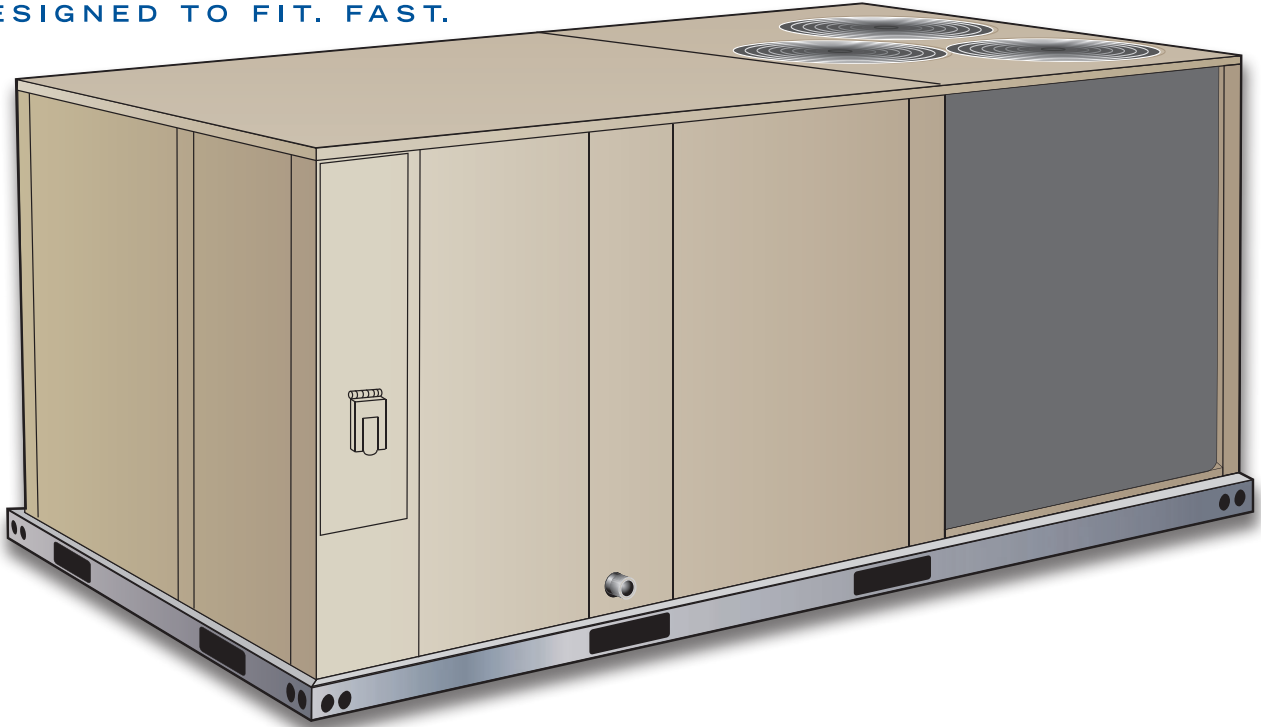


**PRODUCT SPECIFICATIONS**

Bulletin No. ZHA-092-120 (03/2019)

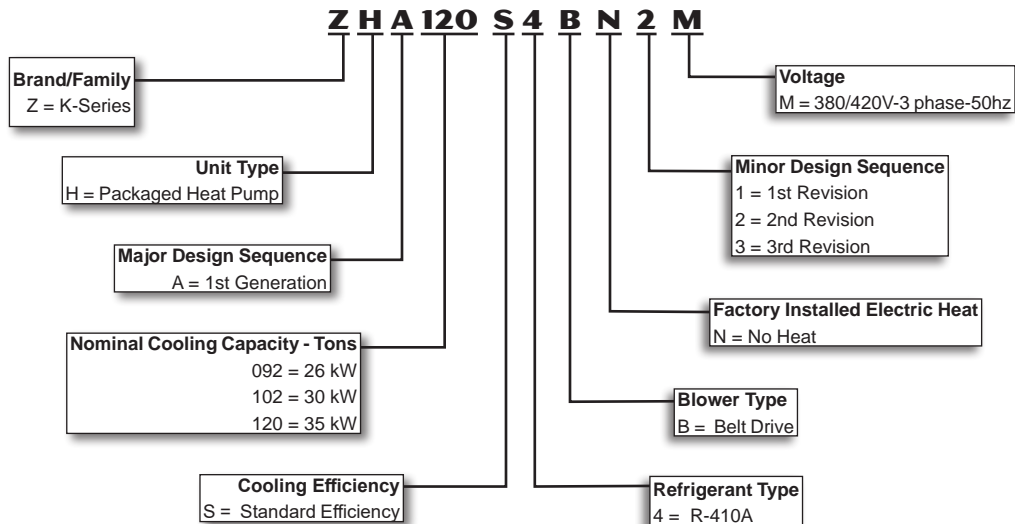
**Z-SERIES<sup>TM</sup>**  
DESIGNED TO FIT. FAST.



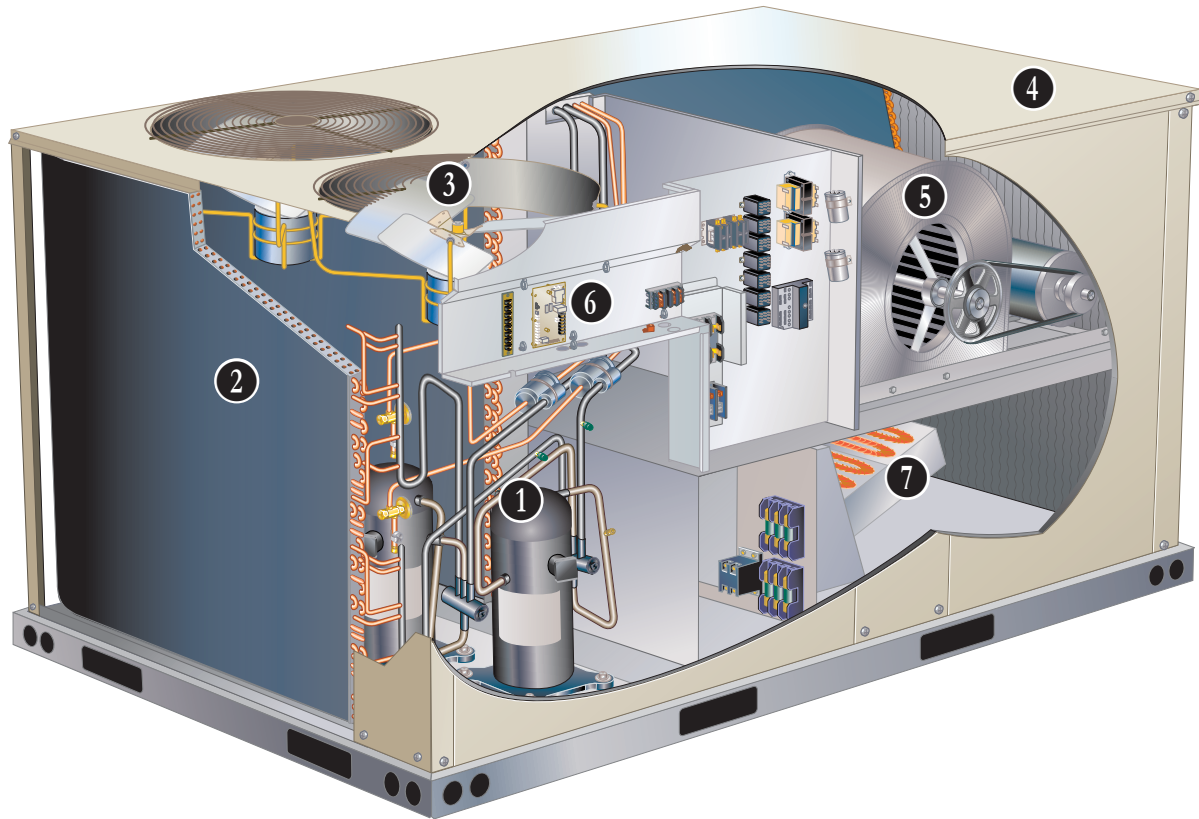
26 to 35 kW

**Net Cooling Capacity – 22.6 to 30.6 kW (77 100 to 104 600 Btuh)**  
**Net Heating Capacity – 23.6 to 29.0 kW (80 400 to 98 900 Btuh)**  
**Optional Electric Heat - 5.7 to 45.9 kW**

**MODEL NUMBER IDENTIFICATION**



## FEATURES AND BENEFITS



K-Series™ rooftop units from Allied are the new standard for reliable, efficient rooftop units built for long-lasting performance that can significantly improve indoor environments.

K-Series™ rooftop units feature:

- **Quick and Easy Retrofit** - Fast installation for replacement of many existing rooftop units - fits high volume competitor's roof curbs.
- **R-410A Refrigerant** - Environmentally friendly.
- **Scroll Compressors** - Single speed scroll compressors are furnished on all models.
- **High Pressure Switches** - Protect compressor.
- **Independent Outdoor Fan Motor Mounts** - Allows for easy and efficient service access without removing the top panel.
- **Constant Air Volume (CAV) Air Blower** - Allows constant air delivery.
- **Downflow or Horizontal Airflow** - Easy field conversion.
- **Two Fork Lift Slots on Three Sides** - Easy to pick up and transport units from almost any angle.
- **Corrosion-Resistant Drain Pan** - Provides application flexibility, durability and improved serviceability.
- **MERV 8 or MERV 13 Filters** - Available as field installed option, provide an enhanced level of indoor air quality, and can help the building qualify for additional Leadership in Energy and Environmental Design (LEED) credits.
- **Common Components** - Many maintenance items are standard throughout the entire product line, reducing the need to carry different parts to the job or maintain in inventory.

## FEATURES AND BENEFITS

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### PERFORMANCE / QUALITY

Components bonded for grounding to meet safety standards for servicing required by Underwriters Laboratories (UL) and the International Electrotechnical Commission (IEC).

Cooling performance is rated at test conditions included in Air- Conditioning, Heating and Refrigeration Institute (AHRI) Standard 340/360-2007 while operating at rated voltage and air volumes.

International Organization for Standardization (ISO) 9001 Registered Manufacturing Quality System.

### COOLING SYSTEM

Designed to maximize sensible and latent cooling performance at design conditions.

System can operate from -1°C to 52°C without any additional controls.

**R-410A Refrigerant** Non-chlorine based, ozone friendly, R-410A.

#### 1 Scroll Compressors

Scroll compressors on all models for high performance, reliability and quiet operation.

Resiliently mounted on rubber grommets for quiet operation.

**Refrigerant Metering Orifice**  
Accurately meters refrigerant in system.

Refrigerant control is accomplished by exact sizing of refrigerant metering orifice.

#### Filter/Driers

High capacity filter/drier protects the system from dirt and moisture.

### Reversing Valve

4-way interchange reversing valve effects a rapid change in direction of refrigerant flow resulting in quick changeover from cooling to heating and vice versa.

### Defrost Control

Provides a defrost cycle, if needed, every 30 or 60 or 90 minutes (adjustable) of compressor "on" time at outdoor coil temperature below 2°C. Pressure and temperature switches terminate defrost cycle.

### High Pressure Switches

Protects the compressor from overload conditions such as dirty condenser coils, blocked refrigerant flow, or loss of outdoor fan operation.

#### 2 Coil Construction

Copper tube construction, enhanced rippled-edge aluminum fins, flared shoulder tubing connections, silver soldered construction for improved heat transfer. Factory leak tested.

### Indoor Coil

Cross row circuiting with rifled tubing optimizes both sensible and latent cooling capacity.

### Condensate Drain Pan

Plastic pan, sloped to meet drainage requirements of ASHRAE 62.1.

Side drain connections.

### Outdoor Coil Fan Motors

Thermal overload protected, totally enclosed, permanently lubricated ball bearings, shaft up, wire basket mount.

#### 3 Outdoor Coil Fans

Polyvinyl Chloride (PVC) coated fan guard furnished.

## FEATURES AND BENEFITS

### COOLING SYSTEM

#### **(continued)**

#### Required Selections

##### **Cooling Capacity**

Specify nominal cooling capacity of the unit.

#### Options/Accessories

##### **Field Installed**

##### **Condensate Drain Trap**

Available in copper or Polyvinyl Chloride (PVC).

##### **Drain Pan Overflow Switch**

Monitors condensate level in drain pan, shuts down unit if drain becomes clogged.

##### **Low Ambient Kit**

Cycles the outdoor fan while allowing compressor operation in the cooling cycle. This intermittent fan operation allows the system to operate without icing the indoor coil and losing capacity. Designed for use in ambient temperatures no lower than -18°C.

### CABINET

#### **4 Construction**

Heavy-gauge steel panels and full perimeter heavy-gauge galvanized steel base rail provides structural integrity for transportation, handling, and installation.

Base rails have rigging holes.

Three sides of the base rail have forklift slots.

Raised edges around duct and power entry openings in the bottom of the unit provide additional protection against water entering the building.

##### **Airflow Choice**

Units are shipped in downflow (vertical) configuration, can be field converted to horizontal airflow.

##### **Duct Flanges**

Provided for horizontal duct attachment.

##### **Power Entry**

Electrical lines can be brought through the unit base or through horizontal access knock-outs.

Optional Bottom Power Entry Kit is available.

##### **Exterior Panels**

Constructed of heavy-gauge, galvanized steel with a two-layer enamel paint finish.

##### **Insulation**

All panels adjacent to conditioned air are fully insulated with non-hygroscopic fiberglass insulation.

##### **Access Panels**

Access panels are provided for the filter section, heating/blower section, and the compressor/controls section. Recessed handles allow easy access for servicing.

### Options/Accessories

#### **Factory Installed**

##### **Corrosion Protection**

A completely flexible immersed coating with an electrodeposited dry film process. (AST ElectroFin E-Coat) Meets Mil Spec MIL-P-53084, ASTM B117 Standard Method Salt Spray Testing.

Indoor Corrosion Protection:

- Coated coil

Outdoor Corrosion Protection:

- Coated coil

#### **Field Installed**

##### **Coil/Hail Guards**

Painted, galvanized steel wire guards to protect outdoor coil.

## FEATURES AND BENEFITS

### 5 BLOWER

A wide selection of supply air blower options are available to meet a variety of airflow requirements.

#### Motor

Overload protected, equipped with ball bearings. Belt drive motors are offered on all models and are available in several different sizes to maximize air performance.

#### Supply Air Blower

Forward curved blades, double inlet, blower wheel is statically and dynamically balanced. Equipped with ball bearings and adjustable pulley (allows speed change).

Blower assembly slides out of unit for servicing.

#### Required Selections

Order blower motor horsepower and drive kit number required when base unit is ordered, see Drive Kit Specifications Table.

### 6 CONTROLS

#### Unit Control

All control voltage is provided via a 24V (secondary) transformer with built-in circuit breaker protection.

**Heat/Cool Staging** - Capable of up to 2 heat / 2 cool staging with a third party DDC control system or thermostat.

#### Low Voltage Terminal Block -

Provides screw terminal connections for thermostat or controller wiring.

**Night Setback Mode** - Saves energy by closing outdoor air dampers and operating supply fan on thermostat demand only.

#### Smoke Detectors

*NOTE - Smoke detectors are not available and must be field provided by installer.*

#### Options/Accessories

#### Field Installed

##### Thermostats

Control system and thermostat options, see page page 21.

### ELECTRICAL

#### Marked & Color-Coded Wiring

All electrical wiring is color-coded and marked to identify which components it is connecting.

#### Electrical Plugs

Positive connection electrical plugs are used to connect common accessories or maintenance parts for easy removal or installation.

#### Required Selections

#### Voltage Choice

Specify when ordering base unit.

#### Options/Accessories

#### Field Installed

### 7 Electric Heat

Helix wound nichrome elements, individual element limit controls, wiring harness. See Options / Accessories tables for ordering information.

*NOTE - Unit Fuse Block is required and must be ordered separately. See Electrical / Electric Heat tables for ordering information.*

#### Bottom Power Entry Kit

Kit reduces the number of penetrations in the roof.

Kit includes bulkhead connectors to provides power and control wiring routing through the roof curb.

### INDOOR AIR QUALITY

#### Air Filters

Disposable 51 mm filters furnished as standard.

#### Options/Accessories

#### Field Installed

##### High Efficiency Air Filters

Disposable MERV 8 or MERV 13 (Minimum Efficiency Reporting Value based on ASHRAE 52.2) efficiency 51 mm pleated filters.

##### Replacement Filter Media Kit With Frame

Replaces existing pleated filter media. Includes washable metal mesh screen and metal frame with clip for holding replaceable non-pleated filter.

##### Indoor Air Quality (CO<sub>2</sub>) Sensors

Monitors CO<sub>2</sub> levels, reports to the Unit Controller which adjusts economizer dampers as needed.



## OPTIONS / ACCESSORIES

### ECONOMIZER OPTIONS

#### Factory or Field Installed

*NOTE - Downflow Economizer is factory or field installed. Horizontal Economizer is field installed only.*

#### Economizer

##### (Standard and High Performance Common Features)

Barometric Relief Dampers allow relief of excess air, aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle, Exhaust hood with bird screen furnished.

*NOTE - Outdoor Air and Barometric Relief Exhaust Hoods are included when economizer is factory installed and are furnished with economizer when ordered for field installation.*

Occupied/Unoccupied mode with field furnished setback thermostat.

Demand Control Ventilation (DCV) ready using optional CO<sub>2</sub> sensors.

Single temperature control is furnished with Economizer.

Outdoor air temperature sensor enables economizer if the outdoor temperature is less than the setpoint of the control.

#### Standard Economizer Features

Downflow or Horizontal models with Barometric Relief Dampers and Hoods.

Parallel gear-driven action, return air and outdoor air dampers, plug-in connections to unit, nylon bearings, neoprene seals, 24-volt, fully-modulating spring return motor.

#### Standard Economizer Control Module

The Standard Economizer Control Module can be adjusted to operate based on outdoor air temperatures.



#### Economizer Controls:

- Damper Minimum Position - Can be set lower than traditional minimum air requirements resulting in cost savings.
- IAQ Sensor - Signals dampers to modulate and maintain 13°C when CO<sub>2</sub> is higher than the CO<sub>2</sub> setpoint.
- Demand Control Ventilation (DCV) LED - A steady green Demand Control Ventilation LED indicates the IAQ reading is higher than setpoint and requires more fresh air.
- Free Cool LED - A steady green LED indicates outdoor air is suitable for free cooling.

Free Cooling runs when outdoor air temperature is lower than the set temperature on the economizer control.

*NOTE: The Free Cooling default setting for outdoor air temperature sensor is 13°C.*

#### High Performance Economizer Features

Downflow models with Barometric Relief Dampers and Hoods.

Parallel gear-driven action, high torque 24-volt fully-modulating spring return damper motor, return air and outdoor air dampers, plug-in connections to unit, stainless steel bearings, enhanced neoprene blade edge seals and flexible stainless steel jamb seals to minimize air leakage.

#### High Performance Economizer Control Module

Module provides inputs and outputs to control economizer based on parameter settings. Module automatically detects sensors by polling to determine which sensors are installed in system.

Module displays any alarm messages (fault detection and diagnostics) as an aid in troubleshooting.



Non-volatile memory retains parameter settings in case of power failure.

Keypad with four navigation buttons and LCD screen is furnished for setting economizer parameters.

- Menu Up/Exit (↑) button returns to the main menu.
- Arrow Up (▲) button moves to the previous or next parameter within the selected menu.
- Arrow Down (▼) button moves to the next parameter within the selected menu.
- Select (enter) (↵) button confirms parameter selection.

#### Main Menu Structure:

- STATUS (economizer and system operation status)
- SETPOINTS (settings for various setpoint parameters)
- SYSTEM SETUP (settings/information about the system)
- ADVANCED SETUP (freeze protection, CO<sub>2</sub> settings, stage 3 delay and additional calibration settings)
- CHECKOUT (damper positions)
- ALARMS (output signal that can be configured for remote alarm monitoring)

#### Field Installed

##### Single Enthalpy Temperature Control

Outdoor air enthalpy sensor enables economizer if the outdoor enthalpy is less than the setpoint of the control.

##### Differential Enthalpy Control

Order two Single Enthalpy Control Kits. One is field installed in the return air section, the other in the outdoor air section. Allows the economizer control board to select between outdoor air or return air, whichever has lower enthalpy.

## **OPTIONS / ACCESSORIES**

### EXHAUST OPTIONS

#### Field Installed

##### **Horizontal Low Profile**

##### **Barometric Relief Dampers**

For use when unit is configured for horizontal applications in a reduced space requiring an economizer.

Allows relief of excess air.

Aluminum blade dampers prevent blow back and outdoor air infiltration during off cycle.

Field installed in return air duct.

Exhaust hood with bird screen furnished.

##### **Power Exhaust Fan**

Installs internal to unit for downflow applications only with economizer option. Provides exhaust air pressure relief. Interlocked to run when supply air blower is operating, fan runs when outdoor air dampers are 50% open (adjustable), motor is overload protected. Requires Economizer with Outdoor Air Hood and Barometric Relief Dampers. Fan is 508 mm diameter with 5 blades (K1PWRE10B) with 0.25 kW motor.

### OUTDOOR AIR OPTIONS

#### Field Installed

##### **Outdoor Air Damper - Downflow or Horizontal With Air Hood**

Linked mechanical dampers, 0 to 25% (fixed) outdoor air adjustable, installs in unit. Includes outdoor air hood.

Automatic model features fully modulating spring return damper motor with plug-in connection.

Manual model features a slide damper.

Maximum mixed air temperature in cooling mode: 38°C.

### ROOF CURBS

#### **Hybrid Roof Curbs, Downflow**

Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down.

Roof curb can be assembled using interlocking tabs to fasten corners together. No tools required.

Curb can also be fastened together with furnished hardware.

Available in 203, 356, 457, and 610 mm heights.

### CEILING DIFFUSERS

#### **Ceiling Diffusers**

##### **(Flush or Step-Down)**

Aluminum grilles, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings.

#### **Transitions (Supply and Return)**

*NOTE - Ceiling Diffuser Transitions are not furnished and must be field fabricated.*

## OPTIONS / ACCESSORIES

| Item Description                     | Model Number              | Catalog Number | Unit Model No |     |     |   |
|--------------------------------------|---------------------------|----------------|---------------|-----|-----|---|
|                                      |                           |                | 092           | 102 | 120 |   |
| <b>COOLING SYSTEM</b>                |                           |                |               |     |     |   |
| Condensate Drain Trap                | PVC - C1TRAP20AD2         | <b>76W26</b>   | X             | X   | X   |   |
|                                      | Copper - C1TRAP10AD2      | <b>76W27</b>   | X             | X   | X   |   |
| Corrosion Protection                 |                           | Factory        | O             | O   | O   |   |
| Drain Pan Overflow Switch            | Z1SNSR90A1                | <b>99W59</b>   | X             | X   | X   |   |
| Low Ambient Kit                      | Z1SNSR33B-1               | <b>10Z34</b>   | X             | X   | X   |   |
| Refrigerant Type                     |                           | R-410A         | O             | O   | O   |   |
| <b>BLOWER - SUPPLY AIR</b>           |                           |                |               |     |     |   |
| Blower Option                        | CAV (Constant Air Volume) | Factory        | O             | O   | O   |   |
| Blower Motors                        | Belt Drive - 1.5 kW       | Factory        | O             | O   | O   |   |
|                                      | Belt Drive - 2.2 kW       | Factory        | O             | O   | O   |   |
|                                      | Belt Drive - 3.7 kW       | Factory        | O             | O   | O   |   |
| Drive Kits                           | Kit #1 490-740 rev/min    | Factory        | O             | O   | O   |   |
| See Blower Data Tables for selection | Kit #2 665-920 rev/min    | Factory        | O             | O   | O   |   |
|                                      | Kit #3 660-995 rev/min    | Factory        | O             | O   | O   |   |
|                                      | Kit #7 610-810 rev/min    | Factory        | O             | O   | O   |   |
|                                      | Kit #8 780-1000 rev/min   | Factory        | O             | O   | O   |   |
|                                      | Kit #9 845-1085 rev/min   | Factory        | O             | O   | O   |   |
|                                      | Kit #10 750-945 rev/min   | Factory        | O             | O   | O   |   |
|                                      | Kit #11 865-1095 rev/min  | Factory        | O             | O   | O   |   |
|                                      | Kit #12 940-1190 rev/min  | Factory        | O             | O   | O   |   |
|                                      | <b>CABINET</b>            |                |               |     |     |   |
|                                      | Coil/Hail Guards          | Z1GARD10B-1    | <b>10Y09</b>  | X   | X   | X |

NOTE - Catalog and model numbers shown are for ordering field installed accessories.

OX - Configure To Order (Factory Installed) or Field Installed

O = Configure To Order (Factory Installed)

X = Field Installed



## OPTIONS / ACCESSORIES

| Item Description   | Model Number                | Catalog Number | Unit Model No |     |     |
|--|-----------------------------|----------------|---------------|-----|-----|
|  |                             |                | 092           | 102 | 120 |
| <b>INDOOR AIR QUALITY</b>  |                             |                |               |     |     |
| <b>Air Filters</b>   |                             |                |               |     |     |
| High Efficiency Air Filters  | MERV 8 - Z1FLTR15B-1        | <b>11H62</b>   | X             | X   | X   |
| 508 x 610 x 51 mm (Order 4 per unit)   | MERV 13 - Z1FLTR40B-1       | <b>11H63</b>   | X             | X   | X   |
| Replacement Media Filter With Metal Mesh Frame (includes non-pleated filter media)                           | C1FLTR30B-1-                | <b>Y3063</b>   | X             | X   | X   |
| <b>Indoor Air Quality (CO<sub>2</sub>) Sensors</b>   |                             |                |               |     |     |
| Sensor - Wall-mount, off-white plastic cover with LCD display  | C0SNSR50AE1L                | <b>77N39</b>   | X             | X   | X   |
| Sensor - Wall-mount, off-white plastic cover, no display   | C0SNSR52AE1L                | <b>87N53</b>   | X             | X   | X   |
| Sensor - Black plastic case with LCD display, rated for plenum mounting                                      | C0SNSR51AE1L                | <b>87N52</b>   | X             | X   | X   |
| Sensor - Wall-mount, black plastic case, no display, rated for plenum mounting                               | C0MISC19AE1                 | <b>87N54</b>   | X             | X   | X   |
| CO <sub>2</sub> Sensor Duct Mounting Kit - for downflow applications   | C0MISC19AE1-                | <b>85L43</b>   | X             | X   | X   |
| Aspiration Box - for duct mounting non-plenum rated CO <sub>2</sub> sensors ( <b>87N53</b> or <b>77N39</b> ) | C0MISC16AE1-                | <b>90N43</b>   | X             | X   | X   |
| <b>ELECTRICAL</b>  |                             |                |               |     |     |
| Voltage 50 hz with neutral   | 380/420V - 3 phase          | Factory        | O             | O   | O   |
| Bottom Power Entry Kit   | Z1PEKT01B-1                 | <b>11H66</b>   | X             | X   | X   |
| <b>ELECTRIC HEAT</b>   |                             |                |               |     |     |
| 5.7 kW   | 380/420V-3ph - Z1EH0075B-1G | <b>10Y98</b>   | X             | X   |     |
| 11.5 kW  | 380/420V-3ph - Z1EH0150B-1G | <b>10Z03</b>   | X             | X   | X   |
| 17.2 kW  | 380/420V-3ph - Z1EH0225B-1G | <b>10Z06</b>   | X             | X   | X   |
| 23 kW  | 380/420V-3ph - Z1EH0300B-1G | <b>10Z09</b>   | X             | X   | X   |
| 34.5 kW  | 380/420V-3ph - Z1EH0450B-1G | <b>10Z12</b>   | X             | X   | X   |
| 45.9 kW  | 380/420V-3ph - Z1EH0600B-1G | <b>10Z15</b>   |               |     | X   |
| <b>ELECTRIC HEAT ACCESSORIES</b>   |                             |                |               |     |     |
| Unit Fuse Block (required) - See Electrical/Electric Heat Tables for Selection                               |                             |                | X             | X   | X   |

<sup>1</sup> Nominal kW at 420V-3ph-50hz.

NOTE - Catalog and model numbers shown are for ordering field installed accessories.

OX - Configure To Order (Factory Installed) or Field Installed

O = Configure To Order (Factory Installed)

X = Field Installed

## OPTIONS / ACCESSORIES

| Item Description  | Model Number                | Catalog Number | Unit Model No |     |     |
|---|-----------------------------|----------------|---------------|-----|-----|
|   |                             |                | 092           | 102 | 120 |
| <b>ECONOMIZER</b>   |                             |                |               |     |     |
| <b>Standard Economizer</b>  |                             |                |               |     |     |
| Standard Downflow Economizer with Single Temperature Control - With Barometric Relief Dampers and Air Hoods         | Z1ECON30B-1                 | 10Z29          | OX            | OX  | OX  |
| Standard Horizontal Economizer with Single Temperature Control - With Barometric Relief Dampers and Air Hoods       | Z1ECON16B-1                 | 11G98          | X             | X   | X   |
| <b>Standard Economizer Controls</b>   |                             |                |               |     |     |
| Single Enthalpy Control   | C1SNSR64FF1                 | 53W64          | X             | X   | X   |
| Differential Enthalpy Control (order 2)   | C1SNSR64FF1                 | 53W64          | X             | X   | X   |
| <b>High Performance Economizer</b>  |                             |                |               |     |     |
| High Performance Downflow Economizer with Single Temperature Control - With Barometric Relief Dampers and Air Hoods | Z1ECON32B-2                 | 16X73          | OX            | OX  | OX  |
| <b>High Performance Economizer Controls</b>   |                             |                |               |     |     |
| Single Enthalpy Control   | C1SNSR61FF1                 | 11G21          | X             | X   | X   |
| Differential Enthalpy Control (order 2)   | C1SNSR61FF1                 | 11G21          | X             | X   | X   |
| <b>Horizontal Low Profile Barometric Relief Dampers With Exhaust Hood</b>   |                             |                |               |     |     |
| Horizontal Low Profile Barometric Relief Dampers With Exhaust Hood  | LAGEDH03/15                 | 53K04          | X             | X   | X   |
| <b>OUTDOOR AIR</b>  |                             |                |               |     |     |
| <b>Outdoor Air Dampers</b>  |                             |                |               |     |     |
| Motorized Dampers with outdoor air hood   | Z1DAMP20B-2                 | 14G36          | X             | X   | X   |
| Manual Dampers with outdoor air hood  | Z1DAMP10B-2                 | 14G37          | X             | X   | X   |
| <b>POWER EXHAUST</b>  |                             |                |               |     |     |
| Standard Static (Downflow)  | 380/420V-3ph - Z1PWRE10B-1G | 10Z71          | X             | X   | X   |
| Standard Static (Horizontal)  | 380/420V-3ph - Z1PWRE15A-1G | 28E01          | X             | X   | X   |
| <b>ROOF CURBS</b>   |                             |                |               |     |     |
| <b>Hybrid Roof Curbs, Downflow</b>  |                             |                |               |     |     |
| 203 mm height   | Z1CURB40B-1                 | 10Z25          | X             | X   | X   |
| 356 mm height   | Z1CURB41B-1                 | 10Z26          | X             | X   | X   |
| 457 mm height   | Z1CURB42B-1                 | 10Z27          | X             | X   | X   |
| 610 mm height   | Z1CURB43B-1                 | 10Z28          | X             | X   | X   |
| <b>CEILING DIFFUSERS</b>  |                             |                |               |     |     |
| Step-Down - Order one   | RTD11-95S                   | 13K61          | X             |     |     |
|   | RTD11-135S                  | 13K62          |               | X   | X   |
| Flush - Order one   | FD11-95S                    | 13K56          | X             |     |     |
|   | FD11-135S                   | 13K57          |               | X   | X   |

NOTE - Ceiling Diffuser Transitions are not furnished and must be field fabricated.

NOTE - Catalog and model numbers shown are for ordering field installed accessories.

OX - Configure To Order (Factory Installed) or Field Installed

O = Configure To Order (Factory Installed)

X = Field Installed

## SPECIFICATIONS

| General Data                                   |   | Nominal kW (Tons)                | 26 (7.5)   | 30 (8.5)                   | 35 (10)                       |
|--|---|----------------------------------|--|----------------------------|-------------------------------|
| Model Number                                   |   |                                  | ZHA092S4B  | ZHA102S4B                  | ZHA120S4B                     |
| Efficiency Type                                |   |                                  | Standard   | Standard                   | Standard                      |
| Blower Type                                    |   |                                  | Constant Air Volume (CAV)  | Constant Air Volume (CAV)  | Constant Air Volume (CAV)     |
| <b>Cooling Performance</b>                     | Gross Cooling Capacity - kW (Btuh)                |                                  | 22.9 (78 200)  | 26.7 (91 100)              | 31.3 (106 900)                |
|  | <sup>1</sup> Net Cooling Capacity - kW (Btuh)     |                                  | 22.6 (77 100)  | 26.5 (90 300)              | 30.6 (104 600)                |
|  | AHRI Rated Air Flow - L/s (cfm)                   |                                  | 1321 (2800)  | 1487 (3150)                | 1699 (3600)                   |
|  | Total Unit Power - kW                             |                                  | 6.7  | 8.0                        | 9.4                           |
|  | <sup>1</sup> EER (Btuh/Watt)                      |                                  | 11.5   | 11.3                       | 11.1                          |
|  | <sup>2</sup> IEER (Btuh/Watt)                     |                                  | 12.3   | 12.3                       | 11.8                          |
|  | Refrigerant Type                                  |                                  | R-410A   | R-410A                     | R-410A                        |
| Refrigerant Charge Furnished                   | Circuit 1   |                                  | 5.3 kg<br>(11 lbs. 12 oz.)   | 5.0 kg<br>(11 lbs. 10 oz.) | 7.3 kg<br>(16 lbs. 0 oz.)     |
|  | Circuit 2   |                                  | 4.8 kg<br>(10 lbs. 8 oz.)  | 4.5 kg<br>(9 lbs. 14 oz.)  | 6.7 kg<br>(14 lbs. 12 oz.)    |
| <b>Heating Performance</b>                     | <sup>1</sup> Total High Heat Capacity - kW (Btuh) |                                  | 23.6 (80 400)  | 25.1 (85 700)              | 29.0 (98 900)                 |
|  | Total Unit Power - kW                             |                                  | 6.4  | 6.8                        | 7.8                           |
|  | <sup>1</sup> Coefficient of Performance           |                                  | 3.7  | 3.7                        | 3.7                           |
|  | <sup>1</sup> Total Low Heat Capacity - kW (Btuh)  |                                  | 13.0 (44 200)  | 13.7 (46 900)              | 17.1 (58 300)                 |
|  | Total Unit Power (kW)                             |                                  | 5.9  | 6.0                        | 6.6                           |
|  | <sup>1</sup> Coefficient of Performance           |                                  | 2.2  | 2.3                        | 2.5                           |
| <b>Electric Heat Available - See page 19</b>   |   |                                  | 5.7, 11.5, 17.2, 23, 34.5 kW   |                            | 11.5, 17.2, 23, 34.5, 45.9 kW |
| <b>Compressor Type (number)</b>                |   |                                  | Scroll (2)   | Scroll (2)                 | Scroll (2)                    |
| <b>Outdoor Coils</b>                           | Net face area (total) - m <sup>2</sup> (sq. ft.)  |                                  | 2.4 (26.2)   | 2.4 (26.2)                 | 2.4 (26.2)                    |
|  | Tube diameter - mm (in.)                          |                                  | 9.5 (3/8)  | 9.5 (3/8)                  | 9.5 (3/8)                     |
|  | Number of rows                                    |                                  | 2  | 2                          | 3                             |
|  | Fins per m (inch)                                 |                                  | 787 (20)   | 787 (20)                   | 787 (20)                      |
| <b>Outdoor Coil Fans</b>                       | Motor - (No.) W (hp)                              |                                  | (2) 249 (1/3)  | (2) 249 (1/3)              | (2) 373 (1/2)                 |
|  | Motor rev/min                                     |                                  | 896  | 896                        | 896                           |
|  | Total Motor watts                                 |                                  | 497  | 497                        | 734                           |
|  | Diameter - (No.) mm (in.)                         |                                  | (2) 610 (24)   | (2) 610 (24)               | (2) 610 (24)                  |
|  | Number of blades                                  |                                  | 3  | 3                          | 3                             |
|  | Total Air volume - L/s (cfm)                      |                                  | 3460 (7333)  | 3460 (7333)                | 3540 (7500)                   |
| <b>Indoor Coils</b>                            | Net face area (total) - m <sup>2</sup> (sq. ft.)  |                                  | 1.19 (12.8)  | 1.19 (12.8)                | 1.25 (13.5)                   |
|  | Tube diameter - mm (in.)                          |                                  | 9.5 (3/8)  | 9.5 (3/8)                  | 9.5 (3/8)                     |
|  | Number of rows                                    |                                  | 3  | 4                          | 4                             |
|  | Fins per m (inch)                                 |                                  | 551 (14)   | 551 (14)                   | 551 (14)                      |
|  | Drain connection - Number and size                |                                  | (1) 1 in. NPT coupling   |                            |                               |
|  | Expansion device type                             | Balance port TXV, removable head |  |                            |                               |
| <sup>3</sup> Indoor Blower and Drive Selection | Nominal motor output                              |                                  | 1.5 kW, 2.2 kW, 3.7 kW<br>(2 hp, 3 hp, 5 hp)   |                            |                               |
|  | Maximum usable motor output                       |                                  | 1.7 kW, 2.6 kW, 4.3 kW<br>(2.3 hp, 3.45 hp, 5.75 hp)   |                            |                               |
|  | Motor - Drive kit number                          |                                  | 1.5 kW (2 hp)<br><b>Kit 1</b> 490 - 740 rev/min<br><b>Kit 2</b> 665 - 920 rev/min<br><b>Kit 3</b> 660 - 995 rev/min<br><br>2.2 kW (3 hp)<br><b>Kit 7</b> 610 - 810 rev/min<br><b>Kit 8</b> 780 - 1000 rev/min<br><b>Kit 9</b> 845 - 1085 rev/min<br><br>3.7 kW (5 hp)<br><b>Kit 10</b> 750 - 945 rev/min<br><b>Kit 11</b> 865 - 1095 rev/min<br><b>Kit 12</b> 940 - 1190 rev/min |                            |                               |
|  | Blower wheel nominal diameter x width - mm (in.)  |                                  | (1) 381 x 381 (15 X 15)  |                            |                               |
| <b>Filters</b>                                 | Type of filter                                    |                                  | Disposable   |                            |                               |
|  | Number and size - mm (in.)                        |                                  | (4) 508 x 610 x 51 (20 x 24 x 2)   |                            |                               |
| <b>Electrical characteristics</b>              |   |                                  | 380/420V - 50 hertz - 3 phase with neutral   |                            |                               |

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

<sup>1</sup> Tested at conditions included in the ULE certification program, which is based on AHRI Standard 340/360 while operating at rated voltage and air volumes:

**Cooling Ratings** - 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering indoor coil air.

**High Temperature Heating Ratings** - 8°C (47°F) db/6°C (43°F) wb outdoor air temperature and 21°C (70°F) entering indoor coil air.

**Low Temperature Heating Ratings** - -8°C (17°F) db/-9°C (15°F) wb outdoor air temperature and 21°C (70°F) entering indoor coil air.

<sup>2</sup> Integrated Energy Efficiency Ratio tested at conditions included in AHRI Standard 340/360 while operating at rated voltage and air volumes.

<sup>3</sup> Using total air volume and system static pressure requirements determine from blower performance tables rev/min and motor output required. Maximum usable output of motors furnished are shown. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

## COOLING / HEATING RATINGS

NOTE – For Temperatures and Capacities not shown in tables, see bulletin – Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

### 26 KW COOLING STANDARD EFFICIENCY ZHA092S4 (1ST STAGE)

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |  |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|--|
|                               |                  | 18.3°C  |                   |                               |      |      |                 | 23.9°C            |                               |      |      |                 | 29.4°C            |                               |      |      |                 | 35°C              |                               |      |      |  |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      |  |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |  |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |  |
| 17.2°C                        | 1135             | 13.6  | 2.26              | 0.6                           | 1    | 1    | 12.9            | 2.62              | 0.62                          | 1    | 1    | 12.2            | 3                 | 0.63                          | 1    | 1    | 11.5            | 3.42              | 0.65                          | 1    | 1    |  |
|                               | 1415             | 14.5  | 2.27              | 0.66                          | 1    | 1    | 13.7            | 2.62              | 0.67                          | 1    | 1    | 12.9            | 3.01              | 0.68                          | 1    | 1    | 12.2            | 3.43              | 0.89                          | 1    | 1    |  |
|                               | 1700             | 15.1  | 2.26              | 0.79                          | 1    | 1    | 14.3            | 2.62              | 0.98                          | 1    | 1    | 13.5            | 3                 | 1                             | 1    | 1    | 12.7            | 3.43              | 1                             | 1    | 1    |  |
| 19.4°C                        | 1135             | 14.4  | 2.26              | 0.46                          | 0.59 | 0.84 | 13.6            | 2.62              | 0.47                          | 0.6  | 1    | 12.7            | 3.01              | 0.47                          | 0.62 | 1    | 11.9            | 3.43              | 0.48                          | 0.63 | 1    |  |
|                               | 1415             | 14.9  | 2.26              | 0.5                           | 0.64 | 1    | 14.1            | 2.62              | 0.5                           | 0.66 | 1    | 13.2            | 3                 | 0.51                          | 0.67 | 1    | 12.3            | 3.43              | 0.53                          | 0.69 | 1    |  |
|                               | 1700             | 15.3  | 2.26              | 0.53                          | 0.68 | 1    | 14.4            | 2.62              | 0.54                          | 0.82 | 1    | 13.6            | 3.01              | 0.55                          | 0.99 | 1    | 12.7            | 3.43              | 0.57                          | 1    | 1    |  |
| 21.7°C                        | 1135             | 15.3  | 2.26              | 0.33                          | 0.46 | 0.57 | 14.5            | 2.62              | 0.33                          | 0.46 | 0.58 | 13.6            | 3.01              | 0.33                          | 0.47 | 0.6  | 12.7            | 3.43              | 0.33                          | 0.48 | 0.62 |  |
|                               | 1415             | 15.9  | 2.25              | 0.35                          | 0.49 | 0.63 | 15              | 2.61              | 0.35                          | 0.5  | 0.64 | 14              | 3                 | 0.35                          | 0.51 | 0.66 | 13.1            | 3.43              | 0.35                          | 0.52 | 0.67 |  |
|                               | 1700             | 16.2  | 2.24              | 0.36                          | 0.53 | 0.67 | 15.3            | 2.61              | 0.37                          | 0.54 | 0.68 | 14.4            | 3                 | 0.37                          | 0.55 | 0.87 | 13.4            | 3.42              | 0.37                          | 0.56 | 1    |  |

### 26 KW COOLING STANDARD EFFICIENCY ZHA092S4 (2ND STAGE)

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |  |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|--|
|                               |                  | 26.7°C  |                   |                               |      |      |                 | 35°C              |                               |      |      |                 | 43.3°C            |                               |      |      |                 | 51.7°C            |                               |      |      |  |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      |  |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |  |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |  |
| 17.2°C                        | 1135             | 22.6  | 4.42              | 0.74                          | 0.9  | 0.98 | 20.4            | 5.42              | 0.76                          | 0.91 | 0.99 | 18.1            | 6.59              | 0.79                          | 0.94 | 1    | 15.4            | 7.93              | 0.84                          | 0.97 | 1    |  |
|                               | 1415             | 24  | 4.44              | 0.8                           | 0.94 | 1    | 21.8            | 5.44              | 0.83                          | 0.96 | 1    | 19.3            | 6.61              | 0.87                          | 0.99 | 1    | 16.6            | 7.96              | 0.91                          | 1    | 1    |  |
|                               | 1700             | 25.2  | 4.45              | 0.86                          | 0.98 | 1    | 22.8            | 5.45              | 0.89                          | 1    | 1    | 20.4            | 6.63              | 0.92                          | 1    | 1    | 17.6            | 7.97              | 0.95                          | 1    | 1    |  |
| 19.4°C                        | 1135             | 24.1  | 4.44              | 0.58                          | 0.72 | 0.86 | 21.8            | 5.44              | 0.58                          | 0.74 | 0.89 | 19.2            | 6.61              | 0.59                          | 0.77 | 0.92 | 16.3            | 7.95              | 0.6                           | 0.81 | 0.95 |  |
|                               | 1415             | 25.4  | 4.45              | 0.61                          | 0.78 | 0.92 | 22.9            | 5.46              | 0.62                          | 0.81 | 0.94 | 20.2            | 6.63              | 0.64                          | 0.85 | 0.97 | 17.2            | 7.97              | 0.66                          | 0.89 | 1    |  |
|                               | 1700             | 26.3  | 4.45              | 0.65                          | 0.84 | 0.96 | 23.8            | 5.46              | 0.66                          | 0.87 | 0.98 | 21              | 6.64              | 0.69                          | 0.9  | 1    | 18              | 7.98              | 0.72                          | 0.93 | 1    |  |
| 21.7°C                        | 1135             | 25.7  | 4.45              | 0.43                          | 0.57 | 0.7  | 23.3            | 5.46              | 0.42                          | 0.57 | 0.72 | 20.7            | 6.63              | 0.41                          | 0.58 | 0.74 | 17.6            | 7.97              | 0.39                          | 0.59 | 0.79 |  |
|                               | 1415             | 27  | 4.46              | 0.44                          | 0.6  | 0.76 | 24.5            | 5.47              | 0.44                          | 0.61 | 0.78 | 21.7            | 6.65              | 0.43                          | 0.63 | 0.82 | 18.5            | 7.98              | 0.43                          | 0.66 | 0.87 |  |
|                               | 1700             | 28  | 4.46              | 0.46                          | 0.64 | 0.82 | 25.4            | 5.47              | 0.46                          | 0.66 | 0.85 | 22.4            | 6.65              | 0.45                          | 0.68 | 0.88 | 19.2            | 7.99              | 0.45                          | 0.72 | 0.85 |  |

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |  |  |  |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|--|--|--|
|                               |                  | 46°C  |                   |                               |      |      |                 | 48°C              |                               |      |      |                 | 50°C              |                               |      |      |  |  |  |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      |  |  |  |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |  |  |  |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |  |  |  |
| 17.2°C                        | 1135             | 17.2  | 7.010             | 0.8                           | 0.95 | 1    | 16.6            | 7.32              | 0.82                          | 0.96 | 1    | 15.9            | 7.65              | 0.83                          | 0.97 | 1    |  |  |  |
|                               | 1415             | 18.4  | 7.03              | 0.88                          | 1    | 1    | 17.8            | 7.34              | 0.89                          | 1    | 1    | 17.1            | 7.67              | 0.9                           | 1    | 1    |  |  |  |
|                               | 1700             | 19.5  | 7.06              | 0.93                          | 1    | 1    | 18.9            | 7.36              | 0.93                          | 1    | 1    | 18.2            | 7.68              | 0.94                          | 1    | 1    |  |  |  |
| 19.4°C                        | 1135             | 18.3  | 7.04              | 0.59                          | 0.78 | 0.93 | 17.6            | 7.34              | 0.59                          | 0.79 | 0.93 | 16.9            | 7.67              | 0.6                           | 0.8  | 0.94 |  |  |  |
|                               | 1415             | 19.3  | 7.05              | 0.64                          | 0.86 | 0.98 | 18.6            | 7.35              | 0.65                          | 0.87 | 0.98 | 17.8            | 7.68              | 0.66                          | 0.88 | 0.99 |  |  |  |
|                               | 1700             | 20  | 7.06              | 0.7                           | 0.91 | 1    | 19.4            | 7.37              | 0.71                          | 0.92 | 1    | 18.6            | 7.7               | 0.72                          | 0.93 | 1    |  |  |  |
| 21.7°C                        | 1135             | 19.7  | 7.06              | 0.4                           | 0.58 | 0.75 | 19              | 7.36              | 0.4                           | 0.59 | 0.76 | 18.3            | 7.69              | 0.4                           | 0.59 | 0.78 |  |  |  |
|                               | 1415             | 20.7  | 7.07              | 0.43                          | 0.64 | 0.84 | 20              | 7.37              | 0.43                          | 0.64 | 0.85 | 19.2            | 7.7               | 0.43                          | 0.65 | 0.86 |  |  |  |
|                               | 1700             | 21.4  | 7.08              | 0.45                          | 0.69 | 0.89 | 20.7            | 7.39              | 0.45                          | 0.7  | 0.9  | 19.8            | 7.71              | 0.46                          | 0.71 | 0.91 |  |  |  |

### 26 KW HEATING STANDARD EFFICIENCY ZHA092S4

| Indoor Coil Air Volume 21°C Dry Bulb | Air Temperature Entering Outdoor Coil |                   |                        |                   |                        |                   |                        |                   |                        |                   |
|--------------------------------------|---------------------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|
|                                      | 18°C                                  |                   | 7°C                    |                   | -4°C                   |                   | -15°C                  |                   | -28°C                  |                   |
|                                      | Total Heating Capacity                | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input |
| L/s                                  | kW                                    | kW                | kW                     | kW                | kW                     | kW                | kW                     | kW                | kW                     | kW                |
| 1135                                 | 28.6                                  | 5.9               | 21.8                   | 5.5               | 14.7                   | 5.1               | 9.6                    | 4.4               | 4.8                    | 3.3               |
| 1415                                 | 29.1                                  | 5.5               | 22.3                   | 5.2               | 15.2                   | 4.8               | 10.1                   | 4.0               | 5.3                    | 3.0               |
| 1700                                 | 29.5                                  | 5.3               | 22.7                   | 4.9               | 15.7                   | 4.6               | 10.6                   | 3.8               | 5.7                    | 2.7               |

## COOLING / HEATING RATINGS

NOTE – For Temperatures and Capacities not shown in tables, see bulletin – Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

### 30 KW COOLING STANDARD EFFICIENCY ZHA102S4 (1ST STAGE)

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|
|                               |                  | 18.3°C  |                   |                               |      |      | 23.9°C          |                   |                               |      |      | 29.4°C          |                   |                               |      |      | 35°C            |                   |                               |      |      |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |
| 17.2°C                        | 1285             | 15.8  | 2.3               | 0.66                          | 1    | 1    | 15              | 2.66              | 0.67                          | 1    | 1    | 14.3            | 3.06              | 0.69                          | 1    | 1    | 13.5            | 3.49              | 0.71                          | 1    | 1    |
|                               | 1605             | 16.7  | 2.29              | 0.71                          | 1    | 1    | 16              | 2.66              | 0.73                          | 1    | 1    | 15.1            | 3.05              | 0.74                          | 1    | 1    | 14.3            | 3.49              | 1                             | 1    | 1    |
|                               | 1925             | 17.4  | 2.29              | 0.97                          | 1    | 1    | 16.6            | 2.66              | 1                             | 1    | 1    | 15.8            | 3.05              | 1                             | 1    | 1    | 14.9            | 3.49              | 1                             | 1    | 1    |
| 19.4°C                        | 1285             | 16.4  | 2.29              | 0.5                           | 0.64 | 1    | 15.6            | 2.66              | 0.51                          | 0.66 | 1    | 14.7            | 3.05              | 0.51                          | 0.67 | 1    | 13.8            | 3.49              | 0.52                          | 0.69 | 1    |
|                               | 1605             | 17.1  | 2.29              | 0.54                          | 0.7  | 1    | 16.1            | 2.66              | 0.55                          | 0.72 | 1    | 15.3            | 3.06              | 0.56                          | 0.73 | 1    | 14.3            | 3.49              | 0.57                          | 0.74 | 1    |
|                               | 1925             | 17.5  | 2.29              | 0.58                          | 0.74 | 1    | 16.6            | 2.65              | 0.59                          | 0.96 | 1    | 15.7            | 3.05              | 0.6                           | 1    | 1    | 14.9            | 3.49              | 0.61                          | 1    | 1    |
| 21.7°C                        | 1285             | 17.4  | 2.29              | 0.36                          | 0.5  | 0.63 | 16.6            | 2.65              | 0.36                          | 0.51 | 0.64 | 15.6            | 3.05              | 0.36                          | 0.51 | 0.66 | 14.7            | 3.48              | 0.35                          | 0.52 | 0.67 |
|                               | 1605             | 18  | 2.28              | 0.37                          | 0.54 | 0.68 | 17              | 2.65              | 0.37                          | 0.54 | 0.7  | 16.1            | 3.05              | 0.38                          | 0.56 | 0.72 | 15.1            | 3.49              | 0.38                          | 0.57 | 0.73 |
|                               | 1925             | 18.3  | 2.28              | 0.39                          | 0.58 | 0.73 | 17.4            | 2.65              | 0.39                          | 0.59 | 0.74 | 16.4            | 3.05              | 0.39                          | 0.6  | 1    | 15.4            | 3.49              | 0.4                           | 0.62 | 1    |

### 30 KW COOLING STANDARD EFFICIENCY ZHA102S4 (2ND STAGE)

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|
|                               |                  | 26.7°C  |                   |                               |      |      | 35°C            |                   |                               |      |      | 43.3°C          |                   |                               |      |      | 51.7°C          |                   |                               |      |      |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |
| 17.2°C                        | 1285             | 26.6  | 5.31              | 0.71                          | 0.89 | 1    | 23.5            | 6.46              | 0.73                          | 0.93 | 1    | 20.3            | 7.83              | 0.76                          | 0.97 | 1    | 16.8            | 9.46              | 0.81                          | 1    | 1    |
|                               | 1605             | 28.3  | 5.33              | 0.78                          | 0.97 | 1    | 25.2            | 6.49              | 0.81                          | 0.99 | 1    | 22              | 7.86              | 0.86                          | 1    | 1    | 18.4            | 9.49              | 0.93                          | 1    | 1    |
|                               | 1925             | 29.8  | 5.34              | 0.85                          | 1    | 1    | 26.8            | 6.52              | 0.9                           | 1    | 1    | 23.5            | 7.89              | 0.95                          | 1    | 1    | 19.7            | 9.52              | 0.99                          | 1    | 1    |
| 19.4°C                        | 1285             | 28.7  | 5.33              | 0.55                          | 0.69 | 0.84 | 25.4            | 6.49              | 0.54                          | 0.71 | 0.89 | 21.9            | 7.86              | 0.55                          | 0.73 | 0.94 | 17.9            | 9.48              | 0.55                          | 0.78 | 0.99 |
|                               | 1605             | 30.1  | 5.34              | 0.59                          | 0.76 | 0.94 | 26.7            | 6.51              | 0.59                          | 0.78 | 0.97 | 23              | 7.88              | 0.6                           | 0.83 | 1    | 18.9            | 9.5               | 0.63                          | 0.91 | 1    |
|                               | 1925             | 31.2  | 5.35              | 0.63                          | 0.83 | 0.99 | 27.7            | 6.53              | 0.64                          | 0.87 | 1    | 23.9            | 7.89              | 0.66                          | 0.93 | 1    | 19.8            | 9.52              | 0.7                           | 0.98 | 1    |
| 21.7°C                        | 1285             | 30.8  | 5.35              | 0.4                           | 0.54 | 0.67 | 27.4            | 6.52              | 0.38                          | 0.53 | 0.69 | 23.9            | 7.9               | 0.37                          | 0.54 | 0.71 | 19.7            | 9.51              | 0.34                          | 0.55 | 0.76 |
|                               | 1605             | 32.4  | 5.35              | 0.42                          | 0.58 | 0.73 | 28.8            | 6.53              | 0.41                          | 0.58 | 0.76 | 25              | 7.91              | 0.39                          | 0.6  | 0.8  | 20.6            | 9.53              | 0.37                          | 0.63 | 0.88 |
|                               | 1925             | 33.4  | 5.36              | 0.44                          | 0.62 | 0.8  | 29.8            | 6.55              | 0.43                          | 0.63 | 0.84 | 25.9            | 7.92              | 0.42                          | 0.66 | 0.9  | 21.3            | 9.54              | 0.41                          | 0.7  | 0.91 |

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|
|                               |                  | 46°C  |                   |                               |      |      | 48°C            |                   |                               |      |      | 50°C            |                   |                               |      |      |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |
| 17.2°C                        | 1285             | 19.2  | 8330              | .77                           | .98  | 1    | 18.4            | 8.71              | .78                           | .99  | 1    | 17.5            | 9.10              | 0.80                          | 1    | 1    |
|                               | 1605             | 20.9  | 8.37              | 0.88                          | 1    | 1    | 20.1            | 8.74              | 0.90                          | 1    | 1    | 19.2            | 9.14              | 0.92                          | 1    | 1    |
|                               | 1925             | 22.3  | 8.40              | 0.96                          | 1    | 1    | 21.4            | 8.77              | 0.97                          | 1    | 1    | 20.5            | 9.17              | 0.98                          | 1    | 1    |
| 19.4°C                        | 1285             | 20.7  | 8.36              | 0.55                          | 0.75 | 0.95 | 19.8            | 8.73              | 0.55                          | 0.76 | 0.96 | 18.7            | 9.13              | 0.55                          | 0.77 | 0.97 |
|                               | 1605             | 21.7  | 8.38              | 0.61                          | 0.86 | 1    | 20.8            | 8.75              | 0.61                          | 0.87 | 1    | 19.8            | 9.15              | 0.62                          | 0.89 | 1    |
|                               | 1925             | 22.7  | 8.40              | 0.67                          | 0.94 | 1    | 21.7            | 8.77              | 0.68                          | 0.95 | 1    | 20.7            | 9.17              | 0.69                          | 0.96 | 1    |
| 21.7°C                        | 1285             | 22.6  | 8.40              | 0.36                          | 0.55 | 0.73 | 21.6            | 8.77              | 0.35                          | 0.54 | 0.73 | 20.6            | 9.16              | 0.34                          | 0.55 | 0.75 |
|                               | 1605             | 23.7  | 8.42              | 0.39                          | 0.61 | 0.82 | 22.7            | 8.78              | 0.38                          | 0.61 | 0.84 | 21.6            | 9.18              | 0.38                          | 0.62 | 0.86 |
|                               | 1925             | 24.4  | 8.42              | 0.42                          | 0.67 | 0.92 | 23.4            | 8.79              | 0.42                          | 0.68 | 0.93 | 22.3            | 9.19              | 0.41                          | 0.69 | 0.94 |

### 30 KW HEATING STANDARD EFFICIENCY ZHA102S4

| Indoor Coil Air Volume 21°C Dry Bulb | Air Temperature Entering Outdoor Coil |                   |                        |                   |                        |                   |                        |                   |                        |                   |
|--------------------------------------|---------------------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|
|                                      | 18°C                                  |                   | 7°C                    |                   | -4°C                   |                   | -15°C                  |                   | -28°C                  |                   |
|                                      | Total Heating Capacity                | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input |
| L/s                                  | kW                                    | kW                | kW                     | kW                | kW                     | kW                | kW                     | kW                | kW                     | kW                |
| 1285                                 | 32.5                                  | 6.3               | 24.6                   | 5.8               | 16.3                   | 5.3               | 10.5                   | 4.6               | 5.3                    | 3.5               |
| 1605                                 | 33.0                                  | 5.9               | 25.0                   | 5.4               | 16.8                   | 4.9               | 10.9                   | 4.3               | 5.7                    | 3.1               |
| 1925                                 | 33.6                                  | 5.7               | 25.6                   | 5.2               | 17.3                   | 4.7               | 11.5                   | 4.0               | 6.3                    | 2.9               |

## COOLING / HEATING RATINGS

NOTE – For Temperatures and Capacities not shown in tables, see bulletin – Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

### 35 KW COOLING STANDARD EFFICIENCY ZHA120S4 (1ST STAGE)

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |  |  |  |  |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|--|--|--|--|
|                               |                  | 18.3°C  |                   |                               |      |      |                 | 23.9°C            |                               |      |      |                 |                   | 29.4°C                        |      |      |                 |                   |                               | 35°C |      |  |  |  |  |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      |  |  |  |  |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |  |  |  |  |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C |      |  |  |  |  |
| 17.2°C                        | 1510             | 17.5  | 2.37              | 1                             | 0.94 | 0.95 | 16.4            | 2.69              | 1                             | 0.94 | 0.94 | 15.3            | 3.04              | 1                             | 0.93 | 0.94 | 14              | 3.44              | 0.92                          | 0.93 | 0.93 |  |  |  |  |
|                               | 1888             | 18.4  | 2.4               | 0.96                          | 0.93 | 0.94 | 17.3            | 2.72              | 0.92                          | 0.93 | 0.93 | 16.1            | 3.07              | 0.91                          | 0.92 | 0.93 | 14.8            | 3.46              | 0.91                          | 0.91 | 0.92 |  |  |  |  |
|                               | 2265             | 19.1  | 2.42              | 0.91                          | 0.92 | 0.93 | 17.9            | 2.74              | 0.91                          | 0.91 | 0.92 | 16.6            | 3.09              | 0.91                          | 0.91 | 0.91 | 15.3            | 3.48              | 0.91                          | 0.91 | 0.91 |  |  |  |  |
| 19.4°C                        | 1510             | 17.9  | 2.38              | 1                             | 1    | 0.95 | 16.7            | 2.7               | 1                             | 1    | 0.94 | 15.4            | 3.05              | 1                             | 1    | 0.94 | 14.1            | 3.44              | 1                             | 1    | 0.93 |  |  |  |  |
|                               | 1888             | 18.6  | 2.41              | 1                             | 1    | 0.94 | 17.3            | 2.73              | 1                             | 0.99 | 0.93 | 16.1            | 3.07              | 1                             | 0.92 | 0.93 | 14.8            | 3.47              | 1                             | 0.91 | 0.92 |  |  |  |  |
|                               | 2265             | 19.1  | 2.42              | 1                             | 0.92 | 0.93 | 17.9            | 2.74              | 1                             | 0.91 | 0.92 | 16.6            | 3.09              | 1                             | 0.91 | 0.91 | 15.3            | 3.49              | 1                             | 0.91 | 0.91 |  |  |  |  |
| 21.7°C                        | 1510             | 19  | 2.42              | 1                             | 1    | 1    | 17.7            | 2.74              | 1                             | 1    | 1    | 16.4            | 3.08              | 1                             | 1    | 1    | 14.9            | 3.47              | 1                             | 1    | 1    |  |  |  |  |
|                               | 1888             | 19.5  | 2.44              | 1                             | 1    | 1    | 18.2            | 2.75              | 1                             | 1    | 0.93 | 16.8            | 3.10              | 1                             | 1    | 0.93 | 15.4            | 3.49              | 1                             | 1    | 0.92 |  |  |  |  |
|                               | 2265             | 19.8  | 2.45              | 1                             | 1    | 0.95 | 18.5            | 2.77              | 1                             | 1    | 0.92 | 17.1            | 3.11              | 1                             | 1    | 0.91 | 15.6            | 3.50              | 1                             | 1    | 0.91 |  |  |  |  |

### 35 KW COOLING STANDARD EFFICIENCY ZHA120S4 (2ND STAGE)

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |        |      |  |  |  |  |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|--------|------|--|--|--|--|
|                               |                  | 26.7°C  |                   |                               |      |      |                 | 35°C              |                               |      |      |                 |                   | 43.3°C                        |      |      |                 |                   |                               | 51.7°C |      |  |  |  |  |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |        |      |  |  |  |  |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |        |      |  |  |  |  |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C   |      |  |  |  |  |
| 17.2°C                        | 1510             | 31.5  | 5.97              | 0.72                          | 0.89 | 1    | 27.6            | 7.19              | 0.74                          | 0.94 | 1    | 23.4            | 8.66              | 0.77                          | 0.99 | 1    | 19.3            | 10.48             | 0.82                          | 1      | 1    |  |  |  |  |
|                               | 1888             | 33.3  | 6.03              | 0.79                          | 0.99 | 1    | 29.5            | 7.25              | 0.82                          | 1    | 1    | 25.6            | 8.73              | 0.87                          | 1    | 1    | 21.1            | 10.54             | 0.96                          | 1      | 1    |  |  |  |  |
|                               | 2265             | 35.3  | 6.08              | 0.86                          | 1    | 1    | 31.4            | 7.31              | 0.91                          | 1    | 1    | 27.3            | 8.79              | 0.97                          | 1    | 1    | 22.6            | 10.6              | 1                             | 1      | 1    |  |  |  |  |
| 19.4°C                        | 1510             | 34  | 6.04              | 0.55                          | 0.7  | 0.85 | 29.9            | 7.26              | 0.55                          | 0.72 | 0.9  | 25.4            | 8.72              | 0.55                          | 0.75 | 0.96 | 20.5            | 10.52             | 0.55                          | 0.8    | 1    |  |  |  |  |
|                               | 1888             | 35.6  | 6.1               | 0.6                           | 0.77 | 0.95 | 31.3            | 7.31              | 0.6                           | 0.8  | 1    | 26.7            | 8.76              | 0.61                          | 0.85 | 1    | 21.6            | 10.55             | 0.63                          | 0.93   | 1    |  |  |  |  |
|                               | 2265             | 36.9  | 6.13              | 0.64                          | 0.84 | 1    | 32.4            | 7.34              | 0.65                          | 0.88 | 1    | 27.7            | 8.81              | 0.67                          | 0.95 | 1    | 22.6            | 10.59             | 0.71                          | 1      | 1    |  |  |  |  |
| 21.7°C                        | 1510             | 36.4  | 6.11              | 0.4                           | 0.54 | 0.68 | 32.2            | 7.33              | 0.39                          | 0.54 | 0.7  | 27.7            | 8.8               | 0.36                          | 0.54 | 0.73 | 22.5            | 10.59             | 0.33                          | 0.56   | 0.77 |  |  |  |  |
|                               | 1888             | 38.2  | 6.18              | 0.43                          | 0.59 | 0.75 | 33.7            | 7.38              | 0.41                          | 0.59 | 0.78 | 28.9            | 8.85              | 0.39                          | 0.61 | 0.82 | 23.6            | 10.62             | 0.37                          | 0.64   | 0.91 |  |  |  |  |
|                               | 2265             | 39.4  | 6.22              | 0.45                          | 0.64 | 0.82 | 34.8            | 7.43              | 0.43                          | 0.65 | 0.86 | 29.8            | 8.88              | 0.42                          | 0.67 | 0.92 | 24.3            | 10.66             | 0.41                          | 0.71   | 1    |  |  |  |  |

| Entering Wet Bulb Temperature | Total Air Volume | Outdoor Air Temperature Entering Outdoor Coil |                   |                               |      |      |                 |                   |                               |      |      |                 |                   |                               |      |      |    |      |      |      |  |
|-------------------------------|------------------|---|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|-----------------|-------------------|-------------------------------|------|------|----|------|------|------|--|
|                               |                  | 46°C  |                   |                               |      |      |                 | 48°C              |                               |      |      |                 |                   | 50°C                          |      |      |    |      |      |      |  |
|                               |                  | Total Cool Cap.                               | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      | Total Cool Cap. | Comp. Motor Input | Sensible To Total Ratio (S/T) |      |      |    |      |      |      |  |
|                               |                  |   |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |                 |                   | Dry Bulb                      |      |      |    |      |      |      |  |
| L/s                           | kW               | kW  | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW              | 24°C              | 27°C                          | 29°C | kW   | kW | 24°C | 27°C | 29°C |  |
| 17.2°C                        | 1285             | 19.2  | 8.330             | .77                           | .98  | 1    | 18.4            | 8.710             | .78                           | .99  | 1    | 17.5            | 9.10              | 0.80                          | 1    | 1    |    |      |      |      |  |
|                               | 1605             | 20.9  | 8.37              | 0.88                          | 1    | 1    | 20.1            | 8.74              | 0.90                          | 1    | 1    | 19.2            | 9.14              | 0.92                          | 1    | 1    |    |      |      |      |  |
|                               | 1925             | 22.3  | 8.40              | 0.96                          | 1    | 1    | 21.4            | 8.77              | 0.97                          | 1    | 1    | 20.5            | 9.17              | 0.98                          | 1    | 1    |    |      |      |      |  |
| 19.4°C                        | 1285             | 20.7  | 8.36              | 0.55                          | 0.75 | 0.95 | 19.8            | 8.73              | 0.55                          | 0.76 | 0.96 | 18.7            | 9.13              | 0.55                          | 0.77 | 0.97 |    |      |      |      |  |
|                               | 1605             | 21.7  | 8.38              | 0.61                          | 0.86 | 1    | 20.8            | 8.75              | 0.61                          | 0.87 | 1    | 19.8            | 9.15              | 0.62                          | 0.89 | 1    |    |      |      |      |  |
|                               | 1925             | 22.7  | 8.40              | 0.67                          | 0.94 | 1    | 21.7            | 8.77              | 0.68                          | 0.95 | 1    | 20.7            | 9.17              | 0.69                          | 0.96 | 1    |    |      |      |      |  |
| 21.7°C                        | 1285             | 22.6  | 8.40              | 0.36                          | 0.55 | 0.73 | 21.6            | 8.77              | 0.35                          | 0.54 | 0.73 | 20.6            | 9.16              | 0.34                          | 0.55 | 0.75 |    |      |      |      |  |
|                               | 1605             | 23.7  | 8.42              | 0.39                          | 0.61 | 0.82 | 22.7            | 8.78              | 0.38                          | 0.61 | 0.84 | 21.6            | 9.18              | 0.38                          | 0.62 | 0.86 |    |      |      |      |  |
|                               | 1925             | 24.4  | 8.42              | 0.42                          | 0.67 | 0.92 | 23.4            | 8.79              | 0.42                          | 0.68 | 0.93 | 22.3            | 9.19              | 0.41                          | 0.69 | 0.94 |    |      |      |      |  |

### 35 KW HEATING STANDARD EFFICIENCY ZHA120S4

| Indoor Coil Air Volume 21°C Dry Bulb | Air Temperature Entering Outdoor Coil |                   |                        |                   |                        |                   |                        |                   |                        |                   |
|--------------------------------------|---------------------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|
|                                      | 18°C                                  |                   | 7°C                    |                   | -4°C                   |                   | -15°C                  |                   | -28°C                  |                   |
|                                      | Total Heating Capacity                | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input | Total Heating Capacity | Comp. Motor Input |
| L/s                                  | kW                                    | kW                | kW                     | kW                | kW                     | kW                | kW                     | kW                | kW                     | kW                |
| 1510                                 | 37.2                                  | 7.8               | 28.7                   | 7.2               | 19.9                   | 6.5               | 13.7                   | 5.7               | 6.6                    | 4.3               |
| 1890                                 | 38.0                                  | 7.3               | 29.6                   | 6.7               | 20.8                   | 6.1               | 14.6                   | 5.3               | 7.5                    | 3.9               |
| 2265                                 | 38.8                                  | 7.0               | 30.4                   | 6.4               | 21.6                   | 5.8               | 15.4                   | 5.0               | 8.3                    | 3.6               |



## BLOWER DATA

### 092 STANDARD EFFICIENCY BELT DRIVE BLOWER – BASE UNIT

**BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY (NO HEAT SECTION) WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE. FOR ALL UNITS ADD:**

1 – Wet indoor coil air resistance of selected unit.

2 – Any factory installed options air resistance (heat section, economizer, etc.)

3 – Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output required.

See page 17 for blower motors and drives.

See page 17 for wet coil and option/accessory air resistance data.

**MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT  
(Maximum Static Pressure - 500 Pa (2.0 in. w.g.):**

5.7 kW, 11.5 kW, 17.2 kW - 975 L/s (2065 cfm)

23 kW - 1060 L/s (2250 cfm)

34.5 kW - 1240 L/s (2625 cfm)

| Air Volume |      | TOTAL STATIC PRESSURE - Pa (Inches Water Gauge) |      |      |            |      |      |            |      |      |            |      |      |            |      |      |            |      |      |            |      |      |
|------------|------|---|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|
|            |      | 50 (0.20)                                       |      |      | 100 (0.40) |      |      | 150 (0.60) |      |      | 200 (0.80) |      |      | 250 (1.00) |      |      | 300 (1.20) |      |      | 350 (1.40) |      |      |
| L/s        | cfm  | rev/min   | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  |
| 825        | 1750 | 494   | 0.08 | 0.11 | 562        | 0.25 | 0.34 | 632        | 0.42 | 0.56 | 702        | 0.55 | 0.74 | 771        | 0.63 | 0.85 | 838        | 0.72 | 0.96 | 902        | 0.80 | 1.07 |
| 945        | 2000 | 514   | 0.19 | 0.26 | 581        | 0.37 | 0.49 | 650        | 0.52 | 0.70 | 719        | 0.65 | 0.87 | 786        | 0.73 | 0.98 | 852        | 0.81 | 1.09 | 915        | 0.90 | 1.20 |
| 1060       | 2250 | 533   | 0.31 | 0.41 | 599        | 0.46 | 0.62 | 667        | 0.61 | 0.82 | 735        | 0.74 | 0.99 | 802        | 0.82 | 1.10 | 866        | 0.90 | 1.21 | 928        | 0.99 | 1.33 |
| 1180       | 2500 | 553   | 0.41 | 0.55 | 619        | 0.57 | 0.76 | 685        | 0.71 | 0.95 | 753        | 0.82 | 1.10 | 818        | 0.91 | 1.22 | 881        | 1.00 | 1.34 | 942        | 1.10 | 1.47 |
| 1300       | 2750 | 573   | 0.52 | 0.70 | 638        | 0.67 | 0.90 | 705        | 0.81 | 1.08 | 771        | 0.91 | 1.22 | 835        | 1.01 | 1.35 | 897        | 1.11 | 1.49 | 957        | 1.22 | 1.63 |
| 1415       | 3000 | 594   | 0.63 | 0.85 | 659        | 0.78 | 1.05 | 725        | 0.91 | 1.22 | 791        | 1.01 | 1.36 | 853        | 1.12 | 1.50 | 915        | 1.23 | 1.65 | 973        | 1.35 | 1.81 |
| 1535       | 3250 | 617   | 0.75 | 1.01 | 682        | 0.90 | 1.20 | 747        | 1.02 | 1.37 | 812        | 1.13 | 1.52 | 873        | 1.25 | 1.67 | 934        | 1.37 | 1.83 | 990        | 1.50 | 2.01 |
| 1650       | 3500 | 640   | 0.87 | 1.17 | 706        | 1.01 | 1.36 | 771        | 1.14 | 1.53 | 834        | 1.27 | 1.70 | 895        | 1.39 | 1.86 | 954        | 1.51 | 2.03 | 1008       | 1.66 | 2.23 |
| 1770       | 3750 | 665   | 1.00 | 1.34 | 731        | 1.15 | 1.54 | 796        | 1.28 | 1.72 | 857        | 1.41 | 1.89 | 917        | 1.54 | 2.07 | 975        | 1.69 | 2.26 | 1027       | 1.85 | 2.48 |
| 1890       | 4000 | 692   | 1.15 | 1.54 | 758        | 1.31 | 1.75 | 822        | 1.44 | 1.93 | 882        | 1.57 | 2.11 | 940        | 1.72 | 2.30 | 996        | 1.87 | 2.51 | 1047       | 2.06 | 2.76 |
| 2005       | 4250 | 722   | 1.31 | 1.76 | 787        | 1.47 | 1.97 | 849        | 1.60 | 2.15 | 908        | 1.75 | 2.35 | 965        | 1.91 | 2.56 | 1018       | 2.08 | 2.79 | 1067       | 2.28 | 3.06 |

| Air Volume |      | TOTAL STATIC PRESSURE - Pa (Inches Water Gauge) |      |      |            |      |      |            |      |      |            |      |      |            |      |      |            |      |      |
|------------|------|---|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|
|            |      | 400 (1.60)                                      |      |      | 450 (1.80) |      |      | 500 (2.00) |      |      | 550 (2.20) |      |      | 600 (2.40) |      |      | 650 (2.60) |      |      |
| L/s        | cfm  | rev/min   | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  |
| 825        | 1750 | 961   | 0.89 | 1.19 | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  |
| 945        | 2000 | 972   | 0.98 | 1.32 | 1026       | 1.10 | 1.47 | 1076       | 1.23 | 1.65 | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  |
| 1060       | 2250 | 984   | 1.09 | 1.46 | 1037       | 1.22 | 1.63 | 1085       | 1.35 | 1.81 | 1132       | 1.50 | 2.01 | 1178       | 1.65 | 2.21 | 1226       | 1.81 | 2.43 |
| 1180       | 2500 | 997   | 1.21 | 1.62 | 1048       | 1.34 | 1.80 | 1096       | 1.48 | 1.99 | 1142       | 1.64 | 2.20 | 1188       | 1.80 | 2.41 | 1237       | 1.97 | 2.64 |
| 1300       | 2750 | 1011  | 1.34 | 1.80 | 1061       | 1.48 | 1.99 | 1108       | 1.63 | 2.19 | 1154       | 1.80 | 2.41 | 1200       | 1.96 | 2.63 | 1249       | 2.14 | 2.87 |
| 1415       | 3000 | 1026  | 1.48 | 1.99 | 1075       | 1.64 | 2.20 | 1121       | 1.81 | 2.42 | 1167       | 1.97 | 2.64 | 1213       | 2.14 | 2.87 | 1262       | 2.33 | 3.12 |
| 1535       | 3250 | 1042  | 1.65 | 2.21 | 1089       | 1.81 | 2.43 | 1135       | 1.98 | 2.66 | 1181       | 2.16 | 2.90 | 1228       | 2.33 | 3.13 | 1277       | 2.52 | 3.38 |
| 1650       | 3500 | 1058  | 1.84 | 2.46 | 1105       | 2.01 | 2.69 | 1150       | 2.19 | 2.93 | 1196       | 2.36 | 3.17 | 1243       | 2.54 | 3.41 | 1293       | 2.72 | 3.65 |
| 1770       | 3750 | 1076  | 2.03 | 2.72 | 1121       | 2.22 | 2.97 | 1166       | 2.40 | 3.22 | 1212       | 2.58 | 3.46 | 1261       | 2.77 | 3.71 | 1311       | 2.95 | 3.96 |
| 1890       | 4000 | 1094  | 2.25 | 3.02 | 1139       | 2.44 | 3.27 | 1184       | 2.63 | 3.52 | 1230       | 2.81 | 3.77 | 1280       | 3.01 | 4.03 | 1330       | 3.20 | 4.29 |
| 2005       | 4250 | 1113  | 2.48 | 3.33 | 1157       | 2.68 | 3.59 | 1202       | 2.87 | 3.85 | 1250       | 3.07 | 4.11 | 1300       | 3.27 | 4.38 | 1352       | 3.47 | 4.65 |

## BLOWER DATA

### 102 AND 120 STANDARD EFFICIENCY BELT DRIVE BLOWER – BASE UNIT

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY (NO HEAT SECTION) WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE. FOR ALL UNITS ADD:

- 1 – Wet indoor coil air resistance of selected unit.
- 2 – Any factory installed options air resistance (heat section, economizer, etc.)
- 3 – Any field installed accessories air resistance (duct resistance, diffuser, etc.)

Then determine from blower table blower motor output required.

See page 17 for blower motors and drives.

See page 17 for wet coil and option/accessory air resistance data.

### MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT (Maximum Static Pressure - 500 Pa (2.0 in. w.g.))

5.7 kW, 11.5 kW, 17.2 kW - 975 L/s (2065 cfm)

23 kW - 1060 L/s (2250 cfm)

34.5 kW - 1240 L/s (2625 cfm)

45.9 kW - 1890 L/s (4000 cfm)

| Total Air Volume |      | TOTAL STATIC PRESSURE - Pa (Inches Water Gauge) |      |      |            |      |      |            |      |      |            |      |      |            |      |      |            |      |      |            |      |      |
|------------------|------|---|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|
|                  |      | 50 (0.20)                                       |      |      | 100 (0.40) |      |      | 150 (0.60) |      |      | 200 (0.80) |      |      | 250 (1.00) |      |      | 300 (1.20) |      |      | 350 (1.40) |      |      |
| L/s              | cfm  | rev/min   | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  |
| 945              | 2000 | 542   | 0.32 | 0.43 | 602        | 0.45 | 0.60 | 664        | 0.56 | 0.75 | 732        | 0.66 | 0.89 | 802        | 0.76 | 1.02 | 869        | 0.86 | 1.15 | 927        | 0.95 | 1.27 |
| 1060             | 2250 | 560   | 0.41 | 0.55 | 619        | 0.53 | 0.71 | 681        | 0.64 | 0.86 | 748        | 0.75 | 1.00 | 817        | 0.85 | 1.14 | 882        | 0.95 | 1.27 | 939        | 1.05 | 1.41 |
| 1180             | 2500 | 579   | 0.51 | 0.68 | 637        | 0.62 | 0.83 | 699        | 0.73 | 0.98 | 766        | 0.84 | 1.12 | 834        | 0.94 | 1.26 | 897        | 1.05 | 1.41 | 953        | 1.17 | 1.57 |
| 1300             | 2750 | 599   | 0.60 | 0.81 | 657        | 0.72 | 0.97 | 719        | 0.83 | 1.11 | 785        | 0.93 | 1.25 | 851        | 1.05 | 1.41 | 913        | 1.17 | 1.57 | 968        | 1.30 | 1.74 |
| 1415             | 3000 | 620   | 0.71 | 0.95 | 678        | 0.83 | 1.11 | 741        | 0.93 | 1.25 | 806        | 1.04 | 1.40 | 870        | 1.18 | 1.58 | 930        | 1.31 | 1.75 | 985        | 1.45 | 1.94 |
| 1535             | 3250 | 643   | 0.82 | 1.10 | 701        | 0.94 | 1.26 | 764        | 1.05 | 1.41 | 828        | 1.17 | 1.57 | 891        | 1.31 | 1.76 | 950        | 1.45 | 1.95 | 1003       | 1.61 | 2.16 |
| 1650             | 3500 | 667   | 0.94 | 1.26 | 726        | 1.07 | 1.43 | 788        | 1.18 | 1.58 | 851        | 1.32 | 1.77 | 913        | 1.47 | 1.97 | 970        | 1.62 | 2.17 | 1023       | 1.80 | 2.41 |
| 1770             | 3750 | 693   | 1.07 | 1.44 | 752        | 1.20 | 1.61 | 813        | 1.33 | 1.78 | 876        | 1.48 | 1.98 | 936        | 1.64 | 2.20 | 992        | 1.81 | 2.43 | 1043       | 2.00 | 2.68 |
| 1890             | 4000 | 720   | 1.23 | 1.65 | 779        | 1.36 | 1.82 | 840        | 1.49 | 2.00 | 902        | 1.66 | 2.22 | 961        | 1.84 | 2.46 | 1015       | 2.02 | 2.71 | 1064       | 2.22 | 2.98 |
| 2005             | 4250 | 748   | 1.39 | 1.86 | 807        | 1.52 | 2.04 | 868        | 1.67 | 2.24 | 929        | 1.85 | 2.48 | 986        | 2.05 | 2.75 | 1038       | 2.25 | 3.02 | 1086       | 2.46 | 3.30 |
| 2125             | 4500 | 778   | 1.56 | 2.09 | 837        | 1.70 | 2.28 | 898        | 1.87 | 2.51 | 957        | 2.07 | 2.78 | 1012       | 2.29 | 3.07 | 1062       | 2.51 | 3.37 | 1108       | 2.72 | 3.65 |
| 2240             | 4750 | 809   | 1.75 | 2.34 | 868        | 1.91 | 2.56 | 929        | 2.10 | 2.82 | 986        | 2.33 | 3.12 | 1038       | 2.56 | 3.43 | 1087       | 2.79 | 3.74 | 1132       | 3.01 | 4.03 |
| 2360             | 5000 | 841   | 1.95 | 2.62 | 901        | 2.14 | 2.87 | 960        | 2.36 | 3.17 | 1015       | 2.61 | 3.50 | 1065       | 2.86 | 3.83 | 1112       | 3.09 | 4.14 | 1157       | 3.30 | 4.43 |
| 2475             | 5250 | 875   | 2.19 | 2.93 | 935        | 2.41 | 3.23 | 992        | 2.66 | 3.56 | 1044       | 2.92 | 3.91 | 1092       | 3.18 | 4.26 | 1138       | 3.41 | 4.57 | 1182       | 3.62 | 4.85 |
| 2595             | 5500 | 911   | 2.46 | 3.30 | 969        | 2.71 | 3.63 | 1024       | 2.98 | 4.00 | 1074       | 3.26 | 4.37 | 1120       | 3.51 | 4.71 | 1165       | 3.74 | 5.02 | 1208       | 3.95 | 5.29 |
| 2715             | 5750 | 948   | 2.77 | 3.71 | 1004       | 3.04 | 4.08 | 1056       | 3.34 | 4.48 | 1104       | 3.62 | 4.85 | 1148       | 3.87 | 5.19 | 1192       | 4.10 | 5.49 | 1235       | 4.28 | 5.74 |
| 2830             | 6000 | 985   | 3.12 | 4.18 | 1039       | 3.42 | 4.59 | 1088       | 3.73 | 5.00 | 1134       | 4.01 | 5.37 | 1177       | 4.24 | 5.69 | ---        | ---  | ---  | ---        | ---  | ---  |
| 2950             | 6250 | 1022  | 3.51 | 4.70 | 1073       | 3.83 | 5.14 | 1120       | 4.13 | 5.54 | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  |

| Total Air Volume |      | TOTAL STATIC PRESSURE - Pa (Inches Water Gauge) |      |      |            |      |      |            |      |      |            |      |      |            |      |      |            |      |      |         |     |     |
|------------------|------|---|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|------------|------|------|---------|-----|-----|
|                  |      | 400 (1.60)                                      |      |      | 450 (1.80) |      |      | 500 (2.00) |      |      | 550 (2.20) |      |      | 600 (2.40) |      |      | 650 (2.60) |      |      |         |     |     |
| L/s              | cfm  | rev/min   | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min    | kW   | BHP  | rev/min | kW  | BHP |
| 945              | 2000 | 979   | 1.05 | 1.41 | 1029       | 1.17 | 1.57 | 1079       | 1.31 | 1.75 | 1129       | 1.45 | 1.95 | 1179       | 1.60 | 2.15 | 1230       | 1.77 | 2.37 | ---     | --- | --- |
| 1060             | 2250 | 991   | 1.17 | 1.57 | 1041       | 1.30 | 1.74 | 1090       | 1.44 | 1.93 | 1140       | 1.59 | 2.13 | 1190       | 1.75 | 2.35 | 1241       | 1.92 | 2.57 | ---     | --- | --- |
| 1180             | 2500 | 1005  | 1.30 | 1.74 | 1054       | 1.43 | 1.92 | 1103       | 1.58 | 2.12 | 1152       | 1.74 | 2.33 | 1202       | 1.90 | 2.55 | 1254       | 2.08 | 2.79 | ---     | --- | --- |
| 1300             | 2750 | 1020  | 1.44 | 1.93 | 1068       | 1.59 | 2.13 | 1116       | 1.75 | 2.34 | 1165       | 1.91 | 2.56 | 1215       | 2.07 | 2.78 | 1268       | 2.25 | 3.01 | ---     | --- | --- |
| 1415             | 3000 | 1036  | 1.60 | 2.14 | 1084       | 1.76 | 2.36 | 1131       | 1.92 | 2.58 | 1180       | 2.09 | 2.80 | 1230       | 2.25 | 3.02 | 1283       | 2.43 | 3.26 | ---     | --- | --- |
| 1535             | 3250 | 1053  | 1.78 | 2.38 | 1100       | 1.95 | 2.61 | 1148       | 2.11 | 2.83 | 1196       | 2.28 | 3.06 | 1246       | 2.45 | 3.29 | 1299       | 2.63 | 3.52 | ---     | --- | --- |
| 1650             | 3500 | 1071  | 1.98 | 2.65 | 1118       | 2.15 | 2.88 | 1165       | 2.32 | 3.11 | 1213       | 2.48 | 3.33 | 1264       | 2.66 | 3.57 | 1317       | 2.84 | 3.81 | ---     | --- | --- |
| 1770             | 3750 | 1091  | 2.19 | 2.93 | 1137       | 2.36 | 3.17 | 1183       | 2.54 | 3.40 | 1232       | 2.72 | 3.64 | 1284       | 2.89 | 3.88 | 1338       | 3.08 | 4.13 | ---     | --- | --- |
| 1890             | 4000 | 1111  | 2.42 | 3.24 | 1156       | 2.60 | 3.48 | 1203       | 2.78 | 3.72 | 1253       | 2.95 | 3.96 | 1305       | 3.15 | 4.22 | 1359       | 3.34 | 4.48 | ---     | --- | --- |
| 2005             | 4250 | 1132  | 2.66 | 3.57 | 1177       | 2.84 | 3.81 | 1224       | 3.02 | 4.05 | 1274       | 3.22 | 4.31 | 1327       | 3.41 | 4.57 | 1382       | 3.62 | 4.85 | ---     | --- | --- |
| 2125             | 4500 | 1154  | 2.92 | 3.92 | 1199       | 3.11 | 4.17 | 1247       | 3.29 | 4.41 | 1297       | 3.48 | 4.67 | 1350       | 3.69 | 4.94 | 1405       | 3.89 | 5.22 | ---     | --- | --- |
| 2240             | 4750 | 1177  | 3.20 | 4.29 | 1223       | 3.39 | 4.54 | 1270       | 3.57 | 4.79 | 1321       | 3.76 | 5.04 | 1374       | 3.96 | 5.31 | 1428       | 4.16 | 5.58 | ---     | --- | --- |
| 2360             | 5000 | 1201  | 3.50 | 4.69 | 1247       | 3.69 | 4.94 | 1295       | 3.86 | 5.18 | 1345       | 4.04 | 5.42 | 1398       | 4.24 | 5.68 | ---        | ---  | ---  | ---     | --- | --- |
| 2475             | 5250 | 1226  | 3.80 | 5.10 | 1272       | 3.98 | 5.34 | 1320       | 4.16 | 5.57 | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  | ---     | --- | --- |
| 2595             | 5500 | 1253  | 4.13 | 5.53 | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  | ---        | ---  | ---  | ---     | --- | --- |

## BLOWER DATA

### FACTORY INSTALLED BELT DRIVE KIT SPECIFICATIONS

| Nominal |    | Maximum |      | Drive Kit Number | rev/min Range |
|---------|----|---------|------|------------------|---------------|
| kW      | hp | kW      | hp   |                  |               |
| 1.5     | 2  | 1.7     | 2.3  | 1                | 490 - 740     |
| 1.5     | 2  | 1.7     | 2.3  | 2                | 665 - 920     |
| 1.5     | 2  | 1.7     | 2.3  | 3                | 660 - 995     |
| 2.2     | 3  | 2.6     | 3.45 | 7                | 610 - 810     |
| 2.2     | 3  | 2.6     | 3.45 | 8                | 780 - 1000    |
| 2.2     | 3  | 2.6     | 3.45 | 9                | 845 - 1085    |
| 3.7     | 5  | 4.3     | 5.75 | 10               | 750 - 945     |
| 3.7     | 5  | 4.3     | 5.75 | 11               | 865 - 1095    |
| 3.7     | 5  | 4.3     | 5.75 | 12               | 940 - 1190    |

### POWER EXHAUST FAN PERFORMANCE

| Return Air System Static Pressure |          | Air Volume Exhausted |      |
|-----------------------------------|----------|----------------------|------|
| Pa                                | in. w.g. | L/s                  | cfm  |
| 0                                 | 0        | 1685                 | 3575 |
| 12                                | 0.05     | 1605                 | 3405 |
| 25                                | 0.10     | 1675                 | 3550 |
| 37                                | 0.15     | 1530                 | 3245 |
| 50                                | 0.20     | 1470                 | 3115 |
| 62                                | 0.25     | 1425                 | 3020 |
| 75                                | 0.30     | 1370                 | 2900 |
| 87                                | 0.35     | 1315                 | 2785 |

### FACTORY INSTALLED OPTIONS/FIELD INSTALLED ACCESSORY AIR RESISTANCE

| Air Volume |      | Wet Indoor Coil |          |          |          | Electric Heat |          | Economizer |          | Filters |          |         |          |
|------------|------|-----------------|----------|----------|----------|---------------|----------|------------|----------|---------|----------|---------|----------|
|            |      | 092             |          | 102, 120 |          |               |          |            |          | MERV 8  |          | MERV 13 |          |
| L/s        | cfm  | Pa              | in. w.g. | Pa       | in. w.g. | Pa            | in. w.g. | Pa         | in. w.g. | Pa      | in. w.g. | Pa      | in. w.g. |
| 825        | 1750 | 7               | 0.03     | 10       | 0.04     | 7             | 0.03     | 7          | 0.03     | 2       | 0.01     | 7       | 0.03     |
| 945        | 2000 | 10              | 0.04     | 12       | 0.05     | 7             | 0.03     | 12         | 0.05     | 2       | 0.01     | 7       | 0.03     |
| 1060       | 2250 | 12              | 0.05     | 15       | 0.06     | 10            | 0.04     | 15         | 0.06     | 2       | 0.01     | 10      | 0.04     |
| 1180       | 2500 | 12              | 0.05     | 17       | 0.07     | 10            | 0.04     | 20         | 0.08     | 2       | 0.01     | 12      | 0.05     |
| 1300       | 2750 | 15              | 0.06     | 20       | 0.08     | 12            | 0.05     | 22         | 0.09     | 5       | 0.02     | 12      | 0.05     |
| 1415       | 3000 | 17              | 0.07     | 22       | 0.09     | 15            | 0.06     | 27         | 0.11     | 5       | 0.02     | 15      | 0.06     |
| 1535       | 3250 | 20              | 0.08     | 25       | 0.10     | 15            | 0.06     | 32         | 0.13     | 5       | 0.02     | 15      | 0.06     |
| 1650       | 3500 | 22              | 0.09     | 27       | 0.11     | 22            | 0.09     | 37         | 0.15     | 7       | 0.03     | 17      | 0.07     |
| 1770       | 3750 | 25              | 0.10     | 32       | 0.13     | 22            | 0.09     | 42         | 0.17     | 7       | 0.03     | 20      | 0.08     |
| 1890       | 4000 | 27              | 0.11     | 35       | 0.14     | 22            | 0.09     | 47         | 0.19     | 10      | 0.04     | 20      | 0.08     |
| 2005       | 4250 | 32              | 0.13     | 37       | 0.15     | 32            | 0.13     | 52         | 0.21     | 10      | 0.04     | 22      | 0.09     |
| 2125       | 4500 | 35              | 0.14     | 42       | 0.17     | 35            | 0.14     | 60         | 0.24     | 10      | 0.04     | 22      | 0.09     |
| 2240       | 4750 | 37              | 0.15     | 45       | 0.18     | 42            | 0.17     | 65         | 0.26     | 12      | 0.05     | 25      | 0.10     |
| 2360       | 5000 | 40              | 0.16     | 50       | 0.20     | 50            | 0.20     | 72         | 0.29     | 15      | 0.06     | 25      | 0.10     |
| 2475       | 5250 | 42              | 0.17     | 55       | 0.22     | 55            | 0.22     | 80         | 0.32     | 15      | 0.06     | 27      | 0.11     |
| 2595       | 5500 | 47              | 0.19     | 57       | 0.23     | 62            | 0.25     | 85         | 0.34     | 17      | 0.07     | 30      | 0.12     |
| 2715       | 5750 | 50              | 0.20     | 62       | 0.25     | 77            | 0.31     | 92         | 0.37     | 17      | 0.07     | 30      | 0.12     |
| 2830       | 6000 | 55              | 0.22     | 67       | 0.27     | 82            | 0.33     | 99         | 0.40     | 20      | 0.08     | 32      | 0.13     |

## BLOWER DATA

### CEILING DIFFUSERS AIR RESISTANCE

| Unit Size        | RTD11 Step-Down Diffuser |          |             |          |                     |          |                       |          | FD11 Flush Diffuser |          |
|------------------|--------------------------|----------|-------------|----------|---------------------|----------|-----------------------|----------|---------------------|----------|
|                  | Air Volume               |          | 2 Ends Open |          | 1 Side, 2 Ends Open |          | All Ends & Sides Open |          |                     |          |
|                  | Pa                       | in. w.g. | Pa          | in. w.g. | Pa                  | in. w.g. | Pa                    | in. w.g. | Pa                  | in. w.g. |
| 092 Models       | 1133                     | 2400     | 52          | 0.21     | 45                  | 0.18     | 37                    | 0.15     | 35                  | 0.14     |
|                  | 1227                     | 2600     | 60          | 0.24     | 52                  | 0.21     | 45                    | 0.18     | 42                  | 0.17     |
|                  | 1321                     | 2800     | 67          | 0.27     | 60                  | 0.24     | 52                    | 0.21     | 50                  | 0.20     |
|                  | 1416                     | 3000     | 80          | 0.32     | 72                  | 0.29     | 62                    | 0.25     | 62                  | 0.25     |
|                  | 1510                     | 3200     | 102         | 0.41     | 92                  | 0.37     | 80                    | 0.32     | 77                  | 0.31     |
|                  | 1604                     | 3400     | 124         | 0.50     | 112                 | 0.45     | 97                    | 0.39     | 92                  | 0.37     |
|                  | 1699                     | 3600     | 152         | 0.61     | 134                 | 0.54     | 119                   | 0.48     | 109                 | 0.44     |
|                  | 1793                     | 3800     | 182         | 0.73     | 157                 | 0.63     | 142                   | 0.57     | 127                 | 0.51     |
| 102 & 120 Models | 1699                     | 3600     | 90          | 0.36     | 70                  | 0.28     | 57                    | 0.23     | 37                  | 0.15     |
|                  | 1793                     | 3800     | 99          | 0.40     | 80                  | 0.32     | 65                    | 0.26     | 45                  | 0.18     |
|                  | 1888                     | 4000     | 109         | 0.44     | 90                  | 0.36     | 72                    | 0.29     | 52                  | 0.21     |
|                  | 1982                     | 4200     | 122         | 0.49     | 99                  | 0.40     | 82                    | 0.33     | 60                  | 0.24     |
|                  | 2076                     | 4400     | 134         | 0.54     | 109                 | 0.44     | 92                    | 0.37     | 67                  | 0.27     |
|                  | 2171                     | 4600     | 149         | 0.60     | 122                 | 0.49     | 104                   | 0.42     | 77                  | 0.31     |
|                  | 2265                     | 4800     | 162         | 0.65     | 132                 | 0.53     | 114                   | 0.46     | 87                  | 0.35     |
|                  | 2360                     | 5000     | 172         | 0.69     | 144                 | 0.58     | 124                   | 0.50     | 97                  | 0.39     |
| 2454             | 5200                     | 186      | 0.75        | 154      | 0.62                | 134      | 0.54                  | 107      | 0.43                |          |

### CEILING DIFFUSER AIR THROW DATA

| Model No.       | Air Volume |      | <sup>1</sup> Effective Throw Range |         |            |         |
|-----------------|------------|------|------------------------------------|---------|------------|---------|
|                 |            |      | RTD11 Step-Down                    |         | FD11 Flush |         |
|                 | L/s        | cfm  | m                                  | ft.     | m          | ft.     |
| 092 Models      | 1227       | 2600 | 7 - 9                              | 24 - 29 | 6 - 7      | 19 - 24 |
|                 | 1321       | 2800 | 8 - 9                              | 25 - 30 | 6 - 9      | 20 - 28 |
|                 | 1416       | 3000 | 8 - 10                             | 27 - 33 | 6 - 9      | 21 - 29 |
|                 | 1510       | 3200 | 9 - 11                             | 28 - 35 | 7 - 9      | 22 - 29 |
|                 | 1604       | 3400 | 9 - 11                             | 30 - 37 | 7 - 9      | 22 - 30 |
| 102, 120 Models | 1699       | 3600 | 8 - 10                             | 25 - 33 | 7 - 9      | 22 - 29 |
|                 | 1793       | 3800 | 8 - 11                             | 27 - 35 | 7 - 9      | 22 - 30 |
|                 | 1888       | 4000 | 9 - 11                             | 29 - 37 | 7 - 10     | 24 - 33 |
|                 | 1982       | 4200 | 10 - 12                            | 32 - 40 | 8 - 11     | 26 - 35 |
|                 | 2076       | 4400 | 10 - 13                            | 34 - 42 | 9 - 11     | 28 - 37 |

<sup>1</sup> Throw is the horizontal or vertical distance an air stream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 15 m (50 ft.) per minute. Four sides open.

## ELECTRICAL/ELECTRIC HEAT DATA

| Model No.  |                                | ZHA092S4  | ZHA102S4  | ZHA120S4 |
|--|--------------------------------|-----------|-----------|----------|
| <sup>1</sup> Voltage - 50hz 3 Phase with neutral |                                | 380/420V  | 380/420V  | 380/420V |
| Compressor 1                                     | Rated Load Amps                | 8         | 8         | 7.8      |
|  | Locked Rotor Amps              | 59        | 59        | 51.5     |
| Compressor 2                                     | Rated Load Amps                | 4         | 5.5       | 8        |
|  | Locked Rotor Amps              | 31        | 37        | 59       |
| Outdoor Fan Motors (2)                           | Full Load Amps (total)         | 1.3 (2.6) | 1.3 (2.6) | 1.5 (3)  |
| Power Exhaust (1) 0.25 kW                        | Full Load Amps                 | 1.3       | 1.3       | 1.3      |
| Indoor Blower Motor                              | kW                             | 1.5       | 2.2       | 3.7      |
|  | Full Load Amps                 | 3.6       | 5.3       | 8.2      |
| <sup>2</sup> Maximum Overcurrent Protection      | Unit Only                      | 25        | 25        | 30       |
|  | With (1) 0.25 kW Power Exhaust | 25        | 30        | 30       |
| <sup>3</sup> Minimum Circuit Ampacity            | Unit Only                      | 21        | 22        | 25       |
|  | With (1) 0.25 kW Power Exhaust | 22        | 24        | 27       |

## ELECTRIC HEAT DATA

| Electric Heat Voltage                       |  |              | 420V | 420V | 420V | 420V | 420V | 420V | 420V | 420V |     |
|---|--|--------------|------|------|------|------|------|------|------|------|-----|
| <sup>2</sup> Maximum Overcurrent Protection | <sup>4</sup> Electric Heat                               | Unit+ 5.7 kW | 35   | 35   | 40   | 35   | 35   | 40   | ---  | ---  | --- |
|   |  | 11.5 kW      | 40   | 45   | 45   | 45   | 45   | 50   | 45   | 50   | 50  |
|   |  | 17.2 kW      | 50   | 60   | 60   | 60   | 60   | 60   | 60   | 60   | 60  |
|   |  | 23 kW        | 60   | 70   | 70   | 70   | 70   | 70   | 70   | 70   | 70  |
|   |  | 34.5 kW      | 80   | 90   | 90   | 90   | 90   | 90   | 90   | 90   | 90  |
|   |  | 45.9 kW      | ---  | ---  | ---  | ---  | ---  | ---  | 90   | 90   | 100 |
| <sup>3</sup> Minimum Circuit Ampacity       | <sup>4</sup> Electric Heat                               | Unit+ 5.7 kW | 31   | 32   | 35   | 32   | 34   | 37   | ---  | ---  | --- |
|   |  | 11.5 kW      | 40   | 42   | 45   | 42   | 44   | 47   | 45   | 46   | 49  |
|   |  | 17.2 kW      | 50   | 52   | 55   | 52   | 54   | 56   | 55   | 56   | 59  |
|   |  | 23 kW        | 60   | 62   | 65   | 62   | 63   | 66   | 64   | 66   | 69  |
|   |  | 34.5 kW      | 80   | 82   | 85   | 81   | 83   | 86   | 84   | 86   | 89  |
|   |  | 45.9 kW      | ---  | ---  | ---  | ---  | ---  | ---  | 88   | 90   | 93  |
| <sup>2</sup> Maximum Overcurrent Protection | <sup>4</sup> Electric Heat and (1) 0.25 kW Power Exhaust | Unit+ 5.7 kW | 35   | 35   | 40   | 35   | 40   | 40   | ---  | ---  | --- |
|   |  | 11.5 kW      | 45   | 45   | 50   | 45   | 45   | 50   | 50   | 50   | 60  |
|   |  | 17.2 kW      | 60   | 60   | 60   | 60   | 60   | 60   | 60   | 60   | 60  |
|   |  | 23 kW        | 70   | 70   | 70   | 70   | 70   | 70   | 70   | 70   | 70  |
|   |  | 34.5 kW      | 90   | 90   | 90   | 90   | 90   | 90   | 90   | 90   | 90  |
|   |  | 45.9 kW      | ---  | ---  | ---  | ---  | ---  | ---  | 90   | 100  | 100 |
| <sup>3</sup> Minimum Circuit Ampacity       | <sup>4</sup> Electric Heat and (1) 0.25 kW Power Exhaust | Unit+ 5.7 kW | 32   | 34   | 37   | 33   | 35   | 38   | ---  | ---  | --- |
|   |  | 11.5 kW      | 42   | 43   | 46   | 43   | 45   | 48   | 46   | 48   | 51  |
|   |  | 17.2 kW      | 52   | 53   | 56   | 53   | 55   | 58   | 56   | 58   | 60  |
|   |  | 23 kW        | 61   | 63   | 66   | 63   | 65   | 68   | 66   | 67   | 70  |
|   |  | 34.5 kW      | 81   | 83   | 86   | 83   | 84   | 87   | 85   | 87   | 90  |
|   |  | 45.9 kW      | ---  | ---  | ---  | ---  | ---  | ---  | 89   | 91   | 94  |

## ELECTRIC HEAT ACCESSORIES

|                 |                      |       |       |       |       |       |       |       |       |       |
|-----------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Unit Fuse Block | Unit Only            | 11M10 | 11M10 | 11M10 | 11M10 | 11M10 | 11M10 | 11M10 | 11M10 | 11M11 |
|                 | Unit + Power Exhaust | 11M10 | 11M10 | 11M11 | 11M10 | 11M10 | 11M11 | 11M11 | 11M11 | 11M11 |

<sup>1</sup> Extremes of operating range are plus and minus 10% of line voltage.

<sup>2</sup> Heating / Air Conditioning / Refrigeration (HACR) type breaker or fuse.

<sup>3</sup> Refer to local codes to determine wire, fuse and disconnect size requirements.

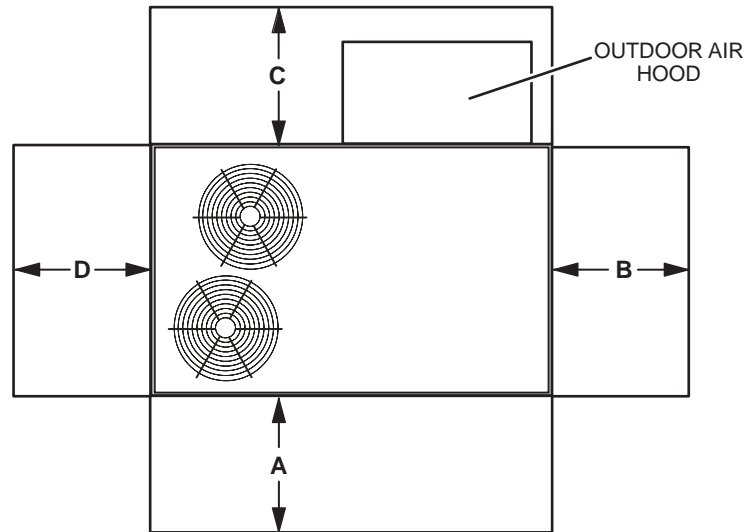
<sup>4</sup> Nominal kW based on 420V-3ph-50hz.

## ELECTRIC HEAT CAPACITIES

| Volts Input | 5.7 kW   |             |               | 11.5 kW  |             |               | 17.2 kW  |             |               | 23 kW    |             |               | 34.5 kW  |             |               | 45.9 kW  |             |               |
|-------------|----------|-------------|---------------|----------|-------------|---------------|----------|-------------|---------------|----------|-------------|---------------|----------|-------------|---------------|----------|-------------|---------------|
|             | kW Input | Btuh Output | No. of Stages | kW Input | Btuh Output | No. of Stages | kW Input | Btuh Output | No. of Stages | kW Input | Btuh Output | No. of Stages | kW Input | Btuh Output | No. of Stages | kW Input | Btuh Output | No. of Stages |
| 380         | 4.7      | 16 000      | 1             | 9.4      | 32 100      | 1             | 14.1     | 48 200      | 1             | 18.8     | 64 200      | 2             | 28.2     | 96 300      | 2             | 37.6     | 128 400     | 2             |
| 400         | 5.2      | 17 800      | 1             | 10.4     | 35 500      | 1             | 15.6     | 53 300      | 1             | 20.9     | 71 400      | 2             | 31.2     | 106 600     | 2             | 41.6     | 142 100     | 2             |
| 420         | 5.7      | 19 500      | 1             | 11.5     | 39 300      | 1             | 17.2     | 58 700      | 1             | 23       | 78 500      | 2             | 34.5     | 117 500     | 2             | 45.9     | 156 800     | 2             |

## UNIT CLEARANCES

### UNIT WITH ECONOMIZER



| <sup>1</sup> Unit Clearance | A    |     | B   |     | C   |     | D    |     | Top Clearance |
|-----------------------------|------|-----|-----|-----|-----|-----|------|-----|---------------|
|                             | mm   | in. | mm  | in. | mm  | in. | mm   | in. |               |
| Service Clearance           | 1524 | 60  | 914 | 36  | 914 | 36  | 1524 | 60  | Unobstructed  |
| Minimum Operation Clearance | 914  | 36  | 914 | 36  | 914 | 36  | 914  | 36  |               |

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

<sup>1</sup> Service Clearance - Required for removal of serviceable parts.

Minimum Operation Clearance - Required clearance for proper unit operation.

## OUTDOOR SOUND DATA


| Unit Model Number | Octave Band Linear Sound Power Levels dB, re 10 <sup>-12</sup> Watts - Center Frequency - Hz |     |     |      |      |      |      | <sup>1</sup> Sound Rating Number (SRN) (dBA) |
|-------------------|--|-----|-----|------|------|------|------|--|
|                   | 125  | 250 | 500 | 1000 | 2000 | 4000 | 8000 |  |
| 092, 102          | 76   | 79  | 84  | 83   | 79   | 73   | 66   | 88   |
| 120               | 77   | 80  | 85  | 84   | 79   | 74   | 66   | 88   |

Note - The octave sound power data does not include tonal corrections.

<sup>1</sup> Sound Rating Number according to ARI Standard 270-95 or ARI Standard 370-2001 (includes pure tone penalty). "SRN" is the overall A-Weighted Sound Power Level, (LWA), dB (100 Hz to 10,000 Hz).



## OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS

| Item   | Model No.   | Catalog No.  |              |
|--|---|--------------|--------------|
| <p><b>7-DAY PROGRAMMABLE THERMOSTAT - BACNET COMPATIBLE WITH REHEAT FUNCTION</b></p>  <ul style="list-style-type: none"> <li>• For units with or without <sup>1</sup> Humiditrol®</li> <li>• BTL listed MS/TP ensures compatibility with any BACnet system</li> <li>• Built-in control programs for conventional and heat pump applications</li> <li>• Conventional systems up to 3-stage heat and 3-stage cool</li> <li>• Heat pumps with 1 or 2 compressors and up to 2-stage auxiliary heat</li> <li>• On-board temperature and humidity sensor</li> <li>• Multiple configurable inputs and outputs enable advanced control strategies</li> <li>• Set-up Wizard enables rapid system configuration</li> <li>• No special tools required for installation or commissioning</li> <li>• Seven-day (2, 4 or 6 event) occupancy scheduling per day</li> <li>• Backlit 5-inch LCD touchscreen</li> </ul> | ---   | <b>Y8241</b> |              |
| <p><sup>1</sup> BACnet Thermostat (Y8241) will control units with and without the Humiditrol® option. If there is a mix of units equipped with and without Humiditrol on the same site, this thermostat can be used for all units if desired.</p>  |   |              |              |
| <b>BACnet Controls (no reheat capability)</b>  | BACnet® Module (factory or field installed)           | K0CTRL31B-2  | <b>16X71</b> |
|  | BACnet® Room Sensor with Display (field installed)    | K0SNSR01FF1  | <b>97W23</b> |
|  | BACnet® Room Sensor without Display (field installed) | K0SNSR00FF1  | <b>97W24</b> |
| <b>Optional Accessories</b>  | Plenum Cable (RJ45/CAT5 75 ft.)                       | K0MISC00FF1  | <b>97W25</b> |

**WEIGHT DATA**

| Model Number  | Net |      | Shipping |      |
|---------------|-----|------|----------|------|
|               | kg  | lbs. | kg       | lbs. |
| 092 Base Unit | 470 | 1036 | 508      | 1121 |
| 092 Max. Unit | 541 | 1193 | 580      | 1278 |
| 102 Base Unit | 484 | 1068 | 523      | 1153 |
| 102 Max. Unit | 556 | 1225 | 594      | 1310 |
| 120 Base Unit | 511 | 1126 | 549      | 1211 |
| 120 Max. Unit | 585 | 1290 | 624      | 1375 |

**OPTIONS / ACCESSORIES**

| Model Number   | Shipping Weight |      |
|--|-----------------|------|
|  | kg              | lbs. |
| <b>CABINET</b>   |                 |      |
| Coil/Hail Guard  | 23              | 50   |
| <b>CEILING DIFFUSERS</b>                                   |                 |      |
| <b>Step-Down</b>   |                 |      |
| RTD11-95S  | 118             | 54   |
| RTD11-135S   | 135             | 61   |
| <b>Flush</b>   |                 |      |
| FD11-95S   | 118             | 54   |
| FD11-135S  | 135             | 61   |
| <b>ECONOMIZER / OUTDOOR AIR / EXHAUST</b>                  |                 |      |
| <b>Economizer</b>  |                 |      |
| Downflow with Barometric Relief Dampers and Hoods          | 41              | 90   |
| Horizontal with Barometric Relief Dampers and Hoods        | 43              | 95   |
| Horizontal Low Profile Barometric Relief Dampers with Hood | 4               | 8    |
| <b>Outdoor Air Dampers</b>                                 |                 |      |
| Outdoor Air Damper Section with Hood - Automatic           | 26              | 58   |
| Outdoor Air Damper Section with Hood - Manual              | 23              | 50   |
| <b>Power Exhaust</b>                                       |                 |      |
| Downflow   | 27              | 60   |
| Horizontal   | 19              | 41   |
| <b>ELECTRIC HEAT</b>                                       |                 |      |
| 5.7 kW   | 41              | 90   |
| 11.5 kW  | 41              | 90   |
| 17.2 kW  | 41              | 90   |
| 23 kW  | 41              | 90   |
| 34.5 kW  | 41              | 90   |
| 45.9 kW  | 41              | 90   |
| <b>ROOF CURBS</b>  |                 |      |
| <b>Hybrid Roof Curbs, Downflow</b>                         |                 |      |
| 203 mm height  | 36              | 79   |
| 356 mm height  | 47              | 104  |
| 457 mm height  | 54              | 120  |
| 610 mm height  | 66              | 145  |
| <b>PACKAGING</b>   |                 |      |
| LTL Packaging (less than truck load)                       | 48              | 105  |

# DIMENSIONS - UNIT

| Model No. | CORNER WEIGHTS |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | CENTER OF GRAVITY |       |      |       |      |       |      |       |
|-----------|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------------------|-------|------|-------|------|-------|------|-------|
|           | AA             |      |      |      | BB   |      |      |      | CC   |      |      |      | DD   |      |      |      | EE                |       |      |       | FF   |       |      |       |
|           | Base           |      | Max. |      | Base |      | Max. |      | Base |      | Max. |      | Base |      | Max. |      | Base              |       | Max. |       | Base |       | Max. |       |
|           | kg             | lbs. | kg   | lbs. | kg   | lbs. | kg   | lbs. | kg   | lbs. | kg   | lbs. | kg   | lbs. | kg   | lbs. | mm                | in.   | mm   | in.   | mm   | in.   | mm   | in.   |
| 092       | 125            | 276  | 143  | 315  | 103  | 226  | 125  | 276  | 109  | 240  | 127  | 281  | 133  | 294  | 146  | 321  | 1174              | 46.25 | 1200 | 47.25 | 686  | 27    | 711  | 28    |
| 102       | 129            | 285  | 147  | 324  | 106  | 233  | 128  | 283  | 112  | 248  | 131  | 289  | 137  | 303  | 150  | 330  | 1174              | 46.25 | 1200 | 47.25 | 686  | 27    | 711  | 285   |
| 120       | 128            | 283  | 146  | 322  | 103  | 228  | 126  | 277  | 124  | 274  | 145  | 320  | 155  | 341  | 169  | 372  | 1099              | 43.25 | 1099 | 43.25 | 679  | 26.75 | 705  | 27.75 |

Base Unit - The unit with NO OPTIONS.

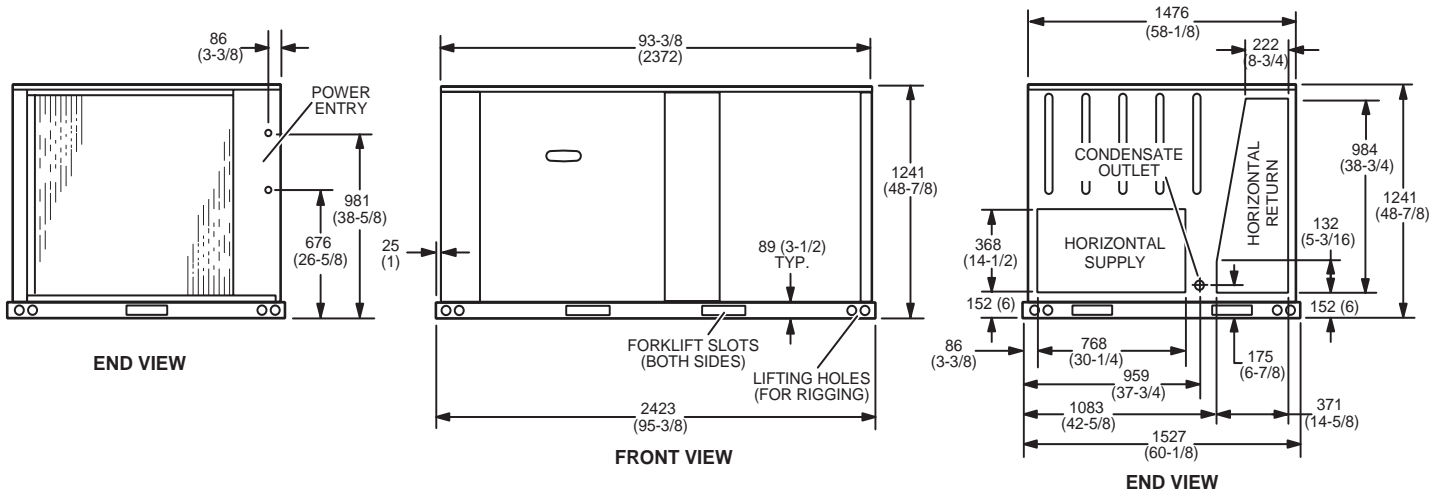
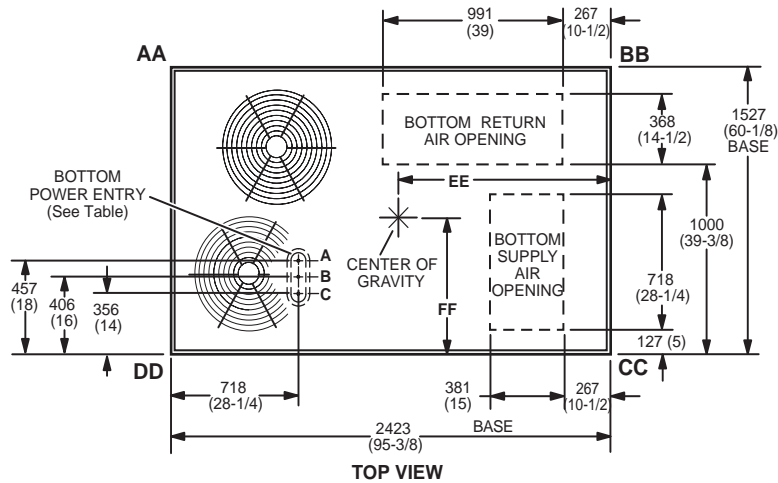
Max. Unit - The unit with ALL OPTIONS Installed. (Economizer, etc.)

## BOTTOM POWER ENTRY

Holes required for Optional Bottom Power Entry Kit

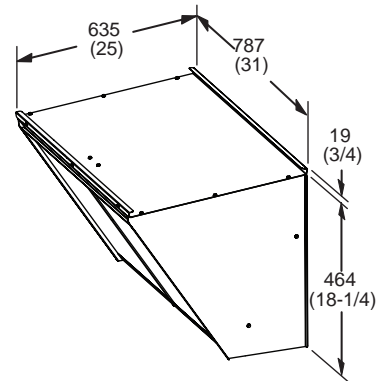
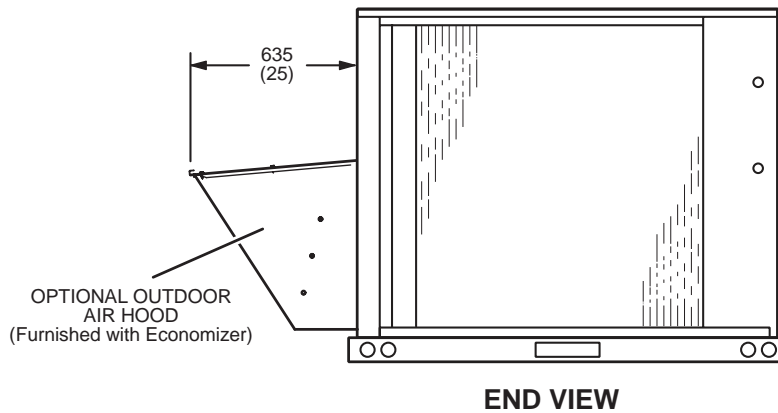
|          | Threaded Conduit Fittings (Provided in Kit) | Wire Use | Hole Diameter Required in Unit Base (Max.) |
|----------|---|----------|--|
| <b>A</b> | 1 1/2                                       | ACC      | 23 (7/8)                                   |
| <b>B</b> | 1/2   | 24V      | 23 (7/8)                                   |
| <b>C</b> | 1-1/4                                       | POWER    | 44 (1-3/4)                                 |

<sup>1</sup> Field provided.

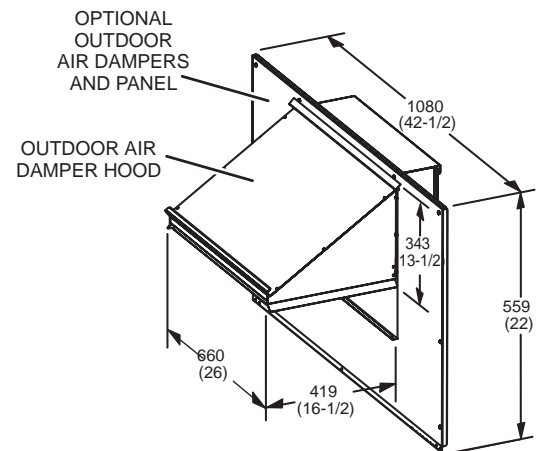
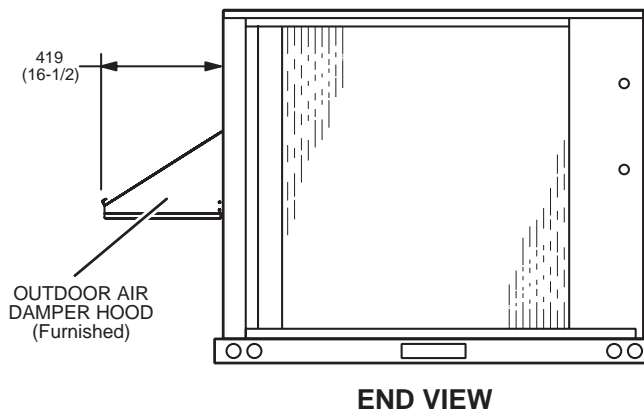


## DIMENSIONS - ACCESSORIES

### OUTDOOR AIR HOOD DETAIL FOR OPTIONAL DOWNFLOW ECONOMIZER (Downflow Applications)

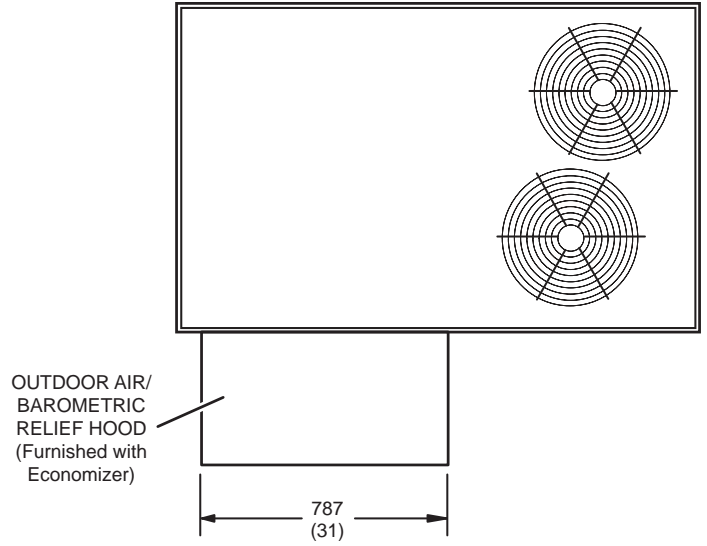


### OUTDOOR AIR DAMPER HOOD DETAIL FOR OPTIONAL MANUAL OR MOTORIZED OUTDOOR AIR DAMPERS (Downflow or Horizontal Applications)

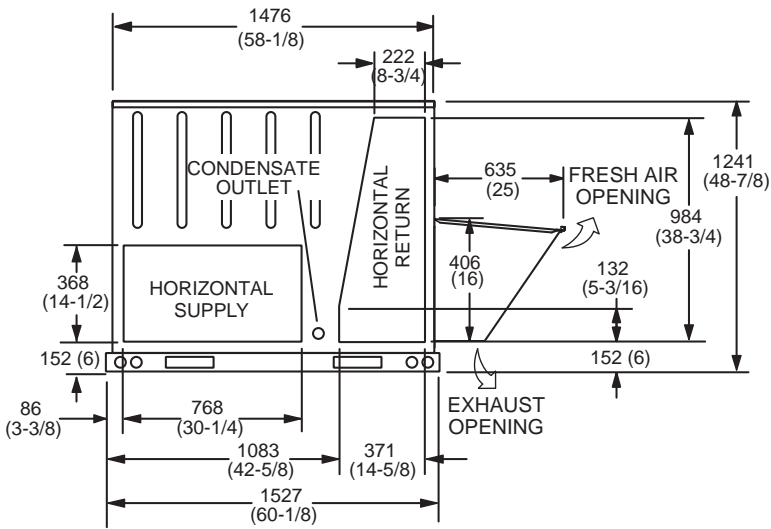


## DIMENSIONS - ACCESSORIES

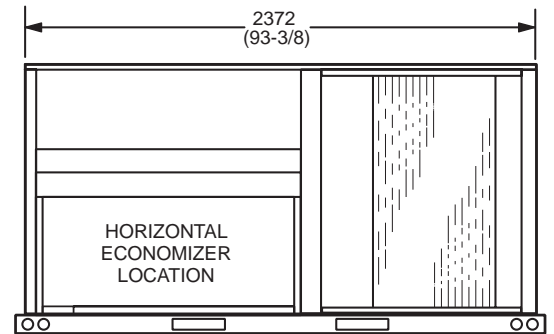
### OUTDOOR AIR HOOD DETAIL WITH OPTIONAL HORIZONTAL ECONOMIZER AND BAROMETRIC RELIEF DAMPERS (Horizontal Applications)



**TOP VIEW**



**END VIEW**

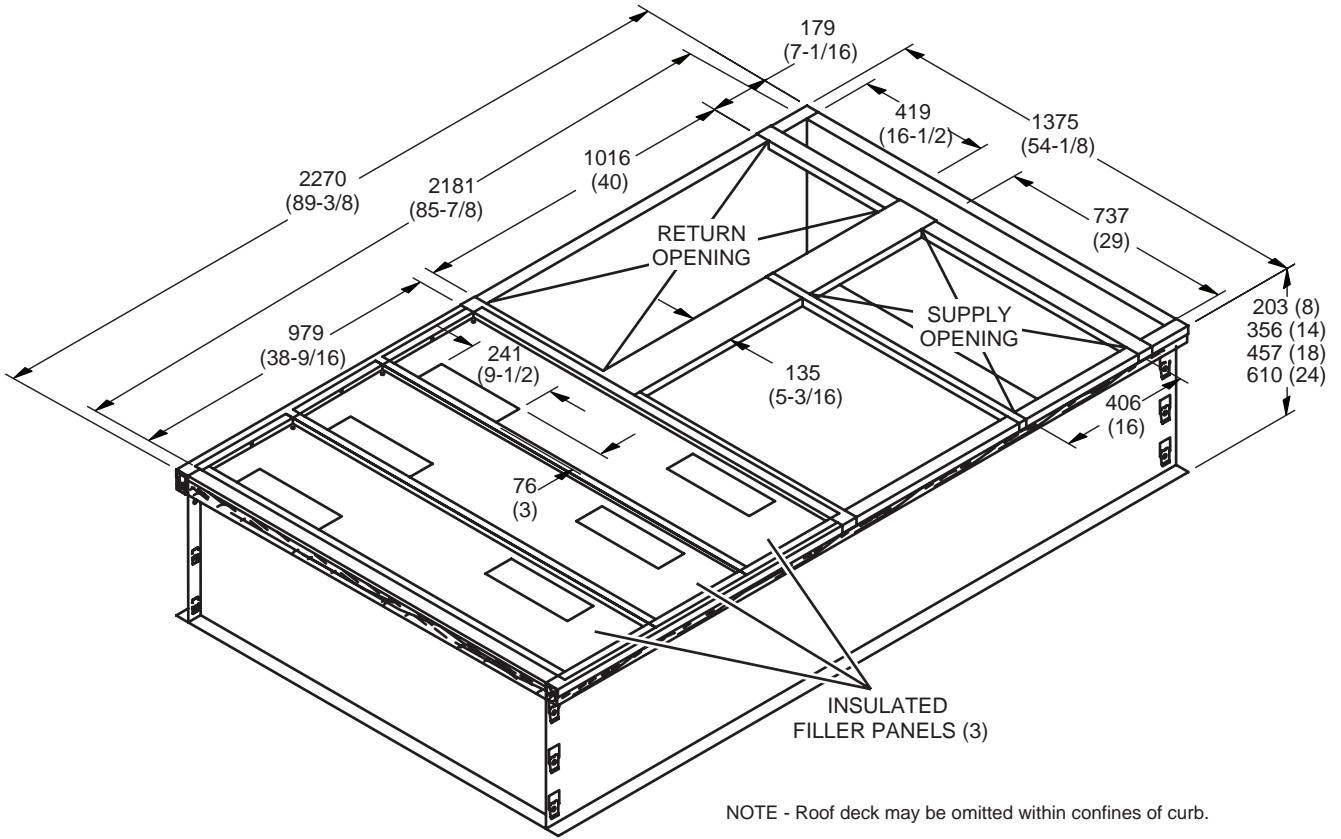


**BACK VIEW**

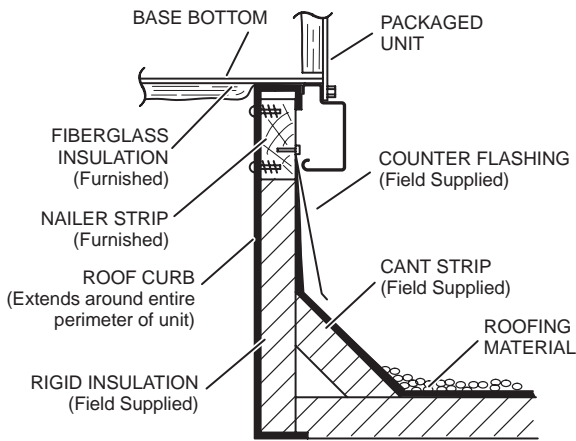
Note - Supply and Return Air Ducts must be supported.

# DIMENSIONS - ACCESSORIES

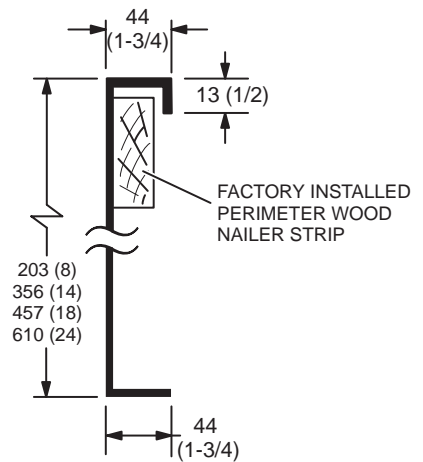
## HYBRID CURBS - DOUBLE DUCT OPENING



**TYPICAL FLASHING DETAIL FOR ROOF CURB**



**DETAIL ROOF CURB**

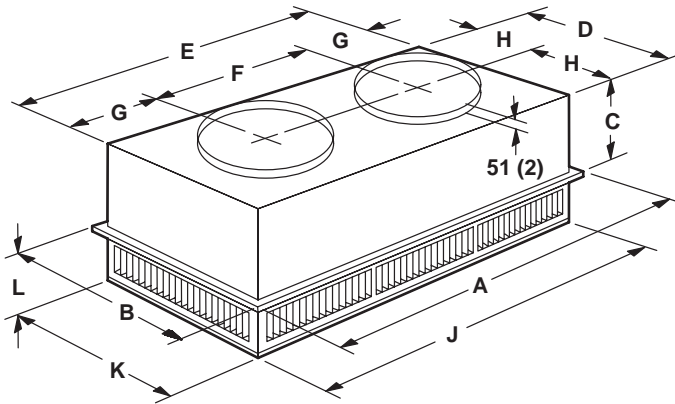




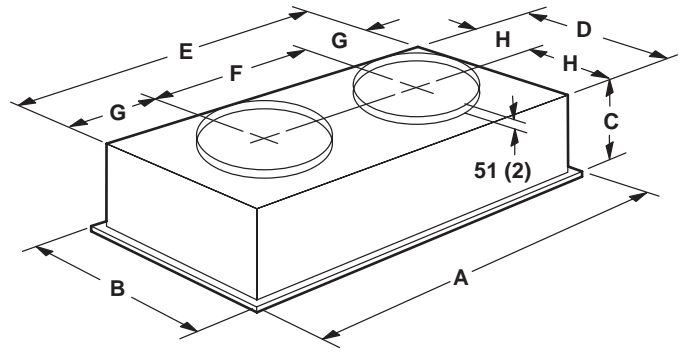
## DIMENSIONS - ACCESSORIES

### COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

#### STEP-DOWN CEILING DIFFUSER



#### FLUSH CEILING DIFFUSER



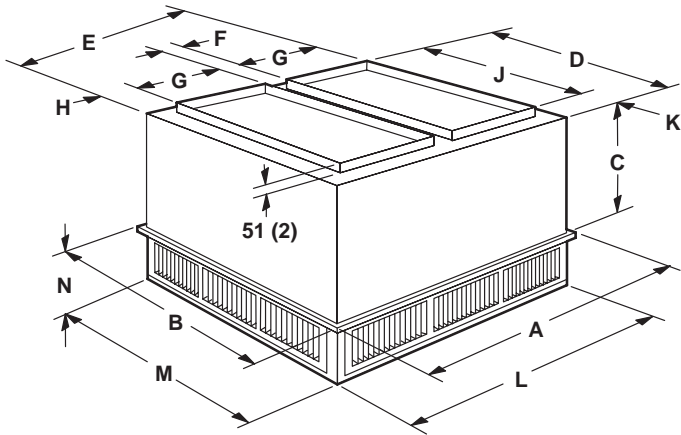
| Model Number |     | RTD11-95S |
|--------------|-----|-----------|
| A            | mm  | 1159      |
|              | in. | 47-5/8    |
| B            | mm  | 752       |
|              | in. | 29-5/8    |
| C            | mm  | 365       |
|              | in. | 14-3/8    |
| D            | mm  | 699       |
|              | in. | 27-1/2    |
| E            | mm  | 1158      |
|              | in. | 45-1/2    |
| F            | mm  | 572       |
|              | in. | 22-1/2    |
| G            | mm  | 292       |
|              | in. | 11-1/2    |
| H            | mm  | 349       |
|              | in. | 13-3/4    |
| J            | mm  | 1156      |
|              | in. | 45-1/2    |
| K            | mm  | 699       |
|              | in. | 27-1/2    |
| L            | mm  | 206       |
|              | in. | 8-1/8     |
| Duct Size    | mm  | 508 round |
|              | in. | 20 round  |

| Model Number |     | FD11-95S  |
|--------------|-----|-----------|
| A            | mm  | 1159      |
|              | in. | 47-5/8    |
| B            | mm  | 752       |
|              | in. | 29-5/8    |
| C            | mm  | 422       |
|              | in. | 16-5/8    |
| D            | mm  | 686       |
|              | in. | 27        |
| E            | mm  | 1143      |
|              | in. | 45        |
| F            | mm  | 22-1/2    |
|              | in. | 572       |
| G            | mm  | 286       |
|              | in. | 11-1/4    |
| H            | mm  | 343       |
|              | in. | 13-1/2    |
| Duct Size    | mm  | 508 round |
|              | in. | 20 round  |

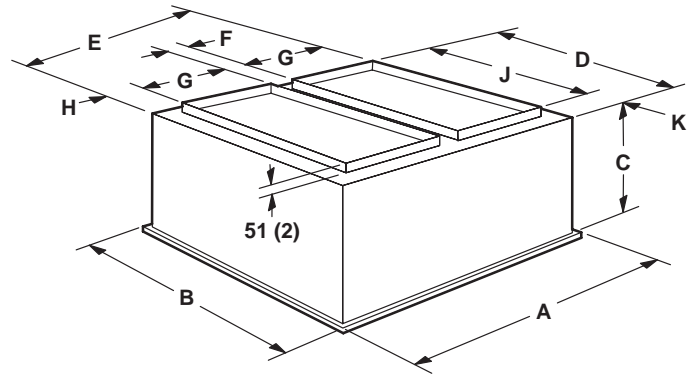
## DIMENSIONS - ACCESSORIES

### COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

#### STEP-DOWN CEILING DIFFUSER



#### FLUSH CEILING DIFFUSER



| Model Number |     | RTD11-135S | RTD11-185S |
|--------------|-----|------------|------------|
| A            | mm  | 1210       | 1210       |
|              | in. | 47-5/8     | 47-5/8     |
| B            | mm  | 905        | 1210       |
|              | in. | 35-5/8     | 47-5/8     |
| C            | mm  | 524        | 625        |
|              | in. | 20-5/8     | 24-5/8     |
| D            | mm  | 851        | 1156       |
|              | in. | 33-1/2     | 45-1/2     |
| E            | mm  | 1156       | 1156       |
|              | in. | 45-1/2     | 45-1/2     |
| F            | mm  | 114        | 114        |
|              | in. | 4-1/2      | 4-1/2      |
| G            | mm  | 457        | 457        |
|              | in. | 18         | 18         |
| H            | mm  | 64         | 64         |
|              | in. | 2-1/2      | 2-1/2      |
| J            | mm  | 711        | 914        |
|              | in. | 28         | 36         |
| K            | mm  | 70         | 121        |
|              | in. | 2-3/4      | 4-3/4      |
| L            | mm  | 1156       | 1156       |
|              | in. | 45-1/2     | 45-1/2     |
| M            | mm  | 851        | 1156       |
|              | in. | 33-1/2     | 45-1/2     |
| N            | mm  | 232        | 257        |
|              | in. | 9-1/8      | 10-1/8     |
| Duct Size    | mm  | 457 x 711  | 457 x 914  |
|              | in. | 18 x 28    | 18 x 36    |

| Model Number |     | FD11-135S | FD11-185S |
|--------------|-----|-----------|-----------|
| A            | mm  | 1210      | 1210      |
|              | in. | 47-5/8    | 47-5/8    |
| B            | mm  | 905       | 1210      |
|              | in. | 35-5/8    | 47-5/8    |
| C            | mm  | 591       | 743       |
|              | in. | 23-1/4    | 29-1/4    |
| D            | mm  | 838       | 1143      |
|              | in. | 33        | 45        |
| E            | mm  | 1143      | 1143      |
|              | in. | 45        | 45        |
| F            | mm  | 112       | 112       |
|              | in. | 4-1/2     | 4-1/2     |
| G            | mm  | 457       | 457       |
|              | in. | 18        | 18        |
| H            | mm  | 57        | 57        |
|              | in. | 2-1/4     | 2-1/4     |
| J            | mm  | 711       | 914       |
|              | in. | 28        | 36        |
| K            | mm  | 64        | 114       |
|              | in. | 2-1/2     | 4-1/2     |
| Duct Size    | mm  | 457 x 711 | 457 x 914 |
|              | in. | 18 x 28   | 18 x 36   |







## REVISIONS

| Section   | Description   |
|---|---|
| Options/Accessories                               | Updated Outdoor Air Damper catalog and model numbers.       |
| Optional Conventional Temperature Control Systems | Added BACnet Thermostat, Controls and optional accessories. |



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