

50ZHB
13 SEER Single Packaged Heat Pump System
with Puron® (R-410A) Refrigerant
Single Phase
2 to 5 Nominal Tons (024–060)



Product Data

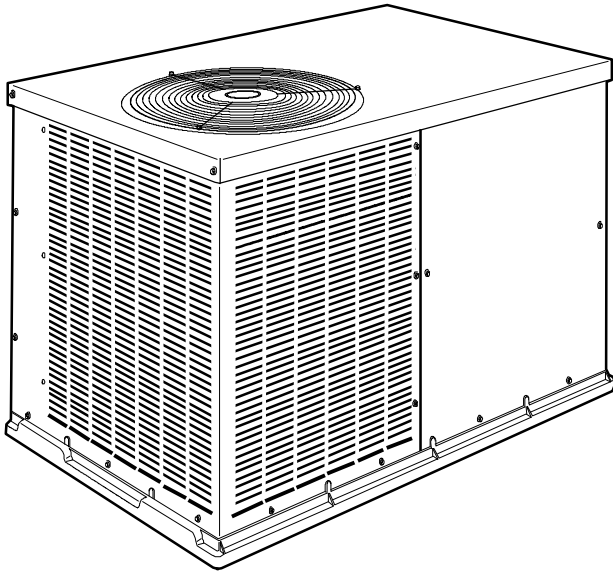


Fig. 1 - Unit 50ZHB

A10165

Single-Packaged Heat Pump Units with:

- easy installation design
- corrosion-proof unit base
- class leading sound ratings
- sloped drain for improved indoor air quality
- scroll compressors
- front and side service access
- louvered panel coil protection

FEATURES/BENEFITS

The 50ZHB unit is a packaged heat pump for manufactured housing, residential, and light commercial applications. Factory assembled package is a compact, horizontal supply and return unit, combining easy installation and maintenance with efficient performance.

EASY TO INSTALL—The 50ZHB units are lightweight, compact single package units that are easy to handle. Every size unit has an identical 32 by 51-in. (813 by 1295 mm) footprint to make job site planning simple. The efficient design uses less sheet metal and makes the 50ZHB units lighter than competitive units. The unit can be easily positioned on the job site with the hand-holds built into the unit basepan.

AERODYNAMIC FAN BLADE DESIGN reduces overall sound by up to 3dBA; low as 73dBA.

SERVICE ACCESS—The 50ZHB units are designed to be serviced from both front and side. Routine maintenance tasks, such as coil cleaning, are sped up with the multiple side panels design.

CORROSION PROOF UNIT BASE—The 50ZHB unit features a tough, high-tech, single-piece composite material unit base with an integrated drain. The composite material eliminates the potential problem of rust and premature replacement which are common with standard metal pans. Each 50ZHB unit base is sloped to eliminate standing water. This feature minimizes the amount of standing water inside the unit, which limits mold and mildew growth.

DURABLE STEEL CABINET—The watertight construction and corrosion-resistant finish of the 50ZHB unit will keep it looking like new for years. A specialized paint treatment process ensures quality protection against the elements. A compact, low-profile design utilizes a louvered coil enclosure for maximum protection against hail damage and vandalism.

SCROLL COMPRESSORS—Each 50ZHB unit comes standard with a scroll compressor. Each scroll compressor is hermetically sealed against contamination to help promote longer life and dependable operation. All scroll compressors have internal high-pressure and overcurrent protection.

COIL EFFICIENCY—Indoor and outdoor coils are computer designed for optimum heat transfer and cooling efficiency.

DEFROST SYSTEM—The system provides time/temperature-based defrost cycles to maintain unit efficiency. This highly reliable system monitors coil temperature and initiates a defrost cycle only if it is required. The defrost cycle ends as soon as defrosting is complete.

ACCESSORY ELECTRIC HEATERS—A variety of accessory electric heaters are available for the 50ZHB units. These heaters are comprised of a separate heater module mounted on the blower inlet and remote mounted controls located in the unit control box. Single point electrical connections are provided for powering both the heater and the unit.

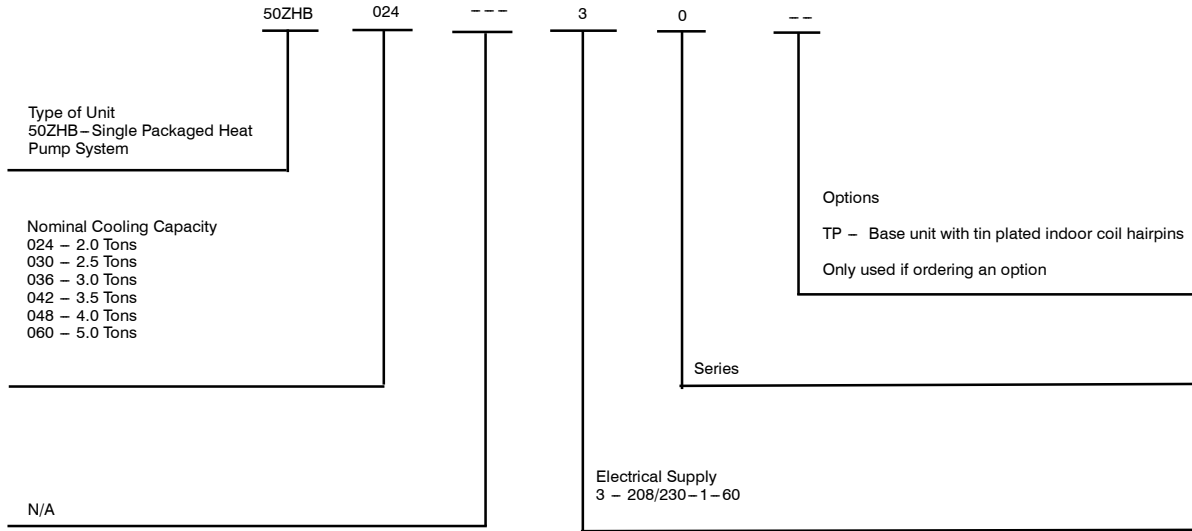
START COLLARS—Start collars are provided with each unit to provide easy connection to the structure ductwork.

DEPENDABLE COMPONENTS—Direct-drive, multi-speed blower motor is standard on all models.

DIRECT-DRIVE, PSC OUTDOOR-FAN MOTORS are designed to help reduce energy consumption and provide for cooling operation down to 40°F (4.4°C). It's high efficiency design ensures high performance with most duct systems.

REFRIGERANT SYSTEM is designed to provide dependability. Liquid refrigerant filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge and is fully run tested. Refrigerant service connections make checking operating pressure easier.

MODEL NUMBER NOMENCLATURE



50ZHB

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AHRI* CAPACITIES

Cooling Capacities and Efficiencies

| UNIT 50ZHB | NOMINAL TONS | STANDARD CFM | NET COOLING CAPACITY AT 95° F (35° C) (Btuh) | EER† | SEER** |
|------------|--------------|--------------|--|-------|--------|
| 024 | 2 | 800 | 24,000 | 11.50 | 13.50 |
| 030 | 2.5 | 1000 | 28,800 | 11.50 | 13.50 |
| 036 | 3 | 1200 | 36,000 | 11.50 | 13.50 |
| 042 | 3.5 | 1400 | 41,500 | 11.50 | 13.50 |
| 048 | 4 | 1600 | 46,500 | 11.50 | 13.50 |
| 060 | 5 | 1750 | 55,000 | 11.00 | 13.00 |

Heat Pump Heating Capacities and Efficiencies

| UNIT 50ZHB | NET HEATING CAPACITY AT 47° F (8.3° C) (Btuh) | COP @ 17° F (-8.3° C) | NET HEATING CAPACITY AT 17° F (-8.3° C) (Btuh) | COP @ 17° F (-8.3° C) | HSPF** |
|------------|---|-----------------------|--|-----------------------|--------|
| 024 | 23,800 | 3.7 | 13,200 | 2.3 | 7.7 |
| 030 | 28,600 | 3.7 | 15,600 | 2.3 | 7.7 |
| 036 | 34,400 | 3.5 | 18,800 | 2.2 | 7.7 |
| 042 | 41,000 | 3.6 | 23,200 | 2.3 | 7.7 |
| 048 | 46,500 | 3.6 | 27,000 | 2.3 | 7.7 |
| 060 | 55,000 | 3.4 | 31,800 | 2.2 | 7.7 |

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.

50ZHB



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.



A-Weighted Sound Power Level (dBA)

| UNIT 50ZHB | STANDARD RATING (dBA) | TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment) | | | | | | |
|------------|-----------------------|--|------|------|------|------|------|------|
| | | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 024 | 73 | 61 | 63.5 | 68 | 65.5 | 59 | 52 | 46 |
| 030 | 74 | 65.5 | 63 | 65 | 64.5 | 61 | 56.5 | 53.5 |
| 036 | 75 | 64.5 | 68.5 | 69.5 | 69 | 64.5 | 59 | 51.5 |
| 042 | 77 | 70.5 | 67 | 72 | 70.5 | 65 | 60 | 51.5 |
| 048 | 76 | 68.5 | 70 | 70 | 70 | 65.5 | 60.5 | 53.5 |
| 060 | 79 | 66 | 71.5 | 72.5 | 74 | 70.5 | 65.5 | 57.5 |

PHYSICAL DATA

| UNIT SIZE | 024 | 030 | 036 | 042 | 048 | 060 |
|--------------------------------------|------------|------------|------------|------------|------------|------------|
| NOMINAL CAPACITY (ton) | 2 | 2.5 | 3 | 3.5 | 4 | 5 |
| SHIPPING WEIGHT (lb) | 312 | 314 | 334 | 388 | 407 | 420 |
| (kg) | 142 | 143 | 152 | 177 | 185 | 191 |
| COMPRESSOR TYPE | SCROLL | | | | | |
| REFRIGERANT | R-410A | | | | | |
| REFRIGERANT QUANTITY (lb) | 5.50 | 6.70 | 5.85 | 7.00 | 7.50 | 8.50 |
| QUANTITY (kg) | 2.49 | 3.04 | 2.65 | 3.18 | 3.40 | 3.86 |
| OUTDOOR METERING DEVICE | Piston | | | | | |
| ORIFICE OD (in.) | 0.049 | 0.049 | 0.057 | 0.061 | 0.067 | 0.073 |
| (mm) | 1.245 | 1.245 | 1.448 | 1.549 | 1.702 | 1.854 |
| OUTDOOR COIL | | | | | | |
| ROWS...FINS/in. | 2...20 | 2...20 | 2...20 | 2...20 | 2...20 | 2...20 |
| FACE AREA (sq. ft) | 9.1 | 9.1 | 10.2 | 13.0 | 15.5 | 15.5 |
| OUTDOOR FAN | | | | | | |
| NOMINAL AIRFLOW (cfm) | 2000 | 2000 | 2800 | 3100 | 2900 | 3200 |
| DIAMETER (in.) | 20 | 20 | 20 | 20 | 20 | 20 |
| DIAMETER (mm) | 508 | 508 | 508 | 508 | 508 | 508 |
| MOTOR HP (RPM) | 1/8 (825) | 1/8 (825) | 1/4 (1100) | 1/4 (1100) | 1/4 (1100) | 1/3 (1110) |
| INDOOR METERING DEVICE | Piston | | | | | TXV |
| ORIFICE OD (in.) | 0.059 | 0.059 | 0.067 | 0.073 | 0.080 | N/A |
| (mm) | 1.499 | 1.499 | 1.702 | 1.854 | 2.032 | |
| INDOOR COIL | | | | | | |
| ROWS...FINS/in. | 3...12 | 3...12 | 3...12 | 3...12 | 3...12 | 3...12 |
| FACE AREA (sq. ft) | 4.3 | 4.3 | 4.9 | 4.9 | 4.9 | 6.1 |
| INDOOR BLOWER | | | | | | |
| NOMINAL COOLING AIRFLOW (cfm) | 800 | 1000 | 1200 | 1400 | 1600 | 1750 |
| NOMINAL SIZE D x L (in.) | 10 x 8 | 10 x 8 | 11 x 9 | 11 x 9 | 11 x 10 | 11 x 10 |
| (mm) | 254 x 203 | 254 x 203 | 279 x 229 | 279 x 229 | 279 x 254 | 279 x 254 |
| MOTOR (HP) | 1/3 | 1/3 | 1/2 | 1/2 | 3/4 | 1 |
| HIGH-PRESSURE SWITCH (psig) | | | | | | |
| CUTOUT | 650 +/- 15 | | | | | |
| RESET (AUTO) | 420 +/- 25 | | | | | |
| LOW-PRESSURE SWITCH (psig) | | | | | | |
| CUTOUT | 20 +/- 5 | | | | | |
| RESET (AUTO) | 45 +/- 10 | | | | | |
| RETURN-AIR FILTERS | | | | | | |
| THROWAWAY (in.) | 20x20x1 | 20x24x1 | 24x30x1 | 24x36x1 | | |
| (mm) | 508x508x25 | 508x610x25 | 610x762x25 | 610x914x25 | | |

*Required filter sizes shown are based on the AHRI (Air Conditioning Heating & Refrigeration Institute) rated airflow at a velocity of 300 ft/min (91 m) for throw-away type or 450 ft/min (137 m) for high capacity type. Recommended filters are 1–in. (25 mm) thick.

50ZHB

OPTIONS AND ACCESSORIES

| ITEM | DESCRIPTION | FACTORY INSTALLED OPTION | FIELD INSTALLED 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. | | 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* |
| Electric Heaters | Electric Heat Supplement | | 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 |
| 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. | | X |

Refer to Price Pages for available accessories.

Accessory Electric Heater Usage

| CATALOG ORDERING NO. | NOMINAL CAPACITY (kW) | CIRCUIT BREAKER (Yes/No) | STAGES | USED WITH SIZES | | | | | |
|----------------------|-----------------------|--------------------------|--------|-----------------|-----|-----|-----|-----|-----|
| | | | | 024 | 030 | 036 | 042 | 048 | 060 |
| CPHEATER125A00 | 3.8 / 5.0 | No | 1 | √ | √ | √ | √ | | |
| CPHEATER126A00 | 3.8 / 5.0 | Yes | 1 | √ | √ | √ | √ | √ | √ |
| CPHEATER127A00 | 5.6 / 7.5 | No | 2 | √ | | | | | |
| CPHEATER128A00 | 5.6 / 7.5 | Yes | 2 | √ | √ | √ | √ | √ | √ |
| CPHEATER129A00 | 7.5 / 10.0 | No | 2 | NONE | | | | | |
| CPHEATER130A00 | 7.5 / 10.0 | Yes | 2 | √ | √ | √ | √ | √ | √ |
| CPHEATER131A00 | 11.3 / 15.0 | Yes | 2 | | | √ | √ | √ | √ |
| CPHEATER132A00 | 15.0 / 20.0 | Yes | 2 | | | | | √ | √ |

√ Approved combination

Multiplication Factors

| HEATER kW RATING | VOLTAGE DISTRIBUTION | MULTIPLICATION FACTOR |
|------------------|----------------------|-----------------------|
| 240 | 200 | .69 |
| | 208 | .75 |
| | 230 | .92 |
| | 240 | 1.00 |

Example: 15.0 kW (at 240v) heater on 208v
 = 15.0 (.75 mult factor)
 = 11.25 capacity at 208v

50ZHB

BASE UNIT DIMENSIONS—50ZHB024-036

50ZHB

| UNIT | ELECTRICAL CHARACTERISTICS | | UNIT HEIGHT | | | | CENTER OF GRAVITY IN (MM) | | | |
|---------------|----------------------------|-----|--------------|----------|----------|----------|---------------------------|----------|----------|--|
| | LBS. | KG. | A | X | Y | Z | X | Y | Z | |
| 50ZHB024---30 | 263 | 120 | 30-1/8 (765) | 14 (356) | 19 (483) | 14 (356) | 19 (483) | 14 (356) | 14 (356) | |
| 50ZHB030---30 | 264 | 120 | 30-1/8 (765) | 14 (356) | 19 (483) | 14 (356) | 19 (483) | 14 (356) | 14 (356) | |
| 50ZHB036---30 | 285 | 130 | 34-1/8 (867) | 14 (356) | 19 (483) | 16 (406) | 19 (483) | 16 (406) | 16 (406) | |

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

TOP OF UNIT..... INCHES (MM) 0
 BOTTOM OF UNIT..... INCHES (MM) 0
 SIDE OF UNIT WITH DUCT OPENINGS..... INCHES (MM) 0
 SIDE OF UNIT OPPOSITE DUCT OPENINGS..... INCHES (MM) 0

NEC. REQUIRED CLEARANCES.

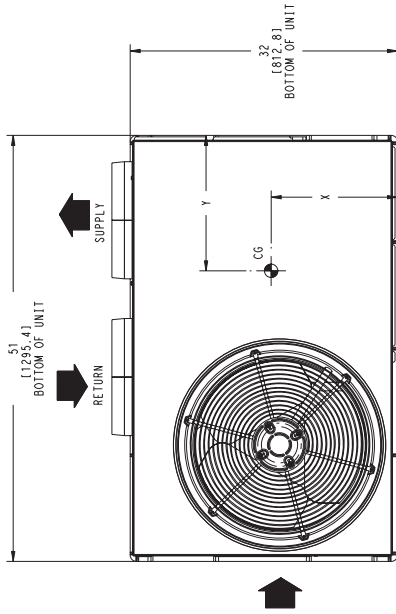
BETWEEN UNITS, POWER ENTRY SIDE..... INCHES (MM) 42.0 (1067)
 UNIT AND UNGROUND SURFACES, POWER ENTRY SIDE..... INCHES (MM) 36.0 (914)
 UNITS, POWER ENTRY SIDE, AND OTHER UNITS, POWER ENTRY SIDE..... INCHES (MM) 42.0 (1067)
 UNITS, POWER ENTRY SIDE, AND OTHER UNITS, POWER ENTRY SIDE..... INCHES (MM) 42.0 (1067)

REQUIRED CLEARANCE FOR SERVICING

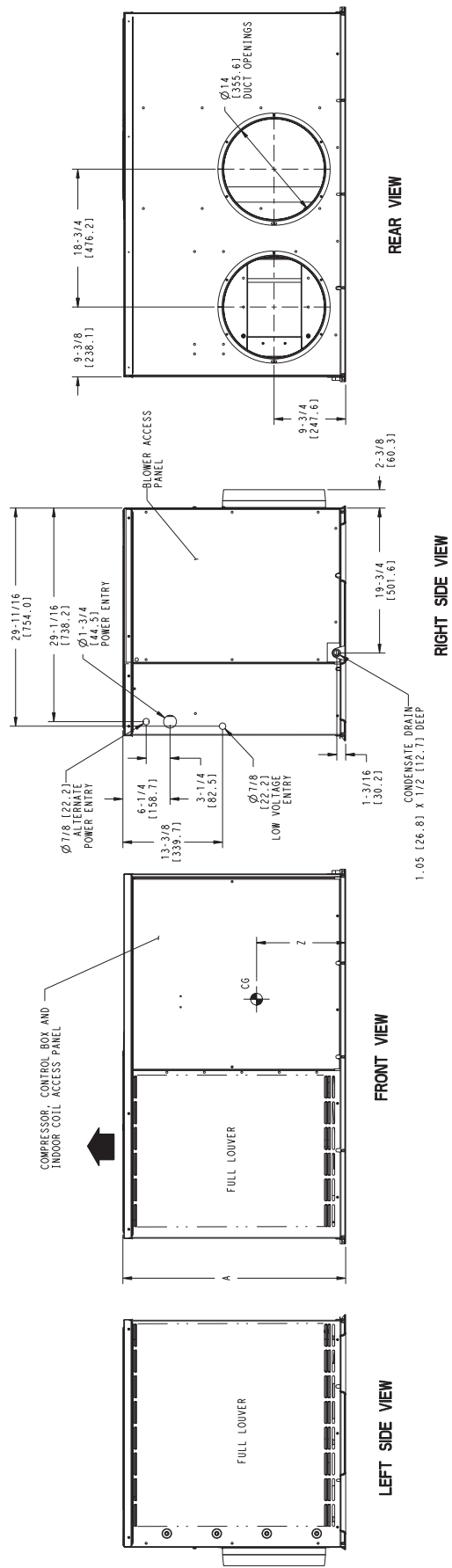
TOP OF UNIT..... INCHES (MM) 30.0 (762)
 SIDE OF UNIT OPPOSITE DUCT OPENINGS..... INCHES (MM) 30.0 (762)
 SIDE OF UNIT WITH POWER ENTRY..... INCHES (MM) 30.0 (762)
 (EXCEPT FOR NEC REQUIREMENTS)

NOTE: CLEARANCES MUST BE MAINTAINED TO PREVENT RECIRCULATION OF AIR FROM OUTDOOR FAN DISCHARGE. A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.

DIMENSIONS IN () ARE IN MM



TOP VIEW



FRONT VIEW

LEFT SIDE VIEW

RIGHT SIDE VIEW

REAR VIEW

50ZH500516 REV A

BASE UNIT DIMENSIONS—50ZHB042-060

| UNIT | ELECTRICAL CHARACTERISTICS | | UNIT HEIGHT | | | CENTER OF GRAVITY IN [MM] | | |
|-----------------|----------------------------|-----|---------------|----------|----------|---------------------------|--|--|
| | LBS. | KG. | A | X | Y | Z | | |
| 50ZHB042-...-30 | 339 | 154 | 42-1/8 [1070] | 14 [356] | 19 [483] | 19-3/4 [503] | | |
| 50ZHB048-...-30 | 358 | 163 | 42-1/8 [1070] | 14 [356] | 19 [483] | 19-3/4 [503] | | |
| 50ZHB060-...-30 | 371 | 169 | 42-1/8 [1070] | 14 [356] | 19 [483] | 19-3/4 [503] | | |

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

TOP OF UNIT..... INCHES (MM) 0
 BOTTOM OF UNIT..... INCHES (MM) 0
 SIDE OF UNIT WITH DUCT OPENINGS..... INCHES (MM) 0
 SIDE OF UNIT OPPOSITE DUCT OPENINGS..... INCHES (MM) 0

NEC. REQUIRED CLEARANCES.

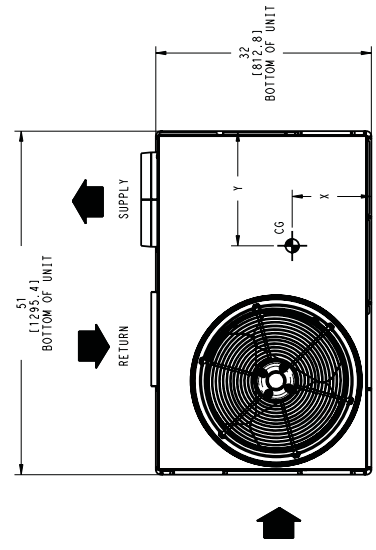
BETWEEN UNITS, POWER ENTRY SIDE..... INCHES (MM) 42.0 (1067)
 AND OPPOSITE SIDE..... INCHES (MM) 42.0 (1067)
 UNIT AND BLOCK OF CONCRETE WALLS AND OTHER
 GROUNDED SURFACES, POWER ENTRY SIDE..... INCHES (MM) 42.0 (1067)

REQUIRED CLEARANCE FOR SERVICING

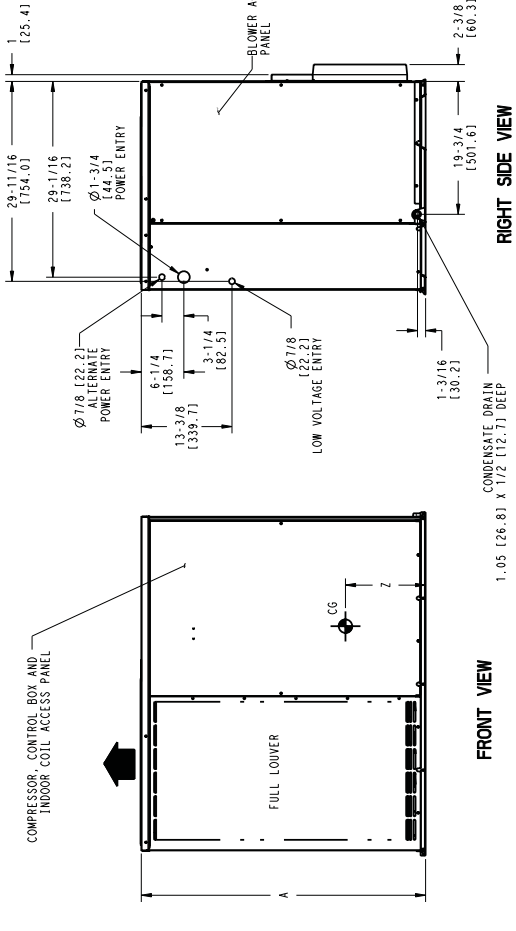
TOP OF UNIT..... INCHES (MM) 36.0 (914)
 SIDE OF UNIT, OPPOSITE DUCT OPENINGS..... INCHES (MM) 30.0 (762)
 SIDE OF UNIT WITH POWER ENTRY..... INCHES (MM) 30.0 (762)
 (EXCEPT FOR NEC REQUIREMENTS)

NOTE: CLEARANCES MUST BE MAINTAINED TO PREVENT RECIRCULATION OF AIR FROM OUTDOOR FAN DISCHARGE. A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.

DIMENSIONS IN [] ARE IN MM

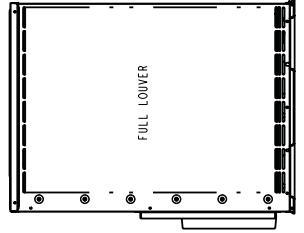


TOP VIEW

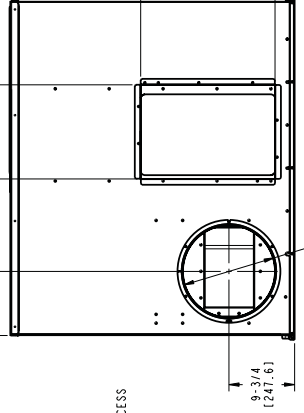


FRONT VIEW

RIGHT SIDE VIEW



LEFT SIDE VIEW



REAR VIEW

| | |
|-------------|----------|
| 50ZHB000473 | REV A |
|-------------|----------|

50ZHB

SELECTION PROCEDURE

I. DETERMINE COOLING AND HEATING REQUIREMENTS AT DESIGN CONDITIONS

Given:

- Required Cooling Capacity (TC) 28,000 Btuh
- Sensible Heat Capacity (SHC) 20,500 Btuh
- Required Heating Capacity 28,550 Btuh
- Outdoor Entering-Air Temperature 95°F (35°C)
- Outdoor-Air Winter Design Temperature 20°F (-6.7°C)
- Indoor-Air Winter Design Temperature 70°F (21.1°C)
- Indoor Entering-Air Temperature 80°F (26.7°C) edb, 67°F ewb (19.4°C)
- Indoor-Air Quantity 1000 CFM
- External Static Pressure 0.20 IN. W.C.
- Electrical Characteristics (V-Ph-Hz) 230-1-60 edb — entering dry bulb
ewb — entering wet bulb

II. SELECT UNIT BASED ON REQUIRED COOLING CAPACITY

Enter Cooling Capacities table at condenser entering temperature of 95°F (35°C), indoor air entering at 1000 cfm and 67°F (19.4°C) ewb (entering wet bulb). The 50ZHB030 unit will provide a total cooling capacity of 28,800 Btuh and a sensible heat capacity of 21,600 Btuh.

For indoor-air temperature other than 80°F edb (entering dry bulb), calculate sensible heat capacity correction, as required, using the formula found in Note 3 following the cooling capacities tables.

NOTE: Unit ratings are net capacities.

III. SELECT ELECTRIC HEAT

Enter the 50ZHB030 Heating Capacities table at 1000 CFM. At 70°F (21.1°C) return indoor air and 20°F (-6.7°C) air entering outdoor coil, the integrated heating capacity is 16,740 Btuh. (Select integrated heating capacity value since deductions for outdoor-coil frost and defrosting have already been made. No correction is required.)

The required heating capacity is 28,550 Btuh. Therefore, 11,810 Btuh (28,550 - 16,740) additional electric heat is required.

Determine additional electric heat capacity in kW.

$$\frac{11,810 \text{ Btuh}}{3414 \text{ Btuh/kW}} = 3.46 \text{ kW of heat required}$$

Enter the Accessory Electric Heater Usage table on page 4 for 208/240v. single-phase, 50ZHB030 unit. The 5-kW heater at 240v most closely satisfies the heating required. To calculate kW at 230v, multiply the heater kW by multiplication factor 0.92 found in the Multiplication Factors table on page 4.

$$5 \text{ kW} \times 0.92 = 4.6 \text{ kW}$$

$$4.6 \times 3414 = 15,704 \text{ Btuh}$$

To calculate kW at 208 v, see Multiplication Factors table on page 4.

Total unit heating capacity is 32,444 Btuh (16,740 +15,704).

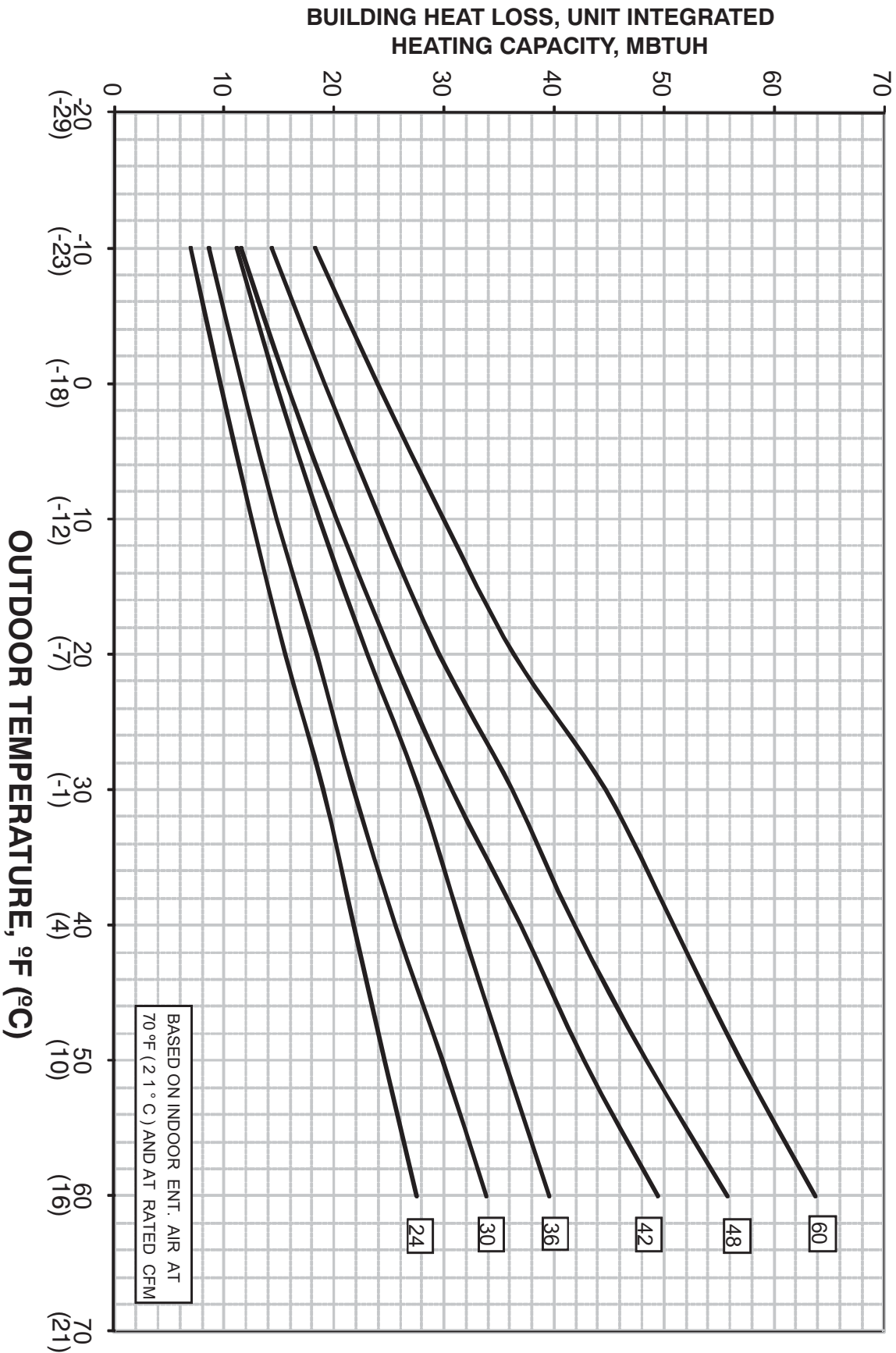
IV. DETERMINE FAN SPEED AND POWER REQUIREMENTS AT DESIGN CONDITIONS

Before entering the air delivery tables, calculate the total static pressure required. From the given, the Accessory Electric Heat Pressure Drop table, and the Filter Pressure Drop table, find:

| | |
|--------------------------|----------------------|
| External static pressure | 0.20 IN. W.C. |
| Filter | 0.09 IN. W.C. |
| Electric heat | <u>0.04</u> IN. W.C. |
| Total static pressure | 0.33 IN. W.C. |

Enter the table for Dry Coil Air Delivery — Horizontal Discharge at 1000 CFM and 230v high speed. The blower will deliver 1036 CFM @ 0.40 IN W.C. static pressure. This will adequately handle job requirements.

BALANCE POINT WORKSHEET



**PERFORMANCE DATA
COOLING CAPACITY
50ZHB024**

| EVAPORATOR AIR | | CONDENSER ENTERING AIR TEMPERATURES °F (°C) | | | | | | | | | | | | | | | | | |
|----------------|----------|---|-------------|----------------|---------|--------------|----------------|---------|--------------|----------------|----------|--------------|----------------|----------|--------------|----------------|----------|--------------|------|
| | | 75 (24) | | | 85 (29) | | | 95 (35) | | | 105 (41) | | | 115 (46) | | | 125 (52) | | |
| | | CFM / BF | EWB °F (°C) | Capacity MBtuh | | Total Sys KW | Capacity MBtuh | | Total Sys KW | Capacity MBtuh | | Total Sys KW | Capacity MBtuh | | Total Sys KW | Capacity MBtuh | | Total Sys KW | |
| Total | Sens | | | Total | Sens | | Total | Sens | | Total | Sens | | Total | Sens | | | | | |
| 700 / 0.08 | 57 (14) | 22.96 | 22.96 | 1.61 | 22.41 | 22.41 | 1.82 | 21.85 | 21.85 | 2.05 | 20.67 | 20.67 | 2.30 | 19.14 | 19.14 | 2.58 | 17.50 | 17.50 | 2.90 |
| | 62 (17) | 23.69 | 21.83 | 1.61 | 22.96 | 21.68 | 1.82 | 22.18 | 21.56 | 2.06 | 20.80 | 21.27 | 2.30 | 19.18 | 19.18 | 2.58 | 17.53 | 17.53 | 2.90 |
| | 63* (17) | 24.01 | 17.90 | 1.62 | 23.29 | 17.65 | 1.83 | 22.50 | 17.48 | 2.06 | 21.20 | 17.16 | 2.30 | 19.18 | 16.18 | 2.58 | 16.93 | 15.19 | 2.89 |
| 800 / 0.10 | 67 (19) | 25.13 | 17.88 | 1.62 | 24.56 | 17.79 | 1.84 | 23.72 | 17.60 | 2.07 | 22.89 | 17.60 | 2.33 | 21.31 | 19.11 | 2.61 | 19.11 | 16.34 | 2.91 |
| | 72 (22) | 26.32 | 14.26 | 1.63 | 25.98 | 14.21 | 1.85 | 25.12 | 13.86 | 2.09 | 24.29 | 13.62 | 2.35 | 23.47 | 13.52 | 2.64 | 21.77 | 13.02 | 2.96 |
| | 57 (14) | 23.63 | 23.63 | 1.63 | 23.07 | 23.07 | 1.84 | 22.46 | 22.46 | 2.07 | 21.68 | 21.68 | 2.33 | 20.19 | 20.19 | 2.61 | 18.49 | 18.49 | 2.92 |
| 900 / 0.11 | 62 (17) | 24.06 | 22.94 | 1.63 | 23.37 | 22.84 | 1.84 | 22.60 | 22.82 | 2.07 | 21.71 | 21.71 | 2.33 | 20.22 | 20.22 | 2.61 | 18.53 | 18.53 | 2.92 |
| | 63 (17) | 24.35 | 18.61 | 1.63 | 23.64 | 18.46 | 1.84 | 22.84 | 18.37 | 2.08 | 21.72 | 18.34 | 2.33 | 19.71 | 17.50 | 2.60 | 17.41 | 16.44 | 2.91 |
| | 67 (19) | 25.41 | 18.51 | 1.64 | 24.88 | 18.54 | 1.86 | 24.00 | 18.38 | 2.09 | 23.13 | 18.35 | 2.35 | 21.77 | 18.42 | 2.63 | 19.57 | 17.63 | 2.93 |
| 50ZHB024 | 72 (22) | 26.54 | 14.57 | 1.65 | 26.23 | 14.57 | 1.87 | 25.38 | 14.26 | 2.10 | 24.52 | 14.04 | 2.36 | 23.60 | 13.86 | 2.66 | 22.15 | 13.70 | 2.94 |
| | 57 (14) | 24.11 | 23.60 | 1.64 | 23.60 | 23.60 | 1.86 | 22.95 | 22.95 | 2.09 | 22.34 | 22.34 | 2.35 | 21.00 | 21.00 | 2.63 | 19.26 | 19.26 | 2.94 |
| | 62 (17) | 24.35 | 23.89 | 1.65 | 23.70 | 23.84 | 1.86 | 22.96 | 22.96 | 2.09 | 22.37 | 22.37 | 2.35 | 21.03 | 21.03 | 2.63 | 19.29 | 19.29 | 2.95 |
| 50ZHB024 | 63 (17) | 24.59 | 19.25 | 1.65 | 23.92 | 19.21 | 1.86 | 23.08 | 19.15 | 2.09 | 22.09 | 19.38 | 2.34 | 20.12 | 18.68 | 2.62 | 17.82 | 17.62 | 2.93 |
| | 67 (19) | 25.62 | 19.06 | 1.66 | 25.12 | 19.22 | 1.87 | 24.22 | 19.09 | 2.10 | 23.35 | 19.14 | 2.36 | 22.12 | 19.49 | 2.65 | 19.95 | 18.82 | 2.96 |
| | 72 (22) | 26.70 | 14.83 | 1.66 | 26.39 | 14.85 | 1.89 | 25.57 | 14.60 | 2.12 | 24.68 | 14.39 | 2.38 | 23.72 | 14.27 | 2.67 | 22.41 | 14.30 | 3.00 |

See page 16 for cooling notes.

**HEATING CAPACITY
50ZHB024**

| INDOOR AIR | | OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C) | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-------|--|------|----------------|---------|--------------|----------------|----------|--------------|----------------|---------|--------------|----------------|---------|--------------|----------------|--------|--------------|----------------|---------|--------------|----------------|---------|--------------|------|
| | | -10 (-23) | | | 0 (-18) | | | 10 (-12) | | | 20 (-7) | | | 30 (-1) | | | 40 (4) | | | 50 (10) | | | 60 (16) | | |
| | | Return Air db °F (°C) | CFM | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | |
| Total | Integ | | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | |
| 65 (18) | 700 | 7.28 | 6.89 | 1.47 | 9.83 | 9.14 | 1.58 | 12.73 | 11.69 | 1.65 | 15.77 | 14.31 | 1.71 | 19.17 | 16.80 | 1.76 | 22.00 | 22.00 | 1.80 | 24.93 | 24.83 | 1.86 | 28.00 | 28.00 | 1.93 |
| | 800 | 7.38 | 6.79 | 1.47 | 10.06 | 9.26 | 1.57 | 12.89 | 11.83 | 1.64 | 16.00 | 14.51 | 1.69 | 19.24 | 16.86 | 1.73 | 22.03 | 22.03 | 1.76 | 24.89 | 24.89 | 1.80 | 27.83 | 27.83 | 1.86 |
| | 900 | 7.47 | 6.88 | 1.48 | 10.19 | 9.37 | 1.57 | 13.05 | 11.98 | 1.63 | 16.17 | 14.87 | 1.67 | 19.28 | 16.90 | 1.70 | 22.02 | 22.02 | 1.73 | 24.80 | 24.80 | 1.76 | 27.58 | 27.58 | 1.80 |
| 70 (21) | 700 | 6.86 | 6.31 | 1.54 | 9.53 | 8.77 | 1.65 | 12.35 | 11.33 | 1.73 | 15.38 | 13.95 | 1.79 | 18.97 | 16.62 | 1.85 | 21.76 | 21.76 | 1.90 | 24.66 | 24.66 | 1.96 | 27.67 | 27.67 | 2.03 |
| | 800 | 6.97 | 6.42 | 1.54 | 9.68 | 8.91 | 1.65 | 12.52 | 11.49 | 1.72 | 15.59 | 14.14 | 1.77 | 19.05 | 16.69 | 1.82 | 21.81 | 21.81 | 1.85 | 24.65 | 24.65 | 1.90 | 27.55 | 27.55 | 1.96 |
| | 900 | 7.08 | 6.51 | 1.55 | 9.80 | 9.02 | 1.65 | 12.67 | 11.63 | 1.71 | 15.77 | 14.30 | 1.76 | 19.10 | 16.73 | 1.79 | 21.82 | 21.82 | 1.82 | 24.59 | 24.59 | 1.86 | 27.34 | 27.34 | 1.90 |
| 75 (24) | 700 | 6.38 | 5.87 | 1.61 | 9.11 | 8.38 | 1.73 | 11.94 | 10.96 | 1.81 | 14.96 | 13.57 | 1.88 | 18.68 | 16.37 | 1.96 | 21.53 | 21.53 | 2.00 | 24.41 | 24.41 | 2.06 | 27.35 | 27.35 | 2.14 |
| | 800 | 6.50 | 5.98 | 1.61 | 9.25 | 8.51 | 1.73 | 12.11 | 11.12 | 1.80 | 15.18 | 13.76 | 1.86 | 18.85 | 16.51 | 1.92 | 21.58 | 21.58 | 1.95 | 24.41 | 24.41 | 2.00 | 27.27 | 27.27 | 2.06 |
| | 900 | 6.62 | 6.09 | 1.62 | 9.38 | 8.63 | 1.72 | 12.26 | 11.25 | 1.79 | 15.35 | 13.92 | 1.84 | 18.92 | 16.57 | 1.89 | 21.60 | 21.60 | 1.92 | 24.34 | 24.34 | 1.96 | 27.07 | 27.07 | 2.01 |

PERFORMANCE DATA (CONT)

COOLING CAPACITY

50ZHB030

| EVAPORATOR AIR | | CONDENSER ENTERING AIR TEMPERATURES °F (°C) | | | | | | | | | | | | | | | | | |
|----------------|----------|---|-------------|----------------|---------|--------------|----------------|---------|--------------|----------------|----------|--------------|----------------|----------|--------------|----------------|----------|--------------|------|
| | | 75 (24) | | | 85 (29) | | | 95 (35) | | | 105 (41) | | | 115 (46) | | | 125 (52) | | |
| | | CFM / BF | EWB °F (°C) | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | |
| Total | Sens | | | Total | Sens | | Total | Sens | | Total | Sens | | Total | Sens | | | | | |
| 875 / 0.08 | 57 (14) | 27.82 | 27.82 | 1.97 | 27.30 | 27.30 | 2.20 | 26.53 | 26.53 | 2.45 | 25.50 | 25.50 | 2.75 | 24.19 | 24.19 | 3.08 | 22.57 | 22.57 | 3.47 |
| | 62 (17) | 28.38 | 25.57 | 1.98 | 27.75 | 25.67 | 2.20 | 26.84 | 25.54 | 2.46 | 25.63 | 25.09 | 2.75 | 24.24 | 24.24 | 3.08 | 22.60 | 22.60 | 3.47 |
| | 63* (17) | 28.69 | 20.76 | 1.98 | 28.06 | 20.76 | 2.21 | 27.16 | 20.58 | 2.46 | 25.94 | 20.16 | 2.75 | 24.37 | 19.46 | 3.08 | 22.28 | 18.53 | 3.45 |
| 1000 / 0.09 | 67 (19) | 29.82 | 20.56 | 1.99 | 29.31 | 20.71 | 2.22 | 28.51 | 20.67 | 2.48 | 27.39 | 20.44 | 2.77 | 26.01 | 20.06 | 3.10 | 24.38 | 19.55 | 3.48 |
| | 72 (22) | 31.10 | 16.25 | 2.00 | 30.75 | 16.22 | 2.24 | 30.03 | 16.06 | 2.50 | 29.06 | 15.79 | 2.80 | 27.80 | 15.42 | 3.13 | 26.20 | 14.93 | 3.51 |
| | 57 (14) | 28.43 | 28.43 | 2.00 | 27.96 | 27.96 | 2.23 | 27.26 | 27.26 | 2.49 | 26.29 | 26.29 | 2.78 | 25.07 | 25.07 | 3.11 | 23.66 | 23.66 | 3.49 |
| 1125 / 0.10 | 62 (17) | 28.74 | 26.78 | 2.00 | 28.15 | 27.00 | 2.23 | 27.28 | 27.28 | 2.49 | 26.31 | 26.31 | 2.78 | 25.10 | 25.10 | 3.11 | 23.69 | 23.69 | 3.49 |
| | 63 (17) | 28.99 | 21.57 | 2.00 | 28.39 | 21.71 | 2.23 | 27.51 | 21.66 | 2.49 | 26.30 | 21.37 | 2.78 | 24.79 | 20.84 | 3.11 | 22.73 | 19.92 | 3.49 |
| | 67 (19) | 30.09 | 21.27 | 2.01 | 29.60 | 21.54 | 2.24 | 28.80 | 21.60 | 2.50 | 27.69 | 21.48 | 2.80 | 26.31 | 21.22 | 3.13 | 24.66 | 20.78 | 3.51 |
| 1125 / 0.10 | 72 (22) | 31.31 | 16.55 | 2.02 | 30.99 | 16.61 | 2.26 | 30.28 | 16.51 | 2.52 | 29.32 | 16.30 | 2.82 | 28.04 | 15.98 | 3.16 | 26.45 | 15.54 | 3.54 |
| | 57 (14) | 28.85 | 28.85 | 2.02 | 28.44 | 28.44 | 2.25 | 27.77 | 27.77 | 2.51 | 26.82 | 26.82 | 2.81 | 25.64 | 25.64 | 3.14 | 24.25 | 24.25 | 3.52 |
| | 62 (17) | 29.02 | 27.77 | 2.02 | 28.45 | 28.45 | 2.25 | 27.79 | 27.79 | 2.51 | 26.84 | 26.84 | 2.81 | 25.66 | 25.66 | 3.14 | 24.27 | 24.27 | 3.52 |
| 1125 / 0.10 | 63 (17) | 29.21 | 22.27 | 2.03 | 28.63 | 22.55 | 2.26 | 27.76 | 22.62 | 2.51 | 26.56 | 22.44 | 2.80 | 25.09 | 22.04 | 3.13 | 23.18 | 21.25 | 3.51 |
| | 67 (19) | 30.29 | 21.86 | 2.04 | 29.82 | 22.26 | 2.27 | 29.01 | 22.42 | 2.53 | 27.91 | 22.42 | 2.82 | 26.53 | 22.26 | 3.16 | 24.87 | 21.88 | 3.53 |
| | 72 (22) | 31.49 | 16.86 | 2.05 | 31.16 | 16.94 | 2.28 | 30.46 | 16.89 | 2.55 | 29.51 | 16.74 | 2.84 | 28.22 | 16.46 | 3.18 | 26.63 | 16.08 | 3.56 |

See page 16 for cooling notes.

HEATING CAPACITY

50ZHB030

| INDOOR AIR | | OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C) | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-------|--|------|----------------|---------|--------------|----------------|----------|--------------|----------------|---------|--------------|----------------|---------|--------------|----------------|--------|--------------|----------------|---------|--------------|----------------|---------|--------------|------|
| | | -10 (-23) | | | 0 (-18) | | | 10 (-12) | | | 20 (-7) | | | 30 (-1) | | | 40 (4) | | | 50 (10) | | | 60 (16) | | |
| | | Return Air °F (°C) | CFM | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | |
| Total | Integ | | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | |
| 65 (18) | 875 | 8.92 | 8.21 | 1.74 | 11.84 | 10.90 | 1.81 | 15.00 | 13.77 | 1.88 | 18.52 | 16.80 | 2.03 | 21.87 | 19.17 | 2.12 | 25.66 | 25.66 | 2.24 | 29.97 | 29.97 | 2.24 | 34.48 | 34.48 | 2.34 |
| | 1000 | 9.05 | 8.32 | 1.74 | 11.99 | 11.03 | 1.81 | 15.17 | 13.93 | 1.87 | 18.67 | 16.93 | 1.94 | 22.07 | 19.34 | 2.09 | 25.91 | 25.91 | 2.18 | 30.27 | 30.27 | 2.18 | 34.10 | 34.10 | 2.27 |
| | 1125 | 9.16 | 8.43 | 1.75 | 12.12 | 11.15 | 1.81 | 15.34 | 14.08 | 1.87 | 18.80 | 17.05 | 1.93 | 22.24 | 19.48 | 2.07 | 26.12 | 26.12 | 2.14 | 30.15 | 30.15 | 2.14 | 33.52 | 33.52 | 2.21 |
| 70 (21) | 875 | 8.51 | 7.83 | 1.82 | 11.47 | 10.55 | 1.90 | 14.63 | 13.42 | 1.97 | 18.30 | 16.60 | 2.06 | 21.60 | 18.93 | 2.14 | 25.33 | 25.33 | 2.23 | 29.56 | 29.56 | 2.34 | 34.13 | 34.13 | 2.46 |
| | 1000 | 8.65 | 7.96 | 1.83 | 11.63 | 10.70 | 1.89 | 14.81 | 13.59 | 1.96 | 18.45 | 16.74 | 2.04 | 21.80 | 19.10 | 2.11 | 25.59 | 25.59 | 2.19 | 29.89 | 29.89 | 2.30 | 33.85 | 33.85 | 2.38 |
| | 1125 | 8.77 | 8.07 | 1.84 | 11.77 | 10.83 | 1.90 | 14.97 | 13.74 | 1.96 | 18.58 | 16.85 | 2.03 | 21.97 | 19.25 | 2.09 | 25.80 | 25.80 | 2.17 | 29.95 | 29.95 | 2.25 | 33.38 | 33.38 | 2.33 |
| 75 (24) | 875 | 8.05 | 7.41 | 1.90 | 11.06 | 10.17 | 1.99 | 14.23 | 13.06 | 2.07 | 18.03 | 16.35 | 2.17 | 21.33 | 18.69 | 2.25 | 25.00 | 25.00 | 2.46 | 29.16 | 29.16 | 2.46 | 33.79 | 33.79 | 2.58 |
| | 1000 | 8.19 | 7.54 | 1.91 | 11.22 | 10.32 | 1.99 | 14.41 | 13.23 | 2.06 | 18.20 | 16.51 | 2.15 | 21.52 | 18.86 | 2.22 | 25.25 | 25.25 | 2.30 | 29.48 | 29.48 | 2.41 | 33.58 | 33.58 | 2.50 |
| | 1125 | 8.31 | 7.65 | 1.92 | 11.36 | 10.45 | 1.99 | 14.57 | 13.38 | 2.05 | 18.35 | 16.64 | 2.14 | 21.69 | 19.00 | 2.20 | 25.47 | 25.47 | 2.36 | 29.68 | 29.68 | 2.36 | 33.18 | 33.18 | 2.44 |

PERFORMANCE DATA (CONT)

COOLING CAPACITY

50ZHB036

| EVAPORATOR AIR | | CONDENSER ENTERING AIR TEMPERATURES °F (°C) | | | | | | | | | | | | | | | | | |
|----------------|----------|---|-------------|----------------|---------|--------------|----------------|---------|--------------|----------------|----------|--------------|----------------|----------|--------------|----------------|----------|--------------|------|
| | | 75 (24) | | | 85 (29) | | | 95 (35) | | | 105 (41) | | | 115 (46) | | | 125 (52) | | |
| | | CFM / BF | EWB °F (°C) | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | |
| Total | Sens | | | Total | Sens | | Total | Sens | | Total | Sens | | Total | Sens | | Total | Sens | | |
| 1050/ 0.07 | 57 (14) | 34.80 | 34.80 | 2.48 | 33.68 | 33.68 | 2.76 | 32.36 | 32.36 | 3.07 | 30.96 | 30.96 | 3.42 | 29.36 | 29.36 | 3.81 | 27.11 | 27.11 | 4.25 |
| | 62 (17) | 35.83 | 32.61 | 2.49 | 34.48 | 32.11 | 2.77 | 32.91 | 31.40 | 3.07 | 31.22 | 30.68 | 3.42 | 29.40 | 29.40 | 3.81 | 27.15 | 27.15 | 4.25 |
| | 63* (17) | 36.36 | 26.67 | 2.50 | 34.99 | 26.14 | 2.77 | 33.37 | 25.44 | 3.08 | 31.59 | 24.73 | 3.42 | 29.44 | 24.21 | 3.81 | 26.40 | 22.91 | 4.24 |
| 1200/ 0.08 | 67 (19) | 38.38 | 26.96 | 2.51 | 37.11 | 26.57 | 2.79 | 35.50 | 25.95 | 3.10 | 33.63 | 25.17 | 3.45 | 31.66 | 24.52 | 3.84 | 29.23 | 24.13 | 4.28 |
| | 72 (22) | 40.73 | 21.67 | 2.53 | 39.62 | 21.27 | 2.81 | 38.08 | 20.69 | 3.12 | 36.22 | 19.95 | 3.48 | 34.03 | 19.09 | 3.87 | 31.85 | 18.32 | 4.33 |
| | 57 (14) | 35.86 | 35.86 | 2.52 | 34.74 | 34.74 | 2.80 | 33.39 | 33.39 | 3.11 | 31.88 | 31.88 | 3.46 | 30.41 | 30.41 | 3.85 | 28.30 | 28.30 | 4.30 |
| 1350/ 0.10 | 62 (17) | 36.46 | 34.39 | 2.52 | 35.13 | 33.99 | 2.80 | 33.57 | 33.21 | 3.11 | 31.90 | 31.90 | 3.46 | 30.44 | 30.44 | 3.85 | 28.33 | 28.33 | 4.30 |
| | 63 (17) | 36.90 | 27.87 | 2.53 | 35.55 | 27.41 | 2.80 | 33.90 | 26.75 | 3.11 | 32.04 | 26.02 | 3.46 | 30.02 | 25.74 | 3.85 | 27.04 | 24.67 | 4.28 |
| | 67 (19) | 38.89 | 28.05 | 2.54 | 37.62 | 27.77 | 2.82 | 36.00 | 27.20 | 3.13 | 34.09 | 26.44 | 3.48 | 32.05 | 25.78 | 3.88 | 29.71 | 25.67 | 4.32 |
| 1350/ 0.10 | 72 (22) | 41.16 | 22.23 | 2.56 | 40.07 | 21.90 | 2.84 | 38.52 | 21.34 | 3.16 | 36.64 | 20.63 | 3.51 | 34.40 | 19.76 | 3.91 | 32.17 | 18.97 | 4.36 |
| | 57 (14) | 36.64 | 36.64 | 2.55 | 35.54 | 35.54 | 2.83 | 34.17 | 34.17 | 3.14 | 32.57 | 32.57 | 3.49 | 30.97 | 30.97 | 3.89 | 29.13 | 29.13 | 4.34 |
| | 62 (17) | 36.96 | 35.90 | 2.55 | 35.68 | 35.46 | 2.83 | 34.18 | 34.18 | 3.14 | 32.60 | 32.60 | 3.49 | 31.00 | 31.00 | 3.89 | 29.16 | 29.16 | 4.34 |
| 1350/ 0.10 | 63 (17) | 37.33 | 28.93 | 2.56 | 35.96 | 28.55 | 2.83 | 34.29 | 27.93 | 3.14 | 32.38 | 27.19 | 3.49 | 30.42 | 27.02 | 3.88 | 27.54 | 26.23 | 4.31 |
| | 67 (19) | 39.26 | 29.02 | 2.57 | 38.01 | 28.83 | 2.85 | 36.36 | 28.31 | 3.16 | 34.43 | 27.58 | 3.51 | 32.34 | 26.90 | 3.91 | 30.07 | 26.98 | 4.36 |
| | 72 (22) | 41.47 | 22.69 | 2.59 | 40.40 | 22.43 | 2.87 | 38.85 | 21.91 | 3.19 | 36.95 | 21.25 | 3.54 | 34.68 | 20.35 | 3.94 | 32.39 | 19.54 | 4.39 |

See page 16 for cooling notes.

HEATING CAPACITY

50ZHB036

| INDOOR AIR | | OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C) | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-------|--|-------|----------------|---------|--------------|----------------|----------|--------------|----------------|---------|--------------|----------------|---------|--------------|----------------|--------|--------------|----------------|---------|--------------|----------------|---------|--------------|-------|
| | | -10 (-23) | | | 0 (-18) | | | 10 (-12) | | | 20 (-7) | | | 30 (-1) | | | 40 (4) | | | 50 (10) | | | 60 (16) | | |
| | | Return Air db °F (°C) | CFM | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | |
| Total | Integ | | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total |
| 65 (18) | 1050 | 11.54 | 10.82 | 2.30 | 15.05 | 13.85 | 2.39 | 18.95 | 17.89 | 2.49 | 23.38 | 21.20 | 2.60 | 27.98 | 24.52 | 2.70 | 31.92 | 31.92 | 2.79 | 36.05 | 36.05 | 2.88 | 40.34 | 40.34 | 2.99 |
| | 1200 | 11.73 | 10.79 | 2.31 | 15.27 | 14.05 | 2.39 | 19.21 | 17.63 | 2.48 | 23.78 | 21.56 | 2.58 | 28.06 | 24.59 | 2.66 | 31.92 | 31.92 | 2.74 | 35.94 | 35.94 | 2.82 | 40.00 | 40.00 | 2.90 |
| | 1350 | 11.90 | 10.95 | 2.32 | 15.46 | 14.23 | 2.40 | 19.42 | 17.83 | 2.48 | 24.29 | 22.03 | 2.59 | 28.07 | 24.59 | 2.64 | 31.86 | 31.86 | 2.71 | 35.73 | 35.73 | 2.78 | 39.47 | 39.47 | 2.84 |
| 70 (21) | 1050 | 10.95 | 10.08 | 2.41 | 14.50 | 13.34 | 2.51 | 18.42 | 16.90 | 2.61 | 22.76 | 20.64 | 2.71 | 27.71 | 24.28 | 2.83 | 31.59 | 31.59 | 2.92 | 35.66 | 35.66 | 3.02 | 39.91 | 39.91 | 3.13 |
| | 1200 | 11.15 | 10.25 | 2.42 | 14.72 | 13.55 | 2.51 | 18.67 | 17.14 | 2.60 | 23.07 | 20.92 | 2.69 | 27.78 | 24.34 | 2.79 | 31.61 | 31.61 | 2.87 | 35.59 | 35.59 | 2.96 | 39.62 | 39.62 | 3.04 |
| | 1350 | 11.31 | 10.41 | 2.44 | 14.91 | 13.72 | 2.52 | 18.89 | 17.34 | 2.60 | 23.35 | 21.17 | 2.69 | 27.83 | 24.38 | 2.77 | 31.57 | 31.57 | 2.84 | 35.43 | 35.43 | 2.91 | 39.19 | 39.19 | 2.98 |
| 75 (24) | 1050 | 10.32 | 9.49 | 2.54 | 13.90 | 12.79 | 2.63 | 17.85 | 16.38 | 2.73 | 22.18 | 20.12 | 2.84 | 27.45 | 24.05 | 2.98 | 31.26 | 31.26 | 3.07 | 35.27 | 35.27 | 3.17 | 39.45 | 39.45 | 3.28 |
| | 1200 | 10.51 | 9.67 | 2.55 | 14.12 | 13.00 | 2.63 | 18.11 | 16.62 | 2.73 | 22.49 | 20.40 | 2.82 | 27.54 | 24.13 | 2.94 | 31.29 | 31.29 | 3.01 | 35.23 | 35.23 | 3.10 | 39.24 | 39.24 | 3.19 |
| | 1350 | 10.67 | 9.82 | 2.56 | 14.31 | 13.17 | 2.64 | 18.33 | 16.82 | 2.72 | 22.75 | 20.63 | 2.81 | 27.60 | 24.18 | 2.91 | 31.28 | 31.28 | 2.98 | 35.11 | 35.11 | 3.06 | 38.87 | 38.87 | 3.13 |

PERFORMANCE DATA (CONT)
COOLING CAPACITY
50ZHB042

| EVAPORATOR AIR | | CONDENSER ENTERING AIR TEMPERATURES °F (°C) | | | | | | | | | | | | | | | | | |
|----------------|----------|---|-------------|----------------|---------|--------------|----------------|---------|--------------|----------------|----------|--------------|----------------|----------|--------------|----------------|----------|--------------|------|
| | | 75 (24) | | | 85 (29) | | | 95 (35) | | | 105 (41) | | | 115 (46) | | | 125 (52) | | |
| | | CFM / BF | EWB °F (°C) | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | |
| Total | Sens | | | Total | Sens | | Total | Sens | | Total | Sens | | Total | Sens | | Total | Sens | | |
| 1225 / 0.11 | 57 (14) | 39.44 | 39.44 | 2.86 | 37.89 | 37.89 | 3.16 | 35.26 | 35.26 | 3.49 | 32.83 | 32.83 | 3.86 | 30.29 | 30.29 | 4.29 | 27.53 | 27.53 | 4.77 |
| | 62 (17) | 40.83 | 36.35 | 2.87 | 38.87 | 35.37 | 3.17 | 35.71 | 33.63 | 3.49 | 32.88 | 32.88 | 3.86 | 30.33 | 30.33 | 4.29 | 27.57 | 27.57 | 4.77 |
| | 63* (17) | 41.77 | 29.61 | 2.87 | 39.75 | 28.75 | 3.18 | 36.73 | 27.48 | 3.50 | 33.21 | 26.03 | 3.87 | 29.73 | 24.59 | 4.28 | 25.94 | 22.96 | 4.74 |
| 1400 / 0.12 | 67 (19) | 45.20 | 30.87 | 2.90 | 43.07 | 30.03 | 3.21 | 40.81 | 29.14 | 3.56 | 37.31 | 27.80 | 3.92 | 33.36 | 26.29 | 4.33 | 29.48 | 24.79 | 4.80 |
| | 72 (22) | 50.06 | 25.07 | 2.95 | 47.76 | 24.23 | 3.26 | 45.31 | 23.37 | 3.61 | 42.72 | 22.45 | 4.01 | 39.72 | 21.41 | 4.44 | 34.69 | 19.71 | 4.89 |
| | 57 (14) | 40.99 | 40.99 | 2.91 | 39.36 | 39.36 | 3.22 | 37.54 | 37.54 | 3.56 | 34.31 | 34.31 | 3.92 | 31.63 | 31.63 | 4.35 | 28.76 | 28.76 | 4.83 |
| 1575 / 0.14 | 62 (17) | 41.70 | 38.58 | 2.91 | 39.63 | 39.63 | 3.22 | 37.60 | 37.60 | 3.56 | 34.36 | 34.36 | 3.92 | 31.67 | 31.67 | 4.35 | 28.79 | 28.79 | 4.83 |
| | 63 (17) | 42.59 | 31.37 | 2.92 | 40.50 | 30.50 | 3.23 | 38.19 | 29.53 | 3.57 | 33.90 | 27.77 | 3.92 | 30.31 | 26.24 | 4.33 | 26.48 | 24.45 | 4.79 |
| | 67 (19) | 46.07 | 32.76 | 2.95 | 43.87 | 31.91 | 3.26 | 41.50 | 31.00 | 3.61 | 38.85 | 29.98 | 3.99 | 34.05 | 28.14 | 4.38 | 30.05 | 26.52 | 4.85 |
| 1725 / 0.16 | 72 (22) | 51.04 | 26.26 | 3.00 | 48.65 | 25.41 | 3.32 | 46.10 | 24.53 | 3.67 | 43.42 | 23.60 | 4.06 | 40.39 | 22.57 | 4.50 | 35.44 | 20.92 | 4.95 |
| | 57 (14) | 42.35 | 42.35 | 2.96 | 40.65 | 40.65 | 3.27 | 38.82 | 38.82 | 3.62 | 35.74 | 35.74 | 3.98 | 32.82 | 32.82 | 4.41 | 29.82 | 29.82 | 4.89 |
| | 62 (17) | 42.53 | 42.53 | 2.96 | 40.70 | 40.70 | 3.27 | 38.86 | 38.86 | 3.62 | 35.78 | 35.78 | 3.98 | 32.86 | 32.86 | 4.41 | 29.85 | 29.85 | 4.89 |
| 1725 / 0.14 | 63 (17) | 43.27 | 33.10 | 2.97 | 41.11 | 32.21 | 3.27 | 38.76 | 31.24 | 3.62 | 34.51 | 29.44 | 3.96 | 30.83 | 27.78 | 4.38 | 26.99 | 26.99 | 4.84 |
| | 67 (19) | 46.80 | 34.63 | 3.00 | 44.50 | 33.75 | 3.31 | 42.09 | 32.83 | 3.66 | 39.37 | 31.78 | 4.04 | 34.65 | 29.90 | 4.44 | 30.55 | 28.07 | 4.90 |
| 72 (22) | 51.83 | 27.42 | 3.05 | 49.36 | 26.56 | 3.36 | 46.75 | 25.67 | 3.72 | 43.98 | 24.73 | 4.11 | 40.93 | 23.70 | 4.55 | 36.05 | 22.10 | 5.00 | |

See page 16 for cooling notes.

HEATING CAPACITY
50ZHB042

| INDOOR AIR | | OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C) | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-------|--|-------|----------------|---------|--------------|----------------|----------|--------------|----------------|---------|--------------|----------------|---------|--------------|----------------|--------|--------------|----------------|---------|--------------|----------------|---------|--------------|-------|
| | | -10 (-23) | | | 0 (-18) | | | 10 (-12) | | | 20 (-7) | | | 30 (-1) | | | 40 (4) | | | 50 (10) | | | 60 (16) | | |
| | | Return Air db °F (°C) | CFM | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | Capacity MBtuh | | Total Sys kW | |
| Total | Integ | | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total | Integ | | Total |
| 65 (18) | 1225 | 12.14 | 11.17 | 2.54 | 16.20 | 14.90 | 2.65 | 20.68 | 18.98 | 2.77 | 25.59 | 23.21 | 2.90 | 31.13 | 27.28 | 3.05 | 37.09 | 37.09 | 3.24 | 42.85 | 42.85 | 3.42 | 49.49 | 49.49 | 3.66 |
| | 1400 | 12.39 | 11.40 | 2.56 | 16.49 | 15.17 | 2.66 | 21.02 | 19.29 | 2.78 | 25.98 | 23.56 | 2.89 | 31.77 | 27.84 | 3.04 | 37.47 | 37.47 | 3.20 | 43.38 | 43.38 | 3.37 | 50.17 | 50.17 | 3.58 |
| | 1575 | 12.62 | 11.61 | 2.58 | 16.72 | 15.38 | 2.68 | 21.29 | 19.54 | 2.78 | 26.30 | 23.86 | 2.89 | 32.51 | 28.49 | 3.04 | 37.84 | 37.84 | 3.17 | 43.84 | 43.84 | 3.33 | 50.78 | 50.78 | 3.53 |
| 70 (21) | 1225 | 11.34 | 10.44 | 2.65 | 15.44 | 14.20 | 2.77 | 19.93 | 18.30 | 2.90 | 24.86 | 22.54 | 3.03 | 30.27 | 26.52 | 3.18 | 36.59 | 36.59 | 3.40 | 42.22 | 42.22 | 3.58 | 48.72 | 48.72 | 3.83 |
| | 1400 | 11.56 | 10.63 | 2.67 | 15.69 | 14.43 | 2.79 | 20.24 | 18.58 | 2.90 | 25.22 | 22.87 | 3.02 | 30.70 | 26.90 | 3.16 | 36.98 | 36.98 | 3.36 | 42.72 | 42.72 | 3.52 | 49.41 | 49.41 | 3.75 |
| | 1575 | 11.77 | 10.83 | 2.70 | 15.95 | 14.67 | 2.80 | 20.54 | 18.85 | 2.91 | 25.57 | 23.19 | 3.02 | 31.12 | 27.27 | 3.15 | 37.32 | 37.32 | 3.33 | 43.18 | 43.18 | 3.48 | 49.98 | 49.98 | 3.89 |
| 75 (24) | 1225 | 10.50 | 9.68 | 2.78 | 14.61 | 13.45 | 2.90 | 19.14 | 17.57 | 3.03 | 24.09 | 21.85 | 3.17 | 29.48 | 25.63 | 3.32 | 36.02 | 36.02 | 3.56 | 41.59 | 41.59 | 3.76 | 47.96 | 47.96 | 4.00 |
| | 1400 | 10.74 | 9.88 | 2.80 | 14.89 | 13.70 | 2.92 | 19.48 | 17.88 | 3.03 | 24.48 | 22.20 | 3.16 | 29.93 | 26.23 | 3.30 | 36.44 | 36.44 | 3.52 | 42.07 | 42.07 | 3.70 | 48.62 | 48.62 | 3.92 |
| | 1575 | 10.95 | 10.08 | 2.83 | 15.16 | 13.95 | 2.93 | 19.78 | 18.16 | 3.04 | 24.81 | 22.50 | 3.16 | 30.33 | 26.57 | 3.29 | 36.81 | 36.81 | 3.49 | 42.52 | 42.52 | 3.65 | 49.20 | 49.20 | 3.87 |

PERFORMANCE DATA (CONT)
COOLING CAPACITY
50ZHB048

| EVAPORATOR AIR | | CONDENSER ENTERING AIR TEMPERATURES ° F (° C) | | | | | | | | | | | | | | | | | | |
|----------------|--|---|---------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|
| | | 75 (24) | | | 85 (29) | | | 95 (35) | | | 105 (41) | | | 115 (46) | | | 125 (52) | | | |
| | | CFM / BF | EWB ° F (° C) | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW |
| | | 45.20 | 43.33 | 43.33 | 41.34 | 39.5 | 38.12 | 4.35 | 35.13 | 35.13 | 35.13 | 35.13 | 35.13 | 35.13 | 35.13 | 35.13 | 35.13 | 35.13 | 35.13 | 35.13 |
| 1400 / 0.07 | | 46.71 | 44.37 | 44.37 | 41.96 | 39.5 | 38.15 | 4.35 | 35.19 | 35.19 | 35.19 | 35.19 | 35.19 | 35.19 | 35.19 | 35.19 | 35.19 | 35.19 | 35.19 | 35.19 |
| | | 47.53 | 45.11 | 45.11 | 42.59 | 39.6 | 38.58 | 4.36 | 34.57 | 34.57 | 34.57 | 34.57 | 34.57 | 34.57 | 34.57 | 34.57 | 34.57 | 34.57 | 34.57 | 34.57 |
| | | 50.36 | 48.45 | 48.45 | 45.76 | 39.9 | 42.98 | 4.43 | 38.86 | 38.86 | 38.86 | 38.86 | 38.86 | 38.86 | 38.86 | 38.86 | 38.86 | 38.86 | 38.86 | 38.86 |
| | | 55.43 | 52.74 | 52.74 | 49.88 | 40.4 | 46.91 | 4.49 | 43.79 | 43.79 | 43.79 | 43.79 | 43.79 | 43.79 | 43.79 | 43.79 | 43.79 | 43.79 | 43.79 | 43.79 |
| | | 47.06 | 45.06 | 45.06 | 42.96 | 4.01 | 40.20 | 4.44 | 36.87 | 36.87 | 36.87 | 36.87 | 36.87 | 36.87 | 36.87 | 36.87 | 36.87 | 36.87 | 36.87 | 36.87 |
| | | 44.55 | 42.42 | 42.42 | 40.27 | 4.01 | 39.68 | 4.45 | 36.93 | 36.93 | 36.93 | 36.93 | 36.93 | 36.93 | 36.93 | 36.93 | 36.93 | 36.93 | 36.93 | 36.93 |
| | | 35.96 | 34.89 | 34.89 | 33.74 | 4.01 | 33.61 | 4.46 | 30.31 | 30.31 | 30.31 | 30.31 | 30.31 | 30.31 | 30.31 | 30.31 | 30.31 | 30.31 | 30.31 | 30.31 |
| | | 37.20 | 36.11 | 36.11 | 35.00 | 4.04 | 33.83 | 4.48 | 32.48 | 32.48 | 32.48 | 32.48 | 32.48 | 32.48 | 32.48 | 32.48 | 32.48 | 32.48 | 32.48 | 32.48 |
| | | 29.83 | 28.78 | 28.78 | 27.67 | 4.09 | 26.48 | 4.54 | 25.28 | 25.28 | 25.28 | 25.28 | 25.28 | 25.28 | 25.28 | 25.28 | 25.28 | 25.28 | 25.28 | 25.28 |
| | | 48.51 | 46.40 | 46.40 | 44.19 | 4.06 | 41.80 | 4.50 | 38.40 | 38.40 | 38.40 | 38.40 | 38.40 | 38.40 | 38.40 | 38.40 | 38.40 | 38.40 | 38.40 | 38.40 |
| | | 48.97 | 46.43 | 46.43 | 44.24 | 4.06 | 41.85 | 4.50 | 38.45 | 38.45 | 38.45 | 38.45 | 38.45 | 38.45 | 38.45 | 38.45 | 38.45 | 38.45 | 38.45 | 38.45 |
| | | 37.79 | 36.66 | 36.66 | 35.58 | 4.06 | 40.60 | 4.49 | 36.11 | 36.11 | 36.11 | 36.11 | 36.11 | 36.11 | 36.11 | 36.11 | 36.11 | 36.11 | 36.11 | 36.11 |
| | | 39.02 | 37.94 | 37.94 | 36.80 | 4.09 | 44.10 | 4.53 | 40.41 | 40.41 | 40.41 | 40.41 | 40.41 | 40.41 | 40.41 | 40.41 | 40.41 | 40.41 | 40.41 | 40.41 |
| | | 57.00 | 54.15 | 54.15 | 51.17 | 4.14 | 48.00 | 4.59 | 44.74 | 44.74 | 44.74 | 44.74 | 44.74 | 44.74 | 44.74 | 44.74 | 44.74 | 44.74 | 44.74 | 44.74 |
| | | 30.86 | 29.81 | 29.81 | 28.67 | 3.71 | 27.47 | 4.14 | 26.23 | 26.23 | 26.23 | 26.23 | 26.23 | 26.23 | 26.23 | 26.23 | 26.23 | 26.23 | 26.23 | 26.23 |

See page 16 for cooling notes.

HEATING CAPACITY
50ZHB048

| INDOOR AIR | | OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C) | | | | | | | | | | | | | | | | | | | | | | | |
|------------|------|--|-------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|-------|------|
| | | -10 (-23) | | | 0 (-18) | | | 10 (-12) | | | 20 (-7) | | | 30 (-1) | | | 40 (4) | | | 50 (10) | | | 60 (16) | | |
| | | Return Air db ° F (° C) | CFM | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | Capacity MBtuh | Total Sys kW | | |
| 65 (18) | 1400 | 14.74 | 13.56 | 2.91 | 19.51 | 17.95 | 3.03 | 24.50 | 22.49 | 3.16 | 29.84 | 27.08 | 3.30 | 36.36 | 31.86 | 3.49 | 42.03 | 42.03 | 3.65 | 48.56 | 48.56 | 3.83 | 56.09 | 56.09 | 4.03 |
| | 1600 | 14.97 | 13.78 | 2.93 | 19.78 | 18.20 | 3.05 | 24.81 | 22.77 | 3.17 | 30.21 | 27.40 | 3.29 | 36.69 | 32.15 | 3.47 | 42.45 | 42.45 | 3.61 | 49.14 | 49.14 | 3.77 | 56.41 | 56.41 | 3.93 |
| | 1800 | 15.18 | 13.97 | 2.96 | 20.01 | 18.42 | 3.07 | 25.09 | 23.02 | 3.18 | 30.54 | 27.69 | 3.30 | 36.97 | 32.40 | 3.46 | 42.85 | 42.85 | 3.59 | 49.61 | 49.61 | 3.74 | 56.58 | 56.58 | 3.87 |
| | 1400 | 14.15 | 13.01 | 3.03 | 18.92 | 17.41 | 3.16 | 23.91 | 21.85 | 3.29 | 29.23 | 26.51 | 3.44 | 35.88 | 31.44 | 3.65 | 41.47 | 41.47 | 3.81 | 47.90 | 47.90 | 4.01 | 55.42 | 55.42 | 4.22 |
| | 1600 | 14.38 | 13.23 | 3.06 | 19.20 | 17.66 | 3.17 | 24.23 | 22.24 | 3.30 | 29.61 | 26.85 | 3.43 | 36.25 | 31.76 | 3.62 | 41.91 | 41.91 | 3.77 | 48.47 | 48.47 | 3.95 | 55.82 | 55.82 | 4.12 |
| | 1800 | 14.58 | 13.42 | 3.09 | 19.44 | 17.89 | 3.19 | 24.51 | 22.49 | 3.31 | 29.91 | 27.12 | 3.44 | 36.54 | 32.02 | 3.61 | 42.30 | 42.30 | 3.75 | 48.94 | 48.94 | 3.91 | 56.01 | 56.01 | 4.06 |
| | 1400 | 13.47 | 12.39 | 3.17 | 18.27 | 16.81 | 3.30 | 23.28 | 21.37 | 3.44 | 28.57 | 25.91 | 3.59 | 34.52 | 30.25 | 3.77 | 40.95 | 40.95 | 3.98 | 47.26 | 47.26 | 4.19 | 54.69 | 54.69 | 4.42 |
| | 1600 | 13.71 | 12.61 | 3.20 | 18.55 | 17.07 | 3.31 | 23.59 | 21.66 | 3.44 | 28.95 | 26.25 | 3.58 | 35.67 | 31.25 | 3.76 | 41.38 | 41.38 | 3.94 | 47.82 | 47.82 | 4.13 | 55.19 | 55.19 | 4.32 |
| | 1800 | 13.93 | 12.81 | 3.23 | 18.80 | 17.30 | 3.33 | 23.86 | 21.92 | 3.45 | 29.27 | 26.55 | 3.58 | 36.05 | 31.59 | 3.77 | 41.73 | 41.73 | 3.91 | 48.28 | 48.28 | 4.09 | 55.43 | 55.43 | 4.25 |

PERFORMANCE DATA (CONT)
COOLING CAPACITY
50ZHB060

| EVAPORATOR AIR | | CONDENSER ENTERING AIR TEMPERATURES ° F (° C) | | | | | | | | | | | | | | | | | | |
|----------------|---------------|---|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|-------|
| | | 75 (24) | | | 85 (29) | | | 95 (35) | | | 105 (41) | | | 115 (46) | | | 125 (52) | | | |
| | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | |
| CFM / BF | EWB ° F (° C) | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | Total | Sens | |
| | | 1750 / 0.07 | 57 (14) | 54.52 | 50.77 | 4.20 | 52.33 | 49.95 | 47.38 | 5.15 | 47.38 | 45.93 | 44.60 | 6.38 | 44.60 | 43.17 | 41.84 | 6.38 | 41.84 | 40.41 |
| 62 (17) | 56.27 | | 50.77 | 4.22 | 53.60 | 49.30 | 47.71 | 5.16 | 47.84 | 45.93 | 44.67 | 6.38 | 44.67 | 43.24 | 41.91 | 6.38 | 41.91 | 40.48 | 41.64 | 7.13 |
| 63* (17) | 56.95 | | 41.26 | 4.23 | 54.26 | 39.89 | 38.44 | 5.17 | 48.25 | 36.89 | 35.23 | 6.38 | 35.23 | 33.80 | 32.45 | 6.38 | 32.45 | 31.00 | 33.45 | 7.12 |
| 2000 / 0.08 | 67 (19) | 61.09 | 42.88 | 4.29 | 58.15 | 40.00 | 38.45 | 5.24 | 51.65 | 38.45 | 36.78 | 6.45 | 36.78 | 35.35 | 34.00 | 6.45 | 34.00 | 32.50 | 35.00 | 7.18 |
| | 72 (22) | 66.41 | 34.97 | 4.38 | 63.15 | 33.61 | 32.21 | 5.33 | 56.05 | 30.72 | 29.13 | 6.53 | 29.13 | 27.45 | 26.00 | 6.53 | 26.00 | 24.45 | 27.45 | 7.26 |
| | 57 (14) | 56.68 | 56.68 | 4.29 | 54.29 | 51.73 | 48.97 | 5.24 | 48.97 | 46.00 | 44.00 | 6.47 | 44.00 | 42.79 | 41.50 | 6.47 | 41.50 | 40.25 | 42.84 | 7.21 |
| 2250 / 0.09 | 62 (17) | 57.54 | 54.21 | 4.30 | 54.80 | 50.72 | 49.03 | 5.81 | 46.05 | 46.05 | 44.79 | 6.47 | 44.79 | 43.50 | 42.25 | 6.47 | 42.25 | 41.00 | 42.84 | 7.21 |
| | 63 (17) | 58.11 | 43.67 | 4.31 | 55.28 | 42.25 | 40.72 | 5.24 | 49.00 | 39.11 | 37.39 | 6.45 | 37.39 | 35.84 | 34.53 | 6.45 | 34.53 | 33.00 | 35.53 | 7.19 |
| | 67 (19) | 62.22 | 45.44 | 4.37 | 59.12 | 43.99 | 42.46 | 5.31 | 52.33 | 40.83 | 39.10 | 6.52 | 39.10 | 37.24 | 35.50 | 6.52 | 35.50 | 33.75 | 37.24 | 7.24 |
| 2250 / 0.09 | 72 (22) | 67.55 | 36.49 | 4.46 | 64.13 | 35.07 | 33.62 | 5.40 | 56.77 | 32.08 | 30.45 | 6.60 | 30.45 | 28.71 | 27.32 | 6.60 | 27.32 | 25.87 | 28.71 | 7.32 |
| | 57 (14) | 58.41 | 58.41 | 4.38 | 55.86 | 55.86 | 53.14 | 5.32 | 50.22 | 50.22 | 47.08 | 6.55 | 47.08 | 45.32 | 43.72 | 6.55 | 43.72 | 42.00 | 43.72 | 7.28 |
| | 62 (17) | 58.68 | 57.16 | 4.38 | 55.91 | 55.91 | 53.20 | 5.33 | 50.28 | 50.28 | 47.13 | 6.55 | 47.13 | 45.38 | 43.76 | 6.55 | 43.76 | 42.00 | 43.76 | 7.28 |
| 2250 / 0.09 | 63 (17) | 58.96 | 45.93 | 4.38 | 56.01 | 44.46 | 42.90 | 5.32 | 49.50 | 41.22 | 39.43 | 6.52 | 39.43 | 37.49 | 35.75 | 6.52 | 35.75 | 34.00 | 37.49 | 7.25 |
| | 67 (19) | 63.00 | 47.85 | 4.44 | 59.77 | 46.34 | 44.78 | 5.38 | 52.77 | 43.10 | 41.30 | 6.58 | 41.30 | 39.36 | 37.30 | 6.58 | 37.30 | 35.50 | 39.36 | 7.30 |
| | 72 (22) | 68.37 | 37.89 | 4.53 | 64.84 | 36.45 | 34.96 | 5.48 | 57.25 | 33.36 | 31.67 | 6.67 | 31.67 | 29.89 | 28.87 | 6.67 | 28.87 | 27.30 | 29.89 | 7.39 |

See page 16 for cooling notes.

HEATING CAPACITY
50ZHB060

| INDOOR AIR | | OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C) | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-------|--|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|----------------|--------------|-------|
| | | -10 (-23) | | | 0 (-18) | | | 10 (-12) | | | 20 (-7) | | | 30 (-1) | | | 40 (4) | | | 50 (10) | | | 60 (16) | | |
| | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | | Capacity MBTuh | Total Sys kW | |
| Return Air db ° F (° C) | CFM | Total | Integ | Total | Integ | Total | Integ | Total | Integ | Total | Integ | Total | Integ | Total | Integ | Total | Integ | Total | Integ | Total | Integ | Total | Integ | Total | Integ |
| | | 65 (18) | 1750 | 18.85 | 17.34 | 3.59 | 24.42 | 22.47 | 3.74 | 30.31 | 27.82 | 3.89 | 36.67 | 33.26 | 4.05 | 44.81 | 39.26 | 4.27 | 51.11 | 51.11 | 4.41 | 57.40 | 57.40 | 4.57 | 64.43 |
| 2000 | 19.17 | | 17.64 | 3.63 | 24.78 | 22.80 | 3.77 | 30.70 | 28.18 | 3.90 | 37.14 | 33.68 | 4.05 | 45.15 | 39.56 | 4.24 | 51.28 | 51.28 | 4.36 | 57.44 | 57.44 | 4.50 | 64.37 | 64.37 | 4.67 |
| 2250 | 19.46 | | 17.90 | 3.67 | 25.09 | 23.09 | 3.80 | 31.05 | 28.49 | 3.93 | 37.55 | 34.05 | 4.06 | 45.29 | 39.68 | 4.23 | 51.40 | 51.40 | 4.34 | 57.42 | 57.42 | 4.47 | 64.21 | 64.21 | 4.61 |
| 70 (21) | 1750 | 17.97 | 16.54 | 3.74 | 23.63 | 21.75 | 3.91 | 29.57 | 27.14 | 4.07 | 35.90 | 32.56 | 4.23 | 44.24 | 38.77 | 4.48 | 50.62 | 50.62 | 4.62 | 56.88 | 56.88 | 4.79 | 63.78 | 63.78 | 4.99 |
| | 2000 | 18.29 | 16.83 | 3.78 | 23.99 | 22.07 | 3.93 | 29.96 | 27.50 | 4.08 | 36.36 | 32.98 | 4.22 | 44.70 | 39.17 | 4.44 | 50.85 | 50.85 | 4.57 | 56.96 | 56.96 | 4.72 | 63.74 | 63.74 | 4.89 |
| | 2250 | 18.58 | 17.10 | 3.82 | 24.31 | 22.37 | 3.96 | 30.31 | 27.82 | 4.10 | 36.76 | 33.34 | 4.23 | 44.98 | 39.41 | 4.42 | 50.96 | 50.96 | 4.55 | 56.97 | 56.97 | 4.68 | 63.66 | 63.66 | 4.83 |
| 75 (24) | 1750 | 17.07 | 15.71 | 3.90 | 22.79 | 20.97 | 4.08 | 28.78 | 26.41 | 4.25 | 35.10 | 31.83 | 4.42 | 42.45 | 37.20 | 4.63 | 50.18 | 50.18 | 4.84 | 56.35 | 56.35 | 5.02 | 63.13 | 63.13 | 5.22 |
| | 2000 | 17.37 | 15.98 | 3.94 | 23.15 | 21.30 | 4.10 | 29.18 | 26.78 | 4.26 | 35.55 | 32.24 | 4.41 | 43.17 | 37.83 | 4.61 | 50.40 | 50.40 | 4.79 | 56.46 | 56.46 | 4.94 | 63.14 | 63.14 | 5.12 |
| | 2250 | 17.65 | 16.24 | 3.96 | 23.47 | 21.59 | 4.13 | 29.53 | 27.10 | 4.28 | 35.95 | 32.60 | 4.42 | 44.25 | 38.77 | 4.64 | 50.52 | 50.52 | 4.76 | 56.49 | 56.49 | 4.90 | 63.12 | 63.12 | 5.06 |

PERFORMANCE DATA (CONT)

LEGEND

BF— Bypass Factor
 db — Dry Bulb
 edb— Entering Dry –Bulb
 Ewb— Entering Wet –Bulb
 kW — Total Unit Power Input
 ldb— Leaving Dry –Bulb
 lwb— Leaving Wet–Bulb
 SHC — Sensible Heat Capacity (1000 Btuh)
 TC — Total Capacity (1000 Btuh) (net)

*At 75 °F (23.9 °C) entering dry bulb (Tennessee Valley Authority [TVA] rating conditions); all other at 80 °F (26.75 °C) entering dry bulb.

COOLING NOTES:

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

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

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

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

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

4. The SHC is based on 80 °F (26.7 °C) edb temperature of air entering evaporator coil. Below 80 °F (26.7 °C) edb, subtract (corr factor x CFM) from SHC. Above 80 °F (26.7 °C) edb, add (corr factor x CFM) to SHC.
 Correction Factor = $1.10 \times (1 - \text{BF}) \times (\text{edb} - 80)$.

PERFORMANCE DATA (CONT)

Filter Pressure Drop (IN. W.C.)

| FILTER SIZE in. (mm) | CFM | | | | | | | | | | | | | | | | | |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 |
| 20X20X1 (508X508X25) | 0.05 | 0.07 | 0.08 | 0.10 | 0.12 | 0.13 | 0.14 | 0.15 | — | — | — | — | — | — | — | — | — | — |
| 20X24X1 (508X610x25) | — | — | — | 0.08 | 0.09 | 0.10 | 0.11 | 0.13 | 0.14 | 0.15 | 0.16 | — | — | — | — | — | — | — |
| 24X30X1 (610X762x25) | — | — | — | 0.04 | 0.05 | 0.06 | 0.07 | 0.07 | 0.08 | 0.09 | 0.10 | — | — | — | — | — | — | — |
| 24X36X1 (610X914X25) | — | — | — | — | — | — | — | 0.06 | 0.07 | 0.07 | 0.08 | 0.09 | 0.09 | 0.10 | 0.11 | 0.12 | 0.13 | 0.14 |

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

| HEATER kW | CFM | | | | | | | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 |
| 5-20 | 0.033 | 0.037 | 0.042 | 0.047 | 0.052 | 0.060 | 0.067 | 0.075 |

Wet Coil Air Delivery*

(Deduct 10 percent for 208 Volt Operation)

| 230 VOLT HORIZONTAL DISCHARGE | | | | | | | | | | | | |
|-------------------------------|-----------|---------------------------|-------------------------------------|------|------|------|------|------|------|------|------|------|
| UNIT SIZE | SPEED TAP | AIR DELIVERY ² | 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 |
| 024 | 1 | SCFM | 933 | 799 | 758 | 707 | 675 | 608 | 549 | 497 | 435 | 394 |
| | 2 | SCFM | 1016 | 921 | 882 | 854 | 809 | 761 | 711 | 668 | 599 | 552 |
| | 3 | SCFM | 1079 | 1041 | 1003 | 970 | 944 | 909 | 866 | 810 | 764 | 724 |
| 030 | 1 | SCFM | 1052 | 1018 | 984 | 943 | 914 | 879 | 833 | 795 | 732 | 678 |
| | 2 | SCFM | 1141 | 1107 | 1069 | 1036 | 1006 | 974 | 932 | 899 | 856 | 784 |
| | 3 | SCFM | 1246 | 1213 | 1181 | 1144 | 1108 | 1078 | 1043 | 1015 | 973 | 931 |
| 036 | 1 | SCFM | 1311 | 1253 | 1195 | 1136 | 1083 | 1023 | 958 | 895 | 818 | 729 |
| | 2 | SCFM | 1413 | 1364 | 1313 | 1256 | 1203 | 1148 | 1084 | 1022 | 969 | 882 |
| | 3 | SCFM | 1571 | 1525 | 1473 | 1423 | 1364 | 1313 | 1261 | 1210 | 1156 | 1090 |
| 042 | 1 | SCFM | 1499 | 1434 | 1394 | 1349 | 1307 | 1273 | 1232 | 1169 | 1108 | 1038 |
| | 2 | SCFM | 1568 | 1532 | 1497 | 1459 | 1407 | 1381 | 1346 | 1304 | 1252 | 1185 |
| | 3 | SCFM | 1635 | 1593 | 1560 | 1523 | 1484 | 1439 | 1406 | 1369 | 1335 | 1264 |
| 048 | 1 | SCFM | 1657 | 1625 | 1590 | 1554 | 1517 | 1486 | 1448 | 1417 | 1381 | 1340 |
| | 2 | SCFM | 1707 | 1673 | 1644 | 1614 | 1586 | 1549 | 1515 | 1479 | 1449 | 1407 |
| | 3 | SCFM | 1931 | 1900 | 1870 | 1840 | 1809 | 1778 | 1749 | 1714 | 1683 | 1646 |
| 060 | 1 | SCFM | 1837 | 1798 | 1753 | 1716 | 1677 | 1637 | 1590 | 1549 | 1497 | 1445 |
| | 2 | SCFM | 1910 | 1872 | 1835 | 1795 | 1748 | 1711 | 1673 | 1623 | 1568 | 1525 |
| | 3 | SCFM | 2098 | 2065 | 2032 | 1996 | 1956 | 1917 | 1877 | 1839 | 1798 | 1753 |

*Air delivery values are based on operating voltage of 230v, wet coil, without filter or electric heater. Deduct filter and electric heater pressure drops to obtain static pressure available for ducting.

NOTES:

1. Do not operate the unit at a cooling airflow that is less than 350 cfm for each 12,000 Btu/h of rated cooling capacity. Evaporator coil frosting may occur at airflows below this point.
2. Standard Cubic Feet per Minute

50ZHB

ELECTRICAL DATA

50ZHB

| UNIT | NOMINAL V-PH-HZ | VOLTAGE RANGE | | COMPRESSOR | | OFM | IFM | ELECTRIC HEAT | | | POWER SUPPLY | | |
|---------------|--------------------|------------------|-----|------------|-------|-----|-----|---------------|------|------|--------------|-------|---------|
| | | MIN | MAX | RLA | LRA | FLA | FLA | NOMINAL | FLA | | MCA | | MOCP |
| | | | | | | | | kW * | 208 | 240 | 208 | 230 | ** |
| 50ZHB024---30 | 208/230-1-60 | 197 | 253 | 12.8 | 58.3 | 0.9 | 2.8 | -/- | - | - | 19.7 | 19.7 | 30 |
| | | | | | | | | 3.8/5 | 18.0 | 20.8 | 42.2 | 45.7 | 45/50 |
| | | | | | | | | 5.6/7.5 | 27.0 | 31.3 | 53.5 | 58.8 | 60/60 |
| | | | | | | | | 7.5/10 | 36.1 | 41.7 | 64.8 | 71.8 | 70/80 |
| 50ZHB030---30 | 208/230-1-60 | 197 | 253 | 14.1 | 73.0 | 0.9 | 2.8 | -/- | - | - | 21.3 | 21.3 | 30 |
| | | | | | | | | 3.8/5 | 18.0 | 20.8 | 43.8 | 47.3 | 45/50 |
| | | | | | | | | 5.6/7.5 | 27.0 | 31.3 | 55.1 | 60.5 | 60/70 |
| | | | | | | | | 7.5/10 | 36.1 | 41.7 | 66.5 | 73.5 | 70/80 |
| 50ZHB036---30 | 208/230-1-60 | 197 | 253 | 16.7 | 79.0 | 1.5 | 4.1 | -/- | - | - | 26.5 | 26.5 | 40 |
| | | | | | | | | 3.8/5 | 18.0 | 20.8 | 49.0 | 52.5 | 50/60 |
| | | | | | | | | 5.6/7.5 | 27.0 | 31.3 | 60.2 | 65.6 | 70/70 |
| | | | | | | | | 7.5/10 | 36.1 | 41.7 | 71.6 | 78.6 | 80/80 |
| 50ZHB042---30 | 208/230-1-60 | 197 | 253 | 18.2 | 112.0 | 1.5 | 4.1 | -/- | - | - | 28.3 | 28.3 | 40 |
| | | | | | | | | 3.8/5 | 18.0 | 20.8 | 50.8 | 54.3 | 60/60 |
| | | | | | | | | 5.6/7.5 | 27.0 | 31.3 | 62.0 | 67.4 | 70/70 |
| | | | | | | | | 7.5/10 | 36.1 | 41.7 | 73.4 | 80.4 | 80/90 |
| 50ZHB048---30 | 208/230-1-60 | 197 | 253 | 22.3 | 117.0 | 1.5 | 6.0 | -/- | - | - | 35.4 | 35.4 | 50 |
| | | | | | | | | 3.8/5 | 18.0 | 20.8 | 57.9 | 61.4 | 60/70 |
| | | | | | | | | 5.6/7.5 | 27.0 | 31.3 | 69.1 | 74.5 | 70/80 |
| | | | | | | | | 7.5/10 | 36.1 | 41.7 | 80.5 | 87.5 | 90/90 |
| 50ZHB060---30 | 208/230-1-60 | 197 | 253 | 26.4 | 134.0 | 1.9 | 7.6 | -/- | - | - | 42.5 | 42.5 | 60 |
| | | | | | | | | 3.8/5 | 18.0 | 20.8 | 65.0 | 68.5 | 70/70 |
| | | | | | | | | 5.6/7.5 | 27.0 | 31.3 | 76.3 | 81.6 | 80/90 |
| | | | | | | | | 7.5/10 | 36.1 | 41.7 | 87.6 | 94.6 | 90/100 |
| | | | | | | | | 11.3/15 | 54.1 | 62.5 | 110.1 | 120.6 | 125/125 |
| | | | | | | | | 15.0/20.0 | 72.1 | 83.3 | 132.6 | 146.6 | 150/150 |

*kW @ 208/240

** HACR Type Circuit Breaker

LEGEND

FLA – Full Load Amps

LRA – Locked Rotor Amps

MCA – Minimum Circuit Amps

MOCP – Maximum Overcurrent Protection

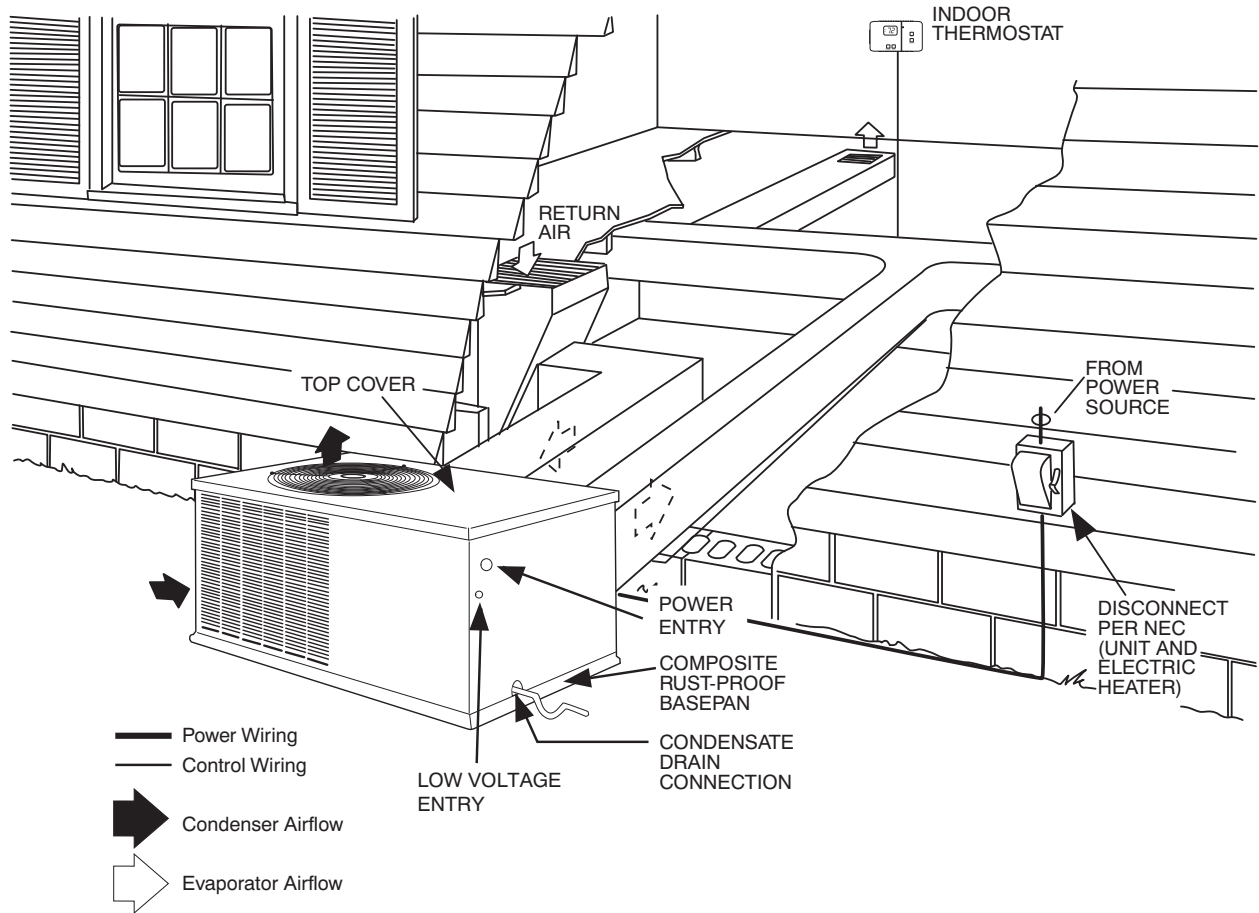
RLA – Rated Load Amps

NOTES:

- 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.
- 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.

*Heater capacity (kW) based on heater voltage of 208v & 240v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.

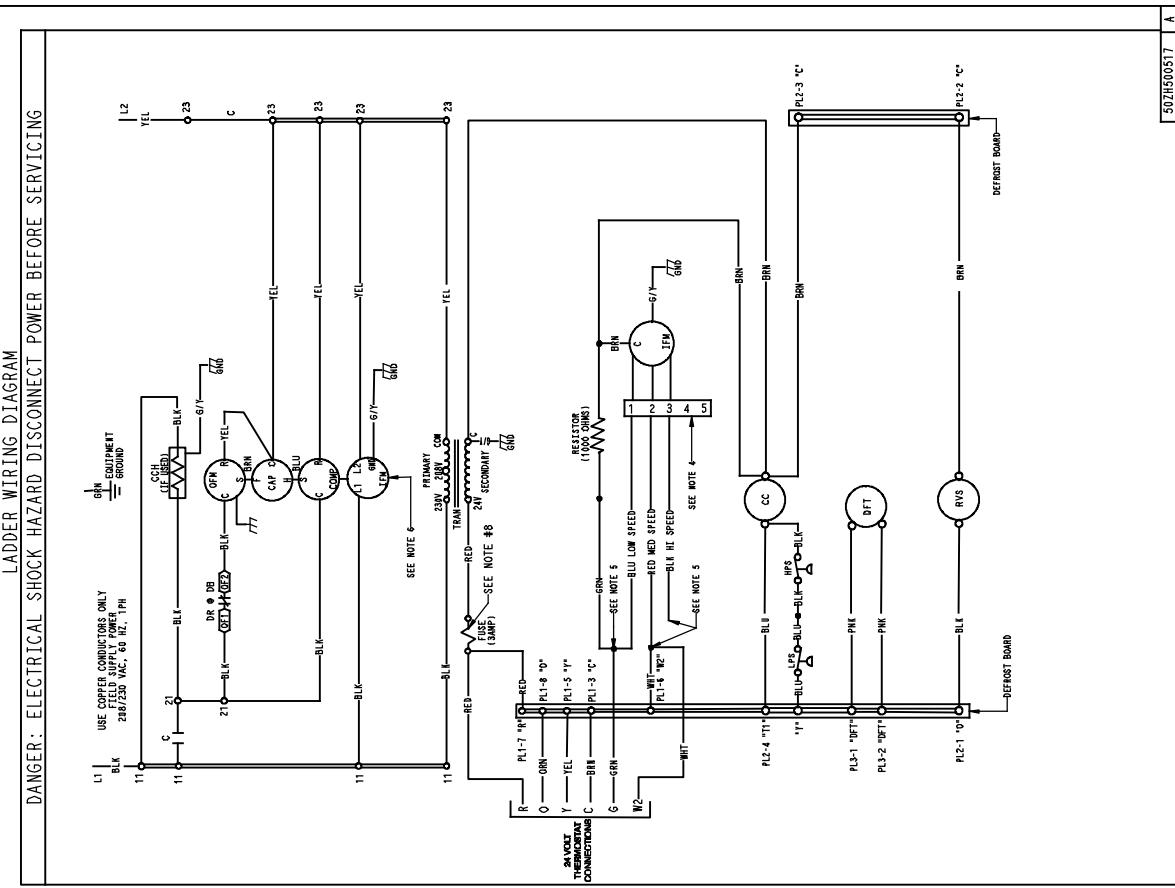
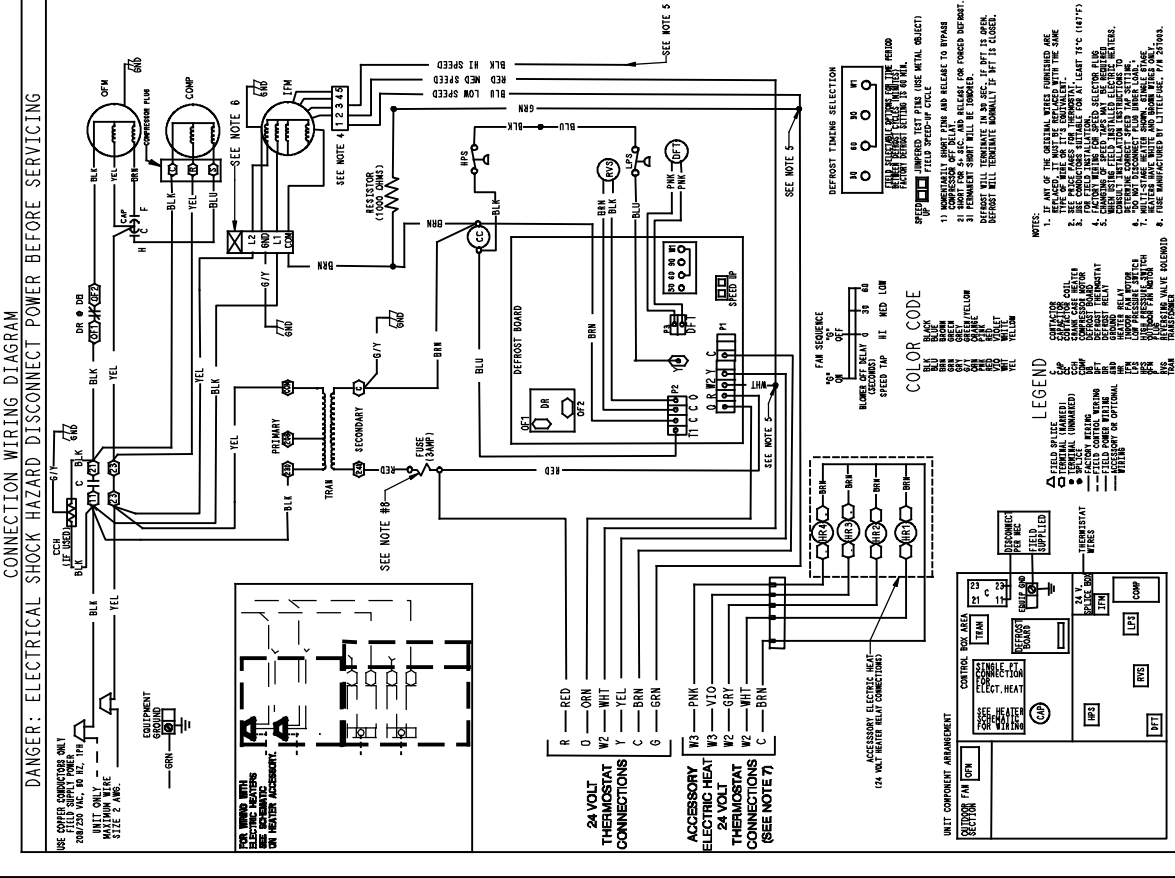
TYPICAL INSTALLATION



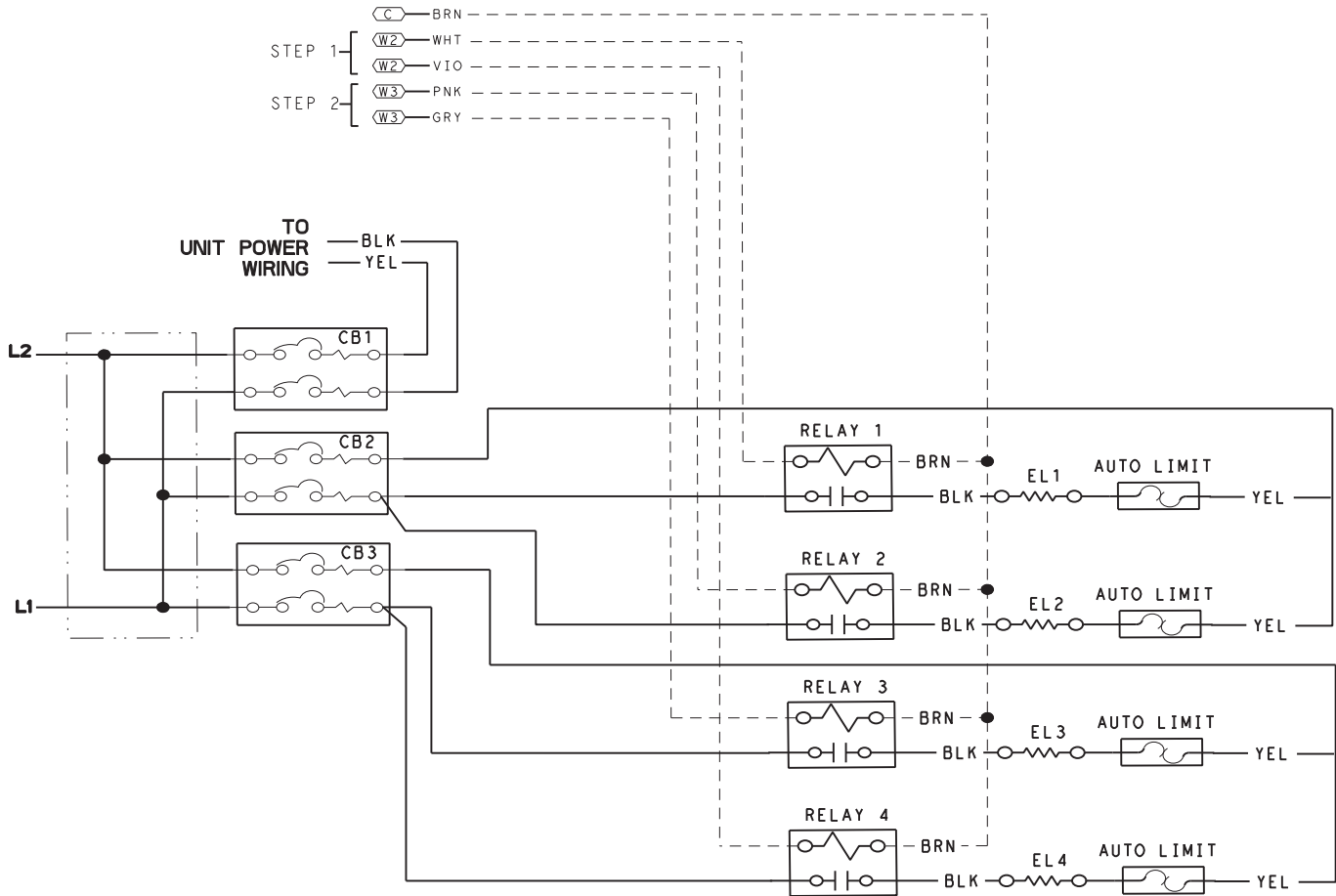
50ZHB

A10135

50ZHB



TYPICAL WIRING SCHEMATIC (CONT)



NOTE: 20 kW wiring shown. Smaller heaters have fewer elements and controls.

Single-Phase Accessory Electric Heater Wiring

A10025

CONTROLS

Sequence of operation

When power is supplied to unit, the transformer (TRAN) is energized.

Cooling Operation — With a call for cooling (O,Y,G), the reversing valve, contactor, and indoor fan are energized. When the cooling demand is met, Y and G are de-energized, shutting off the contactor (compressor, outdoor fan). The indoor fan stops after a 60 second delay.

Heating Operation — With a call for heating (Y,G), the contactor and indoor fan are energized. When the heating demand is met, Y and G are de-energized, shutting off the contactor (compressor, outdoor fan). The indoor fan stops after a 60 second delay.

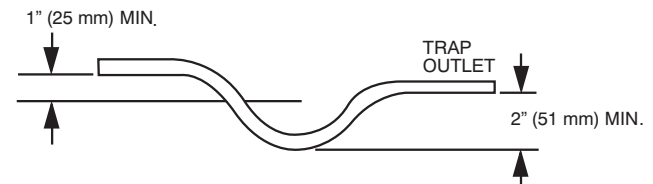
Continuous Fan — With the continuous indoor fan option selected on the thermostat, G is continuously energized keeping the indoor fan running at all times.

Defrost — The defrost control is a time/temperature control which includes a field-selectable time period between defrost cycles of 30, 60, and 90 minutes. Electronic timer and defrost cycle start only when contactor is energized and defrost thermostat (DFT) is closed.

Defrost mode is identical to cooling mode, except outdoor fan motor stops and a bank of optional electric heat turns on to warm air supplying the conditioned space.

APPLICATION DATA

Condensate trap — A 2-in. (51 mm) condensate trap must be field supplied.



Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 CFM/ton.

Minimum cooling airflow — The minimum cooling airflow is 350 cfm/ton.

Minimum cooling operating outdoor air temperature — All standard units have a minimum ambient operating temperature of 40°F (4.4°C). With accessory low ambient temperature kit, units can operate at temperatures down to 0°F (-17.8°C).

Maximum operating outdoor air temperature — Maximum outdoor operating air temperature for cooling is 125°F (51.7°C).

GUIDE SPECIFICATIONS

SMALL PACKAGED PRODUCT AIR-TO-AIR HEAT PUMP CONSTANT VOLUME APPLICATION

HVAC GUIDE SPECIFICATIONS

SIZE RANGE: 2 TO 5 TONS, NOMINAL (COOLING)

MODEL NUMBER: 50ZHB

PART I - GENERAL

SYSTEM DESCRIPTION

Outdoor packaged, electrically controlled, air-to-air heat pump utilizing a scroll compressor for heating and cooling duty. Unit shall discharge supply air horizontally as shown on contract drawings.

QUALITY ASSURANCE

- A. Unit shall be rated in accordance with AHRI Standards 210/240, and 270. Designed in accordance with UL Standard 1995.**
- B. Unit shall be designed to conform to ASHRAE 15.**
- C. Unit shall be UL listed as a total package for safety requirements.**
- D. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.**

DELIVERY, STORAGE, AND HANDLING

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

PART 2- PRODUCTS

EQUIPMENT

A. General:

Factory-assembled, single piece, air-to-air heat pump. Contained within the unit enclosure shall be all factory wiring, piping, controls, and refrigerant charge (R-410A).

B. Unit Cabinet:

- 1. Unit cabinet shall be constructed of phosphated, bonderized, zinc-coated, prepainted steel.
- 2. Basepan shall be made of a single-piece non-corrosive, composite material.
- 3. Indoor fan compartment cabinet surfaces shall be insulated with a minimum 1/2 in. (12.7 mm) thick, flexible insulation, coated on the air side, with aluminum foil-faced insulation.
- 4. Cabinet panels shall be easily removable for servicing.
- 5. Unit shall have a factory-installed, sloped, noncorrosive, condensate drain.
- 6. Unit insulation conforms to ASHRAE 62P.

C. Fans:

- 1. Indoor Blower (Indoor Fan):
 - a. Fan shall be multispeed, direct drive as shown on the equipment drawings.
 - b. Fan wheel shall be made from steel, be double-inlet type. It shall have forward-curved blades with a corrosion-resistant finish and shall be dynamically balanced.
- 2. Outdoor fan shall be of the direct-driven propeller type with aluminum blades, riveted to corrosion-resistant steel spiders. It shall be dynamically balanced, and shall discharge air upwards.

D. Compressor:

Fully-hermetic scroll type with external vibration isolation.

E. Coils:

- 1. Indoor and outdoor coils shall have aluminum-plate fins mechanically bonded to seamless copper tubes with all joints brazed.
- 2. Tube sheet openings shall be bellied to prevent tube wear.
- 3. Outdoor coil shall be protected by metal louvered panels.

F. Refrigerant Components:

- 1. TXV and AccuRater feed system.
- 2. Service gauge connections on suction and discharge lines.
- 3. Equipped with liquid line filter drier.
- 4. Equipped with accumulators on all sizes.

G. Controls and Safeties:

- 1. Unit Controls:
 - a. Unit shall be complete with self-contained low voltage control circuit.
 - b. Unit shall incorporate an outdoor coil defrost system to prevent excessive frost accumulation during heating cycle and shall be controlled as follows:
 - (1.) Defrost shall be initiated on the basis of time and coil temperature.
 - (2.) A 30/60/90-minute timer shall activate defrost cycle only if coil temperature is low enough to indicate a heavy frost condition.
 - (3.) Defrost cycle shall terminate when defrost thermostat is satisfied or shall have a positive termination time of 10 minutes.
- 2. Safeties:
 - a. High Pressure Switch
 - b. Loss of Charge Switch

H. Operating Characteristics:

- 1. Unit shall be capable of starting and running at 125°F (51.7°C) ambient outdoor temperature.
- 2. Compressor with standard controls shall be capable of operation down to 40°F (4.4°C) ambient outdoor temperature in cooling duty.
- 3. Compressor shall be capable of operation in heating cycle down to -20°F (-28.9°C) ambient outdoor-air temperature.
- 4. Unit shall be capable of simultaneous heating duty and defrost cycle operation when using electric heaters indicated in Section L, Special Features.

I. Electrical Requirements:

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

J. 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.
- 3. Outdoor-fan motor shall be totally enclosed.

GUIDE SPECIFICATIONS (CONT)

K. Grille

1. Louvered Grille:

Louvered grille shall be standard on all units.

L. Special Features Available

1. Coil Options:

Shall include factory-installed optional tin-plated indoor coil.

2. Thermostat:

To provide for two-stage heating and one-stage cooling in addition to manual or automatic changeover and indoor fan control.

3. Low-Ambient Package:

Shall consist of a solid-state control and outdoor coil temperature sensor for controlling outdoor fan motor operation, which shall allow unit to operate down to 0°F (-17.8°C) outdoor ambient temperature in cooling.

4. Crankcase Heater:

Shall provide anti-floodback protection for low-load cooling applications.

5. 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.

6. Compressor Start Kit:

Shall be available to give a boost to the compressor motor at each start-up.

7. Outdoor Thermostat Kit:

Thermostat allows for staging of electric heaters based on outdoor air temperature.

