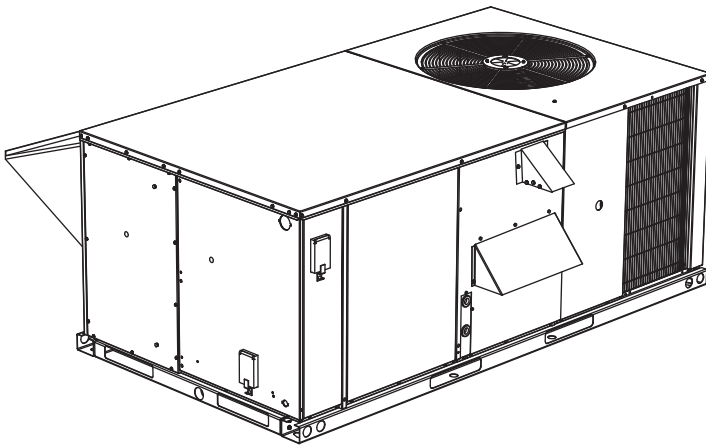




Heating and Air Conditioning TECHNICAL GUIDE

R-410A ZJ / ZR / XP SERIES 3 - 5 TON 60 Hertz



Description

YORK® ZJ/ZR/XP Series units are convertible single package high efficiency rooftops with a common roof curb for the 3, 4 and 5 Ton sizes. 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.

All ZJ/ZR/XP Series 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 Series units are available in the following configurations: cooling only, cooling with electric heat, and cooling with one or two stage gas heat. Electric heaters are available as factory-installed option or field installed accessory.

XP Series units are available in the following configurations: cooling and heating only and cooling and heating with electric heat.

Tested in accordance with:



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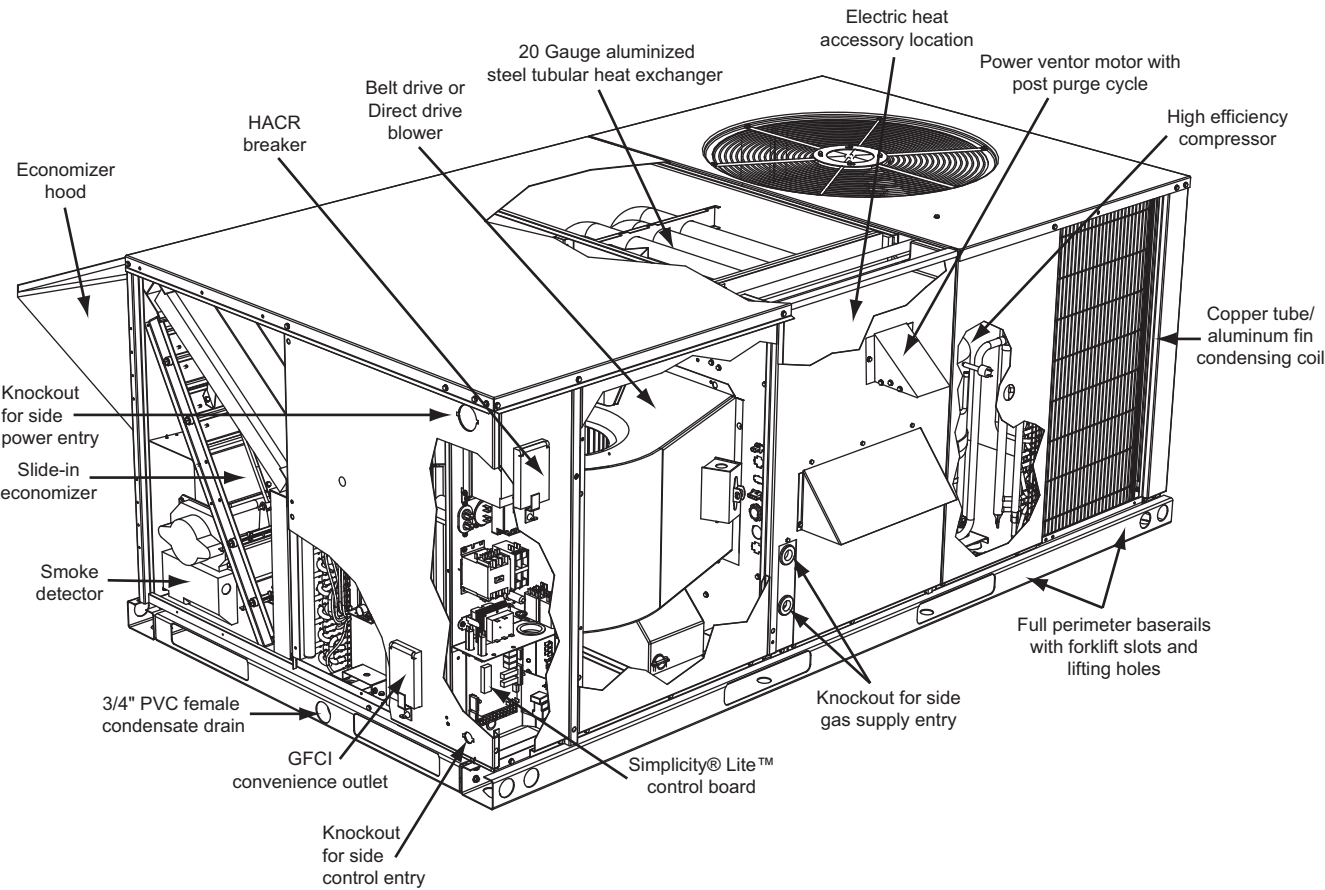
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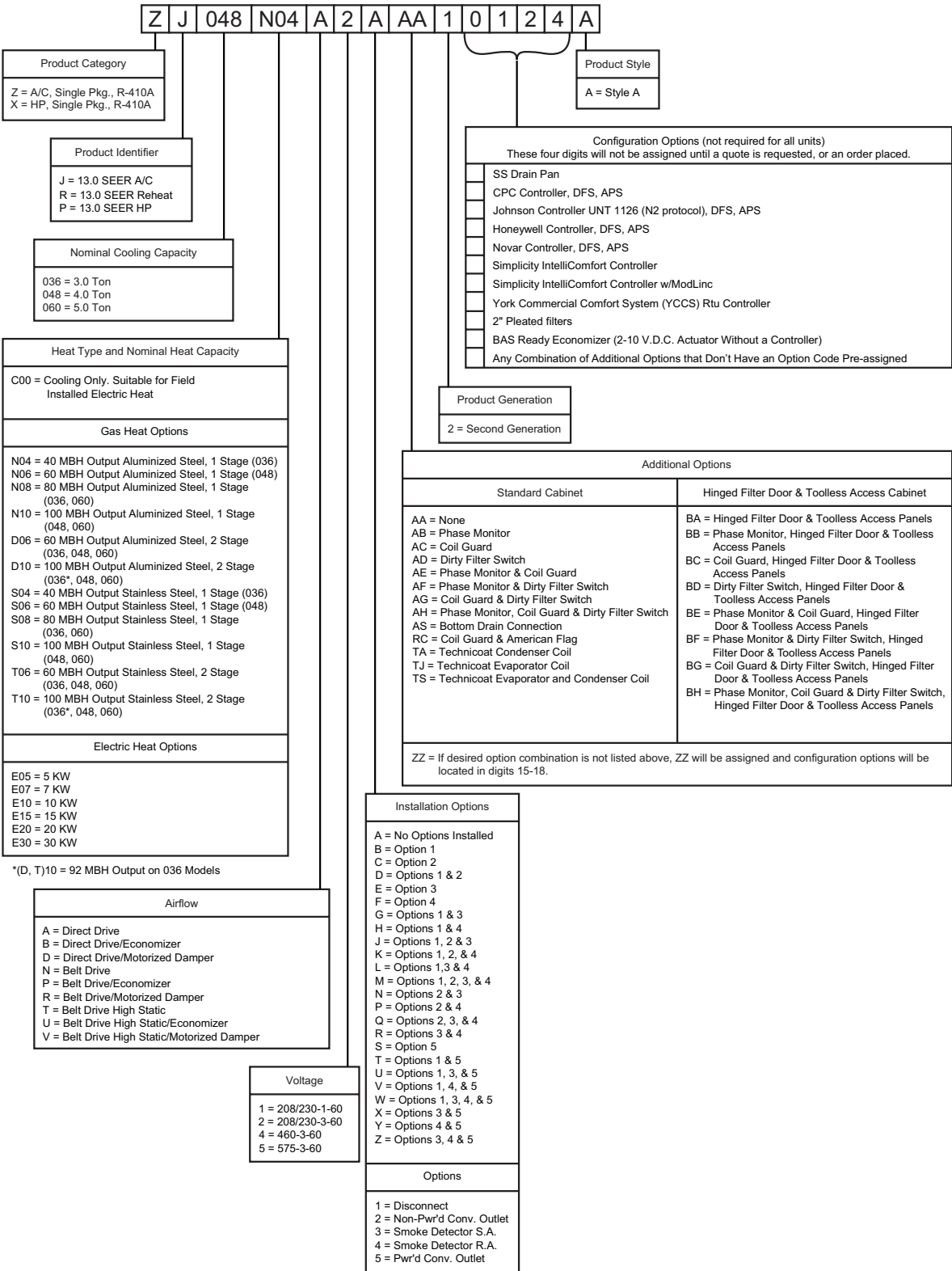
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Component Location

Gas/Electric



Nomenclature



Features and Benefits

Standard Features

- **High Efficiency** - High efficiency units reach 13.0 SEER. Gas/electric units have electronic spark ignition and power vented combustion with steady state efficiencies of 80%. High efficiency heat pumps reach 13 SEER and 7.7 H.S.P. F. These efficiencies exceed all legislated minimum levels and provide low operating costs.
- **Convertible Airflow Design** - All models (including those with an economizer) are suitable for either bottom or horizontal duct connections. For bottom duct, remove the sheet metal panels from the supply and return air openings through the base of the unit. For horizontal duct, remove the supply and return air panels on the rear of the unit.
- **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.
- **Advanced Controls** - The Simplicity® Lite™ control boards have standardized a number of features previously available only as options or by utilizing additional controls.
- **Low Ambient** - An integrated low-ambient control allows all units to operate in the cooling mode down to 0°F outdoor ambient without additional assistance. Optionally, the control board can be programmed to lockout the compressors when the outdoor air temperature is low or when free cooling is available.

CAUTION

The *Simplicity*® 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.

- **Anti-Short Cycle Protection** - To aid compressor life, an anti-short cycle delay is incorporated into the standard controls. Compressor reliability is further ensured by programmable minimum run times. For testing, the anti-short cycle delay can be temporarily overridden with the push of a button.
- **Fan Delays** - Fan on and fan off delays are fully programmable. Furthermore, the heating and cooling

fan delay times are independent of one another. All units are programmed with default values based upon their configuration of cooling and heat.

- **Safety Monitoring** - The control board monitors the high and low-pressure switches, the freezestats, the gas valve, if applicable, and the temperature limit switch on gas and electric heat units. The unit control board will alarm on ignition failures, compressor lockouts and repeated limit switch trips.
- **Nuisance Trip Protection and Strikes** - To prevent nuisance trouble calls, the control board uses a “three times, you’re out” philosophy. The high and low-pressure switches and the freezestats must trip three times within two hours before the unit control board will lock out the associated compressor.
- **On Board Diagnostics** - Each alarm will energize a trouble light on the thermostat, if so equipped, and flash an alarm code on the control board LED. Each high and low-pressure switch alarm as well as each freezestat alarm has its own flash code. The control board saves the five most recent alarms in memory, and these alarms can be reviewed at any time. Alarms and programmed values are retained through the loss of power.
- **Reliable** - From the beginning - All units undergo computer automated testing before they leave the factory. Units are tested for refrigerant charge and pressure, unit amperage, and 100% functionality. For the long term - All ZJ/ZR/XP Series units are painted with a long lasting, powder paint that stands up over the life of the unit. The paint used has been proven by a 1000 hour salt spray test.
- **Flexible Placement** - All models and configurations share the same cabinet/footprint and thus the same roof curb. You have the flexibility to set one curb and choose the correct tonnage size and heating option after the internal loads have been determined.
- **Full Perimeter Base Rails** - The permanently attached base rails provide a solid foundation for the entire unit and protect the unit during shipment. The rails offer forklift access from 3 sides, and rigging holes are available so that an overhead crane can be used to place the units on a roof.
- **Easy Installation** - Gas and electric utility knockouts are supplied in the unit underside as well as the side of the unit. A clearly identified location is provided to mount a field supplied electrical disconnect switch. Utility connections can be made quickly and with a minimum amount of field labor.
- **Wide Range of Indoor Airflows** - Indoor fan motors are either direct-drive or belt-drive type providing maximum flexibility to handle most airflow requirements.
- **Gas Heat Operation** - All single phase models with gas heat have minimum annual fuel utilization efficiency (AFUE) of 80%. All three phase models with gas heat have minimum steady state efficiency of 80%. 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 Operation - All electric heat models 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 temperature by thermal limit switches.

The power supply wiring can be routed into the control box through a threaded pipe connection (field supplied) in the base pan of the unit or through a knockout in the wiring panel on the side of the unit.

- **Warranty** - All models include a 1-year limited warranty on the complete unit. Compressors and electric heater elements each carry a 5-year warranty. Aluminized steel and stainless steel tubular heat exchangers carry a 10-year warranty.

Factory Installed Options

- **Single Input Electronic Enthalpy Economizers** -

Includes a slide-in / plug-in damper assembly with fully modulating spring-return motor actuator capable of introducing up to 100% outdoor air with nominal 1% leakage type dampers.

The enthalpy system contains one sensor that monitors the outdoor air and determines when the air is cool enough and dry enough to provide free cooling.

The rain hood is painted to match the basic unit and must be field-assembled before installing.

- **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.

- **Phenolic Coated Evaporator And Condenser Coils** - Special coating process that utilizes Technicoat 10-1™ processes. Coating is applied by total immersion of the complete coil for maximum protection.
- **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.
- **Filter Options** - Standard units are shipped with 1" throw-away filters installed. 2" 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 the unit may be ordered with a "non-powered" convenience outlet that can be wired in the field.

- **Disconnect Switch** - For gas heat units and cooling units with electric heat, a HACR breaker sized to the unit is provided. For cooling only units, a switch sized to the largest electric heat available for the particular unit is provided. Factory installed option only.
- **Smoke Detectors** - (supply air & return air) The smoke detectors stop operation of the unit by interrupting power to the control board 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.
- **Bottom Drain Connection** - An optional bottom drain connection is available for inside the curb connections for applications in cold environments to reduce freezing drain lines.
- **Phase Monitors** - Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of phase condition.
- **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/"Toolless" Blower And Access Panels (Not Hinged)** - This option allows for easy access and maintenance.

NOTE: Knobs are shipped inside the unit to prevent shipping damage. These must be field installed for tool-less operation.

- **High Static Drive** - May include a belt, blower pulley, motor pulley or a motor change to enhance blower performance.

Control Options

- **BAS - Building Automation System Controls Simplicity® INTELLI-Comfort™ Control** - The York® Simplicity® INTELLI-Comfort™ control is factory installed. It includes a

supply air sensor, a return air sensor, and an outside air sensor. There are provisions for a field installed dirty filter indicator switch, an air-proving switch, an Outside Air Humidity sensor, a Return Air Humidity sensor, an Inside IAQ sensor, and an Outside Air IAQ sensor. Construction mode operation, 365-day real time clock with 7 day programming plus holiday scheduling is built-in. Two different modes of demand ventilation are achieved through the INTELLI-Comfort™ using CO₂ sensors. It uses an inside CO₂ sensor to perform Demand Ventilation. It can also use an Outside CO₂ sensor to perform Differential Demand Ventilation. It uses a Patented Comfort Ventilation algorithm to provide comfortable ventilation air temperature. The patented economizer-loading algorithm will protect the equipment when harsh operating conditions exist. Humidity in the occupied space or return duct can be monitored and controlled via humidity sensors and the on-board connection for hot gas re-heat system. It uses the INTELLI-Start™ algorithm to maximize energy savings by recovering the building from the Unoccupied Setpoints to the Occupied Setpoints just in time for the Occupied Time Period to begin. The Simplicity® INTELLI-Comfort™ balances space temperature, ventilation air temperature, CO₂ and humidity for ultimate comfort.

- **Simplicity® INTELLI-Comfort™ with ModLINC Control** - The York® Simplicity® INTELLI-Comfort™ with ModLINC control is factory installed. It includes all the features of the INTELLI-Comfort™ control with an additional control to translate communications from MODBUS to the BACnet MSTP protocol.
- **Novar® BAS Control** - The Novar® building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **Johnson Controls BAS Control** - The Johnson Control YK-UNT-1126 building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **CPC BAS Control** - The Computer Process Controls Model 810-3060 ARTC Advanced Rooftop building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch and air proving switch.
- **Honeywell BAS Control** - The Honeywell W7750C building automation system controller is factory installed. Includes air supply sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **York Commercial Comfort System (YCCS)** - Provides rooftop system integration for YCCS single zone and change-over bypass systems.

Field Installed Accessories

- **Single Input Electronic Enthalpy Economizers** - Includes a slide-in / plug-in damper assembly with fully modulating spring-return motor actuator capable of introducing up to 100% outdoor air with nominal 1% leakage type dampers.

The enthalpy system contains one sensor that monitors the outdoor air and determines when the air is cool enough and dry enough to provide free cooling.

The rain hood is painted to match the basic unit and must be field-assembled before installing.

- **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.

- **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.
- **Roof Curbs** - Eight and 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.
Roof curbs are 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.
- **Low Nox Kit** - Required to reduce the emission of nitrogen oxides below 40 nano grams per joule.
- **Power Exhaust** - Our single input 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 power exhaust option can only be used on bottom duct configurations.
- **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.
- **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.
- **CO₂ Sensor** - Senses CO₂ 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.
- **Hail Guard** - Hail Guard kit is available to prevent unit from hail damage. This is a sloped hood that fits above the coil.
- **Gas Piping Kit** - This kit supplies all necessary fittings and shut off valve.

Guide Specifications

General

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

York's ZJ/ZR/XP units are convertible single package units. 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, cooling with gas heat and cooling with electric 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, remove the supply and return air panels on the rear of the unit.

All non-Scroll compressors include crankcase heaters and all compressors have internal pressure relief. Every refrigerant circuit includes a liquid line filter-drier, a discharge line high pressure switch and a suction line with a freeze-stat 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 a compressor lockout circuit, a terminal strip for thermostat wiring, plus an additional set of pin connectors to simplify the interface of additional field controls. All models are CSA listed. All models include a 1-year limited warranty on the complete unit. Compressors and electric heater elements carry a 5-year warranty. Aluminized steel and Stainless steel tubular heat exchangers carry a 10-year warranty.

Description

Units shall be factory-assembled, single packaged, Electric Cooling/Gas Heat, Electric Cooling/Optional Electric Heat, Heat Pump/Optional Electric Heat and are designed for outdoor mounted installation.

The 3 ton, 4 ton and 5 ton units shall have minimum SEER rating of 13.0 with heat pumps having a 7.7 H.S.P.F. 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 the cooling performance shall be rated in accordance with DOE and ARI test procedures. Units shall be CSA listed, classified to ANSI Z21.47, UL 1995/CSA No. 236 standards.

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 1" filters shall be furnished and be accessible through a removable access door, sealed airtight. Units filter track shall be designed to accommodate either 1" or 2" 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 3/4" I.D. female and be a ridged mount connection.

Indoor (Evaporator) Fan Assembly

The indoor fan shall be a factory installed direct-drive or belt-drive assembly that includes 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. Bearings shall be sealed and permanently lubricated for longer life and no maintenance.

Outdoor (Condenser) Fan Assembly

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

Refrigerant Components

Compressor:

- Shall be internally protected with internal high-pressure relief and over temperature protection.
- Shall have internal spring isolation and sound muffling to minimize vibration and noise, and be externally isolated on a dedicated, independent mounting.

Coils:

- Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless internally

enhanced copper tubes with all joints brazed. Special Phenolic coating shall be available as a factory option.

- b. Evaporator and Condenser coils shall be of the direct expansion, draw-thru, design.

Refrigerant Circuit and Refrigerant Safety Components shall include:

- a. Independent fixed-orifice or thermally operated expansion devices.
- b. Filter drier/strainer to eliminate any moisture or foreign matter.
- c. Accessible service gage connections on both suction and liquid 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.

Unit Controls

- a. Unit shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-volt transformer side.
- b. Unit shall incorporate a lockout circuit which provides reset capability at the space thermostat or base unit, should any of the following standard safety devices trip and shut off compressor.
- c. Loss-of-charge/Low-pressure switch.
- d. High-pressure switch.
- e. Freeze-protection thermostat, evaporator coil.
- f. Unit shall incorporate "AUTO RESET" compressor over temperature, over current protection.
- g. Unit shall operate with conventional thermostat designs and have a low voltage terminal strip for easy hook-up.
- h. Unit control board shall have on-board diagnostics and fault code display.
- i. Standard controls shall include anti-short cycle and low voltage protection, and permit cooling operation down to 0°F.
- j. Control board shall monitor each refrigerant safety switch independently.
- k. Control board shall retain last 5 fault codes in non volatile memory which will not be lost in the event of a power loss.

Gas Heating Section (Single Or 2 Stage)

Shall be designed with induced draft combustion with post purge logic, energy saving direct spark ignition, and redundant main gas valve. Venter 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 inshot 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. Integrated control boards 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.
- d. Flame proving controls.
- e. If any of the above safety devices trip, a LED (light-emitting diode) indicator shall flash a diagnostic code that indicates which safety switch has tripped.

NOTE: All 2 Stage Gas Heat, 60% Capacity 1st Stage, 40% Capacity 2nd Stage.

Electric Heating Section

An electric heating section, with nickel chromium elements, shall be provided in a range of 5 thru 30 KW, offering two stages of capacity - 16 KW and above on 208/230 volt heaters and 20 KW and above on 460 and 575 volt heaters. 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. The heating section assembly shall slide out of the unit for easy maintenance and service. 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 ARI Standard 210/240. The compressor, with standard controls, shall be capable of operation down to 0°F outdoor temperature. Unit shall be provided with fan time delay to prevent cold air delivery before heat exchanger warms up (Gas heat only).

Electrical Requirements

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

Standard Limited Warranties

- Compressor 5 Years
- Heat Exchanger 10 Years
- Electric Heat Element 5 Years
- Other Parts 1 Year

Optional Outdoor Air

Shall be made available by either/or:

- **Electronic Enthalpy Automatic Economizer** - Outdoor and return air dampers that are interlocked and positioned by a fully-modulating, spring return damper actuator. The maximum leakage rate for the outdoor air intake dampers shall not exceed 2% when dampers are fully closed and operating against a pressure differential of 0.5 IWG. A unit-mounted potentiometer shall be provided to adjust the outdoor and return air damper assembly to take in CFM of outdoor air to meet the minimum ventilation requirement of the conditioned space during normal operation. During economizer operation, a mixed-air temperature control shall modulate the outdoor and return air damper assembly to prevent the supply air temperature from dropping below 55°F. Changeover from compressor to economizer operation shall be provided by an integral electronic enthalpy control that feeds input into the basic module. The outdoor intake opening shall be covered with a rain hood that matches the exterior of the unit. Water eliminator/filters shall be provided. Simultaneous economizer/compressor operation is also possible. Dampers shall fully close on power loss.
- **Motorized Outdoor Air Dampers** - Outdoor air dampers are positioned by a 2-position, spring-return damper actuator. The maximum leakage rate for the outdoor air intake dampers shall not exceed 2% when dampers are fully closed and operating against a pressure differential of 0.5 IWG. A unit-mounted potentiometer shall be provided to adjust the outdoor 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 Pre-engineered Accessories Available

- **Roof Curb** - 14" and 8" high, full perimeter curb with wood nailer (shipped knocked-down).
- **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.
- **Low Nox** - Required to reduce the emission of nitrogen oxides below 40 nanograms per joule.
- **Gas Piping** - Contains 1/2" pipe nipples, fittings and gas cock (including panel access gaskets) required for bottom gas supply connection with external shut off.
- **Power Exhaust Option** - To work in conjunction with economizers.
- **Electric Heaters**
- **Economizer/motorized Damper Rain Hood** - Contains all hood panels and the hardware for assembling.
- **Manual Outdoor Air Damper**
- **Coil Guard Kit** - Guard for cooling coil.
- **Hail Guard**
- **Flue Exhaust Extension**

OTHER FACTORY INSTALLED OPTIONS

- **Power Exhaust Option** - To work in conjunction with economizers.
- **Stainless Steel Heat Exchanger**
- **Stainless Steel Drain Pan**
- **Bottom Drain Connection**
- **Technicoat Phenolic Coated Condenser And Evaporator Coil**
- **Electronic Single Enthalpy Economizer**
- **Dirty Filter Switch**
- **Phase Monitor**
- **Coil Guard**
- **Powered GFI Convenience Outlet**
- **Non-powered GFI Convenience Outlet**
- **BAS Controls (Simplicity® INTELLI-Comfort™, CPC, Johnson, Honeywell, Novar, York Commercial Comfort System (YCCS))**
- **Bas Ready Economizer (2-10 V.D.C. Actuator Without a Controller)**
- **Hinged Filter Door Access And Toolless Access Panels**
- **2" Pleated Filters**
- **Disconnect Switch**
- **Supply Air Smoke Detector**
- **Return Air Smoke Detector**
- **Direct Drive Or Belt Drive Blower With High Static Drive Option**
- **Hot Gas Reheat with Hot Gas Bypass**

Physical Data

ZJ036-060 Physical Data

Component	Models											
	ZJ036				ZJ048				ZJ060			
Nominal Tonnage	3.0				4.0				5.0			
ARI COOLING PERFORMANCE												
Gross Capacity @ ARI A point (Btu)	37200				49000				60000			
ARI net capacity (Btu)	36000				47000				58500			
EER	11.0				11.0				10.8			
SEER	13.0				13.0				13.0			
IPLV	-				-				-			
Nominal CFM	1200				1600				2000			
System power (KW)	3.28				4.18				5.44			
Refrigerant type	R-410A				R-410A				R-410A			
Refrigerant charge (lb-oz)												
System 1	10-0				12-0				11-4			
ARI HEATING PERFORMANCE												
Heating model	N04	N08	D06	D10	N06	N10	D06	D10	N08	N10	D06	D10
Heat input (K Btu)	50	100	75	115	75	125	75	125	100	125	75	125
Heat output (K Btu)	40	80	60.8	92	60	100	60.8	100.6	80	100	60.8	100.6
AFUE %	80.9	80.5	-	-	80.9	80.3	-	-	80.5	80.3	-	-
Steady state efficiency (%)	-	-	81.1	80.2	-	-	81.1	80.5	-	-	81.1	80.5
No. burners	2	4	3	5	3	5	3	5	4	5	3	5
No. stages	1	1	2	2	1	1	2	2	1	1	2	2
Temperature Rise Range (°F)	15-45	45-75	35-70	55-90	25-70	45-75	25-70	45-75	25-55	35-75	20-55	35-75
Gas Limit Setting (°F) - Direct Drive	240	170	210	200	210	165	210	165	170	165	210	165
Gas Limit Setting (°F) - Belt Drive	240	210	240	200	240	210	240	210	210	210	210	210
DIMENSIONS (inches)												
Length	82 1/4				82 1/4				82 1/4			
Width	44 7/8				44 7/8				44 7/8			
Height	32 5/8				32 5/8				32 5/8			
OPERATING WT. (lbs.)	575				585				590			
COMPRESSORS												
Type	Scroll				Scroll				Scroll			
Quantity	1				1				1			
Unit Capacity Steps (%)	100				100				100			
CONDENSER COIL DATA												
Face area (Sq. Ft.)	16.9				16.9				16.9			
Rows	2				2				2			
Fins per inch	18				18				18			
Tube diameter (in.)	3/8				3/8				3/8			
Circuitry Type	Split-face				Split-face				Split-face			
EVAPORATOR COIL DATA												
Face area (Sq. Ft.)	5.06				5.06				5.06			
Rows	3				3				4			
Fins per inch	13				13				13			
Tube diameter	0.375				0.375				0.375			
Circuitry Type	Split-face				Split-face				Split-face			
Refrigerant control	TXV				TXV				TXV			

ZJ036-060 Physical Data (Continued)

Component	Models					
	ZJ036		ZJ048		ZJ060	
Nominal Tonnage	3.0		4.0		5.0	
CONDENSER FAN DATA						
Quantity	1		1		1	
Fan diameter (Inch)	24		24		24	
Type	Prop		Prop		Prop	
Drive type	Direct Drive		Direct Drive		Direct Drive	
No. speeds	1		1		1	
Number of motors	1		1		1	
Motor HP each	1/2		1/2		1/2	
RPM	1090		1090		1090	
Nominal total CFM	4200		4200		4200	
BELT DRIVE EVAP FAN DATA						
Quantity	1		1		1	
Fan Size (Inch)	12 x 10		12 x 10		12 x 10	
Type	Centrifugal		Centrifugal		Centrifugal	
Motor Sheave	1VL44	1VP56	1VL44	1VP56	1VL44	1VP56
Blower Sheave	AK64	AK66	AK56	AK61	AK56	AK56
Belt	A37	A39	A36	A38	A36	A38
Motor HP each	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	2
RPM	1725		1725		1725	
Frame size	56		56		56	
DIRECT DRIVE EVAP FAN DATA						
Quantity	1		1		1	
Fan Size (Inch)	12 x 10		12 x 10		12 x 10	
Type	Centrifugal		Centrifugal		Centrifugal	
Motor HP each	3/4		1		1	
RPM	1050		1050		1050	
FILTERS						
15" x 20" x 1" or 2"	2		2		2	
14" x 25" x 1" or 2"	1		1		1	

NOTE: All 2 Stage Gas Heat, 60% Capacity 1st Stage, 40% Capacity 2nd Stage.

Capacity Performance

ZJ036-060 Cooling Capacities

ZJ036 (3.0 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)							
				Return Dry Bulb (°F)								Return Dry Bulb (°F)							
				90	85	80	75	70	65			90	85	80	75	70	65		
		75°F									85°F								
750	77	49.3	2.2	19.9	16.7	13.4	-	-	-	45.0	2.6	18.7	15.4	12.2	-	-	-		
	72	44.6	2.2	25.0	21.7	18.4	15.1	-	-	41.2	2.6	23.7	20.5	17.3	14.0	-	-		
	67	40.0	2.3	30.0	26.7	23.4	20.1	16.8	-	37.3	2.6	28.8	25.5	22.3	19.1	15.9	-		
	62	37.0	2.3	37.0	32.4	28.6	25.3	22.0	18.7	34.4	2.6	34.4	31.7	27.5	24.3	21.1	17.8		
900	77	50.5	2.2	22.2	18.3	14.5	-	-	-	46.3	2.6	20.8	17.0	13.2	-	-	-		
	72	45.7	2.3	27.6	23.8	20.0	16.1	-	-	42.3	2.6	26.3	22.5	18.7	14.9	-	-		
	67	41.0	2.3	33.0	29.2	25.4	21.6	17.7	-	38.4	2.6	31.7	27.9	24.2	20.4	16.6	-		
	62	37.9	2.3	37.9	34.8	31.0	27.2	23.4	19.6	35.3	2.6	35.3	33.6	29.8	26.0	22.2	18.4		
	57	37.6	2.3	37.6	37.6	33.7	29.9	26.1	22.2	34.9	2.6	34.9	34.9	31.8	28.0	24.2	20.4		
1050	77	51.7	2.3	24.4	20.0	15.7	-	-	-	47.5	2.6	22.9	18.6	14.2	-	-	-		
	72	46.9	2.3	30.2	25.9	21.5	17.2	-	-	43.5	2.6	28.8	24.5	20.1	15.7	-	-		
	67	42.0	2.3	36.1	31.7	27.4	23.0	18.7	-	39.5	2.6	34.7	30.4	26.0	21.6	17.3	-		
	62	38.8	2.3	38.8	37.3	33.5	29.1	24.7	20.4	36.3	2.6	36.3	35.4	32.1	27.7	23.3	19.0		
	57	38.5	2.3	38.5	38.5	36.4	32.0	27.6	23.3	35.9	2.6	35.9	35.9	34.2	29.9	25.5	21.2		
1200	77	53.0	2.3	26.6	21.7	16.8	-	-	-	48.8	2.6	25.1	20.1	15.2	-	-	-		
	72	48.0	2.3	32.9	28.0	23.1	18.2	-	-	44.7	2.6	31.4	26.5	21.5	16.6	-	-		
	67	43.0	2.3	39.2	34.3	29.4	24.5	19.6	-	40.5	2.6	37.7	32.8	27.8	22.9	18.0	-		
	62	39.7	2.3	39.7	39.7	35.9	31.0	26.1	21.2	37.3	2.6	37.3	37.3	34.3	29.4	24.5	19.5		
	57	39.4	2.3	39.4	39.4	39.0	34.1	29.2	24.3	36.8	2.6	36.8	36.8	36.7	31.7	26.8	21.9		
1350	72	49.8	2.3	35.5	30.1	24.7	19.2	-	-	46.0	2.6	33.9	28.5	23.1	17.7	-	-		
	67	44.6	2.3	42.7	36.8	31.4	26.0	20.5	-	41.7	2.6	40.3	35.2	29.8	24.4	19.0	-		
	62	41.3	2.3	41.3	41.3	39.1	33.6	28.2	22.8	38.4	2.6	38.4	38.4	36.8	31.4	26.0	20.6		
	57	40.9	2.3	40.9	40.9	40.7	35.3	29.9	24.4	37.9	2.6	37.9	37.9	37.9	32.5	27.1	21.7		
1500	72	51.6	2.3	38.2	32.2	26.3	20.3	-	-	47.4	2.6	36.4	30.5	24.6	18.8	-	-		
	67	46.3	2.3	46.3	39.4	33.4	27.4	21.5	-	43.0	2.6	43.0	37.7	31.8	26.0	20.1	-		
	62	42.8	2.3	42.8	42.8	42.2	36.3	30.3	24.3	39.5	2.6	39.5	39.5	39.3	33.4	27.5	21.6		
	57	42.4	2.3	42.4	42.4	42.4	36.5	30.5	24.5	39.1	2.6	39.1	39.1	39.1	33.2	27.3	21.4		
		95°F									105°F								
750	77	40.7	2.9	17.4	14.2	11.0	-	-	-	38.0	3.2	15.7	13.0	9.8	-	-	-		
	72	37.7	2.9	22.5	19.3	16.1	13.0	-	-	35.1	3.2	21.3	18.1	14.9	11.7	-	-		
	67	34.7	2.9	27.6	24.4	21.2	18.1	14.9	-	32.1	3.2	26.8	23.2	20.0	16.8	13.6	-		
	62	31.7	2.9	31.7	31.1	26.5	23.3	20.1	17.0	29.7	3.2	29.7	29.3	24.9	21.7	18.5	15.3		
900	77	42.0	2.9	19.4	15.7	11.9	-	-	-	39.1	3.2	18.2	14.4	10.7	-	-	-		
	72	38.9	2.9	24.9	21.2	17.4	13.6	-	-	36.1	3.2	23.7	19.9	16.2	12.4	-	-		
	67	35.8	2.9	30.5	26.7	22.9	19.2	15.4	-	33.0	3.2	29.2	25.4	21.6	17.9	14.1	-		
	62	32.8	2.9	32.8	32.3	28.6	24.8	21.0	17.3	30.5	3.2	30.5	30.3	27.0	23.2	19.4	15.6		
	57	32.2	2.9	32.2	32.2	29.9	26.2	22.4	18.6	29.9	3.2	29.9	29.9	27.8	24.0	20.2	16.4		
1050	77	43.3	2.8	21.5	17.1	12.8	-	-	-	40.2	3.2	20.7	15.8	11.5	-	-	-		
	72	40.1	2.9	27.4	23.0	18.7	14.3	-	-	37.1	3.2	26.1	21.8	17.4	13.0	-	-		
	67	36.9	2.9	33.3	29.0	24.6	20.2	15.9	-	33.9	3.2	31.6	27.7	23.3	18.9	14.6	-		
	62	33.8	2.9	33.8	33.6	30.7	26.3	21.9	17.6	31.4	3.2	31.4	31.2	29.0	24.6	20.3	15.9		
	57	33.2	2.9	33.2	33.2	32.1	27.8	23.4	19.1	30.7	3.2	30.7	30.7	29.9	25.5	21.1	16.8		
1200	77	44.6	2.8	23.5	18.6	13.6	-	-	-	41.3	3.2	23.2	17.2	12.3	-	-	-		
	72	41.3	2.8	29.9	24.9	20.0	15.0	-	-	38.1	3.2	28.5	23.6	18.6	13.7	-	-		
	67	38.0	2.9	36.2	31.2	26.3	21.3	16.4	-	34.9	3.2	33.9	29.9	25.0	20.0	15.0	-		
	62	34.8	2.9	34.8	34.8	32.7	27.8	22.8	17.9	32.2	3.2	32.2	32.2	31.1	26.1	21.1	16.2		
	57	34.2	2.9	34.2	34.2	34.3	29.4	24.4	19.5	31.6	3.2	31.6	31.6	32.0	27.0	22.1	17.1		
1350	72	42.2	2.8	32.2	26.8	21.5	16.1	-	-	38.8	3.2	30.7	25.4	20.0	14.6	-	-		
	67	38.9	2.9	37.9	33.6	28.3	22.9	17.5	-	35.5	3.2	35.1	32.2	26.8	21.4	16.1	-		
	62	35.5	2.9	35.5	35.5	34.5	29.1	23.8	18.4	32.8	3.2	32.8	32.8	32.3	26.9	21.5	16.2		
	57	34.9	2.9	34.9	34.9	35.0	29.6	24.3	18.9	32.2	3.2	32.2	32.2	32.4	27.0	21.7	16.3		
1500	72	43.1	2.8	34.5	28.8	23.0	17.2	-	-	39.6	3.2	32.9	27.2	21.4	15.6	-	-		
	67	39.7	2.9	39.7	36.0	30.3	24.5	18.7	-	36.2	3.2	36.2	34.4	28.7	22.9	17.1	-		
	62	36.3	2.9	36.3	36.3	36.3	30.5	24.7	18.9	33.5	3.2	33.5	33.5	33.5	27.7	21.9	16.1		
	57	35.7	2.9	35.7	35.7	35.7	29.9	24.1	18.3	32.8	3.2	32.8	32.8	32.8	27.0	21.2	15.5		

ZJ036 (3.0 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
		115°F										125°F					
750	77	35.4	3.5	14.1	11.9	8.7	-	-	-	32.7	3.8	12.0	10.7	7.5	-	-	-
	72	32.4	3.5	20.1	16.9	13.7	10.5	-	-	29.8	3.9	18.9	15.7	12.5	9.3	-	-
	67	29.5	3.6	26.1	22.0	18.8	15.5	12.3	-	26.9	3.9	25.5	20.7	17.5	14.3	11.1	-
	62	27.6	3.6	27.6	27.6	23.3	20.1	16.9	13.7	25.5	3.9	25.5	25.5	21.8	18.6	15.3	12.1
900	77	36.2	3.5	17.0	13.2	9.4	-	-	-	33.4	3.9	15.8	12.0	8.2	-	-	-
	72	33.2	3.5	22.5	18.7	14.9	11.1	-	-	30.4	3.9	21.3	17.4	13.6	9.8	-	-
	67	30.2	3.6	28.0	24.2	20.4	16.6	12.8	-	27.4	3.9	26.7	22.9	19.1	15.3	11.5	-
	62	28.3	3.6	28.3	28.3	25.4	21.6	17.8	14.0	26.0	3.9	26.0	26.0	23.8	19.9	16.1	12.3
	57	27.6	3.5	27.6	27.6	25.6	21.8	18.0	14.2	25.3	3.9	25.3	25.3	23.4	19.6	15.8	12.0
1050	77	37.1	3.5	19.9	14.5	10.2	-	-	-	34.0	3.9	19.5	13.3	8.9	-	-	-
	72	34.0	3.5	24.8	20.5	16.1	11.7	-	-	31.0	3.9	23.6	19.2	14.8	10.4	-	-
	67	30.9	3.6	29.8	26.4	22.0	17.6	13.2	-	28.0	3.9	28.0	25.1	20.7	16.3	11.9	-
	62	28.9	3.6	28.9	28.9	27.4	23.0	18.6	14.2	26.5	3.9	26.5	26.5	25.7	21.3	17.0	12.6
	57	28.3	3.5	28.3	28.3	27.6	23.2	18.9	14.5	25.8	3.9	25.8	25.8	25.4	21.0	16.6	12.2
1200	77	38.0	3.5	22.8	15.9	10.9	-	-	-	34.6	3.9	23.3	14.5	9.6	-	-	-
	72	34.8	3.5	27.2	22.2	17.3	12.3	-	-	31.6	3.9	25.9	20.9	15.9	10.9	-	-
	67	31.7	3.6	31.7	28.6	23.6	18.7	13.7	-	28.5	3.9	28.5	27.3	22.3	17.3	12.3	-
	62	29.6	3.6	29.6	29.6	29.4	24.4	19.5	14.5	27.0	3.9	27.0	27.0	27.0	22.7	17.8	12.8
	57	28.9	3.5	28.9	28.9	29.7	24.7	19.7	14.7	26.3	3.9	26.3	26.3	26.3	22.3	17.4	12.4
1350	72	35.4	3.5	29.3	23.9	18.5	13.1	-	-	32.0	3.9	27.8	22.4	17.1	11.7	-	-
	67	32.2	3.6	32.2	30.7	25.3	20.0	14.6	-	28.9	3.9	28.9	28.9	23.9	18.5	13.1	-
	62	30.1	3.6	30.1	30.1	30.0	24.6	19.3	13.9	27.4	3.9	27.4	27.4	27.4	22.4	17.0	11.6
	57	29.4	3.5	29.4	29.4	29.8	24.4	19.0	13.7	26.7	3.9	26.7	26.7	26.7	21.8	16.4	11.0
1500	72	36.0	3.5	31.3	25.6	19.8	14.0	-	-	32.5	3.9	29.7	24.0	18.2	12.4	-	-
	67	32.8	3.6	32.8	32.8	27.1	21.3	15.5	-	29.3	3.9	29.3	29.3	25.5	19.7	13.9	-
	62	30.6	3.6	30.6	30.6	30.6	24.8	19.1	13.3	27.8	3.9	27.8	27.8	27.8	22.0	16.2	10.5
	57	29.9	3.5	29.9	29.9	29.9	24.1	18.4	12.6	27.1	3.9	27.1	27.1	27.1	21.3	15.5	9.7

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

ZJ048 (4.0 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
		75°F								85°F							
1000	77	52.6	2.9	25.8	21.8	17.9	-	-	-	53.5	3.3	23.2	19.4	15.5	-	-	-
	72	51.1	2.9	32.1	28.1	24.2	20.2	-	-	50.5	3.2	29.9	26.0	22.2	18.3	-	-
	67	49.6	2.8	38.4	34.4	30.5	26.5	22.6	-	47.5	3.2	36.6	32.7	28.8	25.0	21.1	-
	62	40.8	2.9	40.8	42.7	36.8	32.9	28.9	25.0	42.7	3.2	42.7	41.1	35.5	31.7	27.8	24.0
1200	77	55.9	2.9	28.4	24.0	19.6	-	-	-	55.9	3.2	25.8	21.5	17.1	-	-	-
	72	54.2	2.8	35.2	30.8	26.5	22.1	-	-	52.7	3.2	33.1	28.8	24.4	20.1	-	-
	67	52.6	2.8	42.1	37.7	33.3	29.0	24.6	-	49.6	3.2	40.5	36.1	31.8	27.4	23.1	-
	62	43.3	2.9	43.3	44.6	40.3	35.9	31.5	27.1	44.6	3.2	44.6	43.5	39.2	34.8	30.4	26.1
1400	57	46.2	2.9	46.2	48.3	44.2	39.8	35.4	31.0	45.9	3.3	45.9	45.9	41.6	37.3	32.9	28.6
	77	59.1	2.9	30.9	26.1	21.3	-	-	-	58.3	3.2	28.4	23.5	18.7	-	-	-
	72	57.3	2.8	38.4	33.6	28.8	24.0	-	-	55.0	3.2	36.4	31.5	26.7	21.8	-	-
	67	55.5	2.8	45.8	41.0	36.2	31.4	26.6	-	51.7	3.2	44.4	39.6	34.7	29.9	25.0	-
1600	62	45.9	2.8	45.9	46.5	43.7	38.9	34.1	29.3	46.5	3.2	46.5	45.9	42.8	37.9	33.1	28.2
	57	48.9	2.9	48.9	49.9	48.0	43.2	38.4	33.6	47.8	3.2	47.8	47.8	45.5	40.6	35.8	30.9
	77	62.3	2.8	33.5	28.3	23.0	-	-	-	60.6	3.2	30.9	25.6	20.3	-	-	-
	72	60.4	2.8	41.5	36.3	31.1	25.8	-	-	57.2	3.2	39.6	34.3	28.9	23.6	-	-
1800	67	58.5	2.8	49.5	44.3	39.1	33.8	28.6	-	53.8	3.2	48.3	43.0	37.6	32.3	26.9	-
	62	48.5	2.8	48.5	48.5	47.2	42.0	36.7	31.5	48.4	3.2	48.4	48.4	46.4	41.0	35.7	30.3
	57	51.6	2.9	51.6	51.6	51.8	46.6	41.3	36.1	49.7	3.2	49.7	49.7	49.3	43.9	38.6	33.3
	72	60.8	2.8	44.1	38.4	32.6	26.8	-	-	58.2	3.2	42.3	36.4	30.5	24.6	-	-
2000	67	58.9	2.8	53.3	46.8	41.0	35.2	29.5	-	54.7	3.2	51.5	45.6	39.7	33.8	27.8	-
	62	48.7	2.8	48.7	48.7	48.3	42.5	36.7	30.9	49.2	3.2	49.2	49.2	48.2	42.3	36.4	30.5
	57	51.9	2.9	51.9	51.9	52.0	46.2	40.4	34.6	50.6	3.2	50.6	50.6	50.4	44.5	38.6	32.7
	72	61.1	2.8	46.8	40.4	34.1	27.8	-	-	59.3	3.2	45.0	38.5	32.1	25.6	-	-
	67	59.3	2.8	57.1	49.2	42.9	36.6	30.3	-	55.7	3.2	54.6	48.2	41.7	35.2	28.8	-
	62	48.9	2.8	48.9	48.9	49.3	43.0	36.7	30.4	50.1	3.2	50.1	50.1	50.1	43.7	37.2	30.7
	57	52.1	2.9	52.1	52.1	52.1	45.8	39.5	33.2	51.6	3.2	51.6	51.6	51.6	45.1	38.6	32.1
			95°F								105°F						
1000	77	54.5	3.6	20.7	16.9	13.1	-	-	-	50.4	4.1	19.0	15.8	12.2	-	-	-
	72	49.9	3.6	27.7	24.0	20.2	16.4	-	-	46.2	4.1	26.0	22.5	18.9	15.4	-	-
	67	45.3	3.6	34.8	31.0	27.2	23.5	19.7	-	41.9	4.1	33.0	29.2	25.7	22.1	18.6	-
	62	44.6	3.6	44.6	39.4	34.3	30.5	26.7	23.0	40.3	4.1	40.3	37.2	31.7	28.1	24.6	21.1
1200	77	56.0	3.6	23.3	18.9	14.6	-	-	-	51.6	4.1	21.8	17.6	13.5	-	-	-
	72	51.3	3.6	31.1	26.7	22.4	18.1	-	-	47.2	4.1	29.2	25.1	21.0	16.8	-	-
	67	46.6	3.6	38.9	34.6	30.2	25.9	21.6	-	42.9	4.1	36.6	32.5	28.4	24.3	20.1	-
	62	45.8	3.6	45.8	42.4	38.0	33.7	29.4	25.0	41.2	4.1	41.2	39.2	35.0	30.9	26.8	22.7
1400	57	45.5	3.6	45.5	43.4	39.1	34.7	30.4	26.1	42.5	4.1	42.5	40.0	35.9	31.8	27.7	23.6
	77	57.5	3.6	25.8	20.9	16.0	-	-	-	52.8	4.1	24.5	19.5	14.8	-	-	-
	72	52.6	3.6	34.4	29.5	24.6	19.7	-	-	48.3	4.1	32.4	27.7	23.0	18.2	-	-
	67	47.8	3.6	43.0	38.1	33.2	28.3	23.4	-	43.8	4.1	40.2	35.8	31.1	26.4	21.7	-
1600	62	47.0	3.6	47.0	45.3	41.8	36.9	32.0	27.1	42.2	4.1	42.2	41.1	38.4	33.7	28.9	24.2
	57	46.7	3.6	46.7	45.6	42.9	38.0	33.1	28.2	43.4	4.1	43.4	42.2	39.4	34.6	29.9	25.2
	77	58.9	3.6	28.4	22.9	17.5	-	-	-	53.9	4.1	27.3	21.4	16.1	-	-	-
	72	54.0	3.6	37.7	32.3	26.8	21.4	-	-	49.4	4.1	35.6	30.3	25.0	19.7	-	-
1800	67	49.0	3.6	47.1	41.7	36.2	30.7	25.3	-	44.8	4.1	43.8	39.1	33.8	28.5	23.2	-
	62	48.3	3.6	48.3	48.3	45.6	40.1	34.6	29.2	43.1	4.1	43.1	43.1	41.7	36.4	31.1	25.8
	57	47.9	3.6	47.9	47.9	46.8	41.3	35.9	30.4	44.4	4.1	44.4	44.4	42.8	37.5	32.2	26.9
	72	55.7	3.6	40.5	34.5	28.4	22.4	-	-	51.0	4.1	38.0	32.2	26.4	20.6	-	-
2000	67	50.6	3.6	49.7	44.4	38.3	32.3	26.2	-	46.2	4.1	45.8	41.6	35.8	30.0	24.2	-
	62	49.8	3.6	49.8	49.8	48.2	42.2	36.2	30.1	44.5	4.1	44.5	44.5	43.7	37.9	32.1	26.3
	57	49.4	3.6	49.4	49.4	48.9	42.8	36.8	30.8	45.8	4.1	45.8	45.8	45.0	39.2	33.4	27.6
	72	57.5	3.6	43.2	36.6	30.0	23.4	-	-	52.5	4.1	40.5	34.2	27.9	21.6	-	-
	67	52.2	3.6	52.2	47.1	40.5	33.8	27.2	-	47.7	4.1	47.7	44.1	37.8	31.5	25.2	-
	62	51.4	3.6	51.4	51.4	50.9	44.3	37.7	31.0	45.9	4.1	45.9	45.9	45.7	39.4	33.1	26.8
	57	51.0	3.6	51.0	51.0	51.0	44.3	37.7	31.1	47.2	4.1	47.2	47.2	47.1	40.9	34.6	28.3

ZJ048 (4.0 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
		115°F										125°F					
1000	77	46.4	4.6	17.3	14.6	11.3	-	-	-	42.4	5.1	15.1	13.4	10.4	-	-	-
	72	42.4	4.6	24.3	21.0	17.7	14.4	-	-	38.7	5.1	22.6	19.5	16.5	13.4	-	-
	67	38.5	4.5	31.3	27.4	24.1	20.8	17.5	-	35.0	5.0	29.5	25.6	22.5	19.5	16.4	-
	62	36.0	4.5	36.0	34.9	29.1	25.8	22.5	19.2	31.7	5.0	31.7	31.7	26.5	23.4	20.4	17.3
1200	77	47.3	4.6	20.3	16.4	12.5	-	-	-	42.9	5.1	18.8	15.1	11.4	-	-	-
	72	43.2	4.6	27.3	23.4	19.5	15.6	-	-	39.2	5.1	25.5	21.8	18.1	14.3	-	-
	67	39.2	4.5	34.4	30.5	26.6	22.6	18.7	-	35.5	5.0	32.1	28.4	24.7	21.0	17.3	-
	62	36.7	4.5	36.7	35.9	32.0	28.1	24.2	20.3	32.1	5.0	32.1	32.1	29.0	25.3	21.6	17.9
	57	39.5	4.5	39.5	36.7	32.8	28.9	25.0	21.0	36.5	5.0	36.5	33.3	29.6	25.9	22.2	18.5
1400	77	48.1	4.6	23.3	18.1	13.6	-	-	-	43.4	5.1	22.5	16.7	12.4	-	-	-
	72	44.0	4.6	30.4	25.8	21.3	16.8	-	-	39.7	5.0	28.4	24.0	19.6	15.3	-	-
	67	39.9	4.5	37.5	33.5	29.0	24.5	19.9	-	35.9	5.0	34.7	31.3	26.9	22.5	18.2	-
	62	37.3	4.5	37.3	37.0	35.0	30.4	25.9	21.4	32.5	5.0	32.5	32.5	31.6	27.2	22.8	18.5
	57	40.2	4.5	40.2	38.8	35.8	31.3	26.7	22.2	37.0	5.0	37.0	35.4	32.2	27.9	23.5	19.2
1600	77	49.0	4.6	26.3	19.9	14.8	-	-	-	44.0	5.1	26.2	18.4	13.4	-	-	-
	72	44.8	4.6	33.4	28.3	23.1	17.9	-	-	40.2	5.0	31.3	26.2	21.2	16.2	-	-
	67	40.6	4.5	40.6	36.6	31.4	26.3	21.1	-	36.3	5.0	36.3	34.1	29.1	24.1	19.0	-
	62	38.0	4.5	38.0	38.0	37.9	32.8	27.6	22.4	32.9	5.0	32.9	32.9	32.9	29.1	24.1	19.1
	57	40.9	4.5	40.9	40.9	38.8	33.7	28.5	23.3	37.4	5.0	37.4	37.4	34.8	29.8	24.8	19.8
1800	72	46.2	4.6	35.6	30.0	24.4	18.9	-	-	41.4	5.0	33.1	27.8	22.4	17.1	-	-
	67	41.9	4.5	41.9	38.8	33.3	27.7	22.1	-	37.5	5.0	37.5	36.1	30.7	25.4	20.1	-
	62	39.2	4.5	39.2	39.2	39.2	33.6	28.0	22.5	33.9	5.0	33.9	33.9	33.9	29.3	24.0	18.7
	57	42.2	4.5	42.2	42.2	41.1	35.5	30.0	24.4	38.6	5.0	38.6	38.6	37.2	31.8	26.5	21.2
2000	72	47.6	4.6	37.7	31.7	25.8	19.8	-	-	42.7	5.0	34.9	29.3	23.7	18.0	-	-
	67	43.2	4.5	43.2	41.0	35.1	29.1	23.2	-	38.6	5.0	38.6	38.0	32.4	26.8	21.1	-
	62	40.4	4.5	40.4	40.4	40.4	34.4	28.5	22.5	34.9	5.0	34.9	34.9	34.9	29.5	23.9	18.3
	57	43.5	4.5	43.5	43.5	43.3	37.4	31.4	25.4	39.8	5.0	39.8	39.8	39.5	33.9	28.2	22.6

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.

ZJ060 (5.0 Ton)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
CFM	WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)					
				Return Dry Bulb (°F)								Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
		75°F								85°F							
1250	77	74.6	3.8	29.2	24.5	19.8	-	-	-	70.2	4.3	26.6	22.0	17.4	-	-	-
	72	67.6	3.8	37.5	32.8	28.1	23.4	-	-	63.7	4.3	35.0	30.5	25.9	21.3	-	-
	67	60.6	3.7	45.8	41.0	36.3	31.6	26.9	-	57.2	4.3	43.5	38.9	34.3	29.7	25.1	-
	62	56.0	3.7	56.0	50.0	44.7	40.0	35.3	30.6	52.5	4.2	52.5	48.4	42.3	37.7	33.1	28.5
1500	77	78.3	3.8	32.6	27.3	21.9	-	-	-	73.3	4.3	29.9	24.6	19.3	-	-	-
	72	71.0	3.8	41.8	36.4	31.0	25.6	-	-	66.5	4.3	39.2	33.9	28.6	23.3	-	-
	67	63.6	3.7	50.9	45.5	40.1	34.7	29.4	-	59.8	4.3	48.5	43.2	37.9	32.6	27.4	-
	62	58.8	3.7	58.8	54.8	49.4	44.0	38.6	33.2	54.8	4.2	54.8	52.1	46.8	41.5	36.2	30.9
	57	57.3	3.7	57.3	57.3	52.8	47.4	42.0	36.6	54.2	4.2	54.2	54.2	49.3	44.0	38.7	33.4
1750	77	82.0	3.8	36.1	30.0	23.9	-	-	-	76.3	4.3	33.2	27.1	21.1	-	-	-
	72	74.3	3.8	46.1	40.0	33.9	27.9	-	-	69.3	4.3	43.4	37.4	31.4	25.4	-	-
	67	66.6	3.7	56.0	50.0	43.9	37.8	31.8	-	62.3	4.3	53.6	47.6	41.6	35.6	29.6	-
	62	61.6	3.7	61.6	59.5	54.0	48.0	41.9	35.8	57.1	4.2	57.1	55.7	51.3	45.2	39.2	33.2
	57	60.0	3.7	60.0	60.0	57.7	51.7	45.6	39.6	56.4	4.2	56.4	56.4	54.0	48.0	42.0	36.0
2000	77	85.7	3.8	39.5	32.8	26.0	-	-	-	79.4	4.3	36.4	29.7	23.0	-	-	-
	72	77.6	3.8	50.3	43.6	36.9	30.1	-	-	72.1	4.3	47.5	40.8	34.1	27.4	-	-
	67	69.6	3.7	61.2	54.4	47.7	41.0	34.2	-	64.8	4.3	58.6	51.9	45.2	38.5	31.8	-
	62	64.3	3.7	64.3	64.3	58.7	52.0	45.2	38.5	59.4	4.3	59.4	59.4	55.7	49.0	42.3	35.6
	57	62.7	3.7	62.7	62.7	62.7	56.0	49.2	42.5	58.7	4.2	58.7	58.7	58.7	52.0	45.3	38.6
2250	72	80.7	3.8	54.5	47.1	39.6	32.2	-	-	74.5	4.3	51.3	43.9	36.5	29.1	-	-
	67	72.3	3.7	66.8	58.8	51.3	43.9	36.4	-	67.0	4.3	63.2	55.8	48.4	41.0	33.6	-
	62	66.8	3.7	66.8	66.8	64.0	56.6	49.1	41.7	61.4	4.2	61.4	61.4	59.6	52.2	44.8	37.4
	57	65.2	3.7	65.2	65.2	65.2	57.7	50.3	42.8	60.7	4.2	60.7	60.7	60.7	53.3	45.9	38.5
2500	72	83.7	3.8	58.7	50.6	42.4	34.3	-	-	76.9	4.3	55.1	47.0	39.0	30.9	-	-
	67	75.0	3.7	72.4	63.1	54.9	46.8	38.6	-	69.1	4.3	67.8	59.7	51.6	43.6	35.5	-
	62	69.3	3.7	69.3	69.3	69.3	61.2	53.0	44.9	63.4	4.2	63.4	63.4	63.4	55.3	47.2	39.1
	57	67.6	3.7	67.6	67.6	67.6	59.5	51.3	43.2	62.7	4.2	62.7	62.7	62.7	54.6	46.5	38.4
		95°F								105°F							
1250	77	65.8	4.8	24.0	19.5	15.1	-	-	-	59.2	5.5	22.0	17.6	13.2	-	-	-
	72	59.8	4.8	32.6	28.1	23.7	19.2	-	-	54.1	5.5	30.4	26.0	21.7	17.3	-	-
	67	53.8	4.8	41.2	36.7	32.3	27.8	23.3	-	49.0	5.4	38.9	34.5	30.1	25.7	21.4	-
	62	49.0	4.7	49.0	46.8	39.8	35.4	30.9	26.5	43.9	5.4	43.9	42.8	36.9	32.5	28.2	23.8
1500	77	68.2	4.8	27.1	21.9	16.7	-	-	-	61.6	5.5	24.8	19.7	14.6	-	-	-
	72	62.1	4.8	36.6	31.4	26.2	21.0	-	-	56.3	5.5	34.1	29.0	23.9	18.8	-	-
	67	55.9	4.8	46.2	41.0	35.8	30.6	25.4	-	51.0	5.4	43.5	38.4	33.3	28.2	23.0	-
	62	50.8	4.7	50.8	49.4	44.2	39.0	33.7	28.5	45.7	5.4	45.7	45.0	40.7	35.6	30.5	25.4
	57	51.0	4.7	51.0	51.0	45.8	40.6	35.4	30.2	46.8	5.4	46.8	46.8	42.5	37.4	32.3	27.2
1750	77	70.7	4.9	30.2	24.3	18.3	-	-	-	64.0	5.5	27.7	21.8	16.0	-	-	-
	72	64.3	4.8	40.7	34.7	28.8	22.9	-	-	58.5	5.5	37.9	32.0	26.2	20.4	-	-
	67	57.9	4.8	51.1	45.2	39.3	33.3	27.4	-	53.0	5.4	48.1	42.2	36.4	30.6	24.7	-
	62	52.7	4.8	52.7	51.9	48.5	42.5	36.6	30.6	47.5	5.4	47.5	47.1	44.6	38.8	32.9	27.1
	57	52.9	4.7	52.9	52.8	50.2	44.3	38.4	32.4	48.7	5.4	48.7	48.7	46.5	40.7	34.8	29.0
2000	77	73.2	4.9	33.3	26.7	20.0	-	-	-	66.4	5.5	30.5	23.9	17.4	-	-	-
	72	66.6	4.8	44.7	38.0	31.4	24.7	-	-	60.7	5.5	41.6	35.0	28.5	21.9	-	-
	67	59.9	4.8	56.1	49.4	42.7	36.1	29.4	-	55.0	5.4	52.7	46.1	39.5	33.0	26.4	-
	62	54.5	4.8	54.5	54.5	52.8	46.1	39.4	32.7	49.3	5.4	49.3	49.3	48.4	41.9	35.3	28.7
	57	54.7	4.8	54.7	54.7	54.7	48.0	41.3	34.7	50.5	5.4	50.5	50.5	50.5	43.9	37.4	30.8
2250	72	68.4	4.8	48.1	40.8	33.4	26.1	-	-	61.9	5.5	44.7	37.6	30.4	23.2	-	-
	67	61.6	4.8	59.7	52.9	45.6	38.2	30.8	-	56.0	5.4	54.9	49.4	42.2	35.0	27.9	-
	62	56.0	4.8	56.0	56.0	55.1	47.8	40.4	33.1	50.3	5.4	50.3	50.3	49.8	42.7	35.5	28.3
	57	56.2	4.7	56.2	56.2	56.2	48.9	41.5	34.1	51.5	5.4	51.5	51.5	51.5	44.3	37.1	30.0
2500	72	70.2	4.8	51.5	43.5	35.5	27.5	-	-	63.0	5.5	47.9	40.1	32.3	24.5	-	-
	67	63.2	4.8	63.2	56.4	48.4	40.4	32.3	-	57.1	5.4	57.1	52.7	44.9	37.1	29.4	-
	62	57.5	4.7	57.5	57.5	57.5	49.5	41.5	33.4	51.2	5.4	51.2	51.2	51.2	43.4	35.7	27.9
	57	57.7	4.7	57.7	57.7	57.7	49.7	41.7	33.6	52.4	5.4	52.4	52.4	52.4	44.7	36.9	29.1

ZJ060 (5.0 Ton) (Continued)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
CFM		WB (°F)	Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						Total Capacity ¹ (MBh)	Total Input (kW) ²	Sensible Capacity (MBh)						
					Return Dry Bulb (°F)								Return Dry Bulb (°F)						
					90	85	80	75	70	65			90	85	80	75	70	65	
		115°F									125°F								
1250	77	52.6	6.3	19.9	15.6	11.4	-	-	-	46.0	7.0	17.5	13.7	9.5	-	-	-		
	72	48.3	6.2	28.2	23.9	19.7	15.4	-	-	42.6	6.9	26.0	21.8	17.7	13.5	-	-		
	67	44.1	6.1	36.5	32.2	28.0	23.7	19.4	-	39.3	6.7	34.2	30.0	25.8	21.6	17.4	-		
	62	38.9	6.0	38.9	38.9	33.9	29.7	25.4	21.1	33.8	6.7	33.8	33.8	31.0	26.8	22.6	18.4		
1500	77	54.9	6.3	22.5	17.5	12.5	-	-	-	48.3	7.0	20.2	15.3	10.4	-	-	-		
	72	50.5	6.2	31.6	26.6	21.6	16.6	-	-	44.7	6.8	29.1	24.2	19.3	14.4	-	-		
	67	46.1	6.1	40.7	35.7	30.7	25.7	20.7	-	41.2	6.7	38.0	33.1	28.2	23.3	18.4	-		
	62	40.6	6.0	40.6	40.6	37.3	32.3	27.3	22.3	35.5	6.6	35.5	35.5	33.9	29.0	24.1	19.2		
	57	42.7	6.1	42.7	42.7	39.2	34.2	29.2	24.2	38.5	6.7	38.5	38.5	35.9	31.0	26.1	21.2		
1750	77	57.3	6.2	25.1	19.4	13.6	-	-	-	50.5	6.9	22.9	16.9	11.3	-	-	-		
	72	52.7	6.1	35.0	29.3	23.6	17.9	-	-	46.8	6.8	32.2	26.6	21.0	15.4	-	-		
	67	48.1	6.0	45.0	39.3	33.5	27.8	22.1	-	43.1	6.7	41.9	36.3	30.7	25.1	19.4	-		
	62	42.4	6.0	42.4	42.4	40.7	35.0	29.3	23.5	37.2	6.6	37.2	37.2	36.8	31.2	25.6	20.0		
	57	44.5	6.1	44.5	44.5	42.8	37.0	31.3	25.6	40.3	6.7	40.3	40.3	39.0	33.4	27.8	22.2		
2000	77	59.6	6.2	27.7	21.2	14.8	-	-	-	52.8	6.9	25.6	18.5	12.2	-	-	-		
	72	54.8	6.1	38.5	32.0	25.6	19.1	-	-	49.0	6.8	35.3	29.0	22.6	16.3	-	-		
	67	50.0	6.0	49.2	42.8	36.3	29.9	23.4	-	45.1	6.6	45.1	39.5	33.1	26.8	20.5	-		
	62	44.1	6.0	44.1	44.1	44.1	37.6	31.2	24.7	38.9	6.6	38.9	38.9	38.9	33.4	27.1	20.8		
	57	46.3	6.0	46.3	46.3	46.3	39.9	33.4	27.0	42.1	6.7	42.1	42.1	42.1	35.8	29.5	23.1		
2250	72	55.3	6.2	41.3	34.3	27.3	20.4	-	-	48.8	6.8	37.9	31.1	24.3	17.5	-	-		
	67	50.5	6.1	50.1	45.9	38.9	31.9	24.9	-	45.0	6.7	45.0	42.4	35.5	28.7	21.9	-		
	62	44.5	6.0	44.5	44.5	44.5	37.5	30.5	23.5	38.8	6.6	38.8	38.8	38.8	32.4	25.6	18.8		
	57	46.7	6.1	46.7	46.7	46.7	39.8	32.8	25.8	42.0	6.7	42.0	42.0	42.0	35.2	28.4	21.6		
2500	72	55.8	6.2	44.2	36.7	29.1	21.6	-	-	48.6	6.9	40.5	33.3	26.0	18.7	-	-		
	67	51.0	6.1	51.0	49.0	41.4	33.9	26.4	-	44.8	6.7	44.8	44.8	38.0	30.7	23.4	-		
	62	44.9	6.0	44.9	44.9	44.9	37.4	29.9	22.3	38.6	6.7	38.6	38.6	38.6	31.3	24.0	16.8		
	57	47.2	6.1	47.2	47.2	47.2	39.6	32.1	24.6	41.9	6.8	41.9	41.9	41.9	34.6	27.3	20.0		

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.

Airflow Performance

ZJ036-060 Side Duct Application

ZJ036 (3 Ton Belt Drive) Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Supplied Drive				Standard Drive Option						High Static Drive Option									
800	634	0.34	735	0.39	828	0.45	914	0.52	995	0.59	1070	0.67	1140	0.75	1207	0.83	1270	0.92	1332	1.00
1000	659	0.39	760	0.45	853	0.51	939	0.57	1019	0.65	1094	0.72	1165	0.80	1232	0.89	1295	0.97	1356	1.06
1200	685	0.47	786	0.52	879	0.58	965	0.65	1045	0.72	1120	0.80	1191	0.88	1258	0.96	1321	1.05	1382	1.13
1400	716	0.57	816	0.62	909	0.68	995	0.75	1076	0.82	1151	0.90	1221	0.98	1288	1.06	1352	1.15	1413	1.23
1600	752	0.69	852	0.75	945	0.81	1032	0.88	1112	0.95	1187	1.03	1258	1.11	1324	1.19	1388	1.27	1449	1.36
																				FS ⁴

ZJ036 - 060 (3-5 Ton Direct Drive) Side Duct

UNIT TONNAGE	MOTOR ¹ SPEED	AVAILABLE EXTERNAL STATIC PRESSURE - IWG ²																	
		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0	
		CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS
3 ³	HI	1574	320	1530	335	1488	349	1451	363	1411	376	1374	390	1331	403	1292	417	1249	430
	MED/HI	1480	263	1433	276	1389	290	1347	303	1303	316	1257	329	1208	343	1153	358	1080	374
	MED	1332	208	1286	221	1241	234	1195	246	1146	258	1097	272	1031	288	962	303	919	313
	MED/LOW	1227	171	1178	183	1129	195	1076	207	1021	220	953	235	891	248	-	-	-	-
4 ³	LOW	1075	130	992	134	930	145	858	158	-	-	-	-	-	-	-	-	-	-
	HI	-	-	2067	696	2027	714	1991	734	1953	749	1910	764	1860	769	1770	743	1621	685
	MED/HI	1913	539	1877	557	1839	571	1798	585	1764	602	1721	619	1677	638	1621	653	1545	639
	MED	1722	408	1682	426	1634	438	1597	455	1554	472	1506	490	1450	505	1404	521	1370	536
5 ³	MED/LOW	1621	362	1580	380	1532	391	1502	406	1461	423	1411	440	1359	455	1324	469	1278	485
	LOW	1332	223	1290	237	1232	247	-	-	-	-	-	-	-	-	-	-	-	-
	HI	2245	883	2247	931	2236	950	2211	964	2171	979	2114	971	2034	940	1948	898	1855	854
	MED/HI	2135	771	2116	784	2108	808	2078	826	2041	844	2004	859	1955	861	1886	843	1792	806
	MED	2010	637	1989	656	1975	675	1938	696	1900	715	1867	730	1822	740	1784	756	1716	748
	MED/LOW	1748	413	1704	432	1669	451	1631	468	1589	479	1551	497	1513	513	1465	523	-	-
	LOW	1562	327	1529	339	1491	356	-	-	-	-	-	-	-	-	-	-	-	-

1. Factory set on medium speed tap.

2. Includes allowances for a wet evaporator coil, 1" filters, and the heat exchangers. Refer to STATIC RESISTANCES Table for resistance values.

3. Side Duct application (230 Volts)

ZR036-060 Side Duct Application**ZR036 (3 Ton Belt Drive) Side Duct**

Air Flow (CFM)	Available External Static Pressure - IWG ¹											
	0.2		0.4		0.6		0.8		1.0		1.2	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
800	Field Supplied Drive				Standard Drive Option				High Static Drive Option			
	634	0.34	735	0.39	828	0.45	914	0.52	995	0.59	1070	0.67
	659	0.39	760	0.45	853	0.51	939	0.57	1019	0.65	1094	0.72
	685	0.47	786	0.52	879	0.58	965	0.65	1045	0.72	1120	0.80
	716	0.57	816	0.62	909	0.68	995	0.75	1076	0.82	1151	0.90
	752	0.69	852	0.75	945	0.81	1032	0.88	1112	0.95	1187	1.03
1000	659	0.39	760	0.45	853	0.51	939	0.57	1019	0.65	1094	0.72
1200	685	0.47	786	0.52	879	0.58	965	0.65	1045	0.72	1120	0.80
1400	716	0.57	816	0.62	909	0.68	995	0.75	1076	0.82	1151	0.90
1600	752	0.69	852	0.75	945	0.81	1032	0.88	1112	0.95	1187	1.03

1. Blower performance includes gas heat exchangers and 1" 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 0.932.

4. Field Supplied Drive.

ZR048 (4 Ton Belt Drive) Side Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹											
	0.2		0.4		0.6		0.8		1.0		1.2	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1000	Field Supplied Drive				Standard Drive Option				High Static Drive Option			
	703	0.39	786	0.47	866	0.54	942	0.62	1016	0.71	1087	0.79
	733	0.44	817	0.52	896	0.60	973	0.68	1047	0.76	1118	0.85
	770	0.52	853	0.60	933	0.67	1010	0.76	1083	0.84	1154	0.93
	811	0.64	895	0.71	974	0.79	1051	0.87	1125	0.96	1196	1.04
	857	0.80	940	0.87	1020	0.95	1097	1.03	1171	1.11	1242	1.20
1200	733	0.44	817	0.52	896	0.60	973	0.68	1047	0.76	1118	0.85
1400	770	0.52	853	0.60	933	0.67	1010	0.76	1083	0.84	1154	0.93
1600	811	0.64	895	0.71	974	0.79	1051	0.87	1125	0.96	1196	1.04
1800	857	0.80	940	0.87	1020	0.95	1097	1.03	1171	1.11	1242	1.20
2000	907	1.00	990	1.07	1070	1.15	1146	1.23	1220	1.31	1291	1.40

1. Blower performance includes gas heat exchangers and 1" 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 0.932.

4. Field Supplied Drive.

ZJ036-060 Bottom Duct Application

ZJ036 (3 Ton Belt Drive) Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Supplied Drive				Standard Drive Option						High Static Drive Option									
800	613	0.35	724	0.40	826	0.46	920	0.53	1007	0.60	1089	0.67	1165	0.75	1237	0.83	1306	0.91	1372	1.00
1000	640	0.40	751	0.46	853	0.52	947	0.58	1034	0.65	1116	0.73	1192	0.80	1264	0.89	1333	0.97	1399	1.05
1200	669	0.48	779	0.53	881	0.59	975	0.65	1063	0.73	1144	0.80	1220	0.88	1293	0.96	1361	1.04	1427	1.13
1400	702	0.57	812	0.63	914	0.69	1009	0.75	1096	0.82	1177	0.90	1254	0.98	1326	1.06	1394	1.14	1460	1.22
1600	741	0.70	852	0.75	954	0.81	1048	0.88	1135	0.95	1217	1.02	1293	1.10	1365	1.18	1434	1.26	1500	1.35
																	Field Supplied Drive			

ZJ048 (4 Ton Belt Drive) Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹																			
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Supplied Drive						Standard Drive Option								High Static Drive Option					
1000	688	0.40	779	0.47	866	0.55	949	0.63	1029	0.71	1107	0.80	1181	0.88	1253	0.97	1322	1.07	1388	1.16
1200	722	0.45	812	0.53	899	0.60	983	0.68	1063	0.76	1140	0.85	1215	0.93	1286	1.03	1355	1.12	1422	1.21
1400	761	0.53	852	0.60	939	0.68	1022	0.76	1103	0.84	1180	0.92	1254	1.01	1326	1.10	1395	1.20	1462	1.29
1600	807	0.65	897	0.72	984	0.79	1068	0.87	1148	0.95	1225	1.04	1300	1.13	1371	1.22	1440	1.31	1507	1.40
1800	856	0.80	947	0.87	1034	0.95	1118	1.02	1198	1.11	1275	1.19	1349	1.28	1421	1.37	1490	1.46	1557	1.56
2000	910	0.99	1001	1.06	1088	1.14	1172	1.22	1252	1.30	1329	1.39	1403	1.47	1475	1.56	1544	1.66	1611	1.75
	Field Supplied Drive																			

1. Blower performance includes gas heat exchangers and 1" 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 0.932.

ZJ060 (5 Ton Belt Drive) Bottom Duct

Air Flow (CFM)	Available External Static Pressure - IWG ¹																							
	0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6		1.8		2.0					
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP				
	Field Supplied Drive						Standard Drive Option						High Static Drive Option											
1200	722	0.45	812	0.53	899	0.60	983	0.68	1063	0.76	1140	0.85	1215	0.93	1286	1.03	1355	1.12	1422	1.21				
1400	761	0.53	852	0.60	939	0.68	1022	0.76	1103	0.84	1180	0.92	1254	1.01	1326	1.10	1395	1.20	1462	1.29				
1600	807	0.65	897	0.72	984	0.79	1068	0.87	1148	0.95	1225	1.04	1300	1.13	1371	1.22	1440	1.31	1507	1.40				
1800	856	0.80	947	0.87	1034	0.95	1118	1.02	1198	1.11	1275	1.19	1349	1.28	1421	1.37	1490	1.46	1557	1.56				
2000	910	0.99	1001	1.06	1088	1.14	1172	1.22	1252	1.30	1329	1.39	1403	1.47	1475	1.56	1544	1.66	1611	1.75				
2200	968	1.23	1059	1.30	1146	1.37	1229	1.45	1309	1.53	1387	1.62	1461	1.71	1533	1.80	1602	1.89	1668	1.99				
2400	1029	1.50	1119	1.57	1206	1.65	1290	1.72	1370	1.81	1448	1.89	1522	1.98	1593	2.07	1663	2.16	1729	2.26				
2600	1093	1.81	1183	1.88	1270	1.95	1354	2.03	1434	2.11	1511	2.20	1586	2.29	-	-	-	-	-	-				
	Field Supplied Drive																							

1. Blower performance includes gas heat exchangers and 1" 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 0.932.

ZJ036 - 060 (3-5 Ton Direct Drive) Bottom Duct

UNIT TONNAGE	MOTOR ¹ SPEED	AVAILABLE EXTERNAL STATIC PRESSURE - IWG ²																	
		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		1.0	
		CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS
3 ³	HI	1520	320	1478	335	1438	349	1401	363	1363	376	1327	390	1286	403	1248	417	1207	430
	MED/HI	1430	263	1384	276	1342	290	1302	303	1259	316	1215	329	1168	343	1114	358	1044	374
	MED	1287	208	1242	221	1199	234	1155	246	1108	258	1060	272	997	288	930	303	889	313
	MED/LOW	1185	171	1138	183	1091	195	1041	207	987	220	921	235	862	248	-	-	-	-
	LOW	1040	130	959	134	900	145	-	-	-	-	-	-	-	-	-	-	-	-
4 ³	HI	-	-	1995	696	1957	714	1922	734	1885	749	1844	764	1795	769	1709	743	1566	685
	MED/HI	1846	539	1812	557	1776	571	1736	585	1704	602	1662	619	1619	638	1566	653	1492	639
	MED	1662	408	1624	426	1577	438	1542	455	1501	472	1454	490	1400	505	1356	521	1323	536
	MED/LOW	1566	362	1526	380	1480	391	1450	406	1411	423	1363	440	1312	455	1279	469	1235	485
	LOW	1287	223	1246	237	1190	247	-	-	-	-	-	-	-	-	-	-	-	-
5 ³	HI	2166	883	2169	931	2158	950	2134	964	2095	979	2040	971	1963	940	1881	898	1791	854
	MED/HI	2060	771	2042	784	2035	808	2006	826	1970	844	1934	859	1888	861	1821	843	1730	806
	MED	1940	637	1920	656	1907	675	1870	696	1834	715	1802	730	1759	740	1722	756	1657	748
	MED/LOW	1688	413	1645	432	1611	451	1575	468	1534	479	1498	497	1461	513	-	-	-	-
	LOW	1509	327	1477	339	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Factory set on medium speed tap.
2. Includes allowances for a wet evaporator coil, 1" filters, and the heat exchangers. Refer to STATIC RESISTANCES Table for resistance values.
3. Bottom Duct application (230 Volts)

Belt Drive RPM Selection

Size (Tons)	Model	HP	Max BHP	Motor Sheave	Blower Sheave	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Fully Closed
036 (3)	ZJ/ZR	1.5	1.73	1VL44	AK64	805	865	920	980	1035	1095
		1.5	1.73	1VP56	AK66	1115	1170	1225	1280	1335	1390
048 (4)	ZJ/ZR	1.5	1.73	1VL44	AK56	930	995	1060	1130	1195	1260
		1.5	1.73	1VP56	AK61	1210	1270	1330	1390	1455	1515
060 (5)	ZJ/ZR	1.5	1.73	1VL44	AK56	930	995	1060	1130	1195	1260
		2	2.3	1VP56	AK56	1325	1395	1460	1525	1590	1660
036 (3)	XP	1.5	1.73	1VL44	AK64	805	865	920	980	1035	1095
		1.5	1.73	1VP56	AK66	1115	1170	1225	1280	1335	1390
048 (4)	XP	1.5	1.73	1VL44	AK56	930	995	1060	1130	1195	1260
		1.5	1.73	1VP56	AK61	1210	1270	1330	1390	1455	1515
060 (5)	XP	1.5	1.73	1VL44	AK56	930	995	1060	1130	1195	1260
		2	2.3	1VP56	AK56	1325	1395	1460	1525	1590	1660

Additional Static Resistance

Size (Tons)	CFM	Cooling Only ¹	Economizer ^{2 3}	Electric Heat kW ²	
				7 - 15	20 - 30
036 (3.0)	1000	0.08	0.07	0.04	0.06
	1200	0.10	0.08	0.05	0.07
	1400	0.12	0.09	0.06	0.08
	1600	0.14	0.11	0.07	0.09
	1800	0.16	0.13	0.08	0.11
048 (4.0)	2000	0.18	0.15	0.10	0.13
060 (5.0)	2200	0.20	0.17	0.12	0.15
	2400	0.23	0.20	0.14	0.17
	2600	0.26	0.23	0.16	0.20
	2800	0.29	0.26	0.19	0.23
	3000	0.32	0.30	0.22	0.26

1. Add these values to the available static resistance in the respective Blower Performance Tables (ZJ, ZR Only).
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 air 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. 2200 CFM
2. 1.6 iwg
3. Using the supply air blower performance table below, the following data point was located: 1478 RPM & 1.82 BHP.
4. Using the RPM selection table below, Size X and Model Y is found.
5. 1.82 BHP exceeds the maximum continuous BHP rating of the 1.5 HP motor. The 2 HP motor is required.
6. 1478 RPM is within the range of the 2 HP drive.
7. Using the 2 HP motor and drive, 2.5 turns open will achieve 1478 RPM.

Example Supply Air Blower Performance

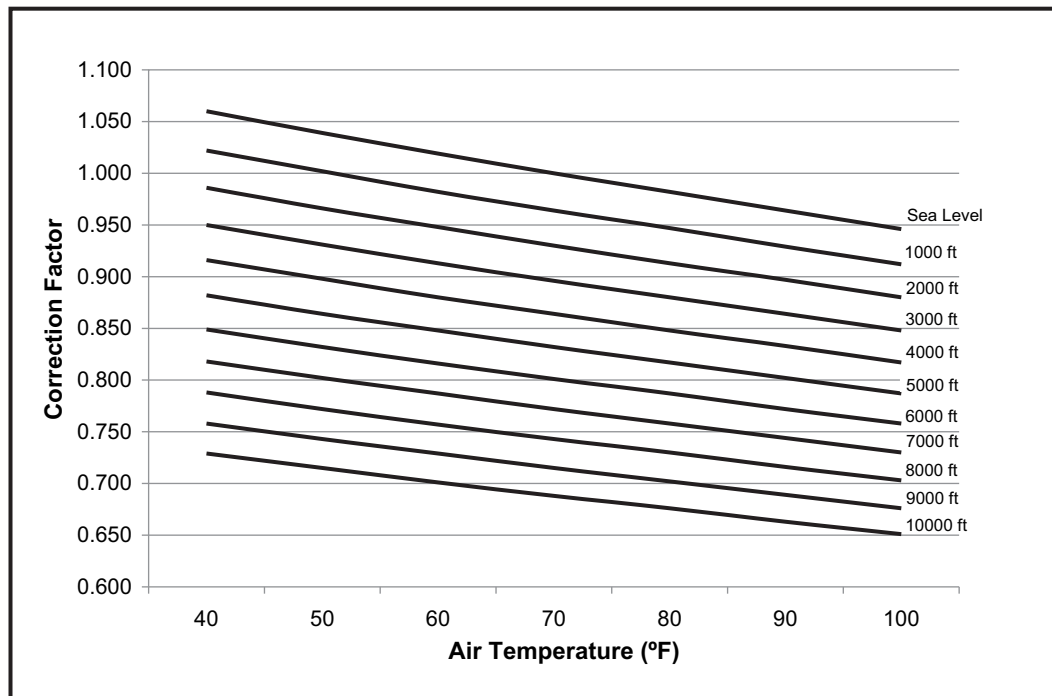
Air Flow (CFM)	Available External Static Pressure - IWG													
	0.2		0.4		0.6		0.8		1.0		1.2		1.4	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Supplied Drive		Standard Drive Option						High Static Drive Option					
2000	907	1.00	990	1.07	1070	1.15	1146	1.23	1220	1.31	1291	1.40	1359	1.49
2200	960	1.24	1043	1.31	1123	1.39	1199	1.47	1273	1.55	1344	1.64	1412	1.73
2400	1015	1.51	1099	1.59	1178	1.66	1255	1.74	1329	1.83	1400	1.92	1468	2.01
2600	1074	1.83	1157	1.90	1237	1.98	1314	2.06	1387	2.14	1458	2.23	-	-

Table X: RPM Selection

Size (Tons)	Model	HP	Max BHP	Motor Sheave	Blower Sheave	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Fully Closed
X	Y	1.5	1.73	1VL44	AK56	930	995	1060	1130	1195	1260
		2	2.3	1VP56	AK56	1325	1395	1460	1525	1590	1660

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



Electric Heat Minimum Supply Air

Size (Tons)	Voltage	Minimum Supply Air (CFM)					
		Heater kW					
		5	7	10	15	20	30
036 (3.0)	208/230-1-60	900	900	900	900	900	-
	208/230-3-60	900	900	900	900	900	-
	460-3-60	-	900	900	900	900	-
	600-3-60	-	-	900	900	900	-
048 (4.0)	208/230-1-60	1200	1200	1200	1200	1200	-
	208/230-3-60	1200	1200	1200	1200	1200	-
	460-3-60	-	1200	1200	1200	1200	-
	600-3-60	-	-	1200	1200	1200	-
060 (5.0)	208/230-1-60	1500	1500	1500	1500	1500	1500
	208/230-3-60	1500	1500	1500	1500	1500	1500
	460-3-60	-	1500	1500	1500	1500	1500
	600-3-60	-	-	1500	1500	1500	1500

Indoor Blower Specifications (Belt Drive)

Size (Tons)	Motor					Motor Sheave			Blower Sheave			Belt
	HP	RPM	Eff.	SF	Frame	Datum Dia. (in.)	Bore (in.)	Model	Datum Dia. (in.)	Bore (in.)	Model	
036 (3.0)	1-1/2	1725	0.8	1.15	56	2.8 - 3.8	7/8	1VL44	6.0	1	AK64	A37
	1-1/2	1725	0.8	1.15	56	4.0 - 5.0	7/8	1VP56	6.2	1	AK66	A39
048 (4.0)	1-1/2	1725	0.8	1.15	56	2.8 - 3.8	7/8	1VL44	5.2	1	AK56	A36
	1-1/2	1725	0.8	1.15	56	4.0 - 5.0	7/8	1VP56	5.7	1	AK61	A38
060 (5.0)	1-1/2	1725	0.8	1.15	56	2.8 - 3.8	7/8	1VL44	5.2	1	AK56	A36
	2	1725	0.8	1.15	56	4.0 - 5.0	7/8	1VP56	5.2	1	AK56	A38

Power Exhaust Specifications

Model	Voltage	Motor			Motor			Fuse Size	CFM @ 0.1 ESP
		HP	RPM ¹	QTY	LRA	FLA	MCA		
2PE04703025	208/230-1-60	1/2	1725	1	23.7	4.4	5.5	8	1350
2PE04703046	460-1-60	1/2	1725	1	4.1	1.7	2.1	5	1350

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

Electric Heat Multipliers

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

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

Sound Performance

ZJ/ZR/XP Indoor Sound Power Levels

Size (Tons)	CFM	ESP (IWG)	Blower		Sound Power, dB (10 ⁻¹²) Watts								
			RPM	BHP	Sound Rating ¹ dB (A)	Octave Band Centerline Frequency (Hz)							
						63	125	250	500	1000	2000	4000	8000
036 (3.0)	1200	0.2	630	0.41	63.0	82	77	59	50	43	42	40	45
048 (4.0)	1600	0.2	791	0.54	71.5	95	84	58	54	46	44	45	44
060 (5.0)	2000	0.2	840	0.67	61.9	84	71	58	53	50	49	49	49

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

ZJ/ZR Outdoor Sound Power Levels

Size (Tons)	Sound Rating ¹ dB (A)	Octave Band Centerline Frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
036 (3.0)	81	87.5	86.0	81.0	77.0	75.0	69.5	65.5	70.5
048 (4.0)	80	84.5	81.0	80.0	78.0	75.0	70.0	67.0	70.5
060 (5.0)	82	86.5	87.5	81.5	77.5	75.0	71.5	68.0	70.5

1. Rated in accordance with ARI 270 standard.

Electrical Data

Without Powered Convenience Outlet

ZJ036-060 (Belt Drive)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
036 (3.0)	208-1-60	16.6	88.0	26.0	2.3	7.6	0.0	None	-	-	-	30.6	40
								E05	4.0	1	19.2	33.5	45
								E07	5.6	1	26.9	43.2	45
								E10	8.0	1	38.5	57.6	60
								E15	11.9	2	57.2	81.0	90
								E20	15.9	2	76.4	105.1	110
	230-1-60	16.6	88.0	26.0	2.3	7.6	0.0	None	-	-	-	30.6	40
								E05	5.3	1	23.0	37.1	45
								E07	7.5	1	32.6	48.6	50
								E10	10.6	1	46.1	64.7	70
								E15	15.9	2	69.1	92.3	100
								E20	21.2	2	92.2	119.9	125
	208-3-60	12.8	95.0	20.0	2.3	5.2	0.0	None	-	-	-	23.5	30
								E05	4.0	1	11.1	23.5	30
								E07	5.6	1	15.5	25.9	35
								E10	8.0	1	22.2	34.3	35
								E15	11.9	2	33.0	47.8	50
								E20	15.9	2	44.1	61.7	70
	230-3-60	12.8	95.0	20.0	2.3	5.2	0.0	None	-	-	-	23.5	30
								E05	5.3	1	13.3	23.5	30
								E07	7.5	1	18.8	29.1	35
								E10	10.6	1	26.6	38.4	40
								E15	15.9	2	39.9	54.3	60
								E20	21.2	2	53.2	70.2	80
	460-3-60	6.4	45.0	10.0	1.3	2.6	0.0	None	-	-	-	11.9	15
								E07	6.8	1	8.5	13.5	15
								E10	10.1	1	12.7	18.4	20
								E15	13.6	2	17.1	23.7	25
								E20	19.5	2	24.5	32.6	35
								None	-	-	-	9.8	15
	575-3-60	5.4	38.0	8.5	1.3	2.0	0.0	E10	10.6	1	10.6	15.2	20
								E15	15.9	1	16.0	21.6	25
								E20	21.2	2	21.3	28.0	30
								None	-	-	-	9.8	15

ZJ036-060 (Belt Drive) (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
048 (4.0)	208-1-60	21.1	113.0	33.0	2.3	7.6	0.0	None	-	-	-	36.3	45
								E05	4.0	1	19.2	36.3	45
								E07	5.6	1	26.9	43.2	50
								E10	8.0	1	38.5	57.6	60
								E15	11.9	2	57.2	81.0	90
								E20	15.9	2	76.4	105.1	110
	230-1-60	21.1	113.0	33.0	2.3	7.6	0.0	None	-	-	-	36.3	45
								E05	5.3	1	23.0	37.1	45
								E07	7.5	1	32.6	48.6	50
								E10	10.6	1	46.1	64.7	70
								E15	15.9	2	69.1	92.3	100
								E20	21.2	2	92.2	119.9	125
	208-3-60	16.0	120.0	25.0	2.3	5.2	0.0	None	-	-	-	27.5	35
								E05	4.0	1	11.1	27.5	35
								E07	5.6	1	15.5	27.5	35
								E10	8.0	1	22.2	34.3	40
								E15	11.9	2	33.0	47.8	50
								E20	15.9	2	44.1	61.7	70
	230-3-60	16.0	120.0	25.0	2.3	5.2	0.0	None	-	-	-	27.5	35
								E05	5.3	1	13.3	27.5	35
								E07	7.5	1	18.8	29.1	35
								E10	10.6	1	26.6	38.4	40
								E15	15.9	2	39.9	54.3	60
								E20	21.2	2	53.2	70.2	80
	460-3-60	8.3	60.0	13.0	1.3	2.6	0.0	None	-	-	-	14.3	20
								E07	6.8	1	8.5	14.3	20
								E10	10.1	1	12.7	18.4	20
								E15	13.6	2	17.1	23.7	25
								E20	19.5	2	24.5	32.6	35
	575-3-60	6.7	40.0	10.5	1.3	2.0	0.0	None	-	-	-	11.4	15
								E10	10.6	1	10.6	15.2	20
								E15	15.9	1	16.0	21.6	25
								E20	21.2	2	21.3	28.0	30

ZJ036-060 (Belt Drive) (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
060 (5.0)	208-1-60	28.8	145.0	45.0	2.3	7.6	0.0	None	-	-	-	45.9	60
								E05	4.0	1	19.2	45.9	60
								E07	5.6	1	26.9	45.9	60
								E10	8.0	1	38.5	57.6	70
								E15	11.9	2	57.2	81.0	90
								E20	15.9	2	76.4	105.1	110
	230-1-60	28.8	145.0	45.0	2.3	7.6	0.0	E30	22.2	2	106.7	142.9	150
								None	-	-	-	45.9	60
								E05	5.3	1	23.0	45.9	60
								E07	7.5	1	32.6	48.6	60
								E10	10.6	1	46.1	64.7	70
								E15	15.9	2	69.1	92.3	100
	208-3-60	17.6	123.0	27.5	2.3	5.2	0.0	E20	21.2	2	92.2	119.9	125
								E30	29.6	2	128.7	163.7	175
								None	-	-	-	29.5	40
								E05	4.0	1	11.1	29.5	40
								E07	5.6	1	15.5	29.5	40
								E10	8.0	1	22.2	34.3	45
	230-3-60	17.6	123.0	27.5	2.3	5.2	0.0	E15	11.9	2	33.0	47.8	50
								E20	15.9	2	44.1	61.7	70
								E30	22.2	2	61.6	83.5	90
								None	-	-	-	29.5	40
								E05	5.3	1	13.3	29.5	40
								E07	7.5	1	18.8	29.5	40
	460-3-60	9.6	70.0	15.0	1.3	2.6	0.0	E10	10.6	1	26.6	38.4	45
								E15	15.9	2	39.9	54.3	60
								E20	21.2	2	53.2	70.2	80
								E30	29.6	2	74.3	95.5	100
								None	-	-	-	15.9	20
								E07	6.8	1	8.5	15.9	20
575-3-60	7.5	53.0	11.7	1.3	1.3	2.0	0.0	E10	10.1	1	12.7	18.4	25
								E15	13.6	2	17.1	23.7	25
								E20	19.5	2	24.5	32.6	35
								E30	28.8	2	36.1	46.6	50
								None	-	-	-	12.4	15
								E10	10.6	1	10.6	15.2	20
								E15	15.9	1	16.0	21.6	25
								E20	21.2	2	21.3	28.0	30
								E30	30.4	2	30.5	39.1	40

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

ZJ036-060 (Belt Drive High Static)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
036 (3.0)	208-1-60	16.6	88.0	26.0	2.3	7.6	0.0	None	-	-	-	30.6	40
								E05	4.0	1	19.2	33.5	45
								E07	5.6	1	26.9	43.2	45
								E10	8.0	1	38.5	57.6	60
								E15	11.9	2	57.2	81.0	90
								E20	15.9	2	76.4	105.1	110
	230-1-60	16.6	88.0	26.0	2.3	7.6	0.0	None	-	-	-	30.6	40
								E05	5.3	1	23.0	37.1	45
								E07	7.5	1	32.6	48.6	50
								E10	10.6	1	46.1	64.7	70
								E15	15.9	2	69.1	92.3	100
								E20	21.2	2	92.2	119.9	125
	208-3-60	12.8	95.0	20.0	2.3	5.2	0.0	None	-	-	-	23.5	30
								E05	4.0	1	11.1	23.5	30
								E07	5.6	1	15.5	25.9	35
								E10	8.0	1	22.2	34.3	35
								E15	11.9	2	33.0	47.8	50
								E20	15.9	2	44.1	61.7	70
	230-3-60	12.8	95.0	20.0	2.3	5.2	0.0	None	-	-	-	23.5	30
								E05	5.3	1	13.3	23.5	30
								E07	7.5	1	18.8	29.1	35
								E10	10.6	1	26.6	38.4	40
								E15	15.9	2	39.9	54.3	60
								E20	21.2	2	53.2	70.2	80
	460-3-60	6.4	45.0	10.0	1.3	2.6	0.0	None	-	-	-	11.9	15
								E07	6.8	1	8.5	13.5	15
								E10	10.1	1	12.7	18.4	20
								E15	13.6	2	17.1	23.7	25
	575-3-60	5.4	38.0	8.5	1.3	2.0	0.0	E20	19.5	2	24.5	32.6	35
								None	-	-	-	9.8	15
								E10	10.6	1	10.6	15.2	20
								E15	15.9	1	16.0	21.6	25
								E20	21.2	2	21.3	28.0	30
								None	-	-	-	36.3	45
048 (4.0)	208-1-60	21.1	113.0	33.0	2.3	7.6	0.0	None	-	-	-	36.3	45
								E05	4.0	1	19.2	36.3	45
								E07	5.6	1	26.9	43.2	50
								E10	8.0	1	38.5	57.6	60
								E15	11.9	2	57.2	81.0	90
								E20	15.9	2	76.4	105.1	110
	230-1-60	21.1	113.0	33.0	2.3	7.6	0.0	None	-	-	-	36.3	45
								E05	5.3	1	23.0	37.1	45
								E07	7.5	1	32.6	48.6	50
								E10	10.6	1	46.1	64.7	70
								E15	15.9	2	69.1	92.3	100
								E20	21.2	2	92.2	119.9	125
	208-3-60	16.0	120.0	25.0	2.3	5.2	0.0	None	-	-	-	27.5	35
								E05	4.0	1	11.1	27.5	35
								E07	5.6	1	15.5	27.5	35
								E10	8.0	1	22.2	34.3	40
								E15	11.9	2	33.0	47.8	50
								E20	15.9	2	44.1	61.7	70
	230-3-60	16.0	120.0	25.0	2.3	5.2	0.0	None	-	-	-	27.5	35
								E05	5.3	1	13.3	27.5	35
								E07	7.5	1	18.8	29.1	35
								E10	10.6	1	26.6	38.4	40
								E15	15.9	2	39.9	54.3	60
								E20	21.2	2	53.2	70.2	80
	460-3-60	8.3	60.0	13.0	1.3	2.6	0.0	None	-	-	-	14.3	20
								E07	6.8	1	8.5	14.3	20
								E10	10.1	1	12.7	18.4	20
								E15	13.6	2	17.1	23.7	25
	575-3-60	6.7	40.0	10.5	1.3	2.0	0.0	E20	19.5	2	24.5	32.6	35
								None	-	-	-	11.4	15
								E10	10.6	1	10.6	15.2	20
								E15	15.9	1	16.0	21.6	25
								E20	21.2	2	21.3	28.0	30
								None	-	-	-	36.3	45

ZJ036-060 (Belt Drive High Static) (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
060 (5.0)	208-3-60	17.6	123.0	27.5	2.3	8.2	0.0	None	-	-	-	32.5	40
								E05	4.0	1	11.1	32.5	40
								E07	5.6	1	15.5	32.5	40
								E10	8.0	1	22.2	38.0	50
								E15	11.9	2	33.0	51.5	60
								E20	15.9	2	44.1	65.4	70
	230-3-60	17.6	123.0	27.5	2.3	8.2	0.0	E30	22.2	2	61.6	87.3	90
								None	-	-	-	32.5	40
								E05	5.3	1	13.3	32.5	40
								E07	7.5	1	18.8	32.8	40
								E10	10.6	1	26.6	42.1	50
								E15	15.9	2	39.9	58.1	60
	460-3-60	9.6	70.0	15.0	1.3	4.1	0.0	E20	21.2	2	53.2	74.0	80
								E30	29.6	2	74.3	99.3	100
								None	-	-	-	17.4	25
								E07	6.8	1	8.5	17.4	25
								E10	10.1	1	12.7	20.3	25
								E15	13.6	2	17.1	25.6	30
	575-3-60	7.5	53.0	11.7	1.3	3.6	0.0	E20	19.5	2	24.5	34.4	35
								E30	28.8	2	36.1	48.4	50
								None	-	-	-	14.0	20
								E10	10.6	1	10.6	17.2	20
								E15	15.9	1	16.0	23.6	25
								E20	21.2	2	21.3	30.0	30
								E30	30.4	2	30.5	41.1	45

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

ZJ036-060 (Direct Drive)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
036 (3.0)	208-1-60	16.6	88.0	26.0	2.3	6.0	0.0	None	-	-	-	29.1	35
								E05	4.0	1	19.2	31.5	40
								E07	5.6	1	26.9	41.2	45
								E10	8.0	1	38.5	55.6	60
								E15	11.9	2	57.2	79.0	80
								E20	15.9	2	76.4	103.1	110
	230-1-60	16.6	88.0	26.0	2.3	6.0	0.0	None	-	-	-	29.1	35
								E05	5.3	1	23.0	35.1	45
								E07	7.5	1	32.6	46.6	50
								E10	10.6	1	46.1	62.7	70
								E15	15.9	2	69.1	90.3	100
								E20	21.2	2	92.2	117.9	125
	208-3-60	12.8	95.0	20.0	2.3	6.0	0.0	None	-	-	-	24.3	30
								E05	4.0	1	11.1	24.3	30
								E07	5.6	1	15.5	26.9	35
								E10	8.0	1	22.2	35.3	40
								E15	11.9	2	33.0	48.8	50
								E20	15.9	2	44.1	62.7	70
	230-3-60	12.8	95.0	20.0	2.3	6.0	0.0	None	-	-	-	24.3	30
								E05	5.3	1	13.3	24.3	30
								E07	7.5	1	18.8	30.1	35
								E10	10.6	1	26.6	39.4	40
								E15	15.9	2	39.9	55.3	60
								E20	21.2	2	53.2	71.2	80
048 (4.0)	208-1-60	21.1	113.0	33.0	2.3	7.6	0.0	None	-	-	-	36.3	45
								E05	4.0	1	19.2	36.3	45
								E07	5.6	1	26.9	43.2	50
								E10	8.0	1	38.5	57.6	60
								E15	11.9	2	57.2	81.0	90
								E20	15.9	2	76.4	105.1	110
	230-1-60	21.1	113.0	33.0	2.3	7.6	0.0	None	-	-	-	36.3	45
								E05	5.3	1	23.0	37.1	45
								E07	7.5	1	32.6	48.6	50
								E10	10.6	1	46.1	64.7	70
								E15	15.9	2	69.1	92.3	100
								E20	21.2	2	92.2	119.9	125
	208-3-60	16.0	120.0	25.0	2.3	7.6	0.0	None	-	-	-	29.9	40
								E05	4.0	1	11.1	29.9	40
								E07	5.6	1	15.5	29.9	40
								E10	8.0	1	22.2	37.3	45
								E15	11.9	2	33.0	50.8	60
								E20	15.9	2	44.1	64.7	70
	230-3-60	16.0	120.0	25.0	2.3	7.6	0.0	None	-	-	-	29.9	40
								E05	5.3	1	13.3	29.9	40
								E07	7.5	1	18.8	32.1	40
								E10	10.6	1	26.6	41.4	45
								E15	15.9	2	39.9	57.3	60
								E20	21.2	2	53.2	73.2	80

ZJ036-060 (Direct Drive) (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
060 (5.0)	208-1-60	28.8	145.0	45.0	2.3	7.6	0.0	None	-	-	-	45.9	60
								E05	4.0	1	19.2	45.9	60
								E07	5.6	1	26.9	45.9	60
								E10	8.0	1	38.5	57.6	70
								E15	11.9	2	57.2	81.0	90
								E20	15.9	2	76.4	105.1	110
	230-1-60	28.8	145.0	45.0	2.3	7.6	0.0	E30	22.2	2	106.7	142.9	150
								None	-	-	-	45.9	60
								E05	5.3	1	23.0	45.9	60
								E07	7.5	1	32.6	48.6	60
								E10	10.6	1	46.1	64.7	70
								E15	15.9	2	69.1	92.3	100
	208-3-60	17.6	123.0	27.5	2.3	7.6	0.0	E20	21.2	2	92.2	119.9	125
								E30	29.6	2	128.7	163.7	175
								None	-	-	-	31.9	40
								E05	4.0	1	11.1	31.9	40
								E07	5.6	1	15.5	31.9	40
								E10	8.0	1	22.2	37.3	45
	230-3-60	17.6	123.0	27.5	2.3	7.6	0.0	E15	11.9	2	33.0	50.8	60
								E20	15.9	2	44.1	64.7	70
								E30	22.2	2	61.6	86.5	90
								None	-	-	-	31.9	40
								E05	5.3	1	13.3	31.9	40
								E07	7.5	1	18.8	32.1	40
								E10	10.6	1	26.6	41.4	45
								E15	15.9	2	39.9	57.3	60
								E20	21.2	2	53.2	73.2	80
								E30	29.6	2	74.3	98.5	100

1. Minimum Circuit Ampacity.

2. Dual Element, Time Delay Type.

3. HACR type per NEC.

With Powered Convenience Outlet

ZJ036-060 (Belt Drive)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
036 (3.0)	208-1-60	16.6	88.0	26.0	2.3	7.6	10.0	None	-	-	-	40.7	50
								E05	4.0	1	19.2	46.0	50
								E07	5.6	1	26.9	55.7	60
								E10	8.0	1	38.5	70.1	80
								E15	11.9	2	57.2	93.5	100
								E20	15.9	2	76.4	117.6	125
	230-1-60	16.6	88.0	26.0	2.3	7.6	10.0	None	-	-	-	40.7	50
								E05	5.3	1	23.0	49.6	50
								E07	7.5	1	32.6	61.1	70
								E10	10.6	1	46.1	77.2	80
								E15	15.9	2	69.1	104.8	110
								E20	21.2	2	92.2	132.4	150
	208-3-60	12.8	95.0	20.0	2.3	5.2	10.0	None	-	-	-	33.5	45
								E05	4.0	1	11.1	33.5	45
								E07	5.6	1	15.5	38.4	45
								E10	8.0	1	22.2	46.8	50
								E15	11.9	2	33.0	60.3	70
								E20	15.9	2	44.1	74.2	80
	230-3-60	12.8	95.0	20.0	2.3	5.2	10.0	None	-	-	-	33.5	45
								E05	5.3	1	13.3	34.9	45
								E07	7.5	1	18.8	41.6	45
								E10	10.6	1	26.6	50.9	60
								E15	15.9	2	39.9	66.8	70
								E20	21.2	2	53.2	82.7	90
	460-3-60	6.4	45.0	10.0	1.3	2.6	5.0	None	-	-	-	16.9	20
								E07	6.8	1	8.5	19.7	20
								E10	10.1	1	12.7	24.7	25
								E15	13.6	2	17.1	29.9	30
	575-3-60	5.4	38.0	8.5	1.3	2.0	4.0	E20	19.5	2	24.5	38.8	40
								None	-	-	-	13.8	15
								E10	10.6	1	10.6	20.2	25
								E15	15.9	1	16.0	26.6	30
048 (4.0)	208-1-60	21.1	113.0	33.0	2.3	7.6	10.0	E20	21.2	2	21.3	33.0	35
								None	-	-	-	46.3	60
								E05	4.0	1	19.2	46.3	60
								E07	5.6	1	26.9	55.7	60
								E10	8.0	1	38.5	70.1	80
								E15	11.9	2	57.2	93.5	100
	230-1-60	21.1	113.0	33.0	2.3	7.6	10.0	E20	15.9	2	76.4	117.6	125
								None	-	-	-	46.3	60
								E05	5.3	1	23.0	49.6	60
								E07	7.5	1	32.6	61.1	70
								E10	10.6	1	46.1	77.2	80
								E15	15.9	2	69.1	104.8	110
	208-3-60	16.0	120.0	25.0	2.3	5.2	10.0	E20	21.2	2	92.2	132.4	150
								None	-	-	-	37.5	50
								E05	4.0	1	11.1	37.5	50
								E07	5.6	1	15.5	38.4	50
								E10	8.0	1	22.2	46.8	50
								E15	11.9	2	33.0	60.3	70
	230-3-60	16.0	120.0	25.0	2.3	5.2	10.0	E20	15.9	2	44.1	74.2	80
								None	-	-	-	37.5	50
								E05	5.3	1	13.3	37.5	50
								E07	7.5	1	18.8	41.6	50
								E10	10.6	1	26.6	50.9	60
								E15	15.9	2	39.9	66.8	70
	460-3-60	8.3	60.0	13.0	1.3	2.6	5.0	E20	21.2	2	53.2	82.7	90
								None	-	-	-	19.3	25
								E07	6.8	1	8.5	19.7	25
								E10	10.1	1	12.7	24.7	25
	575-3-60	6.7	40.0	10.5	1.3	2.0	4.0	E15	13.6	2	17.1	29.9	30
								E20	19.5	2	24.5	38.8	40
								None	-	-	-	15.4	20
								E10	10.6	1	10.6	20.2	25
								E15	15.9	1	16.0	26.6	30
								E20	21.2	2	21.3	33.0	35

ZJ036-060 (Belt Drive) (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
060 (5.0)	208-1-60	28.8	145.0	45.0	2.3	7.6	10.0	None	-	-	-	55.9	70
								E05	4.0	1	19.2	55.9	70
								E07	5.6	1	26.9	55.9	70
								E10	8.0	1	38.5	70.1	80
								E15	11.9	2	57.2	93.5	100
								E20	15.9	2	76.4	117.6	125
								E30	22.2	2	106.7	155.4	175
	230-1-60	28.8	145.0	45.0	2.3	7.6	10.0	None	-	-	-	55.9	70
								E05	5.3	1	23.0	55.9	70
								E07	7.5	1	32.6	61.1	80
								E10	10.6	1	46.1	77.2	80
								E15	15.9	2	69.1	104.8	110
								E20	21.2	2	92.2	132.4	150
								E30	29.6	2	128.7	176.2	200
	208-3-60	17.6	123.0	27.5	2.3	5.2	10.0	None	-	-	-	39.5	50
								E05	4.0	1	11.1	39.5	50
								E07	5.6	1	15.5	39.5	50
								E10	8.0	1	22.2	46.8	50
								E15	11.9	2	33.0	60.3	70
								E20	15.9	2	44.1	74.2	80
								E30	22.2	2	61.6	96.0	100
	230-3-60	17.6	123.0	27.5	2.3	5.2	10.0	None	-	-	-	39.5	50
								E05	5.3	1	13.3	39.5	50
								E07	7.5	1	18.8	41.6	50
								E10	10.6	1	26.6	50.9	60
								E15	15.9	2	39.9	66.8	70
								E20	21.2	2	53.2	82.7	90
								E30	29.6	2	74.3	108.0	110
	460-3-60	9.6	70.0	15.0	1.3	2.6	5.0	None	-	-	-	20.9	30
								E07	6.8	1	8.5	20.9	30
								E10	10.1	1	12.7	24.7	30
								E15	13.6	2	17.1	29.9	30
								E20	19.5	2	24.5	38.8	40
	575-3-60	7.5	53.0	11.7	1.3	2.0	4.0	E30	28.8	2	36.1	52.8	60
								None	-	-	-	16.4	20
								E10	10.6	1	10.6	20.2	25
								E15	15.9	1	16.0	26.6	30
								E20	21.2	2	21.3	33.0	35
								E30	30.4	2	30.5	44.1	45

1. Minimum Circuit Ampacity.

2. Dual Element, Time Delay Type.

3. HACR type per NEC.

ZJ036-060 (Belt Drive High Static)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
036 (3.0)	208-1-60	16.6	88.0	26.0	2.3	7.6	10.0	None	-	-	-	40.7	50
								E05	4.0	1	19.2	46.0	50
								E07	5.6	1	26.9	55.7	60
								E10	8.0	1	38.5	70.1	80
								E15	11.9	2	57.2	93.5	100
								E20	15.9	2	76.4	117.6	125
	230-1-60	16.6	88.0	26.0	2.3	7.6	10.0	None	-	-	-	40.7	50
								E05	5.3	1	23.0	49.6	50
								E07	7.5	1	32.6	61.1	70
								E10	10.6	1	46.1	77.2	80
								E15	15.9	2	69.1	104.8	110
								E20	21.2	2	92.2	132.4	150
	208-3-60	12.8	95.0	20.0	2.3	5.2	10.0	None	-	-	-	33.5	45
								E05	4.0	1	11.1	33.5	45
								E07	5.6	1	15.5	38.4	45
								E10	8.0	1	22.2	46.8	50
								E15	11.9	2	33.0	60.3	70
								E20	15.9	2	44.1	74.2	80
	230-3-60	12.8	95.0	20.0	2.3	5.2	10.0	None	-	-	-	33.5	45
								E05	5.3	1	13.3	34.9	45
								E07	7.5	1	18.8	41.6	45
								E10	10.6	1	26.6	50.9	60
								E15	15.9	2	39.9	66.8	70
								E20	21.2	2	53.2	82.7	90
	460-3-60	6.4	45.0	10.0	1.3	2.6	5.0	None	-	-	-	16.9	20
								E07	6.8	1	8.5	19.7	20
								E10	10.1	1	12.7	24.7	25
								E15	13.6	2	17.1	29.9	30
	575-3-60	5.4	38.0	8.5	1.3	2.0	4.0	E20	19.5	2	24.5	38.8	40
								None	-	-	-	13.8	15
								E10	10.6	1	10.6	20.2	25
								E15	15.9	1	16.0	26.6	30
048 (4.0)	208-1-60	21.1	113.0	33.0	2.3	7.6	10.0	E20	21.2	2	21.3	33.0	35
								None	-	-	-	46.3	60
								E05	4.0	1	19.2	46.3	60
								E07	5.6	1	26.9	55.7	60
								E10	8.0	1	38.5	70.1	80
								E15	11.9	2	57.2	93.5	100
	230-1-60	21.1	113.0	33.0	2.3	7.6	10.0	E20	15.9	2	76.4	117.6	125
								None	-	-	-	46.3	60
								E05	5.3	1	23.0	49.6	60
								E07	7.5	1	32.6	61.1	70
								E10	10.6	1	46.1	77.2	80
								E15	15.9	2	69.1	104.8	110
	208-3-60	16.0	120.0	25.0	2.3	5.2	10.0	E20	21.2	2	92.2	132.4	150
								None	-	-	-	37.5	50
								E05	4.0	1	11.1	37.5	50
								E07	5.6	1	15.5	38.4	50
								E10	8.0	1	22.2	46.8	50
								E15	11.9	2	33.0	60.3	70
	230-3-60	16.0	120.0	25.0	2.3	5.2	10.0	E20	15.9	2	44.1	74.2	80
								None	-	-	-	37.5	50
								E05	5.3	1	13.3	37.5	50
								E07	7.5	1	18.8	41.6	50
								E10	10.6	1	26.6	50.9	60
								E15	15.9	2	39.9	66.8	70
	460-3-60	8.3	60.0	13.0	1.3	2.6	5.0	E20	21.2	2	53.2	82.7	90
								None	-	-	-	19.3	25
								E07	6.8	1	8.5	19.7	25
								E10	10.1	1	12.7	24.7	25
	575-3-60	6.7	40.0	10.5	1.3	2.0	4.0	E15	13.6	2	17.1	29.9	30
								E20	19.5	2	24.5	38.8	40
								None	-	-	-	15.4	20
								E10	10.6	1	10.6	20.2	25
								E15	15.9	1	16.0	26.6	30
								E20	21.2	2	21.3	33.0	35

ZJ036-060 (Belt Drive High Static) (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ^{2/} Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
060 (5.0)	208-3-60	17.6	123.0	27.5	2.3	8.2	10.0	None	-	-	-	42.5	60
								E05	4.0	1	11.1	42.5	60
								E07	5.6	1	15.5	42.5	60
								E10	8.0	1	22.2	50.5	60
								E15	11.9	2	33.0	64.0	70
								E20	15.9	2	44.1	77.9	80
	230-3-60	17.6	123.0	27.5	2.3	8.2	10.0	E30	22.2	2	61.6	99.8	100
								None	-	-	-	42.5	60
								E05	5.3	1	13.3	42.5	60
								E07	7.5	1	18.8	45.3	60
								E10	10.6	1	26.6	54.6	60
								E15	15.9	2	39.9	70.6	80
	460-3-60	9.6	70.0	15.0	1.3	4.1	5.0	E20	21.2	2	53.2	86.5	90
								E30	29.6	2	74.3	111.8	125
								None	-	-	-	22.4	30
								E07	6.8	1	8.5	22.4	30
								E10	10.1	1	12.7	26.6	30
								E15	13.6	2	17.1	31.8	35
	575-3-60	7.5	53.0	11.7	1.3	3.6	4.0	E20	19.5	2	24.5	40.7	45
								E30	28.8	2	36.1	54.7	60
								None	-	-	-	18.0	25
								E10	10.6	1	10.6	22.2	25
								E15	15.9	1	16.0	28.6	30
								E20	21.2	2	21.3	35.0	35
								E30	30.4	2	30.5	46.1	50

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

ZJ036-060 (Direct Drive)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC				Model	kW	Stages	Amps		
036 (3.0)	208-1-60	16.6	88.0	26.0	2.3	6.0	10.0	None	-	-	-	39.0	50
								E05	4.0	1	19.2	44.0	50
								E07	5.6	1	26.9	53.7	60
								E10	8.0	1	38.5	68.1	70
								E15	11.9	2	57.2	91.5	100
								E20	15.9	2	76.4	115.6	125
	230-1-60	16.6	88.0	26.0	2.3	6.0	10.0	None	-	-	-	39.0	50
								E05	5.3	1	23.0	47.6	50
								E07	7.5	1	32.6	59.1	60
								E10	10.6	1	46.1	75.2	80
								E15	15.9	2	69.1	102.8	110
								E20	21.2	2	92.2	130.4	150
	208-3-60	12.8	95.0	20.0	2.3	6.0	10.0	None	-	-	-	34.3	45
								E05	4.0	1	11.1	34.3	45
								E07	5.6	1	15.5	39.4	45
								E10	8.0	1	22.2	47.8	50
								E15	11.9	2	33.0	61.3	70
								E20	15.9	2	44.1	75.2	80
	230-3-60	12.8	95.0	20.0	2.3	6.0	10.0	None	-	-	-	34.3	45
								E05	5.3	1	13.3	35.9	45
								E07	7.5	1	18.8	42.6	45
								E10	10.6	1	26.6	51.9	60
								E15	15.9	2	39.9	67.8	70
								E20	21.2	2	53.2	83.7	90
048 (4.0)	208-1-60	21.1	113.0	33.0	2.3	7.6	10.0	None	-	-	-	46.3	60
								E05	4.0	1	19.2	46.3	60
								E07	5.6	1	26.9	55.7	60
								E10	8.0	1	38.5	70.1	80
								E15	11.9	2	57.2	93.5	100
								E20	15.9	2	76.4	117.6	125
	230-1-60	21.1	113.0	33.0	2.3	7.6	10.0	None	-	-	-	46.3	60
								E05	5.3	1	23.0	49.6	60
								E07	7.5	1	32.6	61.1	70
								E10	10.6	1	46.1	77.2	80
								E15	15.9	2	69.1	104.8	110
								E20	21.2	2	92.2	132.4	150
	208-3-60	16.0	120.0	25.0	2.3	7.6	10.0	None	-	-	-	39.9	50
								E05	4.0	1	11.1	39.9	50
								E07	5.6	1	15.5	41.4	50
								E10	8.0	1	22.2	49.8	50
								E15	11.9	2	33.0	63.3	70
								E20	15.9	2	44.1	77.2	80
	230-3-60	16.0	120.0	25.0	2.3	7.6	10.0	None	-	-	-	39.9	50
								E05	5.3	1	13.3	39.9	50
								E07	7.5	1	18.8	44.6	50
								E10	10.6	1	26.6	53.9	60
								E15	15.9	2	39.9	69.8	70
								E20	21.2	2	53.2	85.7	90

ZJ036-060 (Direct Drive) (Continued)

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Pwr Conv Outlet	Electric Heat Option				MCA ¹ (Amps)	Max Fuse ² / Breaker ³ Size (Amps)
		RLA	LRA	MCC	FLA	FLA	FLA	Model	kW	Stages	Amps		
060 (5.0)	208-1-60	28.8	145.0	45.0	2.3	7.6	10.0	None	-	-	-	55.9	70
								E05	4.0	1	19.2	55.9	70
								E07	5.6	1	26.9	55.9	70
								E10	8.0	1	38.5	70.1	80
								E15	11.9	2	57.2	93.5	100
								E20	15.9	2	76.4	117.6	125
								E30	22.2	2	106.7	155.4	175
	230-1-60	28.8	145.0	45.0	2.3	7.6	10.0	None	-	-	-	55.9	70
								E05	5.3	1	23.0	55.9	70
								E07	7.5	1	32.6	61.1	80
								E10	10.6	1	46.1	77.2	80
								E15	15.9	2	69.1	104.8	110
								E20	21.2	2	92.2	132.4	150
								E30	29.6	2	128.7	176.2	200
	208-3-60	17.6	123.0	27.5	2.3	7.6	10.0	None	-	-	-	41.9	50
								E05	4.0	1	11.1	41.9	50
								E07	5.6	1	15.5	41.9	50
								E10	8.0	1	22.2	49.8	50
								E15	11.9	2	33.0	63.3	70
								E20	15.9	2	44.1	77.2	80
								E30	22.2	2	61.6	99.0	100
	230-3-60	17.6	123.0	27.5	2.3	7.6	10.0	None	-	-	-	41.9	50
								E05	5.3	1	13.3	41.9	50
								E07	7.5	1	18.8	44.6	50
								E10	10.6	1	26.6	53.9	60
								E15	15.9	2	39.9	69.8	70
								E20	21.2	2	53.2	85.7	90
								E30	29.6	2	74.3	111.0	125

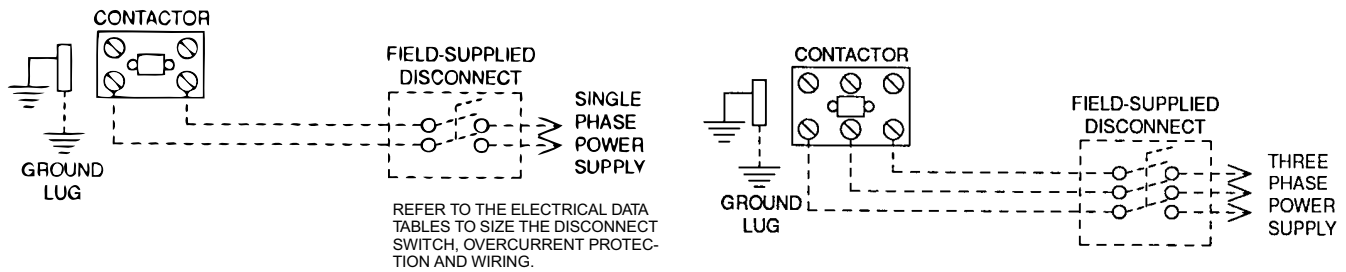
1. Minimum Circuit Ampacity.

2. Dual Element, Time Delay Type.

3. HACR type per NEC.

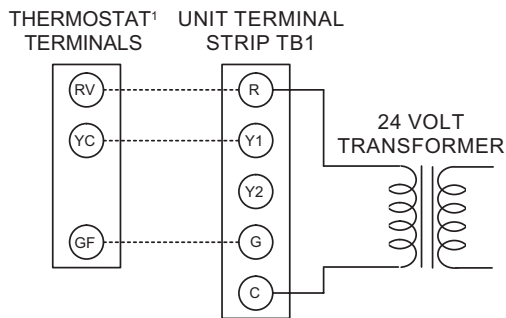
Typical Field Power and Control Wiring

TYPICAL POWER WIRING



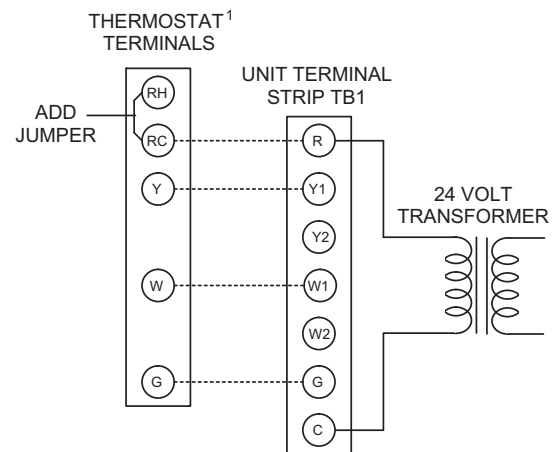
TYPICAL COOL/HEAT CONTROL WIRING

COOLING ONLY (24 VOLT THERMOSTAT)



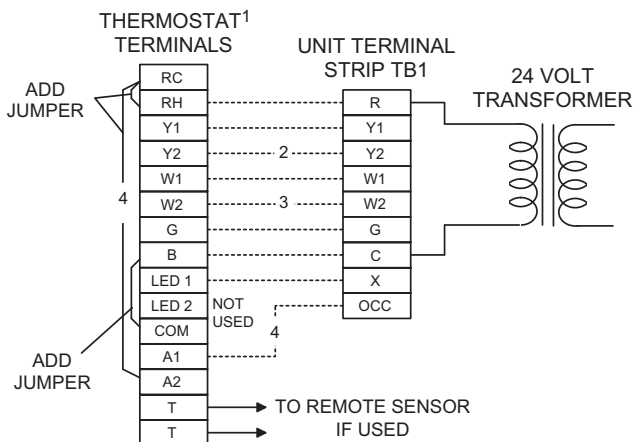
¹24 VOLT THERMOSTAT. TO CONTROL THE ECONOMIZER ON SECOND STAGE COOLING, USE A 2 STAGE COOLING THERMOSTAT.

COOLING / HEATING (24 VOLT THERMOSTAT)



¹24 VOLT THERMOSTAT. TO CONTROL THE ECONOMIZER ON THE SECOND STAGE COOLING OR TO HAVE AN ELECTRIC HEAT ACCESSORY WITH TWO STAGES OF HEAT, USE A 2 STAGE COOL AND HEAT THERMOSTAT.

COOLING / HEATING (ELECTRONIC THERMOSTAT) MULTI STAGE



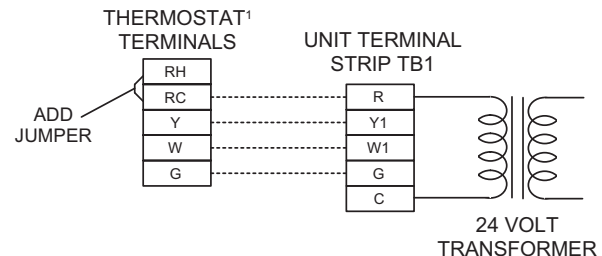
¹ ELECTRONIC PROGRAMMABLE THERMOSTAT TYPICAL.

² SECOND STAGE COOLING IS NOT REQUIRED ON UNITS LESS ECONOMIZER.

³ SECOND STAGE HEATING IS ONLY REQUIRED ON UNITS WITH A TWO STAGE ELECTRIC HEATER OR 2 STAGE GAS HEAT.

⁴ REMOVE JUMPER J2 FROM TERMINALS 4 AND 9 ON JUMPER PLUG CONNECTOR P6 ON UNITS WITH ECONOMIZER. TERMINALS A1 AND A2 PROVIDE A RELAY OUT-PUT TO CLOSE THE OUTDOOR ECONOMIZER DAMPERS WHEN THE THERMOSTAT SWITCHES TO THE SET-BACK POSITION.

COOLING / HEATING (ELECTRONIC THERMOSTAT) SINGLE STAGE

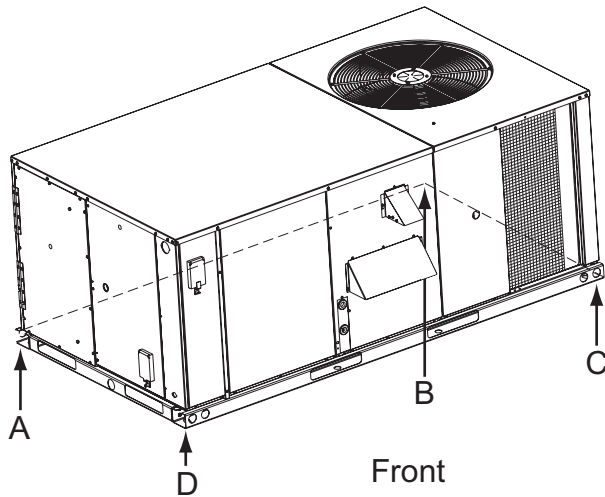


¹ELECTRONIC PROGRAMMABLE THERMOSTAT TYPICAL. TO CONTROL THE ECONOMIZER ON SECOND STAGE COOLING, USE A 2 STAGE COOL AND HEAT THERMOSTAT.

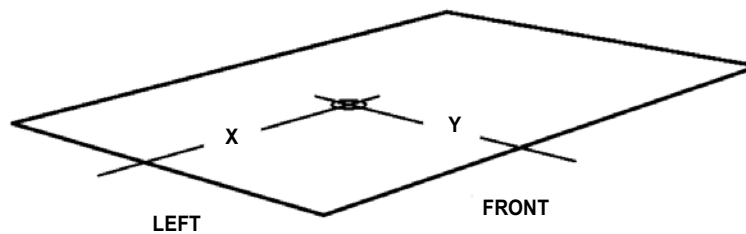
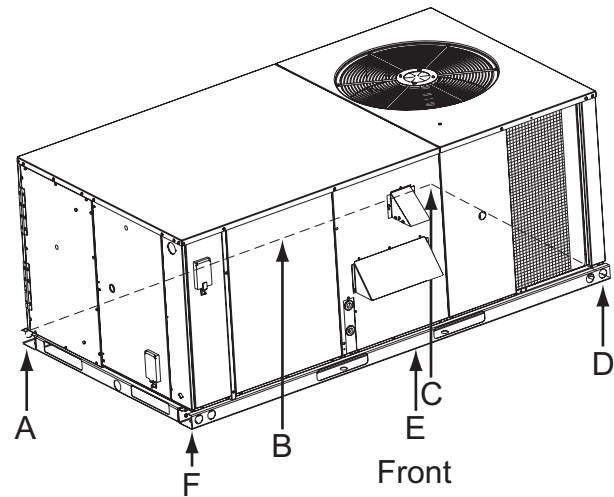
Weights and Dimensions

ZJ/ZR/XP036-060 Unit Weights

Unit 4 Point Load Weight



Unit 6 Point Load Weight



ZJ/ZR036-060

Size (Tons)	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
036 (3.0)	580	575	40	20	132	125	155	164	89	85	82	102	106	110
048 (4.0)	590	585	40	20	134	127	158	167	90	87	84	104	108	112
060 (5.0)	595	590	40	20	135	128	159	168	91	88	84	105	109	113

XP036-060

Size (Tons)	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
036 (3.0)	580	575	39	20	135	121	151	168	91	85	80	99	106	114
048 (4.0)	590	585	39	20	137	124	154	171	93	87	81	101	108	116
060 (5.0)	595	590	39	20	138	125	155	172	94	87	82	102	109	117

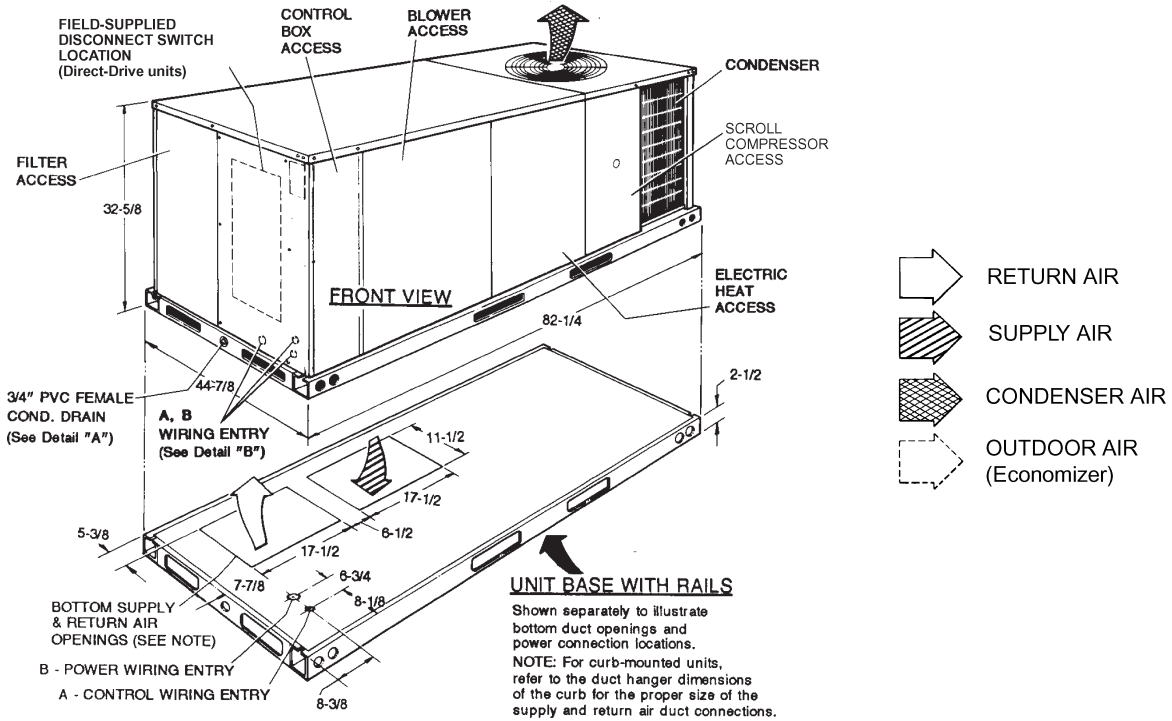
ZJ/ZR/XP036-060 Unit Accessory Weights

Unit Accessory	Weight (lbs.)	
	Shipping	Operating
Economizer	55	50
Power Exhaust	55	50
Electric Heat ¹	28	28
Gas Heat ²	70	70

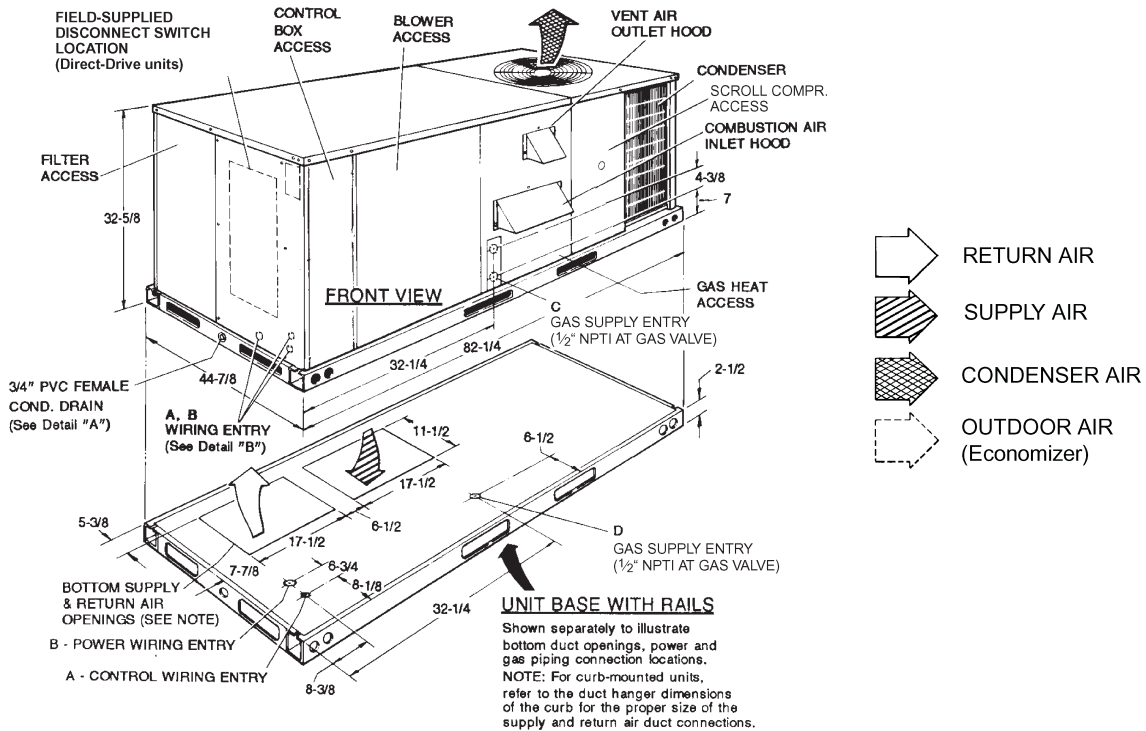
1. Weight given is for the maximum heater size available (30KW).
2. Weight given is for the maximum number of tube heat exchangers available (5 tube).

ZJ/ZR/XP036-060 Unit Dimensions

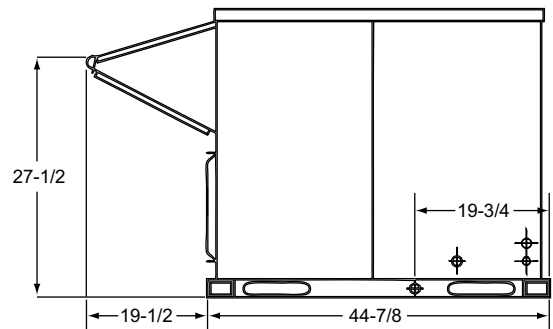
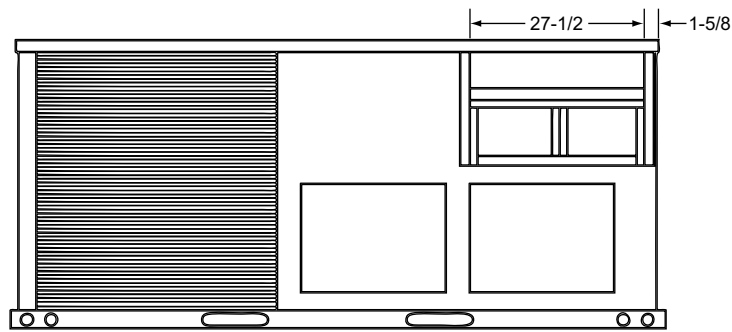
ZJ/ZR036-060 Cooling Only/Electric Heat Front View XP036-060 Heat Pump/Electric Heat Front View



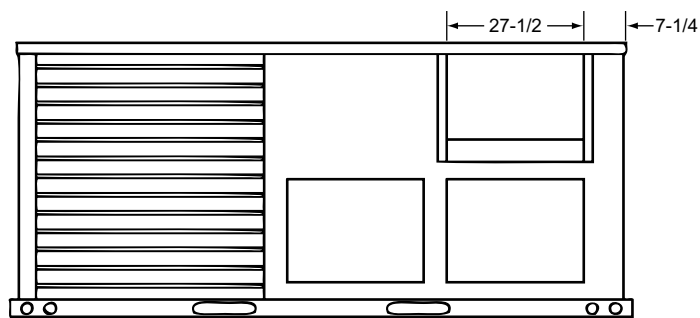
ZJ/ZR036-060 Cooling Only/Gas Heat Front View



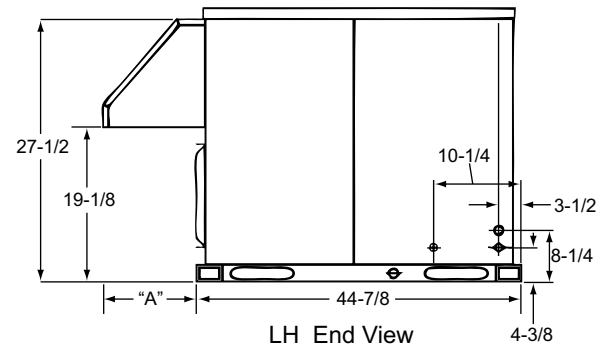
ZJ/ZR/XP036-060 Fixed Outdoor Air Motorized Damper Rain Hood



Detail "A"



Rear View

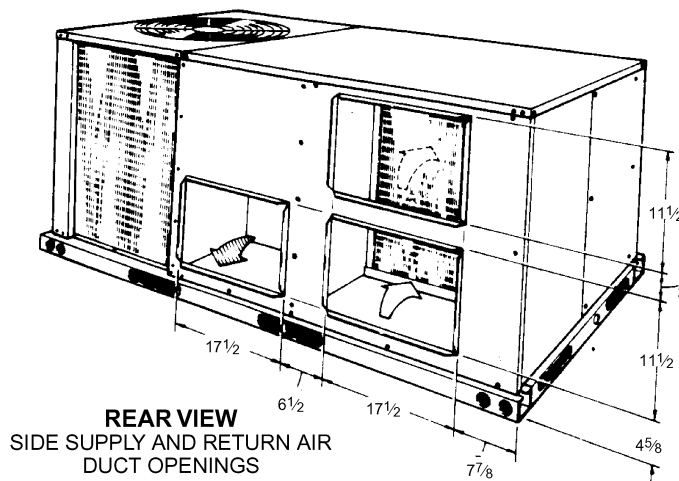


LH End View

Dimension "A"	
Fixed Outdoor Air Damper	12
Motorized Damper	16-1/2

Detail "B"

ZJ/ZR/XP036-060 Rear View



REAR VIEW
SIDE SUPPLY AND RETURN AIR
DUCT OPENINGS

DUCT COVERS - Units are shipped with all air duct openings covered.

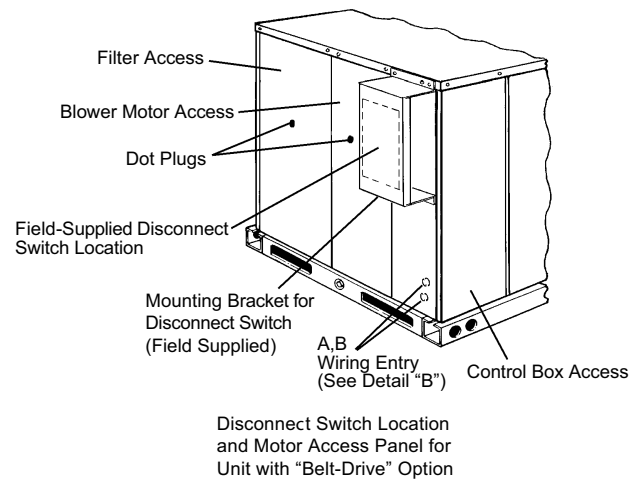
For side duct applications;

1. Remove and discard the supply and return air duct covers.
2. Connect ductwork to duct flanges on the rear of the unit.

For bottom duct applications;

1. Remove the side supply air duct cover to gain access to the bottom supply air knockout panel.
2. Remove and discard the bottom knockout panel.
3. Replace the side duct cover.
4. With filter section access panel removed from the unit, remove and discard the bottom return air knockout panel.
5. Replace the filter access panel.

ZJ/ZR/XP036-060 Disconnect



ZJ/ZR/XP036-060 Utilities Entry

Hole	Opening Size (Dia.)	Used For
A	7/8" KO ¹	Control Wiring ² Side Bottom
B	2" KO ¹	Power Wiring Side Bottom
C	1-5/8" KO	Gas Piping (Front)
D	1-1/2" KO	Gas Piping (Bottom)

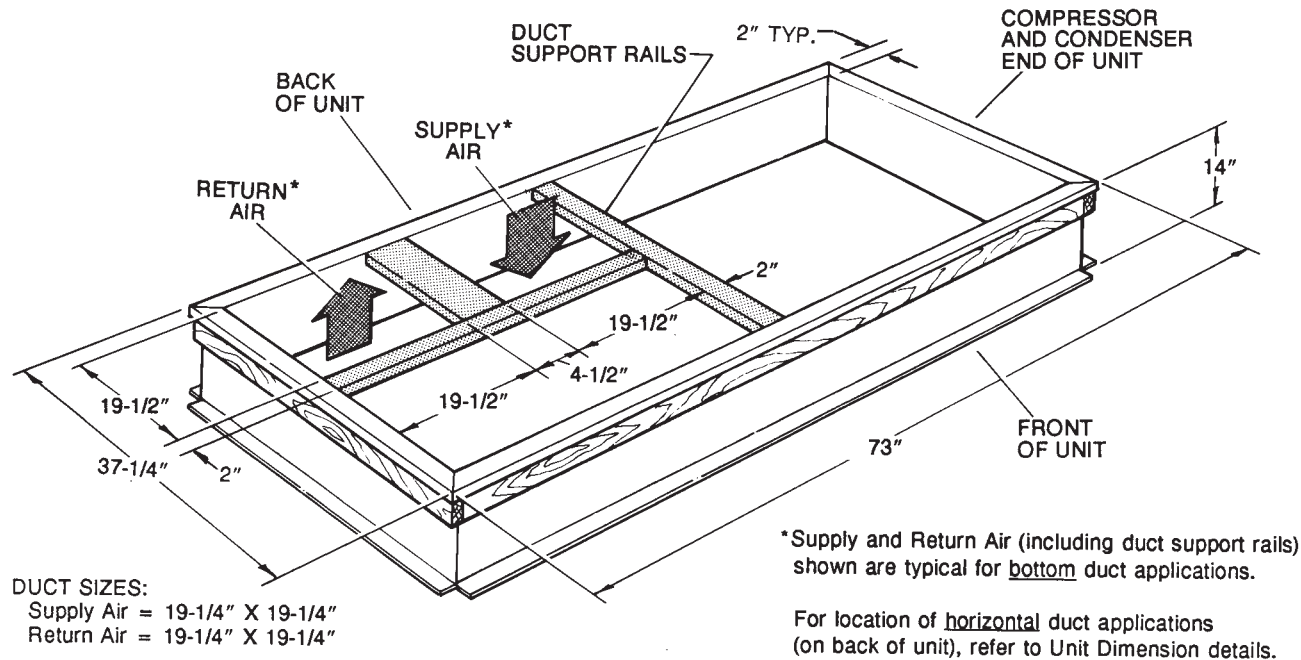
- 1. Opening in the bottom to the unit can be located by the slice in the insulation.
- 2. Do not remove the 2" knockout ring.

ZJ/ZR/XP036-060 Minimum Clearances

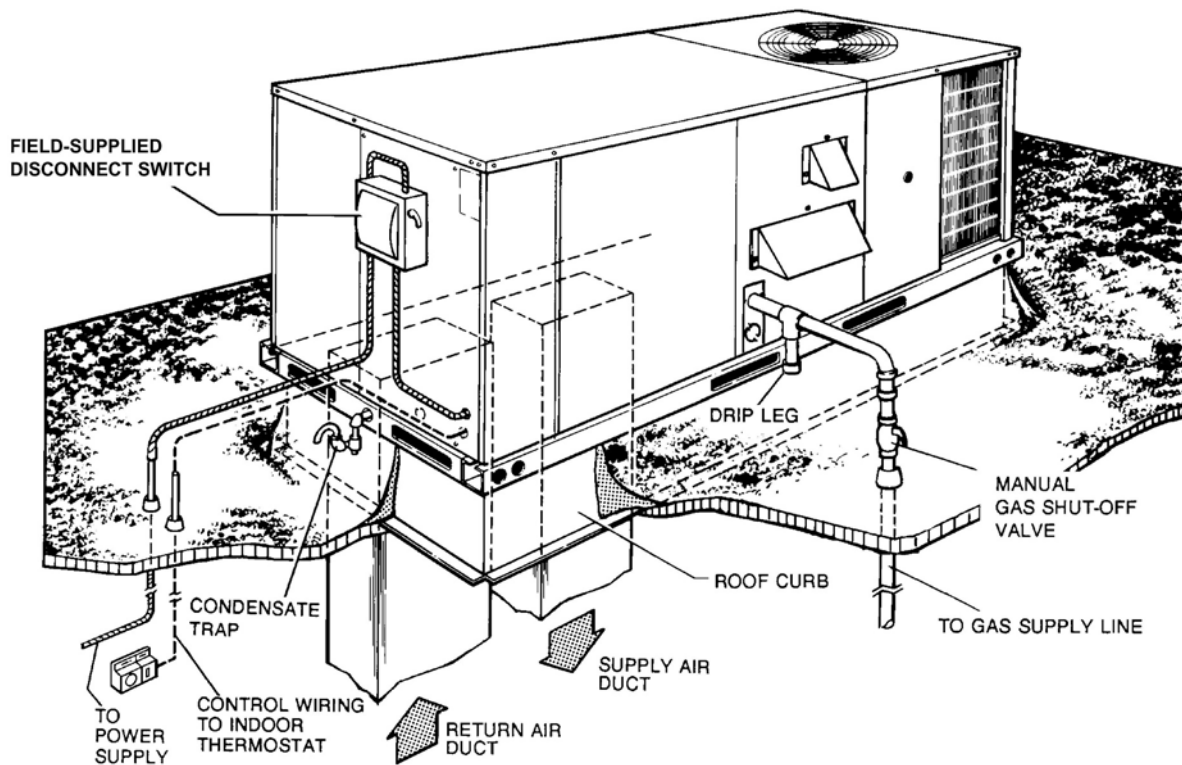
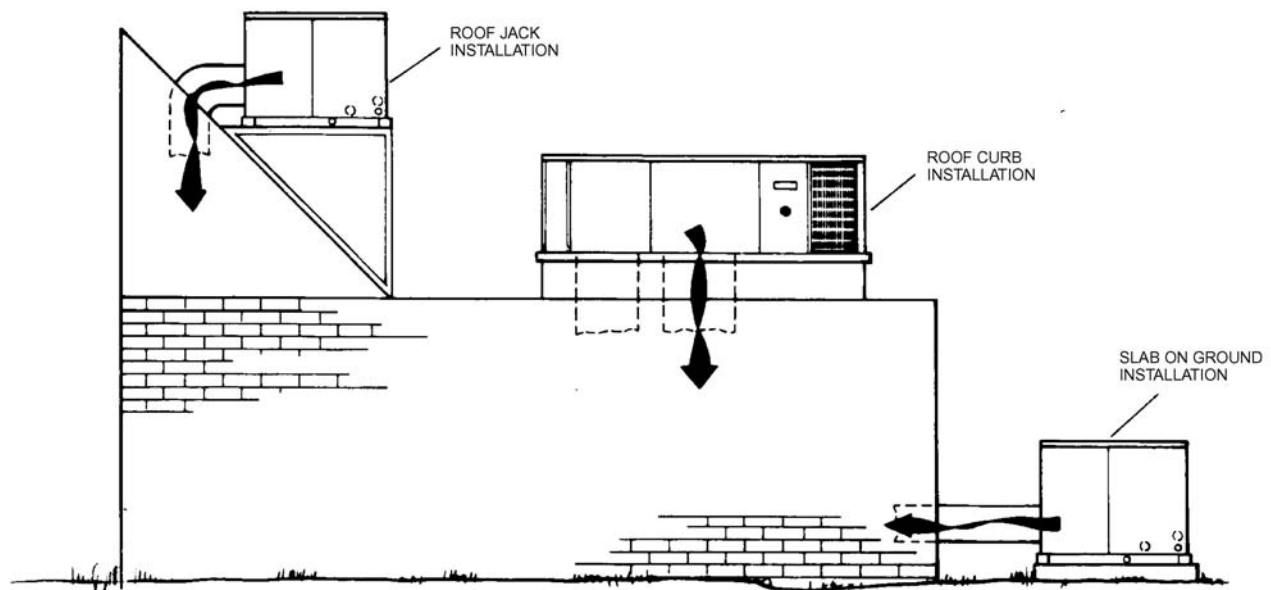
Location	Clearance
Front	24" (Cooling/Electric Heat) 32" (Gas Heat)
Rear	12" (Less Economizer) 36" (With Economizer or Fixed Air/Motorized Damper)
Left Side (Filter Access)	24" (Less Economizer) 36" (With Economizer)
Right Side (Cond. Coil)	24"
Below Unit ¹	0"
Above Unit ²	72" (For Condenser Air Discharge)

- 1. Units may be installed on combustible floors made from wood or class A, B, or C roof covering material.
- 2. Units must be installed outdoors. Overhanging structures or shrubs should not obstruct condenser air discharge outlet.

ZJ/ZR/XP036-060 Roof Curb Dimensions

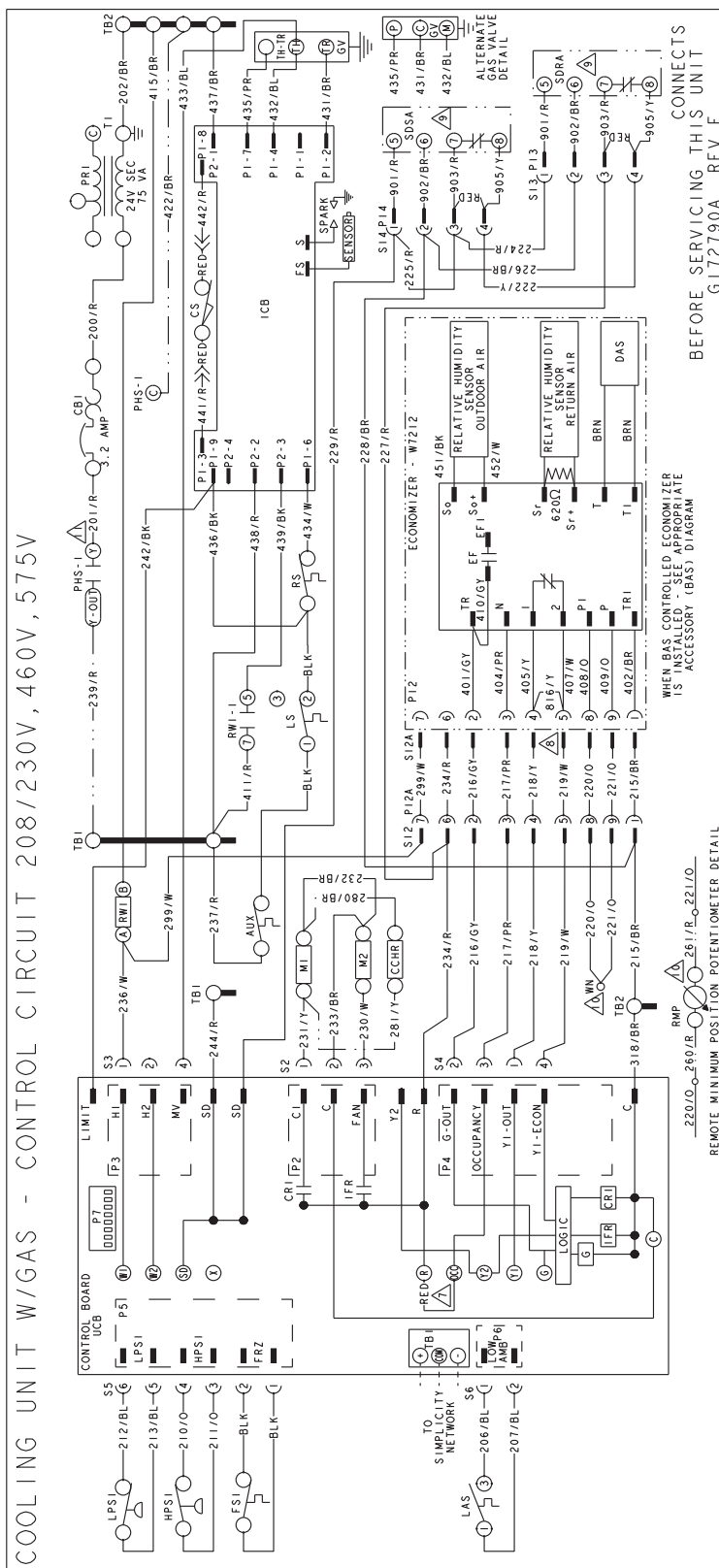


ZJ/ZR/XP036-060 Typical Applications

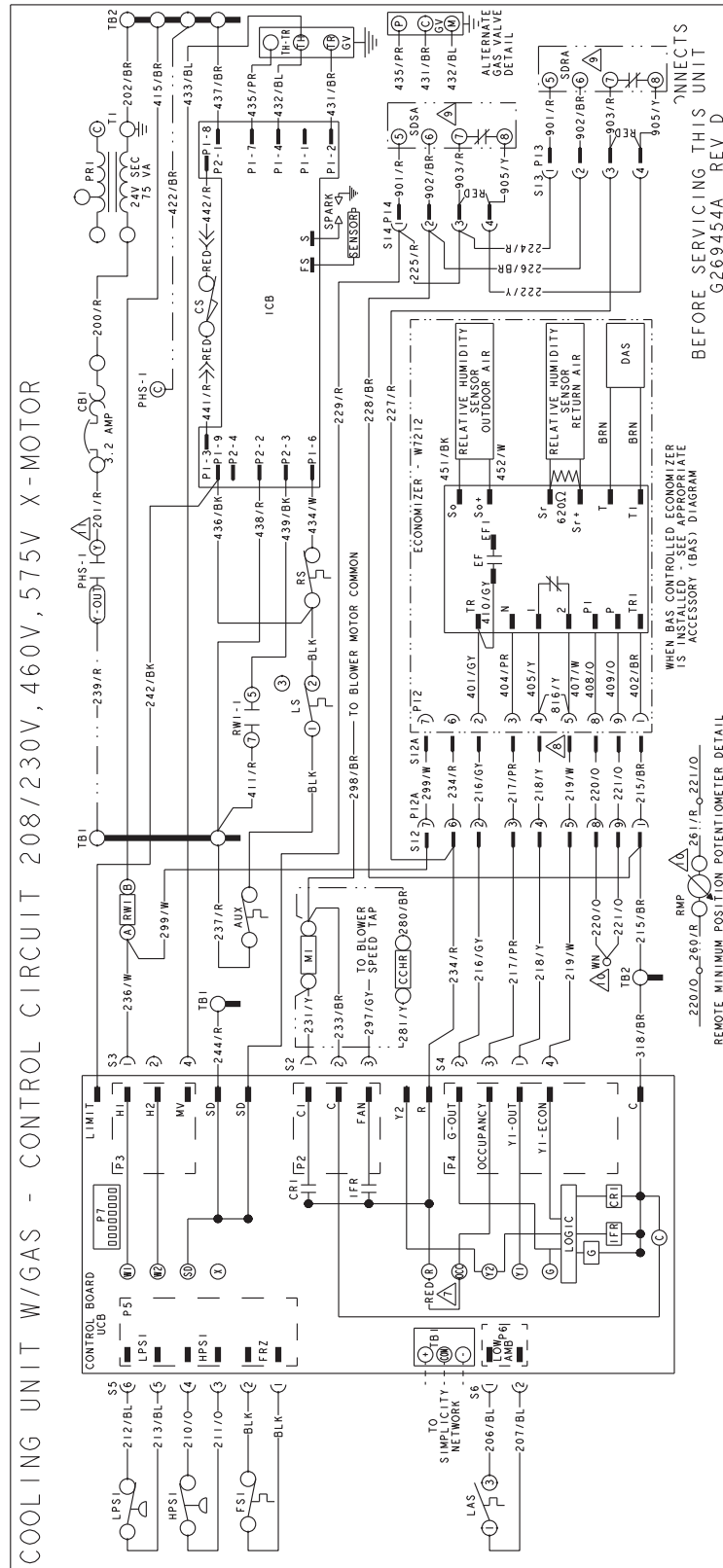


Typical Wiring Diagrams

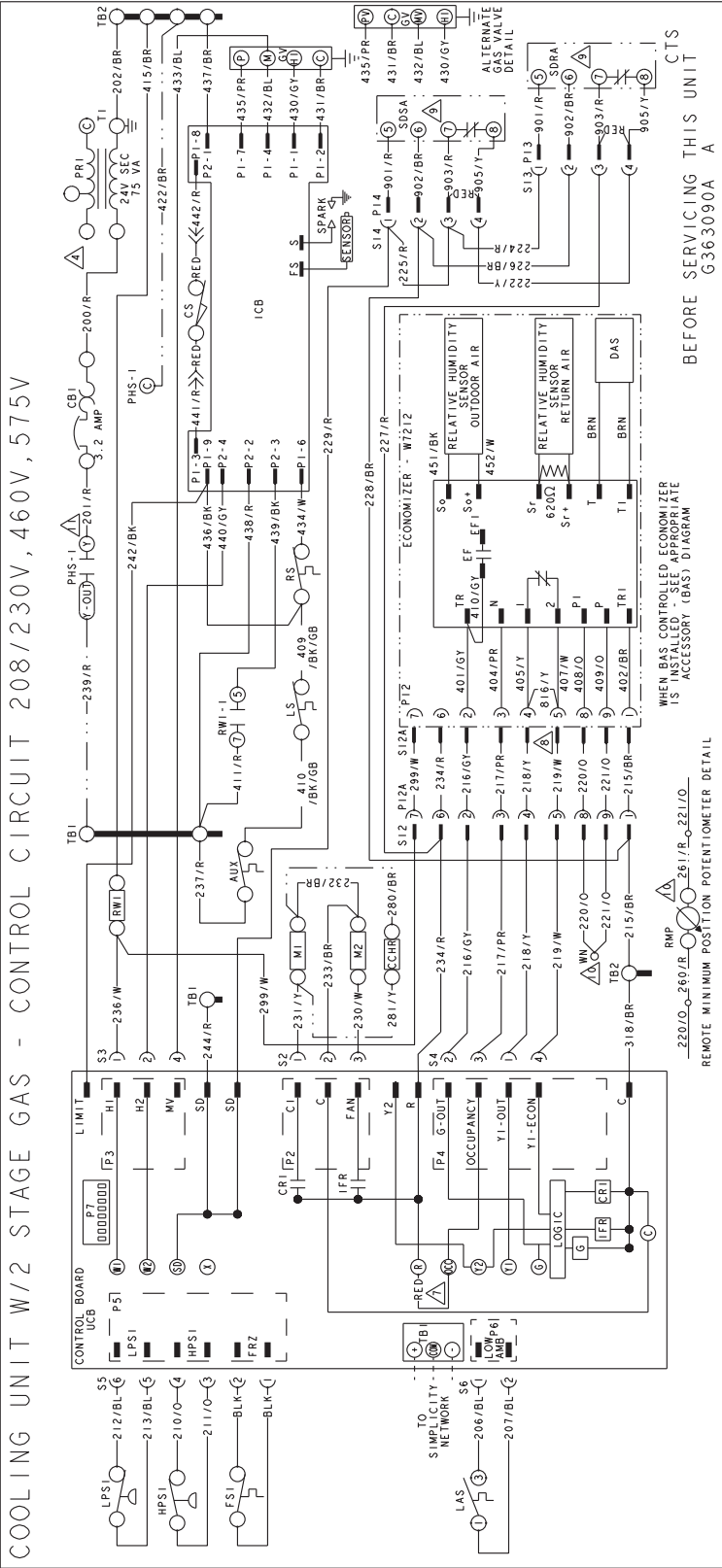
Typical ZJ Belt Drive With Single Stage Gas Heat Control Circuit 208/230V, 460V and 575V Diagram



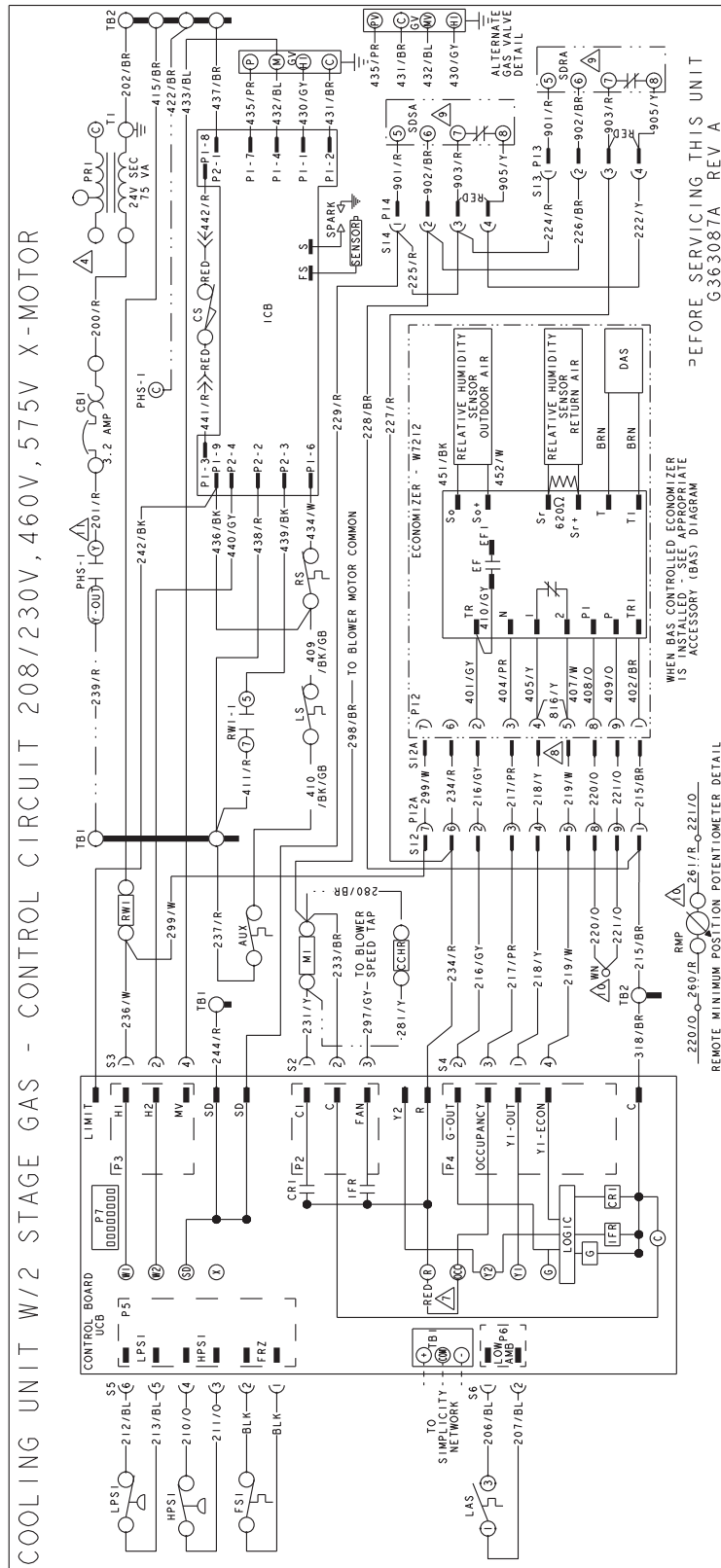
Typical ZJ Direct Drive With Single Stage Gas Heat Control Circuit 208/230V Diagram



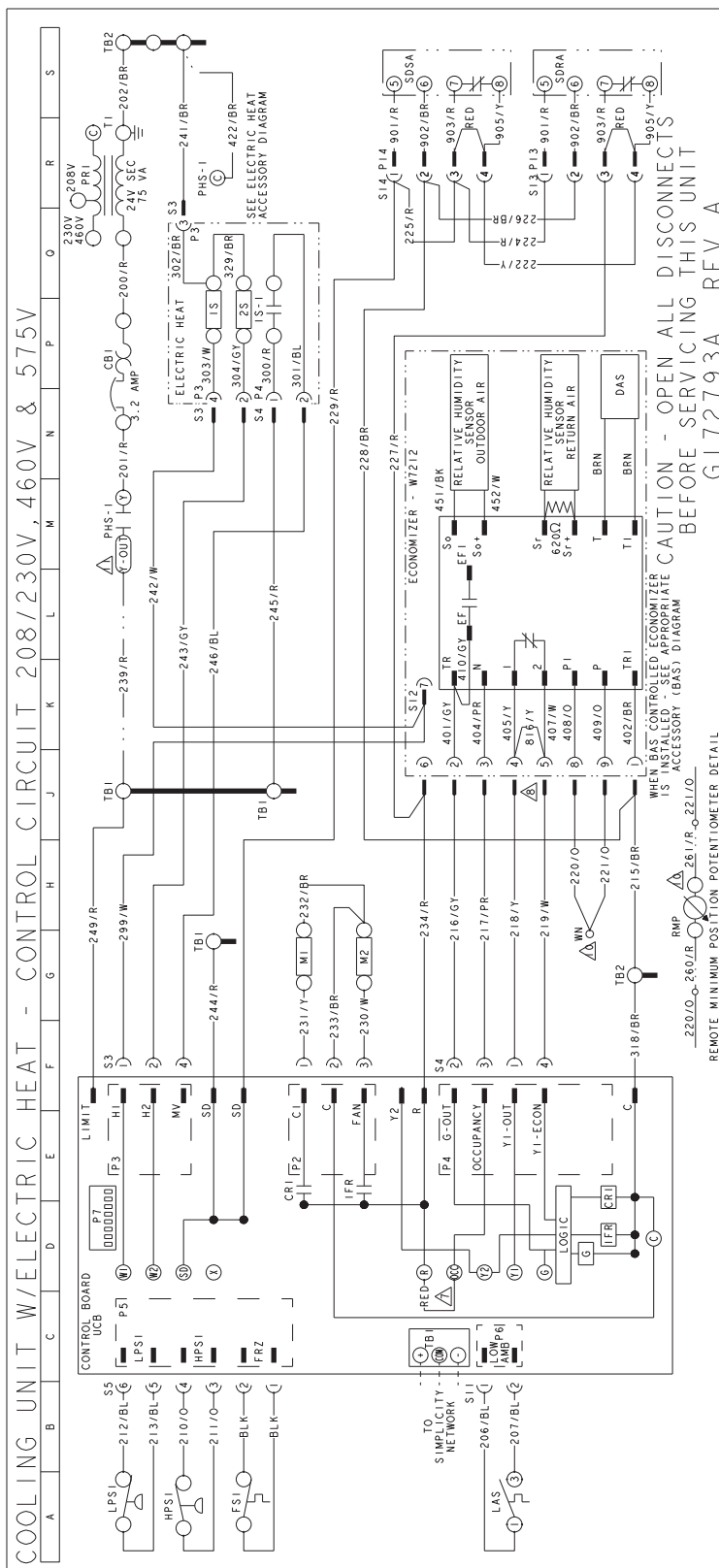
Typical ZJ Belt Drive With 2 Stage Gas Heat Control Circuit 208/230V, 460V and 575V Diagram



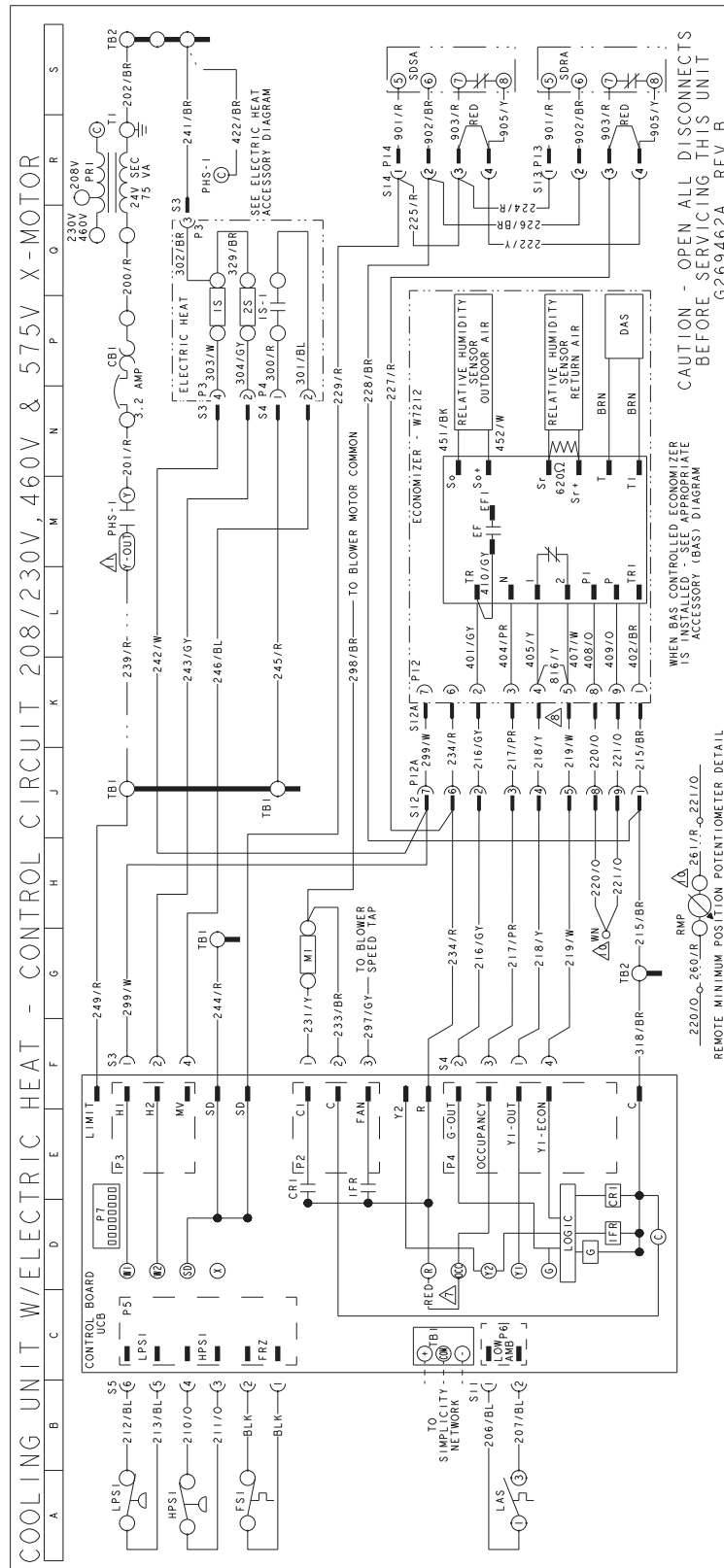
Typical ZJ Direct Drive With 2 Stage Gas Heat Control Circuit 208/230V Diagram



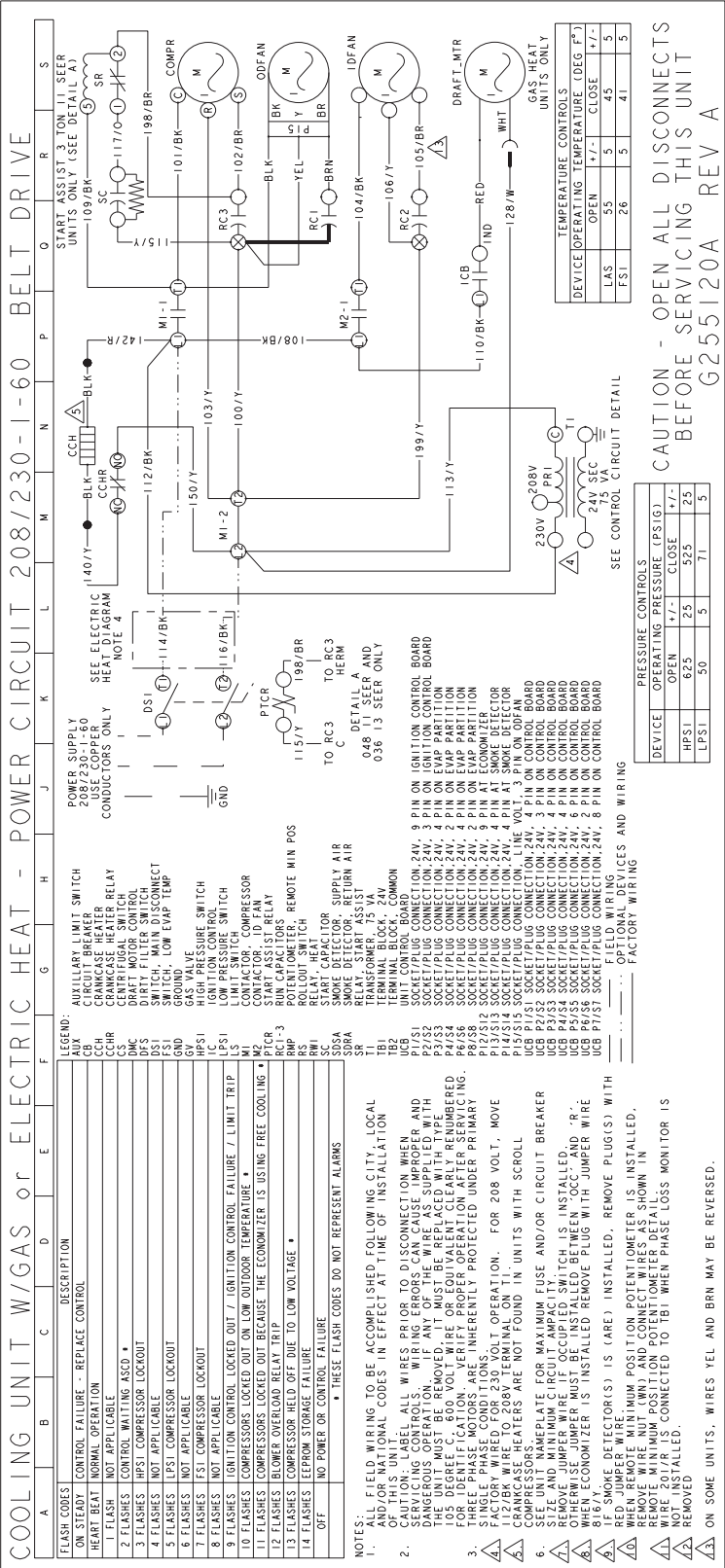
Johnson Controls Unitary Products



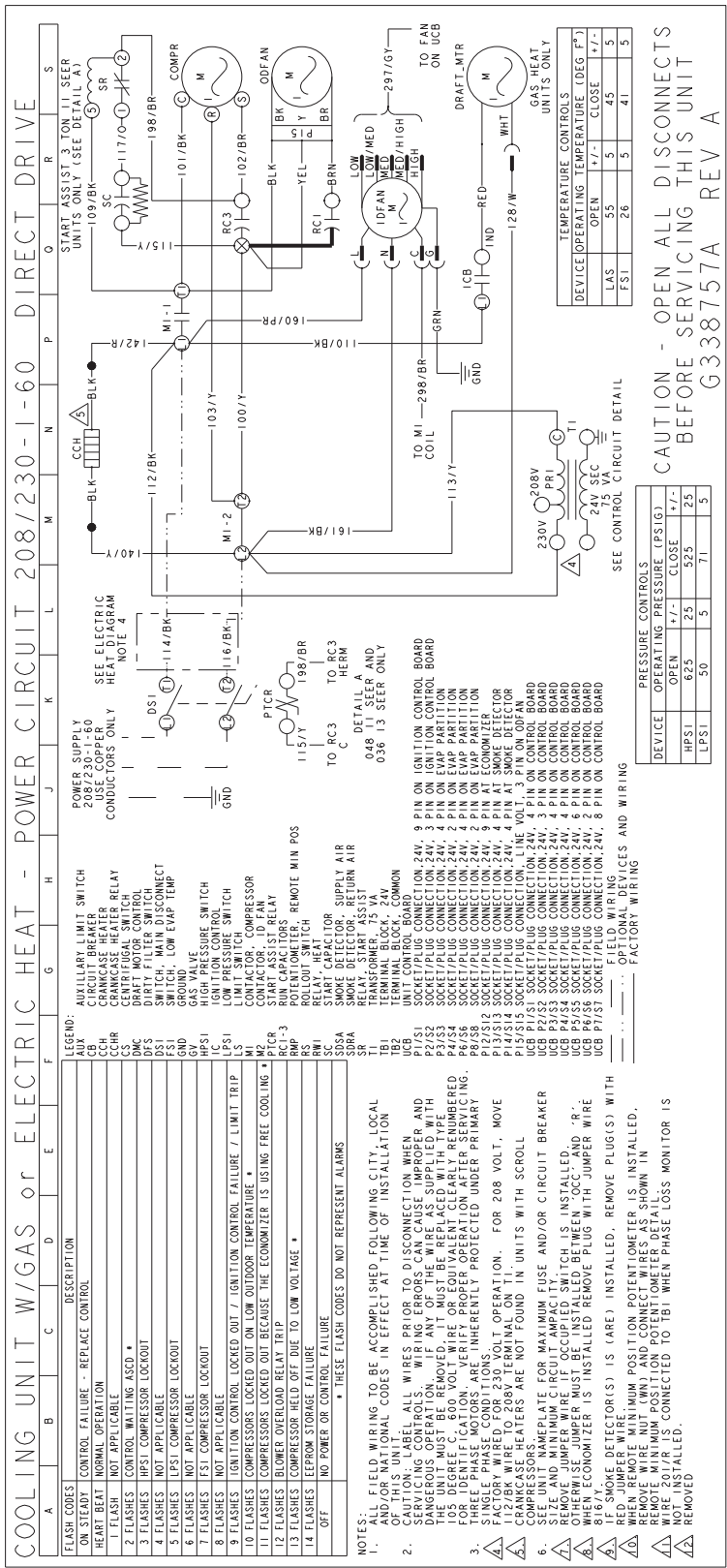
Typical ZJ Direct Drive With Electric Heat Control Circuit 208/230V Diagram



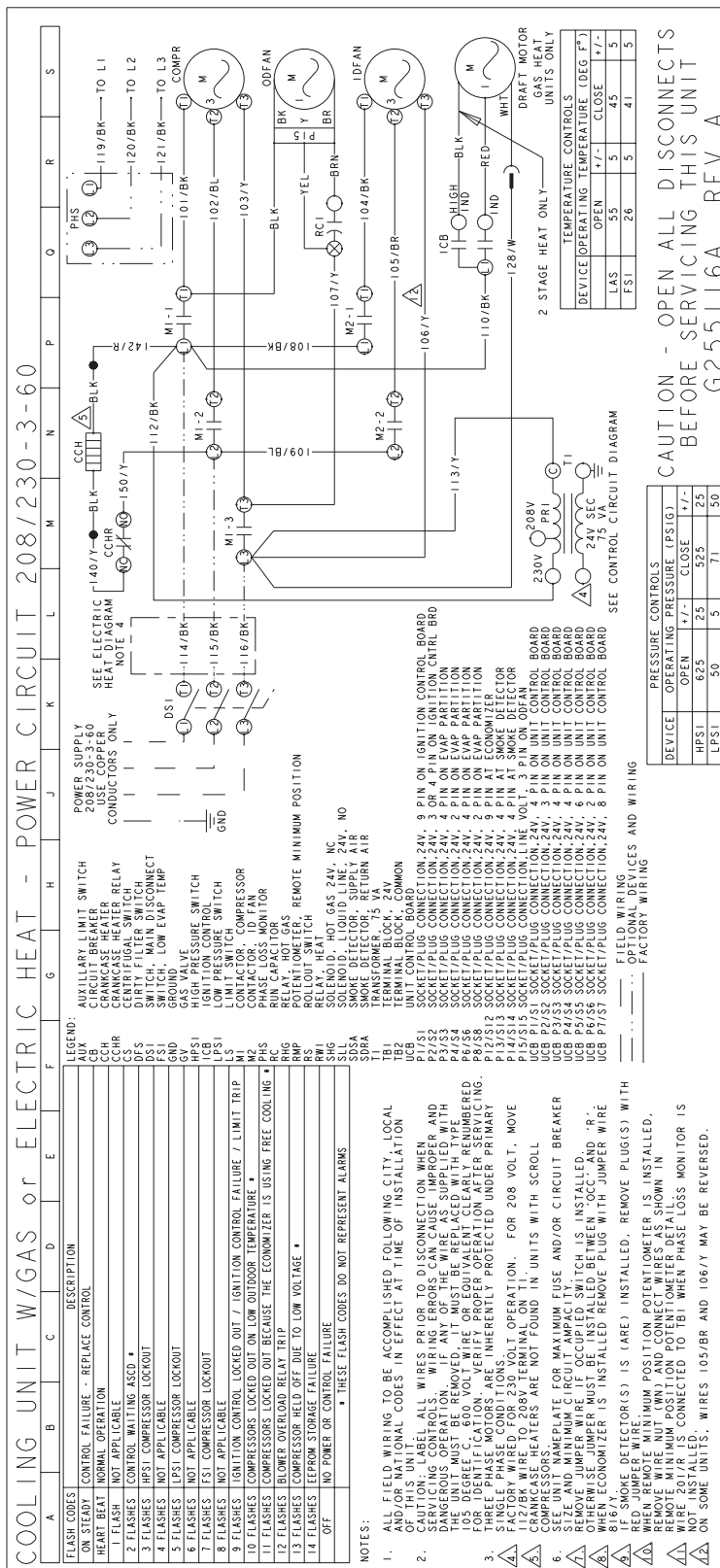
Typical ZJ/ZR Belt Drive Power Circuit 208/230-1-60 Diagram



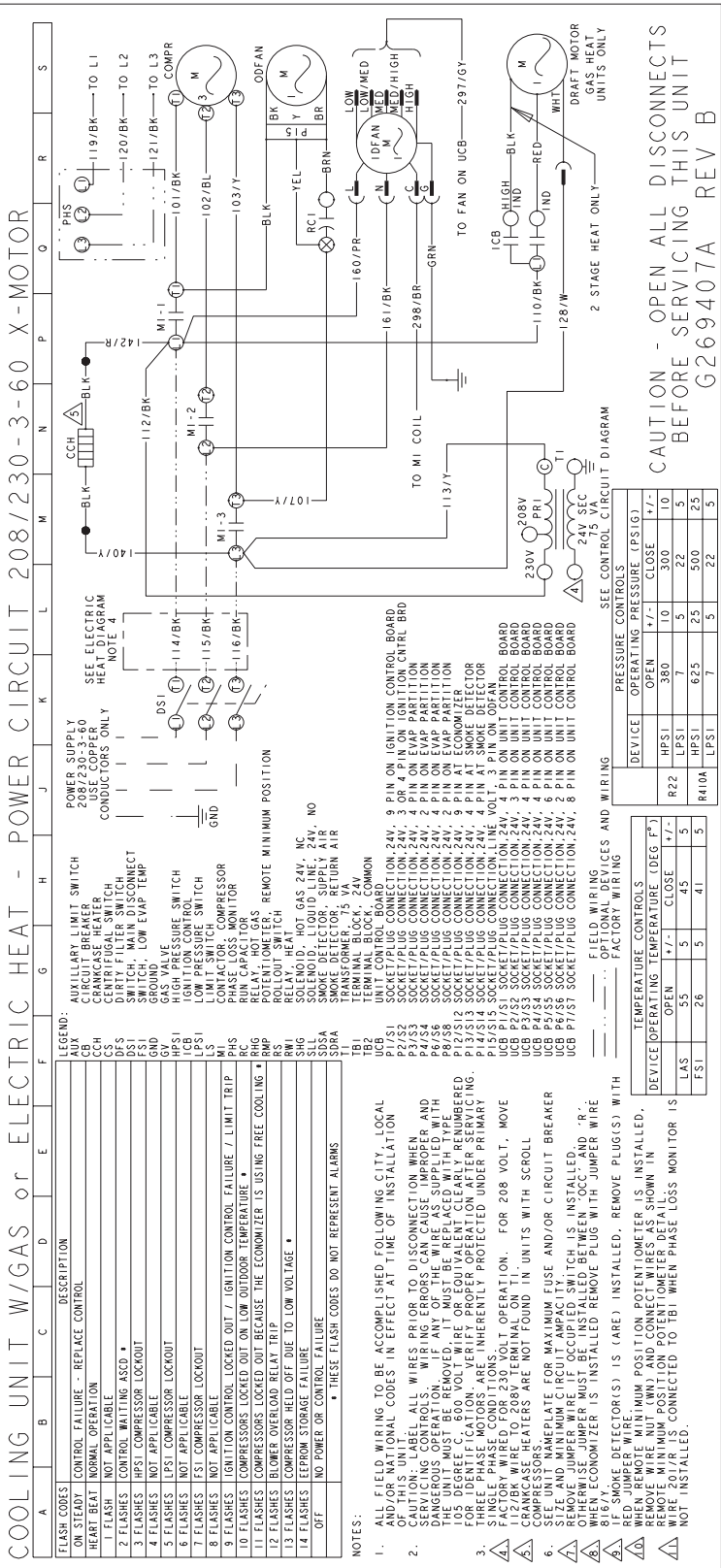
Typical ZJ/ZR Direct Drive Power Circuit 208/230-1-60 Diagram



Typical ZJ/ZR Belt Drive Power Circuit 208/230-3-60 Diagram



Typical ZJ/ZR Direct Drive Power Circuit 208/230-3-60 Diagram



Typical ZJ/ZR Belt Drive Power Circuit 460-3-60 Diagram

