



Heating and Air Conditioning

TECHNICAL GUIDE

PREDATOR[®]

R-410A
ZH SERIES
6-1/2 - 12-1/2 TON
60 Hertz



6-1/2 THROUGH 10 TON



12-1/2 TON

Description

ASHRAE 90.1 COMPLIANT

YORK[®] Predator[®] units are convertible single packages with a common footprint cabinet and common roof curb for all 6-1/2 through 12-1/2 ton models. All units have two compressors with independent refrigeration circuits to provide 2 stages of cooling. The units were designed for light commercial applications and can be easily installed on a roof curb, slab, or frame.

All Predator[®] units are self-contained and assembled on rigid full perimeter base rails allowing for 3-way forklift access and overhead rigging. Every unit is completely charged, wired, piped, and tested at the factory to provide a quick and easy field installation.

All units are convertible between side and down airflow. Independent economizer designs are used on side and down discharge applications, as well as all tonnage sizes.

Predator[®] units are available in the following configurations: cooling only, cooling with electric heat, and cooling with gas heat. Electric heaters are available as factory-installed options or field-installed accessories.

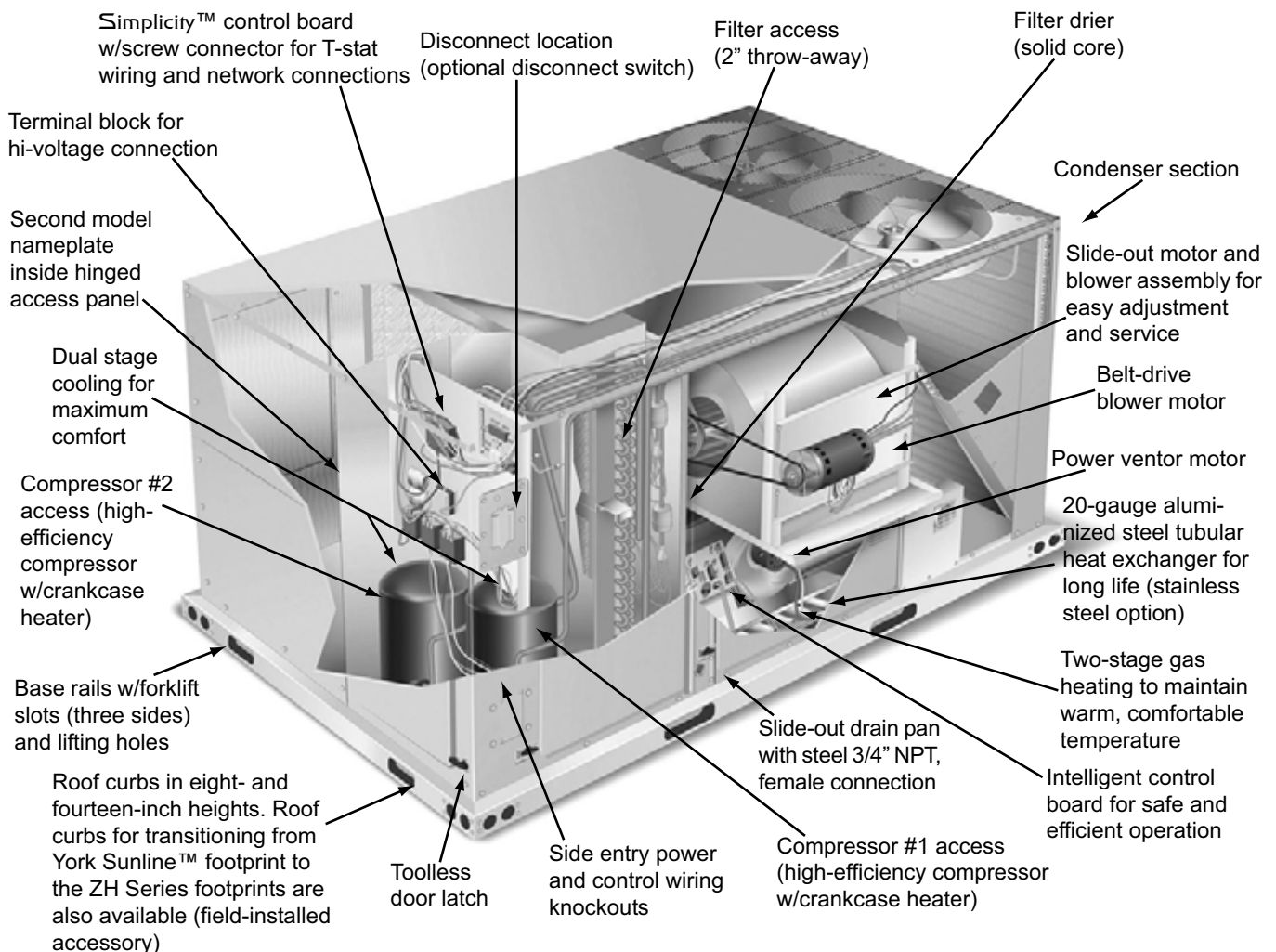
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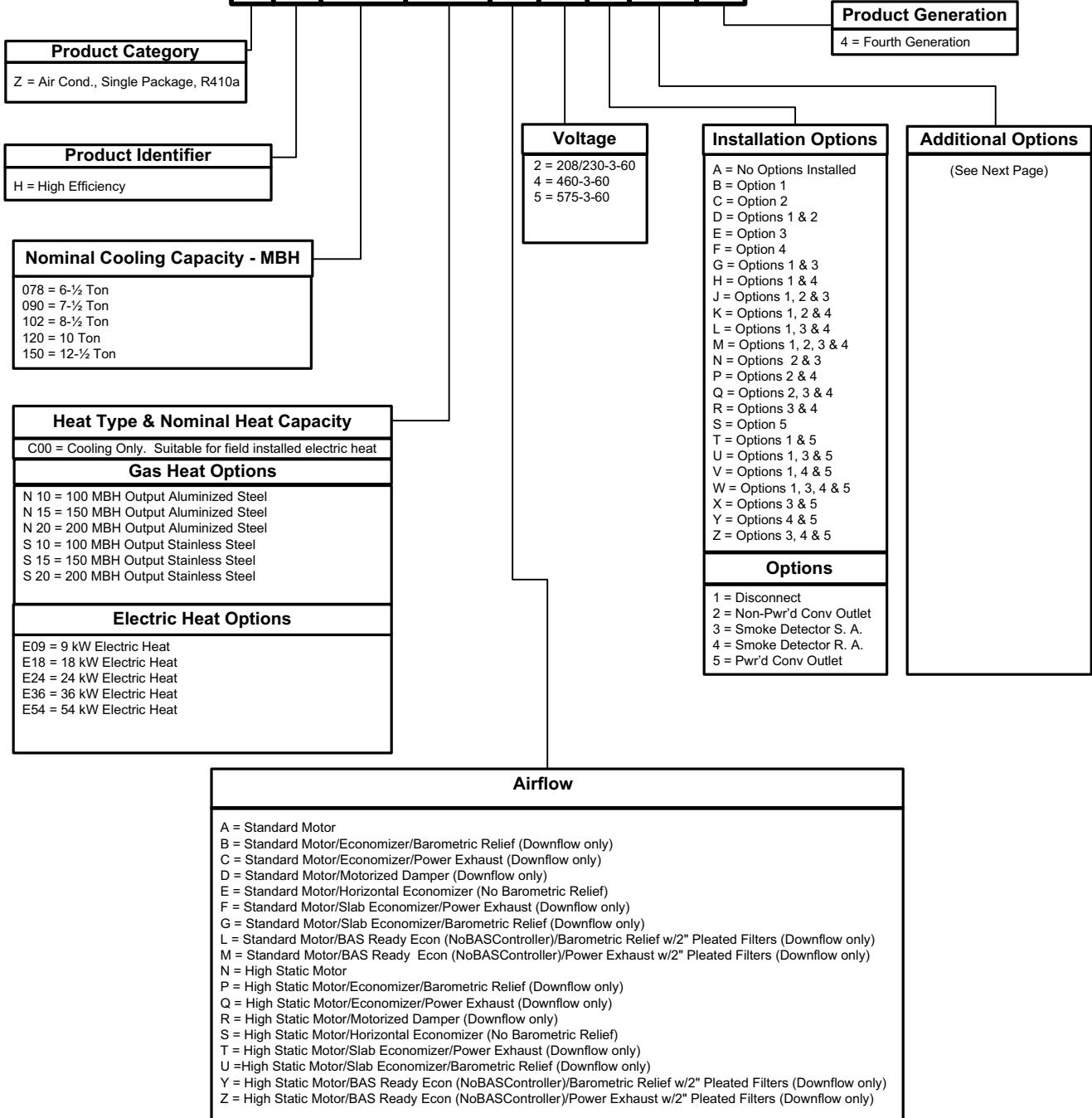
Component Location



Nomenclature

6½ - 12½ Ton Predator Model Number Nomenclature

Z H 090 N10 A 2 A AA 4



Nomenclature Additional Options

Additional Options	
AA	None
AB	Phase Monitor
AC	Coil Guard
AD	Dirty Filter Switch
AE	Phase Monitor & Coil Guard
AF	Phase Monitor & Dirty Filter Switch
AG	Coil Guard & Dirty Filter Switch
AH	Phase Monitor, Coil Guard, & Dirty Filter Switch
AJ	SS Drain Pan
AK	SS Drain Pan & Phase Monitor
AL	SS Drain Pan & Coil Guard
AM	SS Drain Pan & Dirty Filter Switch
AN	SS Drain Pan, Phase Monitor, Coil Guard & Dirty Filter Switch
CA	CPC Controller with Dirty Filter Switch & Air Proving Switch
CB	CPC Controller, DFS, APS & Phase Monitor
CC	CPC Controller, DFS, APS & Coil Guard
CD	CPC Controller, DFS, APS, Phase Monitor, & Coil Guard
CE	CPC Controller, DFS, APS & Technicoat Cond. Coil
CF	CPC Controller, DFS, APS, Technicoat Cond. Coil, & Phase Monitor
CG	CPC Controller, DFS, APS, Technicoat Cond. Coil, & Coil Guard
CH	CPC Controller, DFS, APS, Technicoat Cond. Coil, Phase Monitor, & Coil Guard
CJ	CPC Controller, DFS, APS & Technicoat Evap. Coil
CK	CPC Controller, DFS, APS, Technicoat Evap. Coil, & Phase Monitor
CL	CPC Controller, DFS, APS, Technicoat Evap. Coil, & Coil Guard
CM	CPC Controller, DFS, APS, Technicoat Evap. Coil, Phase Monitor, & Coil Guard
CN	CPC Controller, DFS, APS & Technicoat Evap. & Cond Coils
CP	CPC Controller, DFS, APS, Technicoat Evap. & Cond Coils, & Phase Monitor
CQ	CPC Controller, DFS, APS, Technicoat Evap. & Cond Coils, & Coil Guard
CR	CPC Controller, DFS, APS, Technicoat Evap. & Cond Coils, Phase Monitor, & Coil Guard
CS	CPC Controller, DFS, APS, SS Drain Pan
CT	CPC Controller, DFS, APS, SS Drain Pan, Phase Monitor, & Coil Guard
CU	CPC Controller, DFS, APS, SS Drain Pan, & Technicoat Cond Coils
CV	CPC Controller, DFS, APS, SS Drain Pan, & Technicoat Evap Coil
CW	CPC Controller, DFS, APS, SS Drain Pan, & Technicoat Evap and Cond Coils
CX	CPC Controller, DFS, APS, SS Drain Pan, Phase Monitor, Coil Guard, & Technicoat Evap and Cond Coils
JA	Johnson UNT Controller with Dirty Filter Switch & Air Proving Switch
JB	Johnson UNT Controller, DFS, APS & Phase Monitor
JC	Johnson UNT Controller, DFS, APS & Coil Guard
JD	Johnson UNT Controller, DFS, APS, Phase Monitor, & Coil Guard
JE	Johnson UNT Controller, DFS, APS & Technicoat Cond. Coil
JF	Johnson UNT Controller, DFS, APS, Technicoat Cond. Coil, & Phase Monitor
JG	Johnson UNT Controller, DFS, APS, Technicoat Cond. Coil, & Coil Guard
JH	Johnson UNT Controller, DFS, APS, Technicoat Cond. Coil, Phase Monitor, & Coil Guard
JJ	Johnson UNT Controller, DFS, APS & Technicoat Evap. Coil
JK	Johnson UNT Controller, DFS, APS, Technicoat Evap. Coil, & Phase Monitor
JL	Johnson UNT Controller, DFS, APS, Technicoat Evap. Coil, & Coil Guard
JM	Johnson UNT Controller, DFS, APS, Technicoat Evap. Coil, Phase Monitor, & Coil Guard
JN	Johnson UNT Controller, DFS, APS & Technicoat Evap. & Cond Coils
JP	Johnson UNT Controller, DFS, APS, Technicoat Evap. & Cond Coils, & Phase Monitor
JQ	Johnson UNT Controller, DFS, APS, Technicoat Evap. & Cond Coils, & Coil Guard
JR	Johnson UNT Controller, DFS, APS, Technicoat Evap. & Cond Coils, Phase Monitor, & Coil Guard
JS	Johnson UNT Controller, DFS, APS, SS Drain Pan
JT	Johnson UNT Controller, DFS, APS, SS Drain Pan, Phase Monitor, & Coil Guard
JU	Johnson UNT Controller, DFS, APS, SS Drain Pan, & Technicoat Cond Coils
JV	Johnson UNT Controller, DFS, APS, SS Drain Pan, & Technicoat Evap Coil
JW	Johnson UNT Controller, DFS, APS, SS Drain Pan, & Technicoat Evap and Cond Coils
JX	Johnson UNT Controller, DFS, APS, SS Drain Pan, Phase Monitor, Coil Guard, & Technicoat Evap and Cond Coils

Additional Options	
HA	Honeywell Excel 10 Controller with Dirty Filter Switch & Air Proving Switch
HB	Honeywell Excel 10 Controller, DFS, APS & Phase Monitor
HC	Honeywell Excel 10 Controller, DFS, APS & Coil Guard
HD	Honeywell Excel 10 Controller, DFS, APS, Phase Monitor, & Coil Guard
HE	Honeywell Excel 10 Controller, DFS, APS & Technicoat Cond. Coil
HF	Honeywell Excel 10 Controller, DFS, APS, Technicoat Cond. Coil, & Phase Monitor
HG	Honeywell Excel 10 Controller, DFS, APS, Technicoat Cond. Coil, & Coil Guard
HH	Honeywell Excel 10 Controller, DFS, APS, Technicoat Cond. Coil, Phase Monitor, & Coil Guard
HJ	Honeywell Excel 10 Controller, DFS, APS & Technicoat Evap. Coil
HK	Honeywell Excel 10 Controller, DFS, APS, Technicoat Evap. Coil, & Phase Monitor
HL	Honeywell Excel 10 Controller, DFS, APS, Technicoat Evap. Coil, & Coil Guard
HM	Honeywell Excel 10 Controller, DFS, APS, Technicoat Evap. Coil, Phase Monitor, & Coil Guard
HN	Honeywell Excel 10 Controller, DFS, APS & Technicoat Evap. & Cond Coils
HP	Honeywell Excel 10 Controller, DFS, APS, Technicoat Evap. & Cond Coils, & Phase Monitor
HQ	Honeywell Excel 10 Controller, DFS, APS, Technicoat Evap. & Cond Coils, & Coil Guard
HR	Honeywell Excel 10 Controller, DFS, APS, Technicoat Evap. & Cond Coils, Phase Monitor, & Coil Guard
HS	Honeywell Excel 10 Controller, DFS, APS, SS Drain Pan
HT	Honeywell Excel 10 Controller, DFS, APS, SS Drain Pan, Phase Monitor, & Coil Guard
HU	Honeywell Excel 10 Controller, DFS, APS, SS Drain Pan, & Technicoat Cond Coils
HV	Honeywell Excel 10 Controller, DFS, APS, SS Drain Pan, & Technicoat Evap Coil
HW	Honeywell Excel 10 Controller, DFS, APS, SS Drain Pan, & Technicoat Evap and Cond Coils
HX	Honeywell Excel 10 Controller, DFS, APS, SS Drain Pan, Phase Monitor, Coil Guard, & Technicoat Evap and Cond Coils
WA	Intelli-Comfort w/ModLINC Controller
WB	Intelli-Comfort w/ModLINC Controller, & Phase Monitor
WC	Intelli-Comfort w/ModLINC Controller, & Coil Guard
WD	Intelli-Comfort w/ModLINC Controller, Phase Monitor, & Coil Guard
WE	Intelli-Comfort w/ModLINC Controller, & Technicoat Cond. Coil
WF	Intelli-Comfort w/ModLINC Controller, Technicoat Cond. Coil, & Phase Monitor
WG	Intelli-Comfort w/ModLINC Controller, Technicoat Cond. Coil, & Coil Guard
WH	Intelli-Comfort w/ModLINC Controller, Technicoat Cond. Coil, Phase Monitor, & Coil Guard
WJ	Intelli-Comfort w/ModLINC Controller, & Technicoat Evap. Coil
WK	Intelli-Comfort w/ModLINC Controller, Technicoat Evap. Coil, & Phase Monitor
WL	Intelli-Comfort w/ModLINC Controller, Technicoat Evap. Coil, & Coil Guard
WM	Intelli-Comfort w/ModLINC Controller, Technicoat Evap. Coil, Phase Monitor, & Coil Guard
WN	Intelli-Comfort w/ModLINC Controller, & Technicoat Evap. & Cond Coils
WP	Intelli-Comfort w/ModLINC Controller, Technicoat Evap. & Cond Coils, & Phase Monitor
WQ	Intelli-Comfort w/ModLINC Controller, Technicoat Evap. & Cond Coils, & Coil Guard
WR	Intelli-Comfort w/ModLINC Controller, Technicoat Evap. & Cond Coils, Phase Monitor, & Coil Guard
WS	Intelli-Comfort w/ModLINC Controller, SS Drain Pan
WT	Intelli-Comfort w/ModLINC Controller, SS Drain Pan, Phase Monitor, & Coil Guard
WU	Intelli-Comfort w/ModLINC Controller, SS Drain Pan, & Technicoat Cond Coils
WV	Intelli-Comfort w/ModLINC Controller, SS Drain Pan, & Technicoat Evap Coil
WW	Intelli-Comfort w/ModLINC Controller, SS Drain Pan, & Technicoat Evap and Cond Coils
WX	Intelli-Comfort w/ModLINC Controller, SS Drain Pan, Phase Monitor, Coil Guard, & Technicoat Evap and Cond Coils
NA	Novar ETC-3 Controller with Dirty Filter Switch & Air Proving Switch
NB	Novar ETC-3 Controller, DFS, APS & Phase Monitor
NC	Novar ETC-3 Controller, DFS, APS & Coil Guard
ND	Novar ETC-3 Controller, DFS, APS, Phase Monitor, & Coil Guard
NE	Novar ETC-3 Controller, DFS, APS & Technicoat Cond. Coil
NF	Novar ETC-3 Controller, DFS, APS, Technicoat Cond. Coil, & Phase Monitor
NG	Novar ETC-3 Controller, DFS, APS, Technicoat Cond. Coil, & Coil Guard
NH	Novar ETC-3 Controller, DFS, APS, Technicoat Cond. Coil, Phase Monitor, & Coil Guard
NJ	Novar ETC-3 Controller, DFS, APS & Technicoat Evap. Coil
NK	Novar ETC-3 Controller, DFS, APS, Technicoat Evap. Coil, & Phase Monitor
NL	Novar ETC-3 Controller, DFS, APS, Technicoat Evap. Coil, & Coil Guard
NM	Novar ETC-3 Controller, DFS, APS, Technicoat Evap. Coil, Phase Monitor, & Coil Guard
NN	Novar ETC-3 Controller, DFS, APS & Technicoat Evap. & Cond Coils
NP	Novar ETC-3 Controller, DFS, APS, Technicoat Evap. & Cond Coils, & Phase Monitor
NQ	Novar ETC-3 Controller, DFS, APS, Technicoat Evap. & Cond Coils, & Coil Guard

Additional Options	
NR	Novar ETC-3 Controller, DFS, APS, Technicoat Evap. & Cond Coils, Phase Monitor, & Coil Guard
NS	Novar ETC-3 Controller, DFS, APS, SS Drain Pan
NT	Novar ETC-3 Controller, DFS, APS, SS Drain Pan, Phase Monitor, & Coil Guard
NU	Novar ETC-3 Controller, DFS, APS, SS Drain Pan, & Technicoat Cond Coils
NV	Novar ETC-3 Controller, DFS, APS, SS Drain Pan, & Technicoat Evap Coil
NW	Novar ETC-3, DFS, APS, SS Drain Pan, & Technicoat Evap and Cond Coils
NX	Novar ETC-3 Controller, DFS, APS, SS Drain Pan, Phase Monitor, Coil Guard, & Technicoat Evap and Cond Coils
LA	Simplicity Intelli-Comfort Controller
LB	Simplicity Intelli-Comfort Controller, & Phase Monitor
LC	Simplicity Intelli-Comfort Controller, & Coil Guard
LD	Simplicity Intelli-Comfort Controller, Phase Monitor, & Coil Guard
LE	Simplicity Intelli-Comfort Controller, & Technicoat Cond. Coil
LF	Simplicity Intelli-Comfort Controller, Technicoat Cond. Coil, & Phase Monitor
LG	Simplicity Intelli-Comfort Controller, Technicoat Cond. Coil, & Coil Guard
LH	Simplicity Intelli-Comfort Controller, Technicoat Cond. Coil, Phase Monitor, & Coil Guard
LJ	Simplicity Intelli-Comfort Controller, & Technicoat Evap. Coil
LK	Simplicity Intelli-Comfort Controller, Technicoat Evap. Coil, & Phase Monitor
LL	Simplicity Intelli-Comfort Controller, Technicoat Evap. Coil, & Coil Guard
LM	Simplicity Intelli-Comfort Controller, Technicoat Evap. Coil, Phase Monitor, & Coil Guard
LN	Simplicity Intelli-Comfort Controller, & Technicoat Evap. & Cond Coils
LP	Simplicity Intelli-Comfort Controller, Technicoat Evap. & Cond Coils, & Phase Monitor
LQ	Simplicity Intelli-Comfort Controller, Technicoat Evap. & Cond Coils, & Coil Guard
LR	Simplicity Intelli-Comfort Controller, Technicoat Evap. & Cond Coils, Phase Monitor, & Coil Guard
LS	Simplicity Intelli-Comfort Controller, SS Drain Pan
LT	Simplicity Intelli-Comfort Controller, SS Drain Pan, Phase Monitor, & Coil Guard
LU	Simplicity Intelli-Comfort Controller, SS Drain Pan, & Technicoat Cond Coils
LV	Simplicity Intelli-Comfort Controller, SS Drain Pan, & Technicoat Evap Coil
LW	Simplicity Intelli-Comfort Controller, SS Drain Pan, & Technicoat Evap and Cond Coils
LX	Simplicity Intelli-Comfort Controller, SS Drain Pan, Phase Monitor, Coil Guard, & Technicoat Evap and Cond Coils
TA	Technicoat Condenser Coil
TB	Technicoat Condenser Coil & Phase Monitor
TC	Technicoat Condenser Coil & Coil Guard
TD	Technicoat Condenser Coil & Dirty Filter Switch
TE	Technicoat Condenser Coil, Phase Monitor, & Coil Guard
TF	Technicoat Condenser Coil, Phase Monitor, & Dirty Filter Switch
TG	Technicoat Condenser Coil, Coil Guard, & Dirty Filter Switch
TH	Technicoat Condenser Coil, Phase Monitor, Coil Guard, & Dirty Filter Switch
TJ	Technicoat Evaporator Coil
TK	Technicoat Evaporator Coil & Phase Monitor
TL	Technicoat Evaporator Coil & Coil Guard
TM	Technicoat Evaporator Coil & Dirty Filter Switch
TN	Technicoat Evaporator Coil, Phase Monitor, & Coil Guard
TP	Technicoat Evaporator Coil, Phase Monitor, & Dirty Filter Switch
TQ	Technicoat Evaporator Coil, Coil Guard, & Dirty Filter Switch
TR	Technicoat Evaporator Coil, Phase Monitor, Coil Guard, & Dirty Filter Switch
TS	Technicoat Evaporator & Condenser Coils
TT	Technicoat Evaporator & Condenser Coils & Phase Monitor
TU	Technicoat Evaporator & Condenser Coils & Coil Guard
TV	Technicoat Evaporator & Condenser Coils & Dirty Filter Switch
TW	Technicoat Evaporator & Condenser Coils, Phase Monitor, & Coil Guard
TX	Technicoat Evaporator & Condenser Coils, Phase Monitor, & Dirty Filter Switch
TY	Technicoat Evaporator & Condenser Coils, Coil Guard, & Dirty Filter Switch
TZ	Technicoat Evaporator & Condenser Coils, Phase Monitor, Coil Guard, & Dirty Filter Switch
T1	Technicoat Condenser & SS Drain Pan
T3	Technicoat Condenser Coil, SS Drain Pan, Phase Monitor, Coil Guard, & Dirty Filter Switch
T4	Technicoat Evaporator & SS Drain Pan
T6	Technicoat Evaporator Coil, SS Drain Pan, Phase Monitor, Coil Guard, & Dirty Filter Switch
T7	Technicoat Evaporator & Condenser Coils & SS Drain Pan
T9	Technicoat Evaporator & Condenser Coils, SS Drain Pan, Phase Monitor, Coil Guard, & Dirty Filter Switch

Features and Benefits

Standard Features

- **High Efficiency** – High efficiency units reach as high as 11.5 EER. Gas/electric units have electronic spark ignition and power vented combustion with steady state efficiencies of 80%. These efficiencies exceed all legislated minimum levels and provide low operating costs.
- **Service Friendly** – The Predator® incorporates a number of enhancements which improve serviceability.

The motor and blower slide out of the unit as a common assembly. This facilitates greater access to all the indoor airflow components, thus simplifying maintenance and adjustment.

Service time is reduced through the use of hinged, toolless panels. Such panels provide access to frequently inspected components and areas, including the control box, compressors, filters, indoor motor & blower, and the heating section. The panels are screwed in place at the factory to prevent access by children or other unauthorized persons. It is recommended that the panels be secured with screws once service is complete.

Service windows have been placed in both condenser section walls. Rotation of the cover allows easy access to the condenser coils for cleaning or inspection.

Both the unit control board and ignition control board utilize flash codes to aid in diagnosis of unit malfunctions. Unique alarm codes quickly identify the source of the unit alarm.

All units use the same standard filter size. This standardization removes any confusion on which filter sizes are needed for replacement.

The non-corrosive drain pan slides out of the unit to permit easy cleaning. The drain pan is accessed by removing the drain pan cover plate on the rear of the unit. Once the plate is removed, the drain pan slides out through the rear of the unit.

All Predator® units have a second model nameplate located inside the control access door. This is to prevent deterioration of the nameplate through weathering.
- **Environmentally Aware** – For improved Indoor Air Quality, foil faced insulation is used exclusively throughout the units.
- **Balanced Heating** – The Predator® offers “Ultimate Heating Comfort” with a balance between 1st and 2nd stage gas heating. The first stage of a gas heat Predator® unit provides 60% of the heating capacity. Balanced heating allows the unit to better maintain desired temperatures.
- **Convertible Airflow Design** – The side duct openings are covered when they leave the factory. If a side supply/return is desired, the installer simply removes the two side duct covers from the outside of the unit and installs them over the down shot openings. No panel cutting is required. Convertible airflow design allows maximum field flexibility and minimum inventory.
- **System Protection** - Suction line freezestats are supplied on all units to protect against loss of charge and coil frosting

when the economizer operates at low outdoor air temperatures while the compressors are running. Every unit has solid-core liquid line filter-driers and high and low-pressure switches. Internal compressor protection is standard on all compressors. Crankcase heaters are standard on reciprocating compressors. Scroll compressors do not require crankcase heaters. Phase Monitors are standard on units with scroll compressors. This accessory monitors the incoming power to the unit and protects the unit from phase loss and reversed phase rotation.

- **Advanced Controls** - Simplicity™ ZH control boards have standardized a number of features previously available only as options or by utilizing additional controls.
- **Low Ambient** - An integrated low-ambient control allows all units to operate in the cooling mode down to 0°F outdoor ambient without additional assistance. Optionally, the control board can be programmed to lockout the compressors when the outdoor air temperature is low or when free cooling is available.
- **Anti-Short Cycle Protection** - To aid compressor life, an anti-short cycle delay is incorporated into the standard controls. Compressor reliability is further ensured by programmable minimum run times. For testing, the anti-short cycle delay can be temporarily overridden with the push of a button.
- **Fan Delays** - Fan on and fan off delays are fully programmable. Furthermore, the heating and cooling fan delay times are independent of one another. All units are programmed with default values based upon their configuration of cooling and heat.
- **Safety Monitoring** - The control board monitors the high and low-pressure switches, the freezestats, the gas valve, if applicable, and the temperature limit switch on gas and electric heat units. The unit control board will alarm on ignition failures, compressor lockouts and repeated limit switch trips.
- **Nuisance Trip Protection and Strikes** - To prevent nuisance trouble calls, the control board uses a “three times, you’re out” philosophy. The high and low-pressure switches and the freezestats must trip three times within two hours before the unit control board will lock out the associated compressor.
- **On Board Diagnostics** - Each alarm will energize a trouble light on the thermostat, if so equipped, and flash an alarm code on the control board LED. Each high and low-pressure switch alarm as well as each freezestat alarm has its own flash code. The control board saves the five most recent alarms in memory, and these alarms can be reviewed at any time. Alarms and programmed values are retained through the loss of power.
- **Reliable** – From the beginning – All units undergo computer automated testing before they leave the factory. Units are tested for refrigerant charge and pressure, unit amperage, and 100% functionality. For the long term – All Predator® units are painted with a long lasting, powder paint that stands up over the life of the unit. The paint used has been proven by a 1000 hour salt spray test.

- **Flexible Placement** – All models and configurations share the same cabinet/footprint and thus the same roof curb. You have the flexibility to set one curb and choose the correct tonnage size and heating option after the internal loads have been determined.

To further simplify planning and installation, Predator® ZH cabinets are designed to fit your roof. With the optional roof curb, the unit ductwork is designed to fit around 24" on-center joists or between 48" on-center joists.

The drain pan can be rotated to drain to either the front or the rear of the unit. Additionally, the drain pan can be fitted to drain through the roof curb. As it is sometimes difficult to have a level installation, the drain pan features a generous slope to ensure proper drainage.

- **Full Perimeter Base Rails** – The permanently attached base rails provide a solid foundation for the entire unit and protect the unit during shipment. The rails offer forklift access from 3 sides, and rigging holes are available so that an overhead crane can be used to place the units on a roof.
- **Easy Installation** – Gas and electric utility knockouts are supplied in the unit underside as well as the side of the unit. A clearly identified location is provided to mount a field supplied electrical disconnect switch. Utility connections can be made quickly and with a minimum amount of field labor.
All units are shipped with 2" throw-away filters installed.
- **Wide Range of Indoor Airflows** – All indoor fan motors are belt-drive type providing maximum flexibility to handle most airflow requirements. For high static applications, factory installed alternate indoor fan motors are available. With the optional indoor fan motor, all units can supply nominal airflow at a minimum of 1.5" ESP.
- **Warranty** - All models include a 1-year limited warranty on the complete unit. Compressors and electric heater elements each carry a 5-year warranty. Aluminized steel and stainless steel tubular heat exchangers carry a 10-year warranty.

Factory Installed Options

YORK® offers several equipment options factory installed, for the Predator® line.

- **Downflow Economizer - (With barometric relief)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type, and is shipped installed and wired. The installer needs only to assemble and mount the outdoor air hood (Provided). The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO₂ input for demand ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible.
- **Horizontal Economizer - (Without barometric relief)** - All features of the downflow economizer exist except you must order the duct mount barometric relief separately. **You must order a 1EH0408 if you are installing a power exhaust. You can order a 1RD0411 Barometric Relief for horizontal flow economizers only.**
- **BAS Ready Economizer -(With barometric relief)** - The economizer is provided with a Belimo actuator that requires a 0-10V DC input from an external source (i.e., field installed building automation system controller). Power exhaust options are available. The economizer is 2% low leakage type with spring return and fully modulating dampers capable of introducing up to 100% outside air. Also include 2" pleated filters.
- **Slab Economizer for Energy Recovery Ventilators-(With barometric relief and Fresh Air Hood)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type, and is shipped installed and wired. The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO₂ input for demand ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible.
- **Power Exhaust (Downflow only)** - This accessory installs in the unit with a down flow economizer.
- **Motorized Outdoor Air Damper** - The motorized outdoor air damper includes a slide-in/plug-in damper assembly with an outdoor air hood and filters. The outdoor air dampers open to the preset position when the indoor fan motor is energized. The damper has a range of 0% to 100% outdoor air entry. Factory installed option or field installed accessory.
- **Alternate Indoor Blower Motor** - For applications with high static restrictions, units are offered with optional indoor motors that provide higher static output and/or higher airflow, depending upon the installer's needs.
- **Aluminized Steel Gas Heat Exchanger** - For applications in non-corrosive environments.
- **Stainless Steel Gas Heat Exchanger** - For applications in corrosive environments, this option provides a full stainless steel heat exchanger assembly.
- **Stainless Steel Drain Pan** - An optional rust-proof stainless steel drain pan is available to provide years of trouble-free operation in corrosive environments.

- **Electric Heaters** - The electric heaters range from 9kW to 54kW and are available in all the voltage options of the base units. All heaters are dual staged. All heaters are intended for single point power supply.
- **Disconnect Switch** - For gas heat units and cooling units with electric heat, a HACR breaker sized to the unit is provided. For cooling only units, a switch sized to the largest electric heat available for the particular unit is provided. Factory installed option only.
- **Convenience Outlet - (Non-Powered/Powered)** - This option locates a 120V single-phase GFCI outlet with cover, on the corner of the unit housing adjacent to the compressors. The "Non-powered" option requires the installer to provide the 120V single-phase power source and wiring. The "Powered" option is powered by a stepdown transformer in the unit. Factory installed option only.
- **Smoke Detectors** - The smoke detectors stop operation of the unit by interrupting power to the control board if smoke is detected within the air compartment. Available for both the supply and/or return air.
- **Phase Monitors** - Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of phase condition. **(Standard on units with Scroll Compressors.)**
- **Coil Guard** - Customers can purchase a coil guard kit to protect the condenser coil from damage. Additionally, this kit stops animals and foreign objects from entering the space between the inner condenser coil and the main cabinet. This is not a hail guard kit.
- **Dirty Filter Switch** - This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high pressure drop across the filters. Factory installed option or field installed accessory.
- **Technicoat Condenser Coils** - The condenser coils are coated with a phenolic coating for protection against corrosion due to harsh environments.
- **Technicoat Evaporator Coil** - The evaporator coils are coated with a phenolic coating for protection against corrosion due to harsh environments.
- **Hot Gas Bypass** - Allows operation during low load conditions while avoiding coil frosting and damage to compressor. When suction pressure falls below valve setpoint, the valve modulates hot gas to the inlet of the evaporator.

Control Options

- **BAS - Building Automation System Controls**
Simplicity™ INTELLI-Comfort™ Control - The York® Simplicity™ INTELLI-Comfort™ control is factory installed. It includes a supply air sensor, a return air sensor, and an outside air sensor. There are provisions for a field installed dirty filter indicator switch, an air-proving switch, an Outside Air Humidity sensor, a Return Air Humidity sensor, an Inside IAQ sensor, and an Outside Air IAQ sensor. Construction mode operation, 365-day real time clock with 7 day programming plus holiday scheduling is built-in. Two different modes of demand ventilation are achieved through

the INTELLI-Comfort™ using CO₂ sensors. It uses an inside CO₂ sensor to perform Demand Ventilation. It can also use an Outside CO₂ sensor to perform Differential Demand Ventilation. It uses a Patented Comfort Ventilation algorithm to provide comfortable ventilation air temperature. The patented economizer-loading algorithm will protect the equipment when harsh operating conditions exist. Humidity in the occupied space or return duct can be monitored and controlled via humidity sensors and the on-board connection for hot gas re-heat system. It uses the INTELLI-Start™ algorithm to maximize energy savings by recovering the building from the Unoccupied Setpoints to the Occupied Setpoints just in time for the Occupied Time Period to begin. The Simplicity™ INTELLI-Comfort™ balances space temperature, ventilation air temperature, CO₂ and humidity for ultimate comfort.

- **Simplicity™ INTELLI-Comfort™ with ModLINC Control** - The York® Simplicity™ INTELLI-Comfort™ with ModLINC control is factory installed. It includes all the features of the INTELLI-Comfort™ control with an additional control to translate communications from MODBUS to the BACnet MSTP protocol.
- **Novar® BAS Control** - The Novar® ETC-3 building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **Johnson Controls BAS Control** - The Johnson Control YK-UNT-1126 building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **CPC BAS Control** - The Computer Process Controls Model 810-3060 ARTC Advanced Rooftop building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch and air proving switch.
- **Honeywell BAS Control** - The Honeywell W7750C building automation system controller is factory installed. Includes air supply sensor, return air sensor, dirty filter indicator switch, and air proving switch.

Field Installed Accessories

YORK® offers several equipment accessories for field installation, for the Predator® line.

- **Downflow Economizer - (With barometric relief)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type. The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO₂ input for demand ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the

return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible.

- **Horizontal Economizer - (Without barometric relief) -** All features of the downflow economizer exist except you must order the duct mount barometric relief separately. **You must order a 1EH0408 if you are installing a power exhaust. You can order a 1RD0411 Barometric Relief for horizontal flow economizer.**
- **Slab Economizer for Energy Recovery Ventilator- (Without barometric relief or Fresh Air Hood) -** The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type. The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO₂ input for demand ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible.
You can order 1EH0409 Barometric Relief/FA Hood for field installations without an ERV.
- **Dual Enthalpy Control, Accessory -** This kit contains the required components to convert a single enthalpy economizer to dual enthalpy.
- **Barometric Relief Damper -** Zero to 100% capacity barometric relief dampers for use with horizontal flow, or field installed slab economizers.
- **Power Exhaust -** This accessory installs in the unit with a down flow economizer. Power exhaust plugs into the connector in the unit bulkhead. **You must purchase 1EH0408 barometric relief when applying to a horizontal flow application.**
- **Manual Outdoor Air Damper -** Like the motorized outdoor air damper, each manual outdoor air damper includes a slide-in damper assembly with an outdoor air hood and filters. Customers have a choice of dampers with ranges of 0% to 100% or 0% to 35% outdoor air entry.
- **Motorized Outdoor Air Damper -** The motorized outdoor air damper includes a slide-in/plug-in damper assembly with an outdoor air hood and filters. The outdoor air dampers open to the preset position when the indoor fan motor is energized. The damper has a range of 0% to 100% outdoor air entry. Factory installed option or field installed accessory.
- **Smoke Detectors -** The smoke detectors stop operation of the unit by interrupting power to the control board if smoke is detected within the air compartment.
- **CO₂ Sensor -** Senses CO₂ levels and automatically overrides the economizer when levels rise above the preset limits.
- **Dirty Filter Switch -** This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high pressure drop across the filters.
- **Coil Guard -** Field installed decorative wire coil guard.
- **Hail Guard -** This kit includes a sloped hood which installs over the outside condenser coil and prevents damage to the coil fins from hail strikes. Field installed accessory only.
- **Flue Exhaust Extension Kit -** In locations with wind or weather conditions which may interfere with proper exhausting of furnace combustion products, this kit can be installed to prevent the flue exhaust from entering nearby fresh air intakes.
- **-60°F Gas Heat Kit -** For installations which require gas heat units to perform in low ambient temperatures, a gas section heating kit is available. This kit provides electric heat in the gas heat controls section to ensure the gas valve and controls will continue to function properly at extremely low temperatures.
- **Gas Heat High Altitude Kit -** This kit converts a gas heat unit to operate at high altitudes, 2,000 to 6,000 feet. Conversion kits are available for natural gas and propane.
- **Gas Heat Propane Conversion Kit -** This kit converts a gas-fired heater from natural gas to propane. It contains the main burner orifices and gas valve replacement springs.
- **Gas Piping Kit -** Contains pipe nipples, fittings and gas cock required for gas supply connection with external shut off.
- **Electric Heaters -** The electric heaters range from 9 kW to 54kW and are available in all the voltage options of the base units. All heaters are dual staged. Cooling units include an adapter panel for easy installation of the electric heaters. Necessary hardware and connectors are included with the heaters. All heaters are intended for single point power supply.
- **Low Limit / Compressor Lockout Kit**
 - **Compressor Lockout (CLO):** To prevent mechanical (compressorized) operation of the unit during cold outdoor conditions where there is a risk of returning liquid refrigerant back to the compressors.
 - **Low Limit Control (LLC):** To prevent the supply air from dropping below a specified setpoint by utilizing the units first stage heating means when there is a demand for cooling during cold outside conditions.
- **Metal Frame Filter Kit -** Metal frame with polyester filter medium.
- **Permanent Filters -** Permanent filters are available.
- **Roof Curbs -** The roof curbs have insulated decks and are shipped disassembled. The roof curbs are available in 8" and 14" heights. For applications with security concerns, burglar bars are available for the duct openings of the roof curbs.

- **Roof Curb Transition** - Single Piece Adapter (10" High) - Roof curbs for transitioning from Sunline™ units to Predator® units. Fits 7.5 to 12.5 Sunline™ roof curbs only.
- **Burglar Bars** - Mount in the supply and return openings to prevent entry into the duct work.
- **Thermostat** - The units are designed to operate with 24-volt electronic and electro-mechanical thermostats. All units (with or without an economizer) operate with two-stage heat/two-stage cool or two-stage cooling only thermostats, depending upon unit configuration.

Accessories

Part Number	Description
1RC0470	Roof Curb, 8" Height
1RC0471	Roof Curb, 14" Height
1RC0472	Roof Curb, Transition (7.5 T through 12.5 T)
1BD0408	Burglar Bars, Downflow
2TP04520925	Electric Heat 9kW 230V
2TP04521825	Electric Heat 18kW 230V
2TP04522425	Electric Heat 24kW 230V
2TP04523625	Electric Heat 36kW 230V
2TP04525425	Electric Heat 54kW 230V
2TP04520946	Electric Heat 9kW 460V
2TP04521846	Electric Heat 18kW 460V
2TP04522446	Electric Heat 24kW 460V
2TP04523646	Electric Heat 36kW 460V
2TP04525446	Electric Heat 54kW 460V
2TP04520958	Electric Heat 9kW 575V
2TP04521858	Electric Heat 18kW 575V
2TP04522458	Electric Heat 24kW 575V
2TP04523658	Electric Heat 36kW 575V
2TP04525458	Electric Heat 54kW 575V
2TP04540925	Electric Heat 9kW 230V, 42" Tall Cabinet
2TP04541825	Electric Heat 18kW 230V, 42" Tall Cabinet
2TP04542425	Electric Heat 24kW 230V, 42" Tall Cabinet
2TP04543625	Electric Heat 36kW 230V, 42" Tall Cabinet
2TP04540946	Electric Heat 9kW 460V, 42" Tall Cabinet
2TP04541846	Electric Heat 18kW 460V, 42" Tall Cabinet
2TP04542446	Electric Heat 24kW 460V, 42" Tall Cabinet
2TP04543646	Electric Heat 36kW 460V, 42" Tall Cabinet
2TP04540958	Electric Heat 9kW 575V, 42" Tall Cabinet
2TP04541858	Electric Heat 18kW 575V, 42" Tall Cabinet
2TP04542458	Electric Heat 24kW 575V, 42" Tall Cabinet
2TP04543658	Electric Heat 36kW 575V, 42" Tall Cabinet
1FA0411	Manual Outside Air Damper 0-35%, Downflow (Incl. Hood, Damper & Filters, No Barometric Relief)
1FA0412	Manual Outside Air Damper 0-100%, Downflow (Incl. Hood, Damper & Filters, No Barometric Relief)
2MD04702724	Motorized Damper, Downflow (Incl. Hood, Damper & Filter, no Barometric Relief)
2MD04703324	Motorized Damper, Horizontal (Incl. Hood, Damper & Filter, no Barometric Relief)
2EE04705424	Economizer, Downflow (Incl. Barometric Relief & All Hoods)
2EE04705524	Economizer, Horizontal (Incl. Dampers & Hoods, no Barometric Relief)
2EE04705224	Economizer, Slab, Downflow (Incl. Dampers only no Hoods or Barometric Relief)
2EE04705624	"Downflow Economizer, Slab type for ERV (no Barometric Relief or FA hood)", 42" Tall Cabinet
2PE04703225	Power Exhaust, Downflow, 230V (For Units with Economizer only)
2PE04703246	Power Exhaust, Downflow, 460V(For Units with Economizer only)
2PE04703258	Power Exhaust, Downflow, 580V (For Units with Economizer only)
2EC04700924	Dual Enthalpy Control (Use with Single Enthalpy Economizer)
1EH0407	Hood Kit, Downflow Economizer (Included with all Downflow Economizers)
1RD0411	Barometric Relief Kit, Ductmount for Horizontal Application (Incl. Damper & Hood)
1EH0408	Barometric Relief Kit, Ductmount for Horizontal Application w/Power Exhaust (Incl. Damper & Hood)
1EH0409	Barometric Relief / Hood Kit, for Field Installed Slab Econ. w/o ERV (Incl. Barometric Relief & FA Hood)
2AQ04700424	CO2 Detector Unit Mount
2AQ04700324	CO2 Detector Space Mount

Accessories (Continued)

Part Number	Description
2SD04700424	Smoke Detector, Supply or Return (Return Not Available with Horizontal Economizer)
2MK04700624	Low Limit / Compressor Lockout Kit
1CG0419	Coil Guard (Electric / Electric & HP models), 8-1/2 and 10 Ton
1CG0420	Coil Guard (Gas / Electric models), 8-1/2 and 10 Ton
1CG0424	Coil Guard (Electric / Electric and HP models), 12-1/2 Ton
1CG0425	Coil Guard (Gas / Electric models), 12-1/2 Ton
1CG0427	Coil Guard (Electric / Electric & HP Models), 6-1/2 and 7-1/2 Ton
1CG0428	Coil Guard (Gas / Electric Models), 6-1/2 and 7-1/2 Ton
1HG0411	Hail Guard Kit
1HG0415	Hail Guard Kit, 42" Tall Cabinet
1GP0405	Gas Piping Kit
1NP0442	Propane Conversion Kit
1HA0442	High Altitude Kit for Natural Gas
1HA0443	High Altitude Kit for Propane
1FE0412	Flue Exhaust Extension Kit
2BC04700106	Gas Heat Kit, -60 deg F, 230V
2BC04700151	Gas Heat Kit, -60 deg F, 460V
2BC04700154	Gas Heat Kit, -60 deg F, 575V
1FL0402	Permanent Filter Kit
1FL0423	Permanent Filter Kit, 42" Tall Cabinet
2DF0401	Dirty Filter Switch
1FF0410	Filter Frame Kit, Metal
1FF0411	Metal Filter Frame Kit, 42" Tall Cabinet

Guide Specifications

GENERAL

Units shall be manufactured by York International Unitary Products Group in an ISO 9001 certified facility. YORK® Predator® units are convertible single packages with a common footprint cabinet and common roof curb for all 6-1/2 through 12-1/2 ton models. All units have two compressors with independent R-410a refrigeration circuits to provide 2 stages of cooling. The units were designed for light commercial applications and can be easily installed on a roof curb, slab, or frame. All Predator® units are self-contained and assembled on rigid full perimeter base rails allowing for 3-way forklift access and overhead rigging. Every unit is completely charged with R-410a, wired, piped, and tested at the factory to provide a quick and easy field installation. All units are convertible between side and down airflow. Independent economizer designs are used on side and down discharge applications, as well as all tonnage sizes. Predator® units are available in the following configurations: cooling only, cooling with electric heat, and cooling with gas heat. Electric heaters are available as factory-installed options or field-installed accessories.

DESCRIPTION

Units shall be factory assembled, single package, (Elec/Elec, Gas/Elec), designed for outdoor installation. They shall have built in field convertible duct connections for down discharge supply/return or horizontal discharge supply/return and be available with factory installed options or field installed accessories. The units shall be factory wired, piped and charged with R-410a refrigerant and factory tested prior to shipment. All unit wiring shall be both

numbered and color coded. The cooling performance shall be rated in accordance with DOE and ARI test procedures. Units shall be CSA certified to ANSI Z21.47 and UL 1995/CAN/CSA No. 236-M90 standards.

UNIT CABINET

Unit cabinet shall be constructed of G90 galvanized steel with exterior surfaces coated with a non-chalking, powder paint finish, certified at 1000 hour salt spray test per ASTM-B117 standards. Indoor blower sections shall be insulated with up to 1" thick insulation coated on the airside. Aluminum foil faced insulation shall be used in the unit's compartments and be fastened to prevent insulation from entering the air stream. Cabinet doors shall be hinged with toolless access for easy servicing and maintenance. Full perimeter base rails shall be provided to assure reliable transit of equipment, overhead rigging, fork truck access and proper sealing on roof curb applications. Disposable 2" filters shall be furnished and be accessible through hinged access door. Fan performance measuring ports shall be provided on the outside of the cabinet to allow accurate air measurements of evaporator fan performance without removing panels or creating bypass of the coils. Condensate pan shall be slide out design, constructed of a non corrosive material, internally sloped and conforming to ASHRAE 62-B9 standards. Condensate connection shall be a minimum of 3/4" I.D. female and be rigid mount connection.

INDOOR (EVAPORATOR) FAN ASSEMBLY

Fan shall be a belt drive assembly and include an adjustable pitch motor pulley. Job site selected brake horsepower shall not exceed the motors nameplate horsepower rating plus the ser-

vice factor. Units shall be designed to operate within the service factor. Fan wheel shall be double inlet type with forward curve blades, dynamically balanced to operate smoothly throughout the entire range of operation. Airflow design shall be constant volume. Bearings shall be sealed and permanently lubricated for longer life and no maintenance. Entire blower assembly and motor shall be slide out design.

OUTDOOR (CONDENSER) FAN ASSEMBLY

The outdoor fans shall be of the direct drive type, discharge air vertically, have aluminum blades riveted to corrosion resistant steel spider brackets and shall be dynamically balanced for smooth operation. The outdoor fan motors shall have permanently lubricated bearings internally protected against overload conditions and staged independently. A cleaning window shall be provided on two sides of the units for coil cleaning.

REFRIGERANT COMPONENTS

Compressors:

- a. Shall be fully hermetic type, direct drive, internally protected with internal high-pressure relief and over temperature protection. The hermetic motor shall be suction gas cooled and have a voltage range of + or – 10% of the unit nameplate voltage.
- b. Shall have internal spring isolation and sound muffling to minimize vibration and noise, and be externally isolated on a dedicated, independent mounting.

Coils:

- a. Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless internally enhanced copper tubes with all joints brazed. Special Phenolic coating shall be available as a factory option.
- b. Evaporator and condenser coils shall be of the direct expansion, draw-thru design.

Refrigerant Circuit and Refrigerant Safety Components shall include:

- a. Independent fixed-orifice or thermally operated expansion devices.
- b. Solid core filter drier/strainer to eliminate any moisture or foreign matter.
- c. Accessible service gage connections on both suction and discharge lines to charge, evacuate, and measure refrigerant pressure during any necessary servicing or troubleshooting, without losing charge.
- d. The unit shall have two independent refrigerant circuits, equally split in 50% capacity increments.

Unit Controls:

- a. Unit shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-volt transformer side.
- b. Unit shall incorporate a lockout circuit which provides reset capability at the space thermostat or base unit

should any of the following standard safety devices trip and shut off compressor:

- c. Loss-of-charge/Low-pressure switch.
 - High-pressure switch.
 - Freeze-protection thermostat, evaporator coil. If any of the above safety devices trip, an LED (light-emitting diode) indicator shall flash a diagnostic code that indicates which safety switch has tripped.
- d. Unit shall incorporate "AUTO RESET" compressor over temperature, over current protection.
- e. Unit shall operate with conventional thermostat designs and have a low voltage terminal strip for easy hook-up.
- f. Unit control board shall have on-board diagnostics and fault code display.
- g. Standard controls shall include anti-short cycle and low voltage protection, and permit cooling operation down to 0 °F.
- h. Control board shall monitor each refrigerant safety switch independently.
- i. Control board shall retain last 5 fault codes in non-volatile memory, which will not be lost in the event of a power loss.

GAS HEATING SECTION (IF EQUIPPED)

Heat exchanger and exhaust system shall be constructed of aluminized steel and shall be designed with induced draft combustion with post purge logic, energy saving direct spark ignition, and redundant main gas valve. The heat exchanger shall be of the tubular type, constructed of T1-40 aluminized steel for corrosion resistance and allowing minimum mixed air entering temperature of 40 °F. Burners shall be of the in-shot type, constructed of aluminum-coated steel. All gas piping shall enter the unit cabinet at a single location, through either the side or bottom, without any field modifications. An integrated control board shall provide timed control of evaporator fan functioning and burner ignition. Heating section shall be provided with the following minimum protection:

- a. Primary and auxiliary high-temperature limit switches.
- b. Induced draft pressure sensor.
- c. Flame roll out switch (manual reset).
- d. Flame proving controls. Unit shall have two independent stages of capacity (60% 1st stage, 100% 2nd stage).

ELECTRIC HEATING SECTION (IF EQUIPPED)

An electric heating section, with nickel chromium elements, shall be provided in a range of 9 thru 54 KW, offering two states of capacity all sizes. The heating section shall have a primary limit control(s) (automatic reset) to prevent the heating element system from operating at an excessive temperature. The Heating Section assembly shall slide out of the unit for easy maintenance and service. Units with Electric Heating Sections shall be wired for a single point power supply with branch circuit fusing (where required).

UNIT OPERATING CHARACTERISTICS

Unit shall be capable of starting and running at 125 °F outdoor temperature, exceeding maximum load criteria of ARI Standard 210/240. The compressor, with standard controls, shall be capable of operation down to 0 °F outdoor temperature. Unit shall be provided with fan time delay to prevent cold air delivery before heat exchanger warms up. (Gas heat only)

ELECTRICAL REQUIREMENTS - All unit power wiring shall enter unit cabinet at a single factory provided location and be capable of side or bottom entry to minimize roof penetrations and avoid unit field modifications. Separate side and bottom openings shall be provided for the control wiring.

STANDARD LIMITED WARRANTIES - Compressor – 5 Years, Heat Exchanger – 10 Years, Elect. Heat Elem. – 5 Years, Parts – 1 Year

FACTORY INSTALLED OPTIONAL OUTDOOR AIR (Shall be made available by either/or):

- **ELECTRONIC ENTHALPY AUTOMATIC ECONOMIZER** – Outdoor and return air dampers that are interlocked and positioned by a fully-modulating, spring-return damper actuator. The maximum leakage rate for the outdoor air intake dampers shall not exceed 2% when dampers are fully closed and operating against a pressure differential of 0.5 IWG. A unit-mounted potentiometer shall be provided to adjust the outdoor and return air damper assembly to take in outdoor air to meet the minimum ventilation requirement of the conditioned space during normal operation. During economizer operation, a mixed-air temperature control shall modulate the outdoor and return air damper assembly to prevent the supply air temperature from dropping below 55 °F. Changeover from compressor to economizer operation shall be provided by an integral electronic enthalpy control that feeds input into the basic module. The outdoor intake opening shall be covered with a rain hood that matches the exterior of the unit. Water eliminator/filters shall be provided. Simultaneous economizer/compressor operation is also possible. Dampers shall fully close on power loss. Available with barometric relief or power exhaust.
- **MOTORIZED OUTDOOR AIR DAMPERS** – Outdoor and return air dampers that are interlocked and positioned by a 2-position, spring-return damper actuator. The maximum leakage rate for the outdoor air intake dampers shall not exceed 2% when dampers are fully closed and operating against a pressure differential of 0.5 IWG. A unit-mounted potentiometer shall be provided to adjust the outdoor and return air damper assembly to take in the design CFM of outdoor air to meet the ventilation requirements of the conditioned space during normal operation. Whenever the indoor fan motor is energized, the dampers open up to one of two pre-selected positions – regardless of the outdoor air enthalpy. Dampers return to the fully closed position when the indoor fan motor is de-energized. Dampers shall fully close on power loss.

ADDITIONAL FACTORY INSTALLED OPTIONS

- **ALTERNATE INDOOR BLOWER MOTOR** – For applications with high restrictions, units are available with optional indoor blower motors that provide higher static output and/or higher airflow.
- **CONVENIENCE OUTLET (POWERED/NON-POWERED)**– Unit can be provided with an optional 120VAC GFCI outlet with cover on the corner of the unit housing the compressors.
- **ELECTRIC HEAT** - Electric Heaters range from 9 kW to 54 kW and are available in all the voltage options of the base unit.
- **PHASE MONITOR** - Designed to prevent damage in out-of-phase condition.
- **COIL GUARD** - Designed to prevent condenser coil damage.
- **BAS CONTROLS** - Include supply air sensor, return air sensor, dirty filter indicator and air proving switch.
- **DIRTY FILTER SWITCH** – This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high-pressure drop across the filters.
- **BREAKER** – An HACR breaker can be factory installed on gas heat units or cooling units with electric heat.
- **DISCONNECT SWITCH** - A disconnect can be factory installed on a cooling only units sized for the largest electric heat available.
- **STAINLESS STEEL HEAT EXCHANGER** – For applications in a corrosive environment, this option provides a full stainless steel heat exchanger assembly.
- **SMOKE DETECTOR** – A smoke detector can be factory mounted and wired in the supply and/or return air compartments.

OTHER PRE-ENGINEERED ACCESSORIES AVAILABLE

- **ROOF CURB** - 14" and 8" high, full perimeter knockdown curb, with hinged design for quick assembly.
- **BAROMETRIC RELIEF DAMPER** – (Unit mounted – Downflow, Duct Mounted – Horizontal) – Contains a rain hood, air inlet screen, exhaust damper and mounting hardware. Used to relieve internal air pressure through the unit during economizer operation.
- **PROPANE CONVERSION KIT** – Contains new orifices and gas valve springs to convert from natural to L.P. gas.
- **60°F GAS HEAT KIT** – Provides an electric heat kit for the gas compartment for use in extreme low ambient conditions.
- **ECONOMIZER** (Downflow and Horizontal flow)
- **POWER EXHAUST** – (Unit mount – Downflow, Duct mount – Horizontal flow)
- **DUAL ENTHALPY KIT** - Provides a second input to economizer to monitor return air.

Physical Data

ZH078-150 Physical Data

Component	Models									
	ZH078		ZH090		ZH102		ZH120		ZH150	
Nominal Tonnage	6.5		7.5		8.5		10		12.5	
ARI COOLING PERFORMANCE										
Gross Capacity @ ARI A point (Btu)	79000		93000		106000		126000		156000	
ARI net capacity (Btu)	76000		90000		102000		122000		150000	
EER	11.4		11.4		11.5		11.5		11.2	
SEER	-		-		-		-		-	
IPLV	12.7		12.4		12.4		12.1		12.7	
Nominal CFM	2600		3000		3400		4000		5000	
System power (KW)	6.67		7.90		8.87		10.61		13.40	
Refrigerant type	R-410a		R-410a		R-410a		R-410a		R-410a	
Refrigerant charge (lb-oz)										
System 1	9-4		8-8		11-8		11-8		19-8	
System 2	6-0		8-4		11-0		11-8		19-8	
ARI HEATING PERFORMANCE										
Heating model	10	15	10	15	10	15	15	20	15	20
Heat input (K Btu)	120	180	120	180	120	180	180	240	180	240
Heat output (K Btu)	96	144	96	144	96	144	144	192	144	192
AFUE %	-	-	-	-	-	-	-	-	-	-
Steady state efficiency (%)	80	80	80	80	80	80	80	80	80	80
No. burners	4	6	4	6	4	6	6	8	6	8
No. stages	2	2	2	2	2	2	2	2	2	2
Temperature Rise Range (°F)	20-50	35-65	15-45	30-60	10-40	25-55	20-50	35-65	10-40	25-55
Gas Limit Setting (°F)	165	165	165	165	215	195	195	160	195	160
Gas piping connection (in.)	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
DIMENSIONS (inches)										
Length	89		89		89		89		119-7/16	
Width	59		59		59		59		59	
Height	42		42		50-3/4		50-3/4		50-3/4	
OPERATING WT. (lbs.)	900		920		1135		1135		1400	
COMPRESSORS										
Type	Scroll		Scroll		Scroll		Scroll		Scroll	
Quantity	2		2		2		2		2	
Unit Capacity Steps (%)	50 / 100		50 / 100		50 / 100		50 / 100		50 / 100	
CONDENSER COIL DATA										
Face area (Sq. Ft.)	23.8		23.8		29.0		29.0		47.5	
Rows	2 / 1		2		2		2		2	
Fins per inch	20		20		20		20		15	
Tube diameter (in.)	3/8		3/8		3/8		3/8		3/8	
Circuitry Type	Split-face		Split-face		Split-face		Split-face		Split-face	
EVAPORATOR COIL DATA										
Face area (Sq. Ft.)	10.6		10.6		13.2		13.2		13.2	
Rows	3		3		4		4		4	
Fins per inch	15		15		15		15		15	
Tube diameter	0.375		0.375		0.375		0.375		0.375	
Circuitry Type	Split-face		Split-face		Split-face		Split-face		Split-face	
Refrigerant control	TXV		TXV		TXV		TXV		TXV	

ZH078-150 Physical Data (Continued)

Component	Models									
	ZH078		ZH090		ZH102		ZH120		ZH150	
Nominal Tonnage	6.5		7.5		8.5		10		12.5	
CONDENSER FAN DATA										
Quantity	2		2		2		2		4	
Fan diameter (Inch)	24		24		24		24		24	
Type	Prop		Prop		Prop		Prop		Prop	
Drive type	Direct		Direct		Direct		Direct		Direct	
No. speeds	1		1		1		1		1	
Number of motors	2		2		2		2		4	
Motor HP each	1/3		1/3		3/4		3/4		1/3	
RPM	850		850		1110		1110		850	
Nominal total CFM	6800		6800		8800		8800		14000	
BELT DRIVE EVAP FAN DATA										
Quantity	1		1		1		1		1	
Fan Size (Inch)	12 x 12		12 x 12		15 x 15		15 x 15		15 x 15	
Type	Centrifugal		Centrifugal		Centrifugal		Centrifugal		Centrifugal	
Motor Sheave	1VM50	1VM50	1VM50	1VM50	1VM50	1VM50	1VM50	1VM50	1VM50	1VP56
Blower Sheave	AK74	AK66	AK69	AK64	AK89	AK74	AK84	AK74	AK74	BK77
Belt	A49	A49	A49	A49	A56	A54	A56	A54	A54	BX55
Motor HP each	1-1/2	2	2	3	2	3	2	3	3	5
RPM	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725
Frame size	56	56	56	56	56	56	56	56	56	184T
FILTERS										
Quantity - Size	4 - 25 x 16 x 2		4 - 25 x 16 x 2		4 - 25 x 20 x 2		4 - 25 x 20 x 2		4 - 25 x 20 x 2	

ZH078-150 Unit Limitations

Size (Tons)	Model	Unit Voltage	Unit Limitations		
			Applied Voltage		Outdoor DB Temp
			Min	Max	Max (°F)
078 (6.5)	ZH	208/230-3-60	187	252	125
		460-3-60	432	504	125
		575-3-60	540	630	125
090 (7.5)	ZH	208/230-3-60	187	252	125
		460-3-60	432	504	125
		575-3-60	540	630	125
102 (8.5)	ZH	208/230-3-60	187	252	125
		460-3-60	432	504	125
		575-3-60	540	630	125
120 (10)	ZH	208/230-3-60	187	252	125
		460-3-60	432	504	125
		575-3-60	540	630	125
150 (12.5)	ZH	208/230-3-60	187	252	125
		460-3-60	432	504	125
		575-3-60	540	630	125

Capacity Performance

ZH078-150 Cooling Capacities

ZH078 (6.5 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
				75°F						85°F							
1625	77	100.5	4.5	42.8	33.7	25.9	-	-	-	94.8	5.2	39.6	32.0	24.3	-	-	-
	72	91.5	4.5	53.4	45.6	37.8	30.0	-	-	86.2	5.2	51.3	43.7	36.0	28.4	-	-
	67	82.5	4.4	63.9	57.4	49.6	41.8	34.0	-	77.5	5.1	63.0	55.4	47.7	40.0	32.4	-
	62	78.1	4.4	78.1	72.3	61.3	53.5	45.7	37.9	73.0	5.1	73.0	70.1	58.7	51.0	43.4	35.7
1950	77	104.3	4.6	46.3	37.5	28.7	-	-	-	98.0	5.2	44.3	35.6	26.9	-	-	-
	72	95.0	4.5	59.4	50.6	41.8	33.0	-	-	89.0	5.2	57.2	48.5	39.7	31.0	-	-
	67	85.6	4.5	72.5	63.7	54.9	46.1	37.3	-	80.1	5.2	70.1	61.4	52.6	43.9	35.2	-
	62	81.0	4.5	81.0	77.1	67.8	59.0	50.2	41.4	75.4	5.1	75.4	73.5	64.8	56.0	47.3	38.6
	57	78.6	4.5	78.6	78.3	69.5	60.7	51.9	43.1	75.4	5.1	75.4	74.4	65.7	57.0	48.3	39.5
2275	77	108.0	4.6	49.7	41.2	31.4	-	-	-	101.1	5.3	49.0	39.2	29.4	-	-	-
	72	98.4	4.6	65.4	55.6	45.8	36.0	-	-	91.9	5.2	63.1	53.3	43.5	33.7	-	-
	67	88.7	4.5	81.1	70.0	60.2	50.4	40.6	-	82.7	5.2	77.2	67.4	57.6	47.8	38.0	-
	62	83.9	4.5	83.9	81.9	74.3	64.5	54.7	44.9	77.9	5.2	77.9	76.9	70.8	61.0	51.2	41.4
	57	81.4	4.5	81.4	81.3	76.2	66.4	56.5	46.7	77.8	5.2	77.8	77.4	71.9	62.1	52.3	42.5
2600	77	111.8	4.6	53.2	45.0	34.2	-	-	-	104.3	5.3	53.6	42.8	31.9	-	-	-
	72	101.8	4.6	71.5	60.6	49.8	39.0	-	-	94.8	5.2	68.9	58.1	47.2	36.3	-	-
	67	91.8	4.6	89.7	76.3	65.5	54.6	43.8	-	85.3	5.2	84.2	73.4	62.5	51.6	40.8	-
	62	86.8	4.5	86.8	86.8	80.8	70.0	59.2	48.4	80.3	5.2	80.3	80.3	76.9	66.0	55.2	44.3
	57	84.3	4.6	84.3	84.3	82.8	72.0	61.2	50.4	80.3	5.2	80.3	80.3	78.0	67.2	56.3	45.4
2925	72	104.1	4.6	76.6	64.8	53.0	41.3	-	-	96.8	5.2	74.3	62.4	50.4	38.5	-	-
	67	93.8	4.6	92.8	81.5	69.7	57.9	46.1	-	87.1	5.2	86.6	78.7	66.8	54.9	42.9	-
	62	88.7	4.5	88.7	88.7	85.7	74.0	62.2	50.4	82.0	5.2	82.0	82.0	80.3	68.4	56.4	44.5
	57	86.2	4.6	86.2	86.2	85.4	73.7	61.9	50.1	82.0	5.2	82.0	82.0	80.8	68.9	57.0	45.1
3250	72	106.3	4.6	81.7	69.0	56.2	43.5	-	-	98.8	5.2	79.7	66.7	53.7	40.7	-	-
	67	95.9	4.6	95.9	86.6	73.9	61.2	48.4	-	88.9	5.2	88.9	84.1	71.1	58.1	45.1	-
	62	90.6	4.6	90.6	90.6	90.6	77.9	65.2	52.4	83.7	5.2	83.7	83.7	83.7	70.7	57.7	44.7
	57	88.1	4.6	88.1	88.1	88.1	75.3	62.6	49.8	83.7	5.2	83.7	83.7	83.7	70.7	57.7	44.7
				95°F						105°F							
1625	77	89.1	5.9	36.5	30.3	22.8	-	-	-	82.2	6.9	31.8	27.9	20.7	-	-	-
	72	80.8	5.9	49.3	41.8	34.3	26.7	-	-	74.4	6.7	46.5	39.2	31.9	24.6	-	-
	67	72.5	5.8	62.1	53.3	45.8	38.2	30.7	-	66.5	6.5	61.2	50.4	43.2	35.9	28.6	-
	62	67.9	5.8	67.9	67.9	56.1	48.6	41.0	33.5	62.2	6.5	62.2	62.2	51.0	43.7	36.4	29.1
1950	77	91.7	5.9	42.3	33.7	25.1	-	-	-	84.5	6.9	39.9	31.4	22.8	-	-	-
	72	83.1	5.9	55.0	46.4	37.7	29.1	-	-	76.4	6.7	52.4	43.8	35.2	26.7	-	-
	67	74.6	5.8	67.7	59.0	50.4	41.7	33.1	-	68.4	6.5	64.8	56.2	47.7	39.1	30.6	-
	62	69.9	5.8	69.9	69.9	61.7	53.1	44.4	35.8	63.9	6.5	63.9	63.9	56.3	47.7	39.2	30.6
	57	72.2	5.8	72.2	70.6	61.9	53.3	44.6	36.0	66.6	6.5	66.6	64.8	56.2	47.7	39.1	30.6
2275	77	94.2	5.9	48.2	37.1	27.3	-	-	-	86.8	6.9	48.1	34.8	25.0	-	-	-
	72	85.5	5.9	60.7	50.9	41.2	31.4	-	-	78.5	6.7	58.2	48.4	38.6	28.7	-	-
	67	76.7	5.8	73.2	64.7	55.0	45.2	35.4	-	70.2	6.6	68.4	62.0	52.2	42.3	32.5	-
	62	71.8	5.8	71.8	71.8	67.3	57.6	47.8	38.0	65.6	6.5	65.6	65.6	61.6	51.7	41.9	32.1
	57	74.2	5.8	74.2	73.4	67.6	57.8	48.0	38.2	68.4	6.5	68.4	67.5	61.5	51.7	41.9	32.0
2600	77	96.8	5.9	54.1	40.5	29.6	-	-	-	89.0	6.9	56.2	38.2	27.1	-	-	-
	72	87.8	5.9	66.4	55.5	44.6	33.7	-	-	80.5	6.8	64.1	53.0	41.9	30.8	-	-
	67	78.8	5.8	78.8	70.5	59.6	48.6	37.7	-	72.0	6.6	72.0	67.8	56.7	45.6	34.5	-
	62	73.8	5.8	73.8	73.8	73.0	62.1	51.1	40.2	67.3	6.5	67.3	67.3	66.9	55.8	44.7	33.6
	57	76.3	5.8	76.3	76.3	73.2	62.3	51.4	40.5	70.2	6.5	70.2	70.2	66.8	55.7	44.6	33.5
2925	72	89.5	5.9	72.0	60.0	47.9	35.8	-	-	81.9	6.8	69.4	57.1	44.9	32.7	-	-
	67	80.3	5.8	80.3	76.0	63.9	51.9	39.8	-	73.2	6.6	73.2	71.0	60.8	48.6	36.4	-
	62	75.2	5.8	75.2	75.2	74.8	62.8	50.7	38.6	68.4	6.5	68.4	68.4	68.2	56.0	43.8	31.6
	57	77.8	5.8	77.8	77.8	76.3	64.2	52.1	40.0	71.4	6.5	71.4	71.4	69.7	57.5	45.3	33.1
3250	72	91.3	5.9	77.6	64.4	51.1	37.9	-	-	83.2	6.8	74.6	61.3	48.0	34.7	-	-
	67	81.9	5.8	81.9	81.6	68.3	55.1	41.8	-	74.4	6.6	74.4	74.2	64.9	51.6	38.3	-
	62	76.7	5.8	76.7	76.7	76.7	63.5	50.2	37.0	69.5	6.5	69.5	69.5	69.5	56.2	42.9	29.6
	57	79.3	5.8	79.3	79.3	79.3	66.0	52.8	39.5	72.5	6.5	72.5	72.5	72.5	59.2	45.9	32.6

ZH078 (6.5 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
				115°F						125°F							
1625	77	75.4	7.9	27.1	25.6	18.6	-	-	-	68.5	8.9	27.1	21.3	16.5	-	-	-
	72	68.0	7.6	43.7	36.6	29.6	22.5	-	-	61.5	8.4	40.8	34.0	27.2	20.4	-	-
	67	60.5	7.3	60.2	47.6	40.6	33.5	26.5	-	54.6	8.0	54.6	44.8	38.0	31.2	24.4	-
	62	56.4	7.2	56.4	56.4	45.8	38.8	31.8	24.7	50.6	8.0	50.6	50.6	40.7	33.9	27.1	20.3
1950	77	77.4	7.9	37.5	29.1	20.6	-	-	-	70.2	8.9	38.3	26.7	18.4	-	-	-
	72	69.7	7.6	49.7	41.2	32.8	24.3	-	-	63.0	8.5	47.1	38.7	30.3	21.9	-	-
	67	62.1	7.3	61.9	53.4	45.0	36.5	28.0	-	55.9	8.0	55.9	50.7	42.3	33.9	25.5	-
	62	57.8	7.3	57.8	57.8	50.8	42.4	33.9	25.4	51.8	8.0	51.8	51.8	45.4	37.0	28.6	20.3
	57	61.0	7.2	61.0	59.0	50.6	42.1	33.6	25.2	55.4	7.9	55.4	53.3	44.9	36.5	28.2	19.8
2275	77	79.3	7.9	47.9	32.5	22.6	-	-	-	71.9	9.0	49.4	32.1	20.2	-	-	-
	72	71.5	7.6	55.8	45.9	36.0	26.1	-	-	64.5	8.5	53.3	43.4	33.4	23.5	-	-
	67	63.7	7.3	63.6	59.3	49.4	39.5	29.6	-	57.2	8.0	57.2	56.5	46.6	36.7	26.7	-
	62	59.3	7.3	59.3	59.3	55.8	45.9	36.0	26.2	53.1	8.0	53.1	53.1	50.0	40.1	30.2	20.2
	57	62.6	7.2	62.6	61.6	55.5	45.6	35.8	25.9	56.7	8.0	56.7	55.7	49.5	39.6	29.6	19.7
2600	77	81.3	8.0	58.4	35.9	24.6	-	-	-	73.5	9.0	60.5	37.5	22.1	-	-	-
	72	73.3	7.6	61.8	50.5	39.2	27.9	-	-	66.0	8.5	59.5	48.0	36.5	25.0	-	-
	67	65.3	7.3	65.3	65.1	53.8	42.5	31.2	-	58.5	8.0	58.5	58.5	50.9	39.4	27.9	-
	62	60.8	7.3	60.8	60.8	60.8	49.5	38.2	26.9	54.3	8.0	54.3	54.3	54.3	43.2	31.7	20.2
	57	64.1	7.3	64.1	64.1	60.5	49.2	37.9	26.6	58.1	8.0	58.1	58.1	54.1	42.6	31.1	19.6
2925	72	74.2	7.6	66.7	54.3	42.0	29.7	-	-	66.5	8.5	64.0	51.5	39.1	26.6	-	-
	67	66.1	7.3	66.1	66.0	57.6	45.3	33.0	-	59.0	8.0	59.0	59.0	54.5	42.0	29.6	-
	62	61.5	7.3	61.5	61.5	61.5	49.2	36.9	24.6	54.7	8.0	54.7	54.7	54.7	42.4	30.0	17.5
	57	64.9	7.3	64.9	64.9	63.1	50.8	38.4	26.1	58.5	8.0	58.5	58.5	56.5	44.1	31.6	19.2
3250	72	75.1	7.6	71.5	58.2	44.8	31.5	-	-	67.0	8.5	67.0	55.1	41.6	28.2	-	-
	67	66.9	7.3	66.9	66.9	61.5	48.1	34.8	-	59.4	8.0	59.4	59.4	58.1	44.7	31.2	-
	62	62.3	7.3	62.3	62.3	62.3	48.9	35.6	22.2	55.1	8.0	55.1	55.1	55.1	41.7	28.3	14.9
	57	65.7	7.3	65.7	65.7	65.7	52.4	39.0	25.7	58.9	8.0	58.9	58.9	58.9	45.5	32.1	18.7

1. These capacities are gross ratings. For net capacity, deduct air blower motor, MBh = 3.415 x kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.
2. These ratings include the condensate fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

ZH090 (7.5 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
				75°F						85°F							
1875	77	119.1	5.6	50.2	42.2	34.1	-	-	-	108.4	6.2	46.6	38.5	30.3	-	-	-
	72	107.7	5.5	63.0	54.9	46.8	38.7	-	-	99.3	6.1	59.4	51.3	43.2	35.1	-	-
	67	96.3	5.3	75.8	67.7	59.6	51.5	43.4	-	90.2	6.1	72.3	64.1	56.0	47.9	39.8	-
	62	91.3	5.3	91.3	88.6	75.9	67.8	59.7	51.6	83.9	6.0	83.9	82.5	70.3	62.1	54.0	45.9
2250	77	123.0	5.6	55.4	46.1	36.7	-	-	-	112.2	6.2	51.7	42.4	33.1	-	-	-
	72	111.2	5.5	69.1	59.8	50.5	41.2	-	-	102.7	6.1	65.7	56.4	47.1	37.7	-	-
	67	99.4	5.3	82.8	73.5	64.2	54.9	45.6	-	93.3	6.1	79.7	70.4	61.0	51.7	42.4	-
	62	94.2	5.3	94.2	92.4	81.8	72.5	63.2	53.9	86.8	6.0	86.8	85.9	76.6	67.2	57.9	48.6
2625	77	126.8	5.6	60.5	50.0	39.4	-	-	-	115.9	6.2	56.9	46.3	35.8	-	-	-
	72	114.7	5.5	75.2	64.6	54.1	43.6	-	-	106.2	6.1	72.0	61.5	50.9	40.4	-	-
	67	102.5	5.3	89.9	79.3	68.8	58.3	47.7	-	96.5	6.1	87.2	76.6	66.1	55.5	45.0	-
	62	97.2	5.3	97.2	96.3	87.7	77.2	66.6	56.1	89.7	6.0	89.7	89.3	82.9	72.3	61.8	51.2
3000	77	130.7	5.6	65.6	53.9	42.1	-	-	-	119.7	6.2	62.0	50.3	38.5	-	-	-
	72	118.1	5.5	81.3	69.5	57.8	46.0	-	-	109.6	6.2	78.3	66.6	54.8	43.1	-	-
	67	105.6	5.3	96.9	85.2	73.4	61.7	49.9	-	99.6	6.1	94.6	82.9	71.1	59.4	47.6	-
	62	100.1	5.3	100.1	100.1	93.6	81.8	70.1	58.3	92.6	6.0	92.6	92.6	89.2	77.4	65.7	53.9
3375	77	120.9	5.8	86.4	74.0	61.6	49.2	-	-	111.3	6.3	83.7	71.0	58.4	45.8	-	-
	72	108.1	5.6	103.7	90.7	78.3	65.9	53.5	-	101.1	6.2	98.6	88.4	75.8	63.1	50.5	-
	67	102.4	5.6	102.4	102.4	99.2	86.8	74.4	62.0	94.0	6.2	94.0	94.0	92.3	79.7	67.0	54.4
	62	94.9	5.6	94.9	94.9	95.2	82.9	70.5	58.1	91.0	6.2	91.0	91.0	91.0	78.3	65.7	53.1
3750	72	123.6	6.1	91.5	78.4	65.4	52.4	-	-	112.9	6.5	89.0	75.5	62.0	48.5	-	-
	67	110.6	6.0	110.6	96.2	83.2	70.2	57.1	-	102.6	6.4	102.6	93.9	80.4	66.9	53.4	-
	62	104.8	5.9	104.8	104.8	104.8	91.7	78.7	65.7	95.4	6.3	95.4	95.4	95.4	81.9	68.3	54.8
	57	97.1	5.9	97.1	97.1	97.1	84.1	71.0	58.0	92.3	6.3	92.3	92.3	92.3	78.8	65.3	51.8
				95°F						105°F							
1875	77	97.7	6.9	42.9	34.8	26.6	-	-	-	92.8	7.7	37.6	32.1	24.0	-	-	-
	72	90.9	6.8	55.8	47.7	39.5	31.4	-	-	85.2	7.7	52.9	44.8	36.7	28.7	-	-
	67	84.2	6.8	68.7	60.6	52.4	44.3	36.1	-	77.7	7.6	68.1	57.5	49.5	41.4	33.4	-
	62	76.5	6.7	76.5	76.5	64.6	56.4	48.3	40.1	72.0	7.6	72.0	72.0	59.4	51.4	43.3	35.3
2250	77	101.3	6.9	48.1	38.8	29.4	-	-	-	95.7	7.7	45.3	35.9	26.6	-	-	-
	72	94.3	6.8	62.3	53.0	43.6	34.3	-	-	87.9	7.7	59.4	50.0	40.7	31.3	-	-
	67	87.3	6.8	76.6	67.2	57.9	48.5	39.2	-	80.1	7.6	73.5	64.1	54.8	45.4	36.0	-
	62	79.4	6.7	79.4	79.4	71.3	62.0	52.6	43.3	74.2	7.6	74.2	74.2	65.8	56.4	47.0	37.7
2625	77	105.0	6.9	53.3	42.7	32.2	-	-	-	98.5	7.7	53.0	39.8	29.1	-	-	-
	72	97.7	6.8	68.9	58.3	47.8	37.2	-	-	90.5	7.7	65.9	55.2	44.6	33.9	-	-
	67	90.4	6.8	84.4	73.9	63.3	52.8	42.2	-	82.5	7.6	78.8	70.7	60.0	49.4	38.7	-
	62	82.2	6.7	82.2	82.2	78.0	67.5	57.0	46.4	76.4	7.6	76.4	76.4	72.1	61.4	50.8	40.1
3000	77	108.6	6.9	58.4	46.7	35.0	-	-	-	101.4	7.7	60.7	43.7	31.7	-	-	-
	72	101.1	6.9	75.4	63.6	51.9	40.1	-	-	93.1	7.7	72.4	60.5	48.5	36.5	-	-
	67	93.6	6.8	92.3	80.5	68.8	57.1	45.3	-	84.9	7.7	84.2	77.3	65.3	53.3	41.3	-
	62	85.1	6.8	85.1	85.1	84.8	73.0	61.3	49.5	78.6	7.6	78.6	78.6	78.4	66.5	54.5	42.5
3375	77	101.6	6.9	81.0	68.1	55.2	42.3	-	-	93.6	7.7	77.8	64.7	51.7	38.6	-	-
	72	94.1	6.8	93.4	86.1	73.2	60.3	47.5	-	85.3	7.7	85.0	80.8	69.6	56.5	43.5	-
	67	85.6	6.8	85.6	85.6	85.4	72.5	59.6	46.7	79.0	7.6	79.0	79.0	79.0	65.9	52.9	39.8
	62	87.1	6.8	87.1	87.1	86.7	73.8	60.9	48.1	80.6	7.6	80.6	80.6	80.1	67.0	54.0	40.9
3750	72	102.2	6.9	86.6	72.6	58.5	44.5	-	-	94.2	7.7	83.1	69.0	54.9	40.7	-	-
	67	94.6	6.8	94.6	91.7	77.6	63.6	49.6	-	85.8	7.7	85.8	84.4	73.9	59.8	45.6	-
	62	86.0	6.8	86.0	86.0	86.0	72.0	58.0	44.0	79.5	7.6	79.5	79.5	79.5	65.4	51.2	37.1
	57	87.5	6.8	87.5	87.5	87.5	73.5	59.5	45.5	81.0	7.6	81.0	81.0	81.0	66.9	52.8	38.6

ZH090 (7.5 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
				115°F						125°F							
1875	77	88.0	8.6	32.3	29.4	21.4	-	-	-	83.1	9.4	29.2	25.0	18.8	-	-	-
	72	79.6	8.5	49.9	41.9	34.0	26.0	-	-	73.9	9.4	46.9	39.1	31.2	23.3	-	-
	67	71.1	8.5	67.5	54.5	46.5	38.6	30.6	-	64.6	9.3	64.6	51.5	43.6	35.7	27.8	-
	62	67.4	8.5	67.4	67.4	54.3	46.3	38.3	30.4	62.8	9.3	62.8	62.8	49.1	41.2	33.3	25.5
2250	77	90.0	8.6	42.5	33.1	23.7	-	-	-	84.4	9.4	41.4	30.3	20.9	-	-	-
	72	81.4	8.5	56.4	47.1	37.7	28.3	-	-	75.0	9.4	53.5	44.1	34.7	25.3	-	-
	67	72.8	8.5	70.4	61.0	51.6	42.2	32.9	-	65.6	9.3	65.6	57.9	48.5	39.1	29.7	-
	62	69.0	8.5	69.0	69.0	60.2	50.8	41.4	32.1	63.8	9.3	63.8	63.8	54.7	45.3	35.9	26.5
	57	70.4	8.5	70.4	69.8	60.4	51.0	41.6	32.3	65.2	9.3	65.2	64.3	54.5	45.1	35.7	26.3
2625	77	92.1	8.6	52.7	36.9	26.1	-	-	-	85.6	9.4	53.6	35.6	23.0	-	-	-
	72	83.3	8.5	63.0	52.2	41.4	30.6	-	-	76.1	9.4	60.1	49.1	38.2	27.3	-	-
	67	74.5	8.5	73.3	67.5	56.7	45.9	35.1	-	66.5	9.3	66.5	64.3	53.4	42.5	31.6	-
	62	70.5	8.5	70.5	70.5	66.2	55.4	44.6	33.8	64.7	9.3	64.7	60.2	49.3	38.4	27.4	-
	57	72.0	8.5	72.0	71.7	66.4	55.6	44.8	34.0	66.1	9.3	66.1	65.7	60.0	49.1	38.2	27.3
3000	77	94.1	8.6	63.0	40.6	28.4	-	-	-	86.9	9.4	65.9	41.0	25.2	-	-	-
	72	85.1	8.5	69.5	57.3	45.1	32.9	-	-	77.1	9.4	66.6	54.2	41.7	29.3	-	-
	67	76.1	8.5	76.1	74.0	61.8	49.6	37.4	-	67.4	9.3	67.4	67.4	58.3	45.9	33.4	-
	62	72.1	8.5	72.1	72.1	72.1	59.9	47.7	35.5	65.6	9.3	65.6	65.6	53.3	40.9	28.4	-
	57	73.6	8.5	73.6	73.6	72.3	60.1	47.9	35.7	67.1	9.3	67.1	67.1	65.6	53.1	40.7	28.2
3375	72	85.6	8.5	74.6	61.4	48.1	34.9	-	-	77.7	9.4	71.4	58.0	44.6	31.2	-	-
	67	76.6	8.5	76.6	75.5	66.0	52.7	39.5	-	67.8	9.3	67.8	67.8	62.3	48.9	35.6	-
	62	72.5	8.5	72.5	72.5	72.5	59.3	46.1	32.9	66.0	9.4	66.0	66.0	66.0	52.7	39.3	25.9
	57	74.0	8.5	74.0	74.0	73.4	60.2	47.0	33.7	67.5	9.4	67.5	67.5	66.8	53.4	40.0	26.6
3750	72	86.2	8.6	79.6	65.4	51.2	36.9	-	-	78.2	9.4	76.2	61.8	47.5	33.2	-	-
	67	77.1	8.5	77.1	77.1	70.1	55.9	41.7	-	68.3	9.4	68.3	68.3	66.4	52.0	37.7	-
	62	73.0	8.5	73.0	73.0	73.0	58.8	44.5	30.3	66.5	9.4	66.5	66.5	66.5	52.1	37.8	23.5
	57	74.5	8.5	74.5	74.5	74.5	60.3	46.0	31.8	68.0	9.4	68.0	68.0	68.0	53.6	39.3	24.9

1. These capacities are gross ratings. For net capacity, deduct air blower motor, MBh = 3.415 x kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.
2. These ratings include the condensate fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

ZH102 (8.5 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)							
				Return Dry Bulb (°F)								Return Dry Bulb (°F)							
				90	85	80	75	70	65			90	85	80	75	70	65		
				75°F						85°F									
2125	77	125.2	6.6	57.1	45.0	35.0	-	-	-	122.5	7.0	54.2	44.2	34.2	-	-	-		
	72	116.5	6.6	70.4	60.4	50.3	40.3	-	-	112.6	7.0	69.1	59.1	49.1	39.1	-	-		
	67	107.7	6.6	83.6	75.7	65.6	55.6	45.6	-	102.7	7.0	84.1	74.0	64.0	54.0	44.0	-		
	62	98.3	6.6	98.3	97.6	78.5	68.4	58.4	48.4	93.7	6.9	93.7	93.4	77.0	67.0	57.0	47.0		
2550	77	130.8	6.5	62.2	50.6	39.0	-	-	-	127.0	7.0	61.1	49.5	37.9	-	-	-		
	72	121.6	6.5	79.3	67.7	56.1	44.5	-	-	116.7	7.0	77.6	66.0	54.4	42.8	-	-		
	67	112.5	6.5	96.4	84.8	73.2	61.6	50.0	-	106.4	7.0	94.1	82.5	70.9	59.3	47.7	-		
	62	102.6	6.5	102.6	102.2	87.5	75.9	64.3	52.7	97.1	6.9	97.1	96.9	85.3	73.7	62.1	50.5		
2975	77	136.3	6.3	67.3	56.2	43.0	-	-	-	131.4	7.0	68.0	54.7	41.6	-	-	-		
	72	126.8	6.3	88.2	75.0	61.9	48.7	-	-	120.8	7.0	86.0	72.8	59.7	46.5	-	-		
	67	117.2	6.3	109.2	93.9	80.7	67.5	54.4	-	110.2	7.0	104.0	90.9	77.8	64.6	51.4	-		
	62	106.9	6.3	106.9	106.7	96.5	83.3	70.2	57.0	100.5	6.9	100.5	100.4	93.6	80.4	67.3	54.1		
3400	77	141.9	6.2	72.4	61.8	47.0	-	-	-	135.9	7.0	74.9	60.0	45.3	-	-	-		
	72	131.9	6.2	97.1	82.4	67.6	52.9	-	-	124.9	7.0	94.4	79.7	65.0	50.2	-	-		
	67	121.9	6.2	121.9	103.0	88.3	73.5	58.8	-	113.9	7.0	113.9	99.4	84.6	69.9	55.2	-		
	62	111.2	6.2	111.2	111.2	105.5	90.8	76.0	61.3	103.9	6.9	103.9	103.9	101.9	87.1	72.4	57.7		
3825	72	135.0	6.2	123.1	97.7	72.3	46.9	-	-	127.6	7.0	111.3	90.5	69.7	48.9	-	-		
	67	124.8	6.2	124.8	115.3	94.3	68.9	43.5	-	116.4	7.0	116.4	109.1	90.8	70.0	49.2	-		
	62	113.8	6.2	113.8	113.8	111.0	85.6	60.2	34.8	106.2	7.0	106.2	106.2	105.2	84.4	63.6	42.8		
	57	111.8	6.2	111.8	111.8	111.0	85.6	60.3	34.9	106.2	7.0	106.2	106.2	105.4	84.6	63.8	43.0		
4250	72	138.1	6.2	149.0	113.0	76.9	40.9	-	-	130.3	7.0	128.1	101.3	74.4	47.6	-	-		
	67	127.6	6.2	127.6	127.6	100.4	64.3	28.3	-	118.9	7.0	118.9	118.9	97.0	70.2	43.3	-		
	62	116.4	6.3	116.4	116.4	116.4	80.4	44.3	8.3	108.5	7.0	108.5	108.5	108.5	81.6	54.8	27.9		
	57	114.4	6.2	114.4	114.4	114.4	78.3	42.3	6.2	108.5	7.0	108.5	108.5	108.5	81.6	54.8	27.9		
				95°F						105°F									
2125	77	119.8	7.3	51.2	43.5	33.5	-	-	-	112.1	8.4	45.1	39.9	29.9	-	-	-		
	72	108.7	7.3	67.9	57.9	47.9	37.9	-	-	101.7	8.4	64.7	54.8	44.8	34.9	-	-		
	67	97.7	7.3	84.6	72.4	62.4	52.4	42.4	-	91.2	8.4	84.3	69.6	59.7	49.8	39.8	-		
	62	89.1	7.2	89.1	89.1	75.6	65.6	55.6	45.6	83.4	8.3	83.4	83.4	72.8	62.9	53.0	43.0		
2550	77	123.2	7.5	60.0	48.4	36.8	-	-	-	114.7	8.5	55.9	44.4	33.0	-	-	-		
	72	111.8	7.5	75.8	64.3	52.7	41.1	-	-	104.0	8.5	72.3	60.8	49.3	37.9	-	-		
	67	100.4	7.5	91.7	80.2	68.6	57.0	45.5	-	93.3	8.5	88.7	77.2	65.7	54.2	42.8	-		
	62	91.6	7.4	91.6	91.6	83.1	71.6	60.0	48.4	85.3	8.4	85.3	85.3	80.2	68.7	57.2	45.7		
2975	77	126.5	7.6	68.7	53.3	40.2	-	-	-	117.3	8.6	66.7	49.0	36.0	-	-	-		
	72	114.9	7.6	83.8	70.6	57.5	44.3	-	-	106.4	8.6	79.9	66.9	53.9	40.8	-	-		
	67	103.2	7.6	98.8	88.0	74.8	61.7	48.5	-	95.4	8.6	93.1	84.8	71.7	58.7	45.7	-		
	62	94.1	7.5	94.1	94.1	90.7	77.5	64.4	51.2	87.2	8.6	87.2	87.2	87.5	74.5	61.4	48.4		
3400	77	129.9	7.8	77.5	58.2	43.5	-	-	-	119.9	8.7	77.6	53.6	39.0	-	-	-		
	72	117.9	7.8	91.7	77.0	62.3	47.5	-	-	108.8	8.7	87.6	73.0	58.4	43.8	-	-		
	67	105.9	7.8	105.9	95.7	81.0	66.3	51.6	-	97.6	8.7	97.6	92.3	77.8	63.2	48.6	-		
	62	96.6	7.7	96.6	96.6	98.2	83.5	68.7	54.0	89.2	8.7	89.2	89.2	94.8	80.2	65.6	51.0		
3825	72	120.3	7.8	99.5	83.3	67.1	50.9	-	-	110.9	8.7	95.1	79.0	63.0	46.9	-	-		
	67	108.0	7.8	108.0	102.9	87.3	71.1	55.0	-	99.5	8.7	99.5	96.9	83.9	67.8	51.8	-		
	62	98.6	7.7	98.6	98.6	99.3	83.2	67.0	50.8	91.0	8.6	91.0	91.0	93.8	77.8	61.7	45.7		
	57	100.6	7.7	100.6	100.6	99.7	83.5	67.3	51.1	92.8	8.7	92.8	92.8	92.7	76.7	60.6	44.6		
4250	72	122.6	7.8	107.2	89.6	71.9	54.3	-	-	113.1	8.7	102.6	85.1	67.6	50.1	-	-		
	67	110.1	7.8	110.1	110.1	93.6	76.0	58.3	-	101.5	8.7	101.5	101.5	90.0	72.5	55.0	-		
	62	100.5	7.7	100.5	100.5	100.5	82.9	65.2	47.6	92.8	8.6	92.8	92.8	92.8	75.3	57.8	40.3		
	57	102.5	7.7	102.5	102.5	102.5	84.9	67.3	49.6	94.6	8.7	94.6	94.6	94.6	77.1	59.6	42.2		

ZH102 (8.5 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
				115°F						125°F							
2125	77	104.5	9.5	39.0	36.3	26.4	-	-	-	96.8	10.6	38.2	30.3	22.9	-	-	-
	72	94.6	9.5	61.5	51.6	41.7	31.8	-	-	87.5	10.6	58.2	48.4	38.6	28.8	-	-
	67	84.7	9.5	83.9	66.9	57.0	47.2	37.3	-	78.2	10.6	78.2	64.2	54.4	44.6	34.8	-
	62	77.6	9.5	77.6	77.6	70.0	60.2	50.3	40.4	71.8	10.6	71.8	71.8	71.8	57.5	47.7	37.9
2550	77	106.3	9.5	51.9	40.5	29.1	-	-	-	97.9	10.5	51.4	36.5	25.2	-	-	-
	72	96.3	9.5	68.8	57.4	46.0	34.6	-	-	88.5	10.6	65.2	53.9	42.6	31.3	-	-
	67	86.2	9.6	85.7	74.3	62.9	51.4	40.0	-	79.1	10.6	79.1	71.3	60.0	48.7	37.3	-
	62	78.9	9.5	78.9	78.9	77.2	65.8	54.4	43.0	72.6	10.6	72.6	72.6	72.6	62.9	51.6	40.3
	57	80.5	9.5	80.5	80.5	71.6	60.2	48.8	37.4	74.0	10.6	74.0	74.0	66.4	55.0	43.7	32.4
2975	77	108.2	9.6	64.8	44.7	31.8	-	-	-	99.0	10.5	64.5	42.8	27.6	-	-	-
	72	97.9	9.6	76.1	63.2	50.2	37.3	-	-	89.5	10.6	72.3	59.4	46.6	33.8	-	-
	67	87.7	9.6	87.4	81.6	68.7	55.7	42.8	-	80.0	10.6	80.0	78.4	65.6	52.8	39.9	-
	62	80.3	9.6	80.3	80.3	84.3	71.4	58.5	45.5	73.4	10.6	73.4	73.4	73.4	68.3	55.5	42.7
	57	81.9	9.6	81.9	81.9	78.2	65.3	52.3	39.4	74.9	10.6	74.9	74.9	72.6	59.8	46.9	34.1
3400	77	110.0	9.6	77.6	48.9	34.5	-	-	-	100.0	10.5	77.7	49.0	30.0	-	-	-
	72	99.6	9.6	83.4	68.9	54.5	40.0	-	-	90.4	10.5	79.3	64.9	50.6	36.3	-	-
	67	89.2	9.7	89.2	89.0	74.5	60.0	45.5	-	80.8	10.6	80.8	80.8	71.2	56.9	42.5	-
	62	81.7	9.6	81.7	81.7	91.5	77.0	62.5	48.1	74.2	10.6	74.2	74.2	74.2	73.8	59.4	45.1
	57	83.3	9.6	83.3	83.3	84.8	70.3	55.9	41.4	75.7	10.5	75.7	75.7	75.7	64.5	50.1	35.8
3825	72	101.6	9.6	90.7	74.8	58.9	43.0	-	-	92.3	10.5	86.3	70.5	54.7	39.0	-	-
	67	91.0	9.6	91.0	90.9	80.5	64.6	48.7	-	82.5	10.6	82.5	82.5	77.0	61.3	45.5	-
	62	83.3	9.6	83.3	83.3	88.2	72.3	56.4	40.5	75.7	10.5	75.7	75.7	75.7	66.9	51.2	35.4
	57	85.0	9.6	85.0	85.0	85.8	69.9	54.0	38.1	77.2	10.5	77.2	77.2	77.2	63.0	47.3	31.5
4250	72	103.7	9.6	97.9	80.6	63.2	45.9	-	-	94.2	10.5	93.3	76.1	58.9	41.7	-	-
	67	92.9	9.6	92.9	92.9	86.4	69.1	51.8	-	84.2	10.6	84.2	84.2	82.9	65.7	48.5	-
	62	85.0	9.6	85.0	85.0	85.0	67.7	50.3	33.0	77.3	10.5	77.3	77.3	77.3	60.1	42.9	25.7
	57	86.7	9.6	86.7	86.7	86.7	69.4	52.0	34.7	78.8	10.5	78.8	78.8	78.8	61.6	44.4	27.2

1. These capacities are gross ratings. For net capacity, deduct air blower motor, MBh = 3.415 x kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.
2. These ratings include the condensate fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

ZH120 (10 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)							
				Return Dry Bulb (°F)								Return Dry Bulb (°F)							
				90	85	80	75	70	65			90	85	80	75	70	65		
				75°F						85°F									
2500	77	156.1	7.6	68.9	57.2	46.2	-	-	-	147.4	8.5	64.0	52.8	41.6	-	-	-		
	72	144.0	7.5	85.7	74.7	63.7	52.6	-	-	136.1	8.3	82.0	70.8	59.6	48.4	-	-		
	67	131.9	7.4	102.5	92.2	81.1	70.1	59.1	-	124.7	8.2	100.0	88.8	77.6	66.4	55.2	-		
	62	117.8	7.4	117.8	118.1	100.3	89.2	78.2	67.2	113.3	8.2	113.3	112.8	94.7	83.5	72.2	61.0		
3000	77	160.9	7.6	75.6	62.9	50.2	-	-	-	151.8	8.5	71.2	58.3	45.5	-	-	-		
	72	148.4	7.5	94.6	81.9	69.2	56.5	-	-	140.1	8.4	90.9	78.0	65.1	52.2	-	-		
	67	136.0	7.4	113.6	100.9	88.2	75.5	62.8	-	128.5	8.3	110.6	97.7	84.8	71.9	59.0	-		
	62	121.5	7.4	121.5	121.7	109.0	96.3	83.6	70.9	116.7	8.3	116.7	116.4	103.5	90.6	77.7	64.8		
57	117.2	7.3	117.2	117.2	114.2	101.5	88.8	76.1	113.2	8.3	113.2	113.2	107.1	94.3	81.4	68.5	-		
3500	77	165.7	7.6	82.3	68.6	54.3	-	-	-	156.2	8.6	78.5	63.9	49.3	-	-	-		
	72	152.9	7.5	103.4	89.1	74.7	60.4	-	-	144.2	8.4	99.8	85.2	70.7	56.1	-	-		
	67	140.0	7.4	124.6	109.6	95.2	80.9	66.5	-	132.2	8.3	121.1	106.6	92.0	77.5	62.9	-		
	62	125.1	7.5	125.1	125.2	117.7	103.3	89.0	74.6	120.1	8.3	120.1	119.9	112.3	97.7	83.2	68.6		
57	120.7	7.3	120.7	120.7	123.4	109.0	94.7	80.3	116.5	8.3	116.5	116.5	116.3	101.7	87.1	72.6	-		
4000	77	170.5	7.6	88.9	74.3	58.3	-	-	-	160.6	8.6	85.7	69.4	53.2	-	-	-		
	72	157.3	7.5	112.3	96.3	80.3	64.3	-	-	148.3	8.5	108.7	92.5	76.2	60.0	-	-		
	67	144.1	7.4	135.7	118.3	102.3	86.2	70.2	-	135.9	8.3	131.7	115.5	99.2	83.0	66.8	-		
	62	128.7	7.5	128.7	128.7	126.4	110.4	94.4	78.4	123.4	8.3	123.4	123.4	121.1	104.9	88.6	72.4		
57	124.3	7.3	124.3	124.3	132.5	116.5	100.5	84.5	119.8	8.3	119.8	119.8	125.4	109.1	92.9	76.7	-		
4500	72	161.7	7.5	120.9	103.3	85.7	68.1	-	-	152.1	8.5	117.1	99.3	81.5	63.7	-	-		
	67	148.1	7.4	143.9	126.8	109.2	91.6	74.0	-	139.4	8.3	137.3	123.9	106.1	88.4	70.6	-		
	62	132.3	7.5	132.3	132.3	131.2	113.6	96.0	78.4	126.6	8.4	126.6	126.6	125.4	107.6	89.9	72.1		
	57	127.8	7.3	127.8	127.8	131.9	114.3	96.7	79.1	122.8	8.4	122.8	122.8	125.6	107.9	90.1	72.3		
5000	72	166.1	7.5	129.6	110.4	91.2	72.0	-	-	155.9	8.5	125.4	106.1	86.8	67.5	-	-		
	67	152.2	7.4	152.2	135.3	116.1	96.9	77.7	-	142.9	8.4	142.9	132.3	113.0	93.7	74.4	-		
	62	136.0	7.5	136.0	136.0	136.0	116.8	97.6	78.4	129.8	8.4	129.8	129.8	129.8	110.4	91.1	71.8		
	57	131.3	7.3	131.3	131.3	131.3	112.1	92.9	73.7	125.9	8.4	125.9	125.9	125.9	106.6	87.3	68.0		
				95°F						105°F									
2500	77	138.8	9.4	59.1	48.4	37.0	-	-	-	133.4	10.5	53.7	46.1	34.9	-	-	-		
	72	128.2	9.2	78.3	66.9	55.5	44.1	-	-	122.8	10.4	76.1	64.9	53.6	42.4	-	-		
	67	117.6	9.1	97.5	85.4	74.0	62.6	51.2	-	112.2	10.3	98.5	83.6	72.4	61.1	49.9	-		
	62	108.7	9.0	108.7	107.5	89.1	77.7	66.3	54.9	104.1	10.3	104.1	103.5	86.7	75.4	64.2	53.0		
3000	77	142.8	9.4	66.9	53.8	40.7	-	-	-	135.8	10.6	64.1	51.1	38.1	-	-	-		
	72	131.9	9.3	87.2	74.1	61.1	48.0	-	-	125.0	10.5	84.6	71.6	58.6	45.6	-	-		
	67	121.0	9.1	107.6	94.5	81.4	68.3	55.3	-	114.1	10.3	105.0	92.0	79.0	66.0	53.0	-		
	62	111.9	9.1	111.9	111.1	98.0	84.9	71.8	58.7	106.0	10.3	106.0	105.6	94.6	81.7	68.7	55.7		
57	109.1	9.2	109.1	109.1	100.1	87.0	73.9	60.8	103.9	10.4	103.9	103.9	94.2	81.2	68.2	55.2			
3500	77	146.8	9.5	74.6	59.2	44.4	-	-	-	138.1	10.6	74.5	56.1	41.3	-	-	-		
	72	135.6	9.3	96.2	81.4	66.6	51.8	-	-	127.1	10.5	93.0	78.3	63.5	48.7	-	-		
	67	124.4	9.2	117.7	103.6	88.8	74.0	59.3	-	116.1	10.4	111.6	100.4	85.7	70.9	56.2	-		
	62	115.0	9.1	115.0	114.6	106.9	92.1	77.3	62.5	107.8	10.4	107.8	107.6	102.6	87.9	73.1	58.4		
57	112.2	9.3	112.2	112.2	109.2	94.4	79.6	64.8	105.7	10.4	105.7	105.7	102.1	87.4	72.6	57.8			
4000	77	150.8	9.6	82.4	64.6	48.1	-	-	-	140.4	10.7	84.9	61.1	44.6	-	-	-		
	72	139.3	9.4	105.1	88.6	72.1	55.7	-	-	129.3	10.5	101.5	85.0	68.5	51.9	-	-		
	67	127.8	9.2	127.8	112.7	96.2	79.7	63.3	-	118.1	10.4	118.1	108.9	92.3	75.8	59.3	-		
	62	118.2	9.2	118.2	118.2	115.8	99.3	82.8	66.4	109.6	10.4	109.6	109.6	110.6	94.1	77.6	61.0		
57	115.3	9.3	115.3	115.3	118.3	101.8	85.3	68.8	107.5	10.5	107.5	107.5	110.1	93.5	77.0	60.5			
4500	72	142.5	9.4	113.2	95.2	77.3	59.3	-	-	132.1	10.6	109.5	91.5	73.5	55.5	-	-		
	67	130.7	9.3	130.7	121.0	103.1	85.1	67.2	-	120.7	10.4	120.7	115.1	99.1	81.1	63.1	-		
	62	120.8	9.2	120.8	120.8	119.7	101.7	83.8	65.8	112.1	10.4	112.1	112.1	112.6	94.6	76.5	58.5		
	57	117.9	9.4	117.9	117.9	119.4	101.4	83.5	65.5	109.9	10.5	109.9	109.9	111.2	93.2	75.2	57.2		
5000	72	145.6	9.5	121.3	101.9	82.4	63.0	-	-	135.0	10.6	117.5	98.0	78.5	59.0	-	-		
	67	133.6	9.3	133.6	129.4	109.9	90.5	71.1	-	123.4	10.4	123.4	121.3	105.9	86.4	66.9	-		
	62	123.5	9.3	123.5	123.5	123.5	104.1	84.7	65.3	114.5	10.4	114.5	114.5	114.5	95.0	75.5	56.0		
	57	120.5	9.4	120.5	120.5	120.5	101.1	81.7	62.3	112.3	10.5	112.3	112.3	112.3	92.8	73.3	53.8		

ZH120 (10 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
				115°F						125°F							
2500	77	128.1	11.7	48.4	43.9	32.8	-	-	-	122.7	12.9	43.0	40.4	30.7	-	-	-
	72	117.4	11.6	73.9	62.8	51.7	40.7	-	-	112.1	12.8	71.7	60.8	49.9	38.9	-	-
	67	106.8	11.5	99.5	81.8	70.7	59.6	48.5	-	101.4	12.7	100.5	80.0	69.1	58.1	47.2	-
	62	99.5	11.6	99.5	99.5	84.3	73.2	62.1	51.0	94.9	12.8	94.9	94.9	82.6	70.9	60.0	49.0
3000	77	128.7	11.7	61.4	48.4	35.5	-	-	-	121.7	12.9	58.6	45.8	33.0	-	-	-
	72	118.0	11.6	81.9	69.0	56.1	43.2	-	-	111.1	12.8	79.2	66.4	53.6	40.8	-	-
	67	107.3	11.5	102.5	89.5	76.6	63.7	50.8	-	100.5	12.7	99.9	87.1	74.2	61.4	48.6	-
	62	100.1	11.6	100.1	100.1	91.3	78.4	65.5	52.6	94.1	12.8	94.1	94.1	88.0	75.2	62.3	49.5
	57	98.8	11.6	98.8	98.8	88.2	75.3	62.4	49.5	93.6	12.8	93.6	93.6	82.3	69.5	56.7	43.8
3500	77	129.4	11.7	74.3	53.0	38.3	-	-	-	120.7	12.9	74.2	51.2	35.2	-	-	-
	72	118.6	11.6	89.9	75.2	60.4	45.7	-	-	110.2	12.8	86.8	72.0	57.3	42.6	-	-
	67	107.9	11.5	105.4	97.3	82.6	67.8	53.1	-	99.6	12.7	99.3	94.1	79.4	64.7	50.0	-
	62	100.6	11.6	100.6	100.6	98.4	83.6	68.9	54.2	93.3	12.8	93.3	93.3	93.3	79.4	64.7	50.0
	57	99.3	11.6	99.3	99.3	95.0	80.3	65.6	50.8	92.8	12.8	92.8	92.8	88.0	73.3	58.5	43.8
4000	77	130.1	11.8	87.3	57.6	41.0	-	-	-	119.7	12.9	89.8	56.6	37.5	-	-	-
	72	119.3	11.7	97.9	81.3	64.8	48.2	-	-	109.2	12.8	94.3	77.7	61.1	44.4	-	-
	67	108.4	11.6	108.4	105.0	88.5	71.9	55.3	-	98.8	12.7	98.8	98.8	84.6	68.0	51.4	-
	62	101.1	11.6	101.1	101.1	105.4	88.9	72.3	55.7	92.6	12.8	92.6	92.6	92.6	83.6	67.0	50.4
	57	99.8	11.6	99.8	99.8	101.9	85.3	68.7	52.2	92.0	12.8	92.0	92.0	92.0	77.1	60.4	43.8
4500	72	121.8	11.7	105.8	87.7	69.6	51.6	-	-	111.5	12.8	102.0	83.9	65.8	47.7	-	-
	67	110.8	11.6	110.8	109.1	95.2	77.1	59.0	-	100.8	12.7	100.8	100.8	91.2	73.1	55.0	-
	62	103.3	11.6	103.3	103.3	105.5	87.4	69.3	51.3	94.5	12.8	94.5	94.5	94.5	80.2	62.1	44.0
	57	101.9	11.6	101.9	101.9	103.0	84.9	66.9	48.8	94.0	12.8	94.0	94.0	94.0	76.7	58.6	40.4
5000	72	124.4	11.7	113.6	94.1	74.5	55.0	-	-	113.8	12.8	109.8	90.2	70.6	50.9	-	-
	67	113.1	11.6	113.1	113.1	101.8	82.3	62.7	-	102.9	12.7	102.9	102.9	97.8	78.1	58.5	-
	62	105.5	11.6	105.5	105.5	105.5	85.9	66.4	46.8	96.4	12.8	96.4	96.4	96.4	76.8	57.2	37.6
	57	104.1	11.6	104.1	104.1	104.1	84.6	65.0	45.4	95.9	12.8	95.9	95.9	95.9	76.3	56.7	37.0

1. These capacities are gross ratings. For net capacity, deduct air blower motor, MBh = 3.415 x kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.
2. These ratings include the condensate fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

ZH150 (12.5 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)							
				Return Dry Bulb (°F)								Return Dry Bulb (°F)							
				90	85	80	75	70	65			90	85	80	75	70	65		
				75°F						85°F									
3125	77	187.0	9.5	73.2	60.2	47.2	-	-	-	182.7	10.6	74.6	61.2	47.8	-	-	-		
	72	176.3	9.5	98.5	85.5	72.4	59.4	-	-	169.9	10.5	98.6	85.2	71.9	58.5	-	-		
	67	165.5	9.4	123.7	110.7	97.7	84.7	71.7	-	157.2	10.4	122.7	109.3	95.9	82.5	69.1	-		
	62	149.3	9.2	149.3	143.1	119.8	106.8	93.8	80.8	142.6	10.2	142.6	139.6	118.5	105.1	91.7	78.3		
3750	77	193.7	9.6	82.5	67.3	52.2	-	-	-	188.6	10.7	83.1	67.8	52.4	-	-	-		
	72	182.5	9.6	110.4	95.2	80.1	64.9	-	-	175.5	10.6	109.5	94.1	78.8	63.5	-	-		
	67	171.4	9.5	138.3	123.1	108.0	92.8	77.7	-	162.3	10.5	135.8	120.5	105.2	89.9	74.5	-		
	62	154.5	9.3	154.5	150.5	132.4	117.3	102.1	87.0	147.3	10.3	147.3	145.3	129.9	114.6	99.3	84.0		
4375	77	200.3	9.7	91.7	74.4	57.2	-	-	-	194.6	10.8	91.6	74.3	57.1	-	-	-		
	72	188.8	9.7	122.3	105.0	87.7	70.4	-	-	181.0	10.7	120.3	103.0	85.8	68.5	-	-		
	67	177.2	9.6	152.8	135.5	118.2	101.0	83.7	-	167.5	10.6	149.0	131.7	114.5	97.2	80.0	-		
	62	159.8	9.3	159.8	157.8	145.0	127.7	110.5	93.2	152.0	10.4	152.0	151.0	141.4	124.2	106.9	89.6		
5000	77	207.0	9.8	101.0	81.6	62.2	-	-	-	200.6	10.9	100.1	80.9	61.7	-	-	-		
	72	195.1	9.8	134.2	114.7	95.3	75.9	-	-	186.6	10.8	131.1	111.9	92.7	73.5	-	-		
	67	183.1	9.7	167.3	147.9	128.5	109.1	89.7	-	172.6	10.7	162.2	143.0	123.8	104.6	85.4	-		
	62	165.1	9.4	165.1	165.1	157.6	138.2	118.8	99.4	156.6	10.5	156.6	156.6	152.9	133.7	114.5	95.3		
5625	72	203.6	9.7	143.3	122.5	101.8	81.1	-	-	193.3	10.8	140.6	120.0	99.4	78.7	-	-		
	67	191.1	9.6	183.2	158.0	137.2	116.5	95.8	-	178.9	10.7	173.6	153.2	132.6	112.0	91.3	-		
	62	172.4	9.4	172.4	172.4	168.6	147.9	127.1	106.4	162.3	10.5	162.3	162.3	160.4	139.8	119.2	98.5		
	57	173.3	9.3	173.3	173.3	172.5	151.8	131.0	110.3	163.3	10.4	163.3	163.3	162.9	142.2	121.6	101.0		
6250	72	212.2	9.7	152.4	130.3	108.2	86.2	-	-	200.1	10.8	150.1	128.0	106.0	83.9	-	-		
	67	199.1	9.6	199.1	168.0	145.9	123.9	101.8	-	185.1	10.7	185.1	163.5	141.4	119.3	97.3	-		
	62	179.6	9.4	179.6	179.6	179.6	157.5	135.5	113.4	168.0	10.4	168.0	168.0	168.0	145.9	123.8	101.8		
	57	180.6	9.3	180.6	180.6	180.6	158.5	136.5	114.4	169.0	10.4	169.0	169.0	169.0	147.0	124.9	102.8		
				95°F						105°F									
3125	77	178.3	11.7	76.0	62.2	48.4	-	-	-	167.8	13.1	69.9	58.4	44.7	-	-	-		
	72	163.6	11.6	98.8	85.0	71.3	57.5	-	-	153.7	13.0	94.5	80.9	67.2	53.6	-	-		
	67	148.9	11.5	121.6	107.9	94.1	80.3	66.6	-	139.7	12.8	119.1	103.4	89.7	76.1	62.4	-		
	62	136.0	11.2	136.0	136.0	117.1	103.4	89.6	75.8	128.6	12.6	128.6	128.6	108.9	95.2	81.5	67.9		
3750	77	183.6	11.8	83.7	68.2	52.7	-	-	-	172.5	13.2	79.8	64.4	48.9	-	-	-		
	72	168.4	11.7	108.6	93.1	77.6	62.1	-	-	158.0	13.0	104.4	89.0	73.5	58.1	-	-		
	67	153.3	11.6	133.4	117.9	102.4	86.9	71.4	-	143.6	12.9	129.0	113.6	98.1	82.7	67.2	-		
	62	140.1	11.3	140.1	140.1	127.5	112.0	96.5	81.0	132.2	12.7	132.2	132.2	119.0	103.6	88.1	72.7		
4375	77	188.9	12.0	91.5	74.2	57.0	-	-	-	177.2	13.3	89.7	70.4	53.1	-	-	-		
	72	173.3	11.8	118.3	101.1	83.9	66.6	-	-	162.3	13.1	114.3	97.1	79.8	62.5	-	-		
	67	157.7	11.7	145.2	128.0	110.7	93.5	76.2	-	147.5	13.0	138.9	123.8	106.5	89.3	72.0	-		
	62	144.1	11.4	144.1	144.1	137.8	120.6	103.3	86.1	135.8	12.8	135.8	135.8	129.2	112.0	94.7	77.4		
5000	77	194.1	12.1	99.2	80.3	61.3	-	-	-	181.9	13.3	99.7	76.3	57.3	-	-	-		
	72	178.1	11.9	128.1	109.1	90.1	71.2	-	-	166.6	13.2	124.2	105.2	86.1	67.0	-	-		
	67	162.1	11.8	157.0	138.0	119.0	100.0	81.0	-	151.4	13.1	148.8	134.0	114.9	95.9	76.8	-		
	62	148.1	11.5	148.1	148.1	148.1	129.2	110.2	91.2	139.4	12.9	139.4	139.4	139.4	120.3	101.3	82.2		
5625	72	183.1	11.9	138.0	117.4	96.9	76.4	-	-	170.9	13.2	133.8	113.2	92.7	72.1	-	-		
	67	166.6	11.8	164.0	148.5	128.0	107.4	86.9	-	155.3	13.1	154.0	143.5	123.7	103.1	82.5	-		
	62	152.2	11.5	152.2	152.2	152.2	131.7	111.2	90.7	143.0	12.9	143.0	143.0	143.0	122.4	101.8	81.2		
	57	153.4	11.5	153.4	153.4	153.2	132.7	112.2	91.6	143.3	12.9	143.3	143.3	143.2	122.6	102.0	81.5		
6250	72	188.0	11.9	147.8	125.7	103.7	81.6	-	-	175.1	13.2	143.4	121.3	99.2	77.1	-	-		
	67	171.1	11.8	171.1	159.0	136.9	114.8	92.8	-	159.1	13.1	159.1	153.1	132.5	110.4	88.3	-		
	62	156.3	11.5	156.3	156.3	156.3	134.3	112.2	90.1	146.5	12.9	146.5	146.5	146.5	124.4	102.3	80.3		
	57	157.5	11.5	157.5	157.5	157.5	135.4	113.4	91.3	146.8	12.9	146.8	146.8	146.8	124.7	102.7	80.6		

ZH150 (12.5 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)								Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)										Return Dry Bulb (°F)					
				90	85	80	75	70	65	90	85			80	75	70	65		
				115°F								125°F							
3125	77	157.3	14.5	63.8	54.6	41.0	-	-	-	146.7	15.8	56.5	50.7	37.3	-	-	-		
	72	143.8	14.3	90.2	76.7	63.2	49.6	-	-	134.0	15.7	85.9	72.5	59.1	45.7	-	-		
	67	130.4	14.1	116.6	98.8	85.3	71.8	58.2	-	121.2	15.5	114.1	94.3	80.9	67.5	54.1	-		
	62	121.2	14.0	121.2	121.2	100.6	87.0	73.5	60.0	113.7	15.4	113.7	113.7	92.3	78.9	65.4	52.0		
3750	77	161.4	14.5	75.9	60.5	45.1	-	-	-	150.3	15.9	72.0	56.7	41.3	-	-	-		
	72	147.6	14.4	100.3	84.9	69.5	54.1	-	-	137.2	15.7	96.1	80.8	65.4	50.0	-	-		
	67	133.8	14.2	124.6	109.2	93.8	78.4	63.0	-	124.1	15.5	120.2	104.9	89.5	74.2	58.8	-		
	62	124.3	14.1	124.3	124.3	110.6	95.2	79.8	64.4	116.5	15.4	116.5	116.5	102.2	86.8	71.4	56.1		
	57	123.8	14.1	123.8	123.8	110.2	94.8	79.4	63.9	115.2	15.5	115.2	115.2	101.2	85.8	70.5	55.1		
4375	77	165.5	14.6	88.0	66.5	49.2	-	-	-	153.8	15.9	87.5	62.6	45.3	-	-	-		
	72	151.4	14.4	110.3	93.0	75.8	58.5	-	-	140.4	15.7	106.3	89.0	71.7	54.4	-	-		
	67	137.2	14.3	132.6	119.6	102.3	85.0	67.8	-	127.0	15.5	126.4	115.4	98.1	80.8	63.5	-		
	62	127.5	14.1	127.5	127.5	120.6	103.4	86.1	68.8	119.2	15.5	119.2	119.2	112.1	94.8	77.5	60.2		
	57	127.0	14.2	127.0	127.0	120.2	102.9	85.6	68.3	117.9	15.5	117.9	117.9	111.0	93.7	76.4	59.1		
5000	77	169.6	14.6	100.1	72.4	53.3	-	-	-	157.3	15.9	103.1	68.5	49.3	-	-	-		
	72	155.1	14.5	120.4	101.2	82.1	62.9	-	-	143.6	15.7	116.5	97.3	78.0	58.8	-	-		
	67	140.7	14.3	140.7	130.0	110.8	91.7	72.5	-	129.9	15.6	129.9	126.0	106.7	87.5	68.3	-		
	62	130.7	14.2	130.7	130.7	111.5	92.4	73.2	-	121.9	15.5	121.9	121.9	121.9	102.7	83.5	64.2		
	57	130.2	14.2	130.2	130.2	111.0	91.9	72.7	-	120.6	15.6	120.6	120.6	120.6	101.5	82.3	63.1		
5625	72	158.7	14.5	129.7	109.1	88.4	67.8	-	-	146.5	15.8	125.5	104.9	84.2	63.5	-	-		
	67	143.9	14.3	143.9	138.6	119.4	98.8	78.2	-	132.5	15.6	132.5	132.5	115.2	94.5	73.8	-		
	62	133.7	14.2	133.7	133.7	133.7	113.1	92.4	71.8	124.4	15.6	124.4	124.4	124.4	103.7	83.1	62.4		
	57	133.2	14.3	133.2	133.2	133.2	112.5	91.9	71.3	123.1	15.6	123.1	123.1	123.1	102.5	81.8	61.1		
6250	72	162.3	14.5	139.0	116.9	94.8	72.7	-	-	149.4	15.8	134.6	112.5	90.3	68.2	-	-		
	67	147.2	14.4	147.2	147.2	128.0	105.9	83.8	-	135.2	15.7	135.2	135.2	123.6	101.5	79.3	-		
	62	136.7	14.2	136.7	136.7	136.7	114.6	92.5	70.4	126.9	15.6	126.9	126.9	126.9	104.8	82.6	60.5		
	57	136.2	14.3	136.2	136.2	136.2	114.1	92.0	69.8	125.5	15.7	125.5	125.5	125.5	103.4	81.2	59.1		

1. These capacities are gross ratings. For net capacity, deduct air blower motor, MBh = 3.415 x kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.
2. These ratings include the condensate fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

Airflow Performance


ZH078-150 Side Duct Application

ZH078 (6.5 Ton)-Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
1800	751	204	0.22	813	402	0.43	872	576	0.62	929	731	0.78	985	871	0.93
1900	763	264	0.28	825	462	0.50	884	636	0.68	941	791	0.85	997	931	1.00
2000	776	327	0.35	838	525	0.56	897	699	0.75	954	854	0.92	1010	994	1.07
2100	790	393	0.42	851	591	0.63	910	766	0.82	968	921	0.99	1023	1060	1.14
2200	804	463	0.50	866	661	0.71	925	836	0.90	982	991	1.06	1038	1130	1.21
2300	819	537	0.58	881	735	0.79	940	909	0.98	997	1064	1.14	1053	1204	1.29
2400	835	614	0.66	897	812	0.87	956	986	1.06	1013	1141	1.22	1069	1281	1.37
2500	852	695	0.75	914	893	0.96	973	1068	1.15	1030	1223	1.31	1085	1362	1.46
2600	869	780	0.84	931	978	1.05	990	1153	1.24	1047	1308	1.40	1103	1447	1.55
2700	887	870	0.93	949	1068	1.15	1008	1242	1.33	1065	1397	1.50	1121	1537	1.65
2800	906	963	1.03	968	1161	1.25	1027	1335	1.43	1084	1491	1.60	1139	1630	1.75
2900	925	1061	1.14	987	1259	1.35	1046	1433	1.54	1103	1588	1.70	1159	1728	1.85
3000	945	1162	1.25	1007	1360	1.46	1066	1534	1.65	1123	1690	1.81	1179	1829	1.96
3100	965	1268	1.36	1027	1466	1.57	1086	1640	1.76	1143	1795	1.93	1199	1935	2.08
3200	987	1377	1.48	1048	1575	1.69	1107	1750	1.88	1165	1905	2.04	1220	2044	2.19
3300	1008	1491	1.60	1070	1689	1.81	1129	1863	2.00	1186	2018	2.17	-	-	-
3400	1030	1608	1.73	1092	1806	1.94	1151	1981	2.12	1208	2136	2.29	-	-	-
3500	1053	1730	1.86	1115	1927	2.07	1174	2102	2.25	-	-	-	-	-	-
3600	1076	1855	1.99	1138	2053	2.20	-	-	-	-	-	-	-	-	-
3700	1100	1984	2.13	-	-	-	-	-	-	-	-	-	-	-	-
3800	1124	2116	2.27	-	-	-	-	-	-	-	-	-	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	1.2			1.4			1.6			1.8			2.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
1800	1040	999	1.07	1095	1120	1.20	1150	1238	1.33	1206	1357	1.46	1265	1480	1.59
1900	1052	1059	1.14	1106	1181	1.27	1162	1298	1.39	1218	1417	1.52	1276	1541	1.65
2000	1064	1123	1.20	1119	1244	1.33	1175	1362	1.46	1231	1480	1.59	1289	1604	1.72
2100	1078	1189	1.28	1133	1310	1.41	1188	1428	1.53	1245	1547	1.66	1303	1670	1.79
2200	1092	1259	1.35	1147	1380	1.48	1203	1498	1.61	1259	1616	1.73	1317	1740	1.87
2300	1108	1332	1.43	1162	1453	1.56	1218	1571	1.69	1274	1690	1.81	1332	1813	1.95
2400	1124	1409	1.51	1178	1530	1.64	1234	1648	1.77	1290	1767	1.90	1348	1891	2.03
2500	1140	1491	1.60	1195	1612	1.73	1250	1730	1.86	1307	1848	1.98	1365	1972	2.12
2600	1158	1576	1.69	1212	1697	1.82	1268	1815	1.95	1324	1934	2.07	1382	2057	2.21
2700	1176	1665	1.79	1230	1786	1.92	1286	1904	2.04	1342	2023	2.17	1400	2147	2.30
2800	1194	1759	1.89	1249	1880	2.02	1304	1998	2.14	1361	2116	2.27	-	-	-
2900	1214	1856	1.99	1268	1977	2.12	1324	2095	2.25	-	-	-	-	-	-
3000	1234	1958	2.10	1288	2079	2.23	-	-	-	-	-	-	-	-	-
3100	1254	2063	2.21	-	-	-	-	-	-	-	-	-	-	-	-
3200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.

 High horsepower option required.

ZH090 (7.5 Ton)-Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
1800	751	204	0.22	813	402	0.43	872	576	0.62	929	731	0.78	985	871	0.93
1900	763	264	0.28	825	462	0.50	884	636	0.68	941	791	0.85	997	931	1.00
2000	776	327	0.35	838	525	0.56	897	699	0.75	954	854	0.92	1010	994	1.07
2100	790	393	0.42	851	591	0.63	910	766	0.82	968	921	0.99	1023	1060	1.14
2200	804	463	0.50	866	661	0.71	925	836	0.90	982	991	1.06	1038	1130	1.21
2300	819	537	0.58	881	735	0.79	940	909	0.98	997	1064	1.14	1053	1204	1.29
2400	835	614	0.66	897	812	0.87	956	986	1.06	1013	1141	1.22	1069	1281	1.37
2500	852	695	0.75	914	893	0.96	973	1068	1.15	1030	1223	1.31	1085	1362	1.46
2600	869	780	0.84	931	978	1.05	990	1153	1.24	1047	1308	1.40	1103	1447	1.55
2700	887	870	0.93	949	1068	1.15	1008	1242	1.33	1065	1397	1.50	1121	1537	1.65
2800	906	963	1.03	968	1161	1.25	1027	1335	1.43	1084	1491	1.60	1139	1630	1.75
2900	925	1061	1.14	987	1259	1.35	1046	1433	1.54	1103	1588	1.70	1159	1728	1.85
3000	945	1162	1.25	1007	1360	1.46	1066	1534	1.65	1123	1690	1.81	1179	1829	1.96
3100	965	1268	1.36	1027	1466	1.57	1086	1640	1.76	1143	1795	1.93	1199	1935	2.08
3200	987	1377	1.48	1048	1575	1.69	1107	1750	1.88	1165	1905	2.04	1220	2044	2.19
3300	1008	1491	1.60	1070	1689	1.81	1129	1863	2.00	1186	2018	2.17	1242	2158	2.31
3400	1030	1608	1.73	1092	1806	1.94	1151	1981	2.12	1208	2136	2.29	1264	2275	2.44
3500	1053	1730	1.86	1115	1927	2.07	1174	2102	2.25	1231	2257	2.42	1286	2397	2.57
3600	1076	1855	1.99	1138	2053	2.20	1197	2227	2.39	1254	2382	2.56	1310	2522	2.71
3700	1100	1984	2.13	1161	2181	2.34	1221	2356	2.53	1278	2511	2.69	1333	2651	2.84
3800	1124	2116	2.27	1185	2314	2.48	1245	2488	2.67	1302	2643	2.84	1357	2783	2.99
3900	1148	2252	2.42	1210	2450	2.63	1269	2625	2.82	1326	2780	2.98	1382	2919	3.13
4000	1173	2392	2.57	1235	2590	2.78	1294	2764	2.97	1351	2919	3.13	1407	3059	3.28
4100	1199	2535	2.72	1260	2733	2.93	1319	2908	3.12	1377	3063	3.29	1432	3202	3.44
4200	1224	2682	2.88	1286	2880	3.09	1345	3054	3.28	1402	3209	3.44	-	-	-
4300	1251	2832	3.04	1312	3030	3.25	1371	3204	3.44	-	-	-	-	-	-
4400	1277	2986	3.20	1339	3184	3.42	-	-	-	-	-	-	-	-	-
4500	1304	3142	3.37	-	-	-	-	-	-	-	-	-	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	1.2			1.4			1.6			1.8			2.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
1800	1040	999	1.07	1095	1120	1.20	1150	1238	1.33	1206	1357	1.46	1265	1480	1.59
1900	1052	1059	1.14	1106	1181	1.27	1162	1298	1.39	1218	1417	1.52	1276	1541	1.65
2000	1064	1123	1.20	1119	1244	1.33	1175	1362	1.46	1231	1480	1.59	1289	1604	1.72
2100	1078	1189	1.28	1133	1310	1.41	1188	1428	1.53	1245	1547	1.66	1303	1670	1.79
2200	1092	1259	1.35	1147	1380	1.48	1203	1498	1.61	1259	1616	1.73	1317	1740	1.87
2300	1108	1332	1.43	1162	1453	1.56	1218	1571	1.69	1274	1690	1.81	1332	1813	1.95
2400	1124	1409	1.51	1178	1530	1.64	1234	1648	1.77	1290	1767	1.90	1348	1891	2.03
2500	1140	1491	1.60	1195	1612	1.73	1250	1730	1.86	1307	1848	1.98	1365	1972	2.12
2600	1158	1576	1.69	1212	1697	1.82	1268	1815	1.95	1324	1934	2.07	1382	2057	2.21
2700	1176	1665	1.79	1230	1786	1.92	1286	1904	2.04	1342	2023	2.17	1400	2147	2.30
2800	1194	1759	1.89	1249	1880	2.02	1304	1998	2.14	1361	2116	2.27	1419	2240	2.40
2900	1214	1856	1.99	1268	1977	2.12	1324	2095	2.25	1380	2214	2.37	1438	2337	2.51
3000	1234	1958	2.10	1288	2079	2.23	1344	2197	2.36	1400	2315	2.48	1458	2439	2.62
3100	1254	2063	2.21	1309	2184	2.34	1364	2302	2.47	1421	2421	2.60	1479	2544	2.73
3200	1275	2173	2.33	1330	2294	2.46	1385	2412	2.59	1442	2530	2.71	1500	2654	2.85
3300	1297	2286	2.45	1351	2407	2.58	1407	2525	2.71	1463	2644	2.84	1521	2768	2.97
3400	1319	2404	2.58	1374	2525	2.71	1429	2643	2.84	1485	2761	2.96	1544	2885	3.10
3500	1341	2525	2.71	1396	2646	2.84	1451	2764	2.97	1508	2883	3.09	1566	3006	3.23
3600	1364	2650	2.84	1419	2771	2.97	1475	2889	3.10	1531	3008	3.23	1589	3131	3.36
3700	1388	2779	2.98	1443	2900	3.11	1498	3018	3.24	1555	3137	3.37	-	-	-
3800	1412	2911	3.12	1467	3033	3.25	1522	3150	3.38	-	-	-	-	-	-
3900	1437	3048	3.27	1491	3169	3.40	-	-	-	-	-	-	-	-	-
4000	1462	3187	3.42	-	-	-	-	-	-	-	-	-	-	-	-
4100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.

High horsepower option required.

ZH102 (8.5 Ton)-Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
2000	644	194	0.21	695	389	0.42	745	573	0.61	793	748	0.80	839	916	0.98
2100	649	250	0.27	701	445	0.48	750	629	0.67	798	804	0.86	844	972	1.04
2200	654	302	0.32	706	497	0.53	755	681	0.73	803	856	0.92	849	1024	1.10
2300	659	351	0.38	711	546	0.59	760	730	0.78	808	905	0.97	854	1073	1.15
2400	664	398	0.43	716	593	0.64	765	778	0.83	813	952	1.02	859	1120	1.20
2500	670	445	0.48	721	640	0.69	771	824	0.88	818	999	1.07	864	1167	1.25
2600	675	493	0.53	726	688	0.74	776	872	0.94	824	1047	1.12	870	1215	1.30
2700	680	541	0.58	732	736	0.79	781	920	0.99	829	1095	1.18	875	1263	1.36
2800	686	591	0.63	738	786	0.84	787	970	1.04	835	1145	1.23	881	1313	1.41
2900	692	643	0.69	744	839	0.90	793	1023	1.10	841	1198	1.28	887	1366	1.47
3000	699	698	0.75	750	894	0.96	800	1078	1.16	847	1253	1.34	893	1421	1.52
3100	706	756	0.81	757	952	1.02	807	1136	1.22	854	1311	1.41	900	1479	1.59
3200	713	818	0.88	764	1013	1.09	814	1197	1.28	861	1372	1.47	907	1540	1.65
3300	720	882	0.95	772	1077	1.16	821	1262	1.35	869	1437	1.54	915	1604	1.72
3400	728	951	1.02	779	1146	1.23	829	1330	1.43	877	1505	1.61	923	1673	1.79
3500	736	1023	1.10	788	1218	1.31	837	1402	1.50	885	1577	1.69	931	1745	1.87
3600	745	1099	1.18	796	1295	1.39	846	1479	1.59	893	1654	1.77	939	1822	1.95
3700	754	1180	1.27	805	1375	1.48	855	1559	1.67	902	1734	1.86	948	1902	2.04
3800	763	1264	1.36	815	1460	1.57	864	1644	1.76	912	1819	1.95	958	1987	2.13
3900	773	1353	1.45	824	1549	1.66	874	1733	1.86	922	1908	2.05	968	2076	2.23
4000	783	1447	1.55	835	1642	1.76	884	1826	1.96	932	2001	2.15	978	2169	2.33
4100	794	1545	1.66	845	1740	1.87	895	1924	2.06	942	2099	2.25	988	2267	2.43
4200	805	1647	1.77	856	1842	1.98	906	2026	2.17	953	2201	2.36	999	2369	2.54
4300	816	1753	1.88	868	1948	2.09	917	2133	2.29	965	2307	2.48	1011	2475	2.66
4400	828	1864	2.00	879	2059	2.21	929	2244	2.41	976	2419	2.59	1022	2586	2.77
4500	840	1980	2.12	891	2175	2.33	941	2359	2.53	989	2534	2.72	1035	2702	2.90
4600	852	2100	2.25	904	2295	2.46	953	2479	2.66	1001	2654	2.85	1047	2822	3.03
4700	865	2224	2.39	917	2419	2.60	966	2603	2.79	1014	2778	2.98	1060	2946	3.16
4800	879	2353	2.52	930	2548	2.73	980	2732	2.93	1027	2907	3.12	1073	3075	3.30
4900	892	2486	2.67	944	2681	2.88	993	2865	3.07	1041	3040	3.26	1087	3208	3.44
5000	906	2623	2.81	958	2819	3.02	1007	3003	3.22	1055	3178	3.41	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	1.2			1.4			1.6			1.8			2.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
2000	883	1079	1.16	926	1239	1.33	969	1398	1.50	1010	1559	1.67	1051	1722	1.85
2100	888	1135	1.22	932	1295	1.39	974	1454	1.56	1015	1615	1.73	1056	1778	1.91
2200	893	1187	1.27	937	1347	1.44	979	1506	1.62	1020	1667	1.79	1061	1830	1.96
2300	898	1236	1.33	942	1396	1.50	984	1555	1.67	1025	1716	1.84	1066	1879	2.02
2400	904	1283	1.38	947	1443	1.55	989	1603	1.72	1030	1763	1.89	1071	1927	2.07
2500	909	1330	1.43	952	1490	1.60	994	1650	1.77	1036	1810	1.94	1076	1974	2.12
2600	914	1378	1.48	957	1538	1.65	1000	1697	1.82	1041	1858	1.99	1082	2021	2.17
2700	920	1426	1.53	963	1586	1.70	1005	1746	1.87	1047	1906	2.04	1087	2070	2.22
2800	925	1476	1.58	969	1636	1.76	1011	1796	1.93	1052	1956	2.10	1093	2120	2.27
2900	932	1529	1.64	975	1689	1.81	1017	1848	1.98	1058	2008	2.15	1099	2172	2.33
3000	938	1584	1.70	981	1744	1.87	1024	1903	2.04	1065	2063	2.21	1106	2227	2.39
3100	945	1642	1.76	988	1802	1.93	1030	1961	2.10	1072	2121	2.28	1112	2285	2.45
3200	952	1703	1.83	995	1863	2.00	1037	2022	2.17	1079	2182	2.34	1119	2346	2.52
3300	959	1767	1.90	1003	1928	2.07	1045	2087	2.24	1086	2247	2.41	1127	2411	2.59
3400	967	1836	1.97	1010	1996	2.14	1053	2155	2.31	1094	2316	2.48	1135	2479	2.66
3500	975	1908	2.05	1019	2068	2.22	1061	2227	2.39	1102	2388	2.56	1143	2552	2.74
3600	984	1984	2.13	1027	2145	2.30	1069	2304	2.47	1111	2464	2.64	1152	2628	2.82
3700	993	2065	2.22	1036	2225	2.39	1078	2384	2.56	1120	2545	2.73	1161	2708	2.91
3800	1002	2150	2.31	1046	2310	2.48	1088	2469	2.65	1129	2629	2.82	1170	2793	3.00
3900	1012	2239	2.40	1055	2399	2.57	1098	2558	2.74	1139	2718	2.92	1180	2882	3.09
4000	1022	2332	2.50	1066	2492	2.67	1108	2651	2.84	1149	2812	3.02	1190	2975	3.19
4100	1033	2430	2.61	1076	2590	2.78	1118	2749	2.95	1160	2909	3.12	1200	3073	3.30
4200	1044	2532	2.72	1087	2692	2.89	1129	2851	3.06	1171	3012	3.23	1211	3175	3.41
4300	1055	2638	2.83	1098	2798	3.00	1141	2958	3.17	1182	3118	3.35	-	-	-
4400	1067	2749	2.95	1110	2910	3.12	1152	3069	3.29	-	-	-	-	-	-
4500	1079	2865	3.07	1122	3025	3.25	1165	3184	3.42	-	-	-	-	-	-
4600	1092	2985	3.20	1135	3145	3.37	-	-	-	-	-	-	-	-	-
4700	1105	3109	3.34	-	-	-	-	-	-	-	-	-	-	-	-
4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.

High horsepower option required.

ZH120 (10 Ton)-Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
2000	644	194	0.21	695	389	0.42	745	573	0.61	793	748	0.80	839	916	0.98
2100	649	250	0.27	701	445	0.48	750	629	0.67	798	804	0.86	844	972	1.04
2200	654	302	0.32	706	497	0.53	755	681	0.73	803	856	0.92	849	1024	1.10
2300	659	351	0.38	711	546	0.59	760	730	0.78	808	905	0.97	854	1073	1.15
2400	664	398	0.43	716	593	0.64	765	778	0.83	813	952	1.02	859	1120	1.20
2500	670	445	0.48	721	640	0.69	771	824	0.88	818	999	1.07	864	1167	1.25
2600	675	493	0.53	726	688	0.74	776	872	0.94	824	1047	1.12	870	1215	1.30
2700	680	541	0.58	732	736	0.79	781	920	0.99	829	1095	1.18	875	1263	1.36
2800	686	591	0.63	738	786	0.84	787	970	1.04	835	1145	1.23	881	1313	1.41
2900	692	643	0.69	744	839	0.90	793	1023	1.10	841	1198	1.28	887	1366	1.47
3000	699	698	0.75	750	894	0.96	800	1078	1.16	847	1253	1.34	893	1421	1.52
3100	706	756	0.81	757	952	1.02	807	1136	1.22	854	1311	1.41	900	1479	1.59
3200	713	818	0.88	764	1013	1.09	814	1197	1.28	861	1372	1.47	907	1540	1.65
3300	720	882	0.95	772	1077	1.16	821	1262	1.35	869	1437	1.54	915	1604	1.72
3400	728	951	1.02	779	1146	1.23	829	1330	1.43	877	1505	1.61	923	1673	1.79
3500	736	1023	1.10	788	1218	1.31	837	1402	1.50	885	1577	1.69	931	1745	1.87
3600	745	1099	1.18	796	1295	1.39	846	1479	1.59	893	1654	1.77	939	1822	1.95
3700	754	1180	1.27	805	1375	1.48	855	1559	1.67	902	1734	1.86	948	1902	2.04
3800	763	1264	1.36	815	1460	1.57	864	1644	1.76	912	1819	1.95	958	1987	2.13
3900	773	1353	1.45	824	1549	1.66	874	1733	1.86	922	1908	2.05	968	2076	2.23
4000	783	1447	1.55	835	1642	1.76	884	1826	1.96	932	2001	2.15	978	2169	2.33
4100	794	1545	1.66	845	1740	1.87	895	1924	2.06	942	2099	2.25	988	2267	2.43
4200	805	1647	1.77	856	1842	1.98	906	2026	2.17	953	2201	2.36	999	2369	2.54
4300	816	1753	1.88	868	1948	2.09	917	2133	2.29	965	2307	2.48	1011	2475	2.66
4400	828	1864	2.00	879	2059	2.21	929	2244	2.41	976	2419	2.59	1022	2586	2.77
4500	840	1980	2.12	891	2175	2.33	941	2359	2.53	989	2534	2.72	1035	2702	2.90
4600	852	2100	2.25	904	2295	2.46	953	2479	2.66	1001	2654	2.85	1047	2822	3.03
4700	865	2224	2.39	917	2419	2.60	966	2603	2.79	1014	2778	2.98	1060	2946	3.16
4800	879	2353	2.52	930	2548	2.73	980	2732	2.93	1027	2907	3.12	1073	3075	3.30
4900	892	2486	2.67	944	2681	2.88	993	2865	3.07	1041	3040	3.26	1087	3208	3.44
5000	906	2623	2.81	958	2819	3.02	1007	3003	3.22	1055	3178	3.41	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	1.2			1.4			1.6			1.8			2.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
2000	883	1079	1.16	926	1239	1.33	969	1398	1.50	1010	1559	1.67	1051	1722	1.85
2100	888	1135	1.22	932	1295	1.39	974	1454	1.56	1015	1615	1.73	1056	1778	1.91
2200	893	1187	1.27	937	1347	1.44	979	1506	1.62	1020	1667	1.79	1061	1830	1.96
2300	898	1236	1.33	942	1396	1.50	984	1555	1.67	1025	1716	1.84	1066	1879	2.02
2400	904	1283	1.38	947	1443	1.55	989	1603	1.72	1030	1763	1.89	1071	1927	2.07
2500	909	1330	1.43	952	1490	1.60	994	1650	1.77	1036	1810	1.94	1076	1974	2.12
2600	914	1378	1.48	957	1538	1.65	1000	1697	1.82	1041	1858	1.99	1082	2021	2.17
2700	920	1426	1.53	963	1586	1.70	1005	1746	1.87	1047	1906	2.04	1087	2070	2.22
2800	925	1476	1.58	969	1636	1.76	1011	1796	1.93	1052	1956	2.10	1093	2120	2.27
2900	932	1529	1.64	975	1689	1.81	1017	1848	1.98	1058	2008	2.15	1099	2172	2.33
3000	938	1584	1.70	981	1744	1.87	1024	1903	2.04	1065	2063	2.21	1106	2227	2.39
3100	945	1642	1.76	988	1802	1.93	1030	1961	2.10	1072	2121	2.28	1112	2285	2.45
3200	952	1703	1.83	995	1863	2.00	1037	2022	2.17	1079	2182	2.34	1119	2346	2.52
3300	959	1767	1.90	1003	1928	2.07	1045	2087	2.24	1086	2247	2.41	1127	2411	2.59
3400	967	1836	1.97	1010	1996	2.14	1053	2155	2.31	1094	2316	2.48	1135	2479	2.66
3500	975	1908	2.05	1019	2068	2.22	1061	2227	2.39	1102	2388	2.56	1143	2552	2.74
3600	984	1984	2.13	1027	2145	2.30	1069	2304	2.47	1111	2464	2.64	1152	2628	2.82
3700	993	2065	2.22	1036	2225	2.39	1078	2384	2.56	1120	2545	2.73	1161	2708	2.91
3800	1002	2150	2.31	1046	2310	2.48	1088	2469	2.65	1129	2629	2.82	1170	2793	3.00
3900	1012	2239	2.40	1055	2399	2.57	1098	2558	2.74	1139	2718	2.92	1180	2882	3.09
4000	1022	2332	2.50	1066	2492	2.67	1108	2651	2.84	1149	2812	3.02	1190	2975	3.19
4100	1033	2430	2.61	1076	2590	2.78	1118	2749	2.95	1160	2909	3.12	1200	3073	3.30
4200	1044	2532	2.72	1087	2692	2.89	1129	2851	3.06	1171	3012	3.23	1211	3175	3.41
4300	1055	2638	2.83	1098	2798	3.00	1141	2958	3.17	1182	3118	3.35	-	-	-
4400	1067	2749	2.95	1110	2910	3.12	1152	3069	3.29	-	-	-	-	-	-
4500	1079	2865	3.07	1122	3025	3.25	1165	3184	3.42	-	-	-	-	-	-
4600	1092	2985	3.20	1135	3145	3.37	-	-	-	-	-	-	-	-	-
4700	1105	3109	3.34	-	-	-	-	-	-	-	-	-	-	-	-
4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.

High horsepower option required.

ZH150 (12.5 Ton)-Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
3200	713	818	0.88	764	1013	1.09	814	1197	1.28	861	1372	1.47	907	1540	1.65
3300	720	882	0.95	772	1077	1.16	821	1262	1.35	869	1437	1.54	915	1604	1.72
3400	728	951	1.02	779	1146	1.23	829	1330	1.43	877	1505	1.61	923	1673	1.79
3500	736	1023	1.10	788	1218	1.31	837	1402	1.50	885	1577	1.69	931	1745	1.87
3600	745	1099	1.18	796	1295	1.39	846	1479	1.59	893	1654	1.77	939	1822	1.95
3700	754	1180	1.27	805	1375	1.48	855	1559	1.67	902	1734	1.86	948	1902	2.04
3800	763	1264	1.36	815	1460	1.57	864	1644	1.76	912	1819	1.95	958	1987	2.13
3900	773	1353	1.45	824	1549	1.66	874	1733	1.86	922	1908	2.05	968	2076	2.23
4000	783	1447	1.55	835	1642	1.76	884	1826	1.96	932	2001	2.15	978	2169	2.33
4100	794	1545	1.66	845	1740	1.87	895	1924	2.06	942	2099	2.25	988	2267	2.43
4200	805	1647	1.77	856	1842	1.98	906	2026	2.17	953	2201	2.36	999	2369	2.54
4300	816	1753	1.88	868	1948	2.09	917	2133	2.29	965	2307	2.48	1011	2475	2.66
4400	828	1864	2.00	879	2059	2.21	929	2244	2.41	976	2419	2.59	1022	2586	2.77
4500	840	1980	2.12	891	2175	2.33	941	2359	2.53	989	2534	2.72	1035	2702	2.90
4600	852	2100	2.25	904	2295	2.46	953	2479	2.66	1001	2654	2.85	1047	2822	3.03
4700	865	2224	2.39	917	2419	2.60	966	2603	2.79	1014	2778	2.98	1060	2946	3.16
4800	879	2353	2.52	930	2548	2.73	980	2732	2.93	1027	2907	3.12	1073	3075	3.30
4900	892	2486	2.67	944	2681	2.88	993	2865	3.07	1041	3040	3.26	1087	3208	3.44
5000	906	2623	2.81	958	2819	3.02	1007	3003	3.22	1055	3178	3.41	1101	3346	3.59
5100	921	2765	2.97	972	2960	3.18	1022	3144	3.37	1070	3319	3.56	1116	3487	3.74
5200	936	2911	3.12	987	3107	3.33	1037	3291	3.53	1084	3466	3.72	1130	3634	3.90
5300	951	3062	3.28	1002	3257	3.49	1052	3441	3.69	1100	3616	3.88	1146	3784	4.06
5400	966	3216	3.45	1018	3412	3.66	1067	3596	3.86	1115	3771	4.05	1161	3939	4.23
5500	982	3375	3.62	1034	3571	3.83	1083	3755	4.03	1131	3930	4.22	1177	4098	4.40
5600	999	3538	3.80	1050	3734	4.01	1100	3918	4.20	1147	4093	4.39	1193	4261	4.57
5700	1015	3706	3.98	1067	3901	4.18	1116	4085	4.38	1164	4260	4.57	1210	4428	4.75
5800	1032	3877	4.16	1084	4072	4.37	1133	4256	4.57	1181	4431	4.75	1227	4599	4.93
5900	1050	4052	4.35	1101	4247	4.56	1150	4432	4.75	1198	4607	4.94	1244	4774	5.12
6000	1067	4232	4.54	1119	4427	4.75	1168	4611	4.95	1216	4786	5.13	1262	4954	5.31
6100	1085	4415	4.74	1137	4610	4.95	1186	4794	5.14	1234	4969	5.33	1280	5137	5.51
6200	1103	4602	4.94	1155	4797	5.15	1204	4982	5.34	1252	5157	5.53	1298	5324	5.71

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	1.2			1.4			1.6			1.8			2.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
3200	952	1703	1.83	995	1863	2.00	1037	2022	2.17	1079	2182	2.34	1119	2346	2.52
3300	959	1767	1.90	1003	1928	2.07	1045	2087	2.24	1086	2247	2.41	1127	2411	2.59
3400	967	1836	1.97	1010	1996	2.14	1053	2155	2.31	1094	2316	2.48	1135	2479	2.66
3500	975	1908	2.05	1019	2068	2.22	1061	2227	2.39	1102	2388	2.56	1143	2552	2.74
3600	984	1984	2.13	1027	2145	2.30	1069	2304	2.47	1111	2464	2.64	1152	2628	2.82
3700	993	2065	2.22	1036	2225	2.39	1078	2384	2.56	1120	2545	2.73	1161	2708	2.91
3800	1002	2150	2.31	1046	2310	2.48	1088	2469	2.65	1129	2629	2.82	1170	2793	3.00
3900	1012	2239	2.40	1055	2399	2.57	1098	2558	2.74	1139	2718	2.92	1180	2882	3.09
4000	1022	2332	2.50	1066	2492	2.67	1108	2651	2.84	1149	2812	3.02	1190	2975	3.19
4100	1033	2430	2.61	1076	2590	2.78	1118	2749	2.95	1160	2909	3.12	1200	3073	3.30
4200	1044	2532	2.72	1087	2692	2.89	1129	2851	3.06	1171	3012	3.23	1211	3175	3.41
4300	1055	2638	2.83	1098	2798	3.00	1141	2958	3.17	1182	3118	3.35	1223	3282	3.52
4400	1067	2749	2.95	1110	2910	3.12	1152	3069	3.29	1194	3229	3.46	1235	3393	3.64
4500	1079	2865	3.07	1122	3025	3.25	1165	3184	3.42	1206	3345	3.59	1247	3508	3.76
4600	1092	2985	3.20	1135	3145	3.37	1177	3304	3.54	1219	3465	3.72	1259	3628	3.89
4700	1105	3109	3.34	1148	3269	3.51	1190	3428	3.68	1231	3589	3.85	1272	3753	4.03
4800	1118	3238	3.47	1161	3398	3.65	1203	3557	3.82	1245	3718	3.99	1285	3881	4.16
4900	1132	3371	3.62	1175	3531	3.79	1217	3690	3.96	1258	3851	4.13	1299	4015	4.31
5000	1146	3509	3.76	1189	3669	3.94	1231	3828	4.11	1273	3988	4.28	1313	4152	4.45
5100	1160	3650	3.92	1203	3810	4.09	1246	3970	4.26	1287	4130	4.43	1328	4294	4.61
5200	1175	3797	4.07	1218	3957	4.24	1260	4116	4.42	1302	4276	4.59	1343	4440	4.76
5300	1190	3947	4.23	1233	4107	4.41	1276	4266	4.58	1317	4427	4.75	1358	4590	4.92
5400	1206	4102	4.40	1249	4262	4.57	1291	4421	4.74	1333	4581	4.91	1373	4745	5.09
5500	1222	4261	4.57	1265	4421	4.74	1307	4580	4.91	1348	4740	5.09	1389	4904	5.26
5600	1238	4424	4.75	1281	4584	4.92	1323	4743	5.09	1365	4903	5.26	1405	5067	5.44
5700	1254	4591	4.93	1298	4751	5.10	1340	4910	5.27	1381	5071	5.44	1422	5234	5.62
5800	1271	4762	5.11	1315	4922	5.28	1357	5081	5.45	1398	5242	5.62	-	-	-
5900	1289	4937	5.30	1332	5098	5.47	1374	5257	5.64	-	-	-	-	-	-
6000	1306	5117	5.49	1350	5277	5.66	-	-	-	-	-	-	-	-	-
6100	1324	5300	5.69	-	-	-	-	-	-	-	-	-	-	-	-
6200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.

High horsepower option required.

ZH078-150 Bottom Duct Application

ZH078 (6.5 Ton)-Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
1800	775	289	0.31	850	494	0.53	924	673	0.72	998	832	0.89	1072	978	1.05
1900	788	350	0.38	863	556	0.60	937	735	0.79	1011	894	0.96	1085	1040	1.12
2000	803	416	0.45	878	622	0.67	952	800	0.86	1026	960	1.03	1100	1106	1.19
2100	820	487	0.52	894	692	0.74	968	871	0.93	1042	1030	1.10	1116	1176	1.26
2200	838	562	0.60	913	767	0.82	986	946	1.01	1060	1105	1.19	1134	1252	1.34
2300	857	642	0.69	932	847	0.91	1006	1026	1.10	1080	1185	1.27	1154	1331	1.43
2400	878	727	0.78	953	932	1.00	1027	1111	1.19	1100	1270	1.36	1174	1416	1.52
2500	900	817	0.88	974	1022	1.10	1048	1201	1.29	1122	1360	1.46	1196	1506	1.62
2600	923	912	0.98	997	1117	1.20	1071	1296	1.39	1145	1455	1.56	1219	1602	1.72
2700	946	1012	1.09	1021	1218	1.31	1095	1396	1.50	1169	1556	1.67	1243	1702	1.83
2800	971	1118	1.20	1046	1323	1.42	1119	1502	1.61	1193	1661	1.78	1267	1808	1.94
2900	996	1229	1.32	1071	1434	1.54	1145	1613	1.73	1219	1772	1.90	1293	1919	2.06
3000	1023	1345	1.44	1097	1550	1.66	1171	1729	1.85	1245	1888	2.03	1319	2034	2.18
3100	1049	1466	1.57	1124	1671	1.79	1198	1850	1.98	1272	2009	2.16	-	-	-
3200	1077	1591	1.71	1151	1797	1.93	1225	1976	2.12	1299	2135	2.29	-	-	-
3300	1105	1722	1.85	1179	1928	2.07	1253	2106	2.26	-	-	-	-	-	-
3400	1133	1858	1.99	1208	2063	2.21	-	-	-	-	-	-	-	-	-
3500	1163	1999	2.14	-	-	-	-	-	-	-	-	-	-	-	-
3600	1192	2144	2.30	-	-	-	-	-	-	-	-	-	-	-	-
3700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹											
	1.2			1.4			1.6			1.8		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
1800	1147	1119	1.20	1224	1261	1.35	1303	1411	1.51	1384	1575	1.69
1900	1160	1181	1.27	1237	1323	1.42	1316	1473	1.58	1397	1637	1.76
2000	1175	1247	1.34	1252	1389	1.49	1331	1538	1.65	1412	1703	1.83
2100	1192	1317	1.41	1268	1459	1.57	1347	1609	1.73	1429	1773	1.90
2200	1210	1392	1.49	1286	1534	1.65	1365	1684	1.81	1447	1848	1.98
2300	1229	1472	1.58	1306	1614	1.73	1385	1764	1.89	1466	1928	2.07
2400	1250	1557	1.67	1327	1699	1.82	1405	1849	1.98	1487	2013	2.16
2500	1272	1647	1.77	1348	1789	1.92	1427	1939	2.08	1509	2103	2.26
2600	1294	1742	1.87	1371	1884	2.02	1450	2034	2.18	-	-	-
2700	1318	1843	1.98	1395	1985	2.13	1474	2134	2.29	-	-	-
2800	1343	1948	2.09	1419	2090	2.24	-	-	-	-	-	-
2900	1368	2059	2.21	-	-	-	-	-	-	-	-	-
3000	-	-	-	-	-	-	-	-	-	-	-	-
3100	-	-	-	-	-	-	-	-	-	-	-	-
3200	-	-	-	-	-	-	-	-	-	-	-	-
3300	-	-	-	-	-	-	-	-	-	-	-	-
3400	-	-	-	-	-	-	-	-	-	-	-	-
3500	-	-	-	-	-	-	-	-	-	-	-	-
3600	-	-	-	-	-	-	-	-	-	-	-	-
3700	-	-	-	-	-	-	-	-	-	-	-	-
3800	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
 High horsepower option required.

ZH090 (7.5 Ton)-Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
1800	775	289	0.31	850	494	0.53	924	673	0.72	998	832	0.89	1072	978	1.05
1900	788	350	0.38	863	556	0.60	937	735	0.79	1011	894	0.96	1085	1040	1.12
2000	803	416	0.45	878	622	0.67	952	800	0.86	1026	960	1.03	1100	1106	1.19
2100	820	487	0.52	894	692	0.74	968	871	0.93	1042	1030	1.10	1116	1176	1.26
2200	838	562	0.60	913	767	0.82	986	946	1.01	1060	1105	1.19	1134	1252	1.34
2300	857	642	0.69	932	847	0.91	1006	1026	1.10	1080	1185	1.27	1154	1331	1.43
2400	878	727	0.78	953	932	1.00	1027	1111	1.19	1100	1270	1.36	1174	1416	1.52
2500	900	817	0.88	974	1022	1.10	1048	1201	1.29	1122	1360	1.46	1196	1506	1.62
2600	923	912	0.98	997	1117	1.20	1071	1296	1.39	1145	1455	1.56	1219	1602	1.72
2700	946	1012	1.09	1021	1218	1.31	1095	1396	1.50	1169	1556	1.67	1243	1702	1.83
2800	971	1118	1.20	1046	1323	1.42	1119	1502	1.61	1193	1661	1.78	1267	1808	1.94
2900	996	1229	1.32	1071	1434	1.54	1145	1613	1.73	1219	1772	1.90	1293	1919	2.06
3000	1023	1345	1.44	1097	1550	1.66	1171	1729	1.85	1245	1888	2.03	1319	2034	2.18
3100	1049	1466	1.57	1124	1671	1.79	1198	1850	1.98	1272	2009	2.16	1346	2155	2.31
3200	1077	1591	1.71	1151	1797	1.93	1225	1976	2.12	1299	2135	2.29	1373	2281	2.45
3300	1105	1722	1.85	1179	1928	2.07	1253	2106	2.26	1327	2266	2.43	1401	2412	2.59
3400	1133	1858	1.99	1208	2063	2.21	1282	2242	2.41	1356	2401	2.58	1430	2548	2.73
3500	1163	1999	2.14	1237	2204	2.36	1311	2383	2.56	1385	2542	2.73	1459	2689	2.88
3600	1192	2144	2.30	1267	2349	2.52	1341	2528	2.71	1414	2687	2.88	1489	2834	3.04
3700	1222	2294	2.46	1297	2499	2.68	1371	2678	2.87	1444	2837	3.04	1519	2984	3.20
3800	1253	2448	2.63	1327	2654	2.85	1401	2832	3.04	1475	2992	3.21	1549	3138	3.37
3900	1284	2607	2.80	1358	2813	3.02	1432	2991	3.21	1506	3151	3.38	-	-	-
4000	1315	2771	2.97	1389	2976	3.19	1463	3155	3.38	-	-	-	-	-	-
4100	1346	2938	3.15	1421	3144	3.37	-	-	-	-	-	-	-	-	-
4200	1378	3110	3.34	-	-	-	-	-	-	-	-	-	-	-	-
4300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	1.2			1.4			1.6			1.8			2.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
1800	1147	1119	1.20	1224	1261	1.35	1303	1411	1.51	1384	1575	1.69	1469	1762	1.89
1900	1160	1181	1.27	1237	1323	1.42	1316	1473	1.58	1397	1637	1.76	1482	1824	1.96
2000	1175	1247	1.34	1252	1389	1.49	1331	1538	1.65	1412	1703	1.83	1497	1889	2.03
2100	1192	1317	1.41	1268	1459	1.57	1347	1609	1.73	1429	1773	1.90	1514	1960	2.10
2200	1210	1392	1.49	1286	1534	1.65	1365	1684	1.81	1447	1848	1.98	1532	2035	2.18
2300	1229	1472	1.58	1306	1614	1.73	1385	1764	1.89	1466	1928	2.07	1551	2115	2.27
2400	1250	1557	1.67	1327	1699	1.82	1405	1849	1.98	1487	2013	2.16	1572	2200	2.36
2500	1272	1647	1.77	1348	1789	1.92	1427	1939	2.08	1509	2103	2.26	1594	2290	2.46
2600	1294	1742	1.87	1371	1884	2.02	1450	2034	2.18	1532	2199	2.36	1617	2385	2.56
2700	1318	1843	1.98	1395	1985	2.13	1474	2134	2.29	1555	2299	2.47	1640	2485	2.67
2800	1343	1948	2.09	1419	2090	2.24	1498	2240	2.40	1580	2405	2.58	1665	2591	2.78
2900	1368	2059	2.21	1445	2201	2.36	1524	2351	2.52	1605	2515	2.70	1690	2702	2.90
3000	1394	2175	2.33	1471	2317	2.49	1550	2467	2.65	1632	2631	2.82	1717	2818	3.02
3100	1421	2296	2.46	1498	2438	2.62	1577	2588	2.78	1658	2752	2.95	1743	2939	3.15
3200	1448	2422	2.60	1525	2564	2.75	1604	2714	2.91	1686	2878	3.09	1771	3065	3.29
3300	1476	2553	2.74	1553	2695	2.89	1632	2844	3.05	1714	3009	3.23	1799	3196	3.43
3400	1505	2689	2.88	1582	2830	3.04	1661	2980	3.20	1742	3145	3.37	-	-	-
3500	1534	2829	3.04	1611	2971	3.19	1690	3121	3.35	-	-	-	-	-	-
3600	1564	2975	3.19	1641	3116	3.34	-	-	-	-	-	-	-	-	-
3700	1594	3124	3.35	-	-	-	-	-	-	-	-	-	-	-	-
3800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
 High horsepower option required.

ZH102 (8.5 Ton)-Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
2000	679	202	0.22	743	453	0.49	799	700	0.75	849	946	1.01	895	1190	1.28
2100	683	265	0.28	746	516	0.55	803	763	0.82	853	1009	1.08	899	1253	1.34
2200	688	326	0.35	751	577	0.62	808	825	0.89	858	1070	1.15	904	1314	1.41
2300	694	388	0.42	758	638	0.68	814	886	0.95	864	1132	1.21	910	1375	1.48
2400	701	450	0.48	765	701	0.75	821	949	1.02	872	1194	1.28	917	1438	1.54
2500	709	514	0.55	773	765	0.82	829	1013	1.09	880	1258	1.35	925	1502	1.61
2600	718	580	0.62	781	831	0.89	838	1079	1.16	888	1325	1.42	934	1568	1.68
2700	727	650	0.70	791	901	0.97	847	1149	1.23	898	1395	1.50	943	1638	1.76
2800	737	724	0.78	801	975	1.05	857	1223	1.31	908	1468	1.57	953	1712	1.84
2900	748	801	0.86	811	1052	1.13	868	1300	1.39	918	1545	1.66	964	1789	1.92
3000	759	883	0.95	822	1134	1.22	879	1382	1.48	929	1627	1.75	975	1871	2.01
3100	770	970	1.04	834	1221	1.31	890	1469	1.58	940	1714	1.84	986	1958	2.10
3200	782	1061	1.14	845	1312	1.41	902	1560	1.67	952	1805	1.94	998	2049	2.20
3300	794	1158	1.24	857	1409	1.51	914	1657	1.78	964	1902	2.04	1010	2146	2.30
3400	806	1260	1.35	869	1511	1.62	926	1758	1.89	976	2004	2.15	1022	2248	2.41
3500	818	1367	1.47	882	1618	1.74	938	1865	2.00	989	2111	2.26	1034	2355	2.53
3600	831	1479	1.59	894	1730	1.86	951	1978	2.12	1001	2223	2.39	1047	2467	2.65
3700	844	1597	1.71	907	1848	1.98	964	2096	2.25	1014	2341	2.51	1060	2585	2.77
3800	857	1720	1.85	920	1971	2.11	977	2219	2.38	1027	2465	2.64	1073	2708	2.91
3900	870	1849	1.98	933	2100	2.25	990	2348	2.52	1040	2594	2.78	1086	2837	3.04
4000	883	1984	2.13	947	2235	2.40	1003	2483	2.66	1053	2728	2.93	1099	2972	3.19
4100	896	2124	2.28	960	2375	2.55	1016	2623	2.81	1067	2868	3.08	1112	3112	3.34
4200	910	2269	2.43	973	2520	2.70	1030	2768	2.97	1080	3014	3.23	-	-	-
4300	923	2420	2.60	987	2671	2.87	1043	2919	3.13	1093	3165	3.39	-	-	-
4400	937	2577	2.76	1000	2828	3.03	1057	3076	3.30	-	-	-	-	-	-
4500	950	2739	2.94	1014	2990	3.21	-	-	-	-	-	-	-	-	-
4600	964	2906	3.12	1027	3157	3.39	-	-	-	-	-	-	-	-	-
4700	977	3079	3.30	-	-	-	-	-	-	-	-	-	-	-	-
4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹											
	1.2			1.4			1.6			1.8		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
2000	937	1432	1.54	977	1674	1.80	1016	1917	2.06	1055	2160	2.32
2100	941	1495	1.60	981	1737	1.86	1020	1980	2.12	1058	2223	2.39
2200	946	1557	1.67	986	1799	1.93	1025	2041	2.19	1063	2285	2.45
2300	952	1618	1.74	992	1860	2.00	1031	2103	2.26	1070	2346	2.52
2400	959	1680	1.80	999	1923	2.06	1038	2165	2.32	1077	2408	2.58
2500	967	1744	1.87	1007	1987	2.13	1046	2229	2.39	1085	2472	2.65
2600	976	1811	1.94	1016	2053	2.20	1055	2296	2.46	1093	2539	2.72
2700	986	1881	2.02	1025	2123	2.28	1064	2365	2.54	1103	2609	2.80
2800	995	1954	2.10	1035	2196	2.36	1074	2439	2.62	1113	2682	2.88
2900	1006	2032	2.18	1046	2274	2.44	1084	2516	2.70	1123	2760	2.96
3000	1017	2114	2.27	1057	2356	2.53	1095	2598	2.79	1134	2842	3.05
3100	1028	2200	2.36	1068	2442	2.62	1107	2685	2.88	1145	2928	3.14
3200	1040	2292	2.46	1080	2534	2.72	1118	2776	2.98	1157	3020	3.24
3300	1052	2388	2.56	1092	2631	2.82	1130	2873	3.08	1169	3116	3.34
3400	1064	2490	2.67	1104	2732	2.93	1143	2975	3.19	1181	3218	3.45
3500	1076	2597	2.79	1116	2839	3.05	1155	3082	3.31	-	-	-
3600	1089	2710	2.91	1129	2952	3.17	1168	3194	3.43	-	-	-
3700	1102	2828	3.03	1142	3070	3.29	-	-	-	-	-	-
3800	1115	2951	3.17	1155	3193	3.43	-	-	-	-	-	-
3900	1128	3080	3.30	-	-	-	-	-	-	-	-	-
4000	1141	3214	3.45	-	-	-	-	-	-	-	-	-
4100	-	-	-	-	-	-	-	-	-	-	-	-
4200	-	-	-	-	-	-	-	-	-	-	-	-
4300	-	-	-	-	-	-	-	-	-	-	-	-
4400	-	-	-	-	-	-	-	-	-	-	-	-
4500	-	-	-	-	-	-	-	-	-	-	-	-
4600	-	-	-	-	-	-	-	-	-	-	-	-
4700	-	-	-	-	-	-	-	-	-	-	-	-
4800	-	-	-	-	-	-	-	-	-	-	-	-
4900	-	-	-	-	-	-	-	-	-	-	-	-
5000	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
 High horsepower option required.

ZH120 (10 Ton)-Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
2000	679	202	0.22	743	453	0.49	799	700	0.75	849	946	1.01	895	1190	1.28
2100	683	265	0.28	746	516	0.55	803	763	0.82	853	1009	1.08	899	1253	1.34
2200	688	326	0.35	751	577	0.62	808	825	0.89	858	1070	1.15	904	1314	1.41
2300	694	388	0.42	758	638	0.68	814	886	0.95	864	1132	1.21	910	1375	1.48
2400	701	450	0.48	765	701	0.75	821	949	1.02	872	1194	1.28	917	1438	1.54
2500	709	514	0.55	773	765	0.82	829	1013	1.09	880	1258	1.35	925	1502	1.61
2600	718	580	0.62	781	831	0.89	838	1079	1.16	888	1325	1.42	934	1568	1.68
2700	727	650	0.70	791	901	0.97	847	1149	1.23	898	1395	1.50	943	1638	1.76
2800	737	724	0.78	801	975	1.05	857	1223	1.31	908	1468	1.57	953	1712	1.84
2900	748	801	0.86	811	1052	1.13	868	1300	1.39	918	1545	1.66	964	1789	1.92
3000	759	883	0.95	822	1134	1.22	879	1382	1.48	929	1627	1.75	975	1871	2.01
3100	770	970	1.04	834	1221	1.31	890	1469	1.58	940	1714	1.84	986	1958	2.10
3200	782	1061	1.14	845	1312	1.41	902	1560	1.67	952	1805	1.94	998	2049	2.20
3300	794	1158	1.24	857	1409	1.51	914	1657	1.78	964	1902	2.04	1010	2146	2.30
3400	806	1260	1.35	869	1511	1.62	926	1758	1.89	976	2004	2.15	1022	2248	2.41
3500	818	1367	1.47	882	1618	1.74	938	1865	2.00	989	2111	2.26	1034	2355	2.53
3600	831	1479	1.59	894	1730	1.86	951	1978	2.12	1001	2223	2.39	1047	2467	2.65
3700	844	1597	1.71	907	1848	1.98	964	2096	2.25	1014	2341	2.51	1060	2585	2.77
3800	857	1720	1.85	920	1971	2.11	977	2219	2.38	1027	2465	2.64	1073	2708	2.91
3900	870	1849	1.98	933	2100	2.25	990	2348	2.52	1040	2594	2.78	1086	2837	3.04
4000	883	1984	2.13	947	2235	2.40	1003	2483	2.66	1053	2728	2.93	1099	2972	3.19
4100	896	2124	2.28	960	2375	2.55	1016	2623	2.81	1067	2868	3.08	1112	3112	3.34
4200	910	2269	2.43	973	2520	2.70	1030	2768	2.97	1080	3014	3.23	-	-	-
4300	923	2420	2.60	987	2671	2.87	1043	2919	3.13	1093	3165	3.39	-	-	-
4400	937	2577	2.76	1000	2828	3.03	1057	3076	3.30	-	-	-	-	-	-
4500	950	2739	2.94	1014	2990	3.21	-	-	-	-	-	-	-	-	-
4600	964	2906	3.12	1027	3157	3.39	-	-	-	-	-	-	-	-	-
4700	977	3079	3.30	-	-	-	-	-	-	-	-	-	-	-	-
4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹											
	1.2			1.4			1.6			1.8		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
2000	937	1432	1.54	977	1674	1.80	1016	1917	2.06	1055	2160	2.32
2100	941	1495	1.60	981	1737	1.86	1020	1980	2.12	1058	2223	2.39
2200	946	1557	1.67	986	1799	1.93	1025	2041	2.19	1063	2285	2.45
2300	952	1618	1.74	992	1860	2.00	1031	2103	2.26	1070	2346	2.52
2400	959	1680	1.80	999	1923	2.06	1038	2165	2.32	1077	2408	2.58
2500	967	1744	1.87	1007	1987	2.13	1046	2229	2.39	1085	2472	2.65
2600	976	1811	1.94	1016	2053	2.20	1055	2296	2.46	1093	2539	2.72
2700	986	1881	2.02	1025	2123	2.28	1064	2365	2.54	1103	2609	2.80
2800	995	1954	2.10	1035	2196	2.36	1074	2439	2.62	1113	2682	2.88
2900	1006	2032	2.18	1046	2274	2.44	1084	2516	2.70	1123	2760	2.96
3000	1017	2114	2.27	1057	2356	2.53	1095	2598	2.79	1134	2842	3.05
3100	1028	2200	2.36	1068	2442	2.62	1107	2685	2.88	1145	2928	3.14
3200	1040	2292	2.46	1080	2534	2.72	1118	2776	2.98	1157	3020	3.24
3300	1052	2388	2.56	1092	2631	2.82	1130	2873	3.08	1169	3116	3.34
3400	1064	2490	2.67	1104	2732	2.93	1143	2975	3.19	1181	3218	3.45
3500	1076	2597	2.79	1116	2839	3.05	1155	3082	3.31	-	-	-
3600	1089	2710	2.91	1129	2952	3.17	1168	3194	3.43	-	-	-
3700	1102	2828	3.03	1142	3070	3.29	-	-	-	-	-	-
3800	1115	2951	3.17	1155	3193	3.43	-	-	-	-	-	-
3900	1128	3080	3.30	-	-	-	-	-	-	-	-	-
4000	1141	3214	3.45	-	-	-	-	-	-	-	-	-
4100	-	-	-	-	-	-	-	-	-	-	-	-
4200	-	-	-	-	-	-	-	-	-	-	-	-
4300	-	-	-	-	-	-	-	-	-	-	-	-
4400	-	-	-	-	-	-	-	-	-	-	-	-
4500	-	-	-	-	-	-	-	-	-	-	-	-
4600	-	-	-	-	-	-	-	-	-	-	-	-
4700	-	-	-	-	-	-	-	-	-	-	-	-
4800	-	-	-	-	-	-	-	-	-	-	-	-
4900	-	-	-	-	-	-	-	-	-	-	-	-
5000	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
 High horsepower option required.

ZH150 (12.5 Ton)-Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	0.2			0.4			0.6			0.8			1.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
3200	782	1061	1.14	845	1312	1.41	902	1560	1.67	952	1805	1.94	998	2049	2.20
3300	794	1158	1.24	857	1409	1.51	914	1657	1.78	964	1902	2.04	1010	2146	2.30
3400	806	1260	1.35	869	1511	1.62	926	1758	1.89	976	2004	2.15	1022	2248	2.41
3500	818	1367	1.47	882	1618	1.74	938	1865	2.00	989	2111	2.26	1034	2355	2.53
3600	831	1479	1.59	894	1730	1.86	951	1978	2.12	1001	2223	2.39	1047	2467	2.65
3700	844	1597	1.71	907	1848	1.98	964	2096	2.25	1014	2341	2.51	1060	2585	2.77
3800	857	1720	1.85	920	1971	2.11	977	2219	2.38	1027	2465	2.64	1073	2708	2.91
3900	870	1849	1.98	933	2100	2.25	990	2348	2.52	1040	2594	2.78	1086	2837	3.04
4000	883	1984	2.13	947	2235	2.40	1003	2483	2.66	1053	2728	2.93	1099	2972	3.19
4100	896	2124	2.28	960	2375	2.55	1016	2623	2.81	1067	2868	3.08	1112	3112	3.34
4200	910	2269	2.43	973	2520	2.70	1030	2768	2.97	1080	3014	3.23	1126	3257	3.49
4300	923	2420	2.60	987	2671	2.87	1043	2919	3.13	1093	3165	3.39	1139	3408	3.66
4400	937	2577	2.76	1000	2828	3.03	1057	3076	3.30	1107	3321	3.56	1153	3565	3.82
4500	950	2739	2.94	1014	2990	3.21	1070	3237	3.47	1120	3483	3.74	1166	3727	4.00
4600	964	2906	3.12	1027	3157	3.39	1084	3405	3.65	1134	3650	3.92	1180	3894	4.18
4700	977	3079	3.30	1041	3329	3.57	1097	3577	3.84	1148	3823	4.10	1193	4066	4.36
4800	991	3256	3.49	1054	3507	3.76	1111	3755	4.03	1161	4001	4.29	1207	4244	4.55
4900	1004	3440	3.69	1068	3691	3.96	1124	3939	4.23	1175	4184	4.49	1220	4428	4.75
5000	1018	3628	3.89	1082	3879	4.16	1138	4127	4.43	1188	4372	4.69	1234	4616	4.95
5100	1032	3822	4.10	1095	4073	4.37	1151	4321	4.64	1202	4566	4.90	1248	4810	5.16
5200	1045	4020	4.31	1109	4271	4.58	1165	4519	4.85	1215	4765	5.11	1261	5008	5.37
5300	1059	4224	4.53	1122	4475	4.80	1179	4723	5.07	1229	4969	5.33	1275	5212	5.59
5400	1072	4433	4.76	1136	4684	5.03	1192	4932	5.29	1242	5177	5.55	-	-	-
5500	1086	4647	4.99	1149	4898	5.25	1205	5146	5.52	-	-	-	-	-	-
5600	1099	4865	5.22	1163	5116	5.49	1219	5364	5.75	-	-	-	-	-	-
5700	1112	5089	5.46	1176	5340	5.73	-	-	-	-	-	-	-	-	-
5800	1126	5317	5.70	-	-	-	-	-	-	-	-	-	-	-	-
5900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Air Flow (CFM)	Available External Static Pressure - IWG ¹														
	1.2			1.4			1.6			1.8			2.0		
	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP	RPM	W	BHP
3200	1040	2292	2.46	1080	2534	2.72	1118	2776	2.98	1157	3020	3.24	1197	3265	3.50
3300	1052	2388	2.56	1092	2631	2.82	1130	2873	3.08	1169	3116	3.34	1209	3361	3.61
3400	1064	2490	2.67	1104	2732	2.93	1143	2975	3.19	1181	3218	3.45	1221	3463	3.72
3500	1076	2597	2.79	1116	2839	3.05	1155	3082	3.31	1194	3325	3.57	1234	3570	3.83
3600	1089	2710	2.91	1129	2952	3.17	1168	3194	3.43	1206	3438	3.69	1246	3683	3.95
3700	1102	2828	3.03	1142	3070	3.29	1180	3312	3.55	1219	3556	3.81	1259	3801	4.08
3800	1115	2951	3.17	1155	3193	3.43	1193	3436	3.69	1232	3679	3.95	1272	3924	4.21
3900	1128	3080	3.30	1168	3322	3.56	1206	3565	3.82	1245	3808	4.09	1285	4053	4.35
4000	1141	3214	3.45	1181	3457	3.71	1220	3699	3.97	1258	3942	4.23	1298	4187	4.49
4100	1154	3354	3.60	1194	3597	3.86	1233	3839	4.12	1272	4082	4.38	1312	4327	4.64
4200	1168	3500	3.75	1208	3742	4.01	1246	3984	4.27	1285	4228	4.54	1325	4473	4.80
4300	1181	3651	3.92	1221	3893	4.18	1260	4135	4.44	1299	4379	4.70	1339	4624	4.96
4400	1195	3807	4.08	1235	4049	4.34	1273	4292	4.60	1312	4535	4.87	1352	4780	5.13
4500	1208	3969	4.26	1248	4211	4.52	1287	4454	4.78	1326	4697	5.04	1366	4942	5.30
4600	1222	4136	4.44	1262	4379	4.70	1300	4621	4.96	1339	4864	5.22	1379	5109	5.48
4700	1235	4309	4.62	1275	4551	4.88	1314	4794	5.14	1353	5037	5.40	1393	5282	5.67
4800	1249	4487	4.81	1289	4729	5.07	1328	4972	5.33	1366	5215	5.59	-	-	-
4900	1263	4670	5.01	1302	4912	5.27	1341	5155	5.53	-	-	-	-	-	-
5000	1276	4859	5.21	1316	5101	5.47	1355	5343	5.73	-	-	-	-	-	-
5100	1290	5052	5.42	1330	5295	5.68	-	-	-	-	-	-	-	-	-
5200	1303	5251	5.63	-	-	-	-	-	-	-	-	-	-	-	-
5300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.

High horsepower option required.

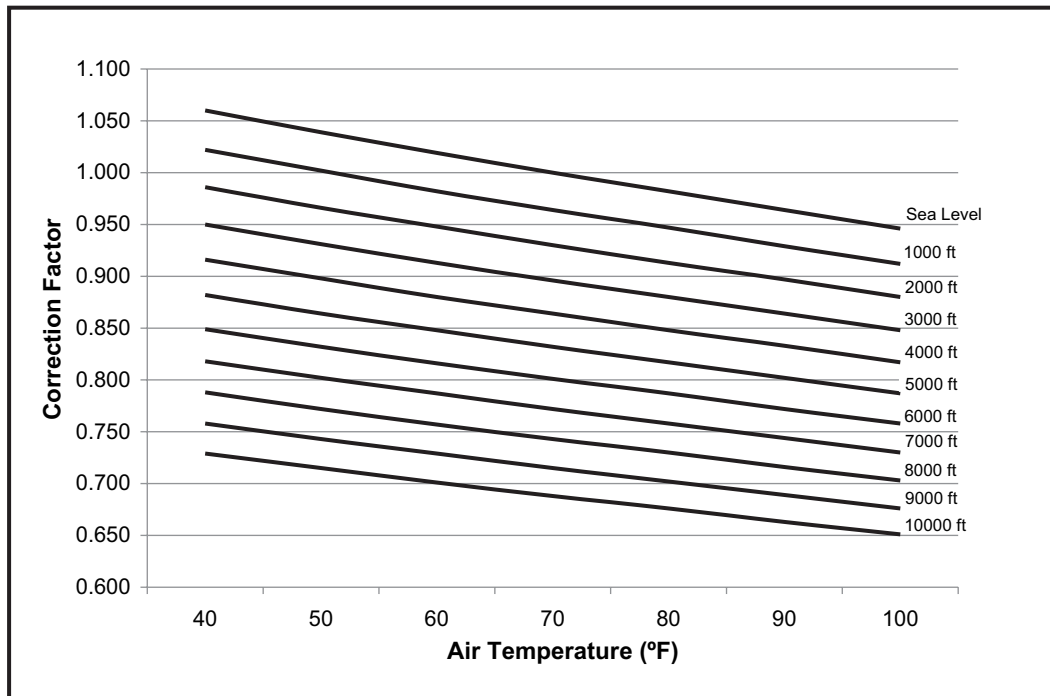
Additional Static Resistance

Size (Tons)	Model	CFM	Cooling Only ¹	Economizer ^{2 3}	Electric Heat kW ²				
					95	18	24	36	54
078 (6.5) 090 (7.5)	ZH	1900	0.00	0.07	0.05	0.06	0.07	0.08	0.10
		2100	-0.01	0.09	0.06	0.07	0.08	0.09	0.11
		2300	-0.01	0.11	0.07	0.08	0.09	0.10	0.13
		2500	-0.02	0.13	0.08	0.09	0.10	0.11	0.14
		2700	-0.03	0.16	0.09	0.10	0.12	0.13	0.16
		2900	-0.04	0.18	0.10	0.11	0.13	0.14	0.18
		3100	-0.05	0.20	0.12	0.13	0.15	0.16	0.20
		3300	-0.06	0.22	0.13	0.14	0.17	0.18	0.22
		3500	-0.07	0.24	0.15	0.16	0.19	0.20	0.24
		3700	-0.08	0.27	0.17	0.18	0.21	0.22	0.26
		3900	-0.09	0.29	0.19	0.20	0.23	0.24	0.28
		4100	-0.09	0.31	0.21	0.22	0.25	0.26	0.31
		4300	-0.10	0.30	0.23	0.24	0.28	0.29	0.34
		4500	-0.11	0.35	0.25	0.26	0.30	0.31	0.37
102 (8.5) 120 (10) 150 (12.5)	ZH	1900	0.06	0.02	0.05	0.06	0.07	0.08	0.10
		2100	0.07	0.02	0.06	0.07	0.08	0.09	0.11
		2300	0.08	0.02	0.07	0.08	0.09	0.10	0.13
		2500	0.09	0.02	0.08	0.09	0.10	0.11	0.14
		2700	0.11	0.03	0.09	0.10	0.12	0.13	0.16
		2900	0.12	0.03	0.10	0.11	0.13	0.14	0.18
		3100	0.14	0.03	0.12	0.13	0.15	0.16	0.20
		3300	0.16	0.03	0.13	0.14	0.17	0.18	0.22
		3500	0.18	0.04	0.15	0.16	0.19	0.20	0.24
		3700	0.20	0.04	0.17	0.18	0.21	0.22	0.26
		3900	0.23	0.04	0.19	0.20	0.23	0.24	0.28
		4100	0.25	0.04	0.21	0.22	0.25	0.26	0.31
		4300	0.28	0.05	0.23	0.24	0.28	0.29	0.34
		4500	0.30	0.05	0.25	0.26	0.30	0.31	0.37
		4700	0.33	0.05	0.28	0.29	0.33	0.34	0.40
		4900	0.36	0.05	0.30	0.31	0.35	0.37	0.43
		5100	0.39	0.06	0.33	0.34	0.38	0.40	0.46
		5300	0.42	0.06	0.35	0.37	0.41	0.43	0.49
		5500	0.45	0.06	0.38	0.40	0.44	0.46	0.53
		5700	0.48	0.06	0.41	0.43	0.47	0.49	0.56
5900	0.52	0.07	0.44	0.46	0.50	0.53	0.59		
6100	0.56	0.07	0.47	0.49	0.53	0.56	0.62		
6300	0.60	0.07	0.50	0.53	0.56	0.59	0.65		

1. Add these values to the available static resistance in the respective Blower Performance Tables.
2. Deduct these values from the available external static pressure shown in the respective Blower Performance Tables.
3. The pressure drop through the economizer is greater for 100% outdoor air than for 100% return air. If the resistance of the return air duct is less than 0.25 IWG, the unit will deliver less CFM during full economizer operation.

Altitude/Temperature Correction Factors

Air Temp.	Altitude (Ft.)										
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
40	1.060	1.022	0.986	0.950	0.916	0.882	0.849	0.818	0.788	0.758	0.729
50	1.039	1.002	0.966	0.931	0.898	0.864	0.832	0.802	0.772	0.743	0.715
60	1.019	0.982	0.948	0.913	0.880	0.848	0.816	0.787	0.757	0.729	0.701
70	1.000	0.964	0.930	0.896	0.864	0.832	0.801	0.772	0.743	0.715	0.688
80	0.982	0.947	0.913	0.880	0.848	0.817	0.787	0.758	0.730	0.702	0.676
90	0.964	0.929	0.897	0.864	0.833	0.802	0.772	0.744	0.716	0.689	0.663
100	0.946	0.912	0.880	0.848	0.817	0.787	0.758	0.730	0.703	0.676	0.651



Gas Heat Minimum Supply Air

Size (Tons)	Model	Heat Size	Supply Air (CFM)			
			Cooling		Heating	
			Min	Max	Min	Max
078 (6.5)	ZH	10	1950	3250	1950	3250
		15	1950	3250	1950	3250
090 (7.5)	ZH	10	2250	3750	2250	3750
		15	2250	3750	2250	3750
102 (8.5)	ZH	10	2550	4250	2550	4250
		15	2550	4250	2550	4250
120 (10)	ZH	15	3000	5000	3000	5000
		20	3000	5000	3000	5000
150 (12.5)	ZH	15	3750	6250	3750	6250
		20	3750	6250	3750	6250

Electric Heat Minimum Supply Air

Size (Tons)	Model	Voltage	Minimum Supply Air (CFM)				
			Heater kW				
			9	18	24	36	54
078 (6.5)	ZH	208/230-3-60	1950	1950	1950	1950	-
		460-3-60	1950	1950	1950	1950	-
		600-3-60	1950	1950	1950	1950	-
090 (7.5)	ZH	208/230-3-60	2250	2250	2250	2250	-
		460-3-60	2250	2250	2250	2250	-
		600-3-60	2250	2250	2250	2250	-
102 (8.5)	ZH	208/230-3-60	2550	2550	2550	2550	-
		460-3-60	2550	2550	2550	2550	-
		600-3-60	2550	2550	2550	2550	-
120 (10)	ZH	208/230-3-60	-	3000	3000	3000	3500
		460-3-60	-	3000	3000	3000	3000
		600-3-60	-	3000	3000	3000	3500
150 (12.5)	ZH	208/230-3-60	-	3750	3750	3750	4000
		460-3-60	-	3750	3750	3750	3750
		600-3-60	-	3750	3750	3750	3750

Indoor Blower Specifications

Size (Tons)	Model	Motor					Motor Sheave			Blower Sheave			Belt
		HP	RPM	Eff.	SF	Frame	Datum Dia. (in.)	Bore (in.)	Model	Datum Dia. (in.)	Bore (in.)	Model	
078 (6.5)	ZH	1-1/2	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	7.0	1	AK74	A49
		2	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	6.2	1	AK66	A49
090 (7.5)	ZH	2	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	6.5	1	AK69	A49
		3	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	6.0	1	AK64	A49
102 (8.5)	ZH	2	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	8.5	1	AK89	A56
		3	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	7.0	1	AK74	A54
120 (10)	ZH	2	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	8.0	1	AK84	A56
		3	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	7.0	1	AK74	A54
150 (12.5)	ZH	3	1725	0.8	1.15	56	3.4 - 4.4	7/8	1VM50	7.0	1	AK74	A54
		5	1725	0.87	1.15	184T	4.3 - 5.3	1-1/8	1VP56	6.7	1	BK77	BX55

Power Exhaust Specifications

Model	Voltage	Motor			Motor			Fuse Size	CFM @ 0.1 ESP
		HP	RPM ¹	QTY	LRA	FLA	MCA		
2PE04703225	208/230-1-60	3/4	1075	1	7.8	5	6.3	10	3800
2PE04703246	460-1-60	3/4	1075	1	3.4	2.2	2.8	5	3800
2PE04703258	575-1-60	3/4	1050	1	2.9	1.5	1.9	4	3800

1. Motors are multi-tapped and factory wired for high speed.

Electric Heat Multipliers

Voltage		kW Capacity Multipliers ¹
Nominal	Applied	
240	208	0.75
	230	0.92
480	460	0.92
600	575	0.92

1. Electric heaters are rated at nominal voltage. Use this table to determine the electric heat capacity for heaters applied at lower voltages.

Sound Performance

Indoor Sound Power Levels

Size (Tons)	Model	CFM	ESP (IWG)	Blower		Sound Power, dB (10 ⁻¹²) Watts								
						Sound Rating ¹ dB (A)	Octave Band Centerline Frequency (Hz)							
							63	125	250	500	1000	2000	4000	8000
078 (6.5)	ZH	2600	0.6	812	1.14	74	71	73	73	71	69	65	65	60
090 (7.5)	ZH	3000	0.6	854	1.47	77	74	76	76	74	72	68	68	63
102 (8.5)	ZH	3400	0.6	872	1.65	80	77	79	79	77	75	71	71	66
120 (10)	ZH	4000	0.6	959	2.29	83	80	82	82	80	78	74	74	69
150 (12.5)	ZH	5000	0.6	1132	3.74	87	84	86	86	84	82	78	78	73

1. These values have been accessed using a model of sound propagation from a point source into the hemispheric/free field. The dBA values provided are to be used for reference only. Calculation of dBA values cover matters of system design and the fan manufacture has no way of knowing the details of each system. This constitutes an exception to any specification or guarantee requiring a dBA value of sound data in any other form than sound power level ratings.

Outdoor Sound Power Levels

Size (Tons)	Model	Sound Rating ¹ dB (A)	Octave Band Centerline Frequency (Hz)						
			125	250	500	1000	2000	4000	8000
078 (6.5)	ZH	83	88.0	82.5	81.5	78.0	73.0	69.0	62.0
090 (7.5)	ZH	83	89.5	83.5	82.0	78.0	72.5	68.0	60.5
102 (8.5)	ZH	90	93.5	92.5	88.0	84.5	79.0	74.5	68.0
120 (10)	ZH	90	94.0	92.0	88.5	84.5	80.0	75.5	68.5
150 (12.5)	ZH	84	90.0	84.5	81.5	77.5	72.0	68.5	61.5

1. Rated in accordance with ARI 270 standard.

Electrical Data

ZH078-150 Standard Motor - Without Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Exh Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	MCA ¹ w/Pwr Exh (Amps)	Max Fuse ² /Breaker ³ Size (Amps)	Max Fuse ² /Breaker ³ Size w/ Pwr Exh (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	FLA	Model	kW	Stages	Amps				
078 (6.5)	208	12.8	95.0	20.0	1.5	6.2	5.5	0.0	None	-	-	-	38.0	43.5	50	50
									E09	6.8	1	18.9	38.0	43.5	50	50
									E18	13.5	2	37.5	54.6	61.5	60	70
									E24	18.0	2	50.0	70.2	77.1	80	80
									E36	25.5	2	70.8	96.2	103.1	100	110
	230	12.8	95.0	20.0	1.5	6.2	5.5	0.0	None	-	-	-	38.0	43.5	50	50
									E09	9.0	1	22.6	38.0	43.5	50	50
									E18	18.0	2	45.2	61.9	68.8	70	70
									E24	24.0	2	60.2	79.9	86.8	80	90
									E36	34.0	2	85.3	110.0	116.9	110	125
	460	6.4	45.0	10.0	0.8	3.1	2.2	0.0	None	-	-	-	19.1	21.3	25	25
									E09	9.0	1	11.3	19.1	21.3	25	25
									E18	18.0	2	22.6	30.9	33.7	35	35
									E24	24.0	2	30.1	40.0	42.7	40	45
									E36	34.0	2	42.7	55.0	57.7	60	60
	575	5.4	38.0	8.5	0.6	2.4	1.8	0.0	None	-	-	-	15.8	17.6	20	20
									E09	9.0	1	9.0	15.8	17.6	20	20
									E18	18.0	2	18.1	24.7	26.9	25	30
									E24	24.0	2	24.1	31.9	34.1	35	35
									E36	34.0	2	34.1	43.9	46.1	45	50
090 (7.5)	208	14.7	115.0	23.0	1.5	8.2	5.5	0.0	None	-	-	-	44.3	49.8	50	60
									E09	6.8	1	18.9	44.3	49.8	50	60
									E18	13.5	2	37.5	57.1	64.0	60	70
									E24	18.0	2	50.0	72.7	79.6	80	80
									E36	25.5	2	70.8	98.7	105.6	100	110
	230	14.7	115.0	23.0	1.5	8.2	5.5	0.0	None	-	-	-	44.3	49.8	50	60
									E09	9.0	1	22.6	44.3	49.8	50	60
									E18	18.0	2	45.2	64.4	71.3	70	80
									E24	24.0	2	60.2	82.4	89.3	90	90
									E36	34.0	2	85.3	112.5	119.4	125	125
	460	7.7	50.0	12.0	0.8	4.1	2.2	0.0	None	-	-	-	23.0	25.2	30	30
									E09	9.0	1	11.3	23.0	25.2	30	30
									E18	18.0	2	22.6	32.2	34.9	35	35
									E24	24.0	2	30.1	41.2	44.0	45	45
									E36	34.0	2	42.7	56.2	59.0	60	60
	575	6.4	40.0	10.0	0.6	3.6	1.8	0.0	None	-	-	-	19.2	21.0	25	25
									E09	9.0	1	9.0	19.2	21.0	25	25
									E18	18.0	2	18.1	26.2	28.4	30	30
									E24	24.0	2	24.1	33.4	35.6	35	40
									E36	34.0	2	34.1	45.4	47.6	50	50
102 (8.5)	208	16.0	120.0	25.0	3.5	8.2	5.5	0.0	None	-	-	-	51.2	56.7	60	70
									E09	6.8	1	18.9	51.2	56.7	60	70
									E18	13.5	2	37.5	57.1	64.0	60	70
									E24	18.0	2	50.0	72.7	79.6	80	80
									E36	25.5	2	70.8	98.7	105.6	100	110
	230	16.0	120.0	25.0	3.5	8.2	5.5	0.0	None	-	-	-	51.2	56.7	60	70
									E09	9.0	1	22.6	51.2	56.7	60	70
									E18	18.0	2	45.2	64.4	71.3	70	80
									E24	24.0	2	60.2	82.4	89.3	90	90
									E36	34.0	2	85.3	112.5	119.4	125	125
	460	8.3	60.0	13.0	1.6	4.1	2.2	0.0	None	-	-	-	26.0	28.2	30	35
									E09	9.0	1	11.3	26.0	28.2	30	35
									E18	18.0	2	22.6	32.2	34.9	35	35
									E24	24.0	2	30.1	41.2	44.0	45	45
									E36	34.0	2	42.7	56.2	59.0	60	60
	575	6.7	40.0	10.5	1.3	3.6	1.8	0.0	None	-	-	-	21.3	23.1	25	25
									E09	9.0	1	9.0	21.3	23.1	25	25
									E18	18.0	2	18.1	26.2	28.4	30	30
									E24	24.0	2	24.1	33.4	35.6	35	40
									E36	34.0	2	34.1	45.4	47.6	50	50

ZH078-150 Standard Motor - Without Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Exh Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	MCA ¹ w/Pwr Exh (Amps)	Max Fuse ² / Breaker ³ Size (Amps)	Max Fuse ² / Breaker ³ Size w/ Pwr Exh (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	FLA	Model	kW	Stages	Amps				
120 (10)	208	17.9	120.0	28.0	3.5	8.2	5.5	0.0	None	-	-	-	55.5	61.0	70	70
									E18	13.5	2	37.5	57.1	64.0	70	70
									E24	18.0	2	50.0	72.7	79.6	80	80
									E36	25.5	2	70.8	98.7	105.6	100	110
									E54	40.6	2	112.7	151.1	158.0	175	175
	230	17.9	120.0	28.0	3.5	8.2	5.5	0.0	None	-	-	-	55.5	61.0	70	70
									E18	18.0	2	45.2	64.4	71.3	70	80
									E24	24.0	2	60.2	82.4	89.3	90	90
									E36	34.0	2	85.3	112.5	119.4	125	125
									E54	54.0	2	135.6	140.2	147.0	150	175
	460	9.6	70.0	15.0	1.6	4.1	2.2	0.0	None	-	-	-	28.9	31.1	35	40
									E18	18.0	2	22.6	32.2	34.9	35	40
									E24	24.0	2	30.1	41.2	44.0	45	45
									E36	34.0	2	42.7	56.2	59.0	60	60
									E54	54.0	2	67.8	70.1	72.8	80	80
	575	7.4	53.0	11.5	1.3	3.6	1.8	0.0	None	-	-	-	22.9	24.7	30	30
									E18	18.0	2	18.1	26.2	28.4	30	30
									E24	24.0	2	24.1	33.4	35.6	35	40
									E36	34.0	2	34.1	45.4	47.6	50	50
									E54	54.0	2	54.2	56.5	58.7	70	70
150 (12.5)	208	25.0	149.0	35.0	1.5	10.9	5.5	0.0	None	-	-	-	73.2	78.7	90	100
									E18	13.5	2	37.5	73.2	78.7	90	100
									E24	18.0	2	50.0	76.1	83.0	90	100
									E36	25.5	2	70.8	102.1	109.0	110	110
									E54	40.6	2	112.7	154.5	161.4	175	175
	230	25.0	149.0	35.0	1.5	10.9	5.5	0.0	None	-	-	-	73.2	78.7	90	100
									E18	18.0	2	45.2	73.2	78.7	90	100
									E24	24.0	2	60.2	85.8	92.7	90	100
									E36	34.0	2	85.3	115.9	122.7	125	125
									E54	54.0	2	135.6	143.5	150.4	175	175
	460	11.8	75.0	16.5	0.8	5.3	2.2	0.0	None	-	-	-	35.1	37.3	45	45
									E18	18.0	2	22.6	35.1	37.3	45	45
									E24	24.0	2	30.1	42.7	45.5	45	50
									E36	34.0	2	42.7	57.7	60.5	60	70
									E54	54.0	2	67.8	71.6	74.3	80	80
	575	8.6	54.0	12.0	0.6	4.1	1.8	0.0	None	-	-	-	25.9	27.7	30	35
									E18	18.0	2	18.1	26.8	29.0	30	35
									E24	24.0	2	24.1	34.0	36.2	35	40
									E36	34.0	2	34.1	46.0	48.3	50	50
									E54	54.0	2	54.2	57.1	59.3	70	70

1. Minimum Circuit Ampacity.
2. Dual Element, Time Delay Type.
3. HACR type per NEC.

ZH078-150 Alternate Motor - Without Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Exh Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	MCA ¹ w/Pwr Exh (Amps)	Max Fuse ^{2/} Breaker ³ Size (Amps)	Max Fuse ^{2/} Breaker ³ Size w/ Pwr Exh (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	FLA	Model	kW	Stages	Amps				
078 (6.5)	208	12.8	95.0	20.0	1.5	8.2	5.5	0.0	None	-	-	-	40.0	45.5	50	50
									E09	6.8	1	18.9	40.0	45.5	50	50
									E18	13.5	2	37.5	57.1	64.0	60	70
									E24	18.0	2	50.0	72.7	79.6	80	80
									E36	25.5	2	70.8	98.7	105.6	100	110
	230	12.8	95.0	20.0	1.5	8.2	5.5	0.0	None	-	-	-	40.0	45.5	50	50
									E09	9.0	1	22.6	40.0	45.5	50	50
									E18	18.0	2	45.2	64.4	71.3	70	80
									E24	24.0	2	60.2	82.4	89.3	90	90
									E36	34.0	2	85.3	112.5	119.4	125	125
	460	6.4	45.0	10.0	0.8	4.1	2.2	0.0	None	-	-	-	20.1	22.3	25	25
									E09	9.0	1	11.3	20.1	22.3	25	25
E18									18.0	2	22.6	32.2	34.9	35	35	
E24									24.0	2	30.1	41.2	44.0	45	45	
E36									34.0	2	42.7	56.2	59.0	60	60	
575	5.4	38.0	8.5	0.6	3.6	1.8	0.0	None	-	-	-	17.0	18.8	20	20	
								E09	9.0	1	9.0	17.0	18.8	20	20	
								E18	18.0	2	18.1	26.2	28.4	30	30	
								E24	24.0	2	24.1	33.4	35.6	35	40	
								E36	34.0	2	34.1	45.4	47.6	50	50	
090 (7.5)	208	14.7	115.0	23.0	1.5	10.9	5.5	0.0	None	-	-	-	47.0	52.5	60	60
									E09	6.8	1	18.9	47.0	52.5	60	60
									E18	13.5	2	37.5	60.5	67.3	70	70
									E24	18.0	2	50.0	76.1	83.0	80	90
									E36	25.5	2	70.8	102.1	109.0	110	110
	230	14.7	115.0	23.0	1.5	10.9	5.5	0.0	None	-	-	-	47.0	52.5	60	60
									E09	9.0	1	22.6	47.0	52.5	60	60
									E18	18.0	2	45.2	67.8	74.6	70	80
									E24	24.0	2	60.2	85.8	92.7	90	100
									E36	34.0	2	85.3	115.9	122.7	125	125
	460	7.7	50.0	12.0	0.8	5.3	2.2	0.0	None	-	-	-	24.2	26.4	30	30
									E09	9.0	1	11.3	24.2	26.4	30	30
E18									18.0	2	22.6	33.7	36.4	35	40	
E24									24.0	2	30.1	42.7	45.5	45	50	
E36									34.0	2	42.7	57.7	60.5	60	70	
575	6.4	40.0	10.0	0.6	4.1	1.8	0.0	None	-	-	-	19.7	21.5	25	25	
								E09	9.0	1	9.0	19.7	21.5	25	25	
								E18	18.0	2	18.1	26.8	29.0	30	30	
								E24	24.0	2	24.1	34.0	36.2	35	40	
								E36	34.0	2	34.1	46.0	48.3	50	50	
102 (8.5)	208	16.0	120.0	25.0	3.5	10.9	5.5	0.0	None	-	-	-	53.9	59.4	60	70
									E09	6.8	1	18.9	53.9	59.4	60	70
									E18	13.5	2	37.5	60.5	67.3	70	70
									E24	18.0	2	50.0	76.1	83.0	80	90
									E36	25.5	2	70.8	102.1	109.0	110	110
	230	16.0	120.0	25.0	3.5	10.9	5.5	0.0	None	-	-	-	53.9	59.4	60	70
									E09	9.0	1	22.6	53.9	59.4	60	70
									E18	18.0	2	45.2	67.8	74.6	70	80
									E24	24.0	2	60.2	85.8	92.7	90	100
									E36	34.0	2	85.3	115.9	122.7	125	125
	460	8.3	60.0	13.0	1.6	5.3	2.2	0.0	None	-	-	-	27.2	29.4	35	35
									E09	9.0	1	11.3	27.2	29.4	35	35
E18									18.0	2	22.6	33.7	36.4	35	40	
E24									24.0	2	30.1	42.7	45.5	45	50	
E36									34.0	2	42.7	57.7	60.5	60	70	
575	6.7	40.0	10.5	1.3	4.1	1.8	0.0	None	-	-	-	21.8	23.6	25	30	
								E09	9.0	1	9.0	21.8	23.6	25	30	
								E18	18.0	2	18.1	26.8	29.0	30	30	
								E24	24.0	2	24.1	34.0	36.2	35	40	
								E36	34.0	2	34.1	46.0	48.3	50	50	

ZH078-150 Alternate Motor - Without Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Exh Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	MCA ¹ w/Pwr Exh (Amps)	Max Fuse ^{2/} Breaker ³ Size (Amps)	Max Fuse ^{2/} Breaker ³ Size w/ Pwr Exh (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	FLA	Model	kW	Stages	Amps				
120 (10)	208	17.9	120.0	28.0	3.5	10.9	5.5	0.0	None	-	-	-	58.2	63.7	70	80
									E18	13.5	2	37.5	60.5	67.3	70	80
									E24	18.0	2	50.0	76.1	83.0	80	90
									E36	25.5	2	70.8	102.1	109.0	110	110
									E54	40.6	2	112.7	154.5	161.4	175	175
	230	17.9	120.0	28.0	3.5	10.9	5.5	0.0	None	-	-	-	58.2	63.7	70	80
									E18	18.0	2	45.2	67.8	74.6	70	80
									E24	24.0	2	60.2	85.8	92.7	90	100
									E36	34.0	2	85.3	115.9	122.7	125	125
									E54	54.0	2	135.6	143.5	150.4	175	175
	460	9.6	70.0	15.0	1.6	5.3	2.2	0.0	None	-	-	-	30.1	32.3	35	40
									E18	18.0	2	22.6	33.7	36.4	35	40
									E24	24.0	2	30.1	42.7	45.5	45	50
									E36	34.0	2	42.7	57.7	60.5	60	70
									E54	54.0	2	67.8	71.6	74.3	80	80
	575	7.4	53.0	11.5	1.3	4.1	1.8	0.0	None	-	-	-	23.4	25.2	30	30
									E18	18.0	2	18.1	26.8	29.0	30	30
									E24	24.0	2	24.1	34.0	36.2	35	40
									E36	34.0	2	34.1	46.0	48.3	50	50
									E54	54.0	2	54.2	57.1	59.3	70	70
150 (12.5)	208	25.0	149.0	35.0	1.5	16.1	5.5	0.0	None	-	-	-	78.4	83.9	100	100
									E18	13.5	2	37.5	78.4	83.9	100	100
									E24	18.0	2	50.0	82.6	89.5	100	100
									E36	25.5	2	70.8	108.6	115.5	110	125
									E54	40.6	2	112.7	161.0	167.9	175	175
	230	25.0	149.0	35.0	1.5	16.1	5.5	0.0	None	-	-	-	78.4	83.9	100	100
									E18	18.0	2	45.2	78.4	83.9	100	100
									E24	24.0	2	60.2	92.3	99.2	100	100
									E36	34.0	2	85.3	122.4	129.2	125	150
									E54	54.0	2	135.6	150.0	156.9	175	175
	460	11.8	75.0	16.5	0.8	8.1	2.2	0.0	None	-	-	-	37.9	40.1	45	50
									E18	18.0	2	22.6	37.9	40.1	45	50
									E24	24.0	2	30.1	46.2	49.0	50	50
									E36	34.0	2	42.7	61.2	64.0	70	70
									E54	54.0	2	67.8	75.1	77.8	90	90
	575	8.6	54.0	12.0	0.6	6.0	1.8	0.0	None	-	-	-	27.8	29.6	35	35
									E18	18.0	2	18.1	29.2	31.4	35	35
									E24	24.0	2	24.1	36.4	38.6	40	40
									E36	34.0	2	34.1	48.4	50.6	50	60
									E54	54.0	2	54.2	59.5	61.7	70	70

1. Minimum Circuit Ampacity.
2. Dual Element, Time Delay Type.
3. HACR type per NEC.

ZH078-150 Standard Motor - With Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Exh Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	MCA ¹ w/Pwr Exh (Amps)	Max Fuse ² / Breaker ³ Size (Amps)	Max Fuse ² / Breaker ³ Size w/ Pwr Exh (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	FLA	Model	kW	Stages	Amps				
078 (6.5)	208	12.8	95.0	20.0	1.5	6.2	5.5	10.0	None	—	—	—	48.0	53.5	60	60
									E09	6.8	1	18.9	48.0	53.5	60	60
									E18	13.5	2	37.5	67.1	74.0	70	80
									E24	18.0	2	50.0	82.7	89.6	90	90
									E36	25.5	2	70.8	108.7	115.6	110	125
	230	12.8	95.0	20.0	1.5	6.2	5.5	10.0	None	—	—	—	48.0	53.5	60	60
									E09	9.0	1	22.6	48.0	54.2	60	60
									E18	18.0	2	45.2	74.4	81.3	80	90
									E24	24.0	2	60.2	92.4	99.3	100	100
									E36	34.0	2	85.3	122.5	129.4	125	150
	460	6.4	45.0	10.0	0.8	3.1	2.2	5.0	None	—	—	—	24.1	26.3	30	30
									E09	9.0	1	11.3	24.1	26.4	30	30
									E18	18.0	2	22.6	37.2	39.9	40	40
									E24	24.0	2	30.1	46.2	49.0	50	50
									E36	34.0	2	42.7	61.2	64.0	70	70
	575	5.4	38.0	8.5	0.6	2.4	1.8	4.0	None	—	—	—	19.8	21.6	25	25
									E09	9.0	1	9.0	19.8	21.6	25	25
									E18	18.0	2	18.1	29.7	31.9	30	35
									E24	24.0	2	24.1	36.9	39.1	40	40
									E36	34.0	2	34.1	48.9	51.1	50	60
090 (7.5)	208	14.7	115.0	23.0	1.5	8.2	5.5	10.0	None	—	—	—	54.3	59.8	60	70
									E09	6.8	1	18.9	54.3	59.8	60	70
									E18	13.5	2	37.5	69.6	76.5	70	80
									E24	18.0	2	50.0	85.2	92.1	90	100
									E36	25.5	2	70.8	111.2	118.1	125	125
	230	14.7	115.0	23.0	1.5	8.2	5.5	10.0	None	—	—	—	54.3	59.8	60	70
									E09	9.0	1	22.6	54.3	59.8	60	70
									E18	18.0	2	45.2	76.9	83.8	80	90
									E24	24.0	2	60.2	94.9	101.8	100	110
									E36	34.0	2	85.3	125.0	131.9	125	150
	460	7.7	50.0	12.0	0.8	4.1	2.2	5.0	None	—	—	—	28.0	30.2	35	35
									E09	9.0	1	11.3	28.0	30.2	35	35
									E18	18.0	2	22.6	38.4	41.2	40	45
									E24	24.0	2	30.1	47.5	50.2	50	60
									E36	34.0	2	42.7	62.5	65.2	70	70
	575	6.4	40.0	10.0	0.6	3.6	1.8	4.0	None	—	—	—	23.2	25.0	25	30
									E09	9.0	1	9.0	23.2	25.0	25	30
									E18	18.0	2	18.1	31.2	33.4	35	35
									E24	24.0	2	24.1	38.4	40.6	40	45
									E36	34.0	2	34.1	50.4	52.6	60	60
102 (8.5)	208	16.0	120.0	25.0	3.5	8.2	5.5	10.0	None	—	—	—	61.2	66.7	70	80
									E09	6.8	1	18.9	61.2	66.7	70	80
									E18	13.5	2	37.5	69.6	76.5	70	80
									E24	18.0	2	50.0	85.2	92.1	90	100
									E36	25.5	2	70.8	111.2	118.1	125	125
	230	16.0	120.0	25.0	3.5	8.2	5.5	10.0	None	—	—	—	61.2	66.7	70	80
									E09	9.0	1	22.6	61.2	66.7	70	80
									E18	18.0	2	45.2	76.9	83.8	80	90
									E24	24.0	2	60.2	94.9	101.8	100	110
									E36	34.0	2	85.3	125.0	131.9	125	150
	460	8.3	60.0	13.0	1.6	4.1	2.2	5.0	None	—	—	—	31.0	33.2	35	40
									E09	9.0	1	11.3	31.0	33.2	35	40
									E18	18.0	2	22.6	38.4	41.2	40	45
									E24	24.0	2	30.1	47.5	50.2	50	60
									E36	34.0	2	42.7	62.5	65.2	70	70
	575	6.7	40.0	10.5	1.3	3.6	1.8	4.0	None	—	—	—	25.3	27.1	30	30
									E09	9.0	1	9.0	25.3	27.1	30	30
									E18	18.0	2	18.1	31.2	33.4	35	35
									E24	24.0	2	24.1	38.4	40.6	40	45
									E36	34.0	2	34.1	50.4	52.6	60	60

ZH078-150 Standard Motor - With Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Exh Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	MCA ¹ w/Pwr Exh (Amps)	Max Fuse ² / Breaker ³ Size (Amps)	Max Fuse ² / Breaker ³ Size w/ Pwr Exh (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	FLA	Model	kW	Stages	Amps				
120 (10)	208	17.9	120.0	28.0	3.5	8.2	5.5	10.0	None	-	-	-	65.5	71.0	80	80
									E18	13.5	2	37.5	69.6	76.5	80	80
									E24	18.0	2	50.0	85.2	92.1	90	100
									E36	25.5	2	70.8	111.2	118.1	125	125
									E54	40.6	2	112.7	163.6	170.5	175	175
	230	17.9	120.0	28.0	3.5	8.2	5.5	10.0	None	-	-	-	65.5	71.0	80	80
									E18	18.0	2	45.2	76.9	83.8	80	90
									E24	24.0	2	60.2	94.9	101.8	100	110
									E36	34.0	2	85.3	125.0	131.9	125	150
									E54	54.0	2	135.6	152.7	159.5	175	175
	460	9.6	70.0	15.0	1.6	4.1	2.2	5.0	None	-	-	-	33.9	36.1	40	45
									E18	18.0	2	22.6	38.4	41.2	40	45
									E24	24.0	2	30.1	47.5	50.2	50	60
									E36	34.0	2	42.7	62.5	65.2	70	70
									E54	54.0	2	67.8	76.3	79.1	90	90
	575	7.4	53.0	11.5	1.3	3.6	1.8	4.0	None	-	-	-	26.9	28.7	30	35
									E18	18.0	2	18.1	31.2	33.4	35	35
									E24	24.0	2	24.1	38.4	40.6	40	45
									E36	34.0	2	34.1	50.4	52.6	60	60
									E54	54.0	2	54.2	61.5	63.7	70	70
150 (12.5)	208	25.0	149.0	35.0	1.5	10.9	5.5	10.0	None	-	-	-	83.2	88.7	100	110
									E18	13.5	2	37.5	83.2	88.7	100	110
									E24	18.0	2	50.0	88.6	95.5	100	110
									E36	25.5	2	70.8	114.6	121.5	125	125
									E54	40.6	2	112.7	167.0	173.9	175	175
	230	25.0	149.0	35.0	1.5	10.9	5.5	10.0	None	-	-	-	83.2	88.7	100	110
									E18	18.0	2	45.2	83.2	88.7	100	110
									E24	24.0	2	60.2	98.3	105.2	100	110
									E36	34.0	2	85.3	128.4	135.2	150	150
									E54	54.0	2	135.6	156.0	162.9	175	175
	460	11.8	75.0	16.5	0.8	5.3	2.2	5.0	None	-	-	-	40.1	42.3	50	50
									E18	18.0	2	22.6	40.1	42.7	50	50
									E24	24.0	2	30.1	49.0	51.7	50	60
									E36	34.0	2	42.7	64.0	66.7	70	70
									E54	54.0	2	67.8	77.8	80.6	90	90
	575	8.6	54.0	12.0	0.6	4.1	1.8	4.0	None	-	-	-	29.9	31.7	35	40
									E18	18.0	2	18.1	31.8	34.0	35	40
									E24	24.0	2	24.1	39.0	41.2	40	45
									E36	34.0	2	34.1	51.0	53.3	60	60
									E54	54.0	2	54.2	62.1	64.3	70	70

1. Minimum Circuit Ampacity.
2. Dual Element, Time Delay Type.
3. HACR type per NEC.

ZH078-150 Alternate Motor - With Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Exh Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	MCA ¹ w/Pwr Exh (Amps)	Max Fuse ² / Breaker ³ Size (Amps)	Max Fuse ² / Breaker ³ Size w/ Pwr Exh (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	FLA	Model	kW	Stages	Amps				
078 (6.5)	208	12.8	95.0	20.0	1.5	8.2	5.5	10.0	None	—	—	—	50.0	55.5	60	60
									E09	6.8	1	18.9	50.0	55.5	60	60
									E18	13.5	2	37.5	69.6	76.5	70	80
									E24	18.0	2	50.0	85.2	92.1	90	100
									E36	25.5	2	70.8	111.2	118.1	125	125
	230	12.8	95.0	20.0	1.5	8.2	5.5	10.0	None	—	—	—	50.0	55.5	60	60
									E09	9.0	1	22.6	50.0	56.7	60	60
									E18	18.0	2	45.2	76.9	83.8	80	90
									E24	24.0	2	60.2	94.9	101.8	100	110
									E36	34.0	2	85.3	125.0	131.9	125	150
	460	6.4	45.0	10.0	0.8	4.1	2.2	5.0	None	—	—	—	25.1	27.3	30	30
									E09	9.0	1	11.3	25.1	27.7	30	30
									E18	18.0	2	22.6	38.4	41.2	40	45
									E24	24.0	2	30.1	47.5	50.2	50	60
									E36	34.0	2	42.7	62.5	65.2	70	70
	575	5.4	38.0	8.5	0.6	3.6	1.8	4.0	None	—	—	—	21.0	22.8	25	25
									E09	9.0	1	9.0	21.0	22.8	25	25
									E18	18.0	2	18.1	31.2	33.4	35	35
									E24	24.0	2	24.1	38.4	40.6	40	45
									E36	34.0	2	34.1	50.4	52.6	60	60
090 (7.5)	208	14.7	115.0	23.0	1.5	10.9	5.5	10.0	None	—	—	—	57.0	62.5	70	70
									E09	6.8	1	18.9	57.0	62.5	70	70
									E18	13.5	2	37.5	73.0	79.8	80	80
									E24	18.0	2	50.0	88.6	95.5	90	100
									E36	25.5	2	70.8	114.6	121.5	125	125
	230	14.7	115.0	23.0	1.5	10.9	5.5	10.0	None	—	—	—	57.0	62.5	70	70
									E09	9.0	1	22.6	57.0	62.5	70	70
									E18	18.0	2	45.2	80.3	87.1	90	90
									E24	24.0	2	60.2	98.3	105.2	100	110
									E36	34.0	2	85.3	128.4	135.2	150	150
	460	7.7	50.0	12.0	0.8	5.3	2.2	5.0	None	—	—	—	29.2	31.4	35	35
									E09	9.0	1	11.3	29.2	31.4	35	35
									E18	18.0	2	22.6	39.9	42.7	40	45
									E24	24.0	2	30.1	49.0	51.7	50	60
									E36	34.0	2	42.7	64.0	66.7	70	70
	575	6.4	40.0	10.0	0.6	4.1	1.8	4.0	None	—	—	—	23.7	25.5	30	30
									E09	9.0	1	9.0	23.7	25.5	30	30
									E18	18.0	2	18.1	31.8	34.0	35	35
									E24	24.0	2	24.1	39.0	41.2	40	45
									E36	34.0	2	34.1	51.0	53.3	60	60
102 (8.5)	208	16.0	120.0	25.0	3.5	10.9	5.5	10.0	None	—	—	—	63.9	69.4	70	80
									E09	6.8	1	18.9	63.9	69.4	70	80
									E18	13.5	2	37.5	73.0	79.8	80	80
									E24	18.0	2	50.0	88.6	95.5	90	100
									E36	25.5	2	70.8	114.6	121.5	125	125
	230	16.0	120.0	25.0	3.5	10.9	5.5	10.0	None	—	—	—	63.9	69.4	70	80
									E09	9.0	1	22.6	63.9	69.4	70	80
									E18	18.0	2	45.2	80.3	87.1	90	90
									E24	24.0	2	60.2	98.3	105.2	100	110
									E36	34.0	2	85.3	128.4	135.2	150	150
	460	8.3	60.0	13.0	1.6	5.3	2.2	5.0	None	—	—	—	32.2	34.4	40	40
									E09	9.0	1	11.3	32.2	34.4	40	40
									E18	18.0	2	22.6	39.9	42.7	40	45
									E24	24.0	2	30.1	49.0	51.7	50	60
									E36	34.0	2	42.7	64.0	66.7	70	70
	575	6.7	40.0	10.5	1.3	4.1	1.8	4.0	None	—	—	—	25.8	27.6	30	30
									E09	9.0	1	9.0	25.8	27.6	30	30
									E18	18.0	2	18.1	31.8	34.0	35	35
									E24	24.0	2	24.1	39.0	41.2	40	45
									E36	34.0	2	34.1	51.0	53.3	60	60

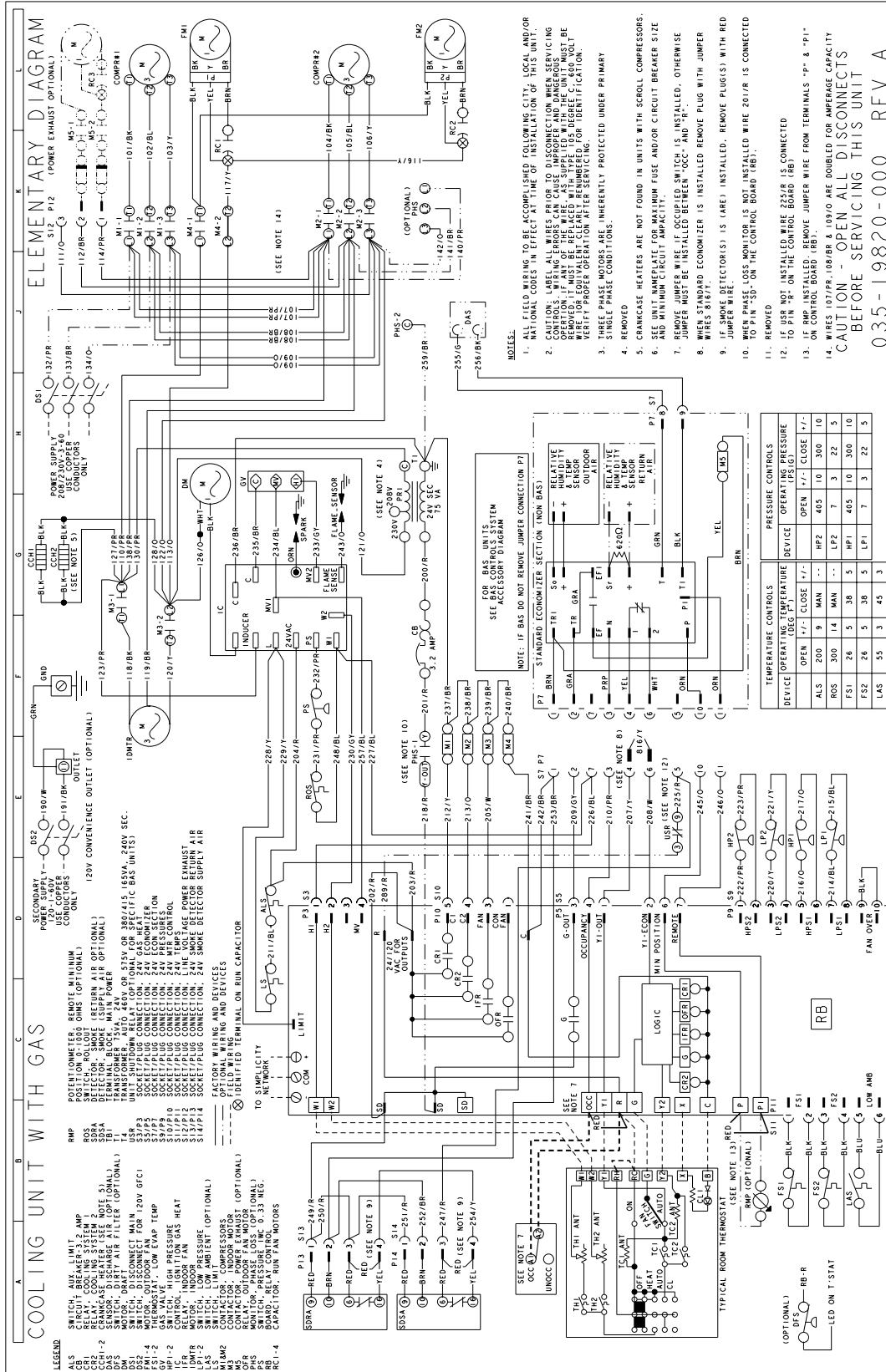
ZH078-150 Alternate Motor - With Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Exh Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	MCA ¹ w/Pwr Exh (Amps)	Max Fuse ² / Breaker ³ Size (Amps)	Max Fuse ² / Breaker ³ Size w/ Pwr Exh (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	FLA	Model	kW	Stages	Amps				
120 (10)	208	17.9	120.0	28.0	3.5	10.9	5.5	10.0	None	-	-	-	68.2	73.7	80	90
									E18	13.5	2	37.5	73.0	79.8	80	90
									E24	18.0	2	50.0	88.6	95.5	90	100
									E36	25.5	2	70.8	114.6	121.5	125	125
									E54	40.6	2	112.7	167.0	173.9	175	175
	230	17.9	120.0	28.0	3.5	10.9	5.5	10.0	None	-	-	-	68.2	73.7	80	90
									E18	18.0	2	45.2	80.3	87.1	90	90
									E24	24.0	2	60.2	98.3	105.2	100	110
									E36	34.0	2	85.3	128.4	135.2	150	150
									E54	54.0	2	135.6	156.0	162.9	175	175
	460	9.6	70.0	15.0	1.6	5.3	2.2	5.0	None	-	-	-	35.1	37.3	40	45
									E18	18.0	2	22.6	39.9	42.7	40	45
									E24	24.0	2	30.1	49.0	51.7	50	60
									E36	34.0	2	42.7	64.0	66.7	70	70
									E54	54.0	2	67.8	77.8	80.6	90	90
	575	7.4	53.0	11.5	1.3	4.1	1.8	4.0	None	-	-	-	27.4	29.2	30	35
									E18	18.0	2	18.1	31.8	34.0	35	35
									E24	24.0	2	24.1	39.0	41.2	40	45
									E36	34.0	2	34.1	51.0	53.3	60	60
									E54	54.0	2	54.2	62.1	64.3	70	70
150 (12.5)	208	25.0	149.0	35.0	1.5	16.1	5.5	10.0	None	-	-	-	88.4	93.9	110	110
									E18	13.5	2	37.5	88.4	93.9	110	110
									E24	18.0	2	50.0	95.1	102.0	110	110
									E36	25.5	2	70.8	121.1	128.0	125	150
									E54	40.6	2	112.7	173.5	180.4	175	200
	230	25.0	149.0	35.0	1.5	16.1	5.5	10.0	None	-	-	-	88.4	93.9	110	110
									E18	18.0	2	45.2	88.4	93.9	110	110
									E24	24.0	2	60.2	104.8	111.7	110	125
									E36	34.0	2	85.3	134.9	141.7	150	150
									E54	54.0	2	135.6	162.5	169.4	175	175
	460	11.8	75.0	16.5	0.8	8.1	2.2	5.0	None	-	-	-	42.9	45.1	50	50
									E18	18.0	2	22.6	43.4	46.2	50	50
									E24	24.0	2	30.1	52.5	55.2	60	60
									E36	34.0	2	42.7	67.5	70.2	70	80
									E54	54.0	2	67.8	81.3	84.1	90	90
	575	8.6	54.0	12.0	0.6	6.0	1.8	4.0	None	-	-	-	31.8	33.6	40	40
									E18	18.0	2	18.1	34.2	36.4	40	40
									E24	24.0	2	24.1	41.4	43.6	45	45
									E36	34.0	2	34.1	53.4	55.6	60	60
									E54	54.0	2	54.2	64.5	66.7	70	70

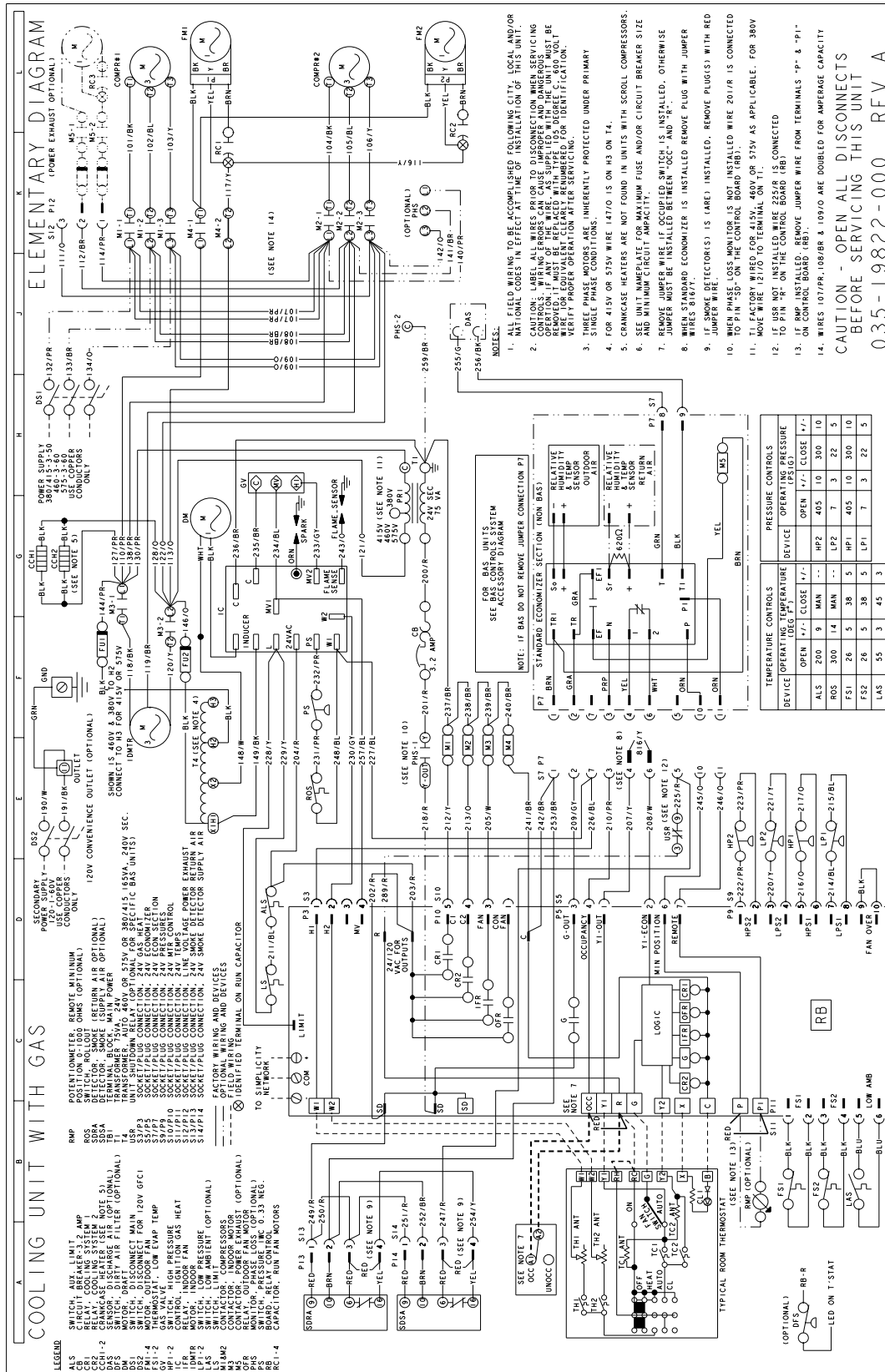
1. Minimum Circuit Ampacity.
2. Dual Element, Time Delay Type.
3. HACR type per NEC.

ZH078-150 Wiring Diagrams

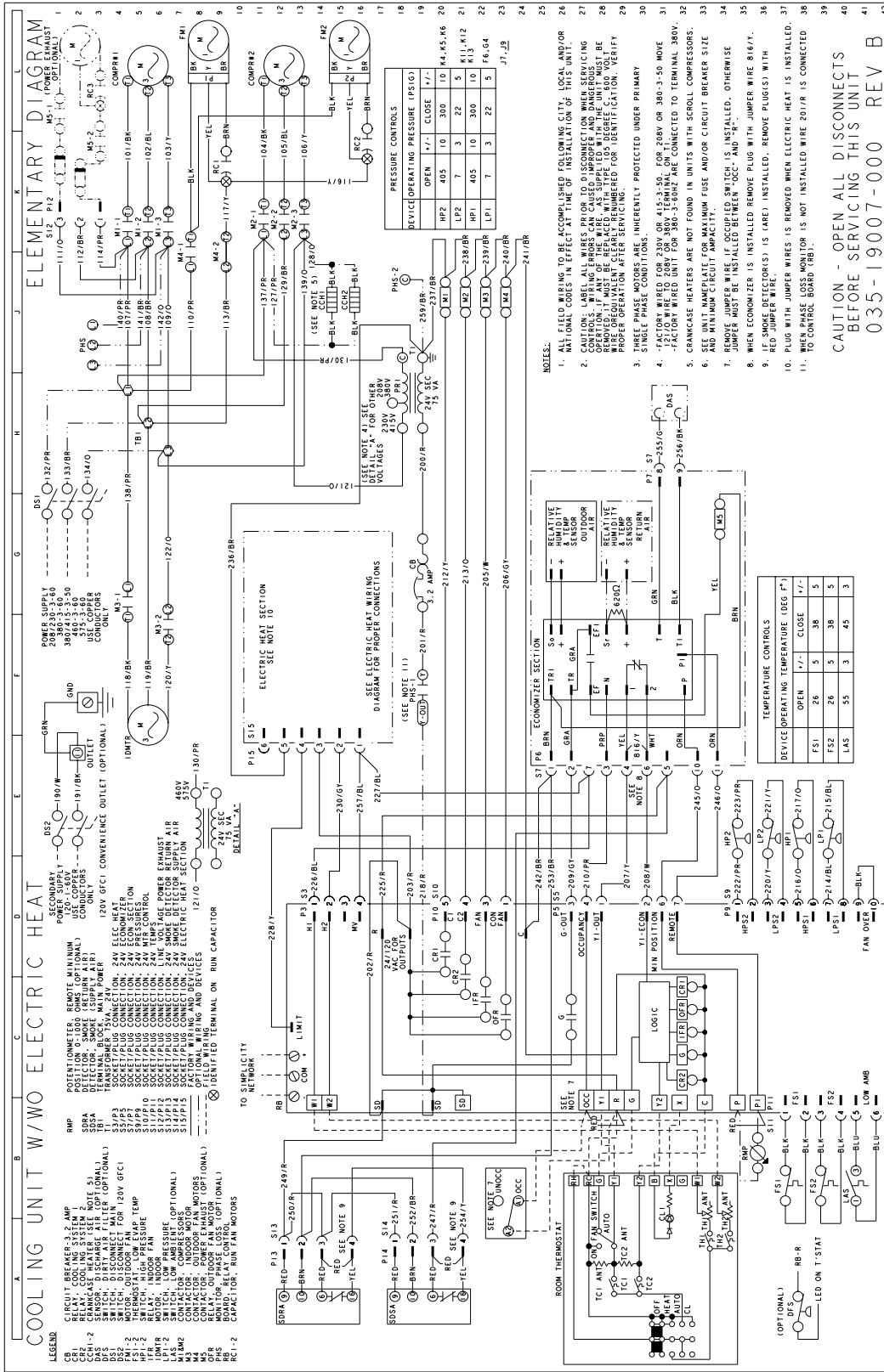
ZH078-120 Cooling Unit with Gas Heat 230 volt Wiring Diagram



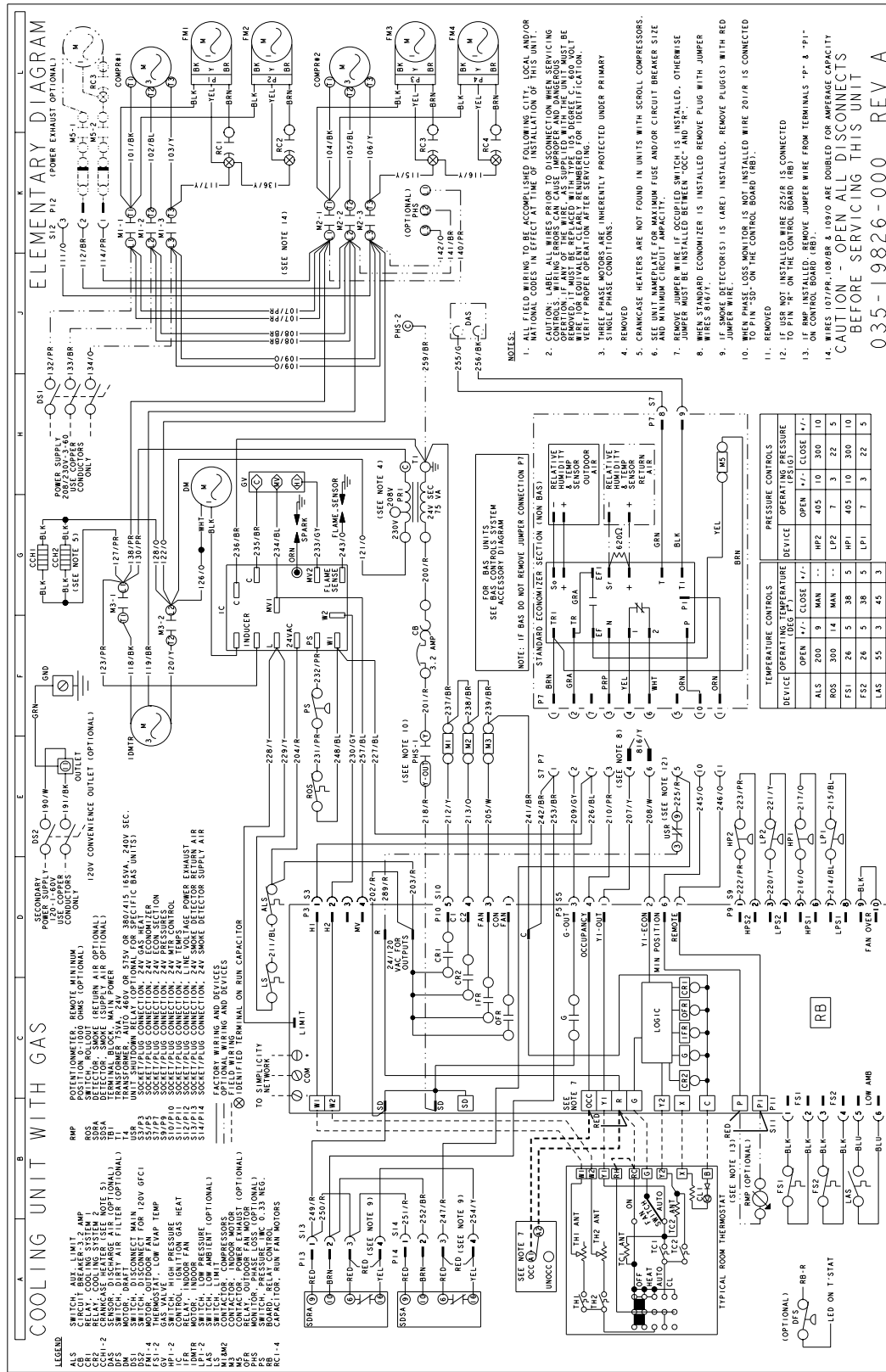
ZH078-120 Cooling Unit with Gas Heat 460/575 volt Wiring Diagram



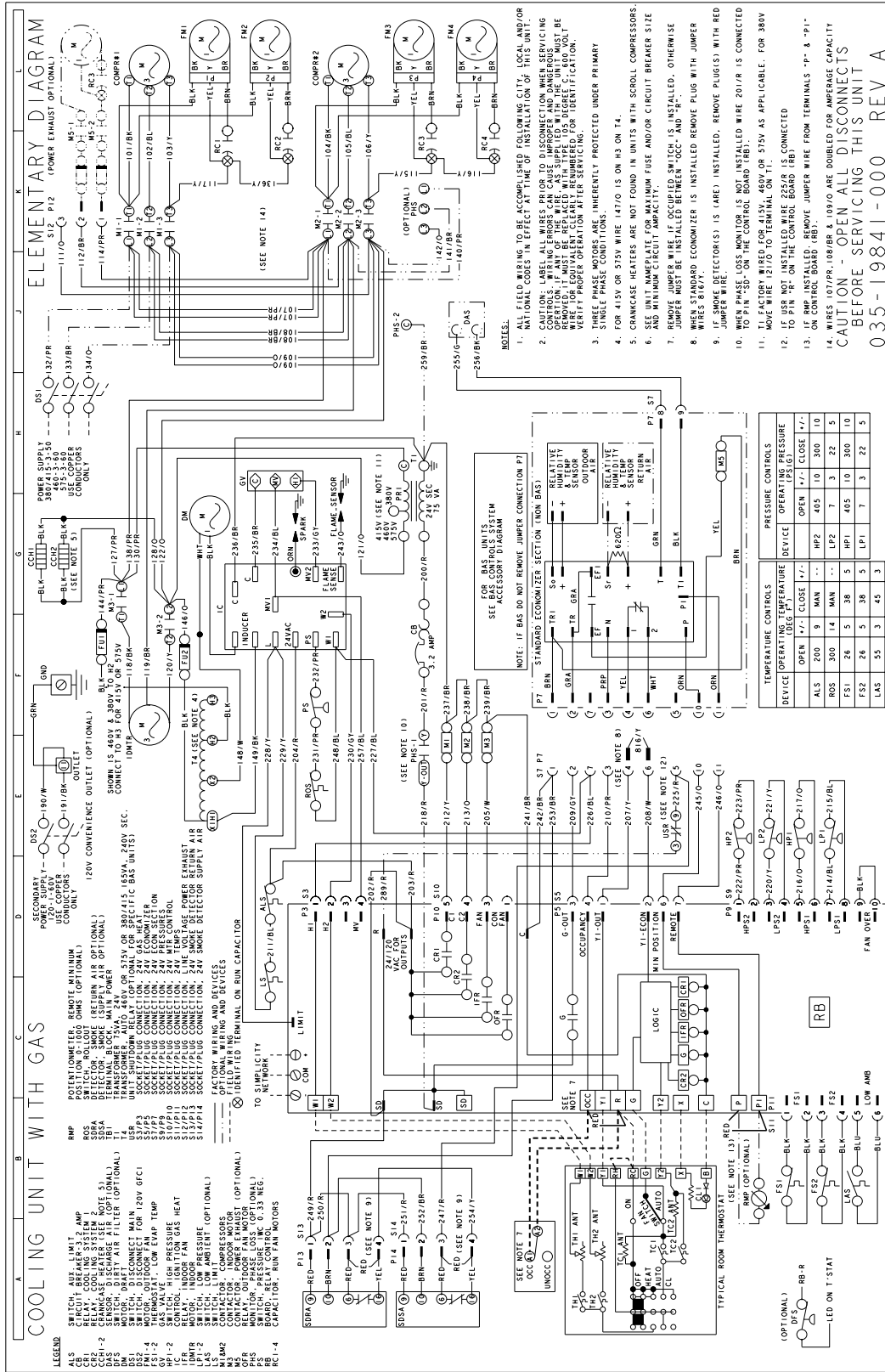
ZH078-120 Cooling Unit with/without Electric Heat Wiring Diagram



ZH150 Cooling Unit with Gas Heat 230 volt Wiring Diagram



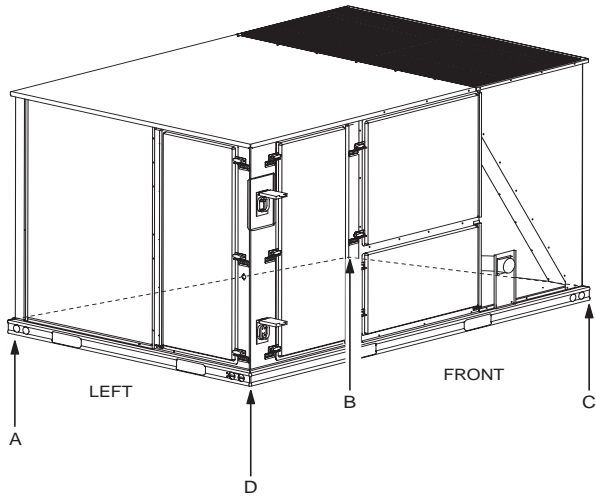
ZH150 Cooling Unit with Gas Heat 460/575 volt Wiring Diagram



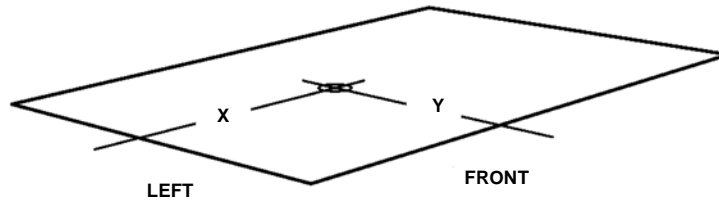
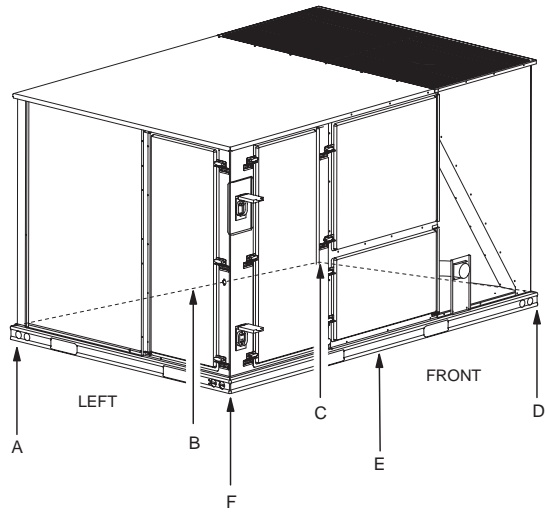
Weights and Dimensions

ZH078-150 Unit Weights

Unit 4 Point Load Weight



Unit 6 Point Load Weight



Size (Tons)	Model	Weight (lbs.)		Center of Gravity		4 Point Load Location (lbs.)				6 Point Load Location (lbs.)					
		Shipping	Operating	X	Y	A	B	C	D	A	B	C	D	E	F
078 (6.5)	ZH	905	900	38	23	201	150	234	315	141	115	95	149	180	221
090 (7.5)	ZH	925	920	38	23	206	153	240	322	144	117	97	152	184	225
102 (8.5)	ZH	1140	1135	38	25.5	281	209	275	369	197	160	133	175	211	259
120 (10)	ZH	1140	1135	38	25.5	281	209	275	369	197	160	133	175	211	259
150 (12.5)	ZH	1405	1400	51	25.5	258	347	456	339	164	198	243	319	260	216

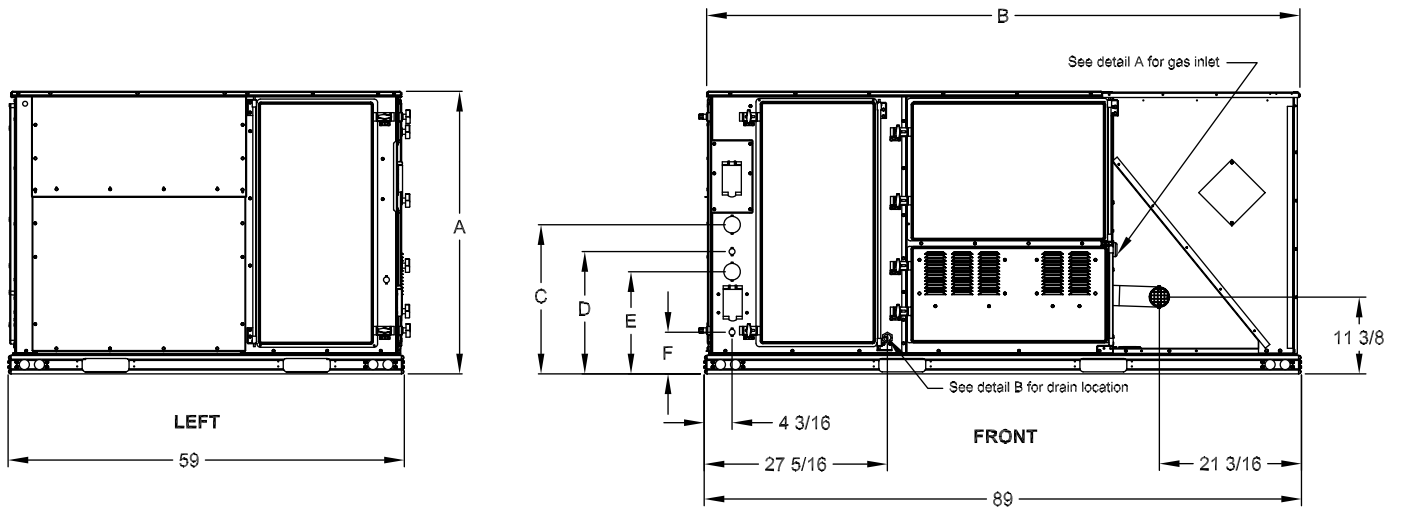
ZH078-150 Unit Accessory Weights

Unit Accessory	Weight (lbs.)	
	Shipping	Operating
Economizer	90	85
Power Exhaust	155	150
Electric Heat ¹	80	80
Gas Heat ²	110	110

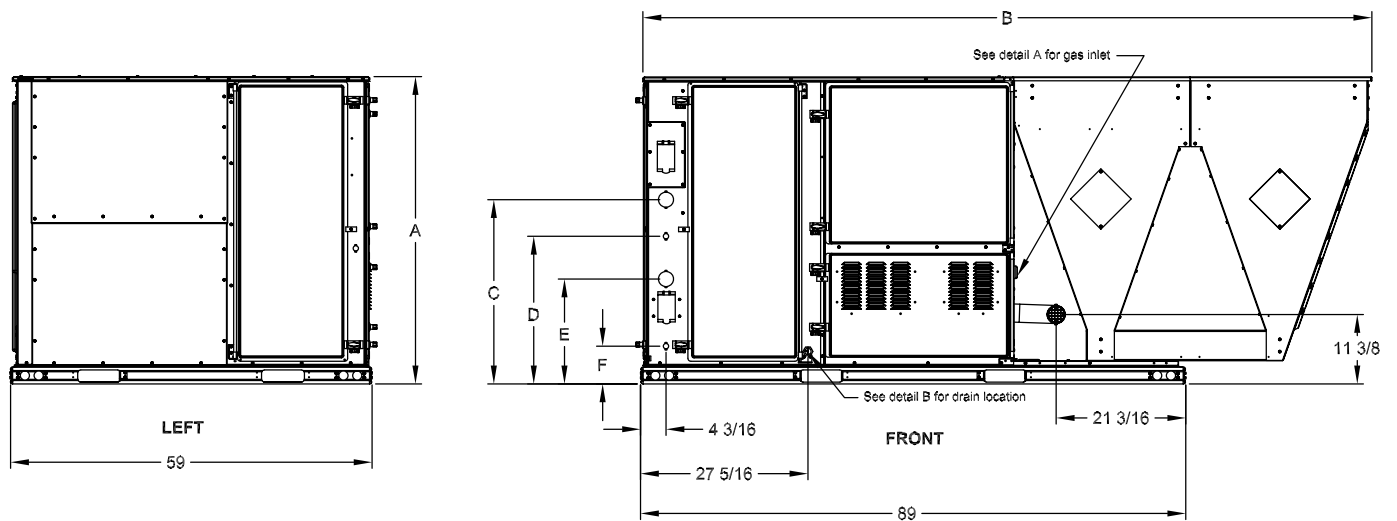
1. Weight given is for the maximum heater size available (54KW).
2. Weight given is for the maximum number of tube heat exchangers available (8 tube).

ZH078-150 Unit Dimensions

ZH078-120



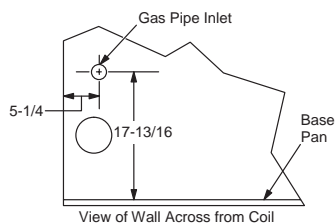
ZH150



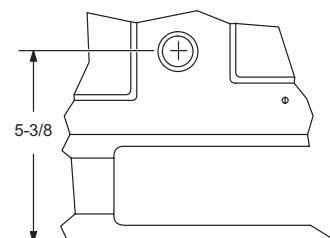
ZH078-150 Unit Physical Dimensions

Unit Model Number	Dimension (in.)					
	A	B	C	D	E	F
ZH078	42	89	22 1/8	18 3/16	15 3/16	6 3/16
ZH090	42	89	22 1/8	18 3/16	15 3/16	6 3/16
ZH102	50 3/4	89	30 3/16	24 3/16	17 3/16	6 3/16
ZH120	50 3/4	89	30 3/16	24 3/16	17 3/16	6 3/16
ZH150	50 3/4	119 1/2	30 3/16	24 3/16	17 3/16	6 3/16

Detail A



Detail B

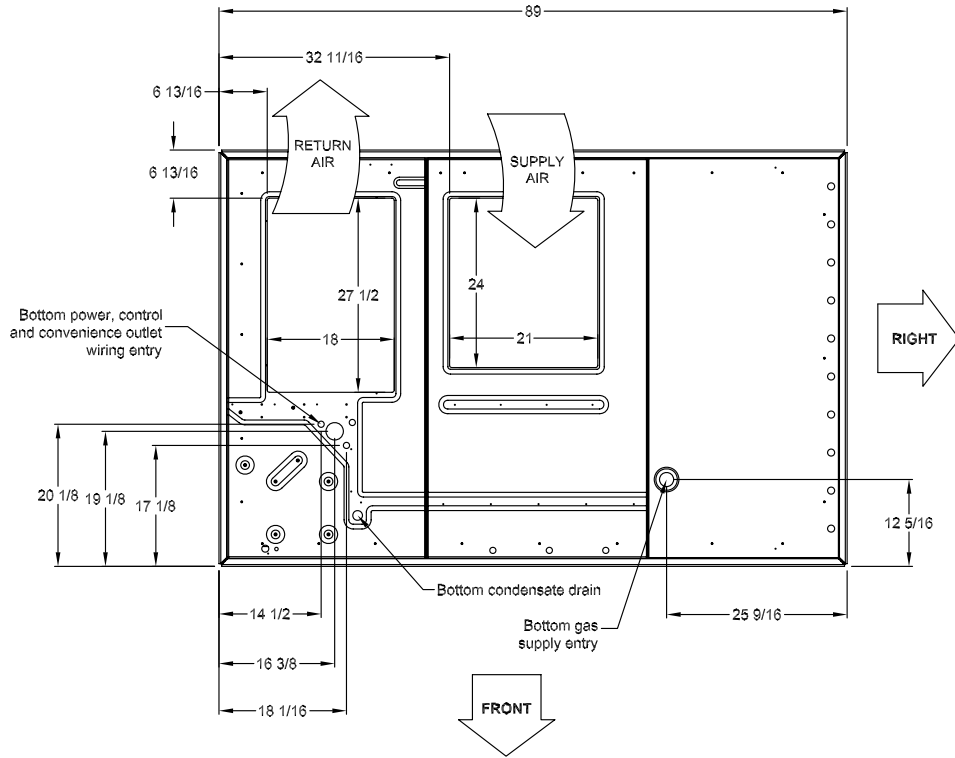


ZH078-150 Unit Clearances

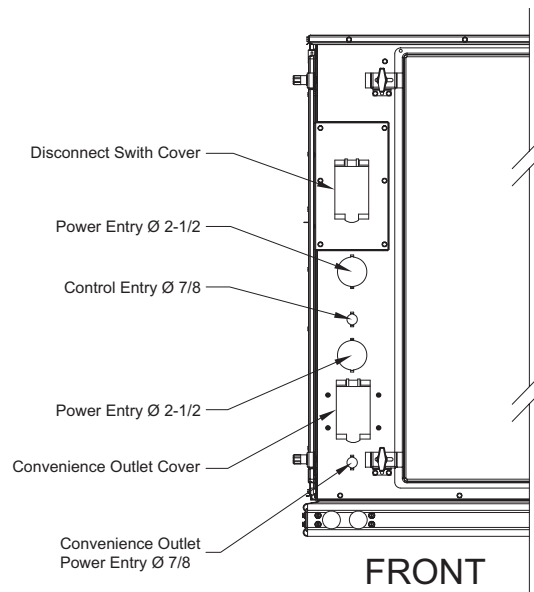
Direction	Distance (in.)	Direction	Distance (in.)
Top ¹	72	Right	12
Front	36	Left	36
Rear	36	Bottom ²	0

1. Units must be installed outdoors. Over hanging structure or shrubs should not obscure condenser air discharge outlet.
2. Units may be installed on combustible floors made from wood or class A, B or C roof covering materials.

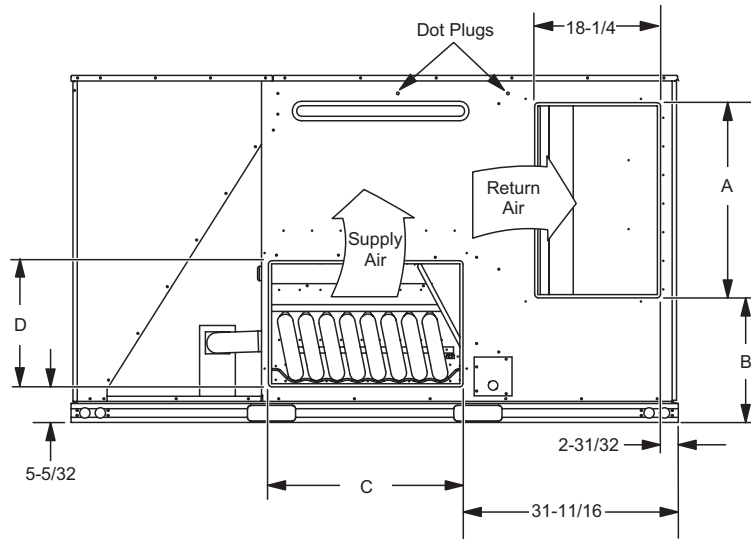
ZH078-150 Unit Bottom Duct Openings



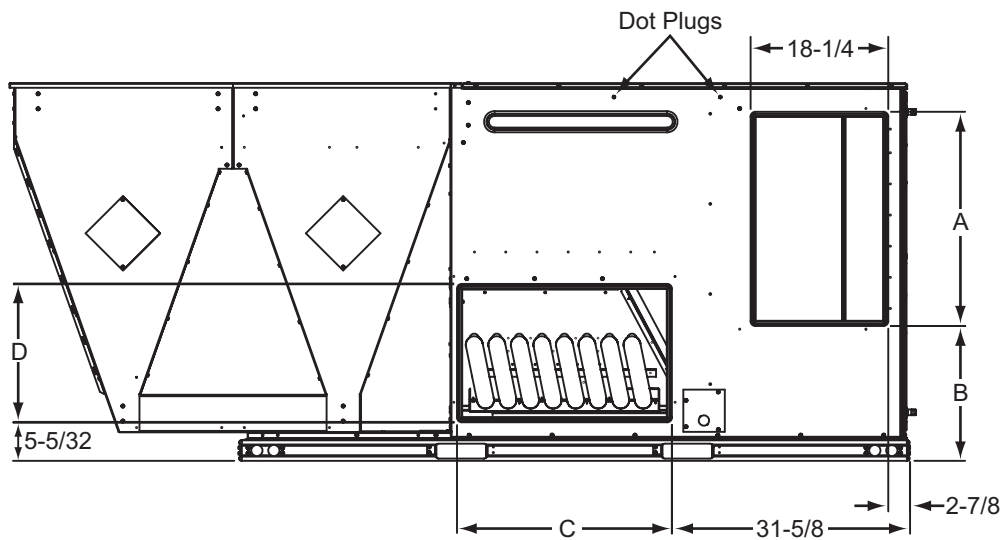
ZH078-150 Unit Electrical Entry



ZH078-120 Unit Side Duct Openings



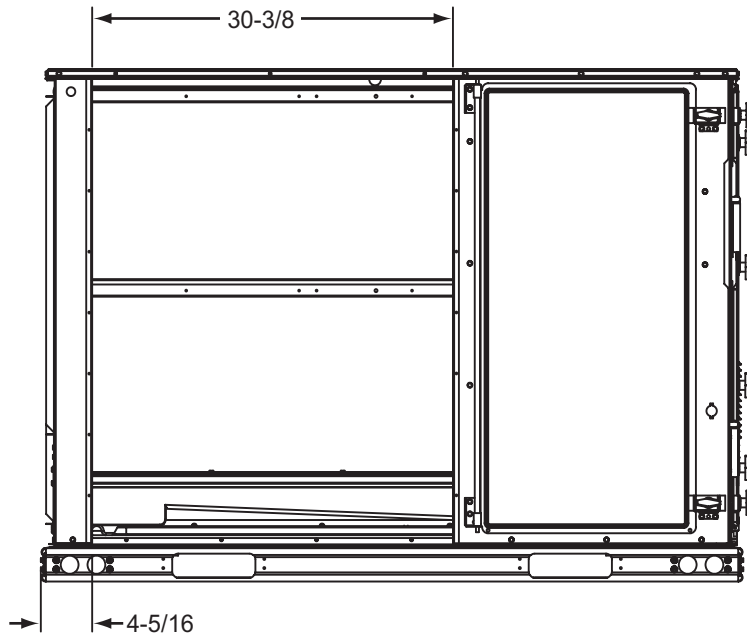
ZH150 Unit Side Duct Openings



Side Duct Dimensions

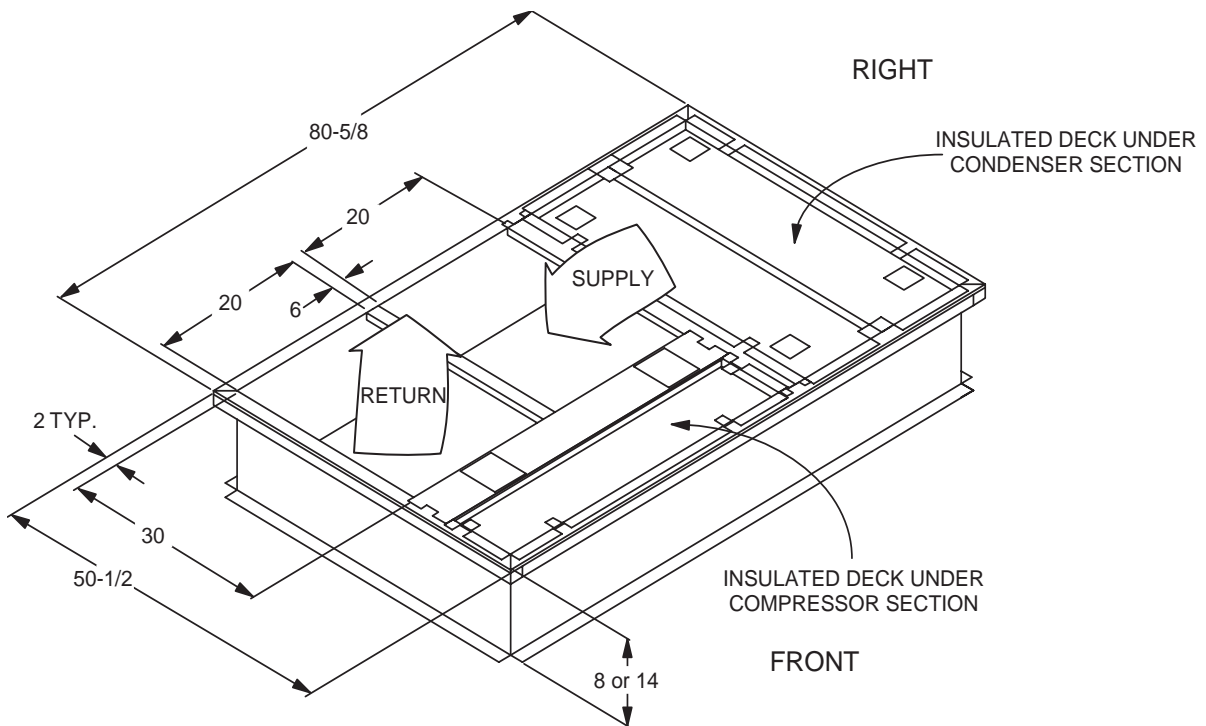
Unit Model Number	Dimension (in.)			
	A	B	C	D
ZH078	27 3/4	12 1/16	27 1/2	16
ZH090	27 3/4	12 1/16	27 1/2	16
ZH102	28 1/4	18 1/16	28 1/4	18 1/4
ZH120	28 1/4	18 1/16	28 1/4	18 1/4
ZH150	28 1/4	18 1/16	28 1/4	18 1/4

ZH078-150 Unit Left Duct Opening

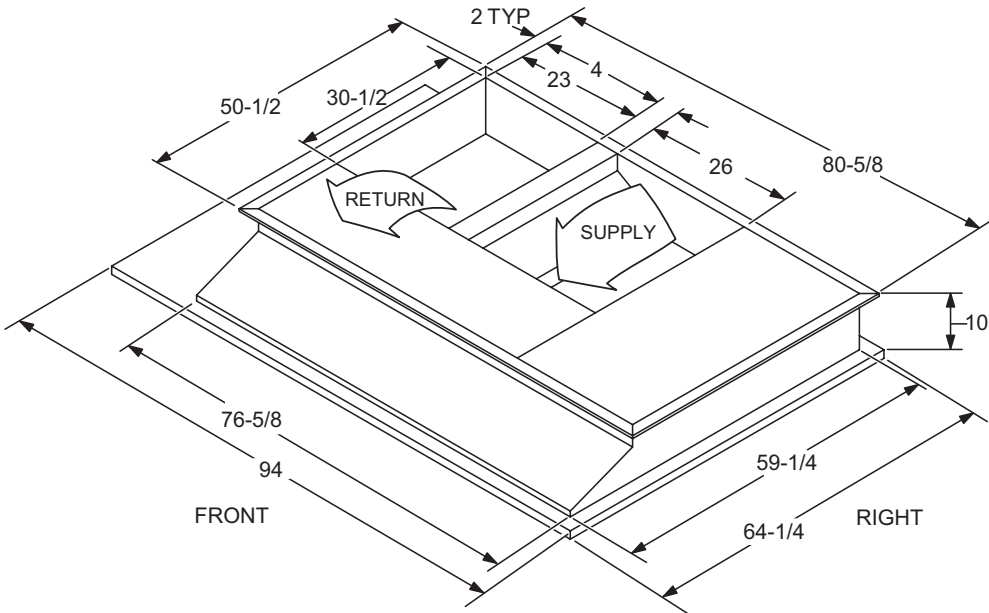


ZH078-150 Unit Accessory Dimensions

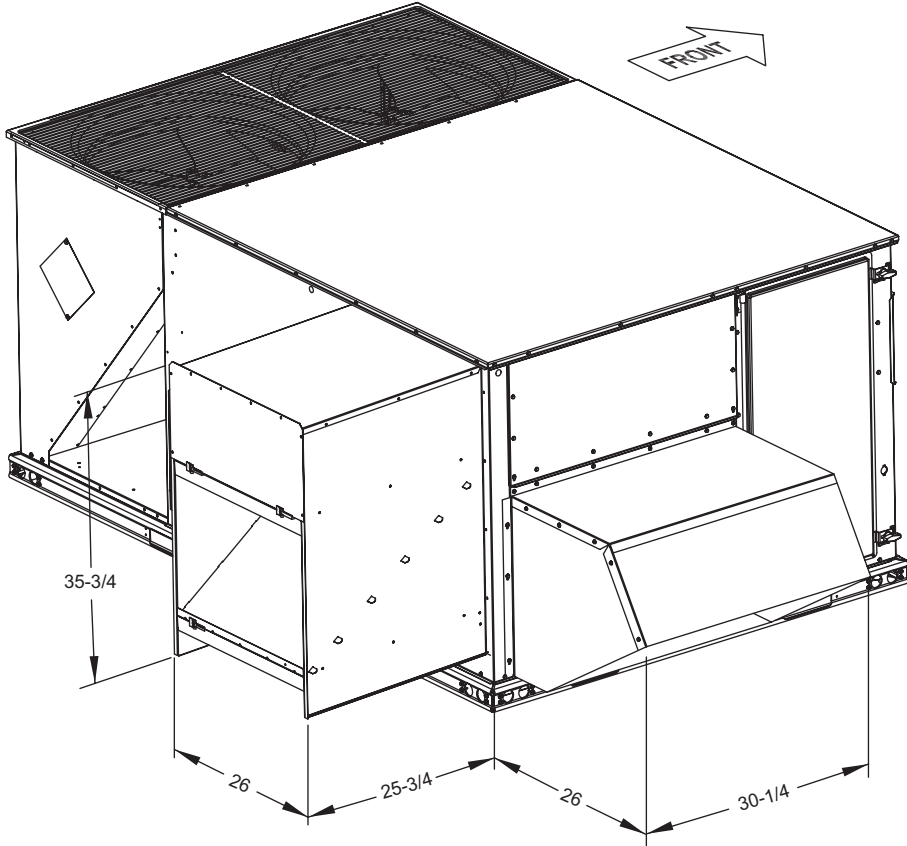
ZH078-150 Roof Curb



ZH078-150 Transition Roof Curb



ZH078-150 Economizer Assembly



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