



## TECHNICAL GUIDE

### R-410A ZJ/ZR/ZF SERIES 15 - 25 TON 60 Hertz



ZJ/ZR Shown

## Description

YORK® ZJ Series Sunline Magnum™ /ZR Series MagnaDRY™/ZF Series Sunline™ units are convertible single package high efficiency rooftops. All models have independent refrigeration circuits for efficient part load operation.

Although the units are primarily designed for curb mounting on a roof, they can also be mounted at ground level or set on steel beams above a finished roof.

All ZJ/ZR/ZF units are self-contained and assembled on rigid full perimeter base rails allowing for overhead rigging. Every unit is completely charged, wired, piped, and tested at the factory to provide a quick and easy field installation.

All models (including those with an economizer) are convertible between bottom and horizontal duct connections.

ZJ/ZR/ZF units are available in the following configurations: cooling only, cooling with electric heat, and cooling with gas heat. Electric heaters are available as field-installed accessory only.

Tested in accordance with:



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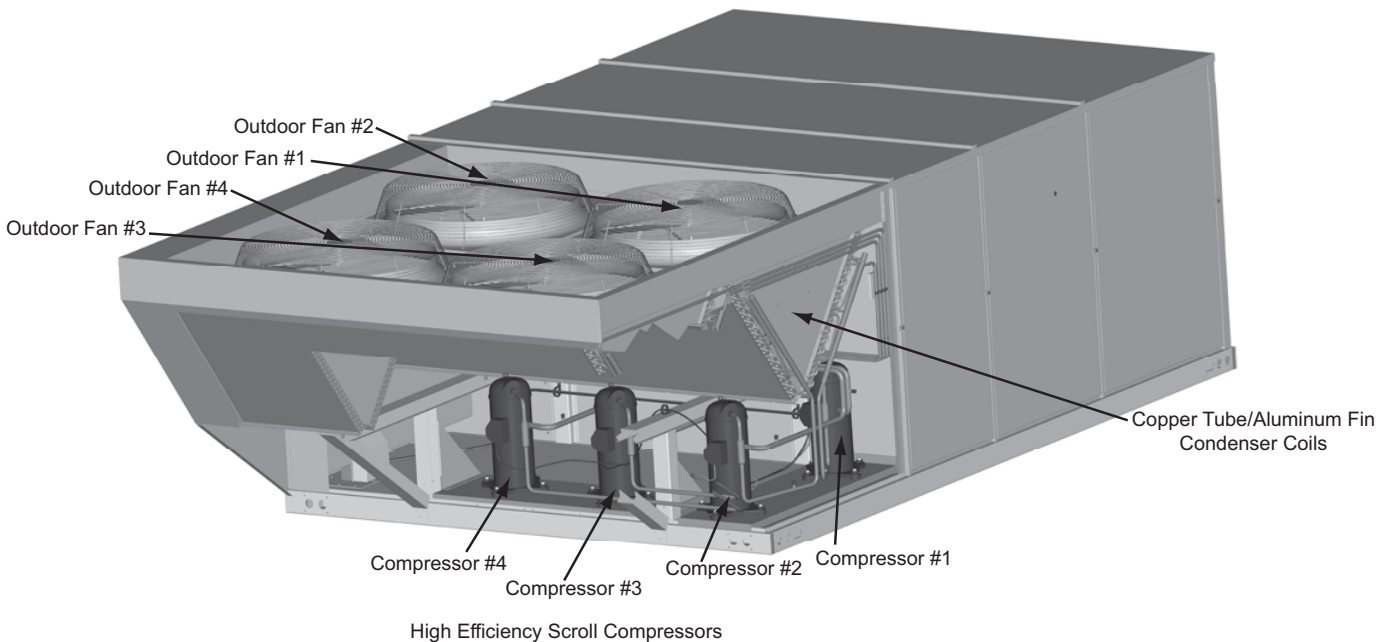
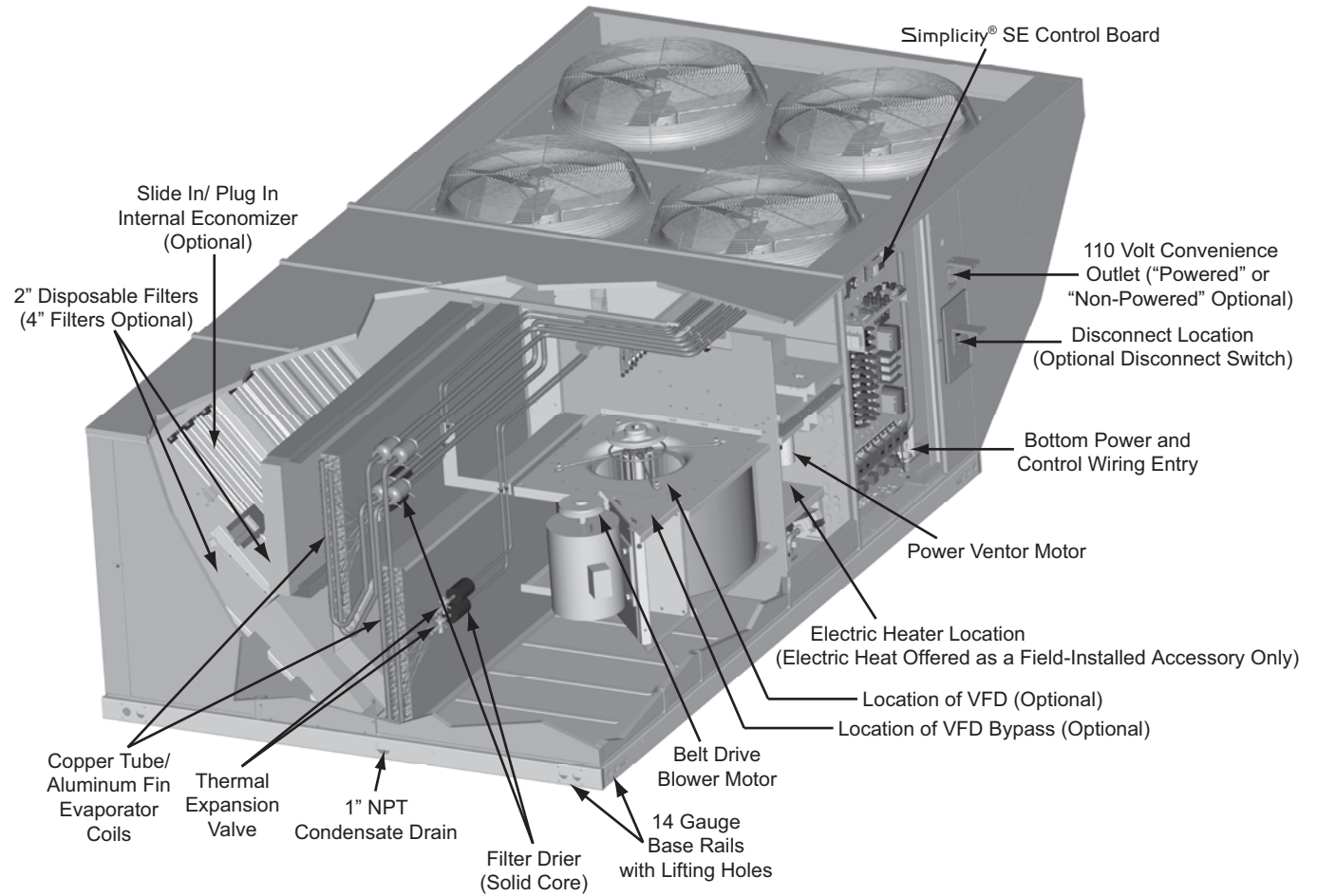
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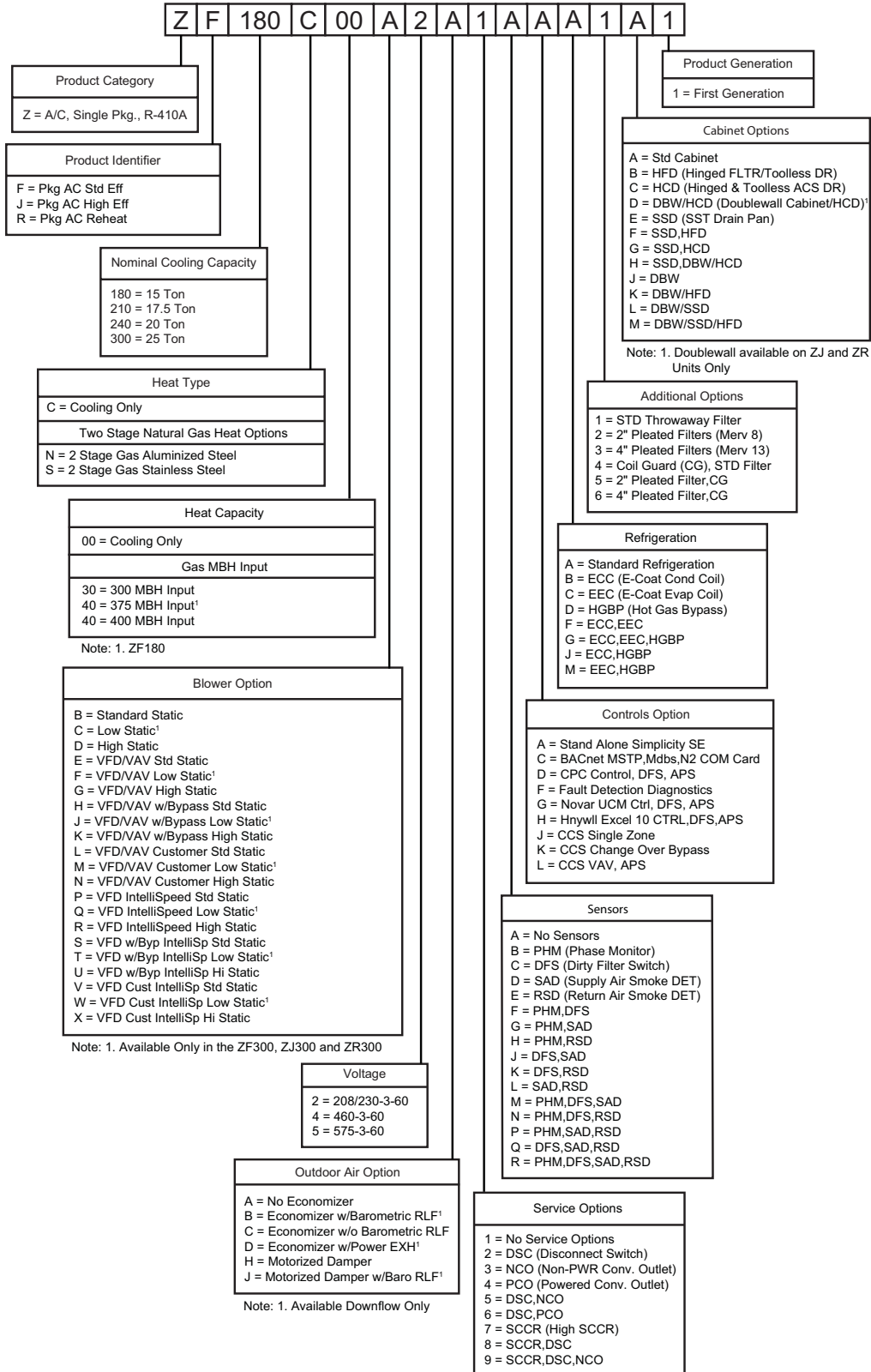
## Component Location

(ZJ shown)



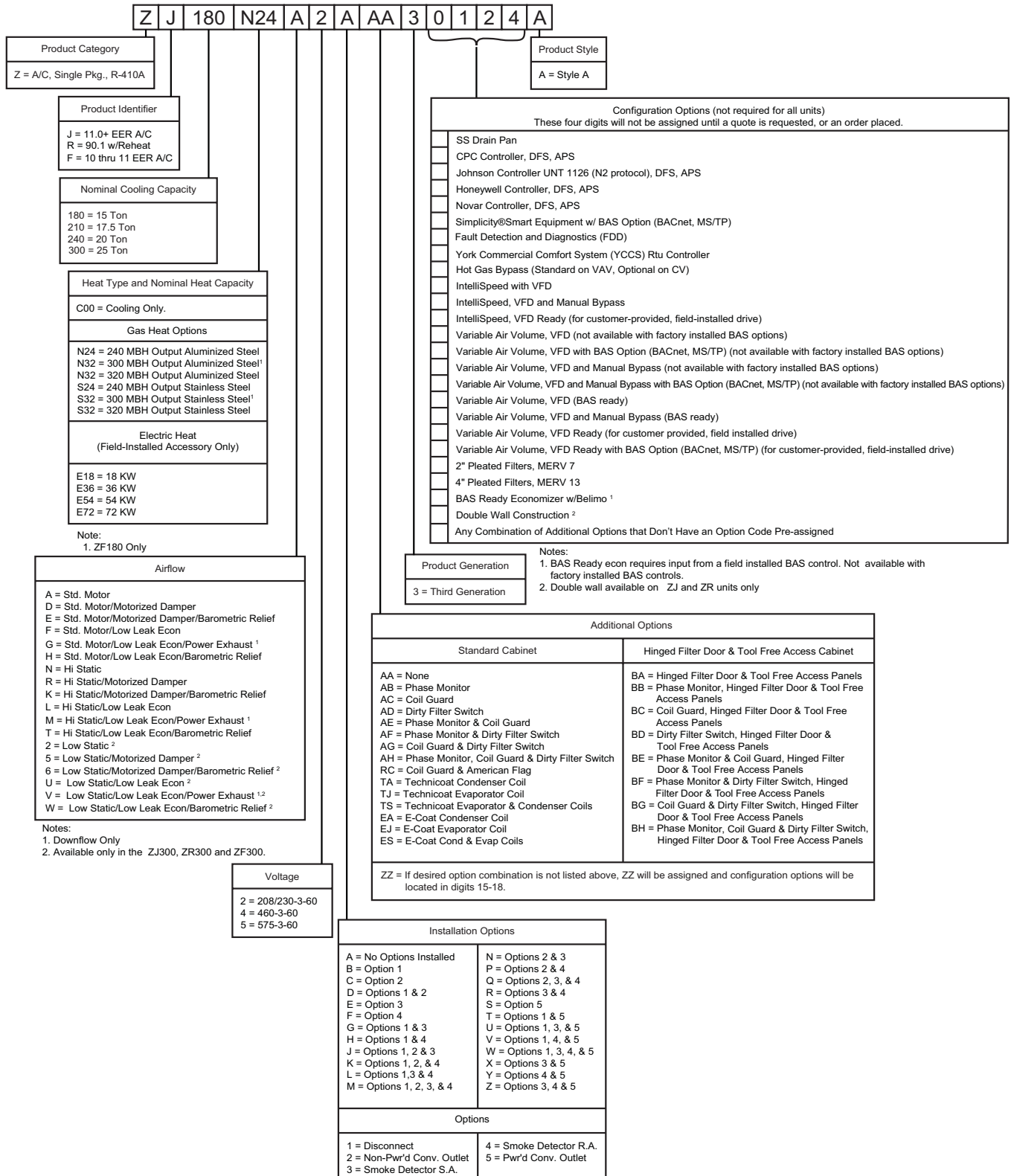
# Nomenclature

## 15-25 Ton York® Model Number Nomenclature



Prior Nomenclature

15-25 Ton Sunline Magnum™ Model Number Nomenclature  
For Units Produced Before 2-01-2016



## Features and Benefits

### Standard Features

- **High Efficiency** - High efficiency units reach as high as 12.2 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.
- **Balanced Heating** -
  - **Gas Heat** - All gas heat units are built with two heating sections for two equal stages of capacity control. Each section includes a durable heat exchanger with aluminized steel or optional stainless steel tubes, a redundant gas valve, spark ignition, power venting, an ignition module for 100% shut-off and all of the safety controls required to meet the latest ANSI standards. The gas supply piping can be routed into the heating compartment through a hole in the base pan of the unit or through a knockout in the piping panel on the front of the unit.
  - **Electric Heat** - All electric heat models (field installed accessory only) are wired for a single power source and include a bank of nickel chromium elements mounted at the discharge of the supply air blower to provide a high velocity and uniform distribution of air across the heating elements. Every element is fully protected against excessive current and temperature by fuses and two thermal limit switches. The power supply wiring can be routed into the control box through a threaded pipe connection in the base pan of the unit or through a knockout in the wiring panel on the front of the unit.
- **Unit Controllers** - York's Sunline™ series offer factory mounted Simplicity® SE UCB, with optional Communication board, a 4-stage board if 4 stages are required, an Economizer board, and an FDD (Fault Detection and Diagnostic) board. A MAP Device can be used to remotely access.
- **Convertible Airflow Design** - All models (including those with an economizer) are suitable for either bottom or horizontal duct connections. **Models with factory installed power exhaust are suitable for bottom duct connections only.** For bottom duct, you remove the sheet metal panels from the supply and return air openings through the base of the unit. For horizontal duct, you replace the supply and return air panels on the rear of the unit with a side duct flange accessory.
- **Factory Mounted Outdoor Air Dampers** - All models are available with these "factory mounted" outdoor air damper options:
  - Dry Bulb economizer with or without power exhaust
  - Motorized outdoor air damper
  - Barometric Relief Damper

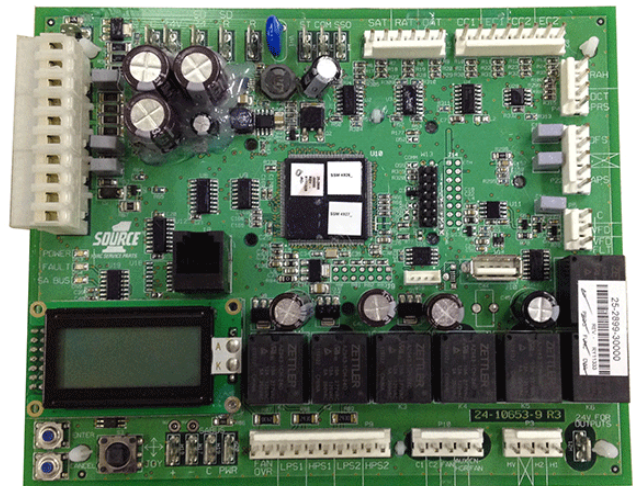
A fixed outdoor air intake assembly will be shipped in the return air compartment of all units ordered without an economizer or motorized outdoor air damper option. The assembly includes a rain hood with a baffle that can be set

for 10, 15 or 25% outdoor air. With bottom duct connections, the fixed outdoor air intake assembly should be mounted over the opening in the return air panel. With horizontal ductwork, it should be mounted on the return air duct.

- **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. Phase Monitors are optional on all units. This accessory monitors the incoming power to the unit and protects the unit from phase loss and reversed phase rotation.
- **Advanced Controls** - ZJ/ZR/ZF Models have Simplicity® SE control boards that standardized a number of features previously available only as options or by utilizing additional controls.

### CAUTION

The Simplicity® SE control board used in this product will effectively operate the cooling system down to 0°F when this product is applied in a comfort cooling application for people. An economizer is typically included in this type of application. When applying this product for process cooling applications (computer rooms, switchgear, etc.), please reference applications bulletin AE-011-07 or call the applications department for Unitary Products @ 1-877-UPG-SERV for guidance. Additional accessories may be needed for stable operation at temperatures below 30°F.



- **Units will come with the new state of the art Simplicity SE (Smart Equipment) control system.** The new unit control incorporates the best of the already proven Simplicity™ unitary controls and creates a more robust, intelligent control. The goal of this control is to utilize

cutting edge technology making the equipment easier to install, operate, and service. All units are Factory commissioned, configured, and run tested.

- **Versatile** - The Simplicity SE control can be configured to use with a standard thermostat (easy to connect screw terminals), A zone sensor, or can be setup to communicate with multiple BAS communication protocols to integrate with building automation systems.
- **Reduce field installed complexity** - Each unit will come equipped with factory installed supply air, return air, and outdoor air temperature sensors providing key temperature readings thus reduce field installed complexity.
- **On-board USB Port** - The new control comes with a long list of features including data logging, current and previous system faults and software update capabilities using the on board USB port and common flash drive. Energy use monitoring capabilities allow custom tailoring to allow a system to work more efficiently at all times and occupancy levels. Self test and start-up reports also available from the board VIA the USB port.
- **Embedded LCD Display** - The board has a easy to read, built-in LCD display and easy to use navigation joystick and buttons allowing the user to quickly navigate the menus displaying unit status, options, current function, supply, return and outdoor temperatures, fault codes and other information.
- **Safety Monitoring** - The control monitors the outdoor, supply, and return air temperatures and the high and low pressure switch status on the independent refrigerant circuits. On units with heating the gas valve and high temperature limit switches are monitored on gas and electric heating units. The control also monitors the voltage supplied to the unit and will protect the unit if low voltage due to a brown out, or other electrical issue occurs.
- **Low Ambient** - An integrated low-ambient control allows units to operate in the cooling mode down to 0°F outdoor ambient without additional components or intervention. 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 control. 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/or heating capacity.
- **Nuisance Trip Protection and Three Strikes** - To prevent nuisance calls, the control board uses a three times, you're out philosophy. The high, low-pressure switch, anti-freeze protection, low voltage or heating high limit must trip three times within two hours before the unit

control board will lock out the associated compressor. An alarm message will be displayed on the LCD screen.

- **Lead-Lag** - An integrated Lead-Lag option allows equal run time hours on all compressors, thereby extending the life of all compressors. This option is selectable on the unit control board.
- **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 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.
- **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 rigging holes 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. 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 supply air blowers are equipped with a belt drive that can be adjusted to meet the exact requirements of the job. A high static drive option is available for applications with a higher CFM and/or static pressure requirement.
- **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 tubular heat exchangers carry a 10 year warranty. Stainless steel heat exchangers a 15 year warranty.

### Factory Installed Options

YORK® offers several equipment options factory installed, for the ZJ/ZR/ZF Series.

- **Dry Bulb Economizers** - All units offer a variety of optional factory installed down flow economizers that are shipped, installed and wired with low leak dampers designed to meet ASHRAE 90.1-2010, AMCA 511 Class 1A damper, and the International Energy Conservation Code (IECC) certification requirements by achieving leakage rates of 3 cfm/sq. ft. at 1" of static pressure. Each economizer goes through a rigorous 60,000 cycle test. Dry bulb, single enthalpy, and dual enthalpy (with field installed kit) can be selected. All economizer options are fully integrated into the Simplicity® SE controls. 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 outdoor air dry bulb temperature or the outdoor air enthalpy input. The dual enthalpy kit provides a second input used to monitor the return air (field installed). The installer needs only to assemble the outdoor air hood, attach the enthalpy control the hood and

mount the hood to the unit (Hood and control are provided).

- **Power Exhaust** - Our economizer options are available with power exhaust. Whenever the outdoor air intake dampers are opened for free cooling, the exhaust fan will be energized to prevent the conditioned space from being over-pressurized during economizer operation.

The exhaust fan, motor and controls are installed and wired at the factory. The rain hood must be assembled and installed in the field.

The power exhaust option can only be used on bottom duct configurations.

- **Motorized Outdoor Air Intake Damper** - Includes a slide-in / plug-in damper assembly with a 2- position, spring return motor actuator which opens to a pre-set position whenever the supply air blower is operating and will drive fully closed when the blower unit shuts down. The rain hood is painted to match the basic unit and must be field assembled before installing.

- **Barometric Relief Damper** - This damper option can be used to relieve internal building air pressure on units with an economizer without power exhaust. This accessory includes a rain hood, a bird screen and a fully assembled damper. With bottom duct connections, the damper should be mounted over the opening in the return air panel. With horizontal ductwork, the accessory should be mounted on the return air duct.

- **E-Coat Condenser Coils** - The condenser coils are coated with an epoxy polymer coating to protect against corrosion.

- **E-Coat Evaporator Coils** - The evaporator coils are coated with an epoxy polymer coating to protect against corrosion.

- **Variable Air Volume (VAV)** - A factory-installed variable frequency drive (VFD), mounted in the Blower Access compartment, is used to control the speed of the indoor blower motor in order to maintain a constant static pressure in the supply duct. A pressure transducer and VAV control board are mounted inside the control box. The drive comes completely wired and pre-programmed from the factory.

An optional, factory-installed manual bypass switch available with factory-installed VFD can be found in the Blower Motor Access compartment. The switch can be used to either route power to the VFD for modulating control of the blower motor, to bypass the drive and operate the motor at full speed, or to power the drive (and not the motor) for diagnostic purposes.

Due to space limitations, VAV is not available with any of the factory-installed BAS options described below, but is available with 'BAS-ready' models. Terminal blocks are provided in the control box for field wiring of the customer-installed BAS.

A 'VFD-ready' option provides the provisions for a customer-installed drive. The unit comes with a mounting

bracket installed in the Blower Access compartment which may accommodate other vendor's drives depending on their size. In order to utilize the unit's mounting bracket, the maximum recommended drive dimensions are as follows:

For 5-hp motor applications ..... 13" H x 6" W x 7" D

For 7.5 thru 15-hp motor applications ..... 13" H x 8" W x 8" D

If the drive will not fit in the allotted space, then it will have to be mounted elsewhere; either within the building on a perpendicular wall which is not subjected to excessive temperature, vibration, humidity, dust, corrosive gas, explosive gas, etc., or within an appropriate enclosure rated for outside installation to safeguard against moisture, dust and excessive heat.

A terminal block located in the control box is provided for field connection of the VFD controls.

- **IntelliSpeed™ Supply Fan Control Option (ASHRAE 90.1 compliant, section 6.4.3.10)** - Units configured with the **IntelliSpeed™** Supply Fan Option will contain a VFD for multi-speed supply fan operation. This option allows the supply fan RPM to vary based on the number of compressors or heating stages energized. The economizer's minimum position will also be configurable to vary based on the supply fan VFD frequency output.
- **Hot Gas Bypass** - To allow for low cooling load operation, a direct-acting pressure-modulating bypass control valve installed on the system #1 discharge line is used to divert high temperature, high pressure refrigerant around the TXV in order to maintain a desired minimum evaporator pressure. HGBP is standard on all units with VAV and optional with CV units.
- **Filter Options** - Standard units are shipped with 2" throw-away filters installed. 2" pleated and 4" pleated filters are offered as a factory installed option.
- **Convenience Outlet** - This 110 volt outlet can be "powered" by the unit with a stepdown transformer or you may order the unit with a "non-powered" convenience outlet that can be wired in the field.
- **Disconnect Switch** - For gas heat units a HACR breaker sized to the unit is provided. For cooling only units, a disconnect switch sized to the largest electric heat (field installed accessory) available for the particular unit is provided. Factory installed option only.
- **Double Wall Construction** - Optional double wall construction is available to provide smooth inner surfaces for easy and effective cleaning to reduce risk of dirt and bacterial accumulation. Fiberglass insulation is sandwiched between heavy gauge steel sheets to form a durable, rigid casing to withstand higher working pressures and impact forces. The heavy-duty construction provides excellent acoustic and thermal insulation and eliminates erosion of insulation material and contamination of the air stream.
- **Smoke Detectors** - (supply air & return air) The smoke detectors stop operation if smoke is detected within the air compartment.



## ▲WARNING

Factory installed smoke detectors in the return air, may be subjected to freezing temperatures during "off" times due to outside air infiltration. These smoke detectors have an operational limit of 32°F to 131°F. Smoke detectors installed in areas that could be outside those limitations will have to be moved to prevent having false alarms.

- **Coil Guard** - Customers can purchase a coil guard kit to protect the condenser coil from damage. This is not a hail guard kit.
- **Stainless Steel Heat Exchanger** - For applications in corrosive environments, this option provides a full stainless steel heat exchanger assembly.
- **Stainless Steel Drain Pan** - An optional rustproof stainless steel drain pan is available to provide years of trouble-free operation in corrosive environments.
- **Phase Monitors** - Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of-phase condition.
- **High Static Drive** - May include a belt, blower pulley, motor pulley or a motor change to enhance blower performance.
- **Low Static Drive** - May include a belt, blower pulley, motor pulley or a motor change when standard airflow is not required. (**ZJ/ZR/ZF300 only**).
- **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.
- **Hinged Filter Door/"Tool Free" Blower And Access Panels (Not Hinged)** - This option allows for easy access and maintenance.

**NOTE:** Knobs are shipped separately within the unit to prevent shipping damage. These must be field installed for tool free operation.

- **Hinged/"Tool Free" Blower, Blower Motor, Filter And Electric Access Panels** - This option allows for complete hinged and tool free access to the unit's blower, blower motor, filters and electrical panel sections.

### Field Installed Accessories

YORK® offers several equipment accessories for field installation, for the ZJ/ZR/ZF Series.

- **Dry Bulb Economizers** - All units offer a variety of optional factory installed down flow economizers that are shipped, installed and wired with low leak dampers designed to meet ASHRAE 90.1-2010, AMCA 511 Class 1A damper, and the International Energy Conservation Code (IECC) certification requirements by achieving leakage rates of 3 cfm/sq. ft. at 1" of static pressure. Each economizer goes through a rigorous 60,000 cycle test. Dry bulb, single enthalpy, and dual enthalpy (with field installed kit) can be selected. All economizer options are

fully integrated into the Simplicity SE controls. 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 outdoor air dry bulb temperature or the outdoor air enthalpy input. The dual enthalpy kit provides a second input used to monitor the return air (field installed). The installer needs only to assemble the outdoor air hood, attach the enthalpy control to the hood and mount the hood to the unit (Hood and control are provided).

- **Motorized Outdoor Air Intake Damper** - Includes a slide-in / plug-in damper assembly with a 2-position, spring return motor actuator which opens to some pre-set position whenever the supply air blower is operating and will drive fully closed when the blower unit shuts down. The rain hood is painted to match the basic unit and must be field assembled before installing.
- **Roof Curbs** - Fourteen-inch high roof curbs provide a water-tight seal between the unit and the finished roof. These full perimeter curbs meet the requirements of the National Roofing Contractors Association (NRCA) and are shipped knocked-down for field assembly. They're designed to fit inside the base rails of the unit and include both a wood nailing strip and duct hanger supports.
- **High Altitude Natural Gas** - Burner orifices and pilot orifices are provided for proper furnace operation at altitudes up to 6,000 feet.
- **Propane** - Burner orifices, pilot orifices and gas valve parts are provided to convert a natural gas furnace to propane.
- **High Altitude Propane** - Burner orifices and pilot orifices are provided for proper furnace operation at altitudes up to 6,000 feet. This accessory supplements the basic propane conversion kit.
- **Side Duct Flanges** - One-inch flanges replace the supply and return air panels on the rear of the unit to accommodate horizontal duct connections. These flanges can also be used individually for bottom supply / horizontal return or horizontal supply/bottom return. They cannot be used on units with power exhaust.
- **Barometric Relief Damper** - This damper accessory can be used to relieve internal building air pressure on units with an economizer without power exhaust. This accessory includes a rain hood, a bird screen and a fully assembled damper. With bottom duct connections, the damper should be mounted over the opening in the return air panel. With horizontal ductwork, the accessory should be mounted on the return air duct.
- **High Static Drive** - May include a belt, blower pulley, motor pulley or a motor change to enhance blower performance.
- **Enthalpy Accessory Control Kit** - This kit contains the required components to convert a single enthalpy economizer to dual enthalpy.
- **Burglar Bars** - Mount in the supply and return openings to prevent entry into the duct work.

- **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.
- **Wood Skid** - Allows unit to be handled with 90" forks.
- **CO<sub>2</sub> Sensor** - Senses CO<sub>2</sub> levels and automatically overrides the economizer when levels rise above the present limits.
- **Coil Guard** - Customers can purchase a coil guard kit to protect the condenser coil from damage. This is not a hail guard kit.
- **Phase Monitors** - Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of phase condition.
- **Electric Heaters** - wired for single point power supply. These nickel chromium heater elements are provided with limit and automatic reset capability to prevent operation at excessive temperatures.

## Control Options

**Simplicity® SE with Communication Option Control** - The York® Simplicity® SE with Communication Option Control is factory installed. It includes all the features of the Simplicity® SE control with an additional gateway to BACnet MS/TP (programmable to Modbus or N2 protocols).

**FDD (Fault Detection and Diagnostics) - Refrigerant side** A factory installed control system option on the commercial equipment that constantly monitors refrigerant circuit pressures, refrigerant circuit temperatures, as well as the environmental temperatures and humidity via multiple sensor inputs.

- Provides a building owner, technician or contractor with the operational characteristics of the RTUs entire refrigerant circuit to ensure the unit is functioning at its specified performance level.
- Provides alarms if the unit is not functioning optimally.
- Remotely accessible via the Mobile Access Portal (MAP) gateway as well as scrolled on the UCB LCD screen.

**Novar® BAS Control** - The Novar® 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, with optional 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, with optional dirty filter indicator switch, and air proving switch.

**York Commercial Comfort System (YCCS)** - Provides rooftop system integration for YCCS single zone, change-over bypass and VAV systems.

## Guide Specifications

### General

Units shall be manufactured by Johnson Controls Unitary Products in an ISO 9001 certified facility.

York's ZJ/ZR/ZF units are convertible single package units. ZJ models have four independent refrigerant circuits and ZR/ZF models have dual independent refrigerant circuits for efficient part load operation and maximum comfort control. Although the units are primarily designed for curb mounting on a roof, they can also be slab-mounted at ground level or set on steel beams above a finished roof. Cooling only and cooling with gas heat models are available with a wide variety of factory-mounted options and field-installed accessories to make them suitable for almost every application. All units are self-contained and assembled on full perimeter base rails with holes in the four corners for overhead rigging. Every unit is completely piped, wired, charged and tested at the factory to simplify the field installation and to provide years of dependable operation. All models (including those with an economizer) are suitable for either bottom or horizontal duct connections. Models with power exhaust are suitable for bottom duct connections only. For bottom duct, remove the sheet metal panels from the supply and return air openings through the base of the unit. For horizontal duct, replace the supply and return air panels on the rear of the unit with a side duct flange accessory. All supply air blowers are equipped with a belt drive that can be adjusted to meet the exact requirements of the job. A high static drive option is available for applications with a higher CFM and/or static pressure requirement.

ZJ/ZR models have 4 condenser fan motors and ZF models have 2 condenser fan motors. All compressors include crankcase heat and internal pressure relief. Every refrigerant circuit includes an expansion valve, a liquid line filter-drier, a discharge line high pressure switch and a suction line with a freestat and low pressure/loss of charge switch. The unit control circuit includes a 75 VA transformer, a 24-volt circuit breaker and a relay board with two compressor lockout circuits, a terminal strip for thermostat wiring, plus an additional set of pin connectors to simplify the interface of additional field controls. All units have long lasting powder paint cabinets with 1000 hour salt spray test approval under ASTM-B117 procedures. All models are CSA approved. All models include a 1-year limited warranty on the complete unit. Compressors and electric heater elements carry an additional 4-year warranty. Aluminized steel tubular heat exchangers carry an additional 9-year warranty.

### Description

ZJ units shall be factory-assembled, single packaged, ZJ\*\*\*N Electric Cooling/Gas Heat, ZJ\*\*\*C00 Electric Cooling/Field Installed Electric Heat Accessory designed for outdoor mounted installation. The 15 ton unit shall have a minimum EER rating of

12.2. The 17.5 ton unit shall have a minimum EER rating of 12.1. The 20 ton unit shall have a minimum EER rating of 11.0. The 25 ton unit shall have a minimum EER rating of 10.6.

ZR units shall be factory-assembled, single packaged, ZR\*\*\*N Electric Cooling/Gas Heat, ZR\*\*\*C00 Electric Cooling/Field Installed Electric Heat Accessory designed for outdoor mounted installation. The 15 ton unit shall have a minimum EER rating of 11.2. The 20 ton unit shall have a minimum EER rating of 11.0. The 25 ton unit shall have a minimum EER rating of 10.0.

ZF units shall be factory-assembled, single packaged, ZF\*\*\*N Electric Cooling/Gas Heat, ZF\*\*\*C00 Electric Cooling/Field Installed Electric Heat Accessory designed for outdoor mounted installation. The 15 and 17.5 ton units shall have a minimum EER rating of 11.0. The 20 and 25 ton units shall have a minimum EER rating of 10.

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, charged with R-410A refrigerant and factory tested prior to shipment. All unit wiring shall be both numbered and color coded. All units shall be manufactured in a facility certified to ISO 9001 standards and the cooling performance shall be rated in accordance with DOE and AHRI test procedures. Units shall be CSA listed, classified to ANSIZ21.47 standards, UL 1995/CAN/CSA No. 236-M90 conditions.

#### Unit Cabinet

Unit cabinet shall be constructed of galvanized steel, with exterior surfaces coated with a non-chalking, powdered paint finish, certified at 1000 hours salt spray test per ASTM-B117 standards. Indoor blower section shall be insulated with a minimum 1/2" thick insulation, coated on the airside. Aluminum foil faced insulation shall be used in the furnace compartment and be fastened with ridged fasteners to prevent insulation from entering the air stream. Cabinet panels shall be "large" size, easily removable for servicing and maintenance. Full perimeter base rails shall be provided to assure reliable transit of equipment, overhead rigging and proper sealing on roof curb applications. Disposable 2" filters shall be furnished and be accessible through a removable access door, sealed airtight. Units filter track shall be designed to accommodate either 2" or 4" filters. 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 air by-pass of the coils. Condensate pan shall be internally sloped and conform to ASHRAE 62-89 self-draining standards. Condensate connection shall be a minimum of 1" I.D. female and be a ridged mount connection. Unit shall incorporate a fixed outdoor air damper with an outdoor air intake opening covered with a bird screen and a rain hood painted to match the exterior of the unit.

#### Indoor (Evaporator) Fan Assembly

Fan shall be a belt drive assembly and include an adjustable-pitch motor pulley. Job site selected (B.H.P.) brake horsepower shall not exceed the motors nameplate horsepower rating, plus the service factor. Units shall be designed not to operate above service factor. Fan wheel shall be double-inlet type with

forward-curved blades, dynamically balanced to operate smoothly throughout the entire range of operation. Airflow design shall be constant air volume.

A variable air volume (VAV) option using a variable frequency drive (VFD) is available for applications requiring a constant supply duct static pressure. Units equipped for VAV shall be controlled by a duct pressure transducer with a 0 - 5" WC pressure range. The pressure transducer shall provide a 0 - 5 VDC output signal to a VAV control board which, in turn shall provide a 2 - 10 VDC speed reference signal to the VFD. The VAV control board shall operate using factory-installed Supply Air, Return Air and Outside Air Temperature Sensors. Units equipped with VFD's shall have factory-installed manual bypass as an option.

#### Outdoor (Condenser) Fan Assembly

The outdoor fans shall be of the direct-driven propeller type, discharge air vertically, have aluminum blades riveted to corrosion resistant steel spider brackets and shall be dynamically balanced for smooth operation. The 4 outdoor fan motors shall be totally enclosed with permanently lubricated bearings, internally protected against overload conditions and staged independently.

#### Refrigerant Components

Compressors:

- a. Shall be Scroll compressors internally protected with internal high-pressure relief and over temperature protection.
- 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. Balance-port thermostatic expansion valve with independent circuit feed system.
- b. 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 refrigeration system shall provide at least 15° F of sub-cooling at design conditions.
- e. All models shall have four independent circuits.
- f. Hot gas bypass option shall be factory-installed on compressor #1 discharge line to provide cooling in low-

load applications. HGBP shall be a standard feature on VAV models and an optional feature on CV models.

### 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.
  1. High-pressure switch.
  2. Freeze condition sensor, evaporator coil. If any of these safety devices trip, the LCD screen will display the alarm message.
- 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 message 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.

### Gas Heating Section (ZJ/ZR/ZF\*\*\*N Models)

Shall be designed with induced draft combustion with post purge logic and energy saving direct spark ignition, redundant main gas valve. Ventor wheel shall be constructed of stainless steel for corrosion resistance. 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 25 °F. Burners shall be of the in-shot type, constructed of aluminum coated steel and contain air mixture adjustments. All gas piping shall enter the unit cabinet at a single location through either the side or curb, 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 motor speed sensor.
- c. Flame roll out switch (automatic reset).
- d. Flame proving controls. Unit shall have two independent stages of capacity.

### Electric Heating (ZJ/ZR/ZF\*\*\*C00 Models) (Field Installed Electric Heat Accessory)

Nickel chromium electric heating elements shall be provided as required by the application with 1 or 2 stage control, as required, from 13.5 KW to 72 KW capacities. The heating section shall have a primary limit control(s) and automatic reset

to prevent the heating element system from operating at an excessive temperature. Units with Electric Heating 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 AHRI Standard 340/360. The compressor, with standard controls, shall be capable of operation down to 25° F outdoor temperature. Accessory low ambient kit shall be available for operation to 0° F. 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
- Electric Heat Element 5 Years
- Other Parts 1 Year

### Optional Outdoor Air (Shall be made available by either/or):

- **Dry Bulb 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 be designed to meet ASHRAE 90.1-2010, AMCA 511 Class 1A damper, and the International Energy Conservation Code (IECC) certification requirements by achieving leakage rates of 3 cfm/sq. ft. at 1" of static pressure. 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.

- **Motorized Outdoor Air Dampers** - Outdoor and return air dampers that are interlocked and positioned by a 2-position, spring-return damper actuator. 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.

#### Other Factory Installed Options

- **Power Exhaust Option** - To work in conjunction with economizers.
- **Stainless Steel Heat Exchanger**
- **Stainless Steel Drain Pan**
- **E-Coat Epoxy Polymer Coated Condenser And Evaporator Coil**
- **Electronic Single Enthalpy Economizer**
- **Dirty Filter Switch**
- **Double Wall**
- **Phase Monitor**
- **Coil Guard**
- **Powered GFI Convenience Outlet**
- **Non-powered GFI Convenience Outlet**
- **BAS Controls** - Simplicity® SE with BAS Communication (BACnet MS/TP, Modbus, and Johnson Controls N2) Option, CPC, HONEYWELL, NOVAR, YORK COMMERCIAL COMFORT SYSTEM (YCCS), FDD
- **BAS Ready Economizer** (2-10 V.D.C. Actuator With Simplicity® SE Controller)
- **Hinged Filter Door Access And Tool Free Access Panels**
- **Hinged Tool Free Blower, Blower Motor, Filter And Electrical Access Panels**
- **High Static Drive**
- **Low Static Drive (ZJ/ZR/ZF300 only)**
- **2" Pleated Filters, MERV 8**
- **4" Pleated Filters, MERV 13**
- **Disconnect Switch**
- **Supply Air Smoke Detector**
- **Return Air Smoke Detector**

#### Other Pre-engineered Accessories Available

- **Roof Curb** - 14" high, full perimeter curb with wood nailer (shipped knocked-down).
- **100% Barometric Relief Damper** - Contains a rain hood, air inlet screen, exhaust damper and mounting hardware. Used to relieve internal air pressure through the unit.
- **Propane Conversion Kit** - Contains new orifices and gas valve parts to convert from natural to L.P. gas. One per unit required.
- **High Altitude - Natural Gas** - Contains orifices required for applications between 2000 and 6000 feet altitude.
- **High Altitude - Propane Gas** - Contains orifices required for applications between 2000 and 6000 feet altitude. Must be used with propane conversion kit.
- **Burglar Bars** - Designed to work with above roof curbs, depending on unit model. Fits duct openings of curb supply and return air openings.

- **Side Duct Flange** - Supply and return air duct flanges for side duct applications. Do not use on units with power exhaust.
- **High Static Drive** - May include a belt, blower pulley, motor pulley or a motor change to enhance blower performance.
- **Wood Skid** - Allows unit to be handled with 90" forks.
- **Economizer/motorized Damper Rain Hood (ZJ/ZR/ZFN/C300 only)** - Contains all hood panels and the hardware for assembling.
- **Anti-Recycle Timer** - Assures 5-minute off time between compressor cycles.
- **Low Ambient Kit** - Provides unit cooling operation down to 0 °F.
- **Coil Guard Kit** - Guard for cooling coil.
- **Electric Heat Accessory** - (Field Installed Only)

#### Hot Gas Reheat

##### Setpoints and Related Data

Setpoints and related data includes:

- Hot Gas Reheat Alternate Operation Enabled (HGRAIt-En)
- Hot Gas Reheat Enabled for Operation (HGR-En)
- Hot Gas Reheat Alternate Operation Writable (HGRAItWrite)
- Hot Gas Reheat Humidity Setpoint (HGRHum-Sp)
- HGR Unoccupied Humidity Setpoint (HGRUnoccHum-Sp)
- HGR Enabled for Unoccupied Operation (HGRUnocc-En)

##### Inputs

Inputs include:

- Operational space humidity (OprSH)

##### Outputs

- Outputs include:
- 24 VAC from AUX-HGR to energize the hot gas reheat solenoid. 24 VAC from C1 or C2 to energize compressor contactors

#### Operation For ZR Units Only

##### Normal Occupied Operation Mode

If the return humidity is greater than or equal to the Hot Gas Reheat Humidity Setpoint, and no demand for cooling, C1 output energizes and the AUX-HGR output energizes.

If there is a demand for one stage of cooling and the return humidity is greater than or equal to the Hot Gas Reheat Humidity Setpoint, C1 output energizes but the AUX-HGR output de-energizes.

Any additional cooling demands energize compressor outputs, but do not change the status of the AUX-HGR output.

When the return humidity falls to 3% or more below the setpoint, the C1 and AUX-HGR outputs de-energize.

**NOTE:** If HGR Enabled for Unoccupied Operation is enabled, during unoccupied mode the control works the same as described above, except it uses the HGR Unoccupied Humidity Setpoint instead.

**Alternate Mode**

If the return humidity is greater than or equal to the Hot Gas Reheat Humidity Setpoint, and no demand for cooling, C1 and AUX-HGR outputs energize, and C2 energizes.

If there is a demand for one stage of cooling and the return humidity is greater than or equal to the Hot Gas Reheat Humidity Setpoint, C1 and AUX-HGR outputs energize, and C2 energizes.

If there is a demand for both first and second cooling stages and the return humidity is greater than or equal to the Hot Gas Reheat Humidity Setpoint, C1 and C2 outputs energize and AUX-HGR de-energizes.

When the return humidity falls to 3% or more below the setpoint, the C1, C2, and AUX-HGR outputs de-energize.

**NOTE:** If HGR Enabled for Unoccupied Operation is enabled, during unoccupied mode the control works the same as described above, except it uses the HGR Unoccupied Humidity Setpoint instead.

**Dehumidification Sequence in Normal and Alternate Mode**

Request	Normal Mode			Alternate Mode		
	HGR	C1	C2	HGR	C1	C2
<b>Dehumidification</b>	On	On	Off	On	On	Off
<b>One Stage of Cooling (Y1)</b>	Off	On	Off	On	On	On
<b>Two Stages of Cooling (Y2)</b>	Off	On	On	Off	On	On

## Physical Data

### ZJ180-300 Physical Data

Component	Models							
	ZJ180		ZJ210		ZJ240		ZJ300	
Nominal Tonnage	15		17.5		20		25	
<b>AHRI COOLING PERFORMANCE</b>								
Gross Capacity @ AHRI A point (Btu)	181400		208000		255000		290000	
AHRI net capacity (Btu)	172000		202000		240000		280000	
EER	12.2		12.1		11.0		10.6	
SEER	-		-		-		-	
IEER with Constant Volume	13.4		13		12		11.0	
IEER with Intellispeed	14.0 <sup>1</sup> /13.8 <sup>2</sup>		13.7 <sup>1</sup> /13.5 <sup>2</sup>		13.2 <sup>1</sup> /13.0 <sup>2</sup>		12.3 <sup>1</sup> /12.1 <sup>2</sup>	
IEER with VAV	13.4		13		12		11.0	
CFM	4500		5800		7000		7000	
System power (KW)	14.10		16.70		21.82		26.67	
Refrigerant type	R-410a		R-410a		R-410a		R-410a	
Refrigerant charge (lb-oz)								
System 1	12-0		14-0		12-0		12-4	
System 2	11-12		12-8		13-0		12-8	
System 3	12-4		12-8		12-0		12-8	
System 4	13-8		12-8		12-0		12-8	
<b>AHRI HEATING PERFORMANCE</b>								
Heating model	N30	N40	N30	N40	N30	N40	N30	N40
Heat input (K Btu)	300	400	300	400	300	400	300	400
Heat output (K Btu)	240	320	240	320	240	320	240	320
AFUE %	-	-	-	-	-	-	-	-
Steady state efficiency (%)	80	80	80	80	80	80	80	80
No. burners	6	8	6	8	6	8	6	8
No. stages	2	2	2	2	2	2	2	2
Temperature Rise Range (°F)	20-50	30-60	20-50	30-60	20-50	30-60	20-50	30-60
Gas Limit Setting (°F)	195	195	195	195	195	195	195	195
Gas piping connection (in.)	1	1	1	1	1	1	1	1
<b>DIMENSIONS (inches)</b>								
Length	180-19/32							
Width	92							
Height	52-5/8							
<b>OPERATING WT. (lbs.)</b>	2609		2665		2697		2783	
<b>COMPRESSORS</b>								
Type	Scroll		Scroll		Scroll		Scroll	
Quantity	4		4		4		4	
Unit Capacity Steps (%)	25 / 50 / 75 / 100		25 / 50 / 75 / 100		25 / 50 / 75 / 100		25 / 50 / 75 / 100	
<b>CONDENSER COIL DATA</b>								
Face area (Sq. Ft.)	63.8		63.8		63.8		63.8	
Rows	2		2		2		2	
Fins per inch	20		20		20		20	
Tube diameter (in.)	3/8		3/8		3/8		3/8	
Circuitry Type	Split-face		Split-face		Split-face		Split-face	
<b>EVAPORATOR COIL DATA</b>								
Face area (Sq. Ft.)	25		25		25		25	
Rows	4		4		4		4	
Fins per inch	13.5		13.5		13.5		13.5	
Tube diameter	3/8		3/8		3/8		3/8	
Circuitry Type	Split-face		Split-face		Split-face		Split-face	
Refrigerant control	TXV		TXV		TXV		TXV	

**ZJ180-300 Physical Data (Continued)**

Component	Models								
	ZJ180		ZJ210		ZJ240		ZJ300		
Nominal Tonnage	15		17.5		20		25		
<b>CONDENSER FAN DATA</b>									
Quantity	4		4		4		4		
Fan diameter (Inch)	24		24		30		30		
Type	Prop		Prop		Prop		Prop		
Drive type	Direct		Direct		Direct		Direct		
No. speeds	1		1		1		1		
Number of motors	2		4		4		2		
Motor HP each	1/3		1/3		1/3		1/3		
RPM	850		850		870		870		
Total CFM	16000		16000		20000		20000		
<b>BELT DRIVE EVAP FAN DATA</b>									
Quantity	1		1		1		1		
Fan Size (Inch)	15 X 15		18 X 15		18 X 15		18 X 15		
Type	Centrifugal		Centrifugal		Centrifugal		Centrifugal		
Motor Sheave	1VP65	1VP65	1VP60	1VP60	1VP60	1VP60	1VP60	1VP75X	1VP75X
Blower Sheave	BK110	BK090	BK110	BK090	BK110	BK090	1B5V94	1B5V110	1B5V94
Belt	BX83	BX81	BX78	BX75	BX78	BX75	BX78	5VX840	5VX860
Motor HP each	5	5	5	7.5	5	7.5	7.5	10	15
RPM	1725	1725	1725	1725	1725	1725	1725	1725	1725
Frame size	184T	184T	184T	213T	184T	213T	213T	215T	254T
<b>FILTERS</b>									
Quantity - Size	12 - (12 x 24 x 2) <sup>3,4</sup>		12 - (12 x 24 x 2) <sup>3,4</sup>		12 - (12 x 24 x 2) <sup>3,4</sup>		12 - (12 x 24 x 2) <sup>3,4</sup>		
	2 - (20 x 24 x 4),		2 - (20 x 24 x 4),		2 - (20 x 24 x 4),		2 - (20 x 24 x 4),		
	4 - (24 x 24 x 4) <sup>5</sup>		4 - (24 x 24 x 4) <sup>5</sup>		4 - (24 x 24 x 4) <sup>5</sup>		4 - (24 x 24 x 4) <sup>5</sup>		

1. Cooling Only Unit or Cooling Unit with Electric Heat
2. Cooling Unit with Gas Heat
3. 2 In. Throwaway, Standard, MERV (Minimum Efficiency Reporting Value) 3.
4. 2 In. Pleated, Optional, MERV 8.
5. 4 In. Pleated, Optional, MERV 13.



## ZR180-300 Physical Data

Component	Models					
	ZR180		ZR240		ZR300	
Nominal Tonnage	15		20		25	
<b>AHRI COOLING PERFORMANCE</b>						
Gross Capacity @ AHRI A point (Btu)	189		243		303	
AHRI net capacity (Btu)	180		228		288	
EER	11.2		11.0		10.0	
SEER	-		-		-	
IEER with Constant Volume	12.2		11.9		10.3	
IEER with Intellispeed	13.2 <sup>1</sup> /13.0 <sup>2</sup>		13.2 <sup>1</sup> /13.0 <sup>2</sup>		12.3 <sup>1</sup> /12.1 <sup>2</sup>	
IEER with VAV	12.2		11.9		10.3	
CFM	5000		6000		7600	
System power (KW)	14.40		20.10		28.50	
Refrigerant type	R-410a		R-410a		R-410a	
Refrigerant charge (lb-oz)						
System 1	22		24		25	
System 2	22		24		24-8	
<b>AHRI HEATING PERFORMANCE</b>						
Heating model	N30	N40	N30	N40	N30	N40
Heat input (K Btu)	300	400	300	400	300	400
Heat output (K Btu)	240	320	240	320	240	320
AFUE %	-	-	-	-	-	-
Steady state efficiency (%)	80	80	80	80	80	80
No. burners	6	8	6	8	6	8
No. stages	2	2	2	2	2	2
Temperature Rise Range (°F)	20-50	30-60	20-50	30-60	20-50	30-60
Gas Limit Setting (°F)	195	195	195	195	195	195
Gas piping connection (in.)	1	1	1	1	1	1
<b>DIMENSIONS (inches)</b>						
Length	180-19/32					
Width	92					
Height	52-5/8					
<b>OPERATING WT. (lbs.)</b>	2360		2660		2760	
<b>COMPRESSORS</b>						
Type	Scroll		Scroll		Scroll	
Quantity	2		2		2	
Unit Capacity Steps (%)	50 / 100		50 / 100		50 / 100	
<b>CONDENSER COIL DATA</b>						
Face area (Sq. Ft.)	63.8		63.8		63.8	
Rows	2		2		2	
Fins per inch	20		20		20	
Tube diameter (in.)	3/8		3/8		3/8	
Circuitry Type	Split-face		Split-face		Split-face	
<b>EVAPORATOR COIL DATA</b>						
Face area (Sq. Ft.)	20		20		20.52	
Rows	3		4		4	
Fins per inch	13.5		13.5		13.5	
Tube diameter	3/8		3/8		3/8	
Circuitry Type	Intertwined		Intertwined		Intertwined	
Refrigerant control	TXV		TXV		TXV	
<b>REHEAT COIL DATA</b>						
Face area (Sq. Ft.)	17.2		17.2		17.2	
Rows	2		2		2	
Fins per inch	13		13		13	
Tube diameter	3/8		3/8		3/8	

**ZR180-300 Physical Data (Continued)**

Component	Models						
	ZR180		ZR240		ZR300		
Nominal Tonnage	15		20		25		
<b>CONDENSER FAN DATA</b>							
Quantity	4		4		4		
Fan diameter (Inch)	24		30		30		
Type	Prop		Prop		Prop		
Drive type	Direct		Direct		Direct		
No. speeds	1		1		1		
Number of motors	4		4		4		
Motor HP each	1/3		3/4		3/4		
RPM	850		870		870		
Total CFM	16000		20000		20000		
<b>BELT DRIVE EVAP FAN DATA</b>							
Quantity	1		1		1		
Fan Size (Inch)	15 X 15		18 X 15		18 X 15		
Type	Centrifugal		Centrifugal		Centrifugal		
Motor Sheave	1VP65	1VP65	1VP60	1VP60	1VP60	1VP75X	1VP75X
Blower Sheave	BK110	BK090	BK110	BK090	1B5V94	1B5V110	1B5V94
Belt	BX83	BX81	BX78	BX75	BX78	5VX840	5VX860
Motor HP each	5	7.5	7.5	10	7.5	10	15
RPM	1725	1725	1725	1725	1725	1725	1725
Frame size	184T	213T	213T	215T	213T	215T	254T
<b>FILTERS</b>							
Quantity - Size	4 - (16 x 25 x 2), 4 - (16 x 20 x 2) <sup>3,4</sup>		4 - (16 x 25 x 2), 4 - (16 x 20 x 2) <sup>3,4</sup>		4 - (16 x 25 x 2), 4 - (16 x 20 x 2) <sup>3,4</sup>		
	4 - (16 x 25 x 4), 4 - (16 x 20 x 4) <sup>5</sup>		4 - (16 x 25 x 4), 4 - (16 x 20 x 4) <sup>5</sup>		4 - (16 x 25 x 4), 4 - (16 x 20 x 4) <sup>5</sup>		

1. Cooling Only Unit or Cooling Unit with Electric Heat
2. Cooling Unit with Gas Heat
3. 2 In. Throwaway, Standard, MERV (Minimum Efficiency Reporting Value) 3.
4. 2 In. Pleated, Optional, MERV 8.
5. 4 In. Pleated, Optional, MERV 13.

## ZF180-300 Physical Data

Component	Models							
	ZF180		ZF210		ZF240		ZF300	
Nominal Tonnage	15		17.5		20		25	
<b>AHRI COOLING PERFORMANCE</b>								
Gross Capacity @ AHRI A point (K Btu)	170		208		254.5		279	
AHRI net capacity (K Btu)	165		204		240		270	
EER	11.0		11.0		10		10.0	
SEER	-		-		-		-	
IEER with Constant Volume	12.1		11.9		11.0		10.5	
IEER with Intellispeed	13.2 <sup>1</sup> /13.0 <sup>2</sup>		13.1 <sup>1</sup> /13.0 <sup>2</sup>		12.5 <sup>1</sup> /12.3 <sup>2</sup>		11.2 <sup>1</sup> /11.1 <sup>2</sup>	
IEER with VAV	12.1		11.9		11.0		10.5	
CFM	4430		5300		6200		6750	
System power (KW)	15.0		18.5		24.7		27.0	
Refrigerant type	R-410a		R-410a		R-410a		R-410a	
Refrigerant charge (lb-oz)								
System 1	20-0		23-8		22		22	
System 2	20-0		23-8		23-8		23-4	
<b>AHRI HEATING PERFORMANCE</b>								
Heating model	N30	N40	N30	N40	N30	N40	N30	N40
Heat input (K Btu)	300	375	300	400	300	400	300	400
Heat output (K Btu)	240	300	240	320	240	320	240	320
AFUE%	-	-	-	-	-	-	-	-
Steady state efficiency (%)	80	80	80	80	80	80	80	80
No. burners	6	8	6	8	6	8	6	8
No. stages	2	2	2	2	2	2	2	2
Temperature Rise Range (°F)	20-50	35-65	20-50	30-60	20-50	30-60	20-50	30-60
Gas Limit Setting (°F)	195	195	195	195	195	195	195	195
Gas piping connection (in.)	1	1	1	1	1	1	1	1
<b>DIMENSIONS (inches)</b>								
Length	125-1/4		136-1/4		136-1/4		136-1/4	
Width	92		92		92		92	
Height	48-5/8		52-5/8		52-5/8		52-5/8	
<b>OPERATING WT. (lbs.)</b>	1870		2006		2533		2597	
<b>COMPRESSORS</b>								
Type	Scroll		Scroll		Scroll		Scroll	
Quantity	2		2		2		2	
Unit Capacity Steps (%)	50 / 100		50 / 100		50 / 100		50 / 100	
<b>CONDENSER COIL DATA</b>								
Face area (Sq. Ft.)	36.0		43.3		43.3		43.3	
Rows	3		3		3		3	
Fins per inch	18		15		15		15	
Tube diameter (in.)	3/8		3/8		3/8		3/8	
Circuitry Type	Split-face		Split-face		Split-face		Split-face	
<b>EVAPORATOR COIL DATA</b>								
Face area (Sq. Ft.)	15.5		25		20		25	
Rows	4		4		4		4	
Fins per inch	14		13.5		13.5		13.5	
Tube diameter	3/8		3/8		3/8		3/8	
Circuitry Type	Intertwined		Split-face		Intertwined		Split-face	
Refrigerant control	TXV		TXV		TXV		TXV	

**ZF180-300 Physical Data (Continued)**

Component	Models								
	ZF180		ZF210		ZF240		ZF300		
Nominal Tonnage	15		17.5		20		25		
<b>CONDENSER FAN DATA</b>									
Quantity	2		2		2		2		
Fan diameter (Inch)	30		30		30		30		
Type	Prop		Prop		Prop		Prop		
Drive type	Direct		Direct		Direct		Direct		
No. speeds	1		1		1		1		
Number of motors	2		2		2		2		
Motor HP each	1.25		1.25		1.25		1.25		
RPM	1140		1140		1140		1140		
Total CFM	11530		14000		14000		14000		
<b>BELT DRIVE EVAP FAN DATA</b>									
Quantity	1		1		1		1		
Fan Size (Inch)	15 X 15		18 X 15		18 X 15		18 X 15		
Type	Centrifugal		Centrifugal		Centrifugal		Centrifugal		
Motor Sheave	1VP65	1VP65	1VP60	1VP60	1VP60	1VP60	1VP60	1VP75X	1VP75X
Blower Sheave	BK110	BK090	BK110	BK090	BK110	BK090	1B5V94	1B5V110	1B5V94
Belt	BX75	BX70	BX78	BX75	BX78	BX75	BX78	5VX840	5VX860
Motor HP each	5	5	5	7.5	5	7.5	7.5	10	15
RPM	1725	1725	1725	1725	1725	1725	1725	1725	1725
Frame size	184T	184T	184T	213T	184T	213T	213T	215T	254T
<b>FILTERS</b>									
Quantity - Size	5 - (18 x 24 x 2) <sup>3,4</sup>		12 - (12 x 24 x 2) <sup>3,4</sup>		4 - (16 x 25 x 2),		12 - (12 x 24 x 2) <sup>3,4</sup>		
	-		-		4 - (16 x 20 x 2) <sup>3,4</sup>		-		
	5 - (18 x 24 x 4) <sup>5</sup>		2 - (20 x 24 x 4),		4 - (16 x 25 x 4),		2 - (20 x 24 x 4),		
	-		4 - (24 x 24 x 4) <sup>5</sup>		4 - (16 x 20 x 4) <sup>5</sup>		4 - (24 x 24 x 4) <sup>5</sup>		

1. Cooling Only Unit or Cooling Unit with Electric Heat
2. Cooling Unit with Gas Heat
3. 2 In. Throwaway, Standard, MERV (Minimum Efficiency Reporting Value) 3.
4. 2 In. Pleated, Optional, MERV 8.
5. 4 In. Pleated, Optional, MERV 13.

**ZJ/ZR/ZF180-300 Unit Limitations**

Size (Tons)	Unit Voltage	Unit Limitations		
		Applied Voltage		Outdoor DB Temp
		Min	Max	Max (°F)
180 (15)	208/230-3-60	187	252	125
	460-3-60	432	504	125
	575-3-60	540	630	125
210 (17.5)	208/230-3-60	187	252	125
	460-3-60	432	504	125
	575-3-60	540	630	125
240 (20)	208/230-3-60	187	252	125
	460-3-60	432	504	125
	575-3-60	540	630	125
300 (25)	208/230-3-60	187	252	125
	460-3-60	432	504	125
	575-3-60	540	630	125



**ZJ180 (15 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
3750	77	175.1	16.6	71.9	62.9	46.5	-	-	-	163.4	18.3	63.0	56.6	41.1	-	-	-
	72	160.6	16.6	104.2	87.8	71.4	55.0	-	-	148.2	18.3	98.0	81.8	65.7	49.5	-	-
	67	146.1	16.5	136.6	112.8	96.4	79.9	63.5	-	133.0	18.3	133.0	106.4	90.2	74.1	57.9	-
	62	143.5	16.4	143.5	137.2	113.0	96.6	80.2	63.8	134.8	18.1	134.8	125.9	102.4	86.2	70.0	53.9
4500	77	177.8	16.6	87.8	69.2	50.5	-	-	-	164.4	18.4	82.5	63.1	44.7	-	-	-
	72	163.1	16.6	114.9	96.3	77.6	59.0	-	-	149.1	18.3	108.1	89.8	71.4	53.1	-	-
	67	148.4	16.5	142.0	123.4	104.8	86.1	67.5	-	133.8	18.3	133.8	116.5	98.2	79.8	61.5	-
	62	145.7	16.4	145.7	141.5	122.9	104.3	85.6	67.0	135.7	18.1	135.7	129.7	111.4	93.0	74.7	56.4
	57	147.1	16.5	147.1	142.1	123.4	104.8	86.2	67.5	135.2	18.3	135.2	130.1	111.8	93.4	75.1	56.8
5250	77	180.5	16.7	103.7	75.4	54.6	-	-	-	165.5	18.4	102.0	69.6	48.3	-	-	-
	72	165.6	16.6	125.6	104.7	83.9	63.0	-	-	150.0	18.4	118.2	97.7	77.2	56.7	-	-
	67	150.6	16.5	147.5	134.0	113.2	92.3	71.4	-	134.5	18.4	134.5	126.6	106.1	85.6	65.1	-
	62	147.9	16.4	147.9	145.8	132.7	111.9	91.0	70.2	136.5	18.2	136.5	133.6	120.4	99.9	79.4	58.9
	57	149.3	16.5	149.3	146.8	133.3	112.5	91.6	70.8	136.0	18.3	136.0	133.5	120.8	100.3	79.8	59.3
6000	77	183.3	16.7	119.6	81.7	58.6	-	-	-	166.5	18.4	121.5	76.1	52.0	-	-	-
	72	168.1	16.6	136.2	113.2	90.1	67.0	-	-	150.9	18.4	128.4	105.7	83.0	60.3	-	-
	67	152.9	16.6	152.9	144.6	121.6	98.5	75.4	-	135.3	18.4	135.3	135.3	114.0	91.3	68.7	-
	62	150.1	16.5	150.1	150.1	142.6	119.5	96.4	73.4	137.4	18.2	137.4	137.4	129.4	106.7	84.0	61.3
	57	151.6	16.5	151.6	151.6	143.2	120.2	97.1	74.0	136.8	18.3	136.8	136.8	129.9	107.2	84.5	61.8
6750	72	172.6	16.5	145.1	120.5	96.0	71.4	-	-	156.2	18.3	137.0	112.9	88.7	64.5	-	-
	67	157.0	16.5	157.0	152.9	129.5	105.0	80.4	-	140.1	18.2	140.1	140.1	121.9	97.7	73.5	-
	62	154.2	16.4	154.2	154.2	150.4	125.8	101.3	76.7	142.2	18.1	142.2	142.2	138.2	114.0	89.9	65.7
	57	155.7	16.4	155.7	155.7	151.5	126.9	102.4	77.8	141.6	18.2	141.6	141.6	138.2	114.0	89.8	65.7
7500	72	177.2	16.4	154.0	127.9	101.9	75.8	-	-	161.5	18.1	145.7	120.0	94.4	68.8	-	-
	67	161.2	16.4	161.2	161.2	137.5	111.4	85.4	-	144.9	18.1	144.9	144.9	129.7	104.0	78.4	-
	62	158.2	16.3	158.2	158.2	158.2	132.2	106.1	80.1	147.0	17.9	147.0	147.0	147.0	121.3	95.7	70.0
	57	159.8	16.3	159.8	159.8	159.8	133.7	107.7	81.7	146.4	18.1	146.4	146.4	146.4	120.8	95.2	69.5

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.



**ZJ210 (17.5 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
4375	77	194.1	18.3	78.2	66.9	48.2	-	-	-	175.3	20.0	66.6	58.7	40.2	-	-	-
	72	180.7	18.3	116.0	97.4	78.8	60.2	-	-	163.4	20.1	107.4	88.9	70.4	51.9	-	-
	67	167.3	18.3	153.8	128.0	109.4	90.8	72.2	-	151.5	20.1	148.2	119.1	100.6	82.2	63.7	-
	62	164.7	18.2	164.7	156.7	129.6	111.0	92.4	73.8	149.3	20.0	149.3	141.2	114.3	95.8	77.3	58.9
5250	77	198.2	18.4	95.0	73.9	52.7	-	-	-	179.2	20.0	86.0	65.3	44.6	-	-	-
	72	184.5	18.3	128.4	107.3	86.2	65.0	-	-	167.1	20.1	119.4	98.6	77.9	57.2	-	-
	67	170.8	18.3	161.8	140.7	119.6	98.4	77.3	-	154.9	20.1	152.7	132.0	111.3	90.5	69.8	-
	62	168.2	18.2	168.2	162.8	141.7	120.6	99.4	78.3	152.6	20.1	152.6	147.2	126.5	105.8	85.1	64.4
	57	168.4	18.2	168.4	161.9	140.8	119.7	98.6	77.4	153.6	20.1	153.6	147.0	126.2	105.5	84.8	64.1
6125	77	202.3	18.4	111.8	80.9	57.2	-	-	-	183.2	20.1	105.4	71.9	49.0	-	-	-
	72	188.3	18.3	140.8	117.2	93.5	69.9	-	-	170.7	20.1	131.3	108.4	85.4	62.5	-	-
	67	174.3	18.3	169.8	153.4	129.8	106.1	82.5	-	158.3	20.2	157.2	144.8	121.9	98.9	76.0	-
	62	171.7	18.2	171.7	169.0	153.8	130.1	106.5	82.8	155.9	20.1	155.9	153.3	138.7	115.8	92.8	69.9
	57	171.9	18.2	171.9	168.6	152.8	129.2	105.5	81.9	156.9	20.1	156.9	153.6	138.4	115.5	92.5	69.6
7000	77	206.4	18.4	128.6	87.9	61.7	-	-	-	187.1	20.1	124.9	78.5	53.3	-	-	-
	72	192.1	18.4	153.2	127.0	100.9	74.7	-	-	174.4	20.1	143.3	118.1	92.9	67.7	-	-
	67	177.9	18.3	177.9	166.2	140.0	113.8	87.6	-	161.7	20.2	161.7	157.7	132.5	107.3	82.1	-
	62	175.1	18.3	175.1	175.1	165.8	139.7	113.5	87.3	159.3	20.1	159.3	159.3	150.9	125.8	100.6	75.4
	57	175.4	18.3	175.4	175.4	164.8	138.6	112.5	86.3	160.3	20.1	160.3	160.3	150.6	125.4	100.2	75.1
7875	72	193.7	18.3	165.5	137.1	108.8	80.5	-	-	174.3	20.1	155.1	127.7	100.2	72.7	-	-
	67	179.3	18.3	179.3	173.4	151.0	122.7	94.4	-	161.6	20.1	161.6	161.5	142.9	115.4	87.9	-
	62	176.5	18.2	176.5	176.5	171.9	143.6	115.3	86.9	159.2	20.0	159.2	159.2	155.1	127.6	100.1	72.7
	57	176.8	18.2	176.8	176.8	171.5	143.2	114.9	86.6	160.3	20.1	160.3	160.3	155.4	127.9	100.5	73.0
8750	72	195.2	18.2	177.7	147.3	116.8	86.4	-	-	174.3	20.0	167.0	137.2	107.5	77.7	-	-
	67	180.7	18.2	180.7	180.7	162.1	131.7	101.2	-	161.6	20.0	161.6	161.6	153.2	123.5	93.7	-
	62	178.0	18.1	178.0	178.0	178.0	147.5	117.0	86.6	159.2	20.0	159.2	159.2	159.2	129.4	99.6	69.9
	57	178.2	18.1	178.2	178.2	178.2	147.7	117.3	86.8	160.2	20.0	160.2	160.2	160.2	130.5	100.7	70.9

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.



ZJ240 (20 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
5000	77	238.8	14.8	123.2	101.7	80.3	-	-	-	227.1	16.7	113.0	91.9	70.7	-	-	-
	72	247.3	14.4	166.1	144.6	123.2	101.7	-	-	235.2	16.4	155.7	134.6	113.4	92.3	-	-
	67	255.8	14.0	209.0	187.5	166.1	144.6	123.1	-	243.3	16.1	198.4	177.3	156.1	135.0	113.9	-
	62	247.0	13.8	247.0	235.5	206.5	185.1	163.6	142.1	226.8	15.9	226.8	221.1	192.5	171.4	150.3	129.1
6000	77	251.1	14.8	135.6	111.1	86.7	-	-	-	237.5	16.7	125.1	101.0	76.9	-	-	-
	72	260.0	14.5	181.8	157.4	132.9	108.4	-	-	246.0	16.5	171.6	147.4	123.3	99.2	-	-
	67	268.9	14.1	228.1	203.6	179.1	154.6	130.2	-	254.5	16.2	218.0	193.9	169.7	145.6	121.4	-
	62	259.6	13.9	259.6	251.9	222.8	198.3	173.9	149.4	237.2	15.9	237.2	233.4	209.3	185.1	161.0	136.8
7000	77	263.3	14.9	148.0	120.6	93.1	-	-	-	247.9	16.8	137.3	110.2	83.0	-	-	-
	72	272.7	14.5	197.6	170.1	142.6	115.2	-	-	256.8	16.5	187.5	160.3	133.2	106.0	-	-
	67	282.0	14.2	247.1	219.7	192.2	164.7	137.3	-	265.7	16.2	237.6	210.4	183.3	156.2	129.0	-
	62	272.1	14.0	272.1	268.3	239.1	211.6	184.2	156.7	247.6	16.0	247.6	245.7	226.0	198.9	171.7	144.6
8000	77	275.6	15.0	160.4	130.0	99.5	-	-	-	258.4	16.8	149.5	119.3	89.2	-	-	-
	72	285.4	14.6	213.3	182.8	152.4	121.9	-	-	267.6	16.6	203.3	173.2	143.0	112.9	-	-
	67	295.2	14.2	266.2	235.7	205.3	174.8	144.3	-	276.8	16.3	257.2	227.0	196.9	166.7	136.6	-
	62	284.7	14.0	284.7	284.7	255.4	224.9	194.5	164.0	258.1	16.0	258.1	258.1	242.8	212.6	182.4	152.3
8700	77	277.7	13.9	277.7	277.7	263.3	232.9	202.4	171.9	256.0	16.0	256.0	256.0	248.1	218.0	187.8	157.7
	72	294.0	14.6	223.0	190.9	158.8	126.7	-	-	275.6	16.6	212.6	180.8	149.0	117.3	-	-
	67	304.1	14.2	278.1	246.0	213.9	181.8	149.7	-	285.1	16.3	268.7	236.9	205.2	173.4	141.6	-
	62	293.4	14.0	293.4	293.4	268.4	236.3	204.2	172.1	265.8	16.1	265.8	265.8	253.0	221.2	189.4	157.6
9400	77	286.2	13.9	286.2	286.2	276.7	244.6	212.5	180.4	263.6	16.0	263.6	263.6	258.6	226.8	195.0	163.2
	72	302.7	14.6	232.7	199.0	165.2	131.5	-	-	283.6	16.6	221.9	188.5	155.1	121.6	-	-
	67	313.1	14.2	290.0	256.3	222.6	188.8	155.1	-	293.4	16.3	280.3	246.9	213.4	180.0	146.6	-
	62	302.0	14.0	302.0	302.0	281.3	247.6	213.9	180.2	273.5	16.1	273.5	273.5	263.2	229.8	196.3	162.9
9500	77	294.6	13.9	294.6	294.6	290.0	256.3	222.6	188.8	271.3	16.0	271.3	271.3	269.0	235.6	202.2	168.7
	72	215.3	18.6	102.7	82.0	61.2	-	-	-	201.4	20.9	94.7	76.5	55.7	-	-	-
	72	223.1	18.4	145.3	124.5	103.7	82.9	-	-	209.6	20.7	139.6	118.8	98.0	77.2	-	-
	67	230.8	18.2	187.8	167.0	146.2	125.4	104.7	-	217.7	20.6	184.6	161.1	140.3	119.5	98.7	-
6000	62	206.6	18.0	206.6	206.6	178.5	157.7	136.9	116.2	200.7	20.4	200.7	200.7	170.5	149.7	128.9	108.1
	77	223.9	18.6	114.7	90.9	67.1	-	-	-	207.9	21.0	108.4	84.6	60.9	-	-	-
	72	232.0	18.4	161.3	137.5	113.7	89.9	-	-	216.3	20.8	154.6	130.9	107.2	83.4	-	-
	67	240.0	18.2	207.9	184.1	160.3	136.5	112.7	-	224.7	20.6	200.9	177.2	153.4	129.7	106.0	-
7000	62	214.9	18.0	214.9	214.9	195.7	171.9	148.1	124.3	207.1	20.4	207.1	207.1	186.4	162.7	139.0	115.2
	57	217.5	18.1	217.5	217.5	198.1	174.3	150.5	126.7	207.3	20.4	207.3	207.3	186.7	163.0	139.2	115.5
	77	232.6	18.7	126.6	99.8	72.9	-	-	-	214.4	21.0	122.1	92.8	66.1	-	-	-
	72	240.9	18.5	177.3	150.5	123.7	96.9	-	-	223.1	20.9	169.6	143.0	116.3	89.7	-	-
8000	67	249.3	18.3	228.1	201.2	174.4	147.6	120.8	-	231.7	20.7	217.2	193.2	166.5	139.9	113.2	-
	62	223.2	18.0	223.2	223.2	212.9	186.1	159.3	132.4	213.5	20.5	213.5	213.5	202.4	175.7	149.0	122.4
	57	225.9	18.1	225.9	225.9	215.5	188.7	161.9	135.0	213.8	20.4	213.8	213.8	202.6	176.0	149.3	122.6
	77	241.2	18.7	138.5	108.7	78.8	-	-	-	220.9	21.1	135.8	100.9	71.3	-	-	-
8700	72	249.8	18.5	193.4	163.5	133.7	103.8	-	-	229.8	20.9	184.7	155.1	125.5	95.9	-	-
	67	258.5	18.3	248.2	218.3	188.5	158.7	128.8	-	238.7	20.7	233.5	209.2	179.6	150.0	120.4	-
	62	231.4	18.1	231.4	231.4	230.1	200.3	170.4	140.6	219.9	20.5	219.9	219.9	218.3	188.7	159.1	129.5
	57	234.2	18.1	234.2	234.2	232.9	203.1	173.2	143.4	220.2	20.5	220.2	220.2	218.6	189.0	159.4	129.8
9400	72	257.2	18.5	202.2	170.8	139.3	107.8	-	-	237.0	20.9	193.6	162.4	131.1	99.8	-	-
	67	266.1	18.3	259.4	227.9	196.4	164.9	133.5	-	246.2	20.7	242.8	219.0	187.7	156.4	125.2	-
	62	238.2	18.1	238.2	238.2	237.6	206.1	174.6	143.1	226.8	20.5	226.8	226.8	226.0	194.7	163.5	132.2
	57	241.1	18.1	241.1	241.1	240.4	209.0	177.5	146.0	227.1	20.5	227.1	227.1	226.3	195.0	163.8	132.5
9500	72	264.5	18.5	211.1	178.0	144.9	111.8	-	-	244.2	20.9	202.6	169.7	136.7	103.8	-	-
	67	273.7	18.3	270.5	237.4	204.3	171.2	138.1	-	253.7	20.7	252.1	228.7	195.8	162.8	129.9	-
	62	245.0	18.1	245.0	245.0	245.0	211.9	178.8	145.7	233.7	20.5	233.7	233.7	233.7	200.8	167.8	134.9
	57	248.0	18.1	248.0	248.0	248.0	214.9	181.8	148.7	234.0	20.5	234.0	234.0	234.0	201.1	168.2	135.2

**ZJ240 (20 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
5000	77	187.6	23.2	86.6	71.0	50.2	-	-	-	173.7	25.6	75.9	65.6	44.8	-	-	-
	72	196.0	23.1	134.0	113.1	92.3	71.5	-	-	182.5	25.4	128.3	107.5	86.6	65.8	-	-
	67	204.5	22.9	181.3	155.2	134.4	113.6	92.8	-	191.4	25.3	178.1	149.3	128.5	107.7	86.9	-
	62	194.7	22.8	194.7	194.7	162.5	141.7	120.9	100.1	188.7	25.1	188.7	188.7	154.5	133.7	112.9	92.0
6000	77	191.9	23.3	102.1	78.4	54.8	-	-	-	175.9	25.7	95.8	72.2	48.6	-	-	-
	72	200.6	23.2	147.9	124.3	100.6	77.0	-	-	184.9	25.5	141.3	117.7	94.1	70.5	-	-
	67	209.3	23.0	193.8	170.2	146.5	122.9	99.2	-	193.9	25.4	186.8	163.2	139.6	116.1	92.5	-
	62	199.2	22.8	199.2	199.2	177.1	153.5	129.8	106.2	191.4	25.2	191.4	191.4	167.9	144.3	120.7	97.1
57	197.1	22.7	197.1	197.1	175.3	151.6	128.0	104.3	187.0	25.0	187.0	187.0	163.9	140.3	116.7	93.1	-
7000	77	196.3	23.4	117.5	85.8	59.3	-	-	-	178.2	25.8	115.6	78.8	52.4	-	-	-
	72	205.2	23.2	161.9	135.5	109.0	82.5	-	-	187.3	25.6	154.3	127.9	101.6	75.3	-	-
	67	214.1	23.1	206.3	185.1	158.6	132.1	105.6	-	196.5	25.5	195.5	177.1	150.7	124.4	98.1	-
	62	203.8	22.9	203.8	203.8	191.8	165.3	138.8	112.3	194.1	25.3	194.1	194.1	181.2	154.9	128.5	102.2
57	201.6	22.8	201.6	201.6	189.8	163.3	136.8	110.3	189.5	25.1	189.5	189.5	176.9	150.5	124.2	97.9	-
8000	77	200.7	23.5	133.0	93.1	63.8	-	-	-	180.4	25.9	135.4	85.4	56.3	-	-	-
	72	209.8	23.3	175.9	146.6	117.3	87.9	-	-	189.7	25.7	167.2	138.2	109.1	80.0	-	-
	67	218.9	23.2	218.9	200.1	170.7	141.4	112.1	-	199.0	25.6	199.0	190.9	161.9	132.8	103.7	-
	62	208.3	23.0	208.3	208.3	206.4	177.1	147.7	118.4	196.8	25.4	196.8	196.8	194.6	165.5	136.4	107.3
57	206.1	22.9	206.1	206.1	204.2	174.9	145.6	116.2	192.1	25.2	192.1	192.1	189.9	160.8	131.7	102.6	-
8700	72	216.9	23.3	185.1	154.0	122.9	91.9	-	-	196.7	25.7	176.5	145.6	114.8	83.9	-	-
	67	226.3	23.2	226.3	210.1	179.0	147.9	116.9	-	206.4	25.6	206.4	201.1	170.3	139.4	108.6	-
	62	215.4	23.0	215.4	215.4	214.4	183.4	152.3	121.2	203.9	25.4	203.9	203.9	202.9	172.0	141.1	110.3
	57	213.1	22.9	213.1	213.1	212.2	181.1	150.0	119.0	199.1	25.2	199.1	199.1	198.0	167.2	136.3	105.5
9400	72	224.0	23.3	194.2	161.4	128.6	95.8	-	-	203.7	25.7	185.7	153.1	120.5	87.9	-	-
	67	233.7	23.2	233.7	220.0	187.3	154.5	121.7	-	213.7	25.6	213.7	211.3	178.7	146.1	113.5	-
	62	222.4	23.0	222.4	222.4	222.4	189.6	156.9	124.1	211.1	25.4	211.1	211.1	211.1	178.5	145.9	113.3
	57	220.1	22.8	220.1	220.1	220.1	187.3	154.5	121.8	206.2	25.2	206.2	206.2	206.2	173.5	140.9	108.3

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

**ZJ300 (25 Ton)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)								Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)						Return Dry Bulb (°F)									
				90	85	80	75	70	65	90	85			80	75	70	65		
				<b>75°F</b>								<b>85°F</b>							
6250	77	389.1	20.4	142.8	116.5	90.2	-	-	-	365.0	22.0	147.7	121.4	95.1	-	-	-		
	72	357.9	19.7	193.0	166.7	140.4	114.1	-	-	336.4	21.6	194.0	167.7	141.4	115.1	-	-		
	67	326.6	18.9	243.2	216.9	190.6	164.3	138.0	-	307.7	21.1	240.3	214.0	187.8	161.5	135.2	-		
	62	303.2	18.5	303.2	273.8	231.8	205.5	179.2	152.9	285.3	20.6	285.3	270.6	231.5	205.2	179.0	152.7		
7500	77	399.6	20.6	160.8	131.0	101.1	-	-	-	374.4	22.3	163.0	133.5	104.1	-	-	-		
	72	367.5	19.8	216.8	186.9	157.1	127.2	-	-	345.0	21.8	213.7	184.2	154.8	125.3	-	-		
	67	335.4	19.0	272.7	242.9	213.0	183.2	153.3	-	315.6	21.3	264.4	234.9	205.5	176.0	146.6	-		
	62	311.4	18.6	311.4	291.8	259.2	229.4	199.5	169.7	292.6	20.9	292.6	282.8	253.4	224.0	194.5	165.1		
	57	315.1	18.5	315.1	294.6	263.1	233.2	203.4	173.5	296.1	20.7	296.1	285.8	256.4	226.9	197.5	168.0		
8750	77	410.1	20.8	178.8	145.4	112.0	-	-	-	383.7	22.6	178.3	145.7	113.1	-	-	-		
	72	377.2	20.0	240.6	207.2	173.7	140.3	-	-	353.6	22.1	233.4	200.7	168.1	135.5	-	-		
	67	344.2	19.2	302.3	268.9	235.5	202.1	168.6	-	323.5	21.6	288.4	255.8	223.2	190.6	158.0	-		
	62	319.6	18.7	319.6	309.8	286.6	253.2	219.8	186.4	300.0	21.1	300.0	295.1	275.3	242.7	210.1	177.5		
	57	323.4	18.6	323.4	313.1	290.9	257.5	224.0	190.6	303.5	21.0	303.5	298.4	278.5	245.9	213.3	180.7		
10000	77	420.6	20.9	196.9	159.9	122.9	-	-	-	393.1	22.8	193.6	157.8	122.0	-	-	-		
	72	386.8	20.1	264.4	227.4	190.4	153.4	-	-	362.3	22.3	253.0	217.3	181.5	145.7	-	-		
	67	353.0	19.3	331.8	294.9	257.9	220.9	183.9	-	331.4	21.8	312.5	276.7	241.0	205.2	169.4	-		
	62	327.8	18.9	327.8	327.8	314.1	277.1	240.1	203.2	307.3	21.4	307.3	307.3	297.1	261.4	225.6	189.8		
	57	331.7	18.8	331.7	331.7	318.7	281.7	244.7	207.8	310.9	21.2	310.9	310.9	300.6	264.9	229.1	193.3		
11250	72	410.4	20.7	265.2	224.4	183.7	143.0	-	-	384.5	22.8	264.6	224.7	184.9	145.1	-	-		
	67	374.5	19.8	330.8	290.1	249.4	208.7	168.0	-	351.8	22.3	325.2	285.3	245.5	205.6	165.8	-		
	62	347.7	19.4	347.7	347.7	304.2	263.5	222.7	182.0	326.1	21.8	326.1	326.1	302.7	262.9	223.0	183.2		
	57	351.8	19.3	351.8	351.8	308.2	267.5	226.8	186.1	330.0	21.7	330.0	330.0	306.3	266.4	226.6	186.7		
12500	72	433.9	21.2	266.0	221.5	177.0	132.6	-	-	406.7	23.3	276.1	232.2	188.3	144.4	-	-		
	67	396.0	20.4	329.8	285.4	240.9	196.5	152.0	-	372.1	22.8	337.8	293.9	250.0	206.1	162.2	-		
	62	367.7	19.9	367.7	367.7	294.3	249.8	205.4	160.9	345.0	22.3	345.0	345.0	308.3	264.4	220.4	176.5		
	57	372.0	19.8	372.0	372.0	297.8	253.3	208.9	164.4	349.0	22.2	349.0	349.0	311.9	268.0	224.1	180.1		
				<b>95°F</b>								<b>105°F</b>							
6250	77	340.9	23.6	152.5	126.3	100.0	-	-	-	314.7	26.6	135.4	114.9	89.2	-	-	-		
	72	314.9	23.5	195.0	168.7	142.4	116.2	-	-	292.2	26.3	183.4	157.6	131.8	106.1	-	-		
	67	288.9	23.3	237.4	211.2	184.9	158.6	132.4	-	269.6	26.1	231.3	200.2	174.5	148.7	122.9	-		
	62	267.4	22.8	267.4	267.4	231.3	205.0	178.7	152.5	254.2	25.5	254.2	250.8	211.9	186.2	160.4	134.6		
7500	77	349.1	24.0	165.1	136.1	107.0	-	-	-	320.4	27.0	153.8	125.1	96.3	-	-	-		
	72	322.5	23.8	210.6	181.5	152.5	123.5	-	-	297.4	26.8	200.0	171.2	142.5	113.8	-	-		
	67	295.9	23.7	256.0	227.0	197.9	168.9	139.9	-	274.4	26.5	246.1	217.4	188.6	159.9	131.2	-		
	62	273.9	23.1	273.9	273.9	247.6	218.6	189.5	160.5	258.7	25.9	258.7	256.4	229.1	200.3	171.6	142.9		
	57	277.0	23.0	277.0	277.0	249.7	220.6	191.6	162.6	260.0	25.7	260.0	256.5	228.6	199.9	171.2	142.4		
8750	77	357.4	24.4	177.7	145.9	114.1	-	-	-	326.0	27.5	172.3	135.2	103.5	-	-	-		
	72	330.1	24.2	226.1	194.3	162.5	130.7	-	-	302.6	27.2	216.6	184.9	153.2	121.5	-	-		
	67	302.9	24.0	274.6	242.8	211.0	179.2	147.4	-	279.2	27.0	260.9	234.5	202.8	171.1	139.4	-		
	62	280.3	23.5	280.3	280.3	263.9	232.1	200.3	168.5	263.2	26.3	263.2	262.1	246.2	214.5	182.8	151.1		
	57	283.6	23.3	283.6	283.6	266.1	234.3	202.5	170.7	264.5	26.2	264.5	262.8	245.7	214.0	182.3	150.6		
10000	77	365.6	24.7	190.3	155.7	121.1	-	-	-	331.6	27.9	190.7	145.4	110.7	-	-	-		
	72	337.7	24.6	241.7	207.1	172.6	138.0	-	-	307.8	27.6	233.2	198.5	163.8	129.2	-	-		
	67	309.9	24.4	293.2	258.6	224.0	189.5	154.9	-	284.0	27.4	275.7	251.6	217.0	182.3	147.6	-		
	62	286.8	23.9	286.8	286.8	280.2	245.6	211.1	176.5	267.7	26.7	267.7	267.7	263.3	228.7	194.0	159.3		
	57	290.1	23.7	290.1	290.1	282.6	248.0	213.5	178.9	269.0	26.6	269.0	269.0	262.8	228.1	193.4	158.8		
11250	72	358.6	25.0	264.0	225.0	186.1	147.1	-	-	328.4	28.1	250.8	211.8	172.7	133.7	-	-		
	67	329.0	24.8	319.5	280.5	241.5	202.6	163.6	-	303.0	27.9	298.2	267.7	228.7	189.6	150.6	-		
	62	304.5	24.3	304.5	304.5	301.2	262.3	223.3	184.3	285.7	27.2	285.7	285.7	277.3	238.3	199.3	160.2		
	57	308.1	24.1	308.1	308.1	304.3	265.3	226.4	187.4	287.1	27.1	287.1	287.1	277.1	238.0	199.0	160.0		
12500	72	379.5	25.5	286.3	242.9	199.5	156.2	-	-	349.0	28.6	268.4	225.0	181.7	138.3	-	-		
	67	348.2	25.3	345.8	302.4	259.0	215.7	172.3	-	322.0	28.3	320.8	283.7	240.4	197.0	153.6	-		
	62	322.3	24.7	322.3	322.3	322.3	278.9	235.5	192.2	303.6	27.7	303.6	303.6	291.3	247.9	204.6	161.2		
	57	326.0	24.6	326.0	326.0	326.0	282.6	239.3	195.9	305.1	27.5	305.1	305.1	291.3	248.0	204.6	161.2		

**ZJ300 (25 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
6250	77	288.6	29.5	118.2	103.6	78.4	-	-	-	262.4	32.4	96.9	89.6	67.5	-	-	-
	72	269.4	29.2	171.7	146.5	121.2	95.9	-	-	246.7	32.0	160.1	135.3	110.6	85.8	-	-
	67	250.3	28.9	225.2	189.3	164.0	138.8	113.5	-	231.0	31.7	220.7	178.4	153.6	128.9	104.1	-
	62	241.1	28.1	241.1	234.1	192.6	167.3	142.1	116.8	227.9	30.8	227.9	217.5	173.3	148.5	123.8	99.0
7500	77	291.6	30.0	142.5	114.1	85.7	-	-	-	262.8	33.0	131.2	103.1	75.0	-	-	-
	72	272.3	29.7	189.4	160.9	132.5	104.1	-	-	247.1	32.6	178.8	150.6	122.5	94.4	-	-
	67	252.9	29.4	236.2	207.8	179.3	150.9	122.5	-	231.4	32.2	226.3	198.1	170.0	141.9	113.7	-
	62	243.6	28.6	243.6	239.0	210.5	182.1	153.7	125.2	228.5	31.4	228.5	221.5	192.0	163.9	135.8	107.6
	57	242.9	28.5	242.9	236.0	207.6	179.2	150.7	122.3	225.8	31.3	225.8	215.5	186.5	158.4	130.3	102.1
8750	77	294.6	30.5	166.8	124.6	93.0	-	-	-	263.2	33.6	165.5	116.6	82.4	-	-	-
	72	275.1	30.2	207.0	175.4	143.8	112.2	-	-	247.6	33.2	197.4	165.9	134.4	102.9	-	-
	67	255.5	29.9	247.2	226.2	194.6	163.0	131.4	-	231.9	32.8	231.9	217.9	186.4	154.9	123.4	-
	62	246.1	29.1	246.1	243.8	228.5	196.9	165.3	133.7	229.0	32.0	229.0	225.6	210.8	179.3	147.8	116.2
	57	245.4	29.0	245.4	242.0	225.3	193.7	162.1	130.5	226.3	31.8	226.3	221.2	204.9	173.3	141.8	110.3
10000	77	297.6	31.1	191.1	135.0	100.3	-	-	-	263.7	34.2	199.9	130.1	89.8	-	-	-
	72	277.9	30.7	224.6	189.9	155.1	120.3	-	-	248.0	33.8	216.1	181.2	146.3	111.4	-	-
	67	258.2	30.4	258.2	244.7	209.9	175.1	140.3	-	232.3	33.4	232.3	232.3	202.8	167.9	133.0	-
	62	248.7	29.6	248.7	248.7	246.4	211.7	176.9	142.1	229.6	32.5	229.6	229.6	229.5	194.7	159.8	124.9
	57	247.9	29.5	247.9	247.9	243.0	208.2	173.4	138.6	226.8	32.4	226.8	226.8	223.2	188.3	153.4	118.5
11250	72	298.2	31.2	237.6	198.5	159.4	120.4	-	-	268.0	34.4	224.4	185.2	146.1	107.0	-	-
	67	277.0	30.9	277.0	254.9	215.8	176.7	137.7	-	251.0	34.0	251.0	242.1	202.9	163.8	124.7	-
	62	266.8	30.1	266.8	266.8	253.4	214.3	175.2	136.1	248.0	33.0	248.0	248.0	229.4	190.3	151.2	112.1
	57	266.1	30.0	266.1	266.1	249.8	210.7	171.7	132.6	245.0	32.9	245.0	245.0	222.6	183.4	144.3	105.2
12500	72	318.5	31.8	250.5	207.2	163.8	120.4	-	-	288.0	34.9	232.6	189.3	145.9	102.6	-	-
	67	295.9	31.4	295.9	265.1	221.7	178.3	135.0	-	269.8	34.5	269.8	246.4	203.0	159.7	116.3	-
	62	285.0	30.6	285.0	285.0	260.3	216.9	173.6	130.2	266.4	33.6	266.4	266.4	229.3	186.0	142.6	99.2
	57	284.2	30.5	284.2	284.2	256.6	213.3	169.9	126.6	263.3	33.4	263.3	263.3	222.0	178.6	135.3	91.9

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

**ZR180-300 Cooling and Reheat Capacities**

**ZR180 (15 Ton)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
4500	77	243.6	12.1	109.3	87.9	66.5	-	-	-	234.2	13.1	110.4	89.0	67.6	-	-	-
	72	224.6	11.7	138.8	117.5	96.1	74.7	-	-	216.5	12.8	140.8	119.4	98.0	76.6	-	-
	67	205.7	11.2	168.4	147.0	125.6	104.2	82.8	-	198.8	12.5	171.2	149.8	128.4	107.0	85.6	-
	62	189.9	11.1	189.9	180.0	154.9	133.5	112.1	90.7	183.9	12.3	183.9	178.9	157.6	136.2	114.8	93.4
	57	187.0	10.9	187.0	187.0	161.2	139.8	118.4	97.0	181.3	12.2	181.3	181.3	163.1	141.7	120.4	99.0
5250	77	254.7	12.1	124.4	99.9	74.6	-	-	-	242.3	13.2	123.8	98.5	73.2	-	-	-
	72	235.0	11.7	158.3	133.0	107.8	82.5	-	-	224.0	12.8	156.7	131.4	106.2	80.9	-	-
	67	215.2	11.3	192.2	166.2	140.9	115.6	90.4	-	205.6	12.5	189.6	164.4	139.1	113.8	88.6	-
	62	198.7	11.1	198.7	193.7	173.7	148.4	123.1	97.9	190.3	12.3	190.3	187.8	170.7	145.4	120.2	94.9
	57	195.6	11.0	195.6	195.6	180.7	155.4	130.2	104.9	187.6	12.3	187.6	187.6	176.7	151.5	126.2	100.9
6000	77	265.9	12.2	139.6	111.8	82.7	-	-	-	250.4	13.2	137.2	108.0	78.9	-	-	-
	72	245.3	11.7	177.8	148.6	119.4	90.3	-	-	231.4	12.9	172.6	143.5	114.3	85.2	-	-
	67	224.7	11.3	216.0	185.4	156.2	127.0	97.9	-	212.5	12.6	208.1	179.0	149.8	120.6	91.5	-
	62	207.4	11.1	207.4	207.4	192.5	163.3	134.2	105.0	196.6	12.4	196.6	196.6	183.8	154.7	125.5	96.4
	57	204.2	11.0	204.2	204.2	200.2	171.0	141.9	112.7	193.8	12.3	193.8	193.8	190.3	161.2	132.0	102.8
6750	72	249.5	11.8	191.8	158.6	125.4	92.2	-	-	234.5	13.0	187.4	154.2	121.0	87.8	-	-
	67	228.5	11.4	224.1	197.1	163.9	130.7	97.5	-	215.3	12.6	213.2	191.8	158.6	125.4	92.2	-
	62	211.0	11.2	211.0	211.0	203.5	170.3	137.1	103.9	199.3	12.5	199.3	199.3	192.9	159.7	126.4	93.2
	57	207.7	11.1	207.7	207.7	205.7	172.5	139.3	106.1	196.4	12.4	196.4	196.4	194.7	161.5	128.3	95.0
	72	253.7	11.9	205.8	168.5	131.3	94.0	-	-	237.6	13.0	202.2	165.0	127.7	90.5	-	-
7500	67	232.3	11.5	232.3	208.9	171.7	134.4	97.2	-	218.2	12.7	218.2	204.6	167.3	130.1	92.8	-
	62	214.5	11.3	214.5	214.5	214.5	177.3	140.0	102.7	201.9	12.5	201.9	201.9	201.9	164.6	127.4	90.1
	57	211.2	11.2	211.2	211.2	211.2	174.0	136.7	99.4	199.0	12.4	199.0	199.0	199.0	161.8	124.5	87.2
					95°F						105°F						
	4500	77	224.8	14.1	111.4	90.0	68.6	-	-	-	208.7	15.6	103.5	82.1	60.7	-	-
72		208.3	13.9	142.7	121.3	99.9	78.5	-	-	192.4	15.5	133.9	112.5	91.1	69.7	-	-
67		191.8	13.7	173.9	152.6	131.2	109.8	88.4	-	176.0	15.3	164.2	142.8	121.4	100.0	78.7	-
62		177.9	13.5	177.9	177.9	160.3	138.9	117.5	96.1	163.9	15.1	163.9	163.9	149.1	127.8	106.4	85.0
57		175.6	13.5	175.6	175.6	165.1	143.7	122.3	100.9	163.3	15.1	163.3	163.3	149.3	127.9	106.5	85.2
5250	77	229.8	14.2	123.1	97.1	71.8	-	-	-	214.4	15.7	120.4	90.0	64.7	-	-	-
	72	212.9	14.0	155.1	129.8	104.6	79.3	-	-	197.6	15.5	147.7	122.4	97.1	71.9	-	-
	67	196.0	13.8	187.1	162.6	137.3	112.0	86.7	-	180.8	15.4	174.9	154.8	129.5	104.3	79.0	-
	62	181.8	13.6	181.8	181.8	167.7	142.5	117.2	91.9	168.4	15.2	168.4	168.4	159.1	133.8	108.6	83.3
	57	179.5	13.6	179.5	179.5	172.8	147.5	122.2	96.9	167.8	15.2	167.8	167.8	159.2	133.9	108.6	83.4
6000	77	234.8	14.3	134.8	104.2	75.0	-	-	-	220.2	15.7	137.3	97.9	68.7	-	-	-
	72	217.5	14.1	167.5	138.4	109.2	80.0	-	-	202.9	15.6	161.5	132.3	103.2	74.0	-	-
	67	200.3	13.8	200.3	172.6	143.4	114.2	85.1	-	185.7	15.4	185.7	166.8	137.6	108.5	79.3	-
	62	185.8	13.6	185.8	185.8	175.2	146.0	116.9	87.7	172.9	15.2	172.9	172.9	169.1	139.9	110.8	81.6
	57	183.4	13.6	183.4	183.4	180.5	151.3	122.1	93.0	172.3	15.2	172.3	172.3	169.1	139.9	110.8	81.6
6750	72	219.6	14.1	183.1	149.9	116.7	83.5	-	-	204.8	15.6	176.9	143.7	110.5	77.2	-	-
	67	202.2	13.9	202.2	186.4	153.2	120.0	86.8	-	187.4	15.4	187.4	177.0	147.4	114.1	80.9	-
	62	187.5	13.7	187.5	187.5	182.2	149.0	115.8	82.6	174.5	15.2	174.5	174.5	172.6	139.4	106.2	73.0
	57	185.1	13.7	185.1	185.1	183.6	150.4	117.2	84.0	173.9	15.2	173.9	173.9	172.3	139.1	105.8	72.6
	72	221.6	14.1	198.7	161.4	124.1	86.9	-	-	206.6	15.6	192.3	155.0	117.7	80.5	-	-
7500	67	204.0	13.9	204.0	200.3	163.0	125.8	88.5	-	189.1	15.4	189.1	187.2	157.1	119.8	82.5	-
	62	189.3	13.7	189.3	189.3	189.3	152.0	114.7	77.5	176.1	15.2	176.1	176.1	176.1	138.8	101.6	64.3
	57	186.8	13.7	186.8	186.8	186.8	149.6	112.3	75.0	175.5	15.3	175.5	175.5	175.5	138.2	100.9	63.7

**ZR180 (15 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil																
		Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						
				Return Dry Bulb (°F)								Return Dry Bulb (°F)						
CFM	WB (°F)			90	85	80	75	70	65			90	85	80	75	70	65	
		115°F									125°F							
4500	77	192.6	17.1	95.7	74.3	52.9	-	-	-	176.4	18.6	87.8	66.4	45.0	-	-	-	
	72	176.4	17.0	125.1	103.7	82.3	60.9	-	-	160.4	18.5	116.2	94.9	73.5	52.1	-	-	
	67	160.2	16.9	154.5	133.1	111.7	90.3	68.9	-	144.5	18.5	144.5	123.3	101.9	80.6	59.2	-	
	62	150.0	16.7	150.0	150.0	138.0	116.6	95.2	73.9	136.0	18.3	136.0	136.0	126.9	105.5	84.1	62.7	
	57	151.0	16.7	151.0	151.0	133.5	112.2	90.8	69.4	138.8	18.3	138.8	138.8	117.8	96.4	75.0	53.6	
5250	77	199.0	17.2	117.8	82.9	57.7	-	-	-	183.7	18.6	115.1	75.9	50.6	-	-	-	
	72	182.3	17.0	140.3	115.0	89.7	64.5	-	-	167.1	18.6	132.9	107.6	82.3	57.0	-	-	
	67	165.6	16.9	162.8	147.1	121.8	96.5	71.2	-	150.4	18.5	150.4	139.3	114.0	88.8	63.5	-	
	62	155.0	16.7	155.0	155.0	150.5	125.2	99.9	74.7	141.6	18.3	141.6	141.6	141.6	116.6	91.3	66.1	
	57	156.1	16.8	156.1	156.1	145.6	120.3	95.1	69.8	144.5	18.4	144.5	144.5	132.0	106.8	81.5	56.2	
6000	77	205.5	17.2	139.9	91.6	62.4	-	-	-	190.9	18.7	142.5	85.3	56.2	-	-	-	
	72	188.3	17.1	155.5	126.3	97.2	68.0	-	-	173.7	18.6	149.5	120.3	91.1	62.0	-	-	
	67	171.0	17.0	171.0	161.0	131.9	102.7	73.6	-	156.4	18.5	156.4	155.3	126.1	97.0	67.8	-	
	62	160.1	16.8	160.1	160.1	163.0	133.8	104.6	75.5	147.2	18.3	147.2	147.2	147.2	127.7	98.5	69.4	
	57	161.2	16.8	161.2	161.2	157.7	128.5	99.4	70.2	150.2	18.4	150.2	150.2	146.3	117.1	88.0	58.8	
6750	72	190.0	17.1	170.7	137.5	104.2	71.0	-	-	175.2	18.6	164.4	131.2	98.0	64.8	-	-	
	67	172.6	17.0	172.6	167.6	141.5	108.3	75.1	-	157.8	18.5	157.8	157.8	135.6	102.4	69.2	-	
	62	161.5	16.8	161.5	161.5	162.9	129.7	96.5	63.3	148.5	18.3	148.5	148.5	148.5	120.1	86.9	53.7	
	57	162.7	16.8	162.7	162.7	160.9	127.7	94.5	61.3	151.4	18.4	151.4	151.4	149.5	116.3	83.1	49.9	
7500	72	191.6	17.1	185.8	148.6	111.3	74.1	-	-	176.7	18.6	176.7	142.2	104.9	67.7	-	-	
	67	174.1	17.0	174.1	174.1	151.1	113.8	76.6	-	159.1	18.5	159.1	159.1	145.1	107.9	70.6	-	
	62	162.9	16.8	162.9	162.9	162.9	125.7	88.4	51.1	149.8	18.3	149.8	149.8	149.8	112.5	75.2	38.0	
	57	164.1	16.8	164.1	164.1	164.1	126.8	89.6	52.3	152.7	18.4	152.7	152.7	152.7	115.5	78.2	41.0	

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.


## ZR180 (15 Ton) Alternate Reheat Mode

Air on Evaporator Coil		Temperature of Air on Condenser Coil													
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)					Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)				
				Return Dry Bulb (°F)							Return Dry Bulb (°F)				
				85	80	75	70	65			85	80	75	70	65
				35°F					45°F						
4500	72	134.0	9.8						125.8	10.4					
	67	120.5	9.0	50.1	28.8	7.4			113.0	9.7	46.0	24.6	3.2		
	62	104.5	8.1	87.0	85.0	64.0	60.0		98.6	8.9	95.0	75.0	53.0	45.0	
	57	100.8	8.0	100.8	85.0	76.0	35.0	10.0	95.7	8.8	95.7	80.0	75.0	30.0	5.0
5250	72	138.8	9.8						130.4	10.4					
	67	124.8	9.0	55.0	5.2				117.2	9.7	31.2	5.9			
	62	108.2	8.1	95.0	90.0	65.0	50.0		102.2	8.9	100.0	80.0	55.0	38.0	
	57	104.3	8.0	104.3	100.0	90.0	46.0	15.0	99.1	8.8	99.1	93.0	80.0	40.0	12.0
6000	72	143.6	9.7	24.7					135.1	10.4					
	67	129.0	9.0	45.0					121.4	9.7	48.5				
	62	111.8	8.1	98.0	95.0	70.0	45.0		105.8	8.9	105.0	85.0	60.0	35.0	
	57	107.8	8.0	107.8	105.0	126.7	69.9	23.0	102.6	8.8	102.6	102.0	110.4	60.5	19.2
6750	72	150.2	10.0						140.9	10.6					
	67	135.0	9.2	51.8	18.6				126.6	9.8	52.1	18.9			
	62	117.2	8.3	108.0	102.8	69.6	36.4		110.5	9.0	110.5	97.3	64.1	30.9	
	57	113.1	8.2	113.1	110.0	106.8	56.8	25.0	107.2	8.9	107.2	105.0	94.6	48.9	20.0
7500	72	156.9	10.2						146.7	10.8					
	67	141.0	9.4	92.8	55.6	18.3			131.8	10.0	87.8	50.6	13.3		
	62	122.5	8.5	112.9	110.0	85.0	65.0		115.1	9.2	107.4	130.0	75.0	50.0	
	57	118.3	8.4	118.3	118.3	81.1	78.0	45.0	111.8	9.1	111.8	111.8	74.5	25.8	35.0
				55°F					65°F						
4500	72	117.5	11.1						109.2	11.8					
	67	105.6	10.4	41.9	20.5				98.2	11.1	37.7	16.4			
	62	92.7	9.7	85.0	65.0	42.0	30.0		86.7	10.4	75.0	55.0	31.0	15.0	
	57	90.5	9.6	90.5	75.0	65.0	25.0		85.4	10.3	85.4	70.0	55.0	20.0	
5250	72	122.0	11.1						113.6	11.8					
	67	109.7	10.4	31.8	6.6				102.2	11.1	32.5	7.2			
	62	96.2	9.7	90.0	70.0	45.0	26.0		90.3	10.4	80.0	60.0	35.0	14.0	
	57	94.0	9.5	94.0	86.0	70.0	34.0	10.0	88.8	10.3	88.8	79.0	60.0	28.0	
6000	72	126.6	11.1	15.2					118.0	11.8	10.5				
	67	113.8	10.4	21.8					106.2	11.1	27.3	15.0			
	62	99.8	9.6	95.0	75.0	50.0	25.0		93.8	10.4	85.0	65.0	40.0	15.0	
	57	97.4	9.5	97.4	94.0	92.0	51.0	15.0	92.3	10.3	92.3	86.0	77.7	41.6	
6750	72	131.5	11.2						122.1	11.8					
	67	118.2	10.5	52.3	19.1				109.8	11.2	52.5	19.3			
	62	103.7	9.8	103.7	91.8	58.6	25.4		97.0	10.5	97.0	86.4	53.1	19.9	
	57	101.4	9.7	101.4	98.0	60.0	30.0	25.0	95.5	10.4	89.3	87.0	70.3	32.9	
7500	72	136.4	11.4						126.2	11.9					
	67	122.7	10.6	82.8	45.6	8.3			113.5	11.3	77.8	40.6	3.3		
	62	107.7	9.9	102.0	100.0	65.0	35.0		100.3	10.6	96.5	95.0	55.0	20.0	
	57	105.3	9.8	105.3	105.3	74.0	40.0	30.0	98.7	10.5	98.7	98.7	61.5	45.0	

**ZR180 (15 Ton) Alternate Reheat Mode (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil													
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)					Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)				
				Return Dry Bulb (°F)							Return Dry Bulb (°F)				
				85	80	75	70	65			85	80	75	70	65
				75°F					85°F						
4500	72	100.9	12.5						92.6	13.1					
	67	90.8	11.8	33.6	12.2				83.3	12.5	29.5	8.1			
	62	80.8	11.2	65.0	45.0	20.0			74.9	12.0	55.0	35.0	9.0		
	57	80.2	11.1	80.2	65.0	45.0	15.0		75.1	11.9	70.0	60.0	35.0	10.0	
5250	72	105.2	12.5						96.8	13.1					
	67	94.6	11.8	33.2	7.9				87.1	12.5	33.9	8.6			
	62	84.3	11.2	70.0	50.0	25.0	2.0		78.3	12.0	60.0	40.0	15.0		
	57	83.6	11.1	83.6	72.0	50.0	22.0		78.5	11.9	78.5	65.0	40.0	16.0	
6000	72	109.5	12.4	5.7					101.0	13.1	1.0				
	67	98.5	11.8	32.8	3.6				90.9	12.5	38.3	9.1			
	62	87.8	11.2	75.0	55.0	30.0	5.0		81.7	12.0	65.0	45.0	20.0		
	57	87.1	11.1	87.1	78.0	61.3	32.2		81.9	11.9	81.9	70.0	45.0	22.8	
6750	72	112.7	12.5						103.3	13.1					
	67	101.4	11.8	52.8	19.6				93.0	12.5	53.0	19.8			
	62	90.3	11.2	90.3	80.9	47.7	14.4		83.6	12.0	83.6	75.4	42.2	9.0	
	57	89.6	11.1	89.6	87.0	58.2	24.9		83.8	11.9	90.0	83.4	46.0	17.0	
7500	72	115.9	12.5						105.7	13.1					
	67	104.3	11.9	72.8	35.5				95.1	12.5	67.8	30.5			
	62	92.9	11.3	91.0	85.0	45.0	5.0		85.5	12.0	85.5	70.0	35.0		
	57	92.2	11.2	92.2	92.2	55.0	17.7		85.7	11.9	85.7	85.7	48.4	15.0	

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

 No Sensible Cooling Capacity



ZR240 (20 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
6000	77	321.3	15.4	155.2	126.7	98.2	-	-	-	306.0	16.6	147.9	119.4	90.9	-	-	-
	72	295.4	14.9	191.2	162.7	134.2	105.7	-	-	281.6	16.3	185.5	157.0	128.5	100.0	-	-
	67	269.5	14.5	227.2	198.7	170.2	141.7	113.2	-	257.2	16.0	223.2	194.7	166.2	137.6	109.1	-
	62	244.8	14.4	244.8	240.1	211.6	183.1	154.6	126.1	236.6	15.8	236.6	233.5	205.0	176.5	148.0	119.5
	57	242.1	14.2	242.1	242.1	216.7	188.1	159.6	131.1	232.5	15.7	232.5	232.5	207.6	179.1	150.5	122.0
7000	77	334.5	15.4	169.8	140.9	107.2	-	-	-	316.5	16.7	166.4	132.7	99.0	-	-	-
	72	307.6	15.0	213.9	180.2	146.5	112.8	-	-	291.3	16.4	207.3	173.7	140.0	106.3	-	-
	67	280.6	14.6	258.0	219.5	185.8	152.1	118.4	-	266.0	16.1	248.3	214.6	180.9	147.2	113.5	-
	62	254.9	14.4	254.9	252.6	231.0	197.3	163.6	129.9	244.7	15.9	244.7	243.2	223.3	189.6	155.9	122.2
	57	252.1	14.3	252.1	252.1	236.5	202.8	169.2	135.5	240.5	15.7	240.5	240.5	226.0	192.3	158.6	124.9
8000	77	347.7	15.4	184.3	155.1	116.2	-	-	-	327.1	16.7	184.8	145.9	107.1	-	-	-
	72	319.7	15.0	236.6	197.7	158.8	120.0	-	-	301.0	16.4	229.1	190.3	151.4	112.5	-	-
	67	291.7	14.6	288.9	240.4	201.5	162.6	123.7	-	274.9	16.1	273.5	234.6	195.7	156.8	118.0	-
	62	265.0	14.4	265.0	265.0	250.5	211.6	172.7	133.8	252.9	15.9	252.9	252.9	241.5	202.6	163.7	124.9
	57	262.0	14.3	262.0	262.0	256.4	217.5	178.7	139.8	248.5	15.8	248.5	248.5	244.5	205.6	166.7	127.9
9000	72	325.0	15.1	250.5	206.2	161.9	117.6	-	-	305.0	16.5	243.3	199.0	154.7	110.5	-	-
	67	296.5	14.7	295.1	249.6	205.4	161.1	116.8	-	278.6	16.2	277.9	244.3	200.1	155.8	111.5	-
	62	269.5	14.5	269.5	269.5	255.3	211.0	166.7	122.5	256.3	16.0	256.3	256.3	246.8	202.6	158.3	114.0
	57	266.4	14.4	266.4	266.4	263.6	219.3	175.0	130.8	251.8	15.8	251.8	251.8	249.8	205.6	161.3	117.0
10000	72	330.3	15.1	264.3	214.7	165.0	115.3	-	-	309.1	16.5	257.5	207.8	158.1	-	-	-
	67	301.4	14.7	301.4	258.9	209.2	159.5	109.9	-	282.3	16.2	282.3	254.1	204.4	154.7	105.0	-
	62	273.9	14.6	273.9	273.9	260.1	210.4	160.8	111.1	259.7	16.0	259.7	259.7	252.2	202.5	152.8	103.2
	57	270.8	14.4	270.8	270.8	221.1	171.4	121.7	-	255.2	15.9	255.2	255.2	205.5	155.8	106.1	-
		95°F								105°F							
6000	77	290.7	17.9	140.6	112.1	83.6	-	-	-	269.2	19.8	129.8	101.2	72.7	-	-	-
	72	267.8	17.7	179.9	151.4	122.8	94.3	-	-	247.9	19.6	170.7	142.2	113.7	85.2	-	-
	67	244.9	17.5	219.1	190.6	162.1	133.6	105.1	-	226.7	19.4	211.7	183.2	154.7	126.1	97.6	-
	62	228.4	17.3	228.4	226.9	198.4	169.9	141.4	112.9	210.6	19.2	210.6	209.9	182.3	153.8	125.3	96.7
	57	222.9	17.2	222.9	222.9	198.5	170.0	141.5	112.9	209.2	19.1	209.2	203.5	177.1	148.6	120.1	91.5
7000	77	298.5	18.0	163.0	124.4	90.8	-	-	-	276.9	19.8	157.7	113.2	79.5	-	-	-
	72	275.0	17.8	200.8	167.1	133.4	99.7	-	-	255.0	19.6	191.7	158.0	124.3	90.6	-	-
	67	251.5	17.6	238.6	209.7	176.0	142.3	108.6	-	233.1	19.5	225.6	202.8	169.1	135.4	101.7	-
	62	234.5	17.4	234.5	233.8	215.5	181.8	148.1	114.4	216.6	19.2	216.6	216.3	199.2	165.5	131.8	98.1
	57	228.9	17.2	228.9	228.9	215.5	181.8	148.1	114.4	215.2	19.2	215.2	212.3	193.5	159.8	126.1	92.4
8000	77	306.4	18.0	185.3	136.8	97.9	59.0	-	-	284.5	19.8	185.7	125.1	86.2	47.3	-	-
	72	282.2	17.9	221.7	182.8	143.9	105.1	-	-	262.0	19.7	212.6	173.7	134.8	96.0	-	-
	67	258.1	17.7	258.1	228.8	190.0	151.1	112.2	-	239.6	19.5	239.6	222.4	183.5	144.6	105.7	-
	62	240.7	17.4	240.7	240.7	232.5	193.6	154.8	115.9	222.6	19.2	222.6	222.6	216.2	177.3	138.4	99.5
	57	234.9	17.3	234.9	234.9	232.6	193.7	154.8	115.9	221.1	19.2	221.1	221.1	209.9	171.0	132.1	93.3
9000	72	285.1	17.9	236.1	191.9	147.6	103.3	-	-	264.7	19.7	226.7	182.5	138.2	93.9	-	-
	67	260.7	17.7	260.7	239.0	194.8	150.5	106.2	-	242.0	19.5	242.0	229.9	188.0	143.7	99.5	-
	62	243.1	17.4	243.1	243.1	238.4	194.1	149.8	105.6	224.8	19.2	224.8	224.8	221.3	177.0	132.7	88.5
	57	237.3	17.3	237.3	237.3	236.1	191.8	147.5	103.3	223.4	19.2	223.4	223.4	213.9	169.6	125.4	81.1
10000	72	287.9	17.9	250.6	200.9	151.2	101.5	-	-	267.3	19.7	240.9	191.2	141.5	91.8	-	-
	67	263.3	17.7	263.3	249.2	199.6	149.9	100.2	-	244.4	19.5	244.4	237.3	192.5	142.9	93.2	-
	62	245.5	17.4	245.5	245.5	244.3	194.6	144.9	95.2	227.1	19.2	227.1	227.1	226.4	176.8	127.1	77.4
	57	239.6	17.3	239.6	239.6	239.6	189.9	140.3	90.6	225.6	19.2	225.6	225.6	217.9	168.2	118.6	68.9

**ZR240 (20 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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						
6000	77	247.7	21.6	118.9	90.4	61.9	-	-	-	226.2	23.5	108.1	79.6	51.1	-	-	-
	72	228.1	21.5	161.6	133.1	104.5	76.0	-	-	208.3	23.3	152.4	123.9	95.4	66.9	-	-
	67	208.5	21.3	204.2	175.7	147.2	118.7	90.2	-	190.3	23.2	190.3	168.2	139.7	111.2	82.7	-
	62	192.9	21.0	192.9	192.9	166.1	137.6	109.1	80.6	175.2	22.9	175.2	175.2	150.0	121.5	93.0	64.4
	57	195.6	21.1	195.6	184.2	155.7	127.2	98.6	70.1	181.9	23.1	181.9	164.8	134.3	105.8	77.2	48.7
7000	77	255.2	21.6	152.5	101.9	68.2	-	-	-	233.5	23.5	147.2	90.6	56.9	-	-	-
	72	235.0	21.5	182.5	148.8	115.1	81.4	-	-	214.9	23.3	173.4	139.7	106.0	72.3	-	-
	67	214.8	21.3	212.6	195.8	162.1	128.4	94.7	-	196.4	23.2	196.4	188.8	155.2	121.5	87.8	-
	62	198.7	21.0	198.7	198.7	183.0	149.3	115.6	81.9	180.8	22.9	180.8	180.8	166.7	133.0	99.3	65.6
	57	201.5	21.1	201.5	195.8	171.5	137.8	104.1	70.4	187.7	23.1	187.7	179.2	149.4	115.7	82.0	48.3
8000	77	262.6	21.6	186.0	113.3	74.5	-	-	-	240.7	23.5	186.3	101.6	62.7	-	-	-
	72	241.8	21.5	203.5	164.6	125.7	86.9	-	-	221.6	23.3	194.4	155.5	116.6	77.8	-	-
	67	221.0	21.3	221.0	215.9	177.0	138.2	99.3	-	202.5	23.2	202.5	202.5	170.6	131.7	92.8	-
	62	204.5	21.0	204.5	204.5	199.8	160.9	122.1	83.2	186.4	22.8	186.4	186.4	183.5	144.6	105.7	66.8
	57	207.3	21.2	207.3	207.3	187.2	148.4	109.5	70.6	193.6	23.1	193.6	193.6	164.6	125.7	86.8	47.9
9000	72	244.2	21.5	217.3	173.0	128.8	84.5	-	-	223.8	23.3	207.9	163.6	119.4	75.1	-	-
	67	223.2	21.3	223.2	220.7	181.3	137.0	92.7	-	204.5	23.2	204.5	204.5	174.6	130.3	86.0	-
	62	206.6	21.1	206.6	206.6	204.2	159.9	115.7	71.4	188.3	22.9	188.3	188.3	187.1	142.8	98.6	54.3
	57	209.4	21.2	209.4	209.4	191.7	147.4	103.2	58.9	195.5	23.1	195.5	195.5	169.5	125.3	81.0	36.7
10000	72	246.7	21.5	231.1	181.5	131.8	82.1	-	-	226.0	23.3	221.4	171.7	122.1	72.4	-	-
	67	225.4	21.3	225.4	225.4	185.5	135.9	86.2	-	206.5	23.2	206.5	206.5	178.5	128.8	79.2	-
	62	208.6	21.1	208.6	208.6	208.6	158.9	109.3	59.6	190.2	22.9	190.2	190.2	190.2	141.1	91.4	41.7
	57	211.5	21.2	211.5	211.5	196.2	146.5	96.9	47.2	197.4	23.1	197.4	197.4	174.5	124.8	75.2	25.5

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.


## ZR240 (20 Ton) Alternate Reheat Mode

Air on Evaporator Coil		Temperature of Air on Condenser Coil													
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)					Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)				
				Return Dry Bulb (°F)							Return Dry Bulb (°F)				
				85	80	75	70	65			85	80	75	70	65
				35°F					45°F						
6000	72	115.8	9.8						119.0	11.3	1.1				
	67	102.1	9.0	60.3	31.8	3.3			105.6	10.5	55.9	27.4			
	62	119.8	8.5	98.0	97.6	69.1	40.6	12.0	117.3	9.9	95.0	84.6	56.1	27.6	
	57	105.3	8.5	105.3	100.0	90.2	61.7	33.2	104.4	11.3	104.4	102.5	74.0	45.5	17.0
7000	72	175.1	12.6	17.1					165.3	13.4	15.4				
	67	160.5	11.8	72.0	38.3	4.6			151.0	12.6	67.9	34.2	0.5		
	62	154.3	11.0	103.7	102.3	68.6	34.9	1.2	144.7	11.8	100.3	93.9	60.2	26.5	
	57	142.9	10.9	142.9	134.1	100.4	66.8	33.1	134.0	11.7	134.0	121.2	87.5	53.8	20.1
8000	72	185.0	12.7	36.5					174.5	13.5	29.6				
	67	169.6	11.9	83.7	44.8	5.9			159.5	12.7	79.9	41.0	2.1		
	62	163.1	11.1	125.0	107.0	68.2	29.3		152.8	11.9	110.0	103.2	64.3	25.4	
	57	151.0	11.0	151.0	149.6	110.7	71.8	32.9	141.5	11.8	141.5	139.9	101.0	62.1	23.2
9000	72	182.8	12.8	37.1					172.1	13.5	31.0				
	67	167.6	12.0	92.4	48.1	3.8			157.3	12.7	88.0	43.7			
	62	161.0	11.1	110.0	118.4	74.1	29.8		150.6	11.9	107.0	112.6	68.3	24.0	
	57	149.1	11.0	149.1	148.4	104.1	59.8	15.6	139.5	11.8	139.5	138.7	94.4	50.1	5.8
10000	72	180.6	12.8	37.7					169.7	13.5	32.4				
	67	165.5	12.0	124.4	51.4	1.7			155.0	12.8	114.8	46.5			
	62	159.0	11.1	138.0	129.7	80.0	30.3		148.5	11.9	125.0	122.0	72.3	22.6	
	57	147.2	11.0	147.2	147.2	97.5	115.0		137.5	11.8	137.5	135.0	87.8	95.0	
				55°F					65°F						
6000	72	122.2	12.7	4.5					125.4	14.2	7.9				
	67	109.1	12.0	51.5	22.9				112.5	13.5	47.0	18.5			
	62	114.7	11.4	100.2	71.7	43.2	14.7		112.2	12.9	87.3	58.8	30.2	1.7	
	57	103.4	11.3	103.4	86.4	57.9	29.4	0.8	102.5	13.2	102.5	70.2	41.7	13.2	
7000	72	155.4	14.2	13.6					145.6	14.9	11.9				
	67	141.5	13.4	63.7	30.0				132.0	14.2	59.6	25.9			
	62	135.1	12.7	96.9	85.5	51.8	18.1		125.5	13.5	93.4	77.1	43.4	9.7	
	57	125.1	12.6	125.1	108.3	74.6	40.9	7.2	116.2	13.4	116.2	95.3	61.6	27.9	
8000	72	164.0	14.2	22.8					153.6	15.0	15.9				
	67	149.4	13.5	76.0	37.2				139.2	14.2	72.2	33.3			
	62	142.5	12.7	110.0	99.3	60.4	21.5		132.3	13.5	95.0	85.0	56.5	17.6	
	57	132.0	12.6	132.0	130.1	91.3	52.4	13.5	122.5	13.4	122.5	120.4	81.5	42.7	3.8
9000	72	161.5	14.2	25.0					150.8	15.0	18.9				
	67	147.0	13.5	83.6	39.3				136.7	14.3	79.2	35.0			
	62	140.2	12.7	120.0	106.8	62.5	18.2		129.9	13.6	101.0	101.0	56.7	12.4	
	57	129.9	12.6	129.9	129.0	84.7	40.4		120.3	13.5	120.3	119.2	74.9	30.7	
10000	72	158.9	14.3	27.2					148.0	15.0	21.9				
	67	144.6	13.5	105.2	41.5				134.1	14.3	95.6	36.6			
	62	137.9	12.8	115.0	114.3	64.6	14.9		127.4	13.6	116.0	106.6	56.9	7.2	
	57	127.8	12.7	127.8	127.8	78.1	75.0		118.0	13.5	118.0	118.0	68.4	55.0	

**ZR240 (20 Ton) Alternate Reheat Mode (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)					Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						
				Return Dry Bulb (°F)							Return Dry Bulb (°F)						
				85	80	75	70	65			85	80	75	70	65		
				75°F					85°F								
6000	72	128.6	15.7	11.3					131.8	17.1	14.7						
	67	116.0	15.0	42.6	14.1				119.4	16.4	38.2	9.6					
	62	109.6	14.3	74.3	45.8	17.3			107.1	15.8	61.4	32.9	4.4				
	57	101.6	14.2	101.6	54.1	25.5			100.7	15.2	66.4	37.9	9.4				
7000	72	135.8	15.7	10.2					126.0	16.5	8.4						
	67	122.5	15.0	55.5	21.8				113.0	15.8	51.4	17.7					
	62	115.8	14.3	90.0	68.7	35.0	1.3		106.2	15.2	86.6	60.2	26.5				
	57	107.3	14.2	107.3	82.4	48.7	15.0		98.4	15.1	95.0	69.4	35.7	2.0			
8000	72	143.1	15.7	9.0					132.6	16.5	2.1						
	67	129.1	15.0	68.4	29.5				118.9	15.8	64.6	25.7					
	62	122.0	14.4	91.0	91.5	52.6	13.7		111.7	15.2	90.0	87.6	48.7	9.9			
	57	113.0	14.3	113.0	110.7	71.8	32.9		103.5	15.1	103.5	101.0	62.1	23.2			
9000	72	140.1	15.7	12.9					129.4	16.5	6.8						
	67	126.4	15.0	74.9	30.6				116.1	15.8	70.5	26.2					
	62	119.5	14.4	98.0	95.2	50.9	6.6		109.1	15.2	95.0	89.4	45.1	0.8			
	57	110.7	14.3	110.7	109.5	65.2	20.9		101.1	15.1	101.1	99.8	55.5	11.2			
10000	72	137.1	15.7	16.7					126.3	16.5	11.5						
	67	123.7	15.0	86.0	31.7				113.2	15.8	76.4	26.7					
	62	116.9	14.4	100.0	98.9	49.2			106.4	15.2	84.0	80.0	41.5				
	57	108.3	14.3	108.3	108.3	58.6	35.0		98.6	15.1	98.6	98.6	48.9	15.0			

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

 No Sensible Cooling Capacity

**ZR300 (25 Ton)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil																		
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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								
7500	77	395.3	19.2	235.2	199.6	164.0	-	-	-	382.3	21.2	212.1	176.5	140.9	-	-	-			
	72	367.6	19.1	261.5	225.9	190.2	154.6	-	-	352.6	21.2	246.0	210.3	174.7	139.1	-	-			
	67	339.9	19.0	287.8	252.2	216.5	180.9	145.2	-	322.8	21.2	279.8	244.2	208.5	172.9	137.3	-			
	62	309.6	18.4	309.6	295.9	260.2	224.6	189.0	153.3	297.0	20.5	297.0	285.0	249.4	213.7	178.1	142.4			
	57	304.6	18.4	304.6	304.6	271.5	235.8	200.2	164.5	291.1	20.6	291.1	291.1	257.7	222.1	186.5	150.8			
8750	77	406.1	19.5	253.6	216.9	174.8	-	-	-	391.6	21.5	235.1	193.0	150.9	-	-	-			
	72	377.6	19.4	286.8	244.7	202.6	160.5	-	-	361.1	21.5	271.4	229.3	187.2	145.0	-	-			
	67	349.1	19.3	320.1	272.5	230.4	188.3	146.2	-	330.6	21.5	307.6	265.5	223.4	181.3	139.2	-			
	62	318.1	18.7	318.1	311.2	277.0	234.9	192.8	150.6	304.2	20.8	304.2	298.2	267.1	225.0	182.9	140.8			
	57	312.9	18.7	312.9	312.9	289.0	246.9	204.7	162.6	298.1	20.8	298.1	298.1	276.1	234.0	191.9	149.7			
10000	77	416.9	19.8	271.9	234.2	185.6	-	-	-	400.8	21.8	258.1	209.5	160.9	-	-	-			
	72	387.6	19.7	312.2	263.6	215.0	166.4	-	-	369.6	21.8	296.8	248.2	199.6	151.0	-	-			
	67	358.4	19.6	352.4	292.9	244.3	195.7	147.1	-	338.4	21.8	335.5	286.9	238.3	189.7	141.1	-			
	62	326.5	19.0	326.5	326.5	293.7	245.1	196.5	147.9	311.4	21.1	311.4	311.4	284.9	236.3	187.7	139.1			
	57	321.2	19.0	321.2	321.2	306.5	257.9	209.3	160.7	305.1	21.1	305.1	305.1	294.5	245.9	197.3	148.7			
11250	72	394.3	20.5	329.3	273.9	218.6	163.2	-	-	374.6	22.4	313.0	257.7	202.3	147.0	-	-			
	67	364.5	20.5	361.5	303.9	248.6	193.2	137.9	-	343.0	22.4	341.5	296.8	241.5	186.1	130.8	-			
	62	332.1	19.8	332.1	332.1	298.8	243.5	188.1	132.8	315.6	21.7	315.6	315.6	288.8	233.4	178.1	122.7			
	57	326.7	19.8	326.7	326.7	311.7	256.4	201.0	145.7	309.3	21.7	309.3	309.3	298.4	243.1	187.7	132.4			
	72	400.9	21.4	346.4	284.3	222.2	160.1	-	-	379.6	23.0	329.2	267.1	205.0	142.9	-	-			
12500	67	370.6	21.3	370.6	314.9	252.8	190.7	128.6	-	347.6	23.0	347.6	306.8	244.7	182.6	120.5	-			
	62	337.7	20.6	337.7	337.7	303.9	241.8	179.7	117.6	319.8	22.3	319.8	319.8	292.6	230.5	168.4	106.3			
	57	332.2	20.6	332.2	332.2	317.0	254.9	192.8	130.7	313.4	22.3	313.4	313.4	302.4	240.3	178.2	116.1			
					95°F								105°F							
	7500	77	369.4	23.3	189.1	153.4	117.8	-	-	-	342.9	26.5	167.4	131.8	96.1	-	-	-		
72		337.6	23.4	230.5	194.8	159.2	123.5	-	-	313.5	26.3	214.9	179.2	143.6	107.9	-	-			
67		305.8	23.5	271.9	236.2	200.6	164.9	129.3	-	284.0	26.1	262.3	226.7	191.0	155.4	119.8	-			
62		284.4	22.7	284.4	274.1	238.5	202.8	167.2	131.6	264.2	25.5	264.2	259.0	223.3	187.7	152.1	116.4			
57		277.5	22.7	277.5	277.5	244.0	208.4	172.7	137.1	257.8	25.5	257.8	257.8	225.5	189.9	154.2	118.6			
8750	77	377.1	23.6	216.7	169.2	127.0	-	-	-	350.8	26.6	199.9	146.2	104.1	-	-	-			
	72	344.6	23.7	256.0	213.8	171.7	129.6	-	-	320.7	26.5	239.8	197.7	155.6	113.5	-	-			
	67	312.1	23.7	295.2	258.5	216.4	174.3	132.1	-	290.6	26.3	279.7	249.2	207.1	165.0	122.8	-			
	62	290.3	23.0	290.3	285.2	257.3	215.2	173.0	130.9	270.3	25.7	270.3	267.7	242.1	199.9	157.8	115.7			
	57	283.3	22.9	283.3	283.3	263.2	221.1	179.0	136.9	263.8	25.7	263.8	263.8	244.4	202.3	160.1	118.0			
10000	77	384.8	23.8	244.4	184.9	136.3	-	-	-	358.7	26.8	232.4	160.7	112.1	-	-	-			
	72	351.6	23.9	281.5	232.9	184.3	135.7	-	-	327.9	26.7	264.8	216.2	167.6	119.0	-	-			
	67	318.5	24.0	318.5	280.8	232.2	183.6	135.0	-	297.2	26.5	297.2	271.7	223.1	174.5	125.9	-			
	62	296.2	23.2	296.2	296.2	276.1	227.5	178.9	130.3	276.4	25.9	276.4	276.4	260.8	212.2	163.6	115.0			
	57	289.1	23.2	289.1	289.1	282.4	233.8	185.2	136.6	269.7	25.8	269.7	269.7	263.3	214.7	166.1	117.5			
11250	72	355.0	24.3	296.7	241.4	186.0	130.7	-	-	331.0	27.1	279.8	224.5	169.1	113.8	-	-			
	67	321.5	24.4	321.5	289.7	234.4	179.0	123.7	-	299.9	26.9	299.9	280.5	225.2	169.8	114.5	-			
	62	299.0	23.6	299.0	299.0	278.7	223.3	168.0	112.6	278.9	26.3	278.9	278.9	263.2	207.8	152.5	97.1			
	57	291.8	23.6	291.8	291.8	285.1	229.8	174.4	119.1	272.2	26.3	272.2	272.2	265.7	210.4	155.0	99.7			
	72	358.3	24.7	312.0	249.9	187.8	125.7	-	-	334.0	27.6	294.9	232.8	170.7	108.6	-	-			
12500	67	324.6	24.8	324.6	298.7	236.6	174.5	112.4	-	302.7	27.4	302.7	289.3	227.2	165.1	103.0	-			
	62	301.8	23.9	301.8	301.8	281.3	219.2	157.1	95.0	281.5	26.8	281.5	281.5	265.6	203.5	141.4	79.3			
	57	294.6	23.9	294.6	294.6	287.8	225.7	163.6	101.5	274.7	26.7	274.7	274.7	268.2	206.1	144.0	81.9			

**ZR300 (25 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
7500	77	316.4	29.6	145.7	110.1	74.5	-	-	-	289.9	32.7	124.1	88.4	52.8	-	-	-
	72	289.3	29.1	199.3	163.6	128.0	92.3	-	-	265.2	32.0	183.7	148.0	112.4	76.7	-	-
	67	262.3	28.7	252.8	217.1	181.5	145.9	110.2	-	240.6	31.3	240.6	207.6	172.0	136.3	100.7	-
	62	243.9	28.3	243.9	243.8	208.2	172.5	136.9	101.3	223.7	31.1	223.7	223.7	193.0	157.4	121.7	86.1
	57	238.1	28.2	238.1	238.1	207.0	171.4	135.7	100.1	218.4	31.0	218.4	218.4	188.5	152.9	117.2	81.6
8750	77	324.6	29.7	183.1	123.2	81.1	-	-	-	298.3	32.8	166.2	100.3	58.2	-	-	-
	72	296.8	29.3	223.7	181.6	139.4	97.3	-	-	272.9	32.1	207.6	165.4	123.3	81.2	-	-
	67	269.1	28.8	264.3	239.9	197.8	155.7	113.5	-	247.5	31.4	247.5	230.6	188.5	146.3	104.2	-
	62	250.2	28.4	250.2	250.2	226.8	184.7	142.6	100.5	230.2	31.2	230.2	230.2	211.6	169.5	127.4	85.2
	57	244.2	28.4	244.2	244.2	225.5	183.4	141.3	99.2	224.7	31.1	224.7	224.7	206.7	164.6	122.5	80.4
10000	77	332.7	29.8	220.4	136.4	87.8	-	-	-	306.7	32.8	208.4	112.1	63.5	-	-	-
	72	304.3	29.4	248.1	199.5	150.9	102.3	-	-	280.6	32.1	231.4	182.8	134.2	85.6	-	-
	67	275.8	29.0	275.8	262.6	214.0	165.4	116.8	-	254.5	31.5	254.5	253.6	205.0	156.4	107.8	-
	62	256.5	28.6	256.5	256.5	245.5	196.9	148.3	99.7	236.7	31.3	236.7	236.7	230.2	181.6	133.0	84.4
	57	250.4	28.5	250.4	250.4	244.1	195.5	146.9	98.3	231.0	31.1	231.0	231.0	224.9	176.3	127.7	79.1
11250	72	307.0	29.9	263.0	207.6	152.3	96.9	-	-	283.0	32.7	246.1	190.8	135.4	80.1	-	-
	67	278.3	29.5	278.3	271.3	216.0	160.6	105.3	-	256.7	32.0	256.7	256.7	206.7	151.4	96.0	-
	62	258.8	29.1	258.8	258.8	247.7	192.3	137.0	81.6	238.7	31.8	238.7	238.7	232.2	176.8	121.5	66.1
	57	252.6	29.0	252.6	252.6	246.3	190.9	135.6	80.2	233.0	31.7	233.0	233.0	226.9	171.5	116.2	60.8
12500	72	309.7	30.4	277.8	215.7	153.6	91.5	-	-	285.5	33.3	260.8	198.7	136.6	74.5	-	-
	67	280.8	30.0	280.8	280.0	217.9	155.8	93.7	-	258.9	32.6	258.9	258.9	208.5	146.4	84.3	-
	62	261.1	29.6	261.1	261.1	249.9	187.8	125.7	63.6	240.8	32.4	240.8	240.8	234.2	172.1	110.0	47.9
	57	254.9	29.5	254.9	254.9	248.5	186.4	124.3	62.2	235.0	32.2	235.0	235.0	228.8	166.7	104.6	42.5

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.


## ZR300 (25 Ton) Alternate Reheat Mode

Air on Evaporator Coil		Temperature of Air on Condenser Coil													
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)					Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)				
				Return Dry Bulb (°F)							Return Dry Bulb (°F)				
				85	80	75	70	65			85	80	75	70	65
				35°F					45°F						
7500	72	203.3	15.3	51.6	16.0				190.6	16.6	47.9	12.3			
	67	180.0	14.8	61.9	26.2				170.0	16.1	58.2	22.5			
	62	170.1	13.9	62.1	50.0				159.6	15.2	71.4	50.0			
	57	167.8	13.0	150.0	87.2	51.6	15.9		156.7	15.0	135.0	89.6	53.9	18.3	
8750	72	206.6	15.7	51.4	45.0				194.0	17.0	49.0	41.0			
	67	182.7	15.2	63.5	58.0				172.9	16.4	60.9	54.0			
	62	172.9	14.3	102.0	58.0				162.4	15.5	104.0	66.0			
	57	170.5	14.0	157.0	124.9	82.4	40.2		159.6	15.0	140.0	121.2	78.7	36.6	
10000	72	209.8	16.1	51.2	2.6				197.5	17.3	50.1	1.5			
	67	185.4	15.6	65.3	19.7				175.9	16.8	63.7	17.5			
	62	175.6	14.7	130.0	125.0	90.0	17.2		165.3	15.8	119.0	115.0	75.0	11.0	
	57	173.3	14.0	147.0	100.0	62.0	49.2	3.6	162.4	15.0	143.0	100.0	59.0	42.6	
11250	72	204.7	17.1	79.2	23.8				194.1	18.3	73.8	18.4			
	67	180.2	16.5	85.9	30.5				172.4	17.7	81.7	26.4			
	62	171.2	15.5	135.0	130.9	57.3			162.5	16.7	122.0	116.0	52.9		
	57	169.4	15.0	157.0	147.5	88.9	25.3		159.9	16.0	150.0	141.8	83.9	21.9	
12500	72	199.6	18.0	65.6	55.0				190.8	19.2	64.2	52.0			
	67	175.0	17.4	99.8	85.0				169.0	18.6	94.4	80.0			
	62	166.9	16.4	137.0	135.0	53.8	27.2		159.7	17.6	126.0	104.0	50.3	16.6	
	57	165.4	16.0	165.0	148.0	93.0	16.9		157.4	17.0	157.4	146.0	87.0	14.9	
				55°F					65°F						
7500	72	177.9	17.9	44.2	8.6				165.2	19.2	40.5	4.8			
	67	160.0	17.4	54.5	25.0				150.1	18.7	50.7	15.1			
	62	149.0	16.5	80.6	30.0	4.1			138.4	17.8	89.8	37.4	15.1		
	57	145.6	16.0	145.6	91.9	56.3	20.6		134.5	17.0	134.5	94.2	58.6	22.9	
8750	72	181.5	18.2	46.6	37.0				169.0	19.4	44.2	33.0			
	67	163.2	17.6	58.3	50.0				153.5	18.8	55.6	46.0			
	62	152.0	16.8	106.0	74.0	3.2			141.6	18.0	108.0	82.0	14.1		
	57	148.6	16.0	148.6	117.4	75.1	33.0		137.6	18.0	137.6	113.7	71.4	29.3	
10000	72	185.1	18.5	49.0	0.4				172.8	19.6	47.9				
	67	166.4	17.9	62.1	15.3				156.9	19.0	60.6	13.2			
	62	155.1	17.0	118.0	105.0	60.0	4.8		144.8	18.2	117.0	95.0	45.0		
	57	151.6	17.0	137.0	115.0	56.0	36.1		140.7	18.0	131.0	100.0	53.0	29.5	
11250	72	183.6	19.5	68.4	13.0				173.0	20.7	62.9	7.6			
	67	164.7	18.9	77.5	22.2				157.0	20.0	73.3	18.0			
	62	153.7	17.9	120.0	114.9	48.6			145.0	19.2	116.0	107.0	44.3		
	57	150.4	17.0	150.4	136.2	78.9	18.6		141.0	19.0	141.0	130.6	74.0	15.3	
12500	72	182.0	20.5	62.8	49.0				173.2	21.7	61.4	46.0			
	67	163.0	19.9	88.9	75.0				157.0	21.1	83.5	70.0			
	62	152.4	18.9	122.0	102.7	46.9	6.1		145.2	20.1	118.0	101.3	43.4		
	57	149.3	18.0	149.3	140.0	81.0	12.9		141.2	20.0	141.2	134.0	75.0	11.0	

**ZR300 (25 Ton) Alternate Reheat Mode (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil													
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)					Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)				
				Return Dry Bulb (°F)							Return Dry Bulb (°F)				
				85	80	75	70	65			85	80	75	70	65
		75°F						85°F							
7500	72	152.5	20.6	36.8	1.1				139.7	21.9	33.1				
	67	140.1	19.9	47.0	11.4				130.2	21.2	43.3	7.7			
	62	127.9	19.1	99.0	55.0	26.0			117.3	20.5	108.2	72.6	36.9	1.3	
	57	123.4	16.5	123.4	96.6	60.9	25.3		112.3	20.1	112.3	98.9	63.3	27.6	
8750	72	156.4	20.7	41.8	29.0				143.9	21.9	39.4	25.0			
	67	143.8	20.0	53.0	42.0				134.1	21.2	50.4	38.0			
	62	131.2	19.2	110.0	90.0	25.0			120.8	20.5	112.0	98.0	35.9		
	57	126.6	17.0	126.6	110.0	67.8	25.7		115.7	20.2	115.7	106.3	64.2	22.0	
10000	72	160.4	20.8	46.7					148.1	21.9	45.6				
	67	147.4	20.1	59.0	11.0				137.9	21.2	57.4	8.8			
	62	134.6	19.3	116.0	85.0	30.0			124.3	20.5	115.0	75.0	15.0		
	57	129.9	17.7	125.0	100.0	50.0	23.0		119.0	20.2	119.0	100.0	47.0	16.5	
11250	72	162.4	21.9	57.5	2.2				151.9	23.1	52.1				
	67	149.2	21.2	69.2	13.8				141.5	22.4	65.0	9.6			
	62	136.2	20.4	120.0	99.0	40.0			127.5	21.6	120.0	91.0	35.7		
	57	131.5	18.6	131.5	125.0	69.0	12.0		122.1	21.2	122.1	119.4	64.0	8.7	
12500	72	164.4	23.0	60.0	43.0				155.7	24.2	58.6	40.0			
	67	151.0	22.3	78.0	65.0				145.0	23.5	72.5	60.0			
	62	137.9	21.4	114.0	100.0	40.0			130.7	22.7	110.0	98.7	36.6		
	57	133.2	19.6	133.2	128.0	69.0	9.0		125.1	22.3	125.1	122.0	63.0	7.0	

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

 No Sensible Cooling Capacity



**ZF180-300 Cooling Capacities**

**ZF180 (15 Ton)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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						
3750	77	219.1	11.4	101.6	85.2	68.7	-	-	-	207.3	12.5	93.4	77.4	61.4	-	-	-
	72	204.6	11.0	126.7	110.3	93.8	77.3	-	-	192.6	12.2	118.6	102.6	86.6	70.7	-	-
	67	190.1	10.7	151.8	135.4	118.9	102.4	86.0	-	177.9	12.0	143.7	127.8	111.8	95.9	79.9	-
	62	173.8	10.4	173.8	173.8	152.3	135.9	119.4	102.9	165.1	11.8	165.1	165.1	141.2	125.2	109.3	93.3
4500	77	225.7	11.5	110.6	92.2	73.8	-	-	-	212.9	12.6	102.4	84.4	66.4	-	-	-
	72	210.7	11.1	137.5	119.1	100.7	82.2	-	-	197.8	12.3	129.6	111.6	93.7	75.7	-	-
	67	195.8	10.8	164.4	146.0	127.6	109.2	90.7	-	182.7	12.0	156.9	138.9	120.9	103.0	85.0	-
	62	179.1	10.5	179.1	179.1	163.5	145.1	126.6	108.2	169.5	11.8	169.5	169.5	152.7	134.7	116.8	98.8
57	177.5	10.5	177.5	177.5	162.4	144.0	125.6	107.2	168.4	11.8	168.4	168.4	151.4	133.4	115.4	97.5	
5250	77	232.3	11.6	119.6	99.2	78.8	-	-	-	218.4	12.6	111.4	91.4	71.4	-	-	-
	72	216.9	11.2	148.3	127.9	107.5	87.2	-	-	202.9	12.4	140.7	120.7	100.7	80.8	-	-
	67	201.5	10.9	177.0	156.6	136.2	115.9	95.5	-	187.4	12.1	170.0	150.0	130.0	110.1	90.1	-
	62	184.4	10.6	184.4	184.4	174.6	154.2	133.9	113.5	174.0	11.9	174.0	174.0	164.2	144.2	124.2	104.3
57	182.7	10.6	182.7	182.7	173.5	153.1	132.8	112.4	172.8	11.9	172.8	172.8	162.8	142.8	122.8	102.9	
6000	77	238.9	11.7	128.5	106.2	83.9	-	-	-	224.0	12.7	120.4	98.4	76.4	-	-	-
	72	223.1	11.3	159.0	136.7	114.4	92.1	-	-	208.1	12.5	151.7	129.8	107.8	85.8	-	-
	67	207.2	11.0	189.6	167.2	144.9	122.6	100.3	-	192.2	12.2	183.1	161.1	139.1	117.2	95.2	-
	62	189.6	10.8	189.6	189.6	185.8	163.4	141.1	118.8	178.4	12.0	178.4	178.4	175.7	153.7	131.7	109.8
57	187.9	10.8	187.9	187.9	184.6	162.3	139.9	117.6	177.2	12.0	177.2	177.2	174.2	152.2	130.2	108.2	
6750	72	224.2	11.5	168.1	144.2	120.2	96.3	-	-	209.5	12.6	160.9	137.4	113.8	90.2	-	-
	67	208.2	11.1	199.4	176.2	152.3	128.3	104.4	-	193.5	12.3	188.9	170.5	146.9	123.3	99.8	-
	62	190.5	10.9	190.5	190.5	188.6	164.7	140.7	116.8	179.6	12.1	179.6	179.6	178.2	154.7	131.1	107.5
	57	188.8	10.9	188.8	188.8	187.2	163.2	139.3	115.4	178.4	12.1	178.4	178.4	176.9	153.3	129.8	106.2
7500	72	225.2	11.6	177.1	151.6	126.1	100.5	-	-	210.9	12.7	170.1	145.0	119.8	94.7	-	-
	67	209.2	11.2	209.2	185.2	159.6	134.1	108.6	-	194.8	12.4	194.8	179.8	154.7	129.5	104.4	-
	62	191.4	11.0	191.4	191.4	191.4	165.9	140.4	114.8	180.8	12.2	180.8	180.8	180.8	155.6	130.5	105.3
	57	189.7	11.0	189.7	189.7	189.7	164.2	138.7	113.1	179.6	12.1	179.6	179.6	179.6	154.4	129.3	104.1
		95°F									105°F						
3750	77	195.6	13.6	85.1	69.6	54.2	-	-	-	182.2	15.1	75.9	64.3	49.2	-	-	-
	72	180.7	13.4	110.4	94.9	79.4	64.0	-	-	168.0	14.9	104.2	89.2	74.1	59.0	-	-
	67	165.8	13.3	135.7	120.2	104.7	89.3	73.8	-	153.8	14.7	132.6	114.0	98.9	83.8	68.7	-
	62	156.4	13.1	156.4	155.6	130.1	114.6	99.1	83.7	146.8	14.6	146.8	144.4	119.6	104.5	89.4	74.3
4500	77	200.1	13.6	94.1	76.6	59.1	-	-	-	185.6	15.2	88.1	71.0	53.9	-	-	-
	72	184.8	13.5	121.7	104.2	86.7	69.2	-	-	171.1	15.0	115.3	98.2	81.0	63.9	-	-
	67	169.6	13.3	149.3	131.8	114.3	96.8	79.2	-	156.6	14.8	142.4	125.3	108.2	91.1	74.0	-
	62	160.0	13.1	160.0	159.4	141.9	124.4	106.9	89.3	149.5	14.7	149.5	147.9	130.8	113.7	96.6	79.5
57	159.3	13.1	159.3	157.8	140.3	122.8	105.3	87.8	149.2	14.6	149.2	146.5	129.4	112.3	95.2	78.1	
5250	77	204.6	13.7	103.2	83.6	64.0	-	-	-	188.9	15.3	100.4	77.7	58.5	-	-	-
	72	188.9	13.5	133.1	113.5	93.9	74.3	-	-	174.2	15.1	126.3	107.2	88.0	68.9	-	-
	67	173.3	13.4	163.0	143.4	123.8	104.2	84.7	-	159.5	14.8	152.2	136.7	117.5	98.4	79.3	-
	62	163.6	13.2	163.6	163.3	153.8	134.2	114.6	95.0	152.2	14.7	152.2	151.4	142.1	122.9	103.8	84.7
57	162.9	13.1	162.9	162.1	152.0	132.5	112.9	93.3	151.9	14.7	151.9	150.6	140.5	121.4	102.3	83.1	
6000	77	209.0	13.8	112.2	90.6	69.0	-	-	-	192.3	15.3	112.6	84.3	63.2	-	-	-
	72	193.1	13.6	144.4	122.8	101.2	79.5	-	-	177.3	15.1	137.3	116.2	95.0	73.8	-	-
	67	177.1	13.5	176.6	155.0	133.4	111.7	90.1	-	162.3	14.9	162.1	148.0	126.9	105.7	84.5	-
	62	167.1	13.3	167.1	167.1	165.6	144.0	122.3	100.7	154.9	14.8	154.9	154.9	153.3	132.2	111.0	89.9
57	166.4	13.2	166.4	166.4	163.8	142.1	120.5	98.9	154.6	14.7	154.6	154.6	151.7	130.5	109.3	88.2	
6750	72	194.8	13.6	153.8	130.6	107.4	84.2	-	-	178.7	15.2	146.5	123.8	101.0	78.3	-	-
	67	178.7	13.5	178.5	164.7	141.5	118.3	95.1	-	163.6	15.0	163.5	155.0	134.9	112.1	89.4	-
	62	168.6	13.3	168.6	168.6	167.9	144.7	121.5	98.3	156.2	14.8	156.2	156.2	155.4	132.6	109.9	87.1
	57	167.9	13.2	167.9	167.9	166.6	143.4	120.2	97.0	155.9	14.8	155.9	155.9	154.4	131.6	108.9	86.1
7500	72	196.6	13.7	163.1	138.3	113.6	88.8	-	-	180.2	15.2	155.8	131.4	107.0	82.7	-	-
	67	180.4	13.5	180.4	174.5	149.7	124.9	100.1	-	164.9	15.0	164.9	162.0	142.9	118.6	94.2	-
	62	170.2	13.3	170.2	170.2	170.2	145.4	120.6	95.8	157.4	14.9	157.4	157.4	157.4	133.1	108.7	84.3
	57	169.5	13.3	169.5	169.5	169.5	144.7	119.9	95.1	157.1	14.9	157.1	157.1	157.1	132.8	108.4	84.0

**ZF180 (15 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
3750	77	168.8	16.7	66.6	59.0	44.3	-	-	-	155.4	18.3	57.3	53.1	39.4	-	-	-
	72	155.3	16.4	98.1	83.4	68.7	54.0	-	-	142.6	18.0	92.0	77.6	63.3	49.0	-	-
	67	141.8	16.2	129.6	107.8	93.0	78.3	63.6	-	129.7	17.6	126.5	101.5	87.2	72.9	58.5	-
	62	137.2	16.1	137.2	133.2	109.0	94.3	79.6	64.9	127.6	17.7	127.6	122.1	98.5	84.2	69.9	55.6
4500	77	171.1	16.8	82.1	65.4	48.7	-	-	-	156.5	18.4	76.0	59.8	43.5	-	-	-
	72	157.4	16.5	108.8	92.1	75.4	58.7	-	-	143.6	18.0	102.4	86.1	69.8	53.5	-	-
	67	143.7	16.2	135.5	118.8	102.1	85.4	68.7	-	130.7	17.7	128.7	112.4	96.1	79.8	63.5	-
	62	139.1	16.2	139.1	136.4	119.7	103.0	86.3	69.6	128.6	17.7	128.6	124.9	108.6	92.3	76.0	59.8
	57	139.1	16.2	139.1	135.2	118.5	101.8	85.1	68.4	129.1	17.7	129.1	123.8	107.5	91.2	74.9	58.7
5250	77	173.3	16.8	97.5	71.7	53.0	-	-	-	157.7	18.4	94.8	66.4	47.5	-	-	-
	72	159.5	16.6	119.5	100.8	82.1	63.4	-	-	144.7	18.1	112.7	94.5	76.2	58.0	-	-
	67	145.6	16.3	141.5	129.9	111.2	92.6	73.9	-	131.7	17.7	130.8	123.2	105.0	86.7	68.5	-
	62	140.9	16.3	140.9	139.6	130.4	111.7	93.0	74.3	129.6	17.8	129.6	127.7	118.7	100.4	82.2	63.9
	57	141.0	16.2	141.0	139.0	129.0	110.3	91.6	72.9	130.1	17.8	130.1	127.4	117.5	99.2	81.0	62.7
6000	77	175.6	16.9	113.0	78.0	57.4	-	-	-	158.9	18.5	113.6	73.1	51.5	-	-	-
	72	161.5	16.6	130.2	109.5	88.9	68.2	-	-	145.8	18.1	123.1	102.9	82.7	62.5	-	-
	67	147.5	16.4	147.5	141.0	120.4	99.7	79.0	-	132.7	17.8	132.7	132.7	113.8	93.6	73.4	-
	62	142.8	16.3	142.8	142.8	141.0	120.4	99.7	79.0	130.6	17.8	130.6	130.6	128.8	108.6	88.3	68.1
	57	142.8	16.3	142.8	142.8	139.6	118.9	98.2	77.5	131.1	17.9	131.1	131.1	127.5	107.3	87.0	66.8
6750	72	162.6	16.7	139.3	117.0	94.7	72.4	-	-	146.5	18.2	132.1	110.2	88.4	66.5	-	-
	67	148.5	16.4	148.5	145.3	128.3	105.9	83.6	-	133.3	17.9	133.3	133.3	121.6	99.8	77.9	-
	62	143.7	16.4	143.7	143.7	142.9	120.5	98.2	75.9	131.3	17.9	131.3	131.3	130.3	108.5	86.6	64.8
	57	143.8	16.4	143.8	143.8	142.2	119.8	97.5	75.2	131.7	17.9	131.7	131.7	129.9	108.1	86.2	64.3
7500	72	163.7	16.8	148.4	124.5	100.5	76.6	-	-	147.3	18.3	141.0	117.5	94.0	70.5	-	-
	67	149.5	16.5	149.5	149.5	136.2	112.2	88.3	-	134.0	18.0	134.0	134.0	129.4	105.9	82.4	-
	62	144.7	16.5	144.7	144.7	144.7	120.7	96.8	72.9	131.9	18.0	131.9	131.9	131.9	108.4	84.9	61.4
	57	144.8	16.4	144.8	144.8	144.8	120.8	96.9	73.0	132.4	18.0	132.4	132.4	132.4	108.9	85.4	61.9

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

ZF210 (17.5 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
4375	77	266.4	14.9	105.7	87.4	69.1	-	-	-	252.5	16.1	104.8	86.2	67.5	-	-	-
	72	246.6	14.5	139.2	120.9	102.6	84.2	-	-	233.7	15.7	137.6	118.9	100.2	81.6	-	-
	67	226.7	14.0	172.7	154.4	136.0	117.7	99.4	-	215.0	15.4	170.3	151.6	133.0	114.3	95.6	-
	62	209.7	14.0	209.7	194.9	165.5	147.2	128.9	110.5	198.6	15.2	198.6	191.2	163.3	144.6	126.0	107.3
5250	77	276.8	14.8	119.5	97.9	76.4	-	-	-	261.8	16.1	117.3	95.7	74.2	-	-	-
	72	256.2	14.4	156.5	135.0	113.4	91.9	-	-	242.4	15.7	153.3	131.7	110.1	88.5	-	-
	67	235.5	14.0	193.5	172.0	150.5	129.0	107.4	-	223.0	15.4	189.3	167.7	146.1	124.5	102.9	-
	62	217.8	13.9	217.8	207.9	183.1	161.5	140.0	118.5	205.9	15.2	205.9	201.0	179.4	157.8	136.2	114.6
	57	219.1	13.8	219.1	216.4	189.4	167.9	146.3	124.8	205.8	15.1	205.8	204.4	182.8	161.2	139.6	118.0
6125	77	287.1	14.8	133.2	108.5	83.7	-	-	-	271.2	16.1	129.9	105.3	80.8	-	-	-
	72	265.7	14.4	173.8	149.1	124.3	99.6	-	-	251.1	15.7	169.1	144.5	120.0	95.5	-	-
	67	244.3	14.0	214.4	189.7	164.9	140.2	115.4	-	231.0	15.4	208.3	183.7	159.2	134.7	110.2	-
	62	225.9	13.9	225.9	221.0	200.7	175.9	151.2	126.4	213.3	15.2	213.3	210.9	195.5	171.0	146.5	122.0
	57	227.3	13.8	227.3	225.9	207.6	182.8	158.1	133.3	213.1	15.2	213.1	212.5	199.2	174.7	150.2	125.7
7000	77	297.5	14.7	147.0	119.0	91.1	-	-	-	280.6	16.1	142.4	114.9	87.5	-	-	-
	72	275.3	14.3	191.1	163.2	135.2	107.2	-	-	259.8	15.7	184.8	157.4	129.9	102.5	-	-
	67	253.1	13.9	235.3	207.3	179.4	151.4	123.4	-	239.0	15.4	227.2	199.8	172.3	144.9	117.4	-
	62	234.1	13.9	234.1	234.1	218.3	190.3	162.3	134.4	220.7	15.2	220.7	220.7	211.7	184.2	156.8	129.3
	57	235.4	13.8	235.4	235.4	225.7	197.8	169.8	141.8	220.5	15.2	220.5	220.5	215.7	188.2	160.8	133.3
7875	72	278.8	14.5	203.0	173.1	143.2	113.3	-	-	262.4	15.8	195.7	166.4	137.2	107.9	-	-
	67	256.4	14.1	247.5	219.9	190.0	160.1	130.2	-	241.4	15.5	235.5	211.2	182.0	152.7	123.4	-
	62	237.1	14.0	237.1	237.1	229.2	199.3	169.4	139.5	222.9	15.3	222.9	222.9	218.4	189.1	159.8	130.6
	57	238.5	13.9	238.5	238.5	233.6	203.7	173.8	143.9	222.7	15.3	222.7	222.7	220.3	191.0	161.7	132.5
8750	72	282.4	14.6	214.9	183.1	151.3	119.4	-	-	264.9	15.9	206.6	175.5	144.4	113.3	-	-
	67	259.6	14.2	259.6	232.5	200.7	168.8	137.0	-	243.7	15.6	243.7	222.6	191.6	160.5	129.4	-
	62	240.1	14.1	240.1	240.1	240.1	208.2	176.4	144.6	225.0	15.4	225.0	225.0	225.0	194.0	162.9	131.8
	57	241.5	14.0	241.5	241.5	241.5	209.6	177.8	146.0	224.9	15.3	224.9	224.9	224.9	193.8	162.7	131.6
				95°F						105°F							
4375	77	238.5	17.2	104.0	84.9	65.9	-	-	-	222.3	19.0	92.0	77.9	59.4	-	-	-
	72	220.9	17.0	135.9	116.9	97.9	78.9	-	-	205.9	18.7	128.5	110.0	91.5	73.0	-	-
	67	203.4	16.7	167.9	148.9	129.9	110.9	91.9	-	189.4	18.4	165.0	142.1	123.6	105.1	86.6	-
	62	187.5	16.4	187.5	187.5	161.1	142.1	123.1	104.1	177.4	18.2	177.4	176.9	148.8	130.3	111.8	93.3
5250	77	246.9	17.3	115.2	93.6	71.9	-	-	-	230.2	19.0	108.4	86.8	65.3	-	-	-
	72	228.7	17.0	150.1	128.5	106.8	85.1	-	-	213.2	18.7	143.7	122.1	100.6	79.0	-	-
	67	210.5	16.7	185.0	163.4	141.7	120.0	98.4	-	196.2	18.4	179.0	157.4	135.9	114.3	92.7	-
	62	194.1	16.5	194.1	194.1	175.8	154.1	132.4	110.8	183.7	18.2	183.7	183.4	163.5	141.9	120.4	98.8
	57	192.5	16.5	192.5	192.5	176.2	154.6	132.9	111.3	182.2	18.2	182.2	182.2	164.7	143.1	121.6	100.0
6125	77	255.3	17.3	126.5	102.2	77.9	-	-	-	238.2	19.0	124.7	95.7	71.1	-	-	-
	72	236.5	17.1	164.3	140.0	115.7	91.4	-	-	220.6	18.7	158.8	134.2	109.6	85.0	-	-
	67	217.7	16.8	202.1	177.8	153.5	129.2	104.9	-	203.0	18.4	192.9	172.7	148.1	123.5	98.9	-
	62	200.7	16.5	200.7	200.7	190.4	166.1	141.8	117.5	190.1	18.2	190.1	189.9	178.2	153.6	129.0	104.4
	57	199.0	16.5	199.0	199.0	190.9	166.6	142.3	118.0	188.5	18.2	188.5	188.5	179.5	154.9	130.3	105.7
7000	77	263.7	17.4	137.8	110.8	83.9	-	-	-	246.1	19.1	141.1	104.6	77.0	-	-	-
	72	244.3	17.1	178.5	151.5	124.6	97.7	-	-	227.9	18.7	174.0	146.3	118.7	91.0	-	-
	67	224.9	16.8	219.2	192.2	165.3	138.4	111.4	-	209.7	18.4	206.9	188.0	160.4	132.7	105.1	-
	62	207.3	16.6	207.3	207.3	205.1	178.1	151.2	124.2	196.4	18.2	196.4	196.4	192.9	165.3	137.6	110.0
	57	205.6	16.6	205.6	205.6	205.6	178.7	151.7	124.8	194.8	18.2	194.8	194.8	194.3	166.7	139.0	111.4
7875	72	245.9	17.2	188.3	159.7	131.1	102.4	-	-	229.0	18.8	182.2	153.3	124.5	95.6	-	-
	67	226.4	16.9	223.5	202.5	173.9	145.3	116.6	-	210.7	18.5	209.3	196.1	168.2	139.3	110.4	-
	62	208.7	16.6	208.7	208.7	207.5	178.9	150.3	121.7	197.3	18.3	197.3	197.3	195.6	166.7	137.8	108.9
	57	206.9	16.6	206.9	206.9	206.9	178.3	149.7	121.0	195.7	18.3	195.7	195.7	195.5	166.6	137.7	108.8
8750	72	247.5	17.2	198.2	167.9	137.5	107.2	-	-	230.1	18.9	190.5	160.4	130.3	100.2	-	-
	67	227.8	16.9	227.8	212.8	182.5	152.2	121.8	-	211.7	18.6	211.7	204.2	176.0	145.9	115.8	-
	62	210.0	16.7	210.0	210.0	210.0	179.7	149.4	119.1	198.2	18.4	198.2	198.2	198.2	168.1	138.0	107.9
	57	208.2	16.7	208.2	208.2	208.2	177.9	147.6	117.3	196.6	18.4	196.6	196.6	196.6	166.5	136.4	106.3

ZF210 (17.5 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
4375	77	206.1	20.8	80.0	70.9	52.9	-	-	-	190.0	22.6	66.6	63.7	46.3	-	-	-
	72	190.8	20.5	121.1	103.1	85.1	67.1	-	-	175.7	22.2	113.6	96.1	78.7	61.2	-	-
	67	175.5	20.2	162.1	135.3	117.3	99.3	81.3	-	161.5	21.9	160.3	128.5	111.0	93.5	76.0	-
	62	167.3	20.0	167.3	166.3	136.4	118.4	100.5	82.5	157.2	21.8	157.2	155.7	124.1	106.6	89.1	71.6
5250	77	213.6	20.8	101.5	80.1	58.6	-	-	-	196.9	22.5	94.7	73.3	51.9	-	-	-
	72	197.7	20.5	137.2	115.8	94.3	72.8	-	-	182.2	22.2	130.8	109.4	88.0	66.7	-	-
	67	181.8	20.1	172.9	151.5	130.0	108.5	87.1	-	167.5	21.8	166.9	145.5	124.2	102.8	81.4	-
	62	173.3	20.0	173.3	172.7	151.2	129.8	108.3	86.9	163.0	21.7	163.0	162.0	139.0	117.6	96.3	74.9
	57	172.0	20.0	172.0	172.0	153.1	131.7	110.2	88.7	161.7	21.8	161.7	161.7	141.6	120.2	98.8	77.5
6125	77	221.1	20.7	123.0	89.2	64.3	-	-	-	203.9	22.4	122.7	82.9	57.5	-	-	-
	72	204.6	20.4	153.4	128.4	103.5	78.6	-	-	188.7	22.1	147.9	122.7	97.4	72.2	-	-
	67	188.2	20.1	183.7	167.6	142.7	117.8	92.9	-	173.4	21.8	173.4	162.6	137.3	112.1	86.9	-
	62	179.4	19.9	179.4	179.1	166.0	141.1	116.2	91.3	168.7	21.6	168.7	168.3	153.8	128.6	103.4	78.2
	57	178.0	20.0	178.0	178.0	168.1	143.2	118.3	93.3	167.5	21.7	167.5	167.5	156.7	131.5	106.2	81.0
7000	77	228.5	20.7	144.5	98.4	70.1	-	-	-	210.9	22.4	150.7	92.5	63.1	-	-	-
	72	211.5	20.4	169.5	141.1	112.7	84.4	-	-	195.1	22.0	165.0	135.9	106.8	77.7	-	-
	67	194.5	20.1	194.5	183.8	155.4	127.1	98.7	-	179.4	21.7	179.4	179.4	150.5	121.4	92.3	-
	62	185.5	19.9	185.5	185.5	180.8	152.4	124.1	95.7	174.5	21.6	174.5	174.5	168.7	139.6	110.5	81.4
	57	184.0	19.9	184.0	184.0	183.1	154.7	126.3	97.9	173.2	21.6	173.2	173.2	171.8	142.7	113.6	84.5
7875	72	212.1	20.5	176.1	147.0	117.9	88.7	-	-	195.2	22.1	170.0	140.6	111.3	81.9	-	-
	67	195.0	20.1	195.0	189.7	162.5	133.4	104.2	-	179.4	21.7	179.4	179.4	156.8	127.4	98.0	-
	62	185.9	20.0	185.9	185.9	183.6	154.5	125.4	96.2	174.6	21.6	174.6	174.6	171.7	142.3	112.9	83.5
	57	184.5	20.0	184.5	184.5	184.0	154.9	125.8	96.6	173.3	21.7	173.3	173.3	172.6	143.2	113.8	84.4
8750	72	212.6	20.5	182.7	152.9	123.0	93.1	-	-	195.2	22.2	175.0	145.4	115.7	86.0	-	-
	67	195.6	20.2	195.6	195.6	169.6	139.7	109.8	-	179.4	21.8	179.4	179.4	163.1	133.4	103.8	-
	62	186.4	20.0	186.4	186.4	186.4	156.6	126.7	96.8	174.7	21.7	174.7	174.7	174.7	145.0	115.3	85.7
	57	185.0	20.1	185.0	185.0	185.0	155.1	125.2	95.3	173.3	21.7	173.3	173.3	173.3	143.7	114.0	84.3

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

## ZF240 (20 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
5000	77	307.7	17.9	145.7	125.9	106.2	-	-	-	303.2	20.6	133.1	113.2	93.4	-	-	-
	72	291.0	17.8	178.9	159.2	139.4	119.6	-	-	282.6	20.3	168.1	148.2	128.4	108.5	-	-
	67	274.4	17.6	212.2	192.4	172.7	152.9	133.1	-	261.9	20.0	203.1	183.2	163.3	143.5	123.6	-
	62	257.5	17.5	257.5	240.0	219.4	199.7	179.9	160.1	244.0	19.7	244.0	226.9	202.9	183.0	163.2	143.3
6000	77	319.5	18.3	157.8	135.3	112.8	-	-	-	311.3	20.8	144.5	122.1	99.8	-	-	-
	72	302.1	18.1	193.0	170.5	148.0	125.5	-	-	290.1	20.5	181.8	159.5	137.1	114.8	-	-
	67	284.7	18.0	228.2	205.7	183.2	160.7	138.2	-	268.9	20.2	219.2	196.9	174.5	152.2	129.8	-
	62	267.1	17.9	267.1	255.5	233.0	210.5	188.0	165.5	250.5	19.9	250.5	239.1	216.8	194.4	172.1	149.7
57	265.0	17.2	265.0	263.6	241.1	218.6	196.1	173.6	249.9	19.6	249.9	243.5	221.2	198.8	176.5	154.1	
7000	77	331.2	18.6	169.9	144.6	119.4	-	-	-	319.3	21.0	155.8	131.0	106.1	-	-	-
	72	313.1	18.5	207.1	181.8	156.6	131.4	-	-	297.6	20.7	195.6	170.7	145.9	121.1	-	-
	67	294.9	18.3	244.3	219.0	193.8	168.6	143.3	-	275.8	20.4	235.4	210.5	185.7	160.8	136.0	-
	62	276.8	18.2	276.8	270.9	246.5	221.2	196.0	170.8	257.0	20.1	257.0	251.3	230.6	205.8	180.9	156.1
57	274.6	17.6	274.6	273.9	255.2	229.9	204.7	179.4	256.4	19.8	256.4	253.2	235.3	210.5	185.6	160.8	
8000	77	343.0	19.0	181.9	154.0	126.0	-	-	-	327.4	21.3	167.2	139.9	112.5	-	-	-
	72	324.1	18.9	221.1	193.2	165.2	137.2	-	-	305.1	20.9	209.4	182.0	154.7	127.3	-	-
	67	305.2	18.7	260.3	232.3	204.4	176.4	148.4	-	282.8	20.6	251.5	224.2	196.8	169.5	142.1	-
	62	286.4	18.6	286.4	286.4	260.0	232.0	204.0	176.1	263.5	20.4	263.5	263.5	244.5	217.1	189.8	162.5
57	284.2	17.9	284.2	284.2	269.2	241.2	213.2	185.3	262.8	20.1	262.8	262.8	249.4	222.1	194.8	167.4	
9000	72	329.1	18.6	240.3	209.7	179.1	148.5	-	-	311.4	20.9	226.2	196.3	166.4	136.4	-	-
	67	310.0	18.5	284.6	252.3	221.7	191.1	160.6	-	288.7	20.6	271.6	241.6	211.7	181.7	151.8	-
	62	290.9	18.3	290.9	290.9	277.7	247.1	216.5	186.0	269.0	20.3	269.0	269.0	259.5	229.5	199.6	169.6
	57	288.6	17.7	288.6	288.6	281.1	250.6	220.0	189.4	268.3	20.0	268.3	268.3	261.6	231.7	201.7	171.8
10000	72	334.2	18.4	259.4	226.2	193.1	159.9	-	-	317.8	20.8	243.1	210.6	178.0	145.5	-	-
	67	314.8	18.3	308.9	272.3	239.1	205.9	172.7	-	294.6	20.5	291.7	259.1	226.6	194.0	161.4	-
	62	295.4	18.1	295.4	295.4	295.4	262.2	229.1	195.9	274.5	20.2	274.5	274.5	274.5	241.9	209.4	176.8
	57	293.1	17.5	293.1	293.1	293.1	259.9	226.7	193.6	273.8	19.9	273.8	273.8	273.8	241.3	208.7	176.2
				95°F						105°F							
5000	77	298.7	23.2	120.5	100.5	80.6	-	-	-	268.4	25.6	111.2	93.6	74.1	-	-	-
	72	274.1	22.8	157.2	137.3	117.3	97.4	-	-	247.8	25.2	149.0	129.5	110.0	90.5	-	-
	67	249.5	22.3	193.9	174.0	154.0	134.1	114.2	-	227.1	24.8	186.8	165.4	145.9	126.4	106.9	-
	62	230.5	21.9	230.5	213.9	186.4	166.4	146.5	126.5	213.5	24.5	213.5	201.2	173.3	153.8	134.3	114.9
6000	77	303.0	23.3	131.1	108.9	86.8	-	-	-	273.2	25.7	123.7	101.9	80.1	-	-	-
	72	278.1	22.9	170.7	148.5	126.3	104.1	-	-	252.2	25.3	162.5	140.7	118.9	97.1	-	-
	67	253.1	22.4	210.2	188.0	165.8	143.6	121.4	-	231.2	24.9	201.3	179.5	157.7	135.9	114.1	-
	62	233.8	22.0	233.8	222.8	200.6	178.4	156.2	134.0	217.4	24.6	217.4	209.1	187.3	165.5	143.7	121.9
57	234.8	22.0	234.8	223.4	201.2	179.0	156.8	134.6	219.3	24.6	219.3	208.3	186.4	164.6	142.8	121.0	
7000	77	307.4	23.4	141.8	117.4	92.9	-	-	-	278.0	25.8	136.2	110.2	86.0	-	-	-
	72	282.1	22.9	184.1	159.7	135.2	110.8	-	-	256.6	25.4	176.1	151.9	127.8	103.6	-	-
	67	256.7	22.5	226.4	202.0	177.5	153.1	128.6	-	235.3	25.0	215.9	193.7	169.5	145.4	121.2	-
	62	237.2	22.1	237.2	231.7	214.8	190.3	165.9	141.4	221.2	24.7	221.2	217.1	201.3	177.2	153.0	128.9
57	238.2	22.1	238.2	232.5	215.4	191.0	166.5	142.1	223.1	24.7	223.1	217.6	200.4	176.2	152.1	127.9	
8000	77	311.7	23.5	152.5	125.8	99.0	-	-	-	282.8	25.9	148.7	118.5	92.0	-	-	-
	72	286.0	23.0	197.6	170.9	144.2	117.5	-	-	261.1	25.5	189.6	163.1	136.7	110.2	-	-
	67	260.4	22.6	242.7	216.0	189.3	162.6	135.9	-	239.3	25.1	230.5	207.8	181.3	154.8	128.3	-
	62	240.5	22.2	240.5	240.5	229.0	202.3	175.6	148.9	225.1	24.8	225.1	225.1	215.3	188.8	162.3	135.9
57	241.5	22.2	241.5	241.5	229.7	203.0	176.3	149.6	227.0	24.8	227.0	227.0	214.3	187.8	161.3	134.8	
9000	72	293.7	23.1	212.2	182.9	153.6	124.3	-	-	267.7	25.5	203.8	174.8	145.9	116.9	-	-
	67	267.4	22.6	258.5	231.0	201.7	172.3	143.0	-	245.4	25.1	240.9	222.5	193.5	164.6	135.6	-
	62	247.0	22.2	247.0	247.0	241.3	211.9	182.6	153.3	230.7	24.8	230.7	230.7	225.8	196.9	167.9	139.0
	57	248.1	22.3	248.1	248.1	242.1	212.8	183.5	154.2	232.7	24.8	232.7	232.7	226.4	197.4	168.5	139.5
10000	72	301.5	23.1	226.9	194.9	163.0	131.1	-	-	274.2	25.6	217.9	186.5	155.1	123.7	-	-
	67	274.4	22.7	274.4	246.0	214.0	182.1	150.2	-	251.4	25.2	251.4	237.2	205.8	174.4	143.0	-
	62	253.5	22.3	253.5	253.5	253.5	221.6	189.7	157.7	236.4	24.9	236.4	236.4	236.4	205.0	173.5	142.1
	57	254.6	22.3	254.6	254.6	254.6	222.6	190.7	158.8	238.4	24.9	238.4	238.4	238.4	207.0	175.6	144.2

**ZF240 (20 Ton) (Continued)**

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
5000	77	238.2	28.0	101.8	86.6	67.5	-	-	-	207.9	30.4	88.1	79.6	61.0	-	-	-
	72	221.5	27.7	140.7	121.7	102.7	83.6	-	-	195.2	30.1	132.5	113.9	95.4	76.8	-	-
	67	204.8	27.3	179.6	156.8	137.8	118.8	99.7	-	182.4	29.8	175.0	148.3	129.7	111.1	92.5	-
	62	196.6	27.1	196.6	188.5	160.3	141.3	122.2	103.2	179.7	29.7	179.7	175.7	147.2	128.7	110.1	91.5
6000	77	243.4	28.1	116.2	94.8	73.4	-	-	-	213.6	30.5	108.8	87.7	66.7	-	-	-
	72	226.4	27.7	154.4	132.9	111.5	90.1	-	-	200.5	30.2	146.2	125.2	104.1	83.1	-	-
	67	209.3	27.4	192.5	171.1	149.6	128.2	106.8	-	187.4	29.9	183.7	162.6	141.6	120.5	99.5	-
	62	200.9	27.2	200.9	195.5	174.1	152.6	131.2	109.7	184.5	29.8	184.5	181.9	160.8	139.7	118.7	97.6
	57	203.7	27.2	203.7	193.1	171.7	150.3	128.8	107.4	188.2	29.8	188.2	178.0	157.0	135.9	114.8	93.8
7000	77	248.7	28.2	130.6	103.0	79.2	-	-	-	219.3	30.6	129.5	95.8	72.3	-	-	-
	72	231.2	27.8	168.0	144.2	120.3	96.5	-	-	205.8	30.3	160.0	136.4	112.9	89.3	-	-
	67	213.8	27.5	205.4	185.3	161.5	137.6	113.8	-	192.3	30.0	192.3	177.0	153.5	129.9	106.4	-
	62	205.3	27.3	205.3	202.5	187.8	164.0	140.1	116.3	189.3	29.9	189.3	188.0	174.4	150.8	127.3	103.7
	57	208.1	27.3	208.1	202.8	185.3	161.4	137.6	113.7	193.0	29.8	193.0	188.0	170.2	146.7	123.1	99.6
8000	77	253.9	28.3	145.0	111.2	85.0	-	-	-	225.0	30.7	150.1	104.0	77.9	-	-	-
	72	236.1	27.9	181.7	155.4	129.1	102.9	-	-	211.1	30.4	173.7	147.7	121.6	95.6	-	-
	67	218.3	27.6	218.3	199.6	173.3	147.1	120.8	-	197.3	30.1	197.3	191.4	165.4	139.3	113.3	-
	62	209.6	27.4	209.6	209.6	201.6	175.4	149.1	122.8	194.1	29.9	194.1	194.1	187.9	161.9	135.9	109.8
	57	212.5	27.4	212.5	212.5	198.9	172.6	146.4	120.1	197.9	29.9	197.9	197.9	183.5	157.4	131.4	105.4
9000	72	241.6	28.0	195.3	166.8	138.2	109.6	-	-	215.5	30.4	186.9	158.7	130.5	102.3	-	-
	67	223.3	27.6	223.3	214.0	185.4	156.9	128.3	-	201.3	30.1	201.3	201.3	177.3	149.1	120.9	-
	62	214.4	27.4	214.4	214.4	210.4	181.9	153.3	124.7	198.1	30.0	198.1	198.1	195.0	166.8	138.6	110.4
	57	217.4	27.4	217.4	217.4	210.6	182.0	153.4	124.8	202.0	30.0	202.0	202.0	194.8	166.6	138.4	110.2
10000	72	247.0	28.0	209.0	178.1	147.2	116.3	-	-	219.8	30.5	200.1	169.7	139.3	108.9	-	-
	67	228.4	27.7	228.4	228.4	197.5	166.6	135.7	-	205.4	30.2	205.4	205.4	189.3	158.9	128.5	-
	62	219.3	27.4	219.3	219.3	219.3	188.3	157.4	126.5	202.1	30.0	202.1	202.1	202.1	171.7	141.3	110.9
	57	222.3	27.4	222.3	222.3	222.3	191.4	160.5	129.6	206.1	30.0	206.1	206.1	206.1	175.8	145.4	115.0

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.

ZF300 (25 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
6250	77	368.2	22.7	163.8	139.5	115.2	-	-	-	335.6	23.9	144.4	118.0	91.7	-	-	-
	72	343.8	21.9	213.3	189.1	164.8	140.5	-	-	312.8	23.2	190.6	164.2	137.8	111.5	-	-
	67	319.5	21.0	262.9	238.6	214.3	190.0	165.7	-	290.0	22.6	236.7	210.4	184.0	157.6	131.3	-
	62	296.8	20.6	296.8	296.8	273.1	248.8	224.5	200.2	268.9	22.1	268.9	268.6	231.3	204.9	178.5	152.2
7500	77	379.3	22.6	176.4	148.7	120.9	-	-	-	352.1	24.0	158.7	129.4	100.2	-	-	-
	72	354.3	21.8	227.4	199.7	171.9	144.2	-	-	328.2	23.3	209.1	179.9	150.7	121.4	-	-
	67	329.3	20.9	278.5	250.7	223.0	195.2	167.5	-	304.3	22.6	259.6	230.3	201.1	171.9	142.7	-
	62	305.9	20.5	305.9	305.9	284.5	256.8	229.1	201.3	282.2	22.2	282.2	282.0	252.8	223.6	194.3	165.1
8750	77	390.5	22.5	189.0	157.8	126.6	-	-	-	368.7	24.0	172.9	140.8	108.7	-	-	-
	72	364.7	21.7	241.5	210.3	179.1	147.9	-	-	343.6	23.3	227.7	195.6	163.5	131.4	-	-
	67	339.0	20.8	294.0	262.8	231.6	200.4	169.2	-	318.6	22.7	282.4	250.3	218.2	186.2	154.1	-
	62	315.0	20.4	315.0	315.0	296.0	264.8	233.6	202.4	295.5	22.2	295.5	295.4	274.3	242.2	210.1	178.0
10000	77	401.6	22.4	201.6	167.0	132.3	-	-	-	385.3	24.1	187.2	152.2	117.3	-	-	-
	72	375.2	21.6	255.6	220.9	186.3	151.6	-	-	359.1	23.4	246.2	211.3	176.3	141.4	-	-
	67	348.8	20.7	309.6	274.9	240.2	205.6	170.9	-	332.9	22.7	305.3	270.3	235.4	200.4	165.5	-
	62	324.0	20.3	324.0	324.0	307.5	272.8	238.2	203.5	308.8	22.3	308.8	308.8	295.8	260.9	225.9	191.0
11250	72	372.4	21.4	275.6	234.4	193.1	151.9	-	-	354.6	23.3	263.4	222.6	181.8	141.0	-	-
	67	346.2	20.6	326.6	290.4	249.2	207.9	166.7	-	328.7	22.6	314.9	283.5	242.7	201.9	161.1	-
	62	321.6	20.1	321.6	321.6	313.4	272.1	230.9	189.6	304.9	22.1	304.9	304.9	298.4	257.6	216.8	176.0
	57	310.4	20.2	310.4	310.4	305.9	264.7	223.4	182.2	298.2	22.1	298.2	298.2	295.0	254.2	213.4	172.6
12500	72	369.6	21.3	295.6	247.8	200.0	152.2	-	-	350.1	23.1	280.6	234.0	187.4	140.7	-	-
	67	343.6	20.4	343.6	305.9	258.1	210.3	162.5	-	324.5	22.5	324.5	296.7	250.1	203.4	156.8	-
	62	319.2	20.0	319.2	319.2	319.2	271.4	223.6	175.8	301.0	22.0	301.0	301.0	301.0	254.4	207.7	161.1
	57	308.1	20.1	308.1	308.1	308.1	260.3	212.4	164.6	294.4	21.9	294.4	294.4	294.4	247.8	201.1	154.5
				95°F						105°F							
6250	77	303.0	25.1	125.0	96.6	68.2	-	-	-	287.2	27.1	154.1	129.0	101.8	-	-	-
	72	281.7	24.6	167.8	139.3	110.9	82.5	-	-	267.0	26.8	184.2	157.0	129.7	102.5	-	-
	67	260.4	24.1	210.5	182.1	153.7	125.3	96.8	-	246.8	26.5	214.3	184.9	157.7	130.4	103.2	-
	62	241.1	23.7	241.1	230.8	189.5	161.0	132.6	104.2	232.0	26.0	232.0	226.9	192.4	165.1	137.9	110.7
7500	77	325.0	25.3	140.9	110.2	79.5	-	-	-	305.7	27.2	173.9	144.2	114.6	-	-	-
	72	302.1	24.8	190.8	160.1	129.4	98.7	-	-	284.2	26.9	206.1	176.4	146.7	117.1	-	-
	67	279.3	24.3	240.7	210.0	179.3	148.6	117.9	-	262.6	26.6	238.3	208.6	178.9	149.2	119.6	-
	62	258.5	23.9	258.5	251.7	221.0	190.3	159.6	128.9	246.9	26.2	246.9	243.4	218.4	188.7	159.0	129.3
8750	77	346.9	25.5	156.8	123.8	90.9	-	-	-	324.2	27.4	193.8	159.5	127.3	-	-	-
	72	322.5	25.0	213.8	180.8	147.9	114.9	-	-	301.3	27.0	228.0	195.9	163.8	131.6	-	-
	67	298.1	24.5	270.8	237.8	204.9	171.9	138.9	-	278.5	26.7	262.3	232.3	200.2	168.1	135.9	-
	62	276.0	24.1	276.0	272.6	252.6	219.6	186.6	153.7	261.7	26.3	261.7	260.0	244.4	212.2	180.1	147.9
10000	77	368.9	25.7	172.7	137.4	102.2	-	-	-	342.6	27.5	213.6	174.7	140.1	-	-	-
	72	343.0	25.2	236.8	201.6	166.3	131.1	-	-	318.5	27.2	250.0	215.4	180.8	146.2	-	-
	67	317.0	24.7	300.9	265.7	230.5	195.2	160.0	-	294.3	26.9	286.3	256.0	221.5	186.9	152.3	-
	62	293.5	24.3	293.5	293.5	284.1	248.9	213.6	178.4	276.6	26.4	276.6	276.6	270.4	235.8	201.2	166.6
11250	72	336.7	25.1	251.2	210.9	170.5	130.2	-	-	311.7	27.4	261.2	224.8	184.6	144.3	-	-
	67	311.3	24.6	303.2	276.6	236.3	195.9	155.6	-	288.0	27.1	284.0	264.4	226.2	186.0	145.7	-
	62	288.2	24.1	288.2	288.2	283.5	243.1	202.8	162.4	270.7	26.7	270.7	270.7	267.6	227.3	187.1	146.8
	57	286.0	23.9	286.0	286.0	284.1	243.8	203.4	163.1	268.7	26.7	268.7	268.7	266.8	226.5	186.3	146.0
12500	72	330.5	25.0	265.7	220.2	174.7	129.2	-	-	304.9	27.6	272.5	234.3	188.4	142.5	-	-
	67	305.5	24.5	305.5	287.6	242.1	196.6	151.1	-	281.8	27.3	281.8	272.8	231.0	185.1	139.2	-
	62	282.8	24.0	282.8	282.8	282.8	237.3	191.9	146.4	264.8	26.9	264.8	264.8	264.8	218.9	173.0	127.1
	57	280.7	23.8	280.7	280.7	280.7	235.3	189.8	144.3	262.9	26.9	262.9	262.9	262.9	217.0	171.1	125.2

ZF300 (25 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	Sensible Capacity (MBh)						Total Capacity <sup>1</sup> (MBh)	Total Input (kW) <sup>2</sup>	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							
6250	77	271.5	29.1	183.2	161.5	135.4	-	-	-	255.7	31.1	221.3	193.9	169.1	-	-	-
	72	252.3	28.9	200.6	174.6	148.5	122.5	-	-	237.6	31.1	217.0	192.2	167.4	142.5	-	-
	67	233.1	28.8	218.0	187.7	161.6	135.6	109.6	-	219.5	31.2	219.5	190.5	165.6	140.8	116.0	-
	62	222.9	28.4	222.9	222.9	195.3	169.2	143.2	117.2	213.8	30.8	213.8	213.8	198.2	173.4	148.5	123.7
7500	77	286.4	29.1	207.0	178.3	149.6	-	-	-	267.2	31.0	244.2	212.4	184.7	-	-	-
	72	266.2	29.0	221.4	192.8	164.1	135.4	-	-	248.3	31.1	236.8	209.1	181.5	153.8	-	-
	67	246.0	28.9	235.9	207.2	178.6	149.9	121.2	-	229.3	31.2	229.3	205.9	178.2	150.6	122.9	-
	62	235.2	28.5	235.2	235.2	215.7	187.1	158.4	129.7	223.5	30.8	223.5	223.5	213.1	185.4	157.8	130.1
	57	233.5	28.8	233.5	233.5	213.3	184.7	156.0	127.3	222.0	31.4	222.0	222.0	208.2	180.5	152.9	125.2
8750	77	301.4	29.2	230.8	195.1	163.8	-	-	-	278.6	31.0	267.1	230.8	200.3	-	-	-
	72	280.1	29.1	242.3	211.0	179.7	148.3	-	-	258.9	31.1	256.5	226.0	195.6	165.1	-	-
	67	258.8	28.9	253.8	226.8	195.5	164.2	132.9	-	239.2	31.2	239.2	221.3	190.8	160.3	129.8	-
	62	247.5	28.5	247.5	247.5	236.2	204.9	173.5	142.2	233.2	30.8	233.2	233.2	228.0	197.5	167.0	136.5
	57	245.7	28.8	245.7	245.7	233.6	202.3	170.9	139.6	231.6	31.4	231.6	231.6	222.5	192.1	161.6	131.1
10000	77	316.4	29.3	254.6	212.0	178.0	-	-	-	290.1	31.0	290.1	249.2	215.9	-	-	-
	72	294.0	29.1	263.1	229.2	195.2	161.3	-	-	269.5	31.1	269.5	243.0	209.7	176.3	-	-
	67	271.7	29.0	271.7	246.4	212.4	178.5	144.5	-	249.0	31.1	249.0	236.7	203.4	170.1	136.8	-
	62	259.7	28.6	259.7	259.7	256.6	222.7	188.7	154.8	242.9	30.8	242.9	242.9	242.9	209.6	176.3	142.9
	57	257.9	28.9	257.9	257.9	253.8	219.8	185.9	151.9	241.2	31.3	241.2	241.2	236.9	203.6	170.3	137.0
11250	72	286.6	29.7	271.2	238.8	198.7	158.5	-	-	261.6	32.0	261.6	252.8	212.7	172.7	-	-
	67	264.8	29.6	264.8	252.2	216.2	176.0	135.9	-	241.6	32.1	241.6	240.0	206.1	166.1	126.1	-
	62	253.2	29.2	253.2	253.2	251.7	211.5	171.4	131.3	235.8	31.7	235.8	235.8	235.8	195.7	155.7	115.7
	57	251.5	29.5	251.5	251.5	249.4	209.2	169.1	129.0	234.2	32.2	234.2	234.2	232.0	192.0	152.0	111.9
12500	72	279.3	30.3	279.3	248.4	202.1	155.8	-	-	253.6	32.9	253.6	253.6	215.8	169.1	-	-
	67	258.0	30.1	258.0	258.0	219.9	173.6	127.3	-	234.3	33.0	234.3	234.3	208.9	162.1	115.4	-
	62	246.7	29.7	246.7	246.7	246.7	200.4	154.1	107.7	228.7	32.6	228.7	228.7	228.7	181.9	135.2	88.4
	57	245.0	30.0	245.0	245.0	245.0	198.7	152.3	106.0	227.1	33.1	227.1	227.1	227.1	180.4	133.6	86.9

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 condenser fan motors (total 1 kW) and the compressor motors but not the supply air blower motor.



## Airflow Performance

### ZJ180-300 Side Duct Application

#### ZJ180 (15 Ton) Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																								
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
	Standard 5 HP & Field Supplied Drive						Standard 5 HP & Drive						High Static 5 HP & Drive												
4000	727	1.14	765	1.47	806	1.77	848	2.04	891	2.29	934	2.52	977	2.73	1020	2.93	1061	3.12	1101	3.30	1138	3.48	1174	3.67	
4400	753	1.51	792	1.84	832	2.14	874	2.41	917	2.66	960	2.88	1004	3.09	1046	3.29	1087	3.48	1127	3.67	1165	3.85	1200	4.03	
4800	781	1.92	820	2.25	861	2.55	903	2.82	946	3.06	989	3.29	1032	3.50	1074	3.70	1116	3.89	1155	4.08	1193	4.26	1228	4.44	
5200	812	2.37	850	2.70	891	3.00	933	3.27	976	3.52	1019	3.74	1062	3.95	1105	4.15	1146	4.34	1186	4.53	1223	4.71	1259	4.89	
5600	844	2.86	882	3.19	923	3.49	965	3.76	1008	4.01	1051	4.23	1094	4.45	1137	4.64	1178	4.83	1218	5.02	1255	5.20	1291	5.39	
6000	877	3.39	916	3.72	957	4.02	999	4.29	1042	4.54	1085	4.76	1128	4.98	1170	5.17	1212	5.36	1251	5.55	1289	5.73	-	-	
6400	912	3.96	951	4.29	992	4.59	1034	4.86	1077	5.10	1120	5.33	1163	5.54	1205	5.74	-	-	-	-	-	-	-	-	
6800	949	4.56	988	4.89	1028	5.19	1070	5.46	1113	5.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7200	986	5.20	1025	5.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

5 HP &amp; Field Supplied Drive

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.898.

#### ZJ210 (17.5 Ton) Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																								
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
	Standard 5 HP & Field Supplied Drive						Standard 5 HP & Drive						High Static 7.5 HP & Drive												
4400	636	0.65	672	1.14	709	1.60	745	2.03	780	2.43	815	2.78	849	3.09	882	3.35	914	3.55	944	3.70	973	3.78	999	3.79	
4800	649	0.99	685	1.48	721	1.94	757	2.37	793	2.77	828	3.12	862	3.43	895	3.69	927	3.89	957	4.04	985	4.12	1012	4.13	
5200	663	1.34	700	1.83	736	2.29	772	2.72	808	3.11	843	3.47	877	3.78	910	4.04	942	4.24	972	4.39	1000	4.47	1027	4.48	
5600	680	1.71	717	2.20	753	2.66	789	3.09	825	3.48	860	3.84	894	4.15	927	4.41	959	4.61	989	4.76	1017	4.84	1044	4.85	
6000	699	2.11	735	2.60	772	3.06	808	3.49	844	3.88	879	4.24	913	4.55	946	4.80	977	5.01	1007	5.15	1036	5.24	1062	5.25	
6400	719	2.55	756	3.03	792	3.49	828	3.92	864	4.32	899	4.67	933	4.98	966	5.24	998	5.45	1028	5.59	1056	5.67	1083	5.68	
6800	742	3.02	778	3.51	814	3.97	850	4.40	886	4.79	921	5.15	955	5.46	988	5.72	1020	5.92	1050	6.07	1078	6.15	1105	6.16	
7200	765	3.54	802	4.03	838	4.49	874	4.92	910	5.32	945	5.67	979	5.98	1012	6.24	1044	6.44	1074	6.59	1102	6.67	1129	6.68	
7600	790	4.11	827	4.60	863	5.06	899	5.49	935	5.88	970	6.24	1004	6.55	1037	6.81	1069	7.01	1099	7.16	1127	7.24	1154	7.25	
8000	817	4.72	853	5.21	890	5.67	926	6.10	962	6.50	997	6.85	1031	7.16	1064	7.42	1095	7.62	1125	7.77	1154	7.85	1180	7.86	
8400	845	5.38	881	5.87	918	6.33	954	6.76	990	7.16	1025	7.51	1059	7.82	1092	8.08	1123	8.28	1153	8.43	1182	8.51	1208	8.52	
8800	874	6.09	911	6.58	947	7.04	983	7.47	1019	7.86	1054	8.22	1088	8.53	-	-	-	-	-	-	-	-	-	-	

7.5 HP &amp; Field Supplied Drive

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

**ZJ240 (20 Ton) Side Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																									
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive				Standard 5 HP & Drive								High Static 7.5 HP & Drive													
5200	663	1.34	700	1.83	736	2.29	772	2.72	808	3.11	843	3.47	877	3.78	910	4.04	942	4.24	972	4.39	1000	4.47	1027	4.48		
5600	680	1.71	717	2.20	753	2.66	789	3.09	825	3.48	860	3.84	894	4.15	927	4.41	959	4.61	989	4.76	1017	4.84	1044	4.85		
6000	699	2.11	735	2.60	772	3.06	808	3.49	844	3.88	879	4.24	913	4.55	946	4.80	977	5.01	1007	5.15	1036	5.24	1062	5.25		
6400	719	2.55	756	3.03	792	3.49	828	3.92	864	4.32	899	4.67	933	4.98	966	5.24	998	5.45	1028	5.59	1056	5.67	1083	5.68		
6800	742	3.02	778	3.51	814	3.97	850	4.40	886	4.79	921	5.15	955	5.46	988	5.72	1020	5.92	1050	6.07	1078	6.15	1105	6.16		
7200	765	3.54	802	4.03	838	4.49	874	4.92	910	5.32	945	5.67	979	5.98	1012	6.24	1044	6.44	1074	6.59	1102	6.67	1129	6.68		
7600	790	4.11	827	4.60	863	5.06	899	5.49	935	5.88	970	6.24	1004	6.55	1037	6.81	1069	7.01	1099	7.16	1127	7.24	1154	7.25		
8000	817	4.72	853	5.21	890	5.67	926	6.10	962	6.50	997	6.85	1031	7.16	1064	7.42	1095	7.62	1125	7.77	1154	7.85	1180	7.86		
8400	845	5.38	881	5.87	918	6.33	954	6.76	990	7.16	1025	7.51	1059	7.82	1092	8.08	1123	8.28	1153	8.43	1182	8.51	1208	8.52		
8800	874	6.09	911	6.58	947	7.04	983	7.47	1019	7.86	1054	8.22	1088	8.53	-	-	-	-	-	-	-	-	-	-		
9200	905	6.85	941	7.33	977	7.79	1014	8.22	1049	8.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
9600	936	7.65	973	8.13	1009	8.59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10000	969	8.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	7.5 HP & Field Supplied Drive																									

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

## ZJ300 (25 Ton) Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>															
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static 7.5 HP & Field Supplied Drive				Low Static 7.5 HP & Drive											
6600	760	2.51	793	3.11	824	3.68	856	4.23	887	4.74	919	5.23	950	5.70	983	6.15
7000	775	2.99	808	3.60	839	4.17	871	4.71	902	5.22	934	5.72	966	6.19	998	6.64
7400	792	3.51	824	4.11	856	4.69	887	5.23	918	5.74	950	6.24	982	6.70	1014	7.16
7800	809	4.07	841	4.67	873	5.24	904	5.78	935	6.30	967	6.79	999	7.26	1031	7.71
8200	826	4.66	859	5.27	890	5.84	922	6.38	953	6.89	985	7.39	1016	7.86	1049	8.31
8600	845	5.30	877	5.90	909	6.47	940	7.01	972	7.53	1003	8.02	1035	8.49	1067	8.94
9000	864	5.97	896	6.57	928	7.14	960	7.69	991	8.20	1022	8.69	1054	9.16	1087	9.61
9400	884	6.68	916	7.28	948	7.86	980	8.40	1011	8.91	1042	9.41	1074	9.88	1107	10.33
9800	905	7.43	937	8.04	969	8.61	1000	9.15	1032	9.67	1063	10.16	1095	10.63	1127	11.08
10200	926	8.22	958	8.83	990	9.40	1021	9.94	1053	10.46	1084	10.95	1116	11.42	1148	11.87
10600	948	9.05	980	9.66	1012	10.23	1043	10.77	1075	11.29	1106	11.78	1138	12.25	1170	12.70
11000	970	9.92	1003	10.52	1034	11.09	1066	11.64	1097	12.15	1128	12.64	1160	13.11	1193	13.56
11400	993	10.82	1025	11.43	1057	12.00	1089	12.54	1120	13.06	1151	13.55	1183	14.02	1216	14.47
11800	1017	11.76	1049	12.37	1081	12.94	1112	13.48	1143	14.00	1175	14.49	1207	14.96	1239	15.41
12200	1040	12.74	1073	13.34	1104	13.91	1136	14.46	1167	14.97	1199	15.46	1231	15.93	1263	16.38
12600	1065	13.75	1097	14.35	1129	14.92	1160	15.47	1192	15.98	1223	16.47	1255	16.94	-	-
	High Static 15 HP & Drive															

Standard 10 HP &amp; Drive

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>															
	2.0		2.2		2.4		2.6		2.8		3.0		3.2		3.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 10 HP & Drive								High Static 15 HP & Drive							
6600	1016	6.59	1050	7.00	1086	7.41	1123	7.81	1161	8.19	1202	8.58	1244	8.95	1289	9.33
7000	1031	7.07	1065	7.49	1101	7.89	1138	8.29	1176	8.68	1217	9.06	1259	9.44	1304	9.82
7400	1047	7.59	1081	8.01	1117	8.41	1154	8.81	1192	9.20	1233	9.58	1275	9.96	1320	10.34
7800	1064	8.14	1098	8.56	1134	8.97	1171	9.36	1209	9.75	1250	10.13	1292	10.51	1337	10.89
8200	1082	8.74	1116	9.16	1152	9.56	1189	9.96	1227	10.35	1268	10.73	1310	11.11	1355	11.49
8600	1101	9.37	1135	9.79	1170	10.20	1207	10.59	1246	10.98	1286	11.36	1329	11.74	1374	12.12
9000	1120	10.05	1154	10.46	1189	10.87	1226	11.27	1265	11.65	1305	12.04	1348	12.41	1393	12.79
9400	1140	10.76	1174	11.18	1209	11.58	1246	11.98	1285	12.37	1325	12.75	1368	13.13	1413	13.51
9800	1160	11.51	1195	11.93	1230	12.33	1267	12.73	1306	13.12	1346	13.50	1389	13.88	1434	14.26
10200	1182	12.30	1216	12.72	1251	13.12	1288	13.52	1327	13.91	1367	14.29	1410	14.67	1455	15.05
10600	1204	13.13	1238	13.55	1273	13.95	1310	14.35	1349	14.74	1389	15.12	1432	15.50	1477	15.88
11000	1226	14.00	1260	14.41	1296	14.82	1332	15.22	1371	15.60	1412	15.99	1454	16.36	1499	16.74
11400	1249	14.90	1283	15.32	1318	15.72	1355	16.12	1394	16.51	1434	16.89	-	-	-	-
11800	1272	15.84	1306	16.26	1342	16.66	1379	17.06	-	-	-	-	-	-	-	-
12200	1296	16.82	1330	17.23	-	-	-	-	-	-	-	-	-	-	-	-
12600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15 HP & Field Supplied Drive															

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.82.

**ZJ180-300 Bottom Duct Application**

**ZJ180 (15 Ton) Bottom Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																									
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive				Standard 5 HP & Drive								High Static 5 HP & Drive													
4000	768	1.24	806	1.55	846	1.83	888	2.09	930	2.32	972	2.53	1015	2.73	1056	2.91	1097	3.09	1136	3.27	1173	3.44	1208	3.61		
4400	797	1.65	835	1.96	875	2.24	916	2.49	959	2.72	1001	2.93	1043	3.13	1085	3.32	1126	3.50	1165	3.67	1202	3.84	1237	4.02		
4800	828	2.09	866	2.40	906	2.68	947	2.93	989	3.16	1032	3.38	1074	3.58	1116	3.76	1157	3.94	1196	4.11	1233	4.28	1267	4.46		
5200	860	2.57	898	2.88	938	3.16	980	3.41	1022	3.65	1064	3.86	1107	4.06	1148	4.24	1189	4.42	1228	4.59	1265	4.77	1300	4.94		
5600	894	3.09	932	3.40	972	3.68	1014	3.93	1056	4.16	1098	4.38	1141	4.57	1182	4.76	1223	4.94	1262	5.11	1299	5.28	1334	5.46		
6000	930	3.64	968	3.95	1008	4.23	1049	4.48	1091	4.71	1134	4.93	1176	5.12	1218	5.31	1259	5.49	1298	5.66	-	-	-	-	-	-
6400	966	4.22	1005	4.53	1045	4.81	1086	5.06	1128	5.30	1171	5.51	1213	5.71	-	-	-	-	-	-	-	-	-	-	-	-
6800	1005	4.84	1043	5.14	1083	5.42	1124	5.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7200	1044	5.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

5 HP & Field Supplied Drive

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.898.

**ZJ210 (17.5 Ton) Bottom Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																									
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive				Standard 5 HP & Drive								High Static 7.5 HP & Drive													
4400	661	0.74	697	1.19	733	1.62	768	2.03	803	2.40	838	2.73	871	3.02	904	3.26	935	3.45	964	3.59	992	3.66	1018	3.67		
4800	677	1.07	712	1.53	748	1.96	784	2.36	819	2.73	853	3.06	887	3.35	919	3.59	950	3.79	980	3.92	1008	4.00	1034	4.01		
5200	694	1.43	730	1.89	766	2.32	801	2.72	836	3.09	871	3.42	904	3.71	937	3.95	968	4.14	997	4.28	1025	4.35	1051	4.37		
5600	713	1.82	749	2.27	785	2.71	820	3.11	856	3.48	890	3.81	923	4.10	956	4.34	987	4.53	1017	4.67	1045	4.74	1071	4.75		
6000	734	2.25	770	2.70	806	3.13	841	3.53	877	3.90	911	4.23	944	4.52	977	4.77	1008	4.96	1038	5.09	1066	5.17	1092	5.18		
6400	757	2.71	793	3.17	829	3.60	864	4.00	899	4.37	934	4.70	967	4.99	1000	5.23	1031	5.42	1060	5.56	1088	5.64	1114	5.65		
6800	781	3.22	817	3.68	853	4.11	888	4.51	923	4.88	958	5.21	991	5.50	1024	5.74	1055	5.94	1085	6.07	1112	6.15	1139	6.16		
7200	807	3.78	843	4.23	878	4.66	914	5.07	949	5.44	983	5.77	1017	6.06	1049	6.30	1081	6.49	1110	6.63	1138	6.70	1164	6.71		
7600	834	4.38	870	4.83	905	5.26	941	5.67	976	6.04	1010	6.37	1044	6.66	1076	6.90	1108	7.09	1137	7.23	1165	7.30	1191	7.31		
8000	862	5.02	898	5.48	934	5.91	969	6.31	1004	6.68	1039	7.01	1072	7.30	1105	7.55	1136	7.74	1166	7.87	1194	7.95	1220	7.96		
8400	892	5.71	928	6.17	963	6.60	999	7.00	1034	7.37	1069	7.70	1102	7.99	1134	8.24	1166	8.43	1195	8.56	-	-	-	-	-	-
8800	923	6.45	959	6.91	994	7.34	1030	7.74	1065	8.11	1099	8.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-

7.5 HP & Field Supplied Drive

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

## ZJ240 (20 Ton) Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																							
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive												High Static 7.5 HP & Drive											
	Standard 5 HP & Drive												High Static 7.5 HP & Drive											
5200	694	1.43	730	1.89	766	2.32	801	2.72	836	3.09	871	3.42	904	3.71	937	3.95	968	4.14	997	4.28	1025	4.35	1051	4.37
5600	713	1.82	749	2.27	785	2.71	820	3.11	856	3.48	890	3.81	923	4.10	956	4.34	987	4.53	1017	4.67	1045	4.74	1071	4.75
6000	734	2.25	770	2.70	806	3.13	841	3.53	877	3.90	911	4.23	944	4.52	977	4.77	1008	4.96	1038	5.09	1066	5.17	1092	5.18
6400	757	2.71	793	3.17	829	3.60	864	4.00	899	4.37	934	4.70	967	4.99	1000	5.23	1031	5.42	1060	5.56	1088	5.64	1114	5.65
6800	781	3.22	817	3.68	853	4.11	888	4.51	923	4.88	958	5.21	991	5.50	1024	5.74	1055	5.94	1085	6.07	1112	6.15	1139	6.16
7200	807	3.78	843	4.23	878	4.66	914	5.07	949	5.44	983	5.77	1017	6.06	1049	6.30	1081	6.49	1110	6.63	1138	6.70	1164	6.71
7600	834	4.38	870	4.83	905	5.26	941	5.67	976	6.04	1010	6.37	1044	6.66	1076	6.90	1108	7.09	1137	7.23	1165	7.30	1191	7.31
8000	862	5.02	898	5.48	934	5.91	969	6.31	1004	6.68	1039	7.01	1072	7.30	1105	7.55	1136	7.74	1166	7.87	1194	7.95	1220	7.96
8400	892	5.71	928	6.17	963	6.60	999	7.00	1034	7.37	1069	7.70	1102	7.99	1134	8.24	1166	8.43	1195	8.56	-	-	-	-
8800	923	6.45	959	6.91	994	7.34	1030	7.74	1065	8.11	1099	8.44	-	-	-	-	-	-	-	-	-	-	-	-
9200	955	7.23	991	7.68	1026	8.11	1062	8.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9600	988	8.05	1024	8.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7.5 HP & Field Supplied Drive																							

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

**ZJ300 (25 Ton) Bottom Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>													
	0.4		0.6		0.8		1.0		1.2		1.4		1.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static 7.5 HP & Field Supplied Drive													
6600	787	2.67	819	3.23	850	3.76	881	4.27	912	4.75	943	5.21	974	5.65
7000	804	3.18	835	3.74	867	4.27	898	4.78	928	5.26	959	5.72	991	6.16
7400	821	3.72	853	4.28	884	4.82	915	5.32	946	5.80	977	6.26	1008	6.70
7800	839	4.30	871	4.86	902	5.40	933	5.90	964	6.39	995	6.85	1026	7.28
8200	858	4.92	890	5.48	921	6.02	952	6.52	983	7.01	1013	7.47	1045	7.90
8600	877	5.58	909	6.14	940	6.68	971	7.18	1002	7.66	1033	8.12	1064	8.56
9000	898	6.28	929	6.84	960	7.37	991	7.88	1022	8.36	1053	8.82	1084	9.26
9400	918	7.01	950	7.57	981	8.10	1012	8.61	1043	9.09	1074	9.55	1105	9.99
9800	940	7.78	972	8.34	1003	8.87	1034	9.38	1064	9.86	1095	10.32	1127	10.76
10200	962	8.58	994	9.14	1025	9.68	1056	10.18	1086	10.67	1117	11.13	1149	11.56
10600	984	9.42	1016	9.98	1047	10.52	1078	11.02	1109	11.51	1140	11.96	1171	12.40
11000	1007	10.30	1039	10.86	1070	11.39	1101	11.90	1132	12.38	1163	12.84	1194	13.28
11400	1031	11.20	1063	11.76	1094	12.30	1125	12.80	1156	13.29	1187	13.75	1218	14.18
11800	1055	12.14	1087	12.70	1118	13.24	1149	13.74	1180	14.23	1211	14.69	1242	15.12
12200	1080	13.11	1111	13.68	1142	14.21	1173	14.72	1204	15.20	1235	15.66	1266	16.10
12600	1104	14.12	1136	14.68	1167	15.21	1198	15.72	1229	16.20	1260	16.66	1291	17.10
	High Static 15 HP & Drive													

Standard 10 HP & Drive

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																	
	1.8		2.0		2.2		2.4		2.6		2.8		3.0		3.2		3.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 10 HP & Drive										High Static 15 HP & Drive							
6600	1006	6.07	1039	6.48	1072	6.87	1107	7.25	1144	7.62	1182	7.98	1221	8.33	1263	8.68	1307	9.04
7000	1023	6.58	1055	6.98	1089	7.37	1124	7.75	1160	8.12	1198	8.48	1238	8.84	1280	9.19	1324	9.54
7400	1040	7.12	1072	7.53	1106	7.92	1141	8.30	1177	8.67	1215	9.03	1255	9.38	1297	9.74	1341	10.09
7800	1058	7.71	1090	8.11	1124	8.50	1159	8.88	1195	9.25	1233	9.61	1273	9.97	1315	10.32	1359	10.67
8200	1077	8.33	1109	8.73	1143	9.12	1178	9.50	1214	9.87	1252	10.23	1292	10.59	1334	10.94	1378	11.29
8600	1096	8.98	1129	9.39	1162	9.78	1197	10.16	1234	10.53	1272	10.89	1311	11.24	1353	11.60	1397	11.95
9000	1116	9.68	1149	10.08	1183	10.47	1218	10.85	1254	11.22	1292	11.58	1332	11.94	1373	12.29	1418	12.64
9400	1137	10.41	1170	10.82	1203	11.21	1238	11.59	1275	11.95	1313	12.32	1352	12.67	1394	13.02	1438	13.37
9800	1159	11.18	1191	11.59	1225	11.98	1260	12.35	1296	12.72	1334	13.09	1374	13.44	1416	13.79	1460	14.14
10200	1181	11.99	1213	12.39	1247	12.78	1282	13.16	1318	13.53	1356	13.89	1396	14.25	1438	14.60	1482	14.95
10600	1203	12.82	1236	13.23	1269	13.62	1304	14.00	1341	14.37	1379	14.73	1418	15.08	1460	15.44	1504	15.79
11000	1226	13.70	1259	14.10	1293	14.49	1327	14.87	1364	15.24	1402	15.60	1441	15.96	1483	16.31	1528	16.66
11400	1250	14.61	1282	15.01	1316	15.40	1351	15.78	1387	16.15	1425	16.51	1465	16.87	1507	17.22	-	-
11800	1274	15.55	1307	15.95	1340	16.34	1375	16.72	1411	17.09	-	-	-	-	-	-	-	-
12200	1298	16.52	1331	16.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15 HP & Field Supplied Drive																	

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.82.

**ZR180-300 Side Duct Application**

**ZR180 (15 Ton) Side Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																									
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive						Standard 5 HP & Drive						High Static 7.5 HP & Drive													
4000	696	0.94	735	1.23	776	1.49	818	1.73	861	1.95	904	2.15	947	2.34	990	2.52	1031	2.68	1071	2.84	1109	3.01	1144	3.17	1173	3.30
4400	724	1.27	763	1.56	804	1.83	846	2.07	889	2.29	932	2.49	976	2.68	1018	2.85	1060	3.02	1100	3.18	1137	3.34	1173	3.50	1204	3.89
4800	756	1.66	795	1.95	835	2.21	878	2.45	921	2.67	964	2.87	1007	3.06	1050	3.24	1091	3.40	1131	3.56	1169	3.72	1204	3.89	1238	4.32
5200	790	2.09	829	2.38	870	2.65	912	2.89	955	3.11	998	3.31	1041	3.49	1084	3.67	1125	3.84	1165	4.00	1203	4.16	1238	4.32	1275	4.81
5600	826	2.57	865	2.87	906	3.13	948	3.37	991	3.59	1035	3.79	1078	3.98	1120	4.15	1162	4.32	1202	4.48	1239	4.64	1275	4.81	1314	5.34
6000	865	3.11	904	3.40	945	3.66	987	3.90	1030	4.12	1073	4.32	1117	4.51	1159	4.69	1201	4.85	1241	5.01	1278	5.18	1314	5.34	1355	5.92
6400	906	3.69	945	3.98	986	4.24	1028	4.48	1071	4.70	1114	4.90	1158	5.09	1200	5.27	1242	5.43	1282	5.59	1319	5.76	1355	5.92	1398	6.54
6800	949	4.31	988	4.60	1029	4.87	1071	5.11	1114	5.33	1157	5.53	1201	5.72	1243	5.89	1285	6.06	1324	6.22	1362	6.38	1398	6.54	1442	7.21
7200	994	4.98	1033	5.27	1074	5.54	1116	5.78	1159	6.00	1202	6.20	1245	6.39	1288	6.56	1329	6.73	1369	6.89	1407	7.05	1442	7.21	1489	7.93
7600	1040	5.70	1079	5.99	1120	6.25	1162	6.49	1205	6.71	1249	6.91	1292	7.10	1334	7.27	1376	7.44	1416	7.60	1453	7.76	1489	7.93		
	7.5 HP & Field Supplied Drive																									

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.898.

**ZR240 (20 Ton) Side Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																									
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 7.5 HP & Field Supplied Drive		Standard 7.5 HP & Drive						High Static 10 HP & Drive																	
5200	693	1.36	730	1.83	766	2.27	802	2.68	838	3.06	873	3.40	907	3.69	940	3.94	971	4.14	1002	4.28	1030	4.35	1057	4.37	1077	4.78
5600	714	1.77	750	2.24	786	2.68	822	3.09	858	3.47	893	3.81	927	4.11	960	4.36	992	4.55	1022	4.69	1050	4.77	1077	4.78	1099	5.24
6000	736	2.23	772	2.70	809	3.14	845	3.55	880	3.93	915	4.27	949	4.56	982	4.81	1014	5.01	1044	5.15	1073	5.23	1099	5.24	1123	5.74
6400	760	2.73	796	3.20	832	3.64	869	4.05	904	4.43	939	4.77	973	5.06	1006	5.31	1038	5.51	1068	5.65	1096	5.72	1123	5.74	1148	6.28
6800	785	3.28	821	3.74	858	4.18	894	4.60	930	4.97	965	5.31	999	5.61	1032	5.86	1063	6.05	1094	6.19	1122	6.27	1148	6.28	1175	6.88
7200	812	3.87	848	4.33	885	4.78	921	5.19	957	5.57	992	5.91	1026	6.20	1059	6.45	1090	6.65	1120	6.79	1149	6.86	1175	6.88	1204	7.52
7600	840	4.51	877	4.98	913	5.42	949	5.83	985	6.21	1020	6.55	1054	6.84	1087	7.09	1119	7.29	1149	7.43	1177	7.50	1204	7.52	1233	8.20
8000	870	5.20	907	5.66	943	6.10	979	6.52	1015	6.89	1050	7.23	1084	7.53	1117	7.78	1148	7.98	1179	8.11	1207	8.19	1233	8.20	1265	8.94
8400	901	5.93	938	6.40	974	6.84	1010	7.25	1046	7.63	1081	7.97	1115	8.27	1148	8.51	1179	8.71	1210	8.85	1238	8.93	1265	8.94	1297	9.72
8800	933	6.71	970	7.18	1006	7.62	1042	8.03	1078	8.41	1113	8.75	1147	9.05	1180	9.30	1212	9.49	1242	9.63	1270	9.71	1297	9.72	1330	10.55
9200	967	7.54	1003	8.01	1040	8.45	1076	8.86	1111	9.24	1146	9.58	1180	9.87	1213	10.12	1245	10.32	1275	10.46	1304	10.54	1330	10.55	1365	11.42
9600	1001	8.41	1038	8.88	1074	9.32	1110	9.73	1146	10.11	1181	10.45	1215	10.74	1248	10.99	1280	11.19	1310	11.33	1338	11.41	1365	11.42	-	-
10000	1037	9.33	1073	9.79	1110	10.23	1146	10.65	1182	11.02	1217	11.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10 HP & Field Supplied Drive																									

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

**ZR300 (25 Ton) Side Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>															
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static 7.5 HP & Field Supplied Drive								Low Static 7.5 HP & Drive							
6600	758	3.03	790	3.47	822	3.88	854	4.27	885	4.65	916	5.00	948	5.34	981	5.66
7000	781	3.56	813	4.00	845	4.42	876	4.81	908	5.18	939	5.53	971	5.87	1003	6.20
7400	806	4.14	838	4.58	870	5.00	901	5.39	933	5.76	964	6.12	996	6.45	1028	6.78
7800	833	4.78	865	5.22	897	5.63	928	6.03	959	6.40	991	6.75	1023	7.09	1055	7.41
8200	861	5.47	893	5.91	925	6.33	956	6.72	988	7.09	1019	7.45	1051	7.78	1083	8.11
8600	891	6.23	923	6.67	955	7.08	986	7.47	1018	7.85	1049	8.20	1081	8.54	1113	8.86
9000	922	7.05	955	7.48	986	7.90	1018	8.29	1049	8.66	1080	9.02	1112	9.36	1145	9.68
9400	955	7.93	987	8.37	1019	8.78	1050	9.17	1082	9.54	1113	9.90	1145	10.24	1177	10.56
9800	989	8.87	1021	9.31	1053	9.73	1084	10.12	1115	10.49	1147	10.84	1179	11.18	1211	11.51
10200	1024	9.88	1056	10.32	1088	10.74	1119	11.13	1150	11.50	1182	11.86	1214	12.19	1246	12.52
10600	1060	10.96	1092	11.40	1124	11.81	1155	12.20	1186	12.58	1218	12.93	1250	13.27	1282	13.59
11000	1096	12.10	1129	12.54	1160	12.95	1192	13.34	1223	13.72	1255	14.07	1286	14.41	1319	14.73
11400	1134	13.30	1166	13.74	1198	14.16	1230	14.55	1261	14.92	1292	15.27	1324	15.61	1357	15.94
11800	1173	14.57	1205	15.01	1237	15.42	1268	15.82	1299	16.19	1331	16.54	1363	16.88	1395	17.20
12200	1212	15.90	1244	16.34	1276	16.75	1308	17.14	-	-	-	-	-	-	-	-
	High Static 15 HP & Drive															

Standard 10 HP & Drive

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>															
	2.0		2.2		2.4		2.6		2.8		3.0		3.2		3.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 10 HP & Drive								High Static 15 HP & Drive							
6600	1014	5.98	1048	6.28	1083	6.57	1120	6.86	1159	7.15	1199	7.44	1242	7.72	1287	8.01
7000	1037	6.51	1071	6.81	1106	7.11	1143	7.40	1182	7.68	1222	7.97	1265	8.26	1310	8.54
7400	1061	7.09	1096	7.39	1131	7.69	1168	7.98	1207	8.27	1247	8.55	1290	8.84	1335	9.13
7800	1088	7.73	1122	8.03	1158	8.33	1195	8.62	1233	8.90	1274	9.19	1316	9.47	1361	9.76
8200	1117	8.42	1151	8.72	1186	9.02	1223	9.31	1262	9.60	1302	9.88	1345	10.17	1390	10.45
8600	1146	9.18	1181	9.48	1216	9.77	1253	10.06	1292	10.35	1332	10.63	1375	10.92	1420	11.21
9000	1178	9.99	1212	10.30	1247	10.59	1284	10.88	1323	11.17	1363	11.45	1406	11.74	1451	12.03
9400	1210	10.87	1245	11.18	1280	11.47	1317	11.76	1356	12.05	1396	12.33	1439	12.62	1484	12.91
9800	1244	11.82	1279	12.12	1314	12.42	1351	12.71	1389	12.99	1430	13.28	1473	13.57	1517	13.85
10200	1279	12.83	1313	13.13	1349	13.43	1386	13.72	1424	14.01	1465	14.29	1507	14.58	1552	14.87
10600	1315	13.91	1349	14.21	1385	14.50	1422	14.79	1460	15.08	1501	15.37	1543	15.65	1588	15.94
11000	1352	15.05	1386	15.35	1422	15.64	1459	15.93	1497	16.22	1538	16.51	1580	16.79	1625	17.08
11400	1390	16.25	1424	16.55	1459	16.85	1496	17.14	-	-	-	-	-	-	-	-
11800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15 HP & Field Supplied Drive															

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.82.



## ZR180-300 Bottom Duct Application

### ZR180 (15 Ton) Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																							
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive						Standard 5 HP & Drive						High Static 7.5 HP & Drive											
4000	735	1.20	773	1.46	813	1.70	855	1.92	897	2.12	939	2.30	982	2.47	1023	2.63	1064	2.78	1103	2.93	1140	3.07	1175	3.22
4400	767	1.56	805	1.83	845	2.07	886	2.28	929	2.48	971	2.66	1013	2.83	1055	2.99	1096	3.14	1135	3.29	1172	3.44	1207	3.58
4800	802	1.98	840	2.24	880	2.48	921	2.70	963	2.89	1006	3.08	1048	3.25	1090	3.40	1131	3.56	1170	3.70	1207	3.85	1242	3.99
5200	839	2.44	877	2.70	917	2.94	959	3.16	1001	3.35	1043	3.54	1086	3.70	1127	3.86	1168	4.01	1207	4.16	1244	4.31	1279	4.45
5600	879	2.94	917	3.21	957	3.44	998	3.66	1041	3.86	1083	4.04	1125	4.21	1167	4.37	1208	4.52	1247	4.67	1284	4.81	1319	4.96
6000	921	3.49	959	3.76	999	4.00	1040	4.21	1082	4.41	1125	4.59	1167	4.76	1209	4.92	1250	5.07	1289	5.22	1326	5.36	1361	5.51
6400	965	4.09	1003	4.35	1043	4.59	1084	4.81	1126	5.01	1169	5.19	1211	5.36	1253	5.51	1294	5.67	1333	5.81	1370	5.96	1405	6.11
6800	1010	4.72	1049	4.99	1089	5.23	1130	5.44	1172	5.64	1215	5.82	1257	5.99	1299	6.15	1339	6.30	1379	6.45	1416	6.59	1450	6.74
7200	1058	5.40	1096	5.66	1136	5.90	1177	6.12	1220	6.32	1262	6.50	1304	6.67	1346	6.82	1387	6.98	1426	7.12	1463	7.27	1498	7.42
7600	1107	6.11	1145	6.37	1185	6.61	1226	6.83	1269	7.03	1311	7.21	1353	7.38	1395	7.54	1436	7.69	1475	7.84	1512	7.98	1547	8.13
	7.5 HP & Field Supplied Drive																							

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.898.

### ZR240 (20 Ton) Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																							
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 7.5 HP & Drive						High Static 10 HP & Drive																	
5200	727	1.51	763	1.95	799	2.36	835	2.75	870	3.10	904	3.42	938	3.70	970	3.93	1001	4.11	1031	4.24	1059	4.32	1085	4.33
5600	750	1.96	786	2.39	822	2.81	857	3.19	892	3.55	927	3.86	960	4.14	993	4.37	1024	4.56	1054	4.69	1082	4.76	1108	4.77
6000	774	2.45	810	2.88	846	3.30	882	3.68	917	4.04	951	4.35	985	4.63	1017	4.86	1048	5.05	1078	5.18	1106	5.25	1132	5.26
6400	800	2.98	836	3.42	872	3.83	908	4.22	943	4.57	977	4.89	1011	5.16	1043	5.40	1074	5.58	1104	5.71	1132	5.78	1158	5.79
6800	828	3.56	864	4.00	899	4.41	935	4.80	970	5.15	1004	5.47	1038	5.74	1070	5.98	1102	6.16	1131	6.29	1159	6.36	1185	6.37
7200	857	4.19	892	4.62	928	5.03	964	5.42	999	5.77	1033	6.09	1067	6.37	1099	6.60	1130	6.79	1160	6.92	1188	6.99	1214	7.00
7600	887	4.86	923	5.29	958	5.71	994	6.09	1029	6.44	1063	6.76	1097	7.04	1129	7.27	1160	7.46	1190	7.59	1218	7.66	1244	7.67
8000	918	5.57	954	6.01	990	6.42	1025	6.81	1060	7.16	1095	7.48	1128	7.75	1161	7.99	1192	8.17	1222	8.30	1249	8.37	1276	8.38
8400	951	6.33	987	6.77	1022	7.18	1058	7.56	1093	7.92	1127	8.23	1161	8.51	1193	8.74	1224	8.93	1254	9.06	1282	9.13	1308	9.14
8800	984	7.13	1020	7.57	1056	7.98	1092	8.36	1127	8.72	1161	9.04	1195	9.31	1227	9.55	1258	9.73	1288	9.86	1316	9.93	1342	9.94
9200	1019	7.97	1055	8.41	1091	8.82	1126	9.21	1162	9.56	1196	9.88	1229	10.15	1262	10.39	1293	10.57	1323	10.70	1351	10.77	1377	10.79
9600	1055	8.85	1091	9.29	1127	9.70	1162	10.09	1197	10.44	1232	10.76	1265	11.04	1298	11.27	1329	11.45	-	-	-	-	-	-
10000	1092	9.78	1128	10.21	1164	10.62	1199	11.01	1234	11.36	-	-	-	-	-	-	-	-	-	-	-	-	-	
	10 HP & Field Supplied Drive																							

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

**ZR300 (25 Ton) Bottom Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																											
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6					
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	Low Static 7.5 HP & Drive												Standard 10 HP & Drive															
6600	796	3.24	827	3.65	859	4.04	890	4.40	920	4.75	951	5.08	983	5.40	1014	5.70	1047	6.00	1081	6.28	1116	6.55	1152	6.82	1188	7.09		
7000	821	3.81	853	4.22	884	4.61	915	4.97	946	5.32	977	5.65	1008	5.97	1040	6.27	1073	6.57	1106	6.85	1141	7.12	1177	7.39	1213	7.66	1249	7.93
7400	848	4.43	880	4.84	911	5.23	942	5.60	973	5.95	1004	6.28	1035	6.59	1067	6.90	1100	7.19	1134	7.47	1168	7.75	1205	8.02	1241	8.29	1278	8.56
7800	877	5.12	909	5.53	940	5.91	971	6.28	1002	6.63	1033	6.96	1064	7.28	1096	7.58	1129	7.87	1162	8.16	1197	8.43	1234	8.70	1271	8.97	1308	9.24
8200	908	5.86	940	6.27	971	6.65	1002	7.02	1032	7.37	1063	7.70	1095	8.02	1127	8.32	1159	8.61	1193	8.90	1228	9.17	1264	9.44	1301	9.71	1338	9.98
8600	940	6.66	971	7.07	1002	7.46	1033	7.82	1064	8.17	1095	8.50	1126	8.82	1158	9.12	1191	9.42	1225	9.70	1259	9.97	1296	10.24	1333	10.51	1370	10.78
9000	973	7.52	1004	7.93	1035	8.32	1066	8.69	1097	9.04	1128	9.37	1159	9.68	1191	9.99	1224	10.28	1258	10.56	1292	10.84	1329	11.11	1366	11.38	1403	11.65
9400	1007	8.45	1038	8.86	1070	9.24	1101	9.61	1131	9.96	1162	10.29	1194	10.61	1225	10.91	1258	11.20	1292	11.49	1327	11.76	1363	12.03	1400	12.30	1437	12.57
9800	1042	9.43	1074	9.84	1105	10.23	1136	10.60	1167	10.95	1198	11.28	1229	11.59	1261	11.90	1293	12.19	1327	12.47	1362	12.75	1398	13.02	1434	13.29	1471	13.56
10200	1078	10.48	1110	10.89	1141	11.28	1172	11.64	1203	11.99	1234	12.32	1265	12.64	1297	12.94	1330	13.24	1363	13.52	1398	13.79	1434	14.06	1471	14.34	1508	14.61
10600	1115	11.59	1147	12.00	1178	12.38	1209	12.75	1240	13.10	1271	13.43	1302	13.75	1334	14.05	1367	14.34	1400	14.62	1435	14.90	1472	15.17	1509	15.44	1546	15.71
11000	1153	12.75	1185	13.16	1216	13.55	1247	13.91	1278	14.26	1309	14.59	1340	14.91	1372	15.21	1405	15.51	1438	15.79	1473	16.06	1510	16.34	1547	16.61	1584	16.88
11400	1192	13.97	1224	14.38	1255	14.77	1286	15.14	1317	15.49	1348	15.82	1379	16.13	1411	16.44	1444	16.73	1477	17.01	-	-	-	-	-	-	-	-
11800	1232	15.25	1264	15.66	1295	16.05	1326	16.42	1356	16.77	1387	17.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12200	1272	16.59	1304	17.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Static 15 HP & Drive												15 HP & Field Supplied Drive															

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>							
	2.8		3.0		3.2		3.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	High Static 15 HP & Drive							
6600	1190	7.09	1230	7.36	1272	7.62	1316	7.89
7000	1215	7.66	1255	7.93	1297	8.19	1341	8.46
7400	1243	8.29	1282	8.55	1324	8.82	1369	9.08
7800	1272	8.97	1311	9.23	1353	9.50	1397	9.77
8200	1302	9.71	1342	9.97	1384	10.24	1428	10.51
8600	1334	10.51	1374	10.78	1415	11.04	1460	11.31
9000	1367	11.37	1407	11.64	1448	11.90	1493	12.17
9400	1401	12.30	1441	12.56	1483	12.83	1527	13.10
9800	1436	13.28	1476	13.55	1518	13.82	1562	14.08
10200	1472	14.33	1512	14.60	1554	14.86	1598	15.13
10600	1510	15.44	1549	15.70	1591	15.97	1635	16.23
11000	1548	16.60	1587	16.87	1629	17.13	-	-
11400	-	-	-	-	-	-	-	-
11800	-	-	-	-	-	-	-	-
12200	-	-	-	-	-	-	-	-
	15 HP & Field Supplied Drive							

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.82.

## ZF180-300 Side Duct Application

## ZF180 (15 Ton) Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																									
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive				Standard 5 HP & Drive								High Static 5 HP & Drive													
4400	760	1.56	798	1.90	835	2.20	878	2.47	950	2.81	1014	3.11	1069	3.38	1115	3.61	1154	3.81	1184	3.97	1205	4.09	1218	4.18		
4800	786	1.93	824	2.27	861	2.57	904	2.84	976	3.18	1040	3.48	1095	3.75	1142	3.98	1180	4.18	1210	4.34	1231	4.46	1244	4.55		
5200	815	2.34	853	2.68	890	2.98	933	3.25	1005	3.59	1068	3.89	1123	4.16	1170	4.39	1208	4.59	1238	4.75	1260	4.87	1273	4.96		
5600	845	2.79	883	3.13	920	3.43	963	3.70	1035	4.04	1099	4.34	1154	4.61	1200	4.84	1239	5.04	1269	5.20	1290	5.32	1303	5.41		
6000	877	3.28	915	3.62	952	3.92	995	4.19	1067	4.53	1131	4.83	1186	5.10	1232	5.33	1271	5.53	1301	-	-	-	-	-	-	-
6400	911	3.81	949	4.15	986	4.45	1029	4.72	1101	5.06	1164	5.36	1219	5.63	-	-	-	-	-	-	-	-	-	-	-	-
6800	946	4.38	984	4.72	1021	5.02	1064	5.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7200	982	4.98	1020	5.32	1057	5.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5 HP & Field Supplied Drive																									

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

## ZF210 (17.5 Ton) Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																									
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive				Standard 5 HP & Drive								High Static 7.5 HP & Drive													
4400	636	0.65	672	1.14	709	1.60	745	2.03	780	2.43	815	2.78	849	3.09	882	3.35	914	3.55	944	3.70	973	3.78	999	3.79		
4800	649	0.99	685	1.48	721	1.94	757	2.37	793	2.77	828	3.12	862	3.43	895	3.69	927	3.89	957	4.04	985	4.12	1012	4.13		
5200	663	1.34	700	1.83	736	2.29	772	2.72	808	3.11	843	3.47	877	3.78	910	4.04	942	4.24	972	4.39	1000	4.47	1027	4.48		
5600	680	1.71	717	2.20	753	2.66	789	3.09	825	3.48	860	3.84	894	4.15	927	4.41	959	4.61	989	4.76	1017	4.84	1044	4.85		
6000	699	2.11	735	2.60	772	3.06	808	3.49	844	3.88	879	4.24	913	4.55	946	4.80	977	5.01	1007	5.15	1036	5.24	1062	5.25		
6400	719	2.55	756	3.03	792	3.49	828	3.92	864	4.32	899	4.67	933	4.98	966	5.24	998	5.45	1028	5.59	1056	5.67	1083	5.68		
6800	742	3.02	778	3.51	814	3.97	850	4.40	886	4.79	921	5.15	955	5.46	988	5.72	1020	5.92	1050	6.07	1078	6.15	1105	6.16		
7200	765	3.54	802	4.03	838	4.49	874	4.92	910	5.32	945	5.67	979	5.98	1012	6.24	1044	6.44	1074	6.59	1102	6.67	1129	6.68		
7600	790	4.11	827	4.60	863	5.06	899	5.49	935	5.88	970	6.24	1004	6.55	1037	6.81	1069	7.01	1099	7.16	1127	7.24	1154	7.25		
8000	817	4.72	853	5.21	890	5.67	926	6.10	962	6.50	997	6.85	1031	7.16	1064	7.42	1095	7.62	1125	7.77	1154	7.85	1180	7.86		
8400	845	5.38	881	5.87	918	6.33	954	6.76	990	7.16	1025	7.51	1059	7.82	1092	8.08	1123	8.28	1153	8.43	1182	8.51	1208	8.52		
8800	874	6.09	911	6.58	947	7.04	983	7.47	1019	7.86	1054	8.22	1088	8.53	-	-	-	-	-	-	-	-	-	-	-	-
	High Static 7.5 HP & Field Supplied Drive																									

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

**ZF240 (20 Ton) Side Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																											
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6					
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	Standard 5 HP & Field Supplied Drive				Standard 5 HP & Drive								High Static 7.5 HP & Drive															
5200	678	1.35	715	1.83	751	2.28	787	2.70	823	3.09	858	3.43	892	3.74	925	3.99	957	4.19	987	4.33	1015	4.41	1042	4.42	1060	4.42		
5600	697	1.74	733	2.22	770	2.67	806	3.09	842	3.48	876	3.82	911	4.13	944	4.38	975	4.58	1005	4.72	1034	4.80	1054	5.23	1081	5.24	1103	5.24
6000	717	2.17	754	2.65	790	3.10	826	3.52	862	3.90	897	4.25	931	4.55	964	4.81	996	5.01	1026	5.15	1054	5.23	1081	5.24	1103	5.24	1127	6.22
6400	740	2.64	776	3.11	812	3.57	848	3.99	884	4.37	919	4.72	953	5.02	986	5.28	1018	5.48	1048	5.62	1076	5.70	1103	5.71	1127	6.22	1152	7.37
6800	763	3.15	800	3.63	836	4.08	872	4.50	908	4.88	943	5.23	977	5.53	1010	5.79	1042	5.99	1072	6.13	1100	6.21	1127	6.22	1152	7.37	1179	7.38
7200	789	3.71	825	4.18	861	4.63	898	5.05	933	5.44	968	5.79	1002	6.09	1035	6.34	1067	6.55	1097	6.69	1126	6.77	1152	7.37	1179	7.38	1207	8.03
7600	815	4.31	852	4.79	888	5.24	924	5.66	960	6.04	995	6.39	1029	6.69	1062	6.95	1094	7.15	1124	7.29	1152	7.37	1179	7.38	1207	8.03	1236	8.73
8000	844	4.96	880	5.44	916	5.89	952	6.31	988	6.70	1023	7.04	1057	7.34	1090	7.60	1122	7.80	1152	7.94	1180	8.02	1207	8.03	1236	8.73	1266	9.40
8400	873	5.66	909	6.13	946	6.59	982	7.01	1018	7.39	1053	7.74	1087	8.04	1120	8.30	1151	8.50	1182	8.64	1210	8.72	1236	8.73	1266	9.40	1296	10.07
8800	904	6.40	940	6.88	977	7.33	1013	7.75	1048	8.14	1083	8.48	1117	8.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9200	936	7.19	972	7.67	1009	8.12	1045	8.54	1080	8.93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9600	969	8.03	1005	8.50	1042	8.96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10000	1003	8.91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

High Static 7.5 HP & Field Supplied Drive

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

## ZF300 (25 Ton) Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>															
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static 7.5 HP & Field Supplied Drive								Low Static 7.5 HP & Drive							
6600	760	2.51	793	3.11	824	3.68	856	4.23	887	4.74	919	5.23	950	5.70	983	6.15
7000	775	2.99	808	3.60	839	4.17	871	4.71	902	5.22	934	5.72	966	6.19	998	6.64
7400	792	3.51	824	4.11	856	4.69	887	5.23	918	5.74	950	6.24	982	6.70	1014	7.16
7800	809	4.07	841	4.67	873	5.24	904	5.78	935	6.30	967	6.79	999	7.26	1031	7.71
8200	826	4.66	859	5.27	890	5.84	922	6.38	953	6.89	985	7.39	1016	7.86	1049	8.31
8600	845	5.30	877	5.90	909	6.47	940	7.01	972	7.53	1003	8.02	1035	8.49	1067	8.94
9000	864	5.97	896	6.57	928	7.14	960	7.69	991	8.20	1022	8.69	1054	9.16	1087	9.61
9400	884	6.68	916	7.28	948	7.86	980	8.40	1011	8.91	1042	9.41	1074	9.88	1107	10.33
9800	905	7.43	937	8.04	969	8.61	1000	9.15	1032	9.67	1063	10.16	1095	10.63	1127	11.08
10200	926	8.22	958	8.83	990	9.40	1021	9.94	1053	10.46	1084	10.95	1116	11.42	1148	11.87
10600	948	9.05	980	9.66	1012	10.23	1043	10.77	1075	11.29	1106	11.78	1138	12.25	1170	12.70
11000	970	9.92	1003	10.52	1034	11.09	1066	11.64	1097	12.15	1128	12.64	1160	13.11	1193	13.56
11400	993	10.82	1025	11.43	1057	12.00	1089	12.54	1120	13.06	1151	13.55	1183	14.02	1216	14.47
11800	1017	11.76	1049	12.37	1081	12.94	1112	13.48	1143	14.00	1175	14.49	1207	14.96	1239	15.41
12200	1040	12.74	1073	13.34	1104	13.91	1136	14.46	1167	14.97	1199	15.46	1231	15.93	1263	16.38
12600	1065	13.75	1097	14.35	1129	14.92	1160	15.47	1192	15.98	1223	16.47	1255	16.94	-	-
	High Static 15 HP & Drive															

Standard 10 HP &amp; Drive

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>															
	2.0		2.2		2.4		2.6		2.8		3.0		3.2		3.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 10 HP & Drive								High Static 15 HP & Drive							
6600	1016	6.59	1050	7.00	1086	7.41	1123	7.81	1161	8.19	1202	8.58	1244	8.95	1289	9.33
7000	1031	7.07	1065	7.49	1101	7.89	1138	8.29	1176	8.68	1217	9.06	1259	9.44	1304	9.82
7400	1047	7.59	1081	8.01	1117	8.41	1154	8.81	1192	9.20	1233	9.58	1275	9.96	1320	10.34
7800	1064	8.14	1098	8.56	1134	8.97	1171	9.36	1209	9.75	1250	10.13	1292	10.51	1337	10.89
8200	1082	8.74	1116	9.16	1152	9.56	1189	9.96	1227	10.35	1268	10.73	1310	11.11	1355	11.49
8600	1101	9.37	1135	9.79	1170	10.20	1207	10.59	1246	10.98	1286	11.36	1329	11.74	1374	12.12
9000	1120	10.05	1154	10.46	1189	10.87	1226	11.27	1265	11.65	1305	12.04	1348	12.41	1393	12.79
9400	1140	10.76	1174	11.18	1209	11.58	1246	11.98	1285	12.37	1325	12.75	1368	13.13	1413	13.51
9800	1160	11.51	1195	11.93	1230	12.33	1267	12.73	1306	13.12	1346	13.50	1389	13.88	1434	14.26
10200	1182	12.30	1216	12.72	1251	13.12	1288	13.52	1327	13.91	1367	14.29	1410	14.67	1455	15.05
10600	1204	13.13	1238	13.55	1273	13.95	1310	14.35	1349	14.74	1389	15.12	1432	15.50	1477	15.88
11000	1226	14.00	1260	14.41	1296	14.82	1332	15.22	1371	15.60	1412	15.99	1454	16.36	1499	16.74
11400	1249	14.90	1283	15.32	1318	15.72	1355	16.12	1394	16.51	1434	16.89	-	-	-	-
11800	1272	15.84	1306	16.26	1342	16.66	1379	17.06	-	-	-	-	-	-	-	-
12200	1296	16.82	1330	17.23	-	-	-	-	-	-	-	-	-	-	-	-
12600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Static 15 HP & Field Supplied Drive															

- Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
- See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
- $kW = BHP \times 0.82$ .

**ZF180-300 Bottom Duct Application**

**ZF180 (15 Ton) Bottom Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																							
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive		Standard 5 HP & Drive						High Static 5 HP & Drive															
4400	803	1.70	841	2.00	877	2.28	919	2.52	991	2.84	1055	3.13	1110	3.38	1155	3.59	1193	3.78	1221	3.93	1242	4.04	1253	4.12
4800	832	2.11	870	2.42	906	2.69	948	2.93	1020	3.25	1084	3.54	1139	3.79	1185	4.01	1222	4.19	1250	4.34	1271	4.45	1282	4.53
5200	863	2.55	900	2.86	936	3.14	979	3.38	1051	3.70	1115	3.99	1169	4.24	1215	4.46	1253	4.64	1281	4.79	1301	4.90	1313	4.98
5600	896	3.03	933	3.34	969	3.62	1011	3.86	1084	4.19	1147	4.47	1202	4.73	1248	4.94	1285	5.13	1314	5.27	1334	5.39	1345	5.47
6000	930	3.54	967	3.86	1003	4.13	1045	4.38	1118	4.70	1181	4.99	1236	5.24	1282	5.46	-	-	-	-	-	-	-	-
6400	965	4.09	1002	4.41	1038	4.68	1081	4.93	1153	5.25	1217	5.54	-	-	-	-	-	-	-	-	-	-	-	-
6800	1002	4.67	1039	4.99	1075	5.27	1117	5.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7200	1040	5.28	1077	5.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

5 HP & Field Supplied Drive

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

**ZF210 (17.5 Ton) Bottom Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																							
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive		Standard 5 HP & Drive						High Static 7.5 HP & Drive															
4400	661	0.74	697	1.19	733	1.62	768	2.03	803	2.40	838	2.73	871	3.02	904	3.26	935	3.45	964	3.59	992	3.66	1018	3.67
4800	677	1.07	712	1.53	748	1.96	784	2.36	819	2.73	853	3.06	887	3.35	919	3.59	950	3.79	980	3.92	1008	4.00	1034	4.01
5200	694	1.43	730	1.89	766	2.32	801	2.72	836	3.09	871	3.42	904	3.71	937	3.95	968	4.14	997	4.28	1025	4.35	1051	4.37
5600	713	1.82	749	2.27	785	2.71	820	3.11	856	3.48	890	3.81	923	4.10	956	4.34	987	4.53	1017	4.67	1045	4.74	1071	4.75
6000	734	2.25	770	2.70	806	3.13	841	3.53	877	3.90	911	4.23	944	4.52	977	4.77	1008	4.96	1038	5.09	1066	5.17	1092	5.18
6400	757	2.71	793	3.17	829	3.60	864	4.00	899	4.37	934	4.70	967	4.99	1000	5.23	1031	5.42	1060	5.56	1088	5.64	1114	5.65
6800	781	3.22	817	3.68	853	4.11	888	4.51	923	4.88	958	5.21	991	5.50	1024	5.74	1055	5.94	1085	6.07	1112	6.15	1139	6.16
7200	807	3.78	843	4.23	878	4.66	914	5.07	949	5.44	983	5.77	1017	6.06	1049	6.30	1081	6.49	1110	6.63	1138	6.70	1164	6.71
7600	834	4.38	870	4.83	905	5.26	941	5.67	976	6.04	1010	6.37	1044	6.66	1076	6.90	1108	7.09	1137	7.23	1165	7.30	1191	7.31
8000	862	5.02	898	5.48	934	5.91	969	6.31	1004	6.68	1039	7.01	1072	7.30	1105	7.55	1136	7.74	1166	7.87	1194	7.95	1220	7.96
8400	892	5.71	928	6.17	963	6.60	999	7.00	1034	7.37	1069	7.70	1102	7.99	1134	8.24	1166	8.43	1195	8.56	-	-	-	-
8800	923	6.45	959	6.91	994	7.34	1030	7.74	1065	8.11	1099	8.44	-	-	-	-	-	-	-	-	-	-	-	-

High Static 7.5 HP & Field Supplied Drive

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

## ZF240 (20 Ton) Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																							
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive		Standard 5 HP & Drive										High Static 7.5 HP & Drive											
5200	711	1.47	747	1.92	782	2.34	818	2.73	853	3.09	887	3.42	921	3.70	953	3.94	985	4.13	1014	4.26	1042	4.34	1068	4.35
5600	732	1.89	768	2.33	803	2.76	839	3.15	874	3.51	908	3.84	942	4.12	974	4.36	1005	4.54	1035	4.68	1063	4.75	1089	4.76
6000	754	2.35	790	2.79	826	3.21	862	3.61	897	3.97	931	4.29	965	4.58	997	4.81	1028	5.00	1058	5.14	1086	5.21	1112	5.22
6400	779	2.85	814	3.29	850	3.71	886	4.11	921	4.47	955	4.79	989	5.08	1021	5.31	1052	5.50	1082	5.64	1110	5.71	1136	5.72
6800	804	3.39	840	3.84	876	4.26	912	4.65	947	5.01	981	5.34	1015	5.62	1047	5.86	1078	6.05	1108	6.18	1136	6.26	1162	6.27
7200	832	3.98	868	4.43	903	4.85	939	5.24	974	5.60	1008	5.93	1042	6.21	1074	6.45	1105	6.64	1135	6.77	1163	6.85	1189	6.86
7600	860	4.62	896	5.06	932	5.49	967	5.88	1002	6.24	1037	6.56	1070	6.85	1103	7.09	1134	7.27	1164	7.41	1192	7.48	1218	7.49
8000	890	5.30	926	5.74	962	6.17	997	6.56	1032	6.92	1067	7.24	1100	7.53	1133	7.77	1164	7.95	1194	8.09	1222	8.16	1248	8.17
8400	921	6.02	957	6.47	993	6.89	1028	7.28	1064	7.64	1098	7.97	1131	8.25	1164	8.49	1195	8.68	1225	8.81	-	-	-	-
8800	954	6.79	989	7.24	1025	7.66	1061	8.05	1096	8.41	1130	8.74	-	-	-	-	-	-	-	-	-	-	-	-
9200	987	7.60	1023	8.05	1059	8.47	1094	8.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9600	1021	8.45	1057	8.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10000	546	4.89	564	5.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Static 7.5 HP & Field Supplied Drive																							

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.838.

**ZF300 (25 Ton) Bottom Duct**

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>													
	0.4		0.6		0.8		1.0		1.2		1.4		1.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Low Static 7.5 HP & Drive													
	Standard 10 HP & Drive													
6600	787	2.67	819	3.23	850	3.76	881	4.27	912	4.75	943	5.21	974	5.65
7000	804	3.18	835	3.74	867	4.27	898	4.78	928	5.26	959	5.72	991	6.16
7400	821	3.72	853	4.28	884	4.82	915	5.32	946	5.80	977	6.26	1008	6.70
7800	839	4.30	871	4.86	902	5.40	933	5.90	964	6.39	995	6.85	1026	7.28
8200	858	4.92	890	5.48	921	6.02	952	6.52	983	7.01	1013	7.47	1045	7.90
8600	877	5.58	909	6.14	940	6.68	971	7.18	1002	7.66	1033	8.12	1064	8.56
9000	898	6.28	929	6.84	960	7.37	991	7.88	1022	8.36	1053	8.82	1084	9.26
9400	918	7.01	950	7.57	981	8.10	1012	8.61	1043	9.09	1074	9.55	1105	9.99
9800	940	7.78	972	8.34	1003	8.87	1034	9.38	1064	9.86	1095	10.32	1127	10.76
10200	962	8.58	994	9.14	1025	9.68	1056	10.18	1086	10.67	1117	11.13	1149	11.56
10600	984	9.42	1016	9.98	1047	10.52	1078	11.02	1109	11.51	1140	11.96	1171	12.40
11000	1007	10.30	1039	10.86	1070	11.39	1101	11.90	1132	12.38	1163	12.84	1194	13.28
11400	1031	11.20	1063	11.76	1094	12.30	1125	12.80	1156	13.29	1187	13.75	1218	14.18
11800	1055	12.14	1087	12.70	1118	13.24	1149	13.74	1180	14.23	1211	14.69	1242	15.12
12200	1080	13.11	1111	13.68	1142	14.21	1173	14.72	1204	15.20	1235	15.66	1266	16.10
12600	1104	14.12	1136	14.68	1167	15.21	1198	15.72	1229	16.20	1260	16.66	1291	17.10
	High Static 15 HP & Drive													

Air Flow (CFM)	Available External Static Pressure - IWG <sup>1</sup>																	
	1.8		2.0		2.2		2.4		2.6		2.8		3.0		3.2		3.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 10 HP & Drive										High Static 15 HP & Drive							
6600	1006	6.07	1039	6.48	1072	6.87	1107	7.25	1144	7.62	1182	7.98	1221	8.33	1263	8.68	1307	9.04
7000	1023	6.58	1055	6.98	1089	7.37	1124	7.75	1160	8.12	1198	8.48	1238	8.84	1280	9.19	1324	9.54
7400	1040	7.12	1072	7.53	1106	7.92	1141	8.30	1177	8.67	1215	9.03	1255	9.38	1297	9.74	1341	10.09
7800	1058	7.71	1090	8.11	1124	8.50	1159	8.88	1195	9.25	1233	9.61	1273	9.97	1315	10.32	1359	10.67
8200	1077	8.33	1109	8.73	1143	9.12	1178	9.50	1214	9.87	1252	10.23	1292	10.59	1334	10.94	1378	11.29
8600	1096	8.98	1129	9.39	1162	9.78	1197	10.16	1234	10.53	1272	10.89	1311	11.24	1353	11.60	1397	11.95
9000	1116	9.68	1149	10.08	1183	10.47	1218	10.85	1254	11.22	1292	11.58	1332	11.94	1373	12.29	1418	12.64
9400	1137	10.41	1170	10.82	1203	11.21	1238	11.59	1275	11.95	1313	12.32	1352	12.67	1394	13.02	1438	13.37
9800	1159	11.18	1191	11.59	1225	11.98	1260	12.35	1296	12.72	1334	13.09	1374	13.44	1416	13.79	1460	14.14
10200	1181	11.99	1213	12.39	1247	12.78	1282	13.16	1318	13.53	1356	13.89	1396	14.25	1438	14.60	1482	14.95
10600	1203	12.82	1236	13.23	1269	13.62	1304	14.00	1341	14.37	1379	14.73	1418	15.08	1460	15.44	1504	15.79
11000	1226	13.70	1259	14.10	1293	14.49	1327	14.87	1364	15.24	1402	15.60	1441	15.96	1483	16.31	1528	16.66
11400	1250	14.61	1282	15.01	1316	15.40	1351	15.78	1387	16.15	1425	16.51	1465	16.87	1507	17.22	-	-
11800	1274	15.55	1307	15.95	1340	16.34	1375	16.72	1411	17.09	-	-	-	-	-	-	-	-
12200	1298	16.52	1331	16.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	High Static 15 HP & Field Supplied Drive																	

1. Blower performance includes gas heat exchangers and 2" filters. See STATIC RESISTANCE table for additional applications.
2. See RPM SELECTION table to determine desired motor sheave setting and to determine the maximum continuous BHP.
3. kW = BHP x 0.82.



## RPM Selection

Size (Tons)	Model	HP	Max BHP	Motor Sheave	Blower Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Fully Closed
180 (15)	ZJ/ZF	5	5.75	1VP65	BK110	815	850	885	920	950	985	N/A
		5	5.75	1VP65	BK090	1010	1055	1095	1135	1180	1220	N/A
210 (17.5)	ZJ/ZF	5	5.75	1VP60	BK110	730	765	800	835	870	905	N/A
		7.5	8.63	1VP60	BK090	905	950	990	1035	1075	1120	N/A
240 (20)	ZJ/ZF	5	5.75	1VP60	BK110	730	765	800	835	870	905	N/A
		7.5	8.63	1VP60	BK090	905	950	990	1035	1075	1120	N/A
300 (25)	ZJ/ZF	7.5	8.63	1VP60	1B5V94	810	850	885	920	960	1000	N/A
		10	11.50	1VP75X	1B5V110	975	1005	1040	1070	1100	1135	1165
		15	17.25	1VP75X	1B5V94	1140	1180	1215	1255	1290	1330	1365
180 (15)	ZR	5	5.75	1VP65	BK110	815	850	885	920	950	985	N/A
		7.5	8.63	1VP65	BK090	1010	1055	1095	1135	1180	1220	N/A
240 (20)	ZR	7.5	8.63	1VP60	BK110	730	765	800	835	870	905	N/A
		10	11.50	1VP60	BK090	905	950	990	1035	1075	1120	N/A
300 (25)	ZR	7.5	8.63	1VP60	1B5V94	810	850	885	920	960	1000	N/A
		10	11.50	1VP75X	1B5V110	975	1005	1040	1070	1100	1135	1165
		15	17.25	1VP75X	1B5V94	1140	1180	1215	1255	1290	1330	1365

## Additional Static Resistance

Size (Tons)	Model	CFM	Cooling Only <sup>1</sup>	Economizer <sup>2 3</sup>	Electric Heat kW <sup>2</sup>			
					18	36	54	72
180 (15)	ZJ	4500	0.10	0.10	0.10	0.10	0.20	0.20
	ZR	6000	0.10	0.10	0.10	0.20	0.30	0.40
	ZF	7500	0.10	0.10	0.10	0.30	0.40	0.60
210 (17.5)	ZJ	6000	0.10	0.10	0.10	0.10	0.20	0.20
		7500	0.10	0.10	0.10	0.20	0.30	0.40
240 (20)	ZR	9000	0.15	0.15	0.10	0.30	0.40	0.60
		10500	0.15	0.15	0.20	0.40	0.60	0.80
300 (25)	ZF	12000	0.20	0.20	0.30	0.50	0.70	0.90

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.

**Drive Selection**

1. Determine side or bottom supply duct application.
2. Determine desired airflow
3. Calculate or measure the amount of external static pressure.
4. Using the operating point determined from steps 1, 2 & 3, locate this point on the appropriate supply air blower performance table. (Linear interpolation may be necessary.)
5. Noting the RPM and BHP from step 4, locate the appropriate motor and/or drive on the RPM selection table.
6. Review the BHP compared to the motor options available. Select the appropriate motor and/or drive.
7. Review the RPM range for the motor options available. Select the appropriate drive if multiple drives are available for the chosen motor.
8. Determine turns open to obtain the desired operation point.

**Example**

1. 6800 CFM
2. 2.0 iwg
3. Using the supply air blower performance table below, the following data point was located: 1020 RPM & 5.92 BHP.
4. Using the RPM selection table below, Size X and Model Y is found.
5. 5.92 BHP exceeds the maximum continuous BHP rating of the 5.0 HP motor. The 7.5 HP motor is required.
6. 1020 RPM is within the range of the 7.5 HP drives.
7. Using the 7.5 HP motor and drive, 3.5 turns open will achieve 1020 RPM.

**Example Supply Air Blower Performance**

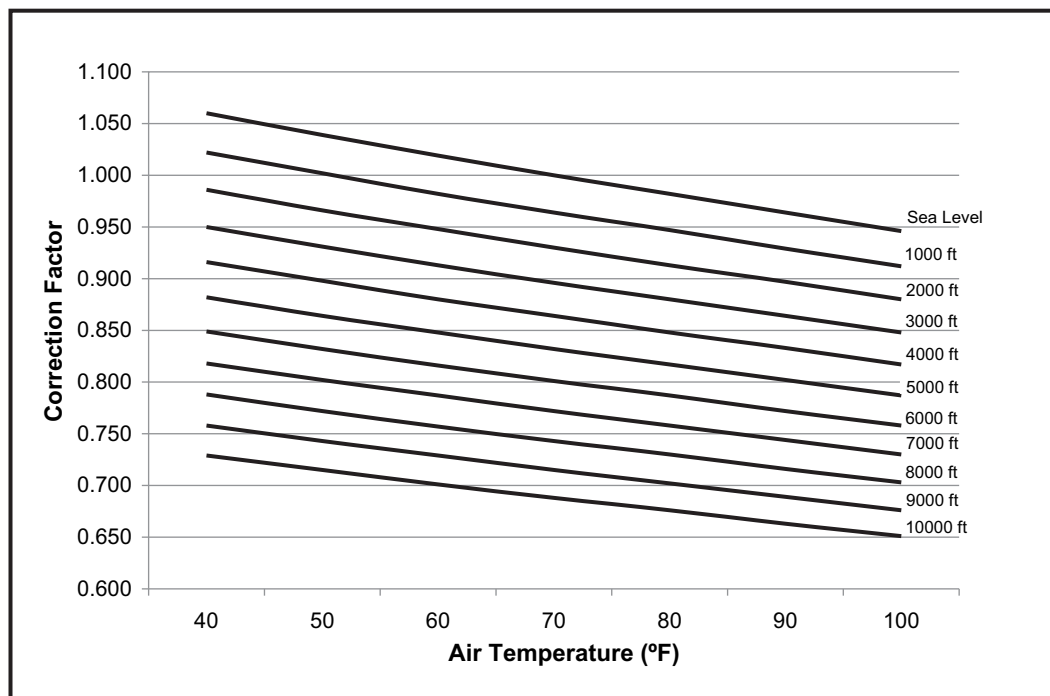
Air Flow (CFM)	Available External Static Pressure - IWG																							
	0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0		2.2		2.4		2.6	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Standard 5 HP & Field Supplied Drive		Standard 5 HP & Drive										High Static 7.5 HP & Drive											
6400	719	2.55	756	3.03	792	3.49	828	3.92	864	4.32	899	4.67	933	4.98	966	5.24	998	5.45	1028	5.59	1056	5.67	1083	5.68
6800	742	3.02	778	3.51	814	3.97	850	4.40	886	4.79	921	5.15	955	5.46	988	5.72	1020	5.92	1050	6.07	1078	6.15	1105	6.16
7200	765	3.54	802	4.03	838	4.49	874	4.92	910	5.32	945	5.67	979	5.98	1012	6.24	1044	6.44	1074	6.59	1102	6.67	1129	6.68
7600	790	4.11	827	4.60	863	5.06	899	5.49	935	5.88	970	6.24	1004	6.55	1037	6.81	1069	7.01	1099	7.16	1127	7.24	1154	7.25
																								7.5 HP & Field Supplied Drive

**Table X: RPM Selection**

Size (Tons)	Model	HP	Max BHP	Motor Sheave	Blower Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Fully Closed
X	Y	5	5.75	1VP60	BK110	730	765	800	835	870	905	N/A
		7.5	8.63	1VP60	BK090	905	950	990	1035	1075	1120	N/A

### 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)	Heat Size	Supply Air (CFM)			
		Cooling		Heating	
		Min	Max	Min	Max
180 (15)	N30	4500	7000	4500	7000
	N40	4500	7000	4500	7000
210 (17.5)	N30	6000	8750	6000	8750
	N40	6000	8750	6000	8750
240 (20)	N30	6000	9400	6000	9400
	N40	6000	9400	6000	9400
300 (25)	N30	7500	12500	7500	12500
	N40	7500	12500	7500	12500

**⚠ CAUTION**

For units with VFD and gas heat, the speed of the indoor blower motor continues to be controlled by duct static pressure via the VAV control board.

If there are VAV boxes present in the duct system, the boxes must be driven to the full-open position using a customer-supplied power source to assure adequate airflow across electric heating elements or gas heat exchanger tubes.

**Electric Heat Minimum Supply Air**

Size (Tons)	Voltage	Minimum Supply Air (CFM)			
		Heater kW			
		18	36	54	72
180 (15)	208/230-3-60	4500	4500	5000	5000
	460-3-60	4500	4500	5000	4500
	600-3-60	4500	4500	4500	4500
210 (17.5)	208/230-3-60	6000	6000	6000	6000
	460-3-60	6000	6000	6000	6000
	600-3-60	6000	6000	6000	6000
240 (20)	208/230-3-60	6000	6000	6000	6000
	460-3-60	6000	6000	6000	6000
	600-3-60	6000	6000	6000	6000
300 (25)	208/230-3-60	7500	7500	7500	7500
	460-3-60	7500	7500	7500	7500
	600-3-60	7500	7500	7500	7500

**⚠ CAUTION**

For units with VFD and electric heat, the speed of the indoor blower motor continues to be controlled by duct static pressure via the VAV control board.

If there are VAV boxes present in the duct system, the boxes must be driven to the full-open position using a customer-supplied power source to assure adequate airflow across electric heating elements or gas heat exchanger tubes.

**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	
180 (15)	ZF	5	1725	0.89	1.15	184T	5.2 - 6.4	1 1/8	1VP65	10.4	1	BK110	BX75
		5	1725	0.89	1.15	184T	5.2 - 6.4	1 1/8	1VP65	8.4	1	BK090	BX70
180 (15)	ZJ	5	1725	0.89	1.15	184T	5.2 - 6.4	1 1/8	1VP65	10.4	1	BK110	BX83
		5	1725	0.89	1.15	184T	5.2 - 6.4	1 1/8	1VP65	8.4	1	BK090	BX81
210 (17.5)	ZJ/ZF	5	1725	0.89	1.15	184T	4.2 - 5.5	1 1/8	1VP60	10.4	1 3/16	BK110	BX78
		7.5	1725	0.91	1.15	213T	4.2 - 5.5	1 3/8	1VP60	8.4	1 3/16	BK090	BX75
240 (20)	ZJ/ZF	5	1725	0.89	1.15	184T	4.2 - 5.5	1 1/8	1VP60	10.4	1 3/16	BK110	BX78
		7.5	1725	0.91	1.15	213T	4.2 - 5.5	1 3/8	1VP60	8.4	1 3/16	BK090	BX75
300 (25)	ZJ/ZF	7.5	1725	0.91	1.15	213T	4.2 - 5.5	1 3/8	1VP60	9.5	1 7/16	1B5V94	BX78
		10	1725	0.89	1.15	215T	5.8 - 7.0	1 3/8	1VP75X	11.1	1 7/16	1B5V110	5VX840
		15	1725	0.91	1.15	254T	6.2 - 7.4	1 5/8	1VP75X	9.5	1 7/16	1B5V94	5VX860

## Indoor Blower Specifications

180 (15)	ZR	5	1725	0.89	1.15	184T	5.2 - 6.4	1 1/8	1VP65	10.4	1	BK110	BX83
		7.5	1725	0.91	1.15	213T	5.2 - 6.4	1 3/8	1VP65	8.4	1	BK090	BX81
240 (20)	ZR	7.5	1725	0.91	1.15	213T	4.2 - 5.5	1 3/8	1VP60	10.4	1 3/16	BK110	BX78
		10	1725	0.89	1.15	215T	4.2 - 5.5	1 3/8	1VP60	8.4	1 3/16	BK090	BX75
300 (25)	ZR	7.5	1725	0.91	1.15	213T	4.2 - 5.5	1 3/8	1VP60	9.5	1 7/16	1B5V94	BX78
		10	1725	0.89	1.15	215T	5.8 - 7.0	1 3/8	1VP75X	11.1	1 7/16	1B5V110	5VX840
		15	1725	0.91	1.15	254T	6.2 - 7.4	1 5/8	1VP75X	9.5	1 7/16	1B5V94	5VX860

## Power Exhaust Specifications

Voltage	Motor			Motor			CFM @ 0.2 ESP
	HP	RPM <sup>1</sup>	QTY	LRA	FLA	MCA	
208/230-1-60	3/4	1075	1	7.7	5.0	6.25	5250
460-1-60	3/4	1075	1	4.1	2.2	2.75	5250
575-1-60	3/4	1050	1	2.84	1.5	1.875	5250

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

## Electric Heat Multipliers

Voltage		kW Capacity Multipliers <sup>1</sup>
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

### ZJ/ZR/ZF Indoor Sound Power Levels

Size (Tons)	CFM	ESP (IWG)	Blower		Sound Power, dB (10 <sup>-12</sup> ) Watts								
					Sound Rating <sup>1</sup> dB (A)	Octave Band Centerline Frequency (Hz)							
			RPM	BHP		63	125	250	500	1000	2000	4000	8000
180 (15)	6000	1.0	1,080	4.6	91	88	90	90	87	85	81	81	76
210 (17.5)	7000	1.0	940	5.1	85	84	84	82	81	81	77	74	69
240 (20)	8000	1.0	1,020	6.6	86	85	85	83	82	82	78	75	70
300 (25)	10000	1.3	1,160	12.5	92	91	91	89	88	88	84	81	76

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 manufacturer 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.

### ZJ/ZR/ZF Outdoor Sound Power Levels

Size (Tons)	Sound Rating <sup>1</sup> dB (A)	Sound Power, dB (10 <sup>-12</sup> ) Watts							
		Octave Band Centerline Frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
180 (15)	92	90	93	91	89	86	83	80	75
210 (17.5)	92	91	94	92	89	86	83	81	76
240 (20)	92	91	94	92	89	87	83	81	76
300 (25)	92	92	95	93	89	87	84	81	77

1. Rated in accordance with AHRI 270 standard.

## Electrical Data

### ZJ180 - 300

#### ZJ180-300 - Standard Drive Without Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
180 (15)	208-3-60	13.1	83.1	20.5	2.1	13.5	0	NONE	-	-	-	77.7	90
								E18	13.5	1	37.5	77.7	90
								E36	27	2	74.9	110.6	125
								E54	40.6	2	112.7	157.7	175
								E72	54.1	2	150.2	167	200
	230-3-60	13.1	83.1	20.5	2.1	13	0	NONE	-	-	-	77.1	90
								E18	18	1	43.3	77.1	90
								E36	36	2	86.6	124.5	125
								E54	54	2	129.9	146.2	175
								E72	72	2	173.2	189.5	225
	460-3-60	6.1	41	9.5	1.26	6.5	0	NONE	-	-	-	37.6	40
								E18	18	1	21.7	37.6	40
								E36	36	2	43.3	62.3	70
								E54	54	2	65	73.1	80
								E72	72	2	86.6	94.7	110
	575-3-60	4.4	33	6.8	0.66	5.2	0	NONE	-	-	-	26.7	30
								E18	18	1	17.3	28.2	30
								E36	36	2	34.6	49.8	50
								E54	54	2	52	58.5	70
								E72	72	2	69.3	75.8	90
210 (17.5)	208-3-60	14.5	98	22.6	2.1	13.5	0	NONE	-	-	-	83.5	90
								E18	13.5	1	37.5	83.5	90
								E36	27	2	74.9	110.6	125
								E54	40.6	2	112.7	157.7	175
								E72	54.1	2	150.2	167	200
	230-3-60	14.5	98	22.6	2.1	13	0	NONE	-	-	-	83	90
								E18	18	1	43.3	83	90
								E36	36	2	86.6	124.5	125
								E54	54	2	129.9	146.2	175
								E72	72	2	173.2	189.5	225
	460-3-60	6.3	55	9.9	1.26	6.5	0	NONE	-	-	-	38.4	40
								E18	18	1	21.7	38.4	40
								E36	36	2	43.3	62.3	70
								E54	54	2	65	73.1	80
								E72	72	2	86.6	94.7	110
	575-3-60	6	41	9.4	0.66	5.2	0	NONE	-	-	-	33.3	35
								E18	18	1	17.3	33.3	35
								E36	36	2	34.6	49.8	50
								E54	54	2	52	58.5	70
								E72	72	2	69.3	75.8	90

## ZJ180-300 - Standard Drive Without Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
240 (20)	208-3-60	15.6	110	24.4	2.2	13.5	0	NONE	-	-	-	88.6	100
								E18	13.5	1	37.5	88.6	100
								E36	27	2	74.9	110.6	125
								E54	40.6	2	112.7	157.7	175
								E72	54.1	2	150.2	167	200
	230-3-60	15.6	110	24.4	2.2	13	0	NONE	-	-	-	88.1	100
								E18	18	1	43.3	88.1	100
								E36	36	2	86.6	124.5	125
								E54	54	2	129.9	146.2	175
								E72	72	2	173.2	189.5	225
	460-3-60	7.8	52	12.1	1.1	6.5	0	NONE	-	-	-	44.1	50
								E18	18	1	21.7	44.1	50
								E36	36	2	43.3	62.3	70
								E54	54	2	65	73.1	80
								E72	72	2	86.6	94.7	110
	575-3-60	5.8	38.9	9.1	0.9	5.2	0	NONE	-	-	-	33.5	35
								E18	18	1	17.3	33.5	35
								E36	36	2	34.6	49.8	50
								E54	54	2	52	58.5	70
								E72	72	2	69.3	75.8	90
300 (25)	208-3-60	22.4	149	35	2.2	26	0	NONE	-	-	-	130.9	150
								E18	13.5	1	37.5	130.9	150
								E36	27	2	74.9	130.9	150
								E54	40.6	2	112.7	173.4	175
								E72	54.1	2	150.2	182.7	200
	230-3-60	22.4	149	35	2.2	25	0	NONE	-	-	-	129.7	150
								E18	18	1	43.3	129.7	150
								E36	36	2	86.6	139.5	150
								E54	54	2	129.9	161.2	175
								E72	72	2	173.2	204.5	225
	460-3-60	10.6	75	16.5	1.1	12.5	0	NONE	-	-	-	62.4	70
								E18	18	1	21.7	62.4	70
								E36	36	2	43.3	69.8	70
								E54	54	2	65	80.6	90
								E72	72	2	86.6	102.2	110
	575-3-60	7.7	54	12	0.9	10	0	NONE	-	-	-	46.9	50
								E18	18	1	17.3	46.9	50
								E36	36	2	34.6	55.8	60
								E54	54	2	52	64.5	70
								E72	72	2	69.3	81.8	90

1. Minimum Circuit Ampacity.

2. Dual Element, Time Delay Type.

3. HACR type per NEC.

**ZJ180-300 - Standard Drive With Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2/</sup> Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
180 (15)	208-3-60	13.1	83.1	20.5	2.1	13.5	10	NONE	-	-	-	87.7	100
								E18	13.5	1	37.5	87.7	100
								E36	27	2	74.9	123.1	125
								E54	40.6	2	112.7	170.2	175
	230-3-60	13.1	83.1	20.5	2.1	13	10	NONE	-	-	-	87.1	100
								E18	18	1	43.3	87.1	100
								E36	36	2	86.6	137	150
								E54	54	2	129.9	158.7	175
	460-3-60	6.1	41	9.5	1.26	6.5	5	NONE	-	-	-	42.6	45
								E18	18	1	21.7	42.6	45
								E36	36	2	43.3	68.5	70
								E54	54	2	65	79.3	90
	575-3-60	4.4	33	6.8	0.66	5.2	4	NONE	-	-	-	30.7	35
								E18	18	1	17.3	33.2	35
								E36	36	2	34.6	54.8	60
								E54	54	2	52	63.5	70
210 (17.5)	208-3-60	14.5	98	22.6	2.1	13.5	10	NONE	-	-	-	93.5	100
								E18	13.5	1	37.5	93.5	100
								E36	27	2	74.9	123.1	125
								E54	40.6	2	112.7	170.2	175
	230-3-60	14.5	98	22.6	2.1	13	10	NONE	-	-	-	93	100
								E18	18	1	43.3	93	100
								E36	36	2	86.6	137	150
								E54	54	2	129.9	158.7	175
	460-3-60	6.3	55	9.9	1.26	6.5	5	NONE	-	-	-	43.4	45
								E18	18	1	21.7	43.4	45
								E36	36	2	43.3	68.5	70
								E54	54	2	65	79.3	90
	575-3-60	6	41	9.4	0.66	5.2	4	NONE	-	-	-	37.3	40
								E18	18	1	17.3	37.3	40
								E36	36	2	34.6	54.8	60
								E54	54	2	52	63.5	70
240 (20)	208-3-60	15.6	110	24.4	2.2	13.5	10	NONE	-	-	-	98.6	110
								E18	13.5	1	37.5	98.6	110
								E36	27	2	74.9	123.1	125
								E54	40.6	2	112.7	170.2	175
	230-3-60	15.6	110	24.4	2.2	13	10	NONE	-	-	-	98.1	110
								E18	18	1	43.3	98.1	110
								E36	36	2	86.6	137	150
								E54	54	2	129.9	158.7	175
	460-3-60	7.8	52	12.1	1.1	6.5	5	NONE	-	-	-	49.1	50
								E18	18	1	21.7	49.1	50
								E36	36	2	43.3	68.5	70
								E54	54	2	65	79.3	90
	575-3-60	5.8	38.9	9.1	0.9	5.2	4	NONE	-	-	-	37.5	40
								E18	18	1	17.3	37.5	40
								E36	36	2	34.6	54.8	60
								E54	54	2	52	63.5	70



## ZJ180-300 - Standard Drive With Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
300 (25)	208-3-60	22.4	149	35	2.2	26	10	NONE	-	-	-	140.9	150
								E18	13.5	1	37.5	140.9	150
								E36	27	2	74.9	140.9	150
								E54	40.6	2	112.7	185.9	200
								E72	54.1	2	150.2	195.2	200
	230-3-60	22.4	149	35	2.2	25	10	NONE	-	-	-	139.7	150
								E18	18	1	43.3	139.7	150
								E36	36	2	86.6	152	175
								E54	54	2	129.9	173.7	175
								E72	72	2	173.2	217	225
	460-3-60	10.6	75	16.5	1.1	12.5	5	NONE	-	-	-	67.4	70
								E18	18	1	21.7	67.4	70
								E36	36	2	43.3	76	80
								E54	54	2	65	86.8	90
								E72	72	2	86.6	108.5	110
	575-3-60	7.7	54	12	0.9	10	4	NONE	-	-	-	50.9	60
								E18	18	1	17.3	50.9	60
								E36	36	2	34.6	60.8	70
								E54	54	2	52	69.5	70
								E72	72	2	69.3	86.8	90

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

**ZJ180-300 - High Static Drive Without Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
180 (15)	208-3-60	13.1	83.1	20.5	2.1	13.5	0	NONE	-	-	-	77.7	90
								E18	13.5	1	37.5	77.7	90
								E36	27	2	74.9	110.6	125
								E54	40.6	2	112.7	157.7	175
								E72	54.1	2	150.2	167	200
	230-3-60	13.1	83.1	20.5	2.1	13	0	NONE	-	-	-	77.1	90
								E18	18	1	43.3	77.1	90
								E36	36	2	86.6	124.5	125
								E54	54	2	129.9	146.2	175
								E72	72	2	173.2	189.5	225
	460-3-60	6.1	41	9.5	1.26	6.5	0	NONE	-	-	-	37.6	40
								E18	18	1	21.7	37.6	40
								E36	36	2	43.3	62.3	70
								E54	54	2	65	73.1	80
								E72	72	2	86.6	94.7	110
	575-3-60	4.4	33	6.8	0.66	5.2	0	NONE	-	-	-	26.7	30
								E18	18	1	17.3	28.2	30
								E36	36	2	34.6	49.8	50
								E54	54	2	52	58.5	70
								E72	72	2	69.3	75.8	90
210 (17.5)	208-3-60	14.5	98	22.6	2.1	20	0	NONE	-	-	-	91.4	110
								E18	13.5	1	37.5	91.4	110
								E36	27	2	74.9	118.7	125
								E54	40.6	2	112.7	165.9	175
								E72	54.1	2	150.2	175.2	200
	230-3-60	14.5	98	22.6	2.1	19.4	0	NONE	-	-	-	90.7	110
								E18	18	1	43.3	90.7	110
								E36	36	2	86.6	132.5	150
								E54	54	2	129.9	154.2	175
								E72	72	2	173.2	197.5	225
	460-3-60	6.3	55	9.9	1.26	9.7	0	NONE	-	-	-	42.4	50
								E18	18	1	21.7	42.4	50
								E36	36	2	43.3	66.3	70
								E54	54	2	65	77.1	90
								E72	72	2	86.6	98.7	110
	575-3-60	6	41	9.4	0.66	7.8	0	NONE	-	-	-	36.4	40
								E18	18	1	17.3	36.4	40
								E36	36	2	34.6	53.1	60
								E54	54	2	52	61.7	70
								E72	72	2	69.3	79	90
240 (20)	208-3-60	15.6	110	24.4	2.2	20	0	NONE	-	-	-	96.2	110
								E18	13.5	1	37.5	96.2	110
								E36	27	2	74.9	118.7	125
								E54	40.6	2	112.7	165.9	175
								E72	54.1	2	150.2	175.2	200
	230-3-60	15.6	110	24.4	2.2	19.4	0	NONE	-	-	-	95.5	110
								E18	18	1	43.3	95.5	110
								E36	36	2	86.6	132.5	150
								E54	54	2	129.9	154.2	175
								E72	72	2	173.2	197.5	225
	460-3-60	7.8	52	12.1	1.1	9.7	0	NONE	-	-	-	47.7	50
								E18	18	1	21.7	47.7	50
								E36	36	2	43.3	66.3	70
								E54	54	2	65	77.1	90
								E72	72	2	86.6	98.7	110
	575-3-60	5.8	38.9	9.1	0.9	7.8	0	NONE	-	-	-	36.6	40
								E18	18	1	17.3	36.6	40
								E36	36	2	34.6	53.1	60
								E54	54	2	52	61.7	70
								E72	72	2	69.3	79	90

## ZJ180-300 - High Static Drive Without Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
300 (25)	208-3-60	22.4	149	35	2.2	37.2	0	NONE	-	-	-	144.9	175
								E18	13.5	1	37.5	144.9	175
								E36	27	2	74.9	144.9	175
								E54	40.6	2	112.7	187.4	200
								E72	54.1	2	150.2	196.7	225
	230-3-60	22.4	149	35	2.2	34.6	0	NONE	-	-	-	141.7	175
								E18	18	1	43.3	141.7	175
								E36	36	2	86.6	151.5	175
								E54	54	2	129.9	173.2	200
								E72	72	2	173.2	216.5	250
	460-3-60	10.6	75	16.5	1.1	17.3	0	NONE	-	-	-	68.4	80
								E18	18	1	21.7	68.4	80
								E36	36	2	43.3	75.8	80
								E54	54	2	65	86.6	100
								E72	72	2	86.6	108.2	125
	575-3-60	7.7	54	12	0.9	14.5	0	NONE	-	-	-	52.5	60
								E18	18	1	17.3	52.5	60
								E36	36	2	34.6	61.4	70
								E54	54	2	52	70.1	80
								E72	72	2	69.3	87.4	100

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

**ZJ180-300 - High Static Drive With Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2/</sup> Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
180 (15)	208-3-60	13.1	83.1	20.5	2.1	13.5	10	NONE	-	-	-	87.7	100
								E18	13.5	1	37.5	87.7	100
								E36	27	2	74.9	123.1	125
								E54	40.6	2	112.7	170.2	175
	230-3-60	13.1	83.1	20.5	2.1	13	10	NONE	-	-	-	87.1	100
								E18	18	1	43.3	87.1	100
								E36	36	2	86.6	137	150
								E54	54	2	129.9	158.7	175
	460-3-60	6.1	41	9.5	1.26	6.5	5	NONE	-	-	-	42.6	45
								E18	18	1	21.7	42.6	45
								E36	36	2	43.3	68.5	70
								E54	54	2	65	79.3	90
	575-3-60	4.4	33	6.8	0.66	5.2	4	NONE	-	-	-	30.7	35
								E18	18	1	17.3	33.2	35
								E36	36	2	34.6	54.8	60
								E54	54	2	52	63.5	70
210 (17.5)	208-3-60	14.5	98	22.6	2.1	20	10	NONE	-	-	-	101.4	110
								E18	13.5	1	37.5	101.4	110
								E36	27	2	74.9	131.2	150
								E54	40.6	2	112.7	178.4	200
	230-3-60	14.5	98	22.6	2.1	19.4	10	NONE	-	-	-	100.7	110
								E18	18	1	43.3	100.7	110
								E36	36	2	86.6	145	150
								E54	54	2	129.9	166.7	175
	460-3-60	6.3	55	9.9	1.26	9.7	5	NONE	-	-	-	47.4	50
								E18	18	1	21.7	47.4	50
								E36	36	2	43.3	72.5	80
								E54	54	2	65	83.3	90
	575-3-60	6	41	9.4	0.66	7.8	4	NONE	-	-	-	40.4	45
								E18	18	1	17.3	40.4	45
								E36	36	2	34.6	58.1	60
								E54	54	2	52	66.7	70
240 (20)	208-3-60	15.6	110	24.4	2.2	20	10	NONE	-	-	-	106.2	125
								E18	13.5	1	37.5	106.2	125
								E36	27	2	74.9	131.2	150
								E54	40.6	2	112.7	178.4	200
	230-3-60	15.6	110	24.4	2.2	19.4	10	NONE	-	-	-	105.5	110
								E18	18	1	43.3	105.5	110
								E36	36	2	86.6	145	150
								E54	54	2	129.9	166.7	175
	460-3-60	7.8	52	12.1	1.1	9.7	5	NONE	-	-	-	52.7	60
								E18	18	1	21.7	52.7	60
								E36	36	2	43.3	72.5	80
								E54	54	2	65	83.3	90
	575-3-60	5.8	38.9	9.1	0.9	7.8	4	NONE	-	-	-	40.6	45
								E18	18	1	17.3	40.6	45
								E36	36	2	34.6	58.1	60
								E54	54	2	52	66.7	70

## ZJ180-300 - High Static Drive With Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2/</sup> Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
300 (25)	208-3-60	22.4	149	35	2.2	37.2	10	NONE	-	-	-	154.9	175
								E18	13.5	1	37.5	154.9	175
								E36	27	2	74.9	154.9	175
								E54	40.6	2	112.7	199.9	200
								E72	54.1	2	150.2	209.2	225
	230-3-60	22.4	149	35	2.2	34.6	10	NONE	-	-	-	151.7	175
								E18	18	1	43.3	151.7	175
								E36	36	2	86.6	164	175
								E54	54	2	129.9	185.7	200
								E72	72	2	173.2	229	250
	460-3-60	10.6	75	16.5	1.1	17.3	5	NONE	-	-	-	73.4	90
								E18	18	1	21.7	73.4	90
								E36	36	2	43.3	82	90
								E54	54	2	65	92.8	100
								E72	72	2	86.6	114.5	125
	575-3-60	7.7	54	12	0.9	14.5	4	NONE	-	-	-	56.5	70
								E18	18	1	17.3	56.5	70
								E36	36	2	34.6	66.4	70
								E54	54	2	52	75.1	80
								E72	72	2	69.3	92.4	100

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

**ZJ300 - Low Static Drive Without Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
300 (25)	208-3-60	22.4	149	35	2.2	20	0	NONE	-	-	-	124	125
								E18	13.5	1	37.5	124	125
								E36	27	2	74.9	124	125
								E54	40.6	2	112.7	165.9	175
								E72	54.1	2	150.2	175.2	200
	230-3-60	22.4	149	35	2.2	19.4	0	NONE	-	-	-	123.4	125
								E18	18	1	43.3	123.4	125
								E36	36	2	86.6	132.5	150
								E54	54	2	129.9	154.2	175
								E72	72	2	173.2	197.5	225
	460-3-60	10.6	75	16.5	1.1	9.7	0	NONE	-	-	-	59.2	60
								E18	18	1	21.7	59.2	60
								E36	36	2	43.3	66.3	70
								E54	54	2	65	77.1	90
								E72	72	2	86.6	98.7	110
	575-3-60	7.7	54	12	0.9	7.8	0	NONE	-	-	-	44.2	50
								E18	18	1	17.3	44.2	50
								E36	36	2	34.6	53.1	60
								E54	54	2	52	61.7	70
								E72	72	2	69.3	79	90

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

**ZJ300 - Low Static Drive With Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
300 (25)	208-3-60	22.4	149	35	2.2	20	10	NONE	-	-	-	134	150
								E18	13.5	1	37.5	134	150
								E36	27	2	74.9	134	150
								E54	40.6	2	112.7	178.4	200
								E72	54.1	2	150.2	187.7	200
	230-3-60	22.4	149	35	2.2	19.4	10	NONE	-	-	-	133.4	150
								E18	18	1	43.3	133.4	150
								E36	36	2	86.6	145	150
								E54	54	2	129.9	166.7	175
								E72	72	2	173.2	210	225
	460-3-60	10.6	75	16.5	1.1	9.7	5	NONE	-	-	-	64.2	70
								E18	18	1	21.7	64.2	70
								E36	36	2	43.3	72.5	80
								E54	54	2	65	83.3	90
								E72	72	2	86.6	105	110
	575-3-60	7.7	54	12	0.9	7.8	4	NONE	-	-	-	48.2	50
								E18	18	1	17.3	48.2	50
								E36	36	2	34.6	58.1	60
								E54	54	2	52	66.7	70
								E72	72	2	69.3	84	90

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

**ZR180 - 300****ZR180-300 - Standard Drive Without Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
180 (15)	208-3-60	25	164	39	2.1	13.5	0	NONE	-	-	-	78.2	100
								E18	13.5	1	37.5	78.2	100
								E36	27	2	74.9	110.6	125
								E54	40.6	2	112.7	157.7	175
								E72	54.1	2	150.2	167	200
	230-3-60	25	164	39	2.1	13	0	NONE	-	-	-	77.7	100
								E18	18	1	43.3	77.7	100
								E36	36	2	86.6	124.5	125
								E54	54	2	129.9	146.2	175
								E72	72	2	173.2	189.5	225
	460-3-60	12.2	100	19	1.26	6.5	0	NONE	-	-	-	39	50
								E18	18	1	21.7	39	50
								E36	36	2	43.3	62.3	70
								E54	54	2	65	73.1	80
								E72	72	2	86.6	94.7	110
	575-3-60	9	78	14	0.66	5.2	0	NONE	-	-	-	28.1	35
E18								18	1	17.3	28.2	35	
E36								36	2	34.6	49.8	50	
E54								54	2	52	58.5	70	
E72								72	2	69.3	75.8	90	
240 (20)	208-3-60	30.1	225	47	2.2	20	0	NONE	-	-	-	96.5	125
								E18	13.5	1	37.5	96.5	125
								E36	27	2	74.9	118.7	125
								E54	40.6	2	112.7	165.9	175
								E72	54.1	2	150.2	175.2	200
	230-3-60	30.1	225	47	2.2	19.4	0	NONE	-	-	-	95.9	125
								E18	18	1	43.3	95.9	125
								E36	36	2	86.6	132.5	150
								E54	54	2	129.9	154.2	175
								E72	72	2	173.2	197.5	225
	460-3-60	16.7	114	26	1.1	9.7	0	NONE	-	-	-	51.7	60
								E18	18	1	21.7	51.7	60
								E36	36	2	43.3	66.3	70
								E54	54	2	65	77.1	90
								E72	72	2	86.6	98.7	110
	575-3-60	12.2	80	19	0.9	7.8	0	NONE	-	-	-	38.9	50
E18								18	1	17.3	38.9	50	
E36								36	2	34.6	53.1	60	
E54								54	2	52	61.7	70	
E72								72	2	69.3	79	90	
300 (25)	208-3-60	48.1	245	75	2.2	26	0	NONE	-	-	-	143	175
								E18	13.5	1	37.5	143	175
								E36	27	2	74.9	143	175
								E54	40.6	2	112.7	173.4	175
								E72	54.1	2	150.2	182.7	200
	230-3-60	48.1	245	75	2.2	25	0	NONE	-	-	-	142	175
								E18	18	1	43.3	142	175
								E36	36	2	86.6	142	175
								E54	54	2	129.9	161.2	175
								E72	72	2	173.2	204.5	225
	460-3-60	18.6	125	29	1.1	12.5	0	NONE	-	-	-	58.8	70
								E18	18	1	21.7	58.8	70
								E36	36	2	43.3	69.8	70
								E54	54	2	65	80.6	90
								E72	72	2	86.6	102.2	110
	575-3-60	14.7	100	23	0.9	10	0	NONE	-	-	-	46.7	60
E18								18	1	17.3	46.7	60	
E36								36	2	34.6	55.8	60	
E54								54	2	52	64.5	70	
E72								72	2	69.3	81.8	90	

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

**ZR180-300 - Standard Drive With Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2/3</sup> Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
180 (15)	208-3-60	25	164	39	2.1	13.5	10	NONE	-	-	-	88.2	110
								E18	13.5	1	37.5	88.2	110
								E36	27	2	74.9	123.1	125
								E54	40.6	2	112.7	170.2	175
	230-3-60	25	164	39	2.1	13	10	NONE	-	-	-	87.7	110
								E18	18	1	43.3	87.7	110
								E36	36	2	86.6	137	150
								E54	54	2	129.9	158.7	175
	460-3-60	12.2	100	19	1.26	6.5	5	NONE	-	-	-	44	50
								E18	18	1	21.7	44	50
								E36	36	2	43.3	68.5	70
								E54	54	2	65	79.3	90
	575-3-60	9	78	14	0.66	5.2	4	NONE	-	-	-	32.1	40
								E18	18	1	17.3	33.2	40
								E36	36	2	34.6	54.8	60
								E54	54	2	52	63.5	70
240 (20)	208-3-60	30.1	225	47	2.2	20	10	NONE	-	-	-	106.5	125
								E18	13.5	1	37.5	106.5	125
								E36	27	2	74.9	131.2	150
								E54	40.6	2	112.7	178.4	200
	230-3-60	30.1	225	47	2.2	19.4	10	NONE	-	-	-	105.9	125
								E18	18	1	43.3	105.9	125
								E36	36	2	86.6	145	150
								E54	54	2	129.9	166.7	175
	460-3-60	16.7	114	26	1.1	9.7	5	NONE	-	-	-	56.7	70
								E18	18	1	21.7	56.7	70
								E36	36	2	43.3	72.5	80
								E54	54	2	65	83.3	90
	575-3-60	12.2	80	19	0.9	7.8	4	NONE	-	-	-	42.9	50
								E18	18	1	17.3	42.9	50
								E36	36	2	34.6	58.1	60
								E54	54	2	52	66.7	70
300 (25)	208-3-60	48.1	245	75	2.2	26	10	NONE	-	-	-	153	200
								E18	13.5	1	37.5	153	200
								E36	27	2	74.9	153	200
								E54	40.6	2	112.7	185.9	200
	230-3-60	48.1	245	75	2.2	25	10	NONE	-	-	-	152	200
								E18	18	1	43.3	152	200
								E36	36	2	86.6	152	200
								E54	54	2	129.9	173.7	200
	460-3-60	18.6	125	29	1.1	12.5	5	NONE	-	-	-	63.8	80
								E18	18	1	21.7	63.8	80
								E36	36	2	43.3	76	80
								E54	54	2	65	86.8	90
	575-3-60	14.7	100	23	0.9	10	4	NONE	-	-	-	50.7	60
								E18	18	1	17.3	50.7	60
								E36	36	2	34.6	60.8	70
								E54	54	2	52	69.5	70

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



## ZR180-300 - High Static Drive Without Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2/</sup> Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
180 (15)	208-3-60	25	164	39	2.1	20	0	NONE	-	-	-	84.7	100
								E18	13.5	1	37.5	84.7	100
								E36	27	2	74.9	118.7	125
								E54	40.6	2	112.7	165.9	175
								E72	54.1	2	150.2	175.2	200
	230-3-60	25	164	39	2.1	19.4	0	NONE	-	-	-	84.1	100
								E18	18	1	43.3	84.1	100
								E36	36	2	86.6	132.5	150
								E54	54	2	129.9	154.2	175
								E72	72	2	173.2	197.5	225
	460-3-60	12.2	100	19	1.26	9.7	0	NONE	-	-	-	42.2	50
								E18	18	1	21.7	42.2	50
								E36	36	2	43.3	66.3	70
								E54	54	2	65	77.1	90
								E72	72	2	86.6	98.7	110
	575-3-60	9	78	14	0.66	7.8	0	NONE	-	-	-	30.7	35
								E18	18	1	17.3	31.4	35
								E36	36	2	34.6	53.1	60
								E54	54	2	52	61.7	70
								E72	72	2	69.3	79	90
240 (20)	208-3-60	30.1	225	47	2.2	26	0	NONE	-	-	-	102.5	125
								E18	13.5	1	37.5	102.5	125
								E36	27	2	74.9	126.2	150
								E54	40.6	2	112.7	173.4	175
								E72	54.1	2	150.2	182.7	200
	230-3-60	30.1	225	47	2.2	25	0	NONE	-	-	-	101.5	125
								E18	18	1	43.3	101.5	125
								E36	36	2	86.6	139.5	150
								E54	54	2	129.9	161.2	175
								E72	72	2	173.2	204.5	225
	460-3-60	16.7	114	26	1.1	12.5	0	NONE	-	-	-	54.5	70
								E18	18	1	21.7	54.5	70
								E36	36	2	43.3	69.8	70
								E54	54	2	65	80.6	90
								E72	72	2	86.6	102.2	110
	575-3-60	12.2	80	19	0.9	10	0	NONE	-	-	-	41.1	50
								E18	18	1	17.3	41.1	50
								E36	36	2	34.6	55.8	60
								E54	54	2	52	64.5	70
								E72	72	2	69.3	81.8	90
300 (25)	208-3-60	48.1	245	75	2.2	37.2	0	NONE	-	-	-	154.2	200
								E18	13.5	1	37.5	154.2	200
								E36	27	2	74.9	154.2	200
								E54	40.6	2	112.7	187.4	200
								E72	54.1	2	150.2	196.7	225
	230-3-60	48.1	245	75	2.2	34.6	0	NONE	-	-	-	151.6	175
								E18	18	1	43.3	151.6	175
								E36	36	2	86.6	151.6	175
								E54	54	2	129.9	173.2	200
								E72	72	2	173.2	216.5	250
	460-3-60	18.6	125	29	1.1	17.3	0	NONE	-	-	-	63.6	80
								E18	18	1	21.7	63.6	80
								E36	36	2	43.3	75.8	80
								E54	54	2	65	86.6	100
								E72	72	2	86.6	108.2	125
	575-3-60	14.7	100	23	0.9	14.5	0	NONE	-	-	-	51.2	60
								E18	18	1	17.3	51.2	60
								E36	36	2	34.6	61.4	70
								E54	54	2	52	70.1	80
								E72	72	2	69.3	87.4	100

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

**ZR180-300 - High Static Drive With Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2/3</sup> Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
180 (15)	208-3-60	25	164	39	2.1	20	10	NONE	-	-	-	94.7	110
								E18	13.5	1	37.5	94.7	110
								E36	27	2	74.9	131.2	150
								E54	40.6	2	112.7	178.4	200
	230-3-60	25	164	39	2.1	19.4	10	NONE	-	-	-	94.1	110
								E18	18	1	43.3	94.1	110
								E36	36	2	86.6	145	150
								E54	54	2	129.9	166.7	175
	460-3-60	12.2	100	19	1.26	9.7	5	NONE	-	-	-	47.2	50
								E18	18	1	21.7	47.2	50
								E36	36	2	43.3	72.5	80
								E54	54	2	65	83.3	90
	575-3-60	9	78	14	0.66	7.8	4	NONE	-	-	-	34.7	40
								E18	18	1	17.3	36.4	40
								E36	36	2	34.6	58.1	60
								E54	54	2	52	66.7	70
240 (20)	208-3-60	30.1	225	47	2.2	26	10	NONE	-	-	-	112.5	125
								E18	13.5	1	37.5	112.5	125
								E36	27	2	74.9	138.7	150
								E54	40.6	2	112.7	185.9	200
	230-3-60	30.1	225	47	2.2	25	10	NONE	-	-	-	111.5	125
								E18	18	1	43.3	111.5	125
								E36	36	2	86.6	152	175
								E54	54	2	129.9	173.7	175
	460-3-60	16.7	114	26	1.1	12.5	5	NONE	-	-	-	59.5	70
								E18	18	1	21.7	59.5	70
								E36	36	2	43.3	76	80
								E54	54	2	65	86.8	90
	575-3-60	12.2	80	19	0.9	10	4	NONE	-	-	-	45.1	50
								E18	18	1	17.3	45.1	50
								E36	36	2	34.6	60.8	70
								E54	54	2	52	69.5	70
300 (25)	208-3-60	48.1	245	75	2.2	37.2	10	NONE	-	-	-	164.2	200
								E18	13.5	1	37.5	164.2	200
								E36	27	2	74.9	164.2	200
								E54	40.6	2	112.7	199.9	200
	230-3-60	48.1	245	75	2.2	34.6	10	NONE	-	-	-	161.6	200
								E18	18	1	43.3	161.6	200
								E36	36	2	86.6	164	200
								E54	54	2	129.9	185.7	200
	460-3-60	18.6	125	29	1.1	17.3	5	NONE	-	-	-	68.6	80
								E18	18	1	21.7	68.6	80
								E36	36	2	43.3	82	90
								E54	54	2	65	92.8	100
	575-3-60	14.7	100	23	0.9	14.5	4	NONE	-	-	-	55.2	60
								E18	18	1	17.3	55.2	60
								E36	36	2	34.6	66.4	70
								E54	54	2	52	75.1	80
							E72	72	2	69.3	92.4	100	

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

## ZR300 - Low Static Drive Without Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
300 (25)	208-3-60	48.1	245	75	2.2	20	0	NONE	-	-	-	137	175
								E18	13.5	1	37.5	137	175
								E36	27	2	74.9	137	175
								E54	40.6	2	112.7	165.9	175
	230-3-60	48.1	245	75	2.2	19.4	0	NONE	-	-	-	136.4	175
								E18	18	1	43.3	136.4	175
								E36	36	2	86.6	136.4	175
								E54	54	2	129.9	154.2	175
	460-3-60	18.6	125	29	1.1	9.7	0	NONE	-	-	-	56	70
								E18	18	1	21.7	56	70
								E36	36	2	43.3	66.3	70
								E54	54	2	65	77.1	90
	575-3-60	14.7	100	23	0.9	7.8	0	NONE	-	-	-	44.5	50
								E18	18	1	17.3	44.5	50
								E36	36	2	34.6	53.1	60
								E54	54	2	52	61.7	70
							E72	72	2	69.3	79	90	

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

## ZR300 - Low Static Drive With Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
300 (25)	208-3-60	48.1	245	75	2.2	20	10	NONE	-	-	-	147	175
								E18	13.5	1	37.5	147	175
								E36	27	2	74.9	147	175
								E54	40.6	2	112.7	178.4	200
	230-3-60	48.1	245	75	2.2	19.4	10	NONE	-	-	-	146.4	175
								E18	18	1	43.3	146.4	175
								E36	36	2	86.6	146.4	175
								E54	54	2	129.9	166.7	175
	460-3-60	18.6	125	29	1.1	9.7	5	NONE	-	-	-	61	70
								E18	18	1	21.7	61	70
								E36	36	2	43.3	72.5	80
								E54	54	2	65	83.3	90
	575-3-60	14.7	100	23	0.9	7.8	4	NONE	-	-	-	48.5	60
								E18	18	1	17.3	48.5	60
								E36	36	2	34.6	58.1	60
								E54	54	2	52	66.7	70
							E72	72	2	69.3	84	90	

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

ZF180 - 300

ZF180-300 - Standard Drive Without Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC					FLA	FLA	FLA	Model		
		C1	C2	C1	C2	C1	C2									
180 (15)	208-3-60	25	25	164	164	39	39	4.1	13.5	0	NONE	-	-	-	78	100
											E18	13.5	1	37.5	78	100
											E36	27	2	74.9	110.6	125
											E54	40.6	2	112.7	157.7	175
											E72	54.1	2	150.2	167	200
	230-3-60	25	25	164	164	39	39	3.9	13	0	NONE	-	-	-	77.1	100
											E18	18	1	43.3	77.1	100
											E36	36	2	86.6	124.5	125
											E54	54	2	129.9	146.2	175
											E72	72	2	173.2	189.5	225
	460-3-60	12.8	12.8	100	100	20	20	2.15	6.5	0	NONE	-	-	-	39.6	50
											E18	18	1	21.7	39.6	50
E36											36	2	43.3	62.3	70	
E54											54	2	65	73.1	80	
E72											72	2	86.6	94.7	110	
575-3-60	9.6	9.6	78	78	15	15	1.6	5.2	0	NONE	-	-	-	30	35	
										E18	18	1	17.3	30	35	
										E36	36	2	34.6	49.8	50	
										E54	54	2	52	58.5	70	
										E72	72	2	69.3	75.8	90	
210 (17.5)	208-3-60	27.6	27.6	203	203	43	43	4.1	13.5	0	NONE	-	-	-	83.8	110
											E18	13.5	1	37.5	83.8	110
											E36	27	2	74.9	110.6	125
											E54	40.6	2	112.7	157.7	175
											E72	54.1	2	150.2	167	200
	230-3-60	27.6	27.6	203	203	43	43	3.9	13	0	NONE	-	-	-	82.9	110
											E18	18	1	43.3	82.9	110
											E36	36	2	86.6	124.5	125
											E54	54	2	129.9	146.2	175
											E72	72	2	173.2	189.5	225
	460-3-60	14.3	14.3	98	98	22	22	2.15	6.5	0	NONE	-	-	-	43	50
											E18	18	1	21.7	43	50
E36											36	2	43.3	62.3	70	
E54											54	2	65	73.1	80	
E72											72	2	86.6	94.7	110	
575-3-60	12.9	12.9	84	84	18	18	1.6	5.2	0	NONE	-	-	-	37.4	50	
										E18	18	1	17.3	37.4	50	
										E36	36	2	34.6	49.8	50	
										E54	54	2	52	58.5	70	
										E72	72	2	69.3	75.8	90	
240 (20)	208-3-60	35.8	35.8	239	239	52	52	4.1	13.5	0	NONE	-	-	-	102.3	125
											E18	13.5	1	37.5	102.3	125
											E36	27	2	74.9	110.6	125
											E54	40.6	2	112.7	157.7	175
											E72	54.1	2	150.2	167	200
	230-3-60	35.8	35.8	239	239	52	52	3.9	13	0	NONE	-	-	-	101.4	125
											E18	18	1	43.3	101.4	125
											E36	36	2	86.6	124.5	125
											E54	54	2	129.9	146.2	175
											E72	72	2	173.2	189.5	225
	460-3-60	17.9	17.9	125	125	28	28	2.15	6.5	0	NONE	-	-	-	51.1	60
											E18	18	1	21.7	51.1	60
E36											36	2	43.3	62.3	70	
E54											54	2	65	73.1	80	
E72											72	2	86.6	94.7	110	
575-3-60	12.8	12.8	80	80	20	20	1.6	5.2	0	NONE	-	-	-	37.2	50	
										E18	18	1	17.3	37.2	50	
										E36	36	2	34.6	49.8	50	
										E54	54	2	52	58.5	70	
										E72	72	2	69.3	75.8	90	

## ZF180-300 - Standard Drive Without Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC					FLA	FLA	FLA	Model		
		C1	C2	C1	C2	C1	C2									
300 (25)	208-3-60	45.7	43.6	304	267	64	61	4.1	26	0	NONE	-	-	-	134.9	175
											E18	13.5	1	37.5	134.9	175
											E36	27	2	74.9	134.9	175
											E54	40.6	2	112.7	173.4	175
											E72	54.1	2	150.2	182.7	200
	230-3-60	45.7	43.6	304	267	64	64	3.9	25	0	NONE	-	-	-	133.5	175
											E18	18	1	43.3	133.5	175
											E36	36	2	86.6	139.5	175
											E54	54	2	129.9	161.2	175
											E72	72	2	173.2	204.5	225
	460-3-60	21.4	20.7	147	142	30	29	2.15	12.5	0	NONE	-	-	-	64.3	80
											E18	18	1	21.7	64.3	80
											E36	36	2	43.3	69.8	80
											E54	54	2	65	80.6	90
											E72	72	2	86.6	102.2	110
	575-3-60	18.6	17.1	122	103	26	24	1.6	10	0	NONE	-	-	-	53.6	70
											E18	18	1	17.3	53.6	70
											E36	36	2	34.6	55.8	70
											E54	54	2	52	64.5	70
											E72	72	2	69.3	81.8	90

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

ZF180-300 - Standard Drive With Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)			
		RLA		LRA		MCC					FLA	FLA	FLA	Model			kW	Stages	Amps
		C1	C2	C1	C2	C1	C2												
180 (15)	208-3-60	25	25	164	164	39	39	4.1	13.5	10	NONE	-	-	-	88	110			
											E18	13.5	1	37.5	88	110			
											E36	27	2	74.9	123.1	125			
											E54	40.6	2	112.7	170.2	175			
											E72	54.1	2	150.2	179.5	200			
	230-3-60	25	25	164	164	39	39	3.9	13	10	NONE	-	-	-	87.1	110			
											E18	18	1	43.3	87.1	110			
											E36	36	2	86.6	137	150			
											E54	54	2	129.9	158.7	175			
											E72	72	2	173.2	202	225			
	460-3-60	12.8	12.8	100	100	20	20	2.15	6.5	5	NONE	-	-	-	44.6	50			
											E18	18	1	21.7	44.6	50			
											E36	36	2	43.3	68.5	70			
											E54	54	2	65	79.3	90			
											E72	72	2	86.6	101	110			
	575-3-60	9.6	9.6	78	78	15	15	1.6	5.2	4	NONE	-	-	-	34	40			
											E18	18	1	17.3	34	40			
											E36	36	2	34.6	54.8	60			
											E54	54	2	52	63.5	70			
											E72	72	2	69.3	80.8	90			
210 (17.5)	208-3-60	27.6	27.6	203	203	43	43	4.1	13.5	10	NONE	-	-	-	93.8	110			
											E18	13.5	1	37.5	93.8	110			
											E36	27	2	74.9	123.1	125			
											E54	40.6	2	112.7	170.2	175			
											E72	54.1	2	150.2	179.5	200			
	230-3-60	27.6	27.6	203	203	43	43	3.9	13	10	NONE	-	-	-	92.9	110			
											E18	18	1	43.3	92.9	110			
											E36	36	2	86.6	137	150			
											E54	54	2	129.9	158.7	175			
											E72	72	2	173.2	202	225			
	460-3-60	14.3	14.3	98	98	22	22	2.15	6.5	5	NONE	-	-	-	48	60			
											E18	18	1	21.7	48	60			
											E36	36	2	43.3	68.5	70			
											E54	54	2	65	79.3	90			
											E72	72	2	86.6	101	110			
	575-3-60	12.9	12.9	84	84	18	18	1.6	5.2	4	NONE	-	-	-	41.4	50			
											E18	18	1	17.3	41.4	50			
											E36	36	2	34.6	54.8	60			
											E54	54	2	52	63.5	70			
											E72	72	2	69.3	80.8	90			
240 (20)	208-3-60	35.8	35.8	239	239	52	52	4.1	13.5	10	NONE	-	-	-	112.3	125			
											E18	13.5	1	37.5	112.3	125			
											E36	27	2	74.9	123.1	125			
											E54	40.6	2	112.7	170.2	175			
											E72	54.1	2	150.2	179.5	200			
	230-3-60	35.8	35.8	239	239	52	52	3.9	13	10	NONE	-	-	-	111.4	125			
											E18	18	1	43.3	111.4	125			
											E36	36	2	86.6	137	150			
											E54	54	2	129.9	158.7	175			
											E72	72	2	173.2	202	225			
	460-3-60	17.9	17.9	125	125	28	28	2.15	6.5	5	NONE	-	-	-	56.1	70			
											E18	18	1	21.7	56.1	70			
											E36	36	2	43.3	68.5	70			
											E54	54	2	65	79.3	90			
											E72	72	2	86.6	101	110			
	575-3-60	12.8	12.8	80	80	20	20	1.6	5.2	4	NONE	-	-	-	41.2	50			
											E18	18	1	17.3	41.2	50			
											E36	36	2	34.6	54.8	60			
											E54	54	2	52	63.5	70			
											E72	72	2	69.3	80.8	90			

## ZF180-300 - Standard Drive With Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC					FLA	FLA	FLA	Model		
		C1	C2	C1	C2	C1	C2									
300 (25)	208-3-60	45.7	43.6	304	267	64	61	4.1	26	10	NONE	-	-	-	144.9	175
											E18	13.5	1	37.5	144.9	175
											E36	27	2	74.9	144.9	175
											E54	40.6	2	112.7	185.9	200
											E72	54.1	2	150.2	195.2	200
	230-3-60	45.7	43.6	304	267	64	64	3.9	25	10	NONE	-	-	-	143.5	175
											E18	18	1	43.3	143.5	175
											E36	36	2	86.6	152	175
											E54	54	2	129.9	173.7	175
											E72	72	2	173.2	217	225
	460-3-60	21.4	20.7	147	142	30	29	2.15	12.5	5	NONE	-	-	-	69.3	90
											E18	18	1	21.7	69.3	90
											E36	36	2	43.3	76	90
											E54	54	2	65	86.8	90
											E72	72	2	86.6	108.5	110
	575-3-60	18.6	17.1	122	103	26	24	1.6	10	4	NONE	-	-	-	57.6	70
											E18	18	1	17.3	57.6	70
											E36	36	2	34.6	60.8	70
											E54	54	2	52	69.5	70
											E72	72	2	69.3	86.8	90

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

ZF180-300 - Hi Static Drive Without Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC		FLA	FLA	FLA	Model	kW	Stages	Amps		
		C1	C2	C1	C2	C1	C2									
180 (15)	208-3-60	25	25	164	164	39	39	4.1	13.5	0	NONE	-	-	-	78	100
											E18	13.5	1	37.5	78	100
											E36	27	2	74.9	110.6	125
											E54	40.6	2	112.7	157.7	175
											E72	54.1	2	150.2	167	200
	230-3-60	25	25	164	164	39	39	3.9	13	0	NONE	-	-	-	77.1	100
											E18	18	1	43.3	77.1	100
											E36	36	2	86.6	124.5	125
											E54	54	2	129.9	146.2	175
											E72	72	2	173.2	189.5	225
	460-3-60	12.8	12.8	100	100	20	20	2.15	6.5	0	NONE	-	-	-	39.6	50
											E18	18	1	21.7	39.6	50
											E36	36	2	43.3	62.3	70
											E54	54	2	65	73.1	80
											E72	72	2	86.6	94.7	110
575-3-60	9.6	9.6	78	78	15	15	1.6	5.2	0	NONE	-	-	-	30	35	
										E18	18	1	17.3	30	35	
										E36	36	2	34.6	49.8	50	
										E54	54	2	52	58.5	70	
										E72	72	2	69.3	75.8	90	
210 (17.5)	208-3-60	27.6	27.6	203	203	43	43	4.1	20	0	NONE	-	-	-	90.3	110
											E18	13.5	1	37.5	90.3	110
											E36	27	2	74.9	118.7	125
											E54	40.6	2	112.7	165.9	175
											E72	54.1	2	150.2	175.2	200
	230-3-60	27.6	27.6	203	203	43	43	3.9	19.4	0	NONE	-	-	-	89.3	110
											E18	18	1	43.3	89.3	110
											E36	36	2	86.6	132.5	150
											E54	54	2	129.9	154.2	175
											E72	72	2	173.2	197.5	225
	460-3-60	14.3	14.3	98	98	22	22	2.15	9.7	0	NONE	-	-	-	46.2	60
											E18	18	1	21.7	46.2	60
											E36	36	2	43.3	66.3	70
											E54	54	2	65	77.1	90
											E72	72	2	86.6	98.7	110
575-3-60	12.9	12.9	84	84	18	18	1.6	7.8	0	NONE	-	-	-	40	50	
										E18	18	1	17.3	40	50	
										E36	36	2	34.6	53.1	60	
										E54	54	2	52	61.7	70	
										E72	72	2	69.3	79	90	
240 (20)	208-3-60	35.8	35.8	239	239	52	52	4.1	20	0	NONE	-	-	-	108.8	125
											E18	13.5	1	37.5	108.8	125
											E36	27	2	74.9	118.7	125
											E54	40.6	2	112.7	165.9	175
											E72	54.1	2	150.2	175.2	200
	230-3-60	35.8	35.8	239	239	52	52	3.9	19.4	0	NONE	-	-	-	107.8	125
											E18	18	1	43.3	107.8	125
											E36	36	2	86.6	132.5	150
											E54	54	2	129.9	154.2	175
											E72	72	2	173.2	197.5	225
	460-3-60	17.9	17.9	125	125	28	28	2.15	9.7	0	NONE	-	-	-	54.3	70
											E18	18	1	21.7	54.3	70
											E36	36	2	43.3	66.3	70
											E54	54	2	65	77.1	90
											E72	72	2	86.6	98.7	110
575-3-60	12.8	12.8	80	80	20	20	1.6	7.8	0	NONE	-	-	-	39.8	50	
										E18	18	1	17.3	39.8	50	
										E36	36	2	34.6	53.1	60	
										E54	54	2	52	61.7	70	
										E72	72	2	69.3	79	90	



## ZF180-300 - Hi Static Drive Without Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC					FLA	FLA	FLA	Model		
		C1	C2	C1	C2	C1	C2	FLA	FLA	FLA					Model	kW
300 (25)	208-3-60	45.7	43.6	304	267	64	61	4.1	37.2	0	NONE	-	-	-	146.1	175
											E18	13.5	1	37.5	146.1	175
											E36	27	2	74.9	146.1	175
											E54	40.6	2	112.7	187.4	200
											E72	54.1	2	150.2	196.7	225
	230-3-60	45.7	43.6	304	267	64	64	3.9	34.6	0	NONE	-	-	-	143.1	175
											E18	18	1	43.3	143.1	175
											E36	36	2	86.6	151.5	175
											E54	54	2	129.9	173.2	200
											E72	72	2	173.2	216.5	250
	460-3-60	21.4	20.7	147	142	30	29	2.15	17.3	0	NONE	-	-	-	69.1	90
											E18	18	1	21.7	69.1	90
											E36	36	2	43.3	75.8	90
											E54	54	2	65	86.6	100
											E72	72	2	86.6	108.2	125
	575-3-60	18.6	17.1	122	103	26	24	1.6	14.5	0	NONE	-	-	-	58.1	70
											E18	18	1	17.3	58.1	70
											E36	36	2	34.6	61.4	70
											E54	54	2	52	70.1	80
											E72	72	2	69.3	87.4	100

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

ZF180-300 - Hi Static Drive With Powered Convenience Outlet

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC		FLA	FLA	FLA	Model	kW	Stages	Amps		
		C1	C2	C1	C2	C1	C2									
180 (15)	208-3-60	25	25	164	164	39	39	4.1	13.5	10	NONE	-	-	-	88	110
											E18	13.5	1	37.5	88	110
											E36	27	2	74.9	123.1	125
											E54	40.6	2	112.7	170.2	175
	230-3-60	25	25	164	164	39	39	3.9	13	10	NONE	-	-	-	87.1	110
											E18	18	1	43.3	87.1	110
											E36	36	2	86.6	137	150
											E54	54	2	129.9	158.7	175
	460-3-60	12.8	12.8	100	100	20	20	2.15	6.5	5	NONE	-	-	-	44.6	50
											E18	18	1	21.7	44.6	50
											E36	36	2	43.3	68.5	70
											E54	54	2	65	79.3	90
575-3-60	9.6	9.6	78	78	15	15	1.6	5.2	4	NONE	-	-	-	44.6	50	
										E18	18	1	21.7	44.6	50	
										E36	36	2	43.3	68.5	70	
										E54	54	2	65	79.3	90	
210 (17.5)	208-3-60	27.6	27.6	203	203	43	43	4.1	20	10	NONE	-	-	-	100.3	125
											E18	13.5	1	37.5	100.3	125
											E36	27	2	74.9	131.2	150
											E54	40.6	2	112.7	178.4	200
	230-3-60	27.6	27.6	203	203	43	43	3.9	19.4	10	NONE	-	-	-	99.3	125
											E18	18	1	43.3	99.3	125
											E36	36	2	86.6	145	150
											E54	54	2	129.9	166.7	175
	460-3-60	14.3	14.3	98	98	22	22	2.15	9.7	5	NONE	-	-	-	51.2	60
											E18	18	1	21.7	51.2	60
											E36	36	2	43.3	72.5	80
											E54	54	2	65	83.3	90
575-3-60	12.9	12.9	84	84	18	18	1.6	7.8	4	NONE	-	-	-	44	50	
										E18	18	1	17.3	44	50	
										E36	36	2	34.6	58.1	60	
										E54	54	2	52	66.7	70	
240 (20)	208-3-60	35.8	35.8	239	239	52	52	4.1	20	10	NONE	-	-	-	118.8	150
											E18	13.5	1	37.5	118.8	150
											E36	27	2	74.9	131.2	150
											E54	40.6	2	112.7	178.4	200
	230-3-60	35.8	35.8	239	239	52	52	3.9	19.4	10	NONE	-	-	-	117.8	150
											E18	18	1	43.3	117.8	150
											E36	36	2	86.6	145	150
											E54	54	2	129.9	166.7	175
	460-3-60	17.9	17.9	125	125	28	28	2.15	9.7	5	NONE	-	-	-	59.3	70
											E18	18	1	21.7	59.3	70
											E36	36	2	43.3	72.5	80
											E54	54	2	65	83.3	90
575-3-60	12.8	12.8	80	80	20	20	1.6	7.8	4	NONE	-	-	-	43.8	50	
										E18	18	1	17.3	43.8	50	
										E36	36	2	34.6	58.1	60	
										E54	54	2	52	66.7	70	

## ZF180-300 - Hi Static Drive With Powered Convenience Outlet (Continued)

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC					FLA	FLA	FLA	Model		
		C1	C2	C1	C2	C1	C2	FLA	FLA	FLA					Model	kW
300 (25)	208-3-60	45.7	43.6	304	267	64	61	4.1	37.2	10	NONE	-	-	-	156.1	200
											E18	13.5	1	37.5	156.1	200
											E36	27	2	74.9	156.1	200
											E54	40.6	2	112.7	199.9	200
											E72	54.1	2	150.2	209.2	225
	230-3-60	45.7	43.6	304	267	64	64	3.9	34.6	10	NONE	-	-	-	153.1	175
											E18	18	1	43.3	153.1	175
											E36	36	2	86.6	164	175
											E54	54	2	129.9	185.7	200
											E72	72	2	173.2	229	250
	460-3-60	21.4	20.7	147	142	30	29	2.15	17.3	5	NONE	-	-	-	74.1	90
											E18	18	1	21.7	74.1	90
											E36	36	2	43.3	82	90
											E54	54	2	65	92.8	100
											E72	72	2	86.6	114.5	125
	575-3-60	18.6	17.1	122	103	26	24	1.6	14.5	4	NONE	-	-	-	62.1	80
											E18	18	1	17.3	62.1	80
											E36	36	2	34.6	66.4	80
											E54	54	2	52	75.1	80
											E72	72	2	69.3	92.4	100

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

**ZF180-300 - Low Static Drive Without Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC					FLA	FLA	FLA	Model		
		C1	C2	C1	C2	C1	C2									
300 (25)	208-3-60	45.7	43.6	304	267	64	61	4.1	20	0	NONE	-	-	-	128.9	150
											E18	13.5	1	37.5	128.9	150
											E36	27	2	74.9	128.9	150
											E54	40.6	2	112.7	165.9	175
											E72	54.1	2	150.2	175.2	200
	230-3-60	45.7	43.6	304	267	64	64	3.9	19.4	0	NONE	-	-	-	127.9	150
											E18	18	1	43.3	127.9	150
											E36	36	2	86.6	132.5	150
											E54	54	2	129.9	154.2	175
											E72	72	2	173.2	197.5	225
	460-3-60	21.4	20.7	147	142	30	29	2.15	9.7	0	NONE	-	-	-	61.5	80
											E18	18	1	21.7	61.5	80
											E36	36	2	43.3	66.3	80
											E54	54	2	65	77.1	90
											E72	72	2	86.6	98.7	110
	575-3-60	18.6	17.1	122	103	26	24	1.6	7.8	0	NONE	-	-	-	51.4	60
											E18	18	1	17.3	51.4	60
											E36	36	2	34.6	53.1	60
											E54	54	2	52	61.7	70
											E72	72	2	69.3	79	90

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

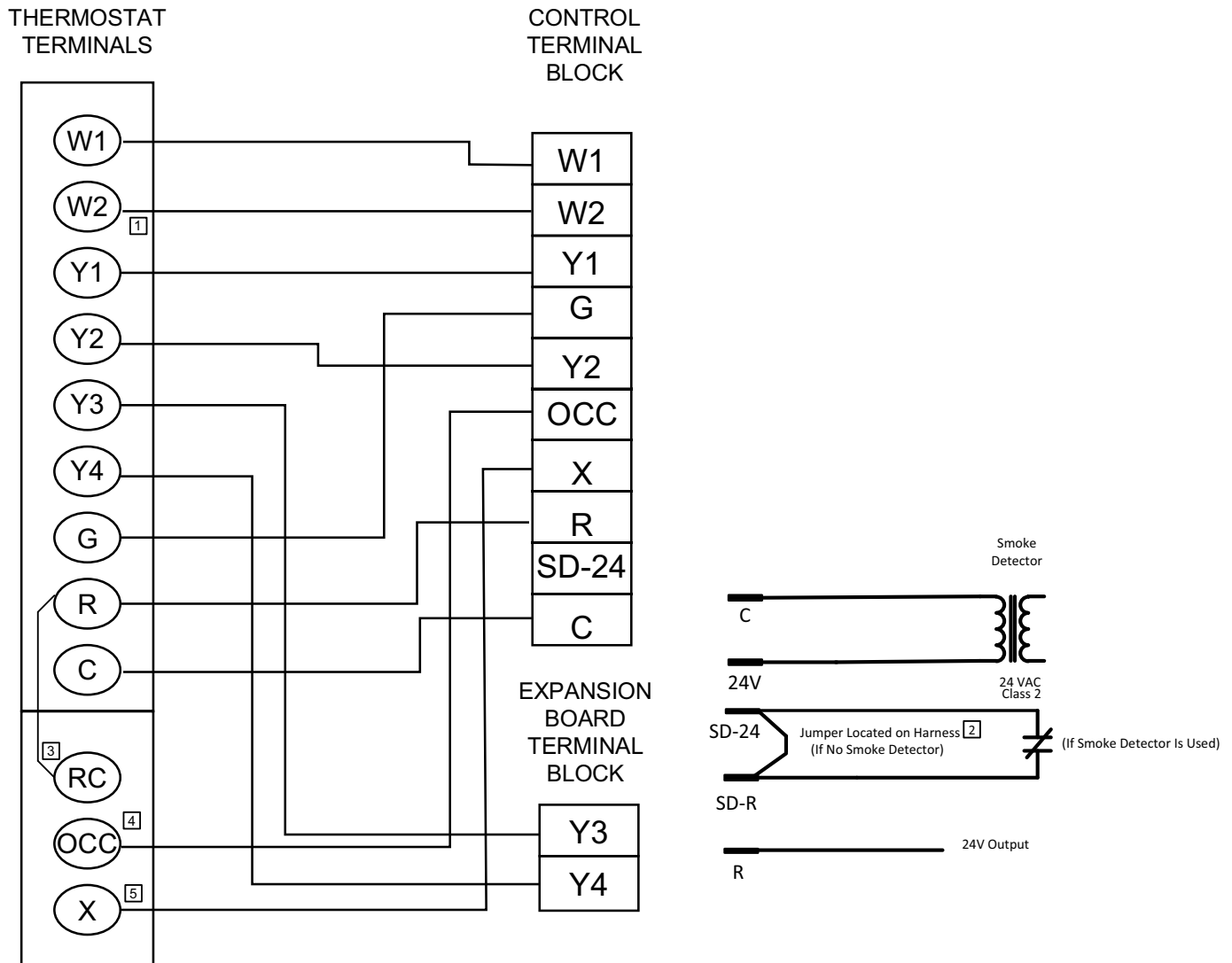
**ZF180-300 - Low Static Drive With Powered Convenience Outlet**

Size (Tons)	Volt	Compressors (each)						OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat (Field Installed Accessory Only)				MCA <sup>1</sup> (Amps)	Max Fuse <sup>2</sup> / Breaker <sup>3</sup> Size (Amps)
		RLA		LRA		MCC					FLA	FLA	FLA	Model		
		C1	C2	C1	C2	C1	C2									
300 (25)	208-3-60	45.7	43.6	304	267	64	61	4.1	20	10	NONE	-	-	-	138.9	175
											E18	13.5	1	37.5	138.9	175
											E36	27	2	74.9	138.9	175
											E54	40.6	2	112.7	178.4	200
											E72	54.1	2	150.2	187.7	200
	230-3-60	45.7	43.6	304	267	64	64	3.9	19.4	10	NONE	-	-	-	137.9	175
											E18	18	1	43.3	137.9	175
											E36	36	2	86.6	145	175
											E54	54	2	129.9	166.7	175
											E72	72	2	173.2	210	225
	460-3-60	21.4	20.7	147	142	30	29	2.15	9.7	5	NONE	-	-	-	66.5	80
											E18	18	1	21.7	66.5	80
											E36	36	2	43.3	72.5	80
											E54	54	2	65	83.3	90
											E72	72	2	86.6	105	110
	575-3-60	18.6	17.1	122	103	26	24	1.6	7.8	4	NONE	-	-	-	55.4	70
											E18	18	1	17.3	55.4	70
											E36	36	2	34.6	58.1	70
											E54	54	2	52	66.7	70
											E72	72	2	69.3	84	90

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

## ZJ/ZR/ZF180-300 Wiring Diagrams

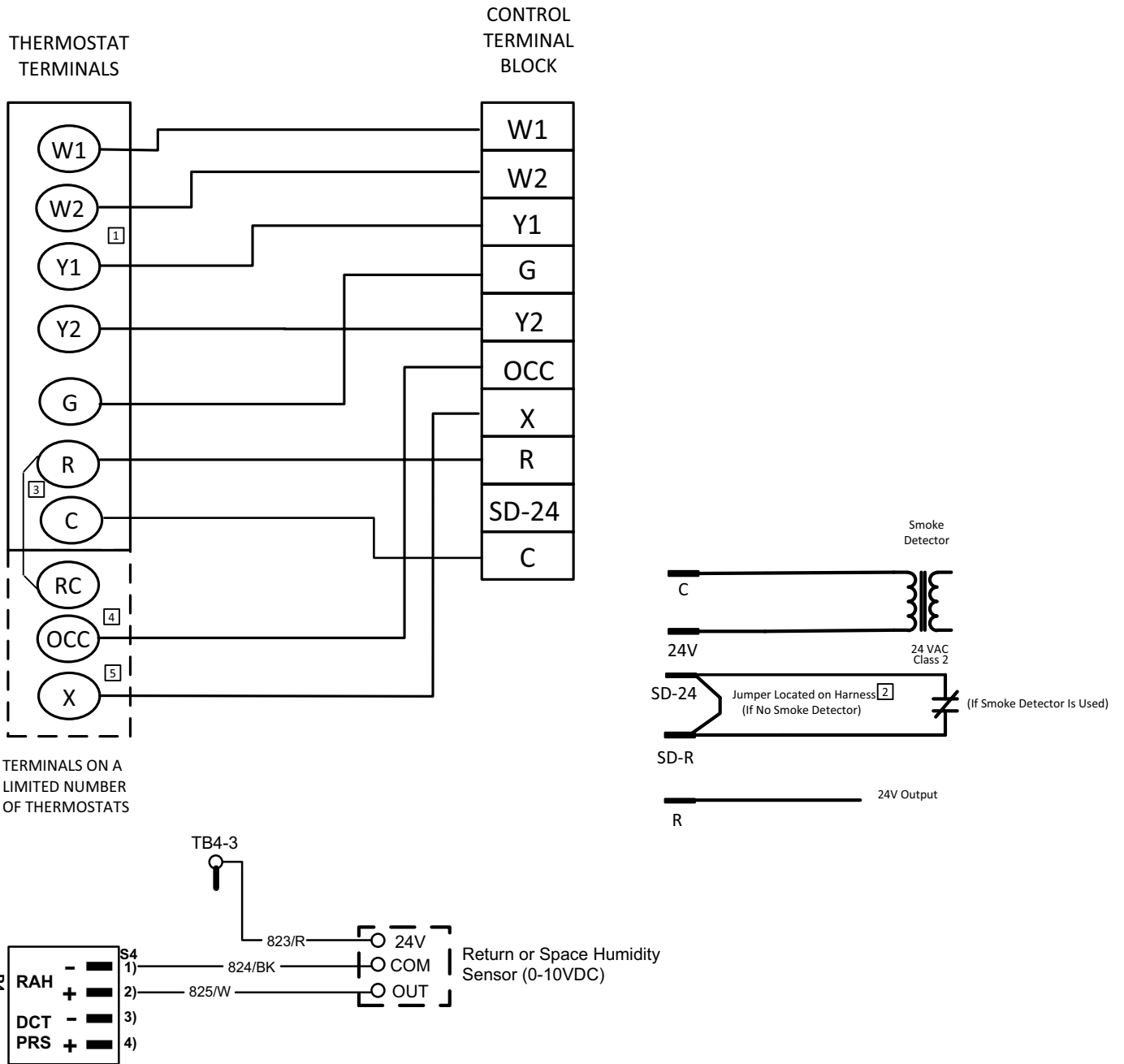
### ZJ180-300 Typical Control Diagram



TERMINALS ON  
A LIMITED  
NUMBER OF  
THERMOSTATS

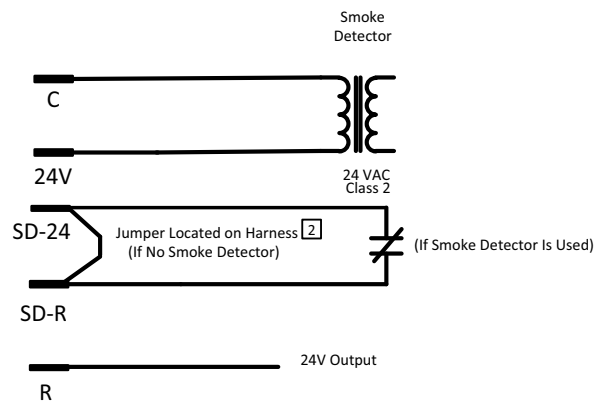
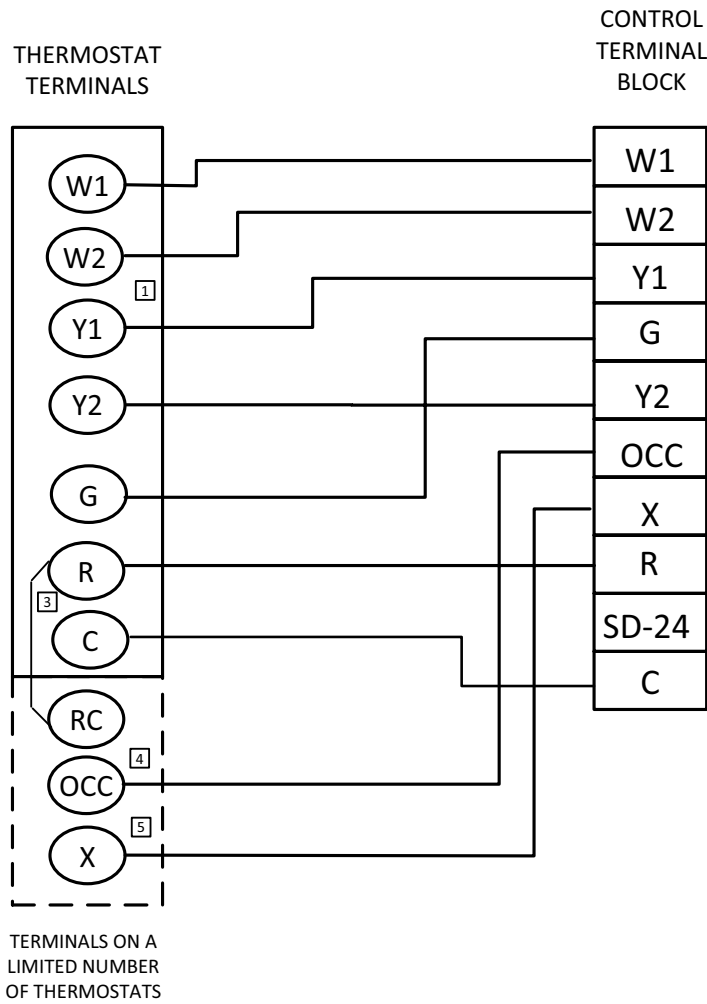
- 1 Second stage heating not required on single stage heating units.
- 2 Jumper is required if there is no Smoke Detector circuit.
- 3 Jumper is required for any combination of R, RC, or RH.
- 4 OCC is an output from the thermostat to indicate the Occupied condition.
- 5 X is an input to the thermostat to display Error Status conditions.

**ZR180-300 Typical Control Diagram**



- [1] Second stage heating not required on single stage heating units.
- [2] Jumper is required if there is no Smoke Detector circuit.
- [3] Jumper is required for any combination of R, RC, or RH.
- [4] OCC is an output from the thermostat to indicate the Occupied condition.
- [5] X is an input to the thermostat to display Error Status conditions.

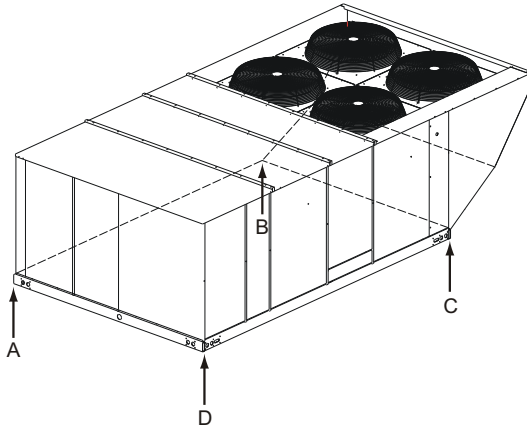
ZF180-300 Typical Control Diagram



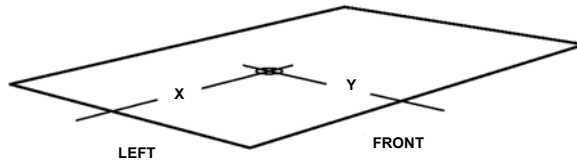
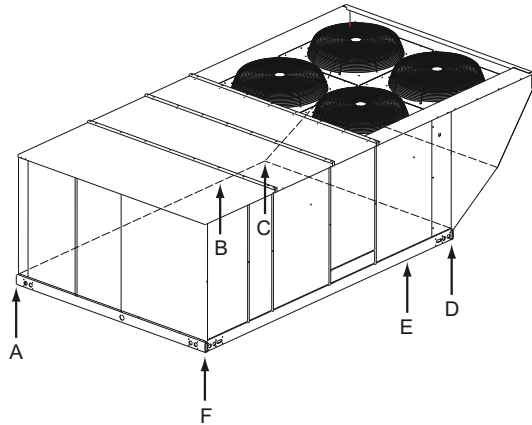
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## Weights and Dimensions

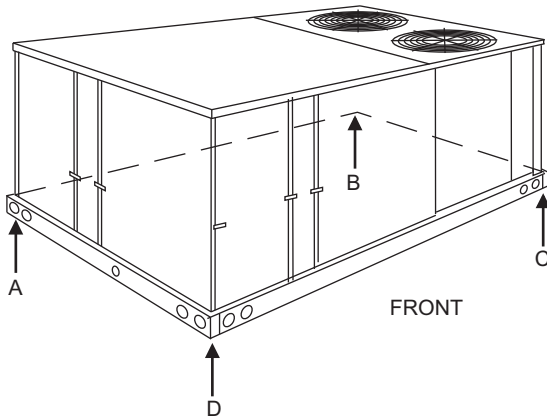
ZJ/ZR Unit 4 Point Load Weight



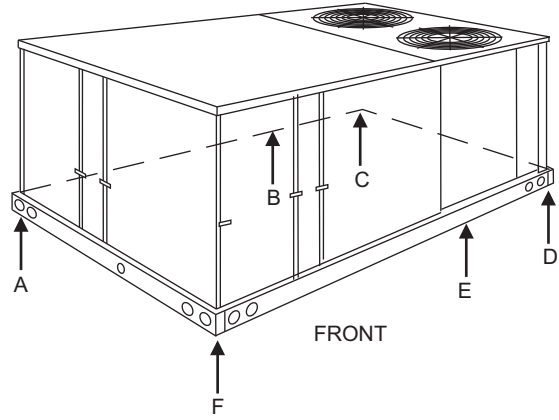
ZJ/ZR Unit 6 Point Load Weight



ZF Unit 4 Point Load Weight



ZF Unit 6 Point Load Weight



ZJ/ZR/ZF180-300 Unit Weights

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
180 (15)	ZJ	2614	2609	85.25	44	467	781	852	510	287	392	568	620	428	313
210 (17.5)	ZJ	2670	2665	85.25	44	477	797	870	520	293	401	580	633	437	320
240 (20)	ZJ	2702	2697	85.05	44	485	805	878	529	298	406	585	638	443	326
300 (25)	ZJ	2788	2783	85.25	44	498	833	908	544	306	419	606	661	457	334
180 (15)	ZR	2365	2360	85.25	44	422	706	770	461	260	355	514	561	387	284
240 (20)	ZR	2665	2660	85.05	44	478	794	866	522	294	401	477	630	437	321
300 (25)	ZR	2765	2760	85.25	44	494	826	901	539	304	415	601	656	453	332
180 (15)	ZF	1875	1870	65.26	45	438	477	498	458	288	304	322	337	318	301
210 (17.5)	ZF	2011	2006	70.98	45	470	511	534	491	309	327	346	361	341	323
240 (20)	ZF	2538	2533	70	44	589	622	679	643	389	404	419	457	440	425
300 (25)	ZF	2602	2597	70	44.5	611	645	689	652	403	418	434	464	447	431



**ZJ/ZR/ZF180-300 Unit Accessory Weights**

Unit Accessory	Weight (lbs.)	
	Shipping	Operating
Economizer	165	160
Power Exhaust	90	85
Electric Heat <sup>1</sup>	40	40
Gas Heat <sup>2</sup>	240	240
Double Wall	260	260
Motorized Damper	150	150
Barometric Damper	50	45
Econ./Motorized Damper Rain Hood	60	55
Econ./Power Exhaust Rain Hood	95	90
Wood Skid	220	220
Roof Curb	190	185
Hot Gas Bypass	10	10
Supply Fan VFD	See Supply Fan VFD Weights	

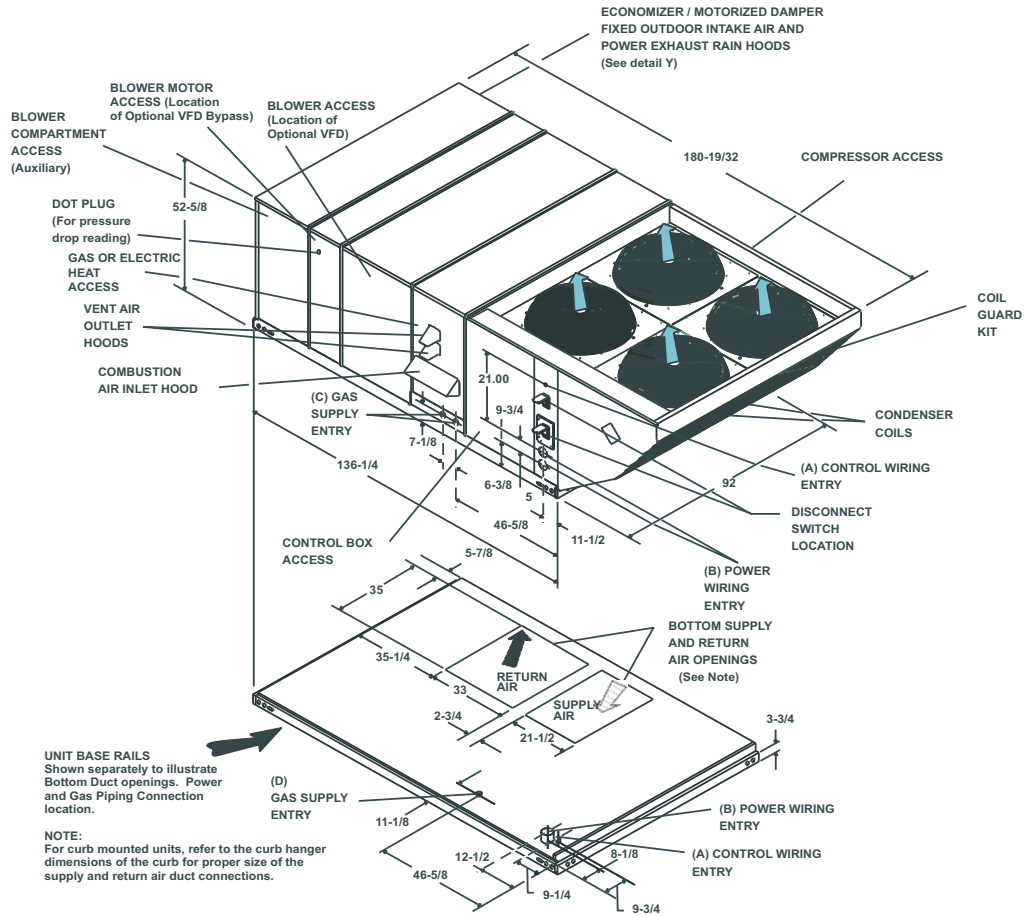
1. Weight given is for the maximum heater size available (72KW).
2. Weight given is for the maximum number of tube heat exchangers available (8 tube).

**Supply Fan VFD Weights, in Lbs.**

Supply Fan Motor	230V	460V	575V
W/O Manual Bypass			
5.0 hp	25	25	30
7.5 hp	30	30	30
10.0 hp	30	30	35
15.0 hp	30	30	40
W/Manual Bypass			
5.0 hp	30	30	35
7.5 hp	35	35	35
10.0 hp	35	35	40
15.0 hp	40	35	45

## Unit Dimensions

### Z/JZR Unit Dimensions Front View



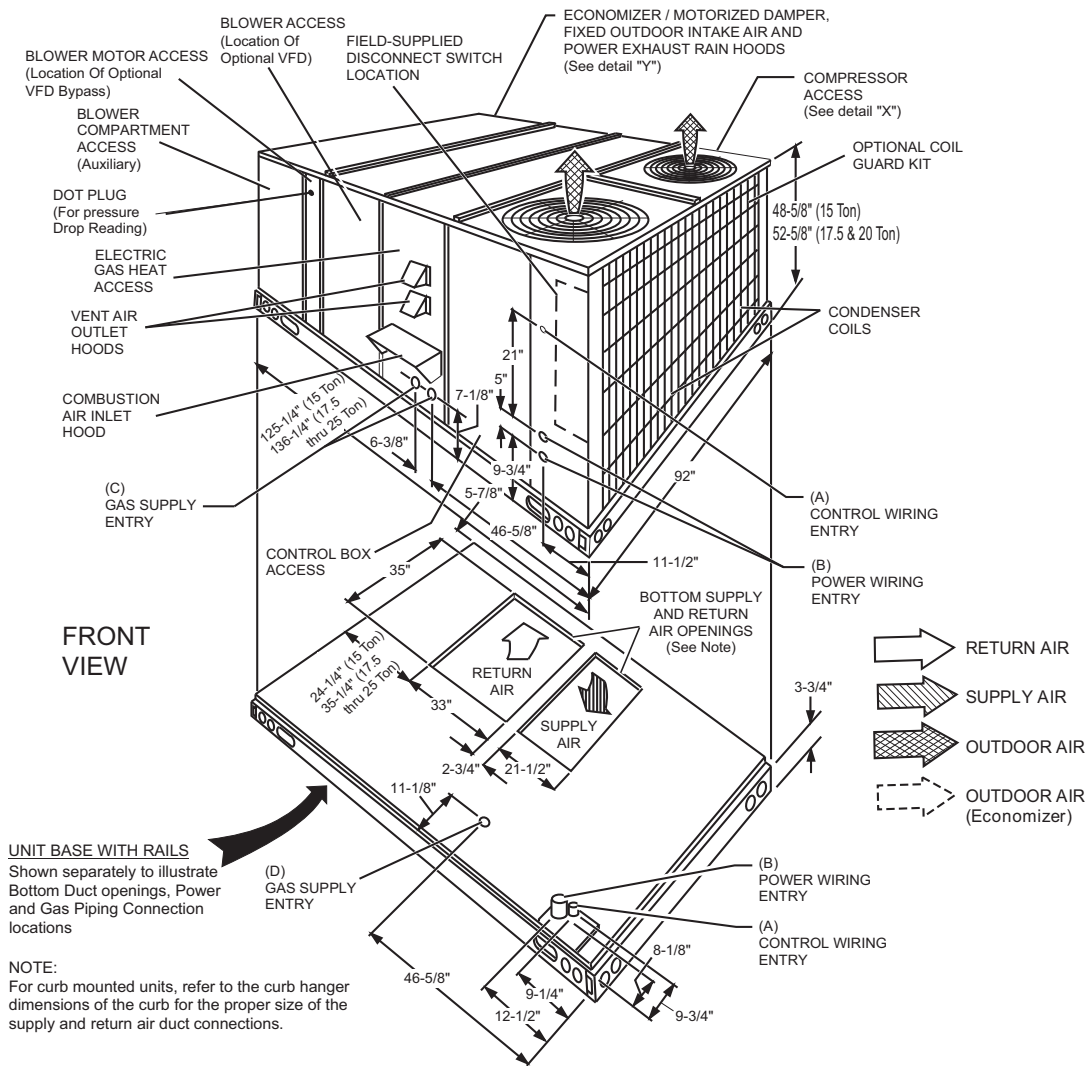
### Utilities Entry

Hole	Opening Size Diameter	Used For	
A	1-1/8" KO	Control Wiring	Front
	3/4" NPS (Fem.)		Bottom
B	3-5/8" KO	Power Wiring	Front
	3" NPS (Fem.)		Bottom
C	2-3/8" KO	Gas Piping (Front) <sup>1</sup>	
D	1-11/16" Hole	Gas Piping (Bottom) <sup>1,2</sup>	

1. One-inch Gas Piping NPT Required.
2. Opening in the bottom to the unit can be located by the slice in the insulation.

**NOTE:** All entry holes should be field sealed to prevent rain water entry into the building.

**ZF Unit Dimensions Front View**

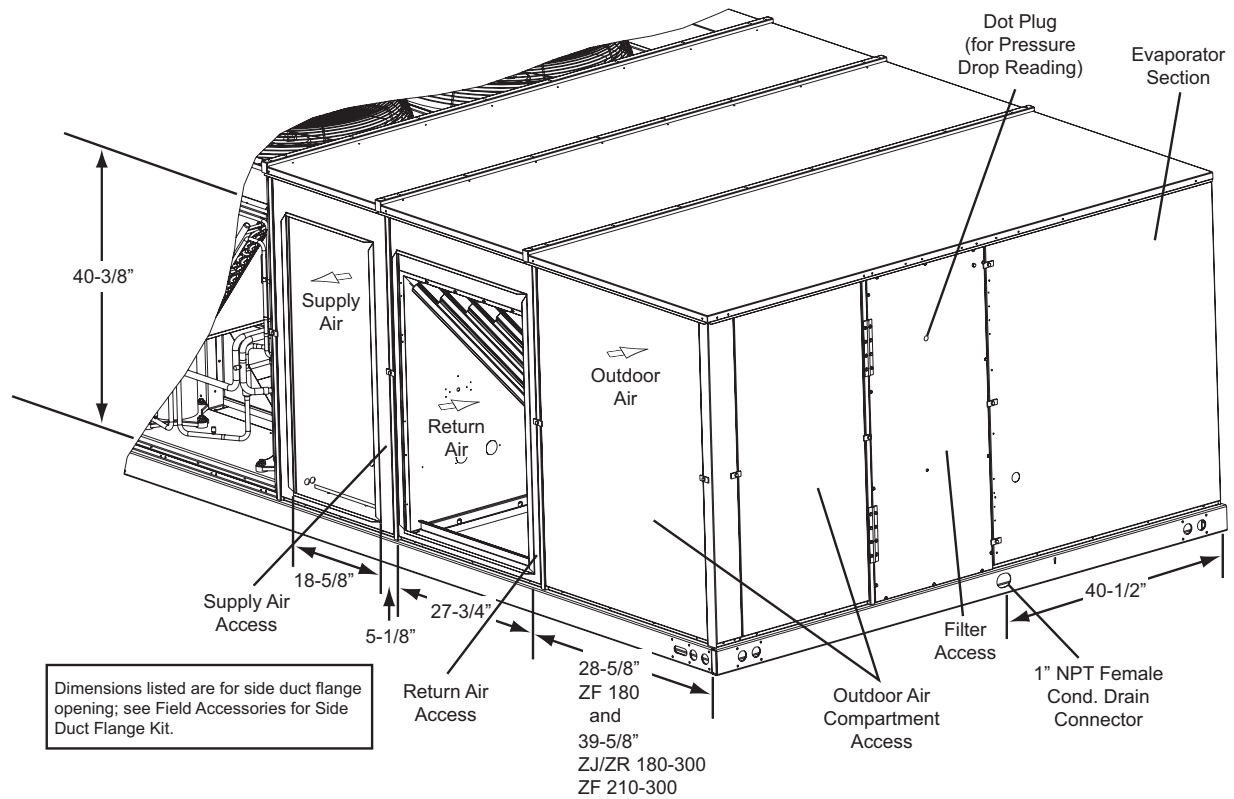


**Utilities Entry**

Hole	Opening Size Diameter	Used For	
A	1-1/8" KO	Control Wiring	Front
	3/4" NPS (Fem.)		Bottom
B	3-5/8" KO	Power Wiring	Front
	3" NPS (Fem.)		Bottom
C	2-3/8" KO	Gas Piping (Front) <sup>1</sup>	
D	1-11/16" Hole	Gas Piping (Bottom) <sup>1,2</sup>	

1. One-inch Gas Piping NPT Required.
  2. Opening in the bottom to the unit can be located by the slice in the insulation.
- NOTE:** All entry holes should be field sealed to prevent rain water entry into the building.

## ZJ/ZR/ZF Unit Dimensions Rear View



**NOTE:** Units are shipped with the bottom duct openings covered. An accessory flange kit is available for connecting side ducts.

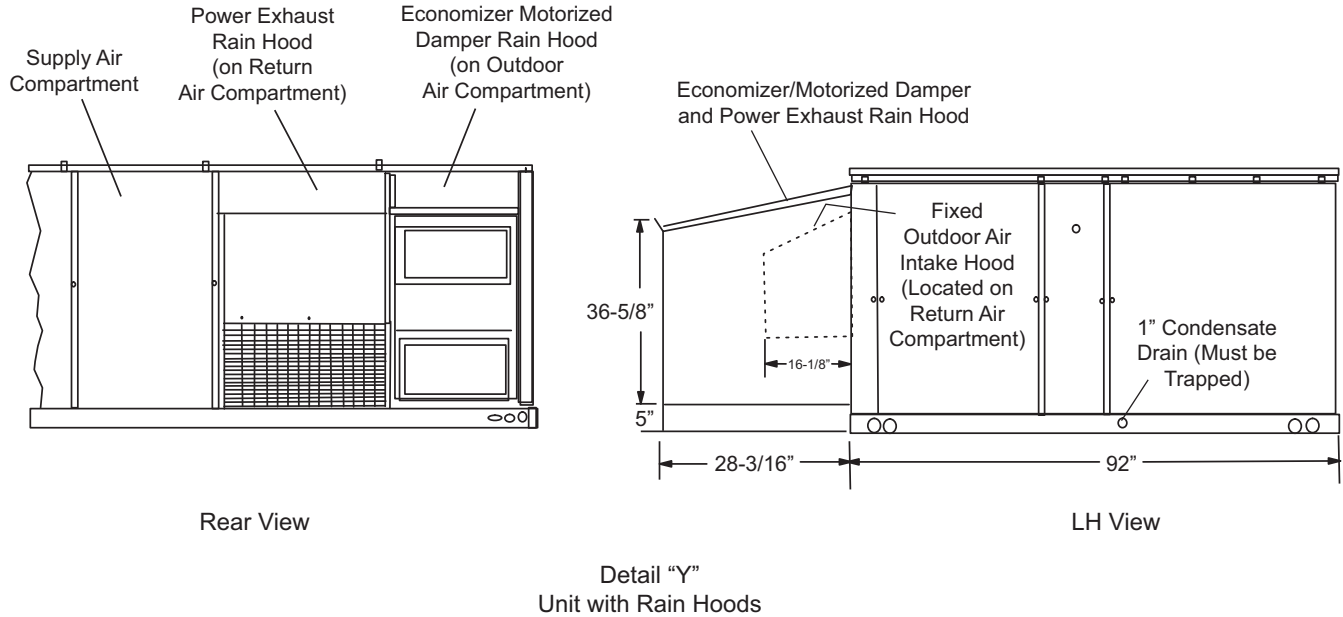
**For bottom duct applications:**

1. Remove the side panels from the supply and return air compartments to gain access to the bottom supply and return air duct covers.
2. Remove and discard the bottom duct covers. Duct openings are closed with sheet metal covers except when the unit includes a power exhaust option. The covering consists of a heavy black paper composition.
3. Replace the side supply and return air compartment panels.

**For side duct applications:**

1. Replace the side panels on the supply and return air compartments with the accessory flange kit panels.
2. Connect ductwork to the flanges on those panels.

### ZJ/ZR/ZF Unit Dimensions Rain Hood



### ZJ/ZR/ZF180-300 Unit Clearances

Direction	Distance (in.)	Direction	Distance (in.)
Top <sup>1</sup>	72 With 36 Maximum Horizontal Overhang (For Condenser Air Discharge)	Right	36
Front	36	Bottom <sup>2</sup>	0
Rear	24 (W/O Economizer)	Left	24 (W/O Economizer)
	49 (W/Economizer)		36 (W/Economizer) <sup>3</sup>

- Units must be installed outdoors. Over hanging structure or shrubs should not obscure condenser air discharge outlet.
- Units may be installed on combustible floors made from wood or class A, B or C roof covering materials.
- If economizer is factory installed, the unassembled rain hood must be removed from its side along position in front of the evaporator coil, or in the outdoor air compartment, prior to final installation.

**Note:** ELEC/ELEC Models: Units and ductwork are approved for zero clearance to combustible material when equipped with electric heaters.

GAS/ELEC Models: A 1" clearance must be provided between any combustible material and the supply air ductwork for a distance of 3 feet from the unit.

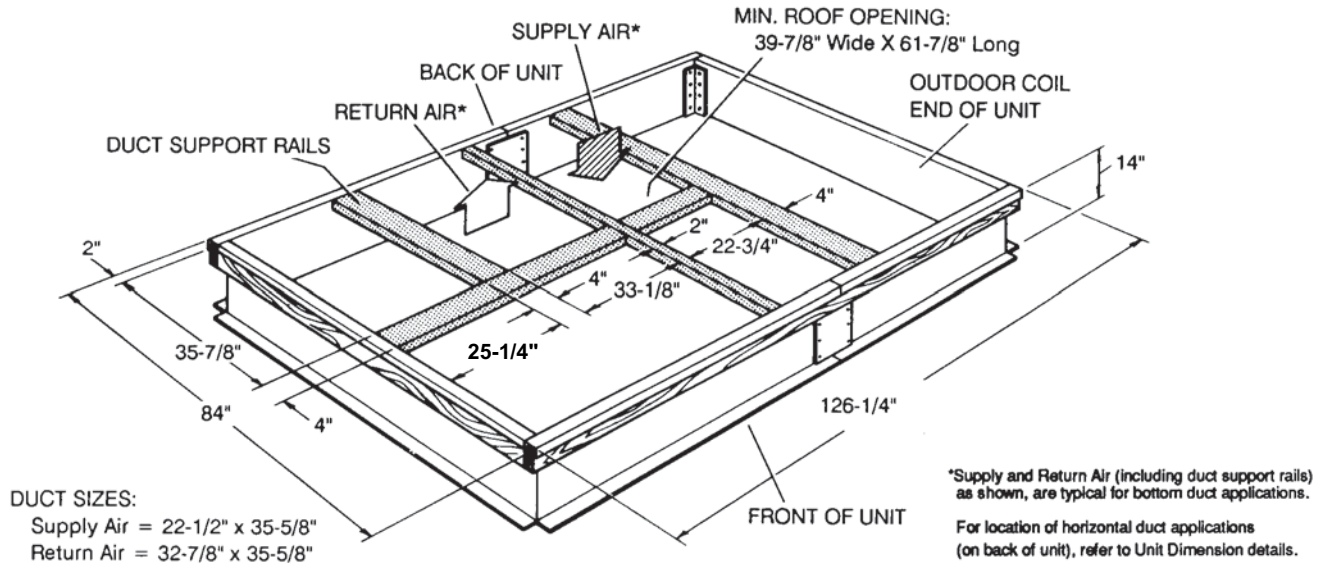
The products of combustion must not be allowed to accumulate within a confined space and recirculate.

Locate unit so that the vent air outlet hood is at least:

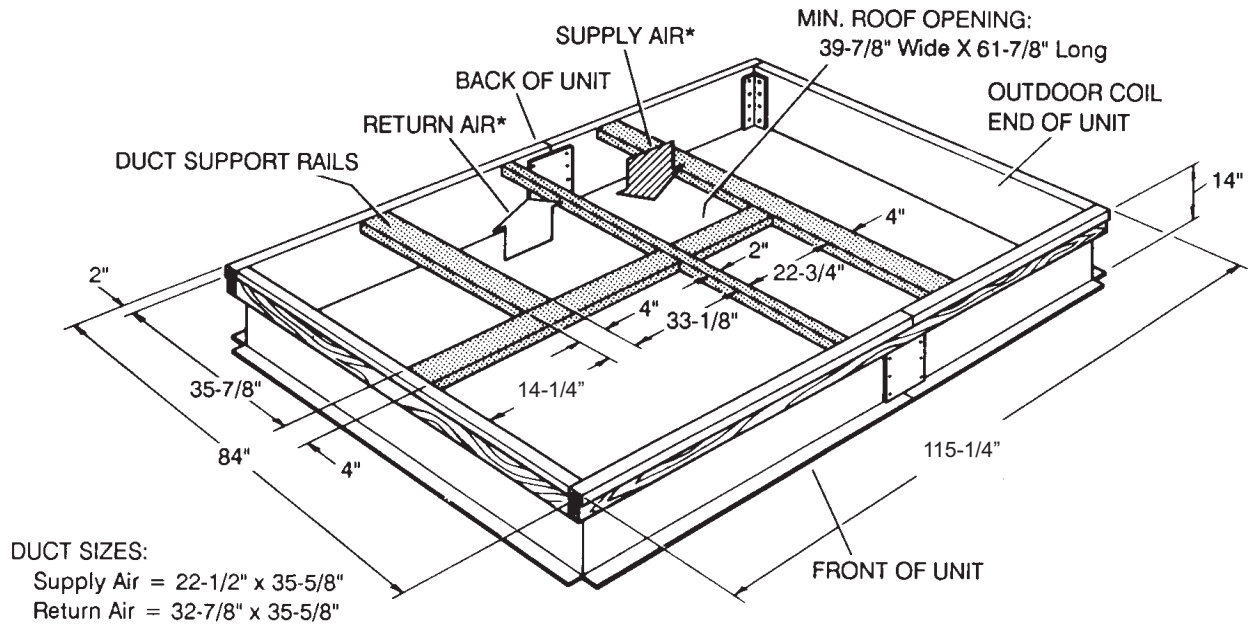
- Three (3) feet above any force air inlet located within 10 horizontal feet (excluding those integral to the unit).
- Four (4) feet below, four horizontal feet from, or one foot above any door or gravity air inlet into the building.
- Four (4) feet from electric and gas meters, regulators and relief equipment.

**Unit Accessory Dimensions**

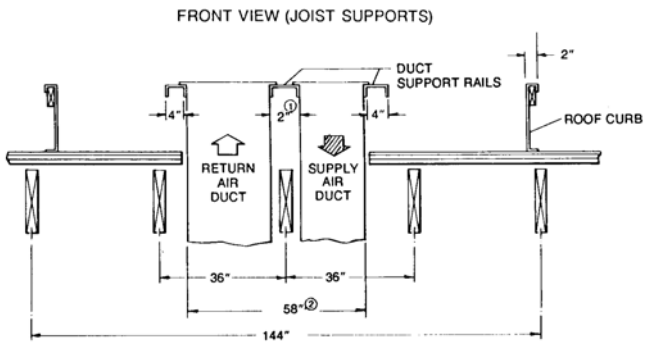
**ZJ/ZR180-300, ZF210-300 Roof Curb**



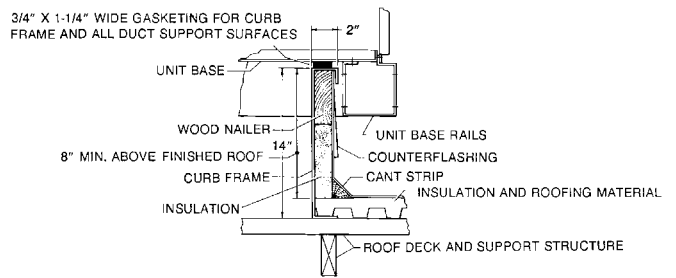
**ZF180 Roof Curb**



## ZJ/ZR/ZF180-300 Roof Curb Duct Openings



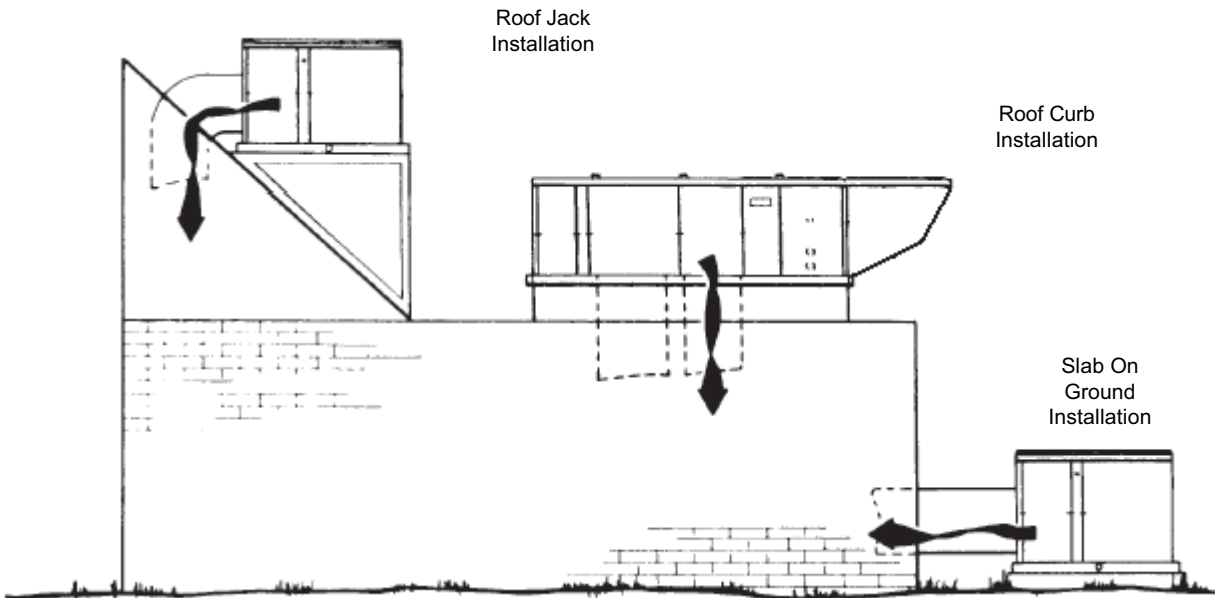
## ZJ/ZR/ZF180-300 Cut Away of Roof Curb



1. The 2" space between the ducts allows for "jumping" an existing roof joist.
2. The 58-1/2" overall dimension of the ducts allows ductwork penetration between roof joists that are spaced on 72" centers.

**NOTE:** Ducts can be installed into the curb from the roof. All electrical and gas line connections can be made inside the curb.

## ZJ/ZR/ZF180-300 Typical Installation



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