 37.87             | 33.90 | 2.90               | 35.39             | 32.59 | 3.32               | 32.82             | 31.18 | 3.82               | 30.12             | 30.12 | 4.39               |
|                   | 63*<br>(17.2)  | 41.08                                         | 28.70 | 2.54               | 38.62             | 27.55 | 2.92               | 36.06             | 26.34 | 3.34               | 33.40             | 25.10 | 3.84               | 30.40             | 23.73 | 4.40               |
|                   | 67<br>(19.4)   | 44.34                                         | 29.79 | 2.59               | 41.80             | 28.66 | 2.97               | 39.16             | 27.52 | 3.42               | 36.41             | 26.33 | 3.95               | 33.45             | 25.06 | 4.57               |
|                   | 72<br>(22.2)   | 48.52                                         | 24.17 | 2.66               | 45.92             | 23.18 | 3.05               | 43.20             | 22.16 | 3.52               | 40.37             | 21.10 | 4.06               | 37.44             | 20.00 | 4.70               |
| 1350              | 57<br>(13.8)   | 40.50                                         | 40.50 | 2.58               | 38.39             | 38.39 | 2.95               | 36.24             | 36.24 | 3.40               | 34.01             | 34.01 | 3.92               | 31.54             | 31.54 | 4.51               |
|                   | 62<br>(16.6)   | 41.38                                         | 37.85 | 2.59               | 38.93             | 36.52 | 2.96               | 36.44             | 36.11 | 3.41               | 34.06             | 34.06 | 3.92               | 31.59             | 31.59 | 4.52               |
|                   | 63*<br>(17.2)  | 42.06                                         | 30.61 | 2.60               | 39.52             | 29.42 | 2.97               | 36.90             | 28.24 | 3.41               | 34.16             | 26.96 | 3.92               | 31.10             | 25.56 | 4.49               |
|                   | 67<br>(19.4)   | 45.33                                         | 31.78 | 2.64               | 42.72             | 30.67 | 3.03               | 40.00             | 29.50 | 3.48               | 37.18             | 28.29 | 4.01               | 34.18             | 27.02 | 4.64               |
|                   | 72<br>(22.2)   | 49.45                                         | 25.33 | 2.72               | 46.79             | 24.36 | 3.12               | 44.00             | 23.33 | 3.58               | 41.11             | 22.27 | 4.13               | 38.09             | 21.17 | 4.78               |
| 1525              | 57<br>(13.8)   | 41.99                                         | 41.99 | 2.63               | 39.82             | 39.82 | 3.02               | 37.59             | 37.59 | 3.47               | 35.28             | 35.28 | 4.01               | 32.78             | 32.78 | 4.63               |
|                   | 62<br>(16.6)   | 42.32                                         | 40.26 | 2.64               | 39.90             | 39.90 | 3.02               | 37.64             | 37.64 | 3.47               | 35.33             | 35.33 | 4.01               | 32.82             | 32.82 | 4.64               |
|                   | 63*<br>(17.2)  | 42.81                                         | 32.42 | 2.65               | 40.22             | 31.23 | 3.02               | 37.53             | 30.01 | 3.47               | 34.76             | 28.74 | 3.99               | 31.66             | 27.29 | 4.56               |
|                   | 67<br>(19.4)   | 46.08                                         | 33.66 | 2.70               | 43.40             | 32.57 | 3.08               | 40.64             | 31.35 | 3.54               | 37.75             | 30.14 | 4.07               | 34.73             | 28.86 | 4.70               |
|                   | 72<br>(22.2)   | 50.14                                         | 26.41 | 2.78               | 47.44             | 25.44 | 3.18               | 44.60             | 24.44 | 3.64               | 41.64             | 23.37 | 4.20               | 38.57             | 22.27 | 4.85               |

See Legend and Notes on Page 18.

## PERFORMANCE DATA (CONT)

## 48 SIZE

| EVAPORATOR<br>AIR |               | CONDENSER ENTERING AIR TEMPERATURES °F (°C) |               |                    |                   |           |                    |                   |       |                    |                   |       |                    |                   |       |                    |                   |            |                    |       |      |            |  |  |  |
|-------------------|---------------|---------------------------------------------|---------------|--------------------|-------------------|-----------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|------------|--------------------|-------|------|------------|--|--|--|
|                   |               | 75 (23.9)                                   |               |                    |                   | 85 (29.4) |                    |                   |       | 95 (35)            |                   |       |                    | 105 (40.6)        |       |                    |                   | 115 (46.1) |                    |       |      | 125 (51.7) |  |  |  |
|                   |               | Capacity<br>MBtuh                           |               | Total<br>Sys<br>KW | Capacity<br>MBtuh |           | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |            | Total<br>Sys<br>KW |       |      |            |  |  |  |
| Total             | Sens          | Total                                       | Sens          |                    | Total             | Sens      |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens       |                    |       |      |            |  |  |  |
| CFM               | EWB<br>F (°C) | 1400                                        | 57<br>(13.8)  | 45.45              | 45.45             | 3.10      | 42.83              | 42.83             | 3.46  | 40.16              | 40.16             | 3.89  | 37.26              | 37.26             | 33.52 | 33.52              | 4.82              | 29.80      | 29.80              | 5.37  | 5.37 |            |  |  |  |
|                   |               |                                             | 62<br>(16.6)  | 47.27              | 42.17             | 3.13      | 44.15              | 40.29             | 3.49  | 41.03              | 38.39             | 3.91  | 37.61              | 36.29             | 3.96  | 33.57              | 33.57             | 4.83       | 29.84              | 29.84 | 5.37 | 5.37       |  |  |  |
|                   |               |                                             | 63*<br>(17.2) | 48.20              | 34.32             | 3.13      | 45.02              | 32.66             | 3.50  | 41.76              | 30.98             | 3.92  | 38.24              | 29.20             | 4.38  | 33.54              | 26.93             | 4.82       | 28.81              | 24.65 | 5.33 | 5.33       |  |  |  |
|                   |               |                                             | 67<br>(19.4)  | 52.06              | 35.63             | 3.15      | 48.74              | 34.02             | 3.52  | 45.33              | 32.35             | 3.95  | 41.77              | 30.64             | 4.44  | 37.35              | 28.63             | 4.96       | 32.39              | 26.38 | 5.46 | 5.46       |  |  |  |
|                   |               |                                             | 72<br>(22.2)  | 56.98              | 28.79             | 3.18      | 53.50              | 27.36             | 3.56  | 49.89              | 25.89             | 3.99  | 46.16              | 24.36             | 4.48  | 42.23              | 22.80             | 5.04       | 37.37              | 21.00 | 5.64 | 5.64       |  |  |  |
| 1550              | 57<br>(13.8)  | 47.02                                       | 47.02         | 3.17               | 44.27             | 44.27     | 3.54               | 41.50             | 41.50 | 3.96               | 38.53             | 38.53 | 4.44               | 34.79             | 34.79 | 4.92               | 30.91             | 30.91      | 5.46               | 5.46  |      |            |  |  |  |
|                   | 62<br>(16.6)  | 48.16                                       | 44.46         | 3.17               | 45.01             | 42.51     | 3.55               | 41.85             | 40.45 | 3.97               | 38.60             | 38.60 | 4.44               | 34.83             | 34.83 | 4.92               | 30.95             | 30.95      | 5.46               | 5.46  |      |            |  |  |  |
|                   | 63*<br>(17.2) | 49.02                                       | 35.96         | 3.18               | 45.75             | 34.27     | 3.55               | 42.41             | 32.55 | 3.98               | 38.87             | 30.75 | 4.45               | 34.15             | 28.45 | 4.89               | 29.32             | 26.09      | 5.40               | 5.40  |      |            |  |  |  |
|                   | 67<br>(19.4)  | 52.88                                       | 37.35         | 3.20               | 49.49             | 35.71     | 3.57               | 46.00             | 34.00 | 4.00               | 42.38             | 32.25 | 4.49               | 38.03             | 30.31 | 5.04               | 32.93             | 27.95      | 5.53               | 5.53  |      |            |  |  |  |
|                   | 72<br>(22.2)  | 57.73                                       | 29.76         | 3.23               | 54.20             | 28.31     | 3.61               | 50.51             | 26.84 | 4.04               | 46.68             | 25.28 | 4.53               | 42.70             | 23.71 | 5.09               | 37.92             | 21.96      | 5.70               | 5.70  |      |            |  |  |  |
| 1800              | 57<br>(13.8)  | 49.14                                       | 49.14         | 3.25               | 46.25             | 46.25     | 3.63               | 43.34             | 43.34 | 4.06               | 40.29             | 40.29 | 4.55               | 36.55             | 36.55 | 5.07               | 32.46             | 32.46      | 5.60               | 5.60  |      |            |  |  |  |
|                   | 62<br>(16.6)  | 49.49                                       | 47.88         | 3.25               | 46.34             | 46.34     | 3.63               | 43.39             | 43.39 | 4.06               | 40.34             | 40.34 | 4.55               | 36.60             | 36.60 | 5.07               | 32.49             | 32.49      | 5.61               | 5.61  |      |            |  |  |  |
|                   | 63*<br>(17.2) | 50.04                                       | 38.56         | 3.25               | 46.70             | 36.84     | 3.63               | 43.27             | 35.06 | 4.06               | 39.66             | 33.20 | 4.54               | 34.96             | 30.85 | 5.00               | 30.05             | 28.30      | 5.51               | 5.51  |      |            |  |  |  |
|                   | 67<br>(19.4)  | 53.94                                       | 40.13         | 3.28               | 50.43             | 38.42     | 3.65               | 46.85             | 36.63 | 4.08               | 43.16             | 34.80 | 4.57               | 38.95             | 32.92 | 5.12               | 33.66             | 30.41      | 5.65               | 5.65  |      |            |  |  |  |
|                   | 72<br>(22.2)  | 58.67                                       | 31.28         | 3.31               | 55.06             | 29.83     | 3.69               | 51.26             | 28.32 | 4.12               | 47.34             | 26.73 | 4.62               | 43.27             | 25.12 | 5.18               | 38.61             | 23.50      | 5.78               | 5.78  |      |            |  |  |  |

See Legend and Notes on Page 18.

PERFORMANCE DATA (CONT)

60 SIZE

| EVAPORATOR<br>AIR |                | CONDENSER ENTERING AIR TEMPERATURES ° F (° C) |       |                    |                   |           |                    |                   |       |                    |                   |       |                    |                   |       |                    |                   |            |                    |                   |      |                    |       |      |  |
|-------------------|----------------|-----------------------------------------------|-------|--------------------|-------------------|-----------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------------|-------------------|------------|--------------------|-------------------|------|--------------------|-------|------|--|
| CFM               | EWB<br>°F (°C) | 75 (23.9)                                     |       |                    |                   | 85 (29.4) |                    |                   |       | 95 (35)            |                   |       |                    | 105 (40.6)        |       |                    |                   | 115 (46.1) |                    |                   |      | 125 (51.7)         |       |      |  |
|                   |                | Capacity<br>MBtuh                             |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |           | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |       | Total<br>Sys<br>KW | Capacity<br>MBtuh |            | Total<br>Sys<br>KW | Capacity<br>MBtuh |      | Total<br>Sys<br>KW |       |      |  |
|                   |                | Total                                         | Sens  |                    | Total             | Sens      |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens  |                    | Total             | Sens       |                    | Total             | Sens |                    | Total | Sens |  |
| 1750              | 57<br>(13.8)   | 57.04                                         | 57.04 | 3.68               | 53.71             | 53.71     | 4.20               | 50.37             | 50.37 | 4.81               | 46.94             | 46.94 | 5.51               | 42.94             | 42.94 | 6.27               | 38.22             | 38.22      | 7.08               |                   |      |                    |       |      |  |
|                   | 62<br>(16.6)   | 58.59                                         | 49.98 | 3.70               | 54.72             | 48.26     | 4.22               | 50.83             | 46.41 | 4.82               | 47.02             | 47.02 | 5.51               | 43.00             | 43.00 | 6.28               | 38.29             | 38.29      | 7.08               |                   |      |                    |       |      |  |
|                   | 63*<br>(17.2)  | 59.69                                         | 40.44 | 3.70               | 55.67             | 38.90     | 4.23               | 51.62             | 37.32 | 4.83               | 47.50             | 35.70 | 5.52               | 42.48             | 33.69 | 6.25               | 36.58             | 31.27      | 7.00               |                   |      |                    |       |      |  |
|                   | 67<br>(19.4)   | 64.43                                         | 42.04 | 3.73               | 60.26             | 40.56     | 4.26               | 56.00             | 39.00 | 4.87               | 51.67             | 37.39 | 5.57               | 47.05             | 35.71 | 6.38               | 41.05             | 33.47      | 7.21               |                   |      |                    |       |      |  |
|                   | 72<br>(22.2)   | 70.39                                         | 33.58 | 3.78               | 66.06             | 32.25     | 4.31               | 61.55             | 30.87 | 4.93               | 56.94             | 29.39 | 5.64               | 52.21             | 27.88 | 6.45               | 47.19             | 26.29      | 7.37               |                   |      |                    |       |      |  |
| 2000              | 57<br>(13.8)   | 59.44                                         | 59.44 | 3.78               | 55.93             | 55.93     | 4.31               | 52.41             | 52.41 | 4.92               | 48.83             | 48.83 | 5.62               | 44.92             | 44.92 | 6.44               | 39.97             | 39.97      | 7.26               |                   |      |                    |       |      |  |
|                   | 62<br>(16.6)   | 60.04                                         | 53.50 | 3.78               | 56.07             | 56.07     | 4.31               | 52.48             | 52.48 | 4.92               | 48.90             | 48.90 | 5.62               | 44.98             | 44.98 | 6.44               | 40.04             | 40.04      | 7.26               |                   |      |                    |       |      |  |
|                   | 63*<br>(17.2)  | 60.84                                         | 43.04 | 3.78               | 56.74             | 41.49     | 4.31               | 52.56             | 39.87 | 4.92               | 48.32             | 38.18 | 5.62               | 43.48             | 36.25 | 6.39               | 37.36             | 33.66      | 7.13               |                   |      |                    |       |      |  |
|                   | 67<br>(19.4)   | 65.61                                         | 44.79 | 3.81               | 61.36             | 43.29     | 4.34               | 56.95             | 41.68 | 4.96               | 52.51             | 40.02 | 5.66               | 47.83             | 38.30 | 6.47               | 41.86             | 36.09      | 7.35               |                   |      |                    |       |      |  |
|                   | 72<br>(22.2)   | 71.45                                         | 35.11 | 3.87               | 67.02             | 33.78     | 4.40               | 62.40             | 32.37 | 5.02               | 57.67             | 30.89 | 5.73               | 52.81             | 29.36 | 6.55               | 47.75             | 27.77      | 7.47               |                   |      |                    |       |      |  |
| 2250              | 57<br>(13.8)   | 61.37                                         | 61.37 | 3.86               | 57.76             | 57.76     | 4.39               | 54.09             | 54.09 | 5.01               | 50.36             | 50.36 | 5.72               | 46.38             | 46.38 | 6.54               | 41.44             | 41.44      | 7.43               |                   |      |                    |       |      |  |
|                   | 62<br>(16.6)   | 61.42                                         | 61.42 | 3.86               | 57.83             | 57.83     | 4.40               | 54.15             | 54.15 | 5.01               | 50.42             | 50.42 | 5.72               | 46.44             | 46.44 | 6.54               | 41.51             | 41.51      | 7.43               |                   |      |                    |       |      |  |
|                   | 63*<br>(17.2)  | 61.75                                         | 45.60 | 3.86               | 57.57             | 43.99     | 4.39               | 53.29             | 42.29 | 5.00               | 48.99             | 40.55 | 5.71               | 44.27             | 38.64 | 6.52               | 38.08             | 35.80      | 7.26               |                   |      |                    |       |      |  |
|                   | 67<br>(19.4)   | 66.46                                         | 47.42 | 3.89               | 62.10             | 45.93     | 4.43               | 57.67             | 44.25 | 5.04               | 53.13             | 42.53 | 5.75               | 48.44             | 40.74 | 6.56               | 42.58             | 38.56      | 7.48               |                   |      |                    |       |      |  |
|                   | 72<br>(22.2)   | 72.23                                         | 36.56 | 3.95               | 67.73             | 35.23     | 4.48               | 63.02             | 33.84 | 5.11               | 58.17             | 32.33 | 5.82               | 53.23             | 30.78 | 6.65               | 48.12             | 29.19      | 7.57               |                   |      |                    |       |      |  |

See Legend and Notes on Page 18.

PERFORMANCE DATA (CONT)

\* 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:

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

$$t_{lwb} = \text{Wet-bulb temperature corresponding to enthalpy air leaving evaporator coil (} t_{lwb} \text{)}$$

$$h_{lwb} = \frac{\text{Total Capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: hewb = 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.

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 and Downflow Discharge Sizes 24-60 208/230VAC 1 Phase Models**

| 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  | 1    |
| 24        | Low                    | Blue       | CFM | 669                                 | 580  | 525  | 423  | 303  | ---  | ---  | ---  | ---  | ---  |
|           |                        |            | BHP | 0.09                                | 0.10 | 0.11 | 0.11 | 0.12 | ---  | ---  | ---  | ---  | ---  |
|           | Med – Low <sup>1</sup> | Pink       | CFM | 829                                 | 752  | 680  | 602  | 549  | 455  | 313  | ---  | ---  | ---  |
|           |                        |            | BHP | 0.14                                | 0.15 | 0.15 | 0.16 | 0.17 | 0.17 | 0.18 | ---  | ---  | ---  |
|           | Medium                 | Red        | CFM | 1014                                | 929  | 884  | 818  | 746  | 683  | 600  | 537  | 405  | 305  |
|           |                        |            | BHP | 0.24                                | 0.24 | 0.24 | 0.25 | 0.26 | 0.26 | 0.27 | 0.27 | 0.27 | 0.29 |
| 30        | Med – High             | Orange     | CFM | 1041                                | 972  | 916  | 850  | 782  | 713  | 631  | 581  | 465  | 340  |
|           |                        |            | BHP | 0.25                                | 0.26 | 0.26 | 0.26 | 0.26 | 0.27 | 0.28 | 0.29 | 0.30 | 0.31 |
|           | High                   | Black      | CFM | 1187                                | 1124 | 1061 | 996  | 930  | 896  | 840  | 776  | 698  | 610  |
|           |                        |            | BHP | 0.36                                | 0.36 | 0.37 | 0.37 | 0.38 | 0.38 | 0.39 | 0.39 | 0.39 | 0.40 |
|           | Low                    | Blue       | CFM | 669                                 | 580  | 525  | 423  | 303  | ---  | ---  | ---  | ---  | ---  |
|           |                        |            | BHP | 0.09                                | 0.10 | 0.11 | 0.11 | 0.12 | ---  | ---  | ---  | ---  | ---  |
| 36        | Med – Low              | Pink       | CFM | 829                                 | 752  | 680  | 602  | 549  | 455  | 313  | ---  | ---  | ---  |
|           |                        |            | BHP | 0.14                                | 0.15 | 0.15 | 0.16 | 0.17 | 0.17 | 0.18 | ---  | ---  | ---  |
|           | High                   | Black      | CFM | 1014                                | 929  | 884  | 818  | 746  | 683  | 600  | 537  | 405  | 305  |
|           |                        |            | BHP | 0.24                                | 0.24 | 0.24 | 0.25 | 0.26 | 0.26 | 0.27 | 0.27 | 0.27 | 0.29 |
|           | Med – High             | Orange     | CFM | 1041                                | 972  | 916  | 850  | 782  | 713  | 631  | 581  | 465  | 340  |
|           |                        |            | BHP | 0.25                                | 0.26 | 0.26 | 0.26 | 0.26 | 0.27 | 0.28 | 0.29 | 0.30 | 0.31 |
| 42        | High                   | Black      | CFM | 1187                                | 1124 | 1061 | 996  | 930  | 896  | 840  | 776  | 698  | 610  |
|           |                        |            | BHP | 0.36                                | 0.36 | 0.37 | 0.37 | 0.38 | 0.38 | 0.39 | 0.39 | 0.39 | 0.40 |
|           | Low                    | Blue       | CFM | 1056                                | 982  | 911  | 882  | 812  | 740  | 667  | 564  | 486  | 361  |
|           |                        |            | BHP | 0.24                                | 0.24 | 0.24 | 0.26 | 0.26 | 0.27 | 0.28 | 0.29 | 0.30 | 0.30 |
|           | Med – Low              | Pink       | CFM | 1174                                | 1107 | 1045 | 985  | 914  | 890  | 825  | 760  | 673  | 572  |
|           |                        |            | BHP | 0.32                                | 0.32 | 0.33 | 0.33 | 0.34 | 0.35 | 0.36 | 0.37 | 0.37 | 0.37 |
| 48        | Medium <sup>1</sup>    | Red        | CFM | 1246                                | 1195 | 1148 | 1081 | 1019 | 953  | 884  | 859  | 795  | 690  |
|           |                        |            | BHP | 0.38                                | 0.39 | 0.39 | 0.40 | 0.40 | 0.41 | 0.42 | 0.42 | 0.42 | 0.43 |
|           | Med – High             | Orange     | CFM | 1361                                | 1299 | 1229 | 1210 | 1152 | 1092 | 1025 | 958  | 889  | 822  |
|           |                        |            | BHP | 0.48                                | 0.49 | 0.49 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 |
|           | High                   | Black      | CFM | 1596                                | 1542 | 1482 | 1424 | 1362 | 1304 | 1238 | 1173 | 1201 | 1143 |
|           |                        |            | BHP | 0.74                                | 0.74 | 0.74 | 0.75 | 0.75 | 0.75 | 0.76 | 0.76 | 0.77 | 0.77 |
| 54        | Low                    | Blue       | CFM | 1001                                | 902  | 833  | 777  | 717  | 650  | 575  | 527  | 466  | 419  |
|           |                        |            | BHP | 0.13                                | 0.13 | 0.14 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 |
|           | Med – Low              | Pink       | CFM | 1016                                | 950  | 902  | 842  | 783  | 721  | 655  | 590  | 541  | 480  |
|           |                        |            | BHP | 0.13                                | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 | 0.21 | 0.22 |
|           | Medium <sup>1</sup>    | Red        | CFM | 1403                                | 1358 | 1316 | 1265 | 1217 | 1167 | 1116 | 1067 | 1012 | 956  |
|           |                        |            | BHP | 0.29                                | 0.30 | 0.31 | 0.33 | 0.34 | 0.35 | 0.36 | 0.37 | 0.38 | 0.39 |
| 60        | Med – High             | Orange     | CFM | 1461                                | 1411 | 1367 | 1327 | 1275 | 1220 | 1174 | 1127 | 1074 | 1022 |
|           |                        |            | BHP | 0.32                                | 0.33 | 0.35 | 0.36 | 0.37 | 0.38 | 0.39 | 0.40 | 0.41 | 0.42 |
|           | High                   | Black      | CFM | 1575                                | 1528 | 1488 | 1447 | 1406 | 1360 | 1314 | 1264 | 1213 | 1159 |
|           |                        |            | BHP | 0.40                                | 0.42 | 0.43 | 0.44 | 0.45 | 0.46 | 0.47 | 0.48 | 0.49 | 0.50 |

**50VL – C**

# Dry Coil Air Delivery\* - Horizontal and Downflow Discharge Sizes 24-60 208/230VAC 1 Phase Models (Cont.)

| 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  | 1    |
| 48        | Low                    | CFM        | 1378                                | 1344 | 1295 | 1260 | 1216 | 1179 | 1135 | 1087 | 1035 | 995  |
|           |                        | BHP        | 0.26                                | 0.27 | 0.29 | 0.31 | 0.31 | 0.33 | 0.34 | 0.36 | 0.36 | 0.38 |
|           | Med – Low <sup>1</sup> | CFM        | 1696                                | 1671 | 1631 | 1607 | 1574 | 1539 | 1507 | 1463 | 1432 | 1393 |
|           |                        | BHP        | 0.45                                | 0.47 | 0.49 | 0.50 | 0.52 | 0.52 | 0.54 | 0.55 | 0.57 | 0.58 |
|           | Medium                 | CFM        | 1994                                | 1968 | 1943 | 1910 | 1882 | 1835 | 1774 | 1702 | 1614 | 1512 |
|           |                        | BHP        | 0.72                                | 0.73 | 0.75 | 0.76 | 0.78 | 0.78 | 0.76 | 0.73 | 0.70 | 0.66 |
|           | Med – High             | CFM        | 2054                                | 2013 | 1986 | 1964 | 1919 | 1854 | 1779 | 1695 | 1605 | 1498 |
|           |                        | BHP        | 0.77                                | 0.79 | 0.80 | 0.82 | 0.81 | 0.80 | 0.76 | 0.74 | 0.69 | 0.65 |
|           | High                   | CFM        | 2267                                | 2201 | 2133 | 2071 | 1997 | 1923 | 1835 | 1739 | 1654 | 1551 |
|           |                        | BHP        | 1.03                                | 1.00 | 0.97 | 0.93 | 0.89 | 0.86 | 0.82 | 0.78 | 0.74 | 0.69 |
| 60        | Low                    | CFM        | 1330                                | 1277 | 1232 | 1191 | 1147 | 1103 | 1060 | 1004 | 963  | 919  |
|           |                        | BHP        | 0.26                                | 0.27 | 0.29 | 0.30 | 0.31 | 0.32 | 0.33 | 0.34 | 0.36 | 0.37 |
|           | Med – Low              | CFM        | 1475                                | 1436 | 1399 | 1351 | 1317 | 1270 | 1236 | 1188 | 1152 | 1105 |
|           |                        | BHP        | 0.35                                | 0.36 | 0.37 | 0.38 | 0.40 | 0.41 | 0.42 | 0.43 | 0.45 | 0.45 |
|           | Medium <sup>1</sup>    | CFM        | 1736                                | 1710 | 1668 | 1630 | 1600 | 1557 | 1522 | 1479 | 1450 | 1406 |
|           |                        | BHP        | 0.53                                | 0.54 | 0.55 | 0.58 | 0.59 | 0.60 | 0.62 | 0.63 | 0.64 | 0.65 |
|           | Med – High             | CFM        | 1935                                | 1909 | 1867 | 1836 | 1808 | 1766 | 1696 | 1619 | 1535 | 1454 |
|           |                        | BHP        | 0.71                                | 0.73 | 0.74 | 0.76 | 0.78 | 0.79 | 0.77 | 0.75 | 0.72 | 0.68 |
|           | High                   | CFM        | 2205                                | 2150 | 2078 | 2011 | 1941 | 1852 | 1779 | 1672 | 1572 | 1473 |
|           |                        | BHP        | 1.04                                | 1.02 | 0.99 | 0.95 | 0.92 | 0.87 | 0.85 | 0.79 | 0.75 | 0.70 |

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

<sup>1</sup> Factory-shipped cooling speed

**NOTE:** Duct 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.

## Dry Coil Air Delivery\* - Horizontal Discharge Sizes 36-60 3 Phase Models Only

| Unit | 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  |      |
| 36   | Low                     | Blue       | CFM                                 | 979  | 912  | 859  | 789  | 731  | 654  | 556  | 454  | 374  |
|      | Med – Low               | Pink       | CFM                                 | 1136 | 1080 | 1015 | 957  | 912  | 861  | 808  | 723  | 633  |
|      | Medium <sup>1</sup>     | Red        | CFM                                 | 1208 | 1144 | 1091 | 1025 | 964  | 902  | 886  | 830  | 746  |
|      | Med – High              | Orange     | CFM                                 | 1495 | 1439 | 1376 | 1303 | 1221 | 1207 | 1137 | 1052 | 981  |
|      | High                    | Black      | CFM                                 | 1560 | 1491 | 1416 | 1337 | 1255 | 1233 | 1160 | 1082 | 998  |
| 42   | Low                     | Blue       | CFM                                 | 952  | 882  | 806  | 746  | 671  | 605  | 530  | 551  | 486  |
|      | Med – Low               | Pink       | CFM                                 | 1002 | 936  | 875  | 821  | 748  | 687  | 613  | 554  | 565  |
|      | Medium                  | Red        | CFM                                 | 1255 | 1210 | 1145 | 1074 | 1008 | 940  | 878  | 895  | 838  |
|      | Med – High <sup>1</sup> | Orange     | CFM                                 | 1335 | 1267 | 1246 | 1176 | 1109 | 1049 | 988  | 926  | 872  |
|      | High                    | Black      | CFM                                 | 1472 | 1401 | 1326 | 1251 | 1275 | 1198 | 1139 | 1085 | 1023 |
| 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 <sup>1</sup>     | 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   | Low                     | Blue       | CFM                                 | 1445 | 1389 | 1341 | 1281 | 1236 | 1189 | 1139 | 1072 | 1027 |
|      | Med – Low               | Pink       | CFM                                 | 1678 | 1635 | 1602 | 1558 | 1513 | 1474 | 1438 | 1404 | 1349 |
|      | Medium <sup>1</sup>     | 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).

<sup>1</sup> 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.

## Dry Coil Air Delivery – Downflow Discharge Sizes 36-60 3 Phase Models Only

| Unit | 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  | 1.0  |
| 36   | Low                     | Blue       | CFM                                 | 979  | 912  | 859  | 789  | 731  | 654  | 556  | 454  | 374  |
|      |                         |            | WATTS                               | 202  | 212  | 217  | 221  | 231  | 236  | 245  | 251  | 259  |
|      |                         |            | BHP                                 | 0.22 | 0.23 | 0.23 | 0.24 | 0.25 | 0.25 | 0.26 | 0.27 | 0.28 |
|      | Med – Low               | Pink       | CFM                                 | 1136 | 1080 | 1015 | 957  | 912  | 861  | 808  | 723  | 633  |
|      |                         |            | WATTS                               | 294  | 309  | 310  | 322  | 325  | 333  | 341  | 349  | 354  |
|      |                         |            | BHP                                 | 0.32 | 0.33 | 0.33 | 0.35 | 0.35 | 0.36 | 0.37 | 0.37 | 0.38 |
|      | Medium <sup>1</sup>     | Red        | CFM                                 | 1208 | 1144 | 1091 | 1025 | 964  | 902  | 886  | 830  | 746  |
|      |                         |            | WATTS                               | 345  | 350  | 358  | 366  | 373  | 377  | 390  | 396  | 407  |
|      |                         |            | BHP                                 | 0.37 | 0.38 | 0.38 | 0.39 | 0.40 | 0.40 | 0.42 | 0.42 | 0.44 |
|      | Med – High              | Orange     | CFM                                 | 1495 | 1439 | 1376 | 1303 | 1221 | 1207 | 1137 | 1052 | 981  |
|      |                         |            | WATTS                               | 625  | 634  | 635  | 633  | 624  | 613  | 598  | 583  | 573  |
|      |                         |            | BHP                                 | 0.67 | 0.68 | 0.68 | 0.68 | 0.67 | 0.66 | 0.64 | 0.63 | 0.61 |
| 42   | High                    | Black      | CFM                                 | 1560 | 1491 | 1416 | 1337 | 1255 | 1233 | 1160 | 1082 | 998  |
|      |                         |            | WATTS                               | 708  | 699  | 683  | 674  | 660  | 634  | 624  | 606  | 581  |
|      |                         |            | BHP                                 | 0.76 | 0.75 | 0.73 | 0.72 | 0.71 | 0.68 | 0.67 | 0.65 | 0.62 |
|      | Low                     | Blue       | CFM                                 | 952  | 882  | 806  | 746  | 671  | 605  | 530  | 551  | 486  |
|      |                         |            | WATTS                               | 124  | 134  | 140  | 150  | 156  | 166  | 171  | 182  | 188  |
|      |                         |            | BHP                                 | 0.13 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.18 | 0.20 | 0.21 |
|      | Med – Low               | Pink       | CFM                                 | 1002 | 936  | 875  | 821  | 748  | 687  | 613  | 554  | 565  |
|      |                         |            | WATTS                               | 144  | 155  | 161  | 171  | 176  | 187  | 193  | 203  | 209  |
|      |                         |            | BHP                                 | 0.15 | 0.17 | 0.17 | 0.18 | 0.19 | 0.20 | 0.21 | 0.22 | 0.24 |
|      | Medium                  | Red        | CFM                                 | 1255 | 1210 | 1145 | 1074 | 1008 | 940  | 878  | 895  | 838  |
|      |                         |            | WATTS                               | 249  | 272  | 284  | 292  | 305  | 319  | 320  | 329  | 336  |
|      |                         |            | BHP                                 | 0.27 | 0.29 | 0.30 | 0.31 | 0.33 | 0.34 | 0.34 | 0.35 | 0.36 |
|      | Med – High <sup>1</sup> | Orange     | CFM                                 | 1335 | 1267 | 1246 | 1176 | 1109 | 1049 | 988  | 926  | 872  |
|      |                         |            | WATTS                               | 311  | 323  | 330  | 342  | 356  | 367  | 378  | 385  | 395  |
|      |                         |            | BHP                                 | 0.33 | 0.35 | 0.35 | 0.37 | 0.38 | 0.39 | 0.41 | 0.42 | 0.43 |
| High | High                    | Black      | CFM                                 | 1472 | 1401 | 1326 | 1251 | 1275 | 1198 | 1139 | 1085 | 1023 |
|      |                         |            | WATTS                               | 401  | 414  | 426  | 440  | 471  | 462  | 473  | 478  | 486  |
|      |                         |            | BHP                                 | 0.43 | 0.44 | 0.46 | 0.47 | 0.51 | 0.50 | 0.51 | 0.51 | 0.52 |

# **Dry Coil Air Delivery – Downflow Discharge Sizes 36-60 3 Phase Models Only (Cont.)**

| Unit | 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  | 1.0  |
| 48   | Low                 | Blue       | CFM                                 | 1503 | 1457 | 1423 | 1374 | 1330 | 1287 | 1241 | 1199 | 1153 |
|      |                     |            | WATTS                               | 225  | 233  | 246  | 254  | 269  | 282  | 292  | 307  | 314  |
|      |                     |            | BHP                                 | 0.24 | 0.25 | 0.26 | 0.27 | 0.29 | 0.30 | 0.31 | 0.33 | 0.34 |
|      | Med – Low           | Pink       | CFM                                 | 1556 | 1508 | 1461 | 1432 | 1388 | 1346 | 1302 | 1256 | 1221 |
|      |                     |            | WATTS                               | 244  | 261  | 268  | 281  | 290  | 305  | 319  | 330  | 345  |
|      |                     |            | BHP                                 | 0.26 | 0.28 | 0.29 | 0.30 | 0.31 | 0.33 | 0.34 | 0.35 | 0.37 |
|      | Medium <sup>1</sup> | Red        | CFM                                 | 1861 | 1822 | 1786 | 1758 | 1716 | 1688 | 1660 | 1619 | 1583 |
|      |                     |            | WATTS                               | 400  | 417  | 426  | 441  | 452  | 467  | 482  | 492  | 507  |
|      |                     |            | BHP                                 | 0.43 | 0.45 | 0.46 | 0.47 | 0.48 | 0.50 | 0.52 | 0.53 | 0.54 |
|      | Med – High          | Orange     | CFM                                 | 2319 | 2291 | 2255 | 2230 | 2193 | 2166 | 2118 | 2057 | 1992 |
|      |                     |            | WATTS                               | 758  | 769  | 787  | 799  | 808  | 823  | 822  | 805  | 780  |
|      |                     |            | BHP                                 | 0.81 | 0.82 | 0.84 | 0.86 | 0.87 | 0.88 | 0.88 | 0.86 | 0.84 |
| 60   | High                | Black      | CFM                                 | 2532 | 2487 | 2444 | 2391 | 2330 | 2259 | 2179 | 2111 | 2033 |
|      |                     |            | WATTS                               | 1014 | 1022 | 1015 | 994  | 965  | 935  | 898  | 858  | 823  |
|      |                     |            | BHP                                 | 1.09 | 1.10 | 1.09 | 1.07 | 1.03 | 1.00 | 0.96 | 0.92 | 0.88 |
|      | Low                 | Blue       | CFM                                 | 1479 | 1436 | 1387 | 1346 | 1298 | 1253 | 1206 | 1160 | 1114 |
|      |                     |            | WATTS                               | 224  | 239  | 247  | 262  | 270  | 284  | 300  | 307  | 319  |
|      |                     |            | BHP                                 | 0.24 | 0.26 | 0.26 | 0.28 | 0.29 | 0.30 | 0.32 | 0.33 | 0.34 |
|      | Med – Low           | Pink       | CFM                                 | 1841 | 1796 | 1761 | 1724 | 1690 | 1651 | 1616 | 1578 | 1527 |
|      |                     |            | WATTS                               | 425  | 434  | 453  | 460  | 476  | 485  | 501  | 508  | 525  |
|      |                     |            | BHP                                 | 0.46 | 0.47 | 0.49 | 0.49 | 0.51 | 0.52 | 0.54 | 0.54 | 0.56 |
|      | Medium <sup>1</sup> | Red        | CFM                                 | 1944 | 1913 | 1872 | 1838 | 1801 | 1771 | 1731 | 1698 | 1655 |
|      |                     |            | WATTS                               | 486  | 501  | 511  | 529  | 537  | 554  | 565  | 578  | 595  |
|      |                     |            | BHP                                 | 0.52 | 0.54 | 0.55 | 0.57 | 0.58 | 0.59 | 0.61 | 0.62 | 0.64 |
|      | Med – High          | Orange     | CFM                                 | 2178 | 2148 | 2105 | 2073 | 2036 | 2002 | 1967 | 1919 | 1845 |
|      |                     |            | WATTS                               | 674  | 691  | 703  | 717  | 733  | 743  | 758  | 754  | 734  |
|      |                     |            | BHP                                 | 0.72 | 0.74 | 0.75 | 0.77 | 0.79 | 0.80 | 0.81 | 0.81 | 0.79 |
|      | High                | Black      | CFM                                 | 2480 | 2432 | 2375 | 2322 | 2236 | 2161 | 2085 | 2006 | 1917 |
|      |                     |            | WATTS                               | 1029 | 1012 | 995  | 975  | 941  | 908  | 869  | 836  | 796  |
|      |                     |            | BHP                                 | 1.10 | 1.09 | 1.07 | 1.05 | 1.01 | 0.97 | 0.93 | 0.90 | 0.85 |

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

<sup>1</sup> Factory-shipped cooling speed

NOTE: Duct 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.

## PERFORMANCE DATA (CONT)

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

| UNIT<br>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 | 0.06 | 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<br>12x20x1+12x20x1<br>(305x508x25+305x508x25)   | 2.0,<br>2.5,<br>3.0 | -                   | -   | 0.09 | 0.14 | 0.16 | 0.18 | 0.25 | 0.28 | 0.3  | -    | -    | -    | -    | -    | -    | -    | -    |
| 1200-1800 CFM<br>16x24x1+14x24x1<br>(406x610x25+356x610x25) | 3.5,<br>4.0         | -                   | -   | -    | -    | -    | -    | 0.10 | 0.11 | 0.12 | 0.13 | 0.14 | 0.16 | 0.16 | -    | -    | -    | -    |
| 1500-2200 CFM<br>16x24x1+18x24x1<br>(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<br>12x20x1+12x20x1<br>(305x508x25+305x508x25)   | 2.0,<br>2.5,<br>3.0 | 0.03                | 0.05 | 0.06 | 0.08 | 0.10 | 0.11 | 0.13 | 0.14 | 0.16 | -    | -    | -    | -    | -    | -    | -    | -    |
| 1200-1800 CFM<br>16x24x1+14x24x1<br>(406x610x25+356x610x25) | 3.5,<br>4.0         | -                   | -    | -    | -    | -    | -    | 0.07 | 0.08 | 0.09 | 0.09 | 0.10 | 0.11 | 0.12 | -    | -    | -    | -    |
| 1500-2200 CFM<br>16x24x1+18x24x1<br>(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**

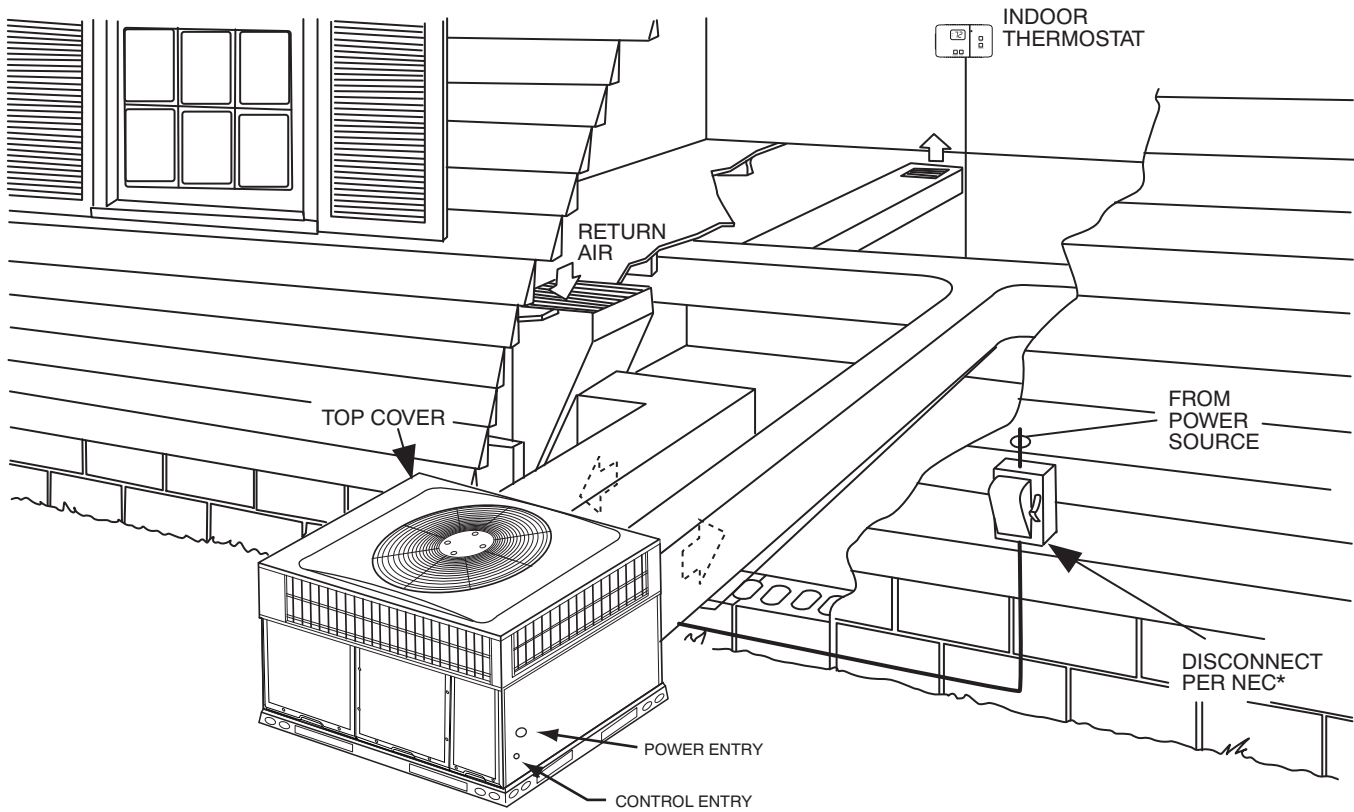
| STATIC | STANDARD CFM (SCFM) |      |      |      |      |      |      |      |      |      |      |      |
|--------|---------------------|------|------|------|------|------|------|------|------|------|------|------|
|        | 500                 | 600  | 700  | 800  | 900  | 1000 | 1100 | 1200 | 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 |  |

## TYPICAL PIPING AND WIRING

50VL-C



\*NEC - National Electrical Code

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

| MODEL SIZE | NOMINAL V-PH-HZ | VOLTAGE RANGE |     | COMPRESSOR |       | OFM | IFM | NOMINAL ELECTRIC HEAT | POWER SUPPLY |            |         |
|------------|-----------------|---------------|-----|------------|-------|-----|-----|-----------------------|--------------|------------|---------|
|            |                 | MIN           | MAX | RLA        | LRA   | FLA | FLA | kW                    | FLA          | MCA        | MOCP    |
| 24         | 208/230-1-60    | 197           | 253 | 8.7        | 46    | 0.6 | 3.8 | -/-                   | -/-          | 15.2       | 20      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 18.1/20.8    | 27.4/30.8  | 30/35   |
|            |                 |               |     |            |       |     |     | 5.4/7.2               | 25.9/30      | 37.1/42.3  | 40/45   |
|            |                 |               |     |            |       |     |     | 7.5/10                | 36.1/41.7    | 49.9/56.9  | 50/60   |
| 30         | 208/230-1-60    | 197           | 253 | 11.2       | 57    | 0.7 | 3.8 | -/-                   | -/-          | 18.5       | 25      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 18.1/20.8    | 27.4/30.8  | 30/35   |
|            |                 |               |     |            |       |     |     | 5.4/7.2               | 25.9/30      | 37.1/42.3  | 40/45   |
|            |                 |               |     |            |       |     |     | 7.5/10                | 36.1/41.7    | 49.9/56.9  | 50/60   |
| 36         | 208/230-1-60    | 197           | 253 | 16.7       | 79    | 1   | 5.4 | 11.3/15               | 54.2/62.5    | 72.5/82.9  | 80/90   |
|            |                 |               |     |            |       |     |     | -/-                   | -/-          | 27.4       | 40      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 18.1/20.8    | 29.4/32.8  | 40/40   |
|            |                 |               |     |            |       |     |     | 5.4/7.2               | 25.9/30      | 39.1/44.3  | 40/45   |
|            | 208/230-3-60    | 197           | 253 | 10.4       | 73    | 1   | 6   | 7.5/10                | 36.1/41.7    | 51.9/58.9  | 60/60   |
|            |                 |               |     |            |       |     |     | 11.3/15               | 54.2/62.5    | 74.5/84.9  | 80/90   |
|            |                 |               |     |            |       |     |     | -/-                   | -----        | 20.1       | 30      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 10.4/12      | 20.5/22.5  | 30/30   |
|            | 460-3-60        | 414           | 506 | 5.8        | 38    | 0.5 | 3.2 | 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   |
|            |                 |               |     |            |       |     |     | -/-                   | -/-          | 11         | 15      |
| 42         | 208/230-1-60    | 197           | 253 | 16.7       | 109   | 1   | 3.8 | 10                    | 12           | 19         | 20      |
|            |                 |               |     |            |       |     |     | 15                    | 18           | 26.5       | 30      |
|            |                 |               |     |            |       |     |     | -/-                   | -/-          | 25.8       | 40      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 18.1/20.8    | 27.4/30.8  | 40/40   |
|            | 208/230-3-60    | 197           | 253 | 11.2       | 88    | 1   | 4.1 | 5.4/7.2               | 25.9/30      | 37.1/42.3  | 40/45   |
|            |                 |               |     |            |       |     |     | 7.5/10                | 36.1/41.7    | 49.9/56.9  | 50/60   |
|            |                 |               |     |            |       |     |     | 11.3/15               | 54.2/62.5    | 72.5/82.9  | 80/90   |
|            |                 |               |     |            |       |     |     | 15/20                 | 72.2/83.3    | 95/108.9   | 100/110 |
|            | 460-3-60        | 414           | 506 | 5.6        | 44    | 0.5 | 3.2 | -/-                   | -----        | 19.2       | 30      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 10.4/12      | 19.2/20.1  | 30/30   |
|            |                 |               |     |            |       |     |     | 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   |
| 48         | 208/230-1-60    | 197           | 253 | 19.6       | 130   | 1   | 7.6 | 15/20                 | 41.4/47.9    | 56.9/65    | 60/70   |
|            |                 |               |     |            |       |     |     | -/-                   | -----        | 10.7       | 15      |
|            |                 |               |     |            |       |     |     | 10                    | 12           | 19         | 20      |
|            |                 |               |     |            |       |     |     | 15                    | 18           | 26.5       | 30      |
|            | 208/230-3-60    | 197           | 253 | 13.7       | 83.1  | 1   | 7.6 | 20                    | 24.1         | 34.1       | 35      |
|            |                 |               |     |            |       |     |     | -/-                   | -/-          | 33.2       | 50      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 18.1/20.8    | 33.2/35.5  | 50/50   |
|            |                 |               |     |            |       |     |     | 5.4/7.2               | 25.9/30      | 41.9/47    | 50/50   |
|            | 460-3-60        | 414           | 506 | 6.2        | 41    | 0.5 | 4   | 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 |
|            |                 |               |     |            |       |     |     | -/-                   | -----        | 25.8       | 35      |
| 60         | 208/230-1-60    | 197           | 253 | 23.7       | 152.5 | 1   | 7.6 | 3.8/5                 | 10.4/12      | 25.8       | 35/35   |
|            |                 |               |     |            |       |     |     | 5.4/7.2               | 20.8/24.1    | 35.5/39.6  | 40/40   |
|            |                 |               |     |            |       |     |     | 7.5/10                | 31.2/36.1    | 48.5/54.6  | 50/60   |
|            |                 |               |     |            |       |     |     | 11.3/15               | 41.4/47.9    | 61.3/69.4  | 70/70   |
|            | 208/230-3-60    | 197           | 253 | 15.9       | 110   | 1   | 7.6 | -/-                   | -/-          | 38.3       | 60      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 18.1/20.8    | 38.3       | 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   |
|            | 460-3-60        | 414           | 506 | 7.1        | 52    | 0.5 | 4   | 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 |
|            |                 |               |     |            |       |     |     | -/-                   | -----        | 28.6       | 40      |
|            |                 |               |     |            |       |     |     | 3.8/5                 | 10.4/12      | 28.6       | 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   |
|            |                 |               |     |            |       |     |     | 15/20                 | 41.4/47.9    | 61.3/69.4  | 70/70   |
|            |                 |               |     |            |       |     |     | -/-                   | -----        | 14.2       | 20      |
|            |                 |               |     |            |       |     |     | 10                    | 12           | 20         | 20      |
|            |                 |               |     |            |       |     |     | 15                    | 18           | 27.5       | 30      |
|            |                 |               |     |            |       |     |     | 20                    | 24.1         | 35.1       | 40      |

50VL-C

## ELECTRICAL DATA (CONT)

### 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

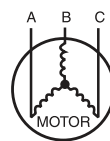
### NOTES:

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

$$\begin{aligned} \text{Average Voltage} &= \frac{228 + 231 + 227}{3} \\ &= \frac{686}{3} \\ &= 229 \end{aligned}$$

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

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{2}{229} \\ &= 0.8\% \end{aligned}$$

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

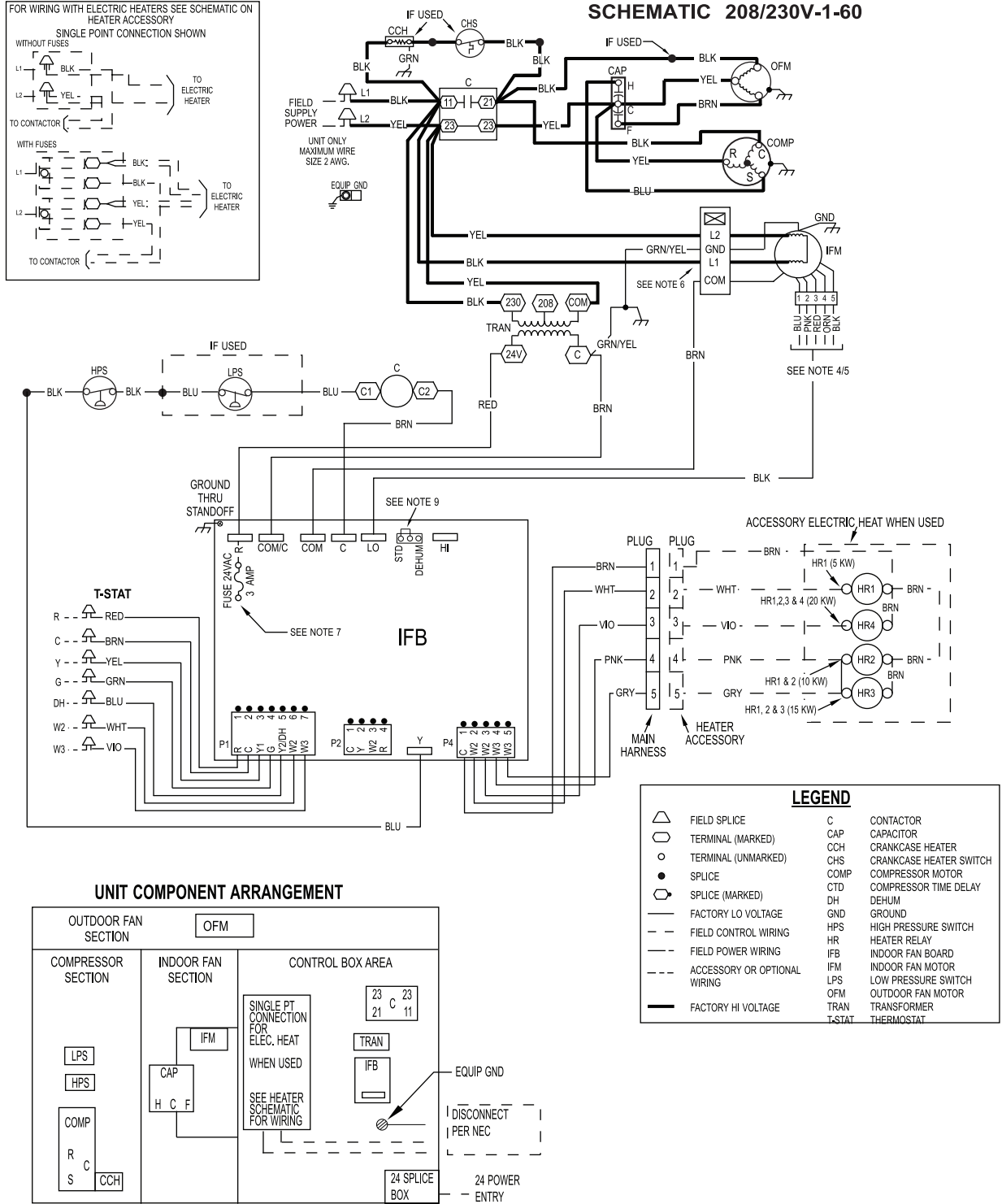
**IMPORTANT:** If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

A06564

## CONNECTION WIRING SCHEMATIC 208/230-1-60

## CONNECTION WIRING DIAGRAM

**DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING**



50VL-C

LADDER WIRING DIAGRAM

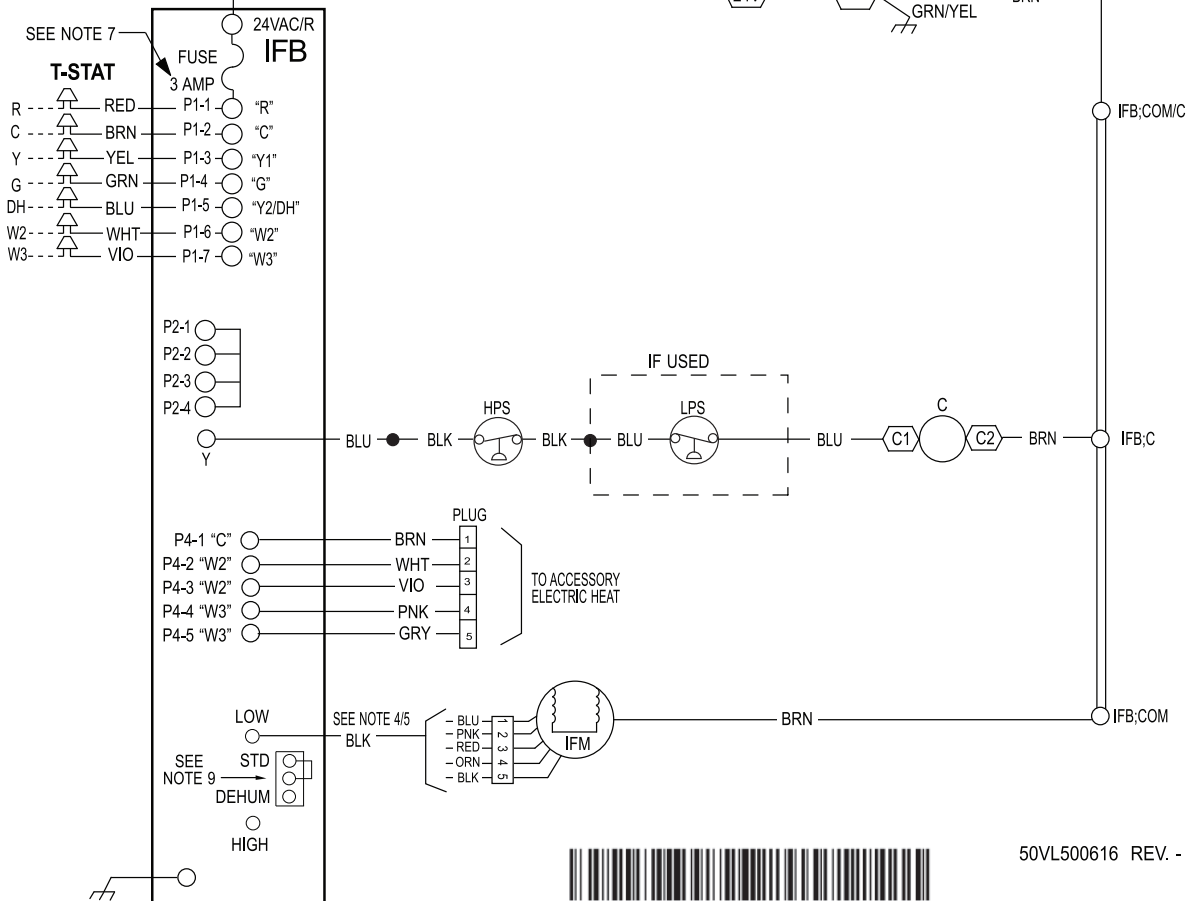
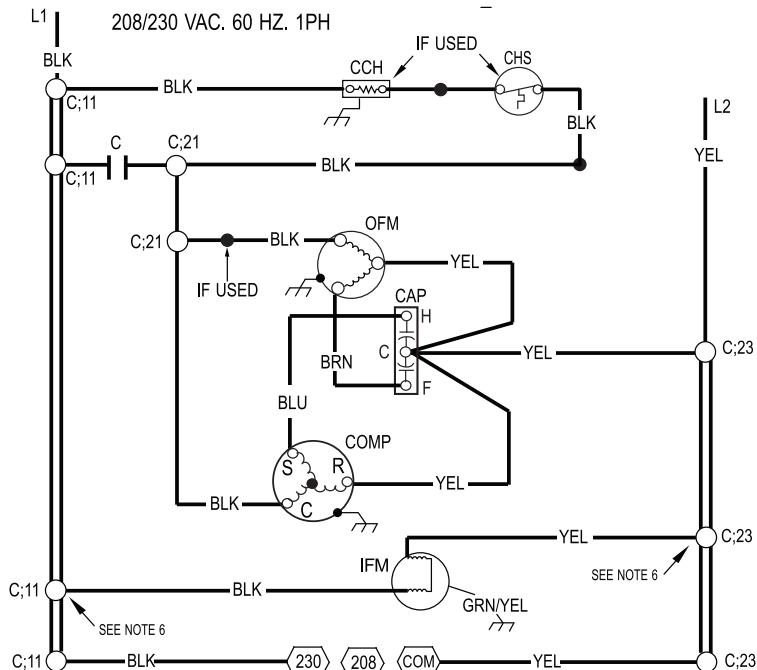
**DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING**

USE COPPER CONDUCTORS ONLY

FIELD SUPPLY

208/230 VAC. 60 HZ. 1PH

EQUIP GND



50VL500616 REV. -



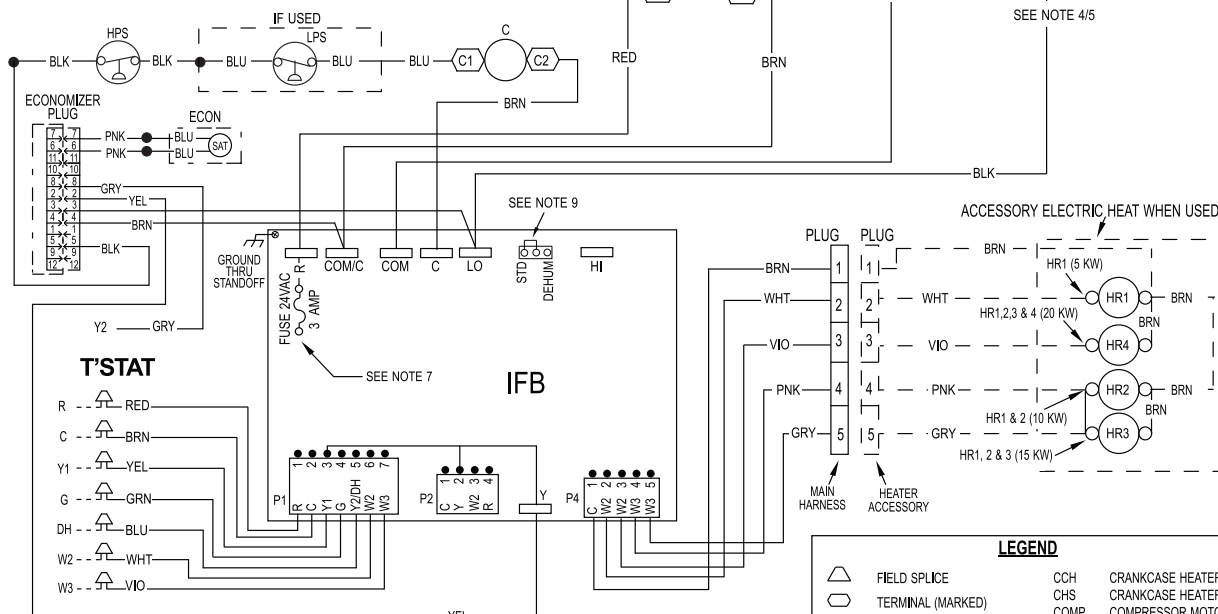
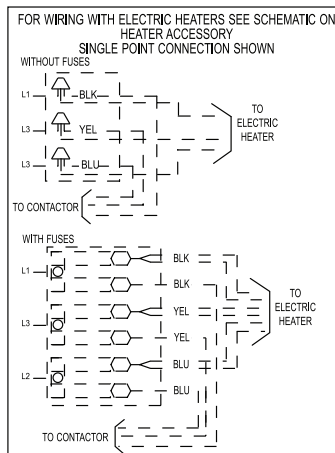
A150513

# CONNECTION WIRING SCHEMATIC 208/230-3-60

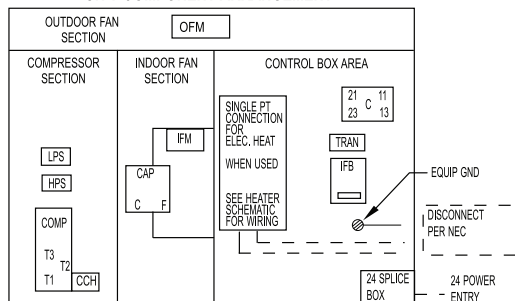
## CONNECTION WIRING DIAGRAM

**DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING**

## SCHEMATIC 208/230V-3-60



### UNIT COMPONENT ARRANGEMENT



| LEGEND |                              |
|--------|------------------------------|
|        | FIELD SPLICE                 |
|        | TERMINAL (MARKED)            |
|        | TERMINAL (UNMARKED)          |
|        | SPLICE                       |
|        | SPLICE (MARKED)              |
|        | FACTORY LO VOLTAGE           |
|        | FIELD CONTROL WIRING         |
|        | FIELD POWER WIRING           |
|        | ACCESSORY OR OPTIONAL WIRING |
|        | FACTORY HI VOLTAGE           |
|        | CONTACTOR                    |
|        | CAPACITOR                    |
|        | CRANKCASE HEATER             |
|        | CRANKCASE HEATER SWITCH      |
|        | COMPRESSOR MOTOR             |
|        | COMPRESSOR TIME DELAY        |
|        | DEHUMIDIFICATION MODE        |
|        | DEHUMIDIFICATION MODE        |
|        | ECONOMIZER                   |
|        | GROUND                       |
|        | HIGH PRESSURE SWITCH         |
|        | HEATER RELAY                 |
|        | INDOOR FAN BOARD             |
|        | INDOOR FAN MOTOR             |
|        | LOW PRESSURE SWITCH          |
|        | OUTDOOR FAN MOTOR            |
|        | STANDARD MODE                |
|        | TRANSFORMER                  |
|        | THERMOSTAT                   |

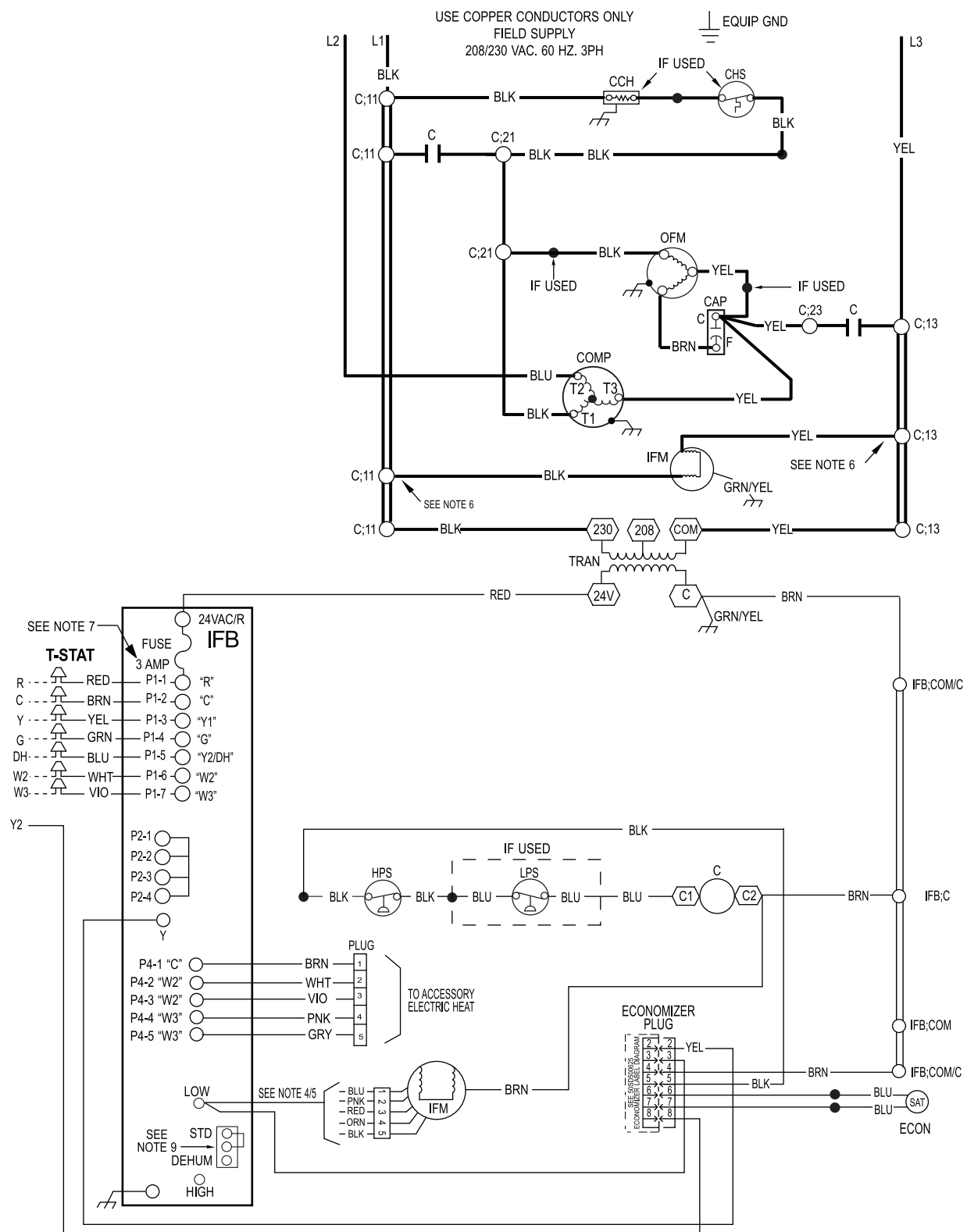
### NOTES:

- IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED IT MUST BE REPLACED WITH THE SAME OR IT'S EQUIVALENT.
- SEE PRE SALE LITERATURE FOR THERMOSTATS.
- USE 75 DEGREES C COPPER CONDUCTORS FOR FIELD INSTALLATION.
- REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT SPEED SELECTION FOR IFM.
- RELOCATION OF SPEED TAPS MAY BE REQUIRED WHEN USING FIELD INSTALLED ELECTRIC HEATERS. CONSULT INSTALLATION INSTRUCTIONS TO DETERMINE CORRECT SPEED TAP SETTING.
- "DO NOT DISCONNECT PLUG UNDER LOAD".
- THIS FUSE IS MANUFACTURED BY LITTLE FUSE, P/N 287003.
- N.E.C. CLASS 2, 24V.
- DEHUM FEATURE CANNOT BE USED WHEN ECONOMIZER IS INSTALLED.
- UNIT FACTORY - SHIPPED IN STD MODE.
- CCH NOT USED ON ALL UNITS.

A150504

50VL-C

**DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING**



50VL500617 REV. -



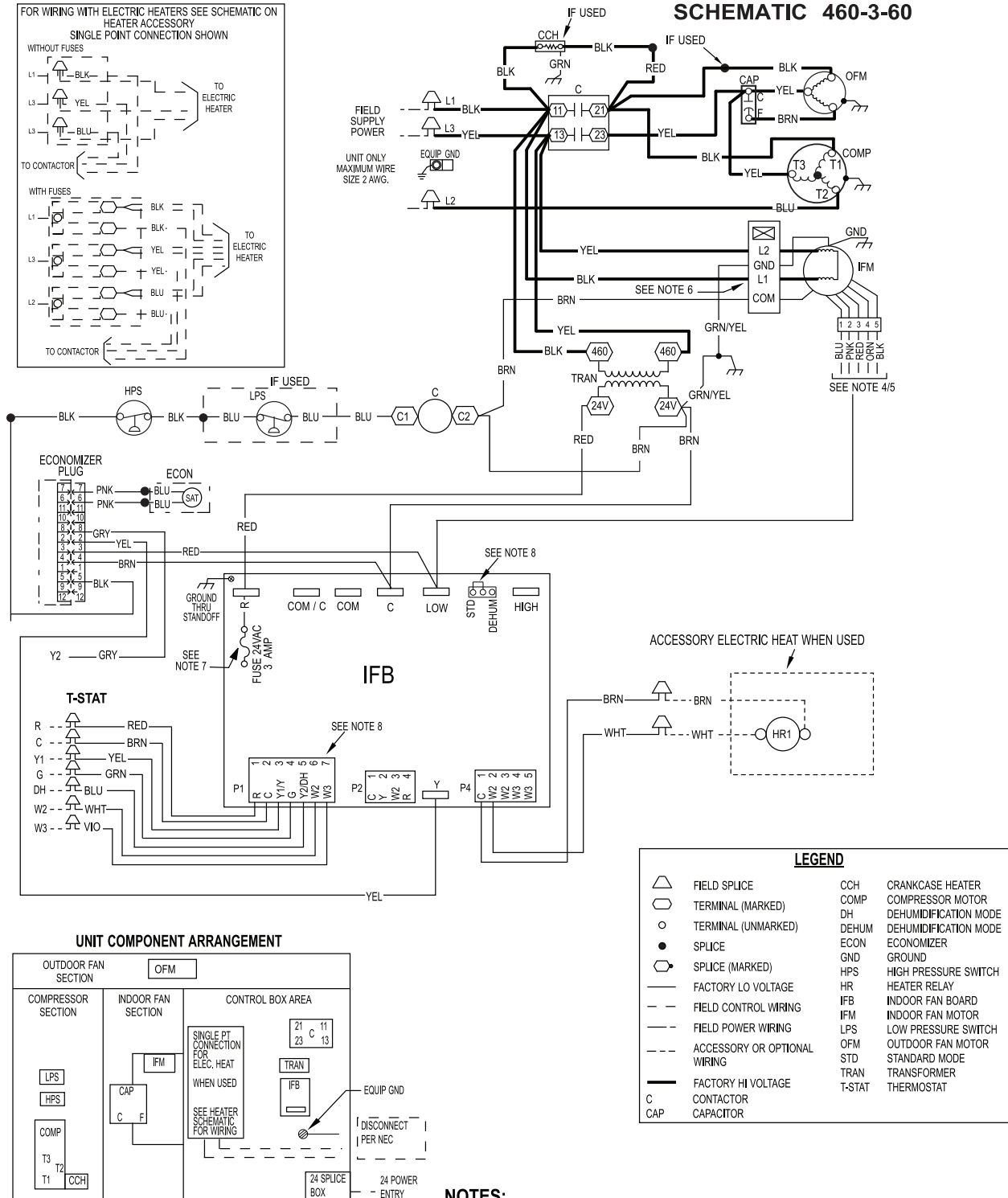
A150514

# CONNECTION WIRING SCHEMATIC 460-3-60

## CONNECTION WIRING DIAGRAM

**DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING**

## SCHEMATIC 460-3-60



### NOTES:

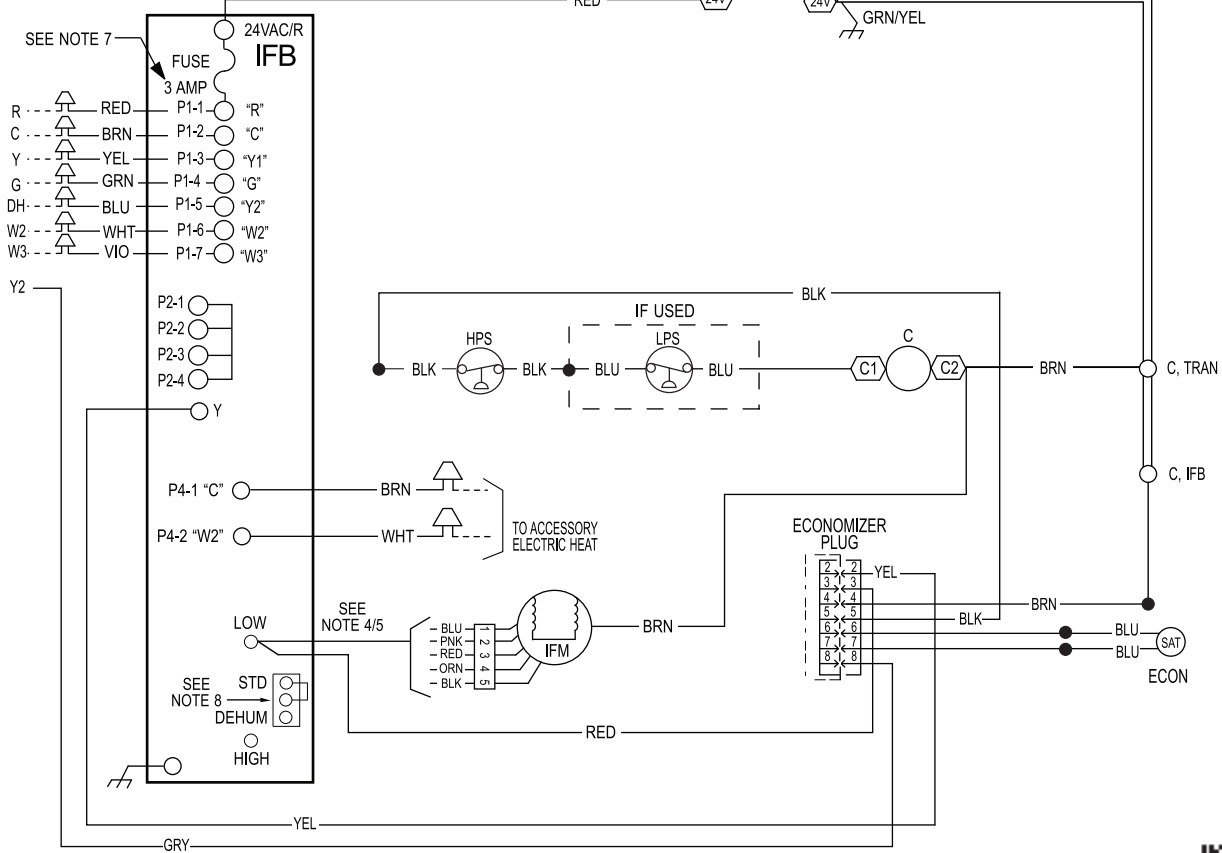
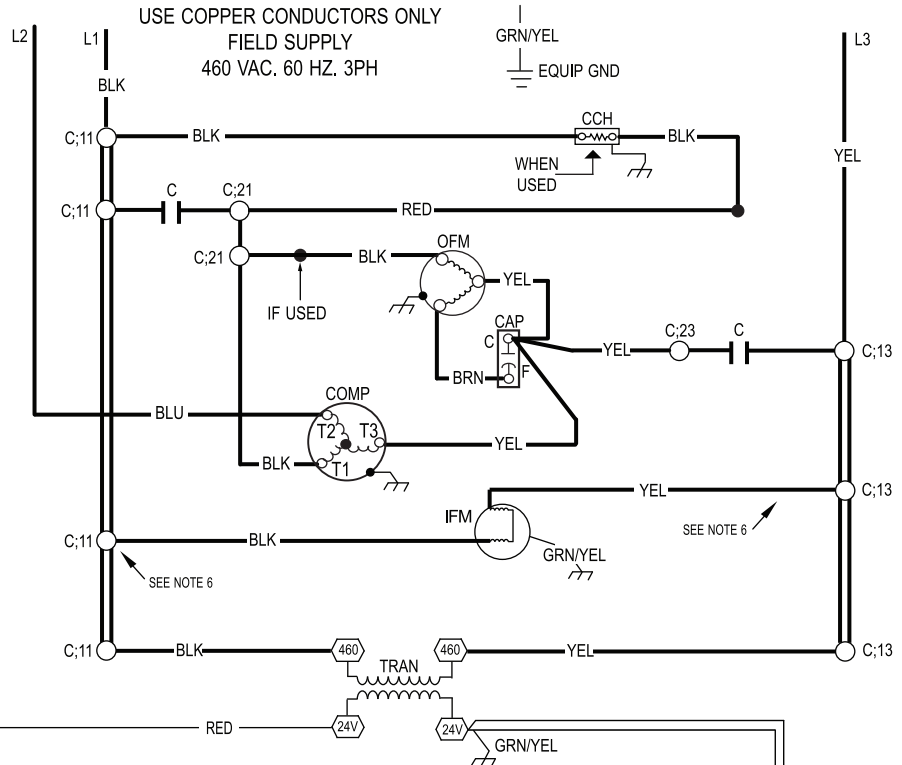
- IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED IT MUST BE REPLACED WITH THE SAME OR IT'S EQUIVALENT.
- SEE PRE SALE LITERATURE FOR THERMOSTATS.
- USE 75 DEGREES C COPPER CONDUCTORS FOR FIELD INSTALLATION.
- REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT SPEED SELECTION FOR IFM.
- RELOCATION OF SPEED TAPS MAY BE REQUIRED WHEN USING FIELD INSTALLED ELECTRIC HEATERS. CONSULT INSTALLATION INSTRUCTIONS TO DETERMINE CORRECT SPEED TAP SETTING.
- "DO NOT DISCONNECT PLUG UNDER LOAD".
- THIS FUSE IS MANUFACTURED BY LITTLE FUSE, P/N 287003.
- DEHUM FEATURE CANNOT BE USED WHEN ECONOMIZER IS INSTALLED.
- UNIT FACTORY - SHIPPED IN STD MODE.
- N.E.C. CLASS 2, 24V.
- CCH NOT USED ON ALL UNITS.

A150505

# LADDER WIRING SCHEMATIC 460-3-60

## LADDER WIRING DIAGRAM

**DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING**



50VL500619 REV. -

50VL500619 REV. -



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## 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 3 removable cabinet panels.
- 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.

##### 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) or fixed orifice 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 60-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)
  - 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.

## GUIDE SPECIFICATIONS (CONT)

6. Electric Heaters:
  - a. Electric heater shall be available 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 a field installed accessory.
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. Offered as a field installed accessory.
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.
14. Cabinet air leakage of 2.0% or less at .5 in. W.C. when tested in accordance with ASHRAE standard 193. Available as a factory installed option.
15. Louver Metal Outdoor Coil Grille  
Shall provide hail and vandalism protection. Available as a field installed accessory.
16. Low Pressure Switch  
Kit is designed for use when a low pressure control is desired. This kit provides added reliability for the compressor. Offered as a field installed accessory.





