



Series 100

Single Package Units



00887VIP

70 THROUGH 130 TONS

ASHRAE
90.1
COMPLIANT



YPAL070-105

YPAL120-130

JOHNSON CONTROLS

Table of Contents

Nomenclature	2
Introduction.....	4
Features and Benefits	5
Application Data	12
Physical Data	18
Weight Data.....	22
Cooling Performance Data	26
Heating Performance Data – Gas/Electric Heat....	54
Supply Fan Data.....	56
Component Static Pressure Drops.....	58
Gas Heat Pressure Drops	62
Electric Heat Pressure Drops	64
Exhaust Fan Data.....	66
Return Fan Data.....	68
Electrical Data	70
Controls	73
Power Wiring	80
Field Control Wiring	85
General Arrangement Drawings	87
Hot Water/Steam Coil Connection Locations	108
Lifting Lug Locations	109
Power/Control Entry Drawing	110
Guide Specifications.....	111

TABLES

1 Supply Air Duct Connection Configurations	13
2 Return Air Duct Connection Configurations	13
3 Physical Data – Models 70-105	18
4 Physical Data – Models 120-130	20
5 Refrigerant Charge Data.....	21
6 Efficiency Ratings	21
7 Approximate Base Operating Weights (lbs)....	22
8 Component Weights (lbs)	25
9 Cooling Performance Data – 70 Ton Model	26
10 Cooling Performance Data – 75 Ton Model	30
11 Cooling Performance Data – 80 Ton Model	34
12 Cooling Performance Data – 90 Ton Model	38
13 Cooling Performance Data – 105 Ton Model ..	42
14 Cooling Performance Data – 120 Ton Model ..	46
15 Cooling Performance Data – 130 Ton Model ..	50
16 Gas Heat Performance Data.....	54
17 Electric Heat Performance Data	54
18 28X25 Forward Curved Fan.....	56
19 28X28 Forward Curved Fan.....	56
20 32" Airfoil Fan.....	57
21 40" Airfoil Fan.....	57
22 Component Static Pressure Drops	58

23 Gas Heat Pressure Drops.....	62
24 Electric Heat Size Availability By Unit Size	64
25 Electric Heat Pressure Drops.....	64
26 Exhaust Fan Performance	66
27 18X18 Forward-Curved Fan	66
28 20X18 Forward-Curved Fan	67
29 32" Forward-Curved Fan	67
30 Return Fan Performance	68
31 270 SWSI Airfoil Fan.....	68
32 445 Plenum Fan.....	69
33 Compressor Data – R410A.....	70
34 Supply and Exhaust Fan Motor Electrical Data.....	71
35 Power Supply Voltage Limits	71
36 Condenser Fan Motors	71
37 Miscellaneous Electrical Data	72
38 Electric Heat Amp Draw	72
39 Electrical Heat Stages.....	72
40 YPAL Supply Conductor Size Range 70-75 Ton Units	79
80 Ton Units	79
90-105 Ton Units	79
120-130 Ton Units	79
41 Fitting Location Dimensions.....	108
42 Lifting Lug Distances.....	109
43 Power/Control Dimensions	110

FIGURES

1 Traditional Overhead VAV Air Delivery System	14
2 JOHNSON CONTROLS FlexSys Underfloor Air Delivery System	14
3 Single-Point Power Supply Wiring (YPAL120-130)	80
4 Single-Point Power Supply Wiring with Non-Fused Disconnect (YPAL120-130)	81
5 Single-Point Power Supply Wiring (YPAL070-105)	82
6 Single-Point Power Supply Wiring with Non-Fused Disconnect (YPAL070-105)	83
7 Dual Point Power Supply Wiring (YPAL070-105)	84
8 Field Control Wiring	85
9 Field Control Wiring	86
10 General Arrangement Drawing	87
11 Power/Control Entry Drawing.....	110

Introduction

The Series 100 single package units – Designed to meet the demands of the market for today and tomorrow.

Better Economy...

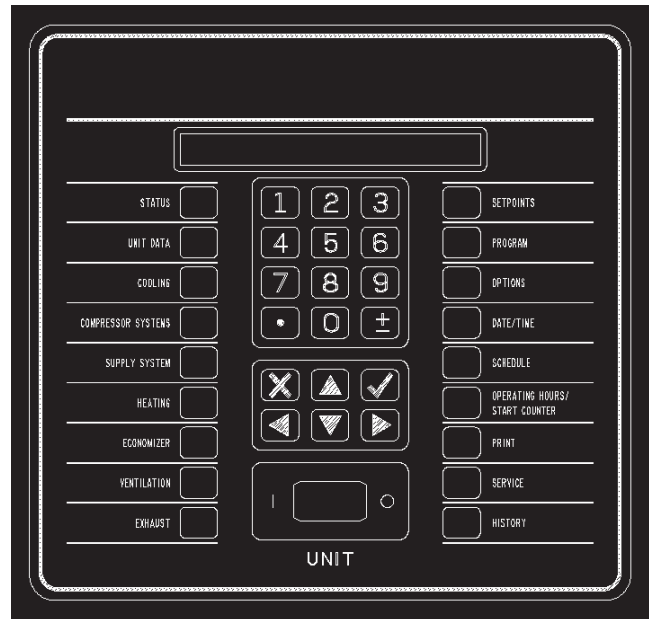
Lower total cost of ownership

- High efficiency Series 100 single package units are optimized for HFC-410a refrigerant. JOHNSON CONTROLS provides a standard product offering that meets the latest ASHRAE 90.1 energy efficiency requirements.
- Fully modulating gas heat and greater steps of capacity control offer superior off-design performance while maintaining optimum occupant comfort.
- Accurate ventilation control ensures that no more than the proper amount of ventilation air is utilized. This avoids the energy cost of conditioning excess outside air and simultaneously monitors all other unit functions for maximized energy efficiency.
- Flexible design configurations simplify the design process and allows the Series 100 to be applied to virtually any building application.
- Accessibility through double-wall access doors, spacious compartments and supportive floors improves serviceability.

Better Ecology...

Indoor air quality features for the indoor environment

- A double-sloped stainless steel drain pan with a single drain connection ensures that all condensate is voided from the drain pan. It is also visible and accessible for periodic inspection and cleaning required by the ASHRAE 62 IAQ standard.
- Double-wall construction of the roof, floor, doors, and walls prevents insulation fibers from entering the conditioned air. The inner liner also facilitates periodic cleaning of the unit to prevent harmful build-up of bacteria or contaminants.
- The single package unit control center uses microprocessor logic to analyze and optimize ventilation decisions and perform demand ventilation, airflow compensation, and airflow measurement to maintain the air quality at a healthy level.



The Single Package Unit Control Center uses microprocessor logic to optimize operation of the Series 100 single package unit.

Features and Benefits

AIRFLOW CONFIGURATIONS

Variable-Air-Volume – Series 100 units are available for single-zone variable-air-volume (VAV) applications. Control can be used with a zone sensor or building automation system. Supply fans are controlled to the supply duct static pressure setpoint, which can be reset via a BAS, or through a 0-5VDC analog input on the unit controller for optimized duct static pressure control. The static pressure transducer is provided in the single package unit, and 5/16" or 1/4" plastic tubing and static pressure sensor must be supplied by others and installed approximately 3/4 down the longest duct run.

FlexSys Underfloor Air VAV – Series 100 units are configurable for underfloor air variable-air-volume (VAV) applications. Control can be used with a zone sensor or building automation system. Supply fans are controlled to the supply duct static pressure setpoint, which can be reset via a BAS, or through a 0-5VDC analog input on the unit controller for optimized duct static pressure control. The static pressure transducer is provided in the single package unit, and 5/16" or 1/4" plastic tubing and static pressure sensor must be supplied by others and installed approximately 3/4 down the longest duct run. *Refer to engineering guide form 100.50-EG8 for more detailed information on this application.*

Constant Volume – Series 100 units are available for single-zone constant volume applications. Control can be used with a zone sensor, thermostat, or building automation system.

COOLING AND HEATING CONFIGURATIONS

Cooling Only – For applications where no heat is required, or heating is provided elsewhere within the building HVAC system, cooling only units include an empty discharge plenum. Supply duct connections are configurable for bottom, left or right discharge. The supply air temperature sensor is included and factory-installed.

Staged Gas Heat – For applications requiring gas heat for morning warm-up, or other heating needs, a staged natural gas furnace is available. The furnace is located in the discharge plenum, downstream of the supply fan. The supply air temperature sensor is located across the face of the supply duct opening in the unit. Furnaces are designed in 375 mbh modules with two stages in each. Three stages are available for the YPAL070-130. For 70 through 105 ton units, optional Propane Conversion Kits contain the necessary orifices and gas valve/parts to convert staged heat only (Not modulating) from natural gas to propane. Ignition and safety controls are included and factory-wired. Units with staged gas heat are UL listed.

Modulating Gas Heat – For applications requiring gas heat for morning warm-up, supply air tempering or other heating needs, a modulating natural gas furnace is available for finer temperature control. The furnace is located in the discharge plenum, downstream of the supply fan. The supply air temperature sensor is located across the face of the supply duct opening in the unit. Furnaces are designed in 375 mbh modules in 8:1 turndown increments. Three are available for the YPAL070-130 (8:1, 16:1 or 24:1 turndown). Ignition and safety controls are included and factory-wired. Units with modulating gas heat are UL listed.

Electric Resistance Heat – For applications where electric heat is desired, a slip-in electric resistance heat element is available in sizes from 80-250 kW depending on the single package unit model size. The number of stages varies by size and voltage, but all have a minimum of two stages of capacity. Units with electric heat are ETL listed.

Hot Water Heat – For applications where hot water is available for heating, a hot water heating coil is available. A range of coil fin count selections are available to properly size the heating for the application. Units with hot water heat are ETL listed.

Steam Heat – For applications where steam is available for heating, a steam heating coil is available. A range of coil fin count selections are available to properly size the heating for the application. Units with steam heat are ETL listed.

POWER OPTIONS

Single-point supply with terminal block – This configuration is standard, and includes three terminals for the incoming 3-phase power and is the standard configuration for the Series 100 product. It includes the enclosure, terminal-block, and interconnecting wiring to the compressors, heater and furnace controls, all fans, etc. In this configuration, code requires that a means of disconnect (not provided) must be installed at the site within line-of-sight of the equipment.

Single-point supply with non-fused disconnect switch – This option is the same the single-point with terminal block option except it includes a unit-mounted through-the-door manual non-fused disconnect switch with an external, lockable handle (in compliance with Article 440-14 of N.E.C.). This option provides a means to isolate the unit power voltage for servicing. Others must supply separate external fusing which must comply with the National Electric Code and/or local codes.

Features and Benefits (continued)

Dual-point supply with terminal block – This option includes enclosure, terminal blocks circuited to the supply and exhaust fans and control transformer and a second set of terminal blocks with interconnecting wiring to the compressors, heat (if applicable) and condenser.

Convenience Outlet – This options includes a powered 115V GFCI convenience outlet that can be used for powering tools or lights for servicing. A protective cover plate is included while not in use. The outlet is located on the bottom left hand corner of the power panel.

CONTROL FEATURES AND OPTIONS

Microprocessor-Based Single Package Unit Controller – All Series 100 units are equipped with a factory-installed, programmed and commissioned unit controller with all I/O capabilities and control sequences. The controls include all on-board diagnostic, safety and control features to operate the single package unit. A multimedia card interface is included for software upgrades and can be used for data logging to simplify equipment troubleshooting. Communication ports are included as standard with three alarm outputs, a shutdown contact, remote start/stop input, smoke ventilation controls, analog inputs for supply air temperature and duct static pressure rest, along with a variety of other capabilities.

Standard Ambient – YPAL070-105 models operate down to 45°F as standard. YPAL120-130 models operate down to 0°F as standard.

Low Ambient – (YPAL070-105) This option includes low ambient control of the first refrigerant circuit down to 0°F through the use of suction and discharge pressure transducers on circuit one, and condenser fan speed using a variable-frequency drive on the first condenser fan of circuit one. Mechanical cooling with circuit and three for YPAL070-105 is locked out below 45°F.

Low Ambient on Circuits One, Two and Three – (YPAL070-105) This option includes low ambient control of the first, second and third refrigerant circuits down to 0°F through the use of suction and discharge pressure transducers on both circuits.

Pressure Transducers with Readout Capability – This option includes suction and discharge pressure transducers on each circuit and provides pressure readout of all circuits at the unit control panel.

SENSOR AND THERMOSTAT AND SENSOR OPTIONS

Wall-Mount Zone Sensor – a 10 kOhm thermister type III NTC zone sensor for wall mounting. This zone sensor is for sensing temperature only, and does not include any setpoint adjustment features.



Zone Sensor

7-Wire Thermostat – This option is for a ship-loose thermostat to interface with the Series 100 unit. All models, YPAL070-130, include an interface for a 7-wire thermostat as standard.



Thermostat

COMMUNICATIONS

BACnet MSTP (RS-485) Communications – This communication option is standard on every Series 100 unit. Communications to the unit are through a twisted pair, and the wire terminations are on the primary unit control board. See supplemental information for the available control points and PICS/Bibbs statements of conformity.

Modbus RTU Communications – This communication option is standard on every Series 100 unit and can be used in lieu of the BACnet communications (only one can be used at a time). See supplemental information for the available control points.

FILTER OPTIONS

Filter Options – two-inch throwaway, cleanable, carbon coated or pleated filters in an angled rack are available. For higher filtration requirements, optional rigid filter racks are available with twelve-inch 65% or 95% efficient rigid filters. Two-inch pre-filters are included with rigid filter options. The rigid filter rack option is available without filter media where field-supplied filters are required.

OUTSIDE AIR DAMPER OPTIONS

Manual Damper – This option includes a manually adjustable outside air damper. It is manually adjustable at the unit by setting a mechanical stop between 0-100 percent.

Two-Position – This outside air damper option is controlled to a two positions, opened and closed. Determination of the damper position is based on the occupancy schedule. In the occupied mode, the outside air damper is positioned to the manually configured point (set by mechanical stop). In the unoccupied mode, the damper is fully closed.

Modulating Economizer – This option includes modulating outdoor air and return air dampers that are software interlocked (YPAL070-130 software interlock) and positioned by fully modulating, solid state damper actuators. Control of the damper is via a standard ambient outdoor air dry bulb sensor, or optional single or comparative enthalpy controls.

Airflow Measurement – Optional outside airflow measurement is available on units equipped with a Modulating Economizer. Two options exist for airflow measurement; minimum (0-25%) and full (0-100%) .

CO₂ Sensors – Optional carbon dioxide sensors for occupied space that operate demand ventilation control opening outside air dampers to ventilate building. The CO₂ sensors can operate in a single or comparative control scheme.

Rain Hoods on Outside Air Intakes – For all options with outside air intake openings, rain hoods are provided as standard to keep moisture from entering the equipment. The rain hoods are an integral part of the unit and are rotated into place at the jobsite.

RELIEF SYSTEM

Barometric Relief – Optional building air exhaust shall be accomplished through barometric relief dampers installed in the return air plenum. The dampers will open relative to the building pressure. The opening pressure shall be adjustable via a spring tension adjustment.

On/Off Powered Exhaust – This option provides simple building pressure control. It can be controlled via a building pressure signal, or via outside air damper control. ***This option is not available for VAV units.***

Modulating Powered Exhaust with Damper Control – This option consists of a constant-speed exhaust fan with a discharge damper that is modulated to control the flow of exhaust air. The damper control logic is based on the building static pressure setpoint within the single package unit controller. The static pressure transducer is provided in the return plenum of the single package unit, and 5/16" or 1/4" plastic tubing and static pressure sensor must be supplied by others and installed in a representative location in the building.

Modulating Powered Exhaust with a VFD – This option consists of a VFD to modulate the speed of the exhaust fan to control the flow of exhaust air. The VFD control logic is based on the building static pressure setpoint within the single package unit controller. The static pressure transducer is provided in the return plenum of the single package unit, and 5/16" or 1/4" plastic tubing and static pressure sensor must be supplied by others and installed in a representative location in the building.

Powered Return Fan with Exhaust – This option uses SWSI plenum fan(s) to control building pressure. The fan motors are driven by a VFD to maintain a constant return plenum pressure. An exhaust hood with a modulating control damper is used to maintain building pressure via the building static pressure. The static pressure transducer is provided in the return plenum of the single package unit, and 5/16" or 1/4" plastic tubing and static pressure sensor must be supplied by others and installed in a representative location in the building. The powered return fan is also available without the exhaust capabilities. For units with no exhaust capabilities, the HVAC system must provide alternate means of controlling building pressure.

SUPPLY FAN OPTIONS

DWDI Forward-Curved Supply Fan – The standard supply air blower in the YPAL070-105 models is a forward-curved supply fan. This fan is good for medium static pressures and high airflows.

DWDI Airfoil Supply Fan – An optional airfoil blade supply fan is available on all models for higher static conditions. This option offers higher efficiency and lower sound in certain applications.

Fan Skid Isolation – the entire supply fan assembly is isolated from the unit base with two-inch deflection springs, or one (standard) or two-inch deflection springs with seismic restraints.

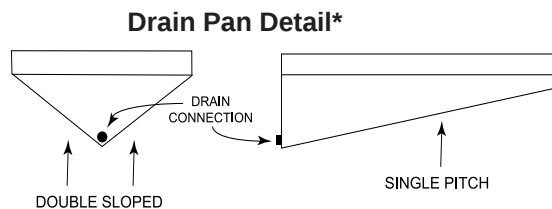
Features and Benefits (continued)

Supply and Exhaust Fan Motors – high efficiency ODP, and standard and high efficiency TEFC motors are available all meeting the Energy Policy Act of 1992 (EPACT).

Supply Fan VFD and Manual Bypass – for VAV applications, VFD's are provided to modulate air flow. Optional manual bypass can also be provided to allow full airflow in the event of a VFD failure.

EVAPORATOR SECTION

Double Sloped Stainless Steel Drain Pan – The Series 100's stainless steel drain pan is factory-mounted and installed on every unit. A condensate drain trap is needed, and must be provided and installed in the field by others.



***NOTE:**
This is a visual reference only. Actual drain pan pitch will vary.

Double Wall Construction – Double-wall construction is the standard construction of the Series 100 and incorporates powder coated pre-fabricated outer panels and corner post for maximum exterior surface protection.

Factory Shrink-wrap – All Series 100 single package units are shipped from the factory with factory-fresh shrink-wrap packaging. No longer does the contractor need to worry about dirt and debris clogging up condenser coils or moisture leaking into the air handler on the units way to the job site or rigging yard.

Copper Fins – For more extreme climates that aggressively can attack aluminum, copper tube evaporator coils with copper fins are available. (This is not recommended for units in areas where they may be exposed to acid rain or environments where ammonia is present)

CONDENSER FEATURES AND OPTIONS

Scroll Compressors – Reliable, efficient, trouble-free operation is the true measure of a single package unit's value. That's why JOHNSON CONTROLS Series 100 Packaged Single package units Air Conditioners use established scroll compressor technology to deliver dependable, economical performance in a wide range of applications. With the Series 100 Single package units, you get the latest generation of compressor enhancements added to the scroll's inherent strengths. The

simplicity of a hermetic scroll compressor allows the use of fewer moving parts to minimize breakdown.

Multiple Compressor Staging – Through the use of the scroll compressor, the Series 100 has the ability to stage it's cooling by enabling and disabling multiple single stage compressors on multiple circuits.

These compressors are manifolded together in pairs on a single refrigeration circuit have 3 refrigeration circuits operating a dual manifolded scroll compressor set.

Compressor Circuiting – the Series 100 is designed so that only 2 scroll compressors are in tandem within one refrigeration circuit. This means more reliable compressors, and less equipment down time. With multiple circuits, if a compressor should ever fail on one circuit, the other circuit/s will remain operational to work to maintain occupied loads. The Series 100 system has 3 circuits in a unit.

Condenser Fan Motors – The condenser fan motors used on the Series 100 unit are Totally Enclosed Air Over (TEAO) to provide maximum durability through any season.

Hot Gas Bypass – This options permits continuous, stable operation at capacities below the minimum step of unloading by introducing an artificial load on the evaporator. For models YPAL070-105, it is used on the lead circuit. For models YPAL120-130 it is available on the first, or all circuits.

Replaceable Core Suction Line Driers – suction line driers are standard on the Series 100 single package unit. An option is provided for replaceable core driers (standard on YPAL120-130)

Copper Fins – For more extreme climates that aggressively can attack aluminum, copper tube condenser coils with copper fins are available. (This is not recommended for units in areas where they may be exposed to acid rain or environments where ammonia is present. YPAL 120-130 only.)

Pre-Coated Fins – an epoxy-coated aluminum fin stock to guard from corrosive agents and insulate against galvanic potential. Recommended for mild seashore or industrial locations (on 120-130 ton units only).

Post-Coated Fins – Technicoat coil-coating process used on condenser coils for seashore and other corrosive applications (with the exception of strong alkalis, oxidizers, wet bromide, chlorine and fluorine in concentrations greater than 100ppm).

Compressor Sound Blankets – Optional compressor acoustic sound blankets are available for sound sensitive applications.

ROOF CURBS

Full perimeter roof curbs – This option includes a knock-down 14" high roof curb for use with wood nailer (by others). Roof curb supports the entire perimeter of the unit.

Partial perimeter roof curbs – This option includes a knock-down 14" high roof curb for use with wood nailer (by others). Roof curb supports the air handling section with a separate support under the condenser end.

CABINET FEATURES AND OPTIONS

Double-Wall Access Doors - Full-sized access doors provide easy access into the unit for routine maintenance and inspection. Solid wall liners encase insulation and prevent damage and erosion into the airstream.

Diffuser Section – An optional diffuser section is available downstream of the supply fan in the extended discharge plenum cabinet option. The diffuser section distributes the airflow from the fan evenly across the downstream filter bank to optimize filter life and

effectiveness. The diffuser design is optimized to provide uniform flow at minimal airside pressure loss.

Downstream Final Filter Rack – A 90-95% efficient twelve-inch rigid filter rack and filters shall be provided downstream of the supply fan and diffuser segment for hospital applications (YPAL070-105 only). A magnahelic pressure gauge is included and visible from the outside of the unit for servicing and code compliance.

Blank Section – A blank section shall be provided downstream of the supply fan and diffuser section.

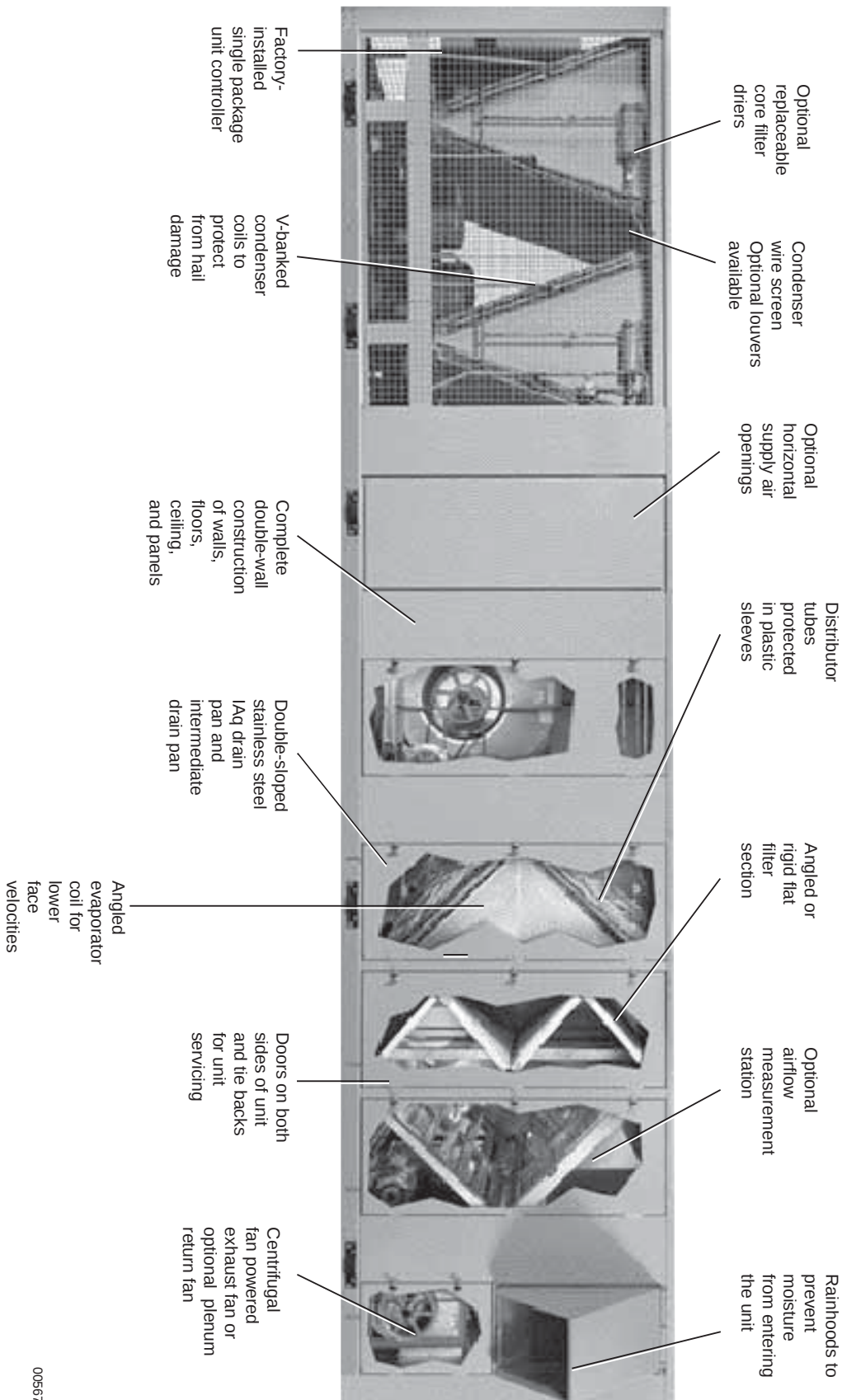
ACCESSORIES

Filter Switch – An optional dirty filter alarm can be provided that will provide an alarm when the filters require cleaning.

Magnahelic Filter Pressure Gauge – On units equipped with downstream filtration, a magnahelic filter gauge is included and visible on the exterior of the unit. The filter gauge measures the air pressure drop for through the rigid filter bank to indicate when replacement is required.

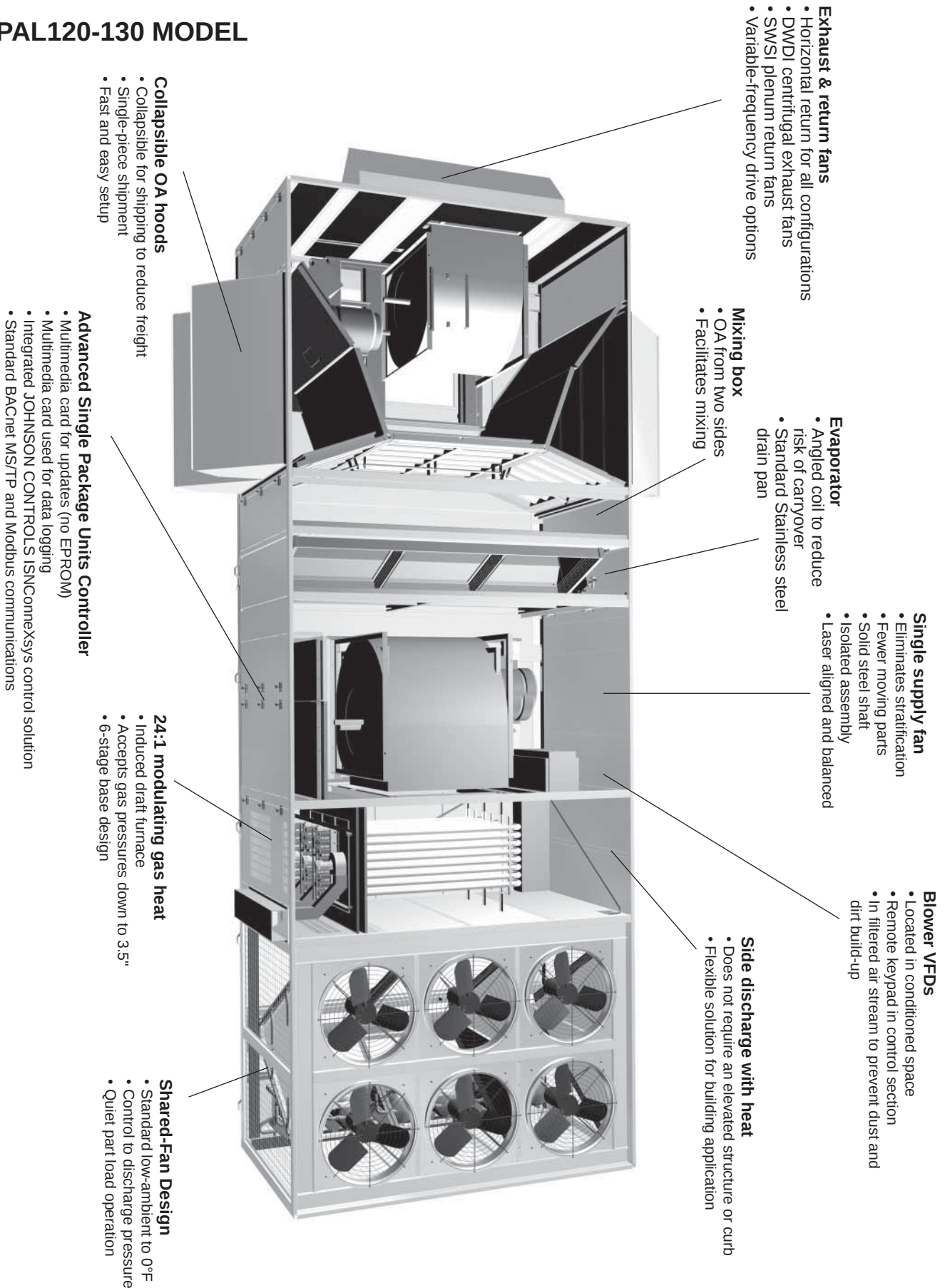
Features and Benefits (continued)

YPAL070-105 MODEL



00567V/P

YPAL120-130 MODEL



Application Data

GENERAL

The Series 100 air conditioning units are designed for outdoor installation. When selecting a site for installation, be guided by the following conditions:

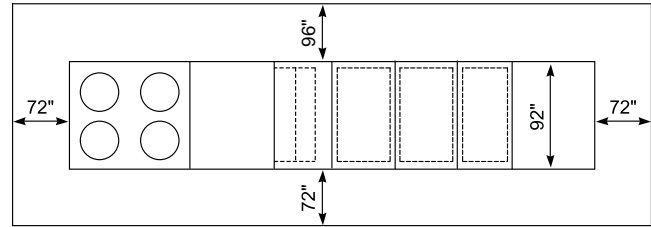
- Unit must be installed on a level surface.
- For the outdoor location of the unit, select a place having a minimum sun exposure and an adequate supply of fresh air for the condenser.
- Also avoid locations beneath windows or between structures.
- Optional condenser coil protection should be used for seashore locations or other harsh environments.
- The unit should be installed on a roof that is structurally strong enough to support the weight of the unit with a minimum of deflection. It is recommended that the unit(s) be installed not more than 15 feet from a main support beam to provide proper structural support and to minimize the transmission of sound and vibration. Ideally, the center of gravity should be located over a structural support or building column.
- Location of unit(s) should also be away from building flue stacks or exhaust ventilators to prevent possible reintroduction of contaminated air through the outside air intakes.
- Be sure the supporting structures will not obstruct the duct, gas or wiring connections.
- Proper service clearance space of 6-feet around the perimeter of the unit, 8-feet on one side for coil servicing, and 12-feet to any adjacent units is required to eliminate cross contamination of exhaust and outdoor air, and for maintenance tasks such as coil pull and cleaning. No obstructions should be above the condensing unit section.

LOCATION

Of the many factors that can effect the location of equipment, some of the most important to consider are Structural, Acoustical and Service clearances. Proper attention should be made at the design stage to ensure proper structural support. In cases where equipment is being replaced, be aware of building design to insure support is adequate for the application.

The next most important consideration in applying single package units equipment is that of sound from the equipment. Special care should be made to keep the single package unit away from sound sensitive areas such as conference rooms, auditoriums and executive offices and any other room that may have potential for tenant occupancy. Possible locations could be above hallways, mechanical or utility rooms.

Finally, service clearances should be maintained in single package unit design to insure safe access to the unit. Unit clearances are designed so that technicians have enough space between units, building walls, and edges of building to gain access safely. In cases where space is limited, please call your local JOHNSON CONTROLS representative for additional information.



LD08044

NOTE:

1. Under certain conditions these clearances may be encroached upon.
2. This is a visual reference for all Series 100 units.

RIGGING

Proper rigging and handling of the equipment is mandatory during unloading and setting it into position to retain warranty status.

Spreader bars must be used by cranes to prevent damage to the unit casing. All lifting lugs must be used when lifting the single package unit. Fork lifts will damage the single package unit and are not recommended.

Care must be taken to keep the unit in the upright position during rigging and to prevent damage to the watertight seams in the unit casing. Avoid unnecessary jarring or rough handling.

UNIT PLACEMENT

- **Elevated** – Elevated roof curbs or dunnage steel can be used to support the unit in order to raise it to specific heights. When this type of placement is required, be sure to keep unit access in mind. Cat walks or other forms of unit access may be required to one or both sides of the unit, depending on your area of the country and the local codes that are enforced. Please check with local officials to ensure the application conforms to local codes and regulations.
- **Ground Level Locations** – It is important that the units be installed on a substantial base that will not settle, causing strain on the refrigerant lines and sheet metal and resulting in possible leaks. A one-piece concrete slab with footers extended below the frost line is highly recommended. Additionally, the slab should be isolated from the main building foundation to prevent noise and vibration transmission to the building structure.

For ground level installations, precautions should be taken to protect the unit from tampering by, or injury to, unauthorized persons. Erecting a fence around the unit is common practice.

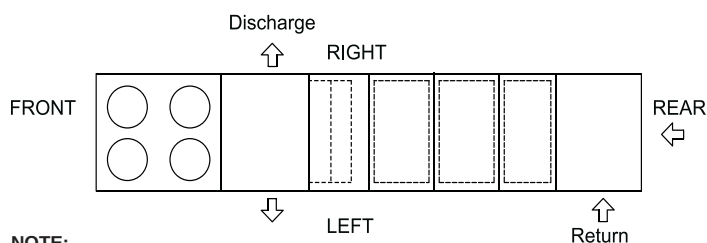
- **Roof curb** – JOHNSON CONTROLS offers optional roof curbs designed specifically for the Series 100 footprint. These curbs come in full perimeter or open condenser models and are shipped disassembled and require field assembly and installation. For bottom supply and return openings, the curbs have matching connections to ease installation. A pipe chase that matches the single package unit pipe chase is also included in the curb footprint for through-the-curb utility connections.

The curb should be located according to the location recommendations above, and properly sealed to prevent moisture and air leakage into and out of the duct system. Flexible collars should be used when connecting the duct work to prevent unit noise transmission and vibration into the building.

Duct work should be supported independently of the unit.

TABLE 1: SUPPLY AIR DUCT CONNECTION CONFIGURATIONS

Unit Configuration		Supply Air		
		Bottom	Left	Right
YPAL 070-105	Standard Cabinet			
	Cooling only	X	X	X
	Cool/gas heat	X	X	
	Cool/electric heat	X		
	Cool/hydronic heat	X		
	Extended Cabinet			
YPAL 120-130	Cooling only	X	X	X
	Cool/hydronic heat	X	X	X
	Standard Cabinet			
	Cooling only	X	X	X
	Cool/electric heat	X		
	Cool/gas heat	X	X	

**NOTE:**

This diagram is provided as a visual reference of the Series 100 discharge & return air openings & locations for all sizes. Please refer to the dimensional data for exact size & location of panels and openings.

TABLE 2: RETURN AIR DUCT CONNECTION CONFIGURATIONS

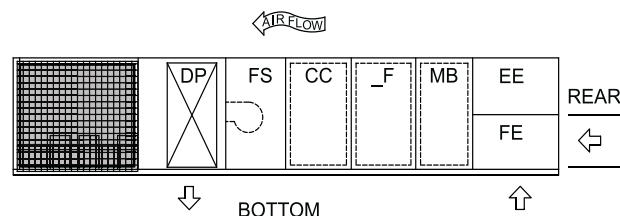
Unit Configuration		Return Air			
		Bottom	Left	Right	Front
YPAL 070-105	No exhaust	X	X	X	X
	Barometric relief damper	X	X	X	
	Powered exhaust fan (all types)	X	X	X	
	Powered return fan	X			
YPAL 120-130	No exhaust	X			X
	Barometric relief damper	X			X
	Powered exhaust fan (all types)	X			X
	Powered return fan	X			X

UNIT ORIENTATION

For applications with multiple single package units located in close proximity on the roof, the orientation of the unit may be important to reduce the potential for re-entrainment of outside airflow. Regardless of the outside air and exhaust air openings on a unit, all single package unit applications can permit recirculation of exhaust air to the return, if applied improperly.

HORIZONTAL APPLICATIONS

The spectrum of applications for single package units in today's market is continuing to grow wider by the day. Flexibility in unit design and construction is a must in today's market in order to insure safe and sound applications of HVAC equipment. The Series 100 has been designed for specific application of horizontal supply and return airflow taking the guess work out of unit application by building a unit specific to these needs. If the application calls for horizontal supply and return air, JOHNSON CONTROLS can ship it from the factory as a horizontal unit. This option elevates the need for field modification of equipment saving time and money. The Series 100 can support a left discharge on all units and/or right discharge on all cooling only units and hydronic heat units with an extended cabinet. Return air can be brought through the end or side return air inlet making the unit specific to building needs.



LD08045

Application Data (continued)

ECONOMIZER

The economizer section is used for ventilation of the conditioned space to maintain indoor air quality, and also to reduce energy consumption by using outdoor air cooling in lieu of mechanical cooling. If outdoor air is appropriate for cooling, but not sufficient for the cooling demand, mechanical cooling will stage on as necessary until the cooling load is met.

Dual (comparative or differential) enthalpy operation is the most accurate and efficient means of economizer operation. The IPU controller monitors the return and outside air energy content, and selects the lower of the two for operation.

VAV SUPPLY AIR PRESSURE CONTROL

Traditional packaged single package unit systems use inlet guide vanes (IGVs) for duct static pressure control. These control supply duct pressure by modulating dampers (introducing losses and inefficiencies) on the inlet of the fan, open and closed. JOHNSON CONTROLS variable frequency drives (VFDs) offer superior fan speed control and quieter, energy efficient operation.

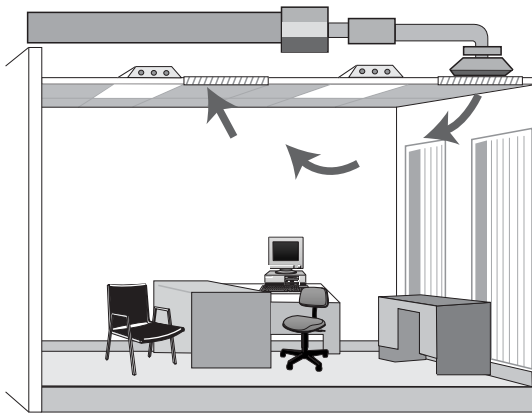


FIG 1: TRADITIONAL OVERHEAD VAV AIR DELIVERY SYSTEM

For VAV applications, the JOHNSON CONTROLS Series 100 unit uses a VFD to modulate fan speed and maintain a constant duct static pressure. VFDs offer superior control over the operation of the unit at part load, and offer the additional benefits of quieter and more efficient operation when compared to IGV.

FLEXSYS

The traditional approach to HVAC design in commercial buildings has been to supply conditioned air through

extensive overhead duct networks to an array of diffusers spaced evenly in the ceiling. In Figure 1, the conditioned air is both supplied and returned at ceiling level. Ceiling plenums must be designed large enough to accommodate the supply ducts that run through them. Return air is typically configured as ceiling plenum return without any ductwork. This type of air distribution, known as the "well-mixed" type, is the most common system in use. This conventional HVAC system is designed to promote complete mixing of supply air with room air, thereby maintaining the entire volume of all air in the space (from floor to ceiling) at the desired space setpoint temperature. In addition, to meet IAQ requirements, an adequate supply of fresh outside air must be introduced to this mix. A key disadvantage to this control strategy is that it has no provisions to accommodate different temperature preferences among the building occupants or to provide preferential ventilation in the occupied zone.

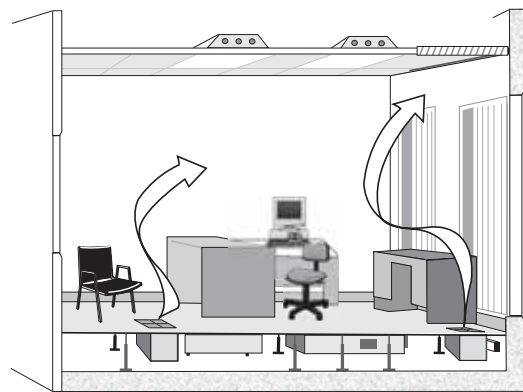


FIG. 2: JOHNSON CONTROLS FLEXSYS UNDER-FLOOR AIR DELIVERY SYSTEM

With the JOHNSON CONTROLS FlexSys Underfloor Air System, conditioned air from the air handling unit (AHU) is ducted to the underfloor plenum. As shown in Figure 2, this conditioned air flows freely throughout the plenum to individual supply discharge outlets. Unlike the larger single supply duct outlets typical of overhead systems, underfloor systems are configured to have a large number of smaller supply outlets, in close proximity to the building occupants. These adjustable outlets provide an opportunity for nearby occupants to have some amount of control over thermal comfort conditions in their local environment. Air is returned from the room at ceiling level (unducted plenum return is shown). The resulting overall floor-to-ceiling air flow pattern takes advantage of the natural buoyancy produced by heat sources in the space and more efficiently removes heat loads and contaminants from the space, particularly for cooling applications. In fact, some of the most important advantages of underfloor systems

over ceiling-based systems occur during cooling conditions, which are required year-round in the vast majority of interior office space in many parts of the United States.

HARSH ENVIRONMENTS – CONDENSER AND EVAPORATOR COIL PROTECTION

For harsh environmental conditions such as seashore applications, JOHNSON CONTROLS offers three types of coil protection: copper fin material, black fin and Technicoat coatings. JOHNSON CONTROLS recommends that for corrosive environments that copper fins be used to protect the evaporator and/or condenser coils (120-130 Ton only). In areas where chemicals that can corrode copper are present, such as ammonia, JOHNSON CONTROLS recommends that the black fin or Technicoat coating be used for maximum protection.

- **Copper Fin Condenser Coil** – Copper fins can be used instead of aluminum for additional corrosion protection (120-130 Ton only), however it is not suitable for areas that are subject to acid rain or exposed to ammonia.
- **Post-Coated Condenser Fins** – Technicoat (a post-coated application of epoxy) can be used for seashore and other corrosive applications with the exception of strong alkaloids, oxidizers, wet bromide, chlorine and fluorine in concentrations greater than 100 ppm.

Any of the above suitable options should be selected based on the particular project design parameters and related environmental factors. The application should be further reviewed and approved by the consulting engineer or owner based on their knowledge of the job site conditions.

BUILDING PRESSURE CONTROL SYSTEMS

Building pressure control systems are often necessary when economizers are used to bring in outdoor air. Without proper building exhaust, the building may become over pressurized. The pressure control system maintains the proper building pressure by expelling the appropriate amount of air from the building.

Return fans – For high return static applications, such as buildings with ducted return systems, a powered return fan may be necessary to maintain building pressure control. JOHNSON CONTROLS offers a powered return fan that is located in the return plenum. This fan operates coincidentally with the supply fan and draws return air back through the return ductwork and into a

pressurized plenum. A control damper modulates to exhaust air out of the building and maintain the building pressure. A second control damper modulates to provide return air from the ductwork to the unit to the single package air mixing section.

The return fan configuration is available in two forms: with and without an exhaust damper. The option with the exhaust damper provides a means of building exhaust at the unit. In some applications, the exhaust system is located elsewhere and the single package unit is not required to provide building exhaust. In these situations, the Series 100 can be offered without the exhaust damper to help reduce installed costs.

Exhaust/relief fans – In this application, a powered exhaust fan may be suitable, however careful consideration of the fan type is necessary. JOHNSON CONTROLS offers a centrifugal powered exhaust fan to perform this function. Some manufacturers use a propeller exhaust fan, which cannot handle the static pressure requirements.

For systems with moderate to low return static pressure, an exhaust fan is recommended. The benefit of the exhaust fan is that it does not run all of the time, and may facilitate compliance with the ASHRAE 90.1 fan motor horsepower requirement.

The exhaust fan operates in parallel with the supply fan. In this arrangement, the supply fan handles the full static pressure requirements of the system. For normal building pressure control, the exhaust fan operates to draw air from the return plenum and exhaust it out of the building.

The exhaust fan configuration is available in two forms, modulating and non-modulating. Modulating is the most common and recommended for the majority of applications, while non-modulating should be used with in only certain circumstances.

In the modulating exhaust system, the volume of airflow exhausted from the building is proportional to the entering volume of outside air. Control is accomplished via either a discharge damper or a variable-frequency-drive (VFD). JOHNSON CONTROLS recommends the use of a VFD to reduce energy consumption, sound levels and improved reliability due to fewer moving parts.

In the non-modulating exhaust system, the exhaust airflow is constant whenever the exhaust fan is operating. This type of control should only be used to either assist a smoke purge system or when a system requires a constant volume of exhaust airflow.

Application Data (continued)

ACOUSTICAL CONSIDERATIONS

The Series 100 unit is designed for lower sound levels than competitive units by using flexible fan connections, fan spring isolators, double-wall construction, multiple fan options, and lower speed and horsepower fans. For VAV applications, VFDs are used instead of inlet guide vanes. Additional sound attenuation can be obtained using compressor sound blankets when necessary.

Even with these equipment design features, the acoustical characteristics of the entire installation must never

be overlooked. Additional steps for the acoustical characteristics of a single package unit installation should be addressed during the design phase of a project to avoid costly alterations after the installation of the equipment. During the design phase of a project, the designing engineer should consider, at a minimum, the impact of the equipment location, single package unit installation, building structure, and duct work. For sound sensitive projects, refer to the JOHNSON CONTROLS sound application guide, Form 100.00-AG1.

This page intentionally left blank

Physical Data

TABLE 3 – PHYSICAL DATA – MODELS 70-105

MODEL SIZE	70	75	80	90	105
Compressor Data					
Quantity/Size (Nominal HP)	4x10, 2x11	4x11, 2x13	4x13, 2x11	4x15, 2x13	4x20, 2x15
Type	Scroll	Scroll	Scroll	Scroll	Scroll
Capacity Steps (Qty x %)	4x16, 2x18	4x16, 2x18	4x17, 2x15	4x18, 2x15	4x18, 2x14
Supply Fan and Drive					
Quantity	1	1	1	1	1
Type	FC	FC	FC	FC	FC
Size	28-25	28-25	28-25	28-28	28-28
Motor Size Range (min. to max. HP)	7.5-60	7.5-60	7.5-60	7.5-60	7.5-60
Air Flow Range (min. to max. cfm)	14000-32000	14000-32000	14000-32000	18000-36000	18000-36000
Static Pressure Range (min. to max. ESP)	0-4"	0-4"	0-4"	0-4"	0-4"
Optional Airfoil Supply Fan					
Quantity	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Type	AF	AF	AF	AF	AF
Size	32	32	32	32	32
Motor Size Range (min. to max. HP)	7.5-50	7.5-50	7.5-50	7.5-60	7.5-60
Air Flow Range (min. to max. cfm)	0-32000	0-32000	0-32000	0-36000	0-36000
Static Pressure Range (min. to max. ESP)	0-6"	0-6"	0-6"	0-6"	0-6"
Exhaust Fan					
Quantity	2	2	2	2	2
Type	FC	FC	FC	FC	FC
Size	18-18	18-18	18-18	18-18	18-18
Motor Size Range (min. to max. HP)	10-20	10-20	10-20	10-20	10-20
Air Flow Range (min. to max. cfm)	0-20000	0-20000	0-20000	0-20000	0-20000
Static Pressure Range (min. to max. ESP)	0-2"	0-2"	0-2"	0-2"	0-2"
Optional Exhaust Fan					
Quantity Fans/Motors	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Type	FC	FC	FC	FC	FC
Size	20-18	20-18	20-18	20-18	20-18
Motor Size Range (min. to max. HP)	5-30	5-30	5-30	5-30	5-30
Airflow Range (min. to max. cfm)	0-32000	0-32000	0-32000	0-36000	0-36000
Static pressure range (min. to max., iwg)	0-1"	0-1"	0-1"	0-1"	0-1"
Optional Return Fan					
Quantity Fans/Motors	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Type	Plenum	Plenum	Plenum	Plenum	Plenum
Size	270	270	270	270	270
Motor Size Range (min. to max. HP)	5-30	5-30	5-30	5-40	5-40
Airflow Range (min. to max. cfm)	0-32000	0-32000	0-32000	0-36000	0-36000
Static pressure range (min. to max., iwg)	0-3"	0-3"	0-3"	0-3"	0-3"
Evaporator Coil					
Size (square feet)	56.9	56.9	56.9	56.9	56.9
Number of rows/fins per inch	3/17	3/17	3/17	3/17	3/17
Tube Diameter/Surface	3/8"/enhanced	3/8"/enhanced	3/8"/enhanced	3/8"/enhanced	3/8"/enhanced
Condenser Coil (R410A)					
Size (square feet)	164	164	164	164	164
Number of rows/fins per inch	1/21	1/21	1/21	1/21	1/21
Tube diameter/surface	1mm micro channel	1mm micro channel	1mm micro channel	1mm micro channel	1mm micro channel
Condenser Fans					
Quantity	6	6	6	6	6
Type	Prop.	Prop.	Prop.	Prop.	Prop.
Diameter (inches)	36	36	36	36	36
Power (hp each)	2	2	2	2	2

TABLE 3 – PHYSICAL DATA – MODELS 70-105 (cont'd)

MODEL SIZE	70	75	80	90	105
Filters - 2" throwaway (pre-filter position)					
Quantity	10 / 15	10 / 15	10 / 15	12 / 18	12 / 18
Size (length x width) (in.)	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20
Total Filter Face Area (square feet)	77.1	77.1	77.1	92.5	92.5
Filters - 2" cleanable (pre-filter position)					
Quantity	10 / 15	10 / 15	10 / 15	12 / 18	12 / 18
Size (length x width) (in.)	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20
Total Filter Face Area (square feet)	77.1	77.1	77.1	92.5	92.5
Filters - 2" pleated, 30% efficient (pre-filter position) (MERV 11)					
Quantity	10 / 15	10 / 15	10 / 15	12 / 18	12 / 18
Size (length x width) (in.)	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20
Total Filter Face Area (square feet)	77.1	77.1	77.1	92.5	92.5
Filters -12" rigid 65%, 2" 30% prefilter (pre-filter position) (MERV 11)					
Quantity	2 / 8 / 9	2 / 8 / 9	2 / 8 / 9	8 / 12	8 / 12
Size (length x width) (in.)	16x20/25x16/25x20	16x20/25x16/25x20	16x20/25x16/25x20	25x16/25x20	25x16/25x20
Total Filter Face Area (square feet)	55.8	55.8	55.8	61.6	61.6
Filters -12" rigid 95%, 2" 30% prefilter (pre-filter position) (MERV 14)					
Quantity	2 / 8 / 9	2 / 8 / 9	2 / 8 / 9	8 / 12	8 / 12
Size (length x width) (in.)	16x20/25x16/25x20	16x20/25x16/25x20	16x20/25x16/25x20	25x16/25x20	25x16/25x20
Total Filter Face Area (square feet)	55.8	55.8	55.8	61.6	61.6
Filters - 2" carbon (pre-filter position) (MERV 7)					
Quantity	10 / 15	10 / 15	10 / 15	12 / 18	12 / 18
Size (length x width) (in.)	16x20/25x16/25x20	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20	25X16 / 25x20
Total Filter Face Area (square feet)	77.1	77.1	77.1	92.5	92.5
Filters - 12" rigid 95% in Post-filter Position (MERV 14)					
Quantity	2 / 7 / 9	2 / 7 / 9	2 / 7 / 9	7 / 12	7 / 12
Size (length x width) (in.)	16x20/25x16/25x20	16x20/25x16/25x20	16x20/25x16/25x20	25x16/25x20	25x16/25x20
Total Filter Face Area (square feet)	55.1	55.1	55.1	61.1	61.1
Gas Furnace					
Staged Furnace Sizes (input/output/stages)	375 mbh / 300 mbh / 2 stages				
	750 mbh / 600 mbh / 4 stages				
	1125 mbh / 600 mbh / 6 stages				
Gas Pressure Range (min. to max. iwg)	3-14" w.c.	3-14" w.c.	3-14" w.c.	3-14" w.c.	3-14" w.c.
Airflow Range (min. to max. cfm)	6,950-36,000	6,950-36,000	11,150-36,000	15,150-36,000	15,150-36,000
Modulating Furnace Sizes (input/output/turndown)	375 mbh / 300 mbh / 8:1 turndown				
	750 mbh / 600 mbh / 16:1 turndown				
	1125 mbh / 900 mbh / 24:1 turndown				
Gas Pressure Range (min. to max. iwg)	3.5-14" w.c. ²	3.5-14" w.c. ²	3.5-14" w.c. ²	3.5-14" w.c. ²	3.5-14" w.c. ²
Airflow Range (min. to max. cfm)	8,250-36,000	8,250-36,000	11,150-36,000	15,150-36,000	15,150-36,000
Electric Heaters					
Size Range (min. to max. kW)	80-200	80-200	80-200	80-250	80-251
Heating steps ¹	1-7	1-7	1-7	1-7	1-8
Minimum OA Temp. for Mech. Cig.	45	45	45	45	45
Low Ambient Option Min. OA Temp	0	0	0	0	0

NOTES

1. Electric heat steps and airflow range depends on voltage and size. Consult the air pressure drop tables for specific number of steps for a given voltage.
2. 3.5" is minimum gas pressure for full firing rate. 3.0" is acceptable at reduced firing rate.
3. Weights are for components only and need to be added to the extended cabinet weights. The diffuser is required in the extended cabinet for any unit with hot water or final filter option.

Physical Data (continued)

TABLE 4 – PHYSICAL DATA – MODELS 120-130

MODEL SIZE	120	130
Compressor Data		
Quantity/Size (Nominal HP)	4x20 / 2x15	6x20
Type	Scroll	Scroll
Capacity Steps (Qty x %)	2x13, 4x18	6x16
Supply Fan and Drive		
Quantity	1 / 1	1 / 1
Type	DWDI Airfoil	DWDI Airfoil
Size	40	40
Motor Size Range (min. to max. HP)	10-75	10-75
Air Flow Range (min. to max. cfm)	24000-46000	24000-46000
Static Pressure Range (min. to max. ESP)	0-6"	0-6"
Exhaust Fan		
Quantity	1	1
Type	DWDI Forward-Curved	
Size	32-32	32-32
Motor Size Range (min. to max. HP)	7.5-40	7.5-40
Air Flow Range (min. to max. cfm)	0-46000	0-46000
Static Pressure Range (min. to max. ESP)	0-2"	0-2"
Return Fan		
Quantity Fans/Motors	1 / 1	1 / 1
Type	SWSI Plenum	SWSI Plenum
Size	445	445
Motor Size Range (min. to max. HP)	5-40	5-40
Airflow Range (min. to max. cfm)	0-46000	0-46000
Static pressure range (min. to max., iwg)	0-3"	0-3"
Evaporator Coil		
Size (square feet)	68.9	68.9
Number of rows/fins per inch	5 / 10	5 / 10
Tube Diameter/Surface	1/2"/enhanced	1/2"/enhanced
Condenser Coil (R410A, Al & Cu Fin)		
Size (square feet)	145	145
Number of rows/fins per inch	4 / 17	4 / 17
Tube diameter	3/8"	3/8"
Condenser Fans		
Quantity	6	6
Type	Prop.	Prop
Diameter (inches)	36	36
Power (hp each)	2	2
Filters - 2" throwaway (pre-filter position)		
Quantity	24 / 8	24 / 8
Size (length x width) (in.)	25x16 / 25x20	25x16 / 25x20
Total Filter Face Area (square feet)	94.4	94.4
Filters - 2" cleanable (pre-filter position)		
Quantity	24 / 8	24 / 8
Size (length x width) (in.)	25x16 / 25x20	25x16 / 25x20
Total Filter Face Area (square feet)	94.4	94.4
Filters - 2" pleated, 30% efficient (pre-filter position) (MERV 11)		
Quantity	24 / 8	24 / 8
Size (length x width) (in.)	25x16 / 25x20	25x16 / 25x20
Total Filter Face Area (square feet)	94.4	94.4

TABLE 4 – PHYSICAL DATA – MODELS 120-130 (cont'd)

MODEL SIZE	120	130
Filters -12" rigid 65%, 2" 30% prefilter (pre-filter position) (MERV 11)		
Quantity	10 / 15	10 / 15
Size (length x width) (in.)	20X16 / 25x20	20X16 / 25x20
Total Filter Face Area (square feet)	74.3	74.3
Filters -12" rigid 95%, 2" 30% prefilter (pre-filter position) (MERV 14)		
Quantity	10 / 15	10 / 15
Size (length x width) (in.)	20X16 / 25x20	20X16 / 25x20
Total Filter Face Area (square feet)	74.3	74.3
Filters - 2" carbon (pre-filter position) (MERV 7)		
Quantity	24 / 8	24 / 8
Size (length x width) (in.)	25x16 / 25x20	25x16 / 25x20
Total Filter Face Area (square feet)	94.4	94.4
Gas Furnace		
Staged Furnace Sizes (input/output/stages)	125 mbh / 900 mbh / 6 stages	
Gas Pressure Range (min. to max. iwg)	3.5-14" w.c.	3.5-14" w.c.
Modulating Furnace Sizes (input/output/turndown)	1125 mbh / 900 mbh / 24:1 turndown	
Gas Pressure Range (min. to max. iwg)	3.5-14" w.c.	3.5-14" w.c.
Electric Heaters		
Size Range (min. to max. kW)	40-250	40-250
Heating steps ¹	1-6	1-6
Minimum step ¹	2	2
Minimum OA Temp. for Mech. Cig.	0	0
Low Ambient Option Min. OA Temp	0	0

NOTES

1. Electric heat steps and airflow range depends on voltage and size. Consult the air pressure drop tables for specific number of steps for a given voltage.
2. 3.5" is minimum gas pressure for full firing rate. 3.0" is acceptable at reduced firing rate.
3. Weights are for components only and need to be added to the extended cabinet weights. The diffuser is required in the extended cabinet for any unit with hot water or final filter option.

TABLE 5 – REFRIGERANT CHARGE DATA

	70	75	80	90	105	120	130
Refrigerant Charge (R410A STD Cabinet)							
SYS 1 - LB	36	34.5	29.9	33.3	36.1	29.5	28.6
SYS 2 - LB	31	24.3	21.1	23.5	25.9	29.5	28.6
SYS 3 - LB	31	24.3	24.3	23.5	25.5	29.5	28.6
Refrigerant Charge (R410A EXTD Cabinet)							
SYS 1 - LB	38.4	36.9	32.3	35.7	38.5	30.4	29.5
SYS 2 - LB	33.4	26.7	23.5	25.9	28.3	30.4	29.5
SYS 3 - LB	33.4	26.7	26.7	25.9	27.9	30.4	29.5

TABLE 6 – EFFICIENCY RATINGS*

Model	EER	IPLV
YPAL070	10.9	13.7
YPAL075	10.4	12.2
YPAL080	10.3	12
YPAL090	9.8	10.9
YPAL105	9.7	11.1
YPAL120	10.6	11.4
YPAL130	9.8	11.3

* Ratings are for cooling only units with airfoil fans

Weight Data

TABLE 7 – APPROXIMATE BASE OPERATING WEIGHTS (LBS)

MODEL SIZE	70	75	80	90	105	120	130
Compressor Data	10309	10433	10449	10799	11287	14890	15264

Notes:

1. Unit base weights include the following features: sheet metal, control panels, refrigerant, compressors, condenser assemblies, minimum capacity supply fan, and 2" throwaway filter.
2. Base weights shown represent approximate operating weights and have a $\pm 10\%$ accuracy. To calculate weight for a specific configuration, use YORKworks or contact a Johnson Controls sales representative.

TABLE 8 – COMPONENT WEIGHTS (LBS)

MODEL SIZE	70	75	80	90	105	120	130
Cabinet							
Sheet Metal	6994	6994	6994	6913	6913	7964	7964
Control Panel	200	200	200	200	200	407	407
Refrigerant							
Refrigerant Charge (R410A)	75	75	75	75	75	195	177
Compressors							
Compressor 1	131	135	135	227	324	324	351
Compressor 2	131	135	135	227	324	324	351
Compressor 3	135	135	143	227	227	324	351
Compressor 4	135	135	143	227	227	324	351
Compressor 5	135	143	143	227	324	324	351
Compressor 6	135	143	143	227	324	324	351
Condenser Assembly							
Coils							
Condenser Coils (Aluminum) ¹	616	616	616	616	616	1320	1320
Condenser Coils (Copper) ²	—	—	—	—	—	2040	2040
Condenser Motors/Fans							
Condenser Motors, 2Hp 460/208—230	300	300	300	300	300	300	300
Condenser Fans	60	60	60	60	60	60	60
Condenser Fan Grilles	60	60	60	60	60	60	60
Supply Fan							
Comefri 25—22 FC Class I	458	458	458	469	469	—	—
Comefri 25—22 FC Class II	496	496	496	510	510	—	—
Comefri 25 AF Class I	649	649	649	649	649	—	—
Comefri 25 AF Class II	694	694	694	694	694	—	—
Fan Skid With FC36x36, Class 2 Fan W/O motor	—	—	—	—	—	1410	1410
Fan Skid With AF40, Class 1 Fan W/O hp motor	—	—	—	—	—	1667	1667
Isolators	20	20	20	20	20	*	*
Supply Fan Motor							
5HP	87	87	87	87	87	87	87
7.5HP	120	120	120	120	120	120	120
10HP	144	144	144	144	144	144	144
15HP	217	217	217	217	217	217	217
20HP	237	237	237	237	237	237	237
25HP	330	330	330	330	330	330	330
30HP	372	372	372	372	372	372	372
40HP	474	474	474	474	474	474	474
50HP	472	472	472	472	472	472	472

TABLE 8 – COMPONENT WEIGHTS (LBS) (cont'd)

60HP	556	556	556	556	556	556	556
75HP	808	808	808	808	808	808	808
Supply Fan VFD							
5 — 10 HP	22	22	22	22	22	22	22
15—25 HP	51	51	51	51	51	51	51
30 — 40 HP	66	66	66	66	66	66	66
50 — 60 HP	106	106	106	106	106	106	106
75 HP	—	—	—	290	290	290	290
Supply Mtr Base, 364T Frame	50	50	50	50	50	**	**
Supply Motor and Fan Drive	20	20	20	20	20	80	80
Evaporator Coil Top and Btm	540	640	640	540	640	945	1175
Filters							
2" Throwaway	25	25	25	25	25	96	96
2" Cleanable	25	25	25	25	25	96	96
2" Pleated	25	25	25	25	25	96	96
2" Carbon	25	25	25	25	25	96	96
RF — Rack only	297	297	297	327	327	200	200
RF — 2" Throwaway	322	322	322	352	352	300	300
RF — 12" 60—65%	535	535	535	565	565	458	458
RF — 12" 90—95%	535	535	535	565	565	458	458
Economizer							
OA Damper (30 x 84)	110	110	110	120	120	1541	1541
RA Damper (30 x 84)	110	110	110	120	120	—	—
Right Side OA Hood	46	46	46	54	54	—	—
Left Side OA Hood	46	46	46	54	54	—	—
Rear OA Hood	82	82	82	82	82	—	—
Tray & Liner	181	181	181	198	198	—	—
OA Filters Back Top	8	8	8	8	8	—	—
OA Filters Back Btm	8	8	8	8	8	—	—
OA Filters Right Top	2	2	2	2	2	—	—
OA Filters Right Btm	2	2	2	2	2	—	—
OA Filters Left Top	2	2	2	2	2	—	—
OA Filters Left Btm	2	2	2	2	2	—	—
Power Exhaust							
Exhaust Mtr Base, 256 T Frame	30	30	30	30	30	**	**
Exhaust Fan							
Comefri 15—15 FC Class R	194	194	194	194	194	—	—
Comefri 15—15 FC Class II	280	280	280	280	280	—	—
Comefri 18—18 FC Class R	306	306	306	306	306	—	—
Comefri 18—18 FC Class II	396	396	396	396	396	—	—
Return Fan	490	490	490	490	490	—	—
Exhaust Fan Skid, FC32 x 32 W/o Motor	—	—	—	—	—	1147	1147
Return Fan Skid, PF40 W/o Motor	—	—	—	—	—	1574	1574
Exhaust Fan Motor							
5HP	87	87	87	87	87	87	87
7.5HP	120	120	120	120	120	120	120
10HP	144	144	144	144	144	144	144

Weight Data (cont'd.)

TABLE 8 – COMPONENT WEIGHTS (LBS) (cont'd)

15HP	217	217	217	217	217	217	217
20HP	237	237	237	237	237	237	237
25HP	330	330	330	330	330	330	330
30HP	372	372	372	372	372	372	372
40HP	474	474	474	474	474	474	474
50HP	472	472	472	472	472	472	472
60HP	556	556	556	556	556	556	556
Return Fan Motor							
5HP	87	87	87	87	87	87	87
7.5HP	120	120	120	120	120	120	120
10HP	144	144	144	144	144	144	144
15HP	217	217	217	217	217	217	217
20HP	237	237	237	237	237	237	237
25HP	330	330	330	330	330	330	330
30HP	372	372	372	372	372	372	372
40HP	474	474	474	474	474	474	474
50HP	472	472	472	472	472	472	472
60HP	556	556	556	556	556	556	556
Exhaust Fan VFD							
5 — 10 HP	22	22	22	22	22	22	22
15—25 HP	51	51	51	51	51	51	51
30 — 40 HP	66	66	66	66	66	66	66
50 — 60 HP	106	106	106	106	106	106	106
Exhaust Damper							
Barometric, (24 x 76)	45	45	45	55	55	—	—
Modulating, (24 x 76)	75	75	75	90	90	—	—
Fan skid	46	46	46	49	49	—	—
Exhaust Hood	91	91	91	102	102	—	—
Exhaust Damper & Hood (Exhaust Fan)	—	—	—	—	—	538	538
Exhaust Damper & Hood (Return Fan)	—	—	—	—	—	445	445
End Panels — No Exhaust	—	—	—	—	—	238	238
Heating Options							
Electric Heat — 40kW (Max)	410	410	410	410	410	263	263
Electric Heat — 80kW (Max)	430	430	430	430	430	263	263
Electric Heat — 108kW (Max)	450	450	450	450	450	263	263
Electric Heat — 150kW (Max)	470	470	470	470	470	263	263
Electric Heat — 200kW (Max)	490	490	490	490	490	263	263
Electric Heat — 250kW (Max)	510	510	510	510	510	263	263
Gas Heat — 375 MBH (Max)	162	162	162	162	162	192	192
Gas Heat — 750 MBH (Max)	324	324	324	324	324	334	334
Gas Heat — 1125 MBH (Max)	486	486	486	486	486	474	474
Hot Water Coil	318	318	318	318	318	435	435
Steam Coil	236	236	236	236	236	375	375

TABLE 8 – COMPONENT WEIGHTS (LBS) (cont'd)

Misc.							
Open Perimeter Curb	577	577	577	615	615	675	675
Enclosed Perimeter Curb	1020	1020	1020	1040	1040	909	909
Condenser Section Sheet Metal	2767	2767	2767	2767	2767	***	***
0—100% AMS3	125	125	125	140	140	45	45
Min. AMS	45	45	45	50	50	—	—
Condenser Section Wire Guards	102	102	102	102	102	65	65
Louvered Panel Guard	465	465	465	465	465	357	357
Perforated Panels	—	—	—	—	—	180	180

Notes:

1 & 2 Indicate that the weight given is the total weight of all eight aluminum coils and all eight copper coils, respectively.

— Indicates that particular option is not available with that model size.

* For 120—130 Ton units, the weights of the isolators are included in the weights of the fan skids above.

** The supply and exhaust motor bases for the 120—130 Ton units are manufactured and included with the unit, so the weights are included with the fan size weight.

***For the 120—130 Ton units, the weight of the condenser sheet metal is included in the sheet metal weight at the top of the table.

3 The 0—100% AMS option needs some predetermined minimum airflow rate to work.

Cooling Performance Data – 70 Ton Model

TABLE 9 – COOLING PERFORMANCE DATA* – 70 TON MODEL

85° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	59.0	802.8	684.6	802.8	615.5	802.8	563.6	802.8	511.8	802.8	459.9	802.8	408.1	802.8	356.3	802.8	304.4
	73	58.9	791.7	683.9	791.7	614.8	791.7	563.0	791.7	511.1	791.7	459.3	791.7	407.5	791.7	355.6	791.7	303.8
	71	58.8	780.6	683.1	780.6	614.0	780.6	562.2	780.6	510.3	780.6	458.5	780.6	406.7	780.6	354.8	780.6	303.0
	67	58.6	748.8	720.4	748.8	651.3	748.8	599.4	748.8	547.6	748.8	495.8	748.8	443.9	748.8	392.1	748.8	340.2
	62	58.2	703.0	703.0	703.0	703.0	703.0	665.6	703.0	613.7	703.0	561.9	703.0	510.1	703.0	458.2	703.0	406.4
17750	75	59.2	829.8	715.5	829.8	638.8	829.8	581.3	829.8	523.8	829.8	466.3	829.8	408.8	829.8	351.3	829.8	293.7
	73	59.1	818.4	714.8	818.4	638.2	818.4	580.6	818.4	523.1	818.4	465.6	818.4	408.1	818.4	350.6	818.4	293.1
	71	59.0	806.9	714.0	806.9	637.3	806.9	579.8	806.9	522.3	806.9	464.8	806.9	407.3	806.9	349.8	806.9	292.3
	67	58.7	774.1	752.1	774.1	675.5	774.1	618.0	774.1	560.4	774.1	502.9	774.1	445.4	774.1	387.9	774.1	330.4
	62	58.3	726.7	726.7	726.7	726.7	726.7	685.7	726.7	628.1	726.7	570.6	726.7	513.1	726.7	455.6	726.7	398.1
19500	75	59.3	856.9	746.4	856.9	662.1	856.9	599.0	856.9	535.8	856.9	472.6	856.9	409.4	856.9	346.2	856.9	283.1
	73	59.2	845.0	745.7	845.0	661.5	845.0	598.3	845.0	535.1	845.0	471.9	845.0	408.8	845.0	345.6	845.0	282.4
	71	59.1	833.2	744.9	833.2	660.6	833.2	597.4	833.2	534.3	833.2	471.1	833.2	407.9	833.2	344.7	833.2	281.5
	67	58.9	799.3	783.9	799.3	699.7	799.3	636.5	799.3	573.3	799.3	510.1	799.3	446.9	799.3	383.8	799.3	320.6
	62	58.5	750.4	750.4	750.4	750.4	750.4	705.7	750.4	642.5	750.4	579.4	750.4	516.2	750.4	453.0	750.4	389.8
21250	75	59.5	884.0	777.3	884.0	685.5	884.0	616.6	884.0	547.8	884.0	478.9	884.0	410.1	884.0	341.2	884.0	272.4
	73	59.4	871.7	776.6	871.7	684.8	871.7	616.0	871.7	547.1	871.7	478.3	871.7	409.4	871.7	340.6	871.7	271.7
	71	59.3	859.5	775.7	859.5	683.9	859.5	615.1	859.5	546.2	859.5	477.4	859.5	408.5	859.5	339.7	859.5	270.8
	67	59.0	824.6	815.6	824.6	723.8	824.6	655.0	824.6	586.1	824.6	517.3	824.6	448.4	824.6	379.6	824.6	310.7
	62	58.7	774.1	774.1	774.1	774.1	774.1	725.8	774.1	656.9	774.1	588.1	774.1	519.2	774.1	450.4	774.1	381.5
23000	75	59.6	911.0	808.2	911.0	708.8	911.0	634.3	911.0	559.8	911.0	485.3	911.0	410.7	911.0	336.2	911.0	261.7
	73	59.5	898.4	807.5	898.4	708.1	898.4	633.6	898.4	559.1	898.4	484.6	898.4	410.1	898.4	335.5	898.4	261.0
	71	59.4	885.8	806.6	885.8	707.2	885.8	632.7	885.8	558.2	885.8	483.7	885.8	409.2	885.8	334.6	885.8	260.1
	67	59.2	849.8	847.4	849.8	748.0	849.8	673.5	849.8	599.0	849.8	524.5	849.8	449.9	849.8	375.4	849.8	300.9
	62	58.8	797.8	797.8	797.8	797.8	797.8	745.8	797.8	671.3	797.8	596.8	797.8	522.3	797.8	447.8	797.8	373.2
24750	75	59.8	930.7	844.8	930.7	737.9	930.7	657.7	930.7	577.5	930.7	497.3	930.7	417.2	930.7	336.8	930.7	256.6
	73	59.7	917.9	844.1	917.9	737.2	917.9	657.0	917.9	576.8	917.9	496.6	917.9	416.4	917.9	336.0	917.9	255.8
	71	59.6	905.0	845.6	905.0	736.3	905.0	656.1	905.0	575.9	905.0	507.2	905.0	427.0	905.0	346.8	905.0	266.6
	67	59.3	868.2	866.4	868.2	778.3	868.2	698.2	868.2	618.0	868.2	537.8	868.2	457.6	868.2	377.4	868.2	297.2
	62	58.9	815.0	815.0	815.0	815.0	815.0	772.8	815.0	692.6	815.0	612.4	815.0	532.2	815.0	452.0	815.0	371.8
26500	75	59.9	950.4	881.5	950.4	767.0	950.4	681.1	950.4	595.3	950.4	509.4	950.4	423.6	950.4	337.3	950.4	251.4
	73	59.8	937.3	880.7	937.3	766.3	937.3	680.4	937.3	594.5	937.3	508.7	937.3	422.8	937.3	336.5	937.3	250.6
	71	59.7	924.1	884.5	924.1	765.3	924.1	679.4	924.1	593.6	924.1	530.7	924.1	444.8	924.1	359.0	924.1	273.1
	67	59.4	886.6	885.3	886.6	808.7	886.6	722.8	886.6	636.9	886.6	551.1	886.6	465.2	886.6	379.4	886.6	293.5
	62	59.1	832.3	832.3	832.3	832.3	832.3	799.7	832.3	713.9	832.3	628.0	832.3	542.2	832.3	456.3	832.3	370.4
28250	75	60.0	970.1	918.1	970.1	796.1	970.1	704.5	970.1	613.0	970.1	521.5	970.1	430.0	970.1	337.8	970.1	246.3
	73	59.9	956.7	917.4	956.7	795.3	956.7	703.8	956.7	612.3	956.7	520.7	956.7	429.2	956.7	336.9	956.7	245.4
	71	59.8	943.3	923.5	943.3	794.3	943.3	702.8	943.3	611.3	943.3	554.2	943.3	462.7	943.3	371.1	943.3	279.6
	67	59.6	904.9	904.3	904.9	839.0	904.9	747.5	904.9	655.9	904.9	564.4	904.9	472.9	904.9	381.3	904.9	289.8
	62	59.2	849.5	849.5	849.5	849.5	849.5	826.7	849.5	735.2	849.5	643.6	849.5	552.1	849.5	460.6	849.5	369.0
30000	75	60.1	989.8	954.8	989.8	825.2	989.8	728.0	989.8	630.8	989.8	533.6	989.8	436.4	989.8	338.4	989.8	241.2
	73	60.0	976.1	954.0	976.1	824.4	976.1	727.2	976.1	630.0	976.1	532.8	976.1	435.6	976.1	337.4	976.1	240.2
	71	59.9	962.4	962.4	962.4	823.4	962.4	726.2	962.4	629.0	962.4	577.7	962.4	480.5	962.4	383.3	962.4	286.1
	67	59.7	923.3	923.3	923.3	869.3	923.3	772.1	923.3	674.9	923.3	577.7	923.3	480.5	923.3	383.3	923.3	286.1
	62	59.3	866.8	866.8	866.8	866.8	866.8	853.6	866.8	756.4	866.8	659.2	866.8	562.0	866.8	464.8	866.8	367.6
	73	60.0	976.1	954.0	976.1	824.4	976.1	727.2	976.1	630.0	976.1	532.8	976.1	435.6	976.1	337.4	976.1	240.2
	71	59.9	962.4	962.4	962.4	823.4	962.4	726.2	962.4	629.0	962.4	577.7	962.4	480.5	962.4	383.3	962.4	286.1
	67	59.7	923.3	923.3	923.3	869.3	923.3	772.1	923.3	674.9	923.3	577.7	923.3	480.5	923.3	383.3	923.3	286.1
	62	59.3	866.8	866.8	866.8	866.8	866.8	853.6	866.8	756.4	866.8	659.2	866.8	562.0	866.8	464.8	866.8	367.6

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 9 – COOLING PERFORMANCE DATA* – 70 TON MODEL (cont'd)

95° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	64.8	791.5	590.6	791.5	521.5	791.5	469.7	791.5	417.8	791.5	366.0	791.5	314.1	791.5	262.3	791.5	210.5
	73	64.7	778.6	614.4	778.6	545.3	778.6	493.5	778.6	441.6	778.6	389.8	778.6	338.0	778.6	286.1	778.6	234.3
	71	64.6	765.7	637.2	765.7	568.1	765.7	516.3	765.7	464.4	765.7	412.6	765.7	360.7	765.7	308.9	765.7	257.1
	67	64.4	734.8	677.7	734.8	608.6	734.8	556.7	734.8	504.9	734.8	453.0	734.8	401.2	734.8	349.4	734.8	297.5
	62	64.1	687.2	687.2	687.2	669.9	687.2	618.1	687.2	566.2	687.2	514.4	687.2	462.5	687.2	410.7	687.2	358.9
17750	75	64.9	816.5	627.6	816.5	550.9	816.5	493.4	816.5	435.9	816.5	378.4	816.5	320.9	816.5	263.4	816.5	205.9
	73	64.8	803.2	652.4	803.2	575.8	803.2	518.3	803.2	460.7	803.2	403.2	803.2	345.7	803.2	288.2	803.2	230.7
	71	64.7	789.8	676.2	789.8	599.5	789.8	542.0	789.8	484.5	789.8	427.0	789.8	369.5	789.8	312.0	789.8	254.5
	67	64.5	758.0	715.1	758.0	641.7	758.0	584.2	758.0	526.7	758.0	469.2	758.0	411.7	758.0	354.2	758.0	296.7
	62	64.2	708.9	708.9	708.9	695.9	708.9	648.2	708.9	590.7	708.9	533.2	708.9	475.7	708.9	418.2	708.9	360.7
19500	75	65.0	841.5	664.6	841.5	580.3	841.5	517.2	841.5	454.0	841.5	390.8	841.5	327.6	841.5	264.4	841.5	201.3
	73	64.9	827.7	690.5	827.7	606.2	827.7	543.0	827.7	479.9	827.7	416.7	827.7	353.5	827.7	290.3	827.7	227.1
	71	64.8	814.0	715.2	814.0	631.0	814.0	567.8	814.0	504.6	814.0	441.4	814.0	378.3	814.0	315.1	814.0	251.9
	67	64.6	781.2	752.6	781.2	674.9	781.2	611.7	781.2	548.6	781.2	485.4	781.2	422.2	781.2	359.0	781.2	295.8
	62	64.3	730.6	730.6	730.6	721.9	730.6	678.4	730.6	615.2	730.6	552.0	730.6	488.9	730.6	425.7	730.6	362.5
21250	75	65.1	866.5	701.6	866.5	609.8	866.5	540.9	866.5	472.1	866.5	403.2	866.5	334.4	866.5	265.5	866.5	196.7
	73	65.0	852.3	728.5	852.3	636.7	852.3	567.8	852.3	499.0	852.3	430.1	852.3	361.3	852.3	292.4	852.3	223.6
	71	64.9	838.1	754.2	838.1	662.4	838.1	593.6	838.1	524.7	838.1	455.9	838.1	387.0	838.1	318.2	838.1	249.3
	67	64.7	804.3	790.1	804.3	708.1	804.3	639.3	804.3	570.4	804.3	501.6	804.3	432.7	804.3	363.9	804.3	295.0
	62	64.4	752.3	752.3	752.3	747.9	752.3	708.6	752.3	639.7	752.3	570.9	752.3	502.0	752.3	433.2	752.3	364.3
23000	75	65.2	891.4	738.5	891.4	639.2	891.4	564.7	891.4	490.1	891.4	415.6	891.4	341.1	891.4	266.6	891.4	192.1
	73	65.1	876.9	766.5	876.9	667.1	876.9	592.6	876.9	518.1	876.9	443.5	876.9	369.0	876.9	294.5	876.9	220.0
	71	65.0	862.3	793.2	862.3	693.8	862.3	619.3	862.3	544.8	862.3	470.3	862.3	395.8	862.3	321.2	862.3	246.7
	67	64.8	827.5	827.5	827.5	741.3	827.5	666.8	827.5	592.3	827.5	517.7	827.5	443.2	827.5	368.7	827.5	294.2
	62	64.5	774.0	774.0	774.0	774.0	774.0	738.7	774.0	664.2	774.0	589.7	774.0	515.2	774.0	440.6	774.0	366.1
24750	75	65.3	909.0	772.0	909.0	665.1	909.0	584.9	909.0	504.7	909.0	424.5	909.0	344.3	909.0	264.1	909.0	183.9
	73	65.2	894.2	800.8	894.2	693.8	894.2	613.7	894.2	533.5	894.2	453.3	894.2	373.1	894.2	292.9	894.2	212.7
	71	65.1	879.3	827.5	879.3	721.4	879.3	641.2	879.3	561.0	879.3	480.8	879.3	400.6	879.3	320.4	879.3	240.2
	67	64.9	843.8	843.8	843.8	770.2	843.8	690.0	843.8	609.9	843.8	529.7	843.8	449.5	843.8	369.3	843.8	289.1
	62	64.6	789.2	789.2	789.2	789.2	789.2	762.8	789.2	683.9	789.2	603.8	789.2	523.6	789.2	443.4	789.2	363.2
26500	75	65.4	926.6	805.5	926.6	691.0	926.6	605.1	926.6	519.3	926.6	433.4	926.6	347.5	926.6	261.7	926.6	175.8
	73	65.3	911.4	835.1	911.4	720.6	911.4	634.7	911.4	548.9	911.4	463.0	911.4	377.1	911.4	291.3	911.4	205.4
	71	65.2	896.3	861.8	896.3	748.9	896.3	663.0	896.3	577.2	896.3	491.3	896.3	405.5	896.3	319.6	896.3	233.7
	67	65.0	860.2	860.2	860.2	799.2	860.2	713.3	860.2	627.5	860.2	541.6	860.2	455.7	860.2	369.9	860.2	284.0
	62	64.7	804.5	804.5	804.5	804.5	804.5	786.9	804.5	703.7	804.5	617.8	804.5	532.0	804.5	446.1	804.5	360.2
28250	75	65.6	944.2	838.9	944.2	716.9	944.2	625.4	944.2	533.8	944.2	442.3	944.2	350.8	944.2	259.2	944.2	167.7
	73	65.4	928.7	869.3	928.7	747.3	928.7	655.8	928.7	564.2	928.7	472.7	928.7	381.2	928.7	289.7	928.7	198.1
	71	65.3	913.3	896.0	913.3	776.4	913.3	684.9	913.3	593.4	913.3	501.8	913.3	410.3	913.3	318.8	913.3	227.2
	67	65.1	876.5	876.5	876.5	828.1	876.5	736.6	876.5	645.1	876.5	553.5	876.5	462.0	876.5	370.5	876.5	278.9
	62	64.8	819.8	819.8	819.8	819.8	819.8	810.9	819.8	723.4	819.8	631.9	819.8	540.4	819.8	448.8	819.8	357.3
30000	75	65.7	961.8	872.4	961.8	742.8	961.8	645.6	961.8	548.4	961.8	451.2	961.8	354.0	961.8	256.8	961.8	159.6
	73	65.6	946.0	903.6	946.0	774.0	946.0	676.8	946.0	579.6	946.0	482.4	946.0	385.2	946.0	288.0	946.0	190.8
	71	65.4	930.3	930.3	930.3	804.0	930.3	706.8	930.3	609.6	930.3	512.4	930.3	415.2	930.3	318.0	930.3	220.8
	67	65.2	892.8	892.8	892.8	857.1	892.8	759.9	892.8	662.7	892.8	565.5	892.8	468.3	892.8	371.1	892.8	273.9
	62	64.9	835.0	835.0	835.0	835.0	835.0	835.0	835.0	743.2	835.0	646.0	835.0	548.8	835.0	451.6	835.0	354.4

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 70 Ton Model (cont'd.)

TABLE 9 – COOLING PERFORMANCE DATA* – 70 TON MODEL (cont'd)

105° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	72.3	766.5	581.3	766.5	512.2	766.5	460.4	766.5	408.5	766.5	356.7	766.5	304.9	766.5	253.0	766.5	201.2
	73	72.3	754.0	600.2	754.0	531.1	754.0	479.3	754.0	427.4	754.0	375.6	754.0	323.8	754.0	271.9	754.0	220.1
	71	72.2	741.5	618.3	741.5	549.2	741.5	497.3	741.5	445.5	741.5	393.6	741.5	341.8	741.5	290.0	741.5	238.1
	67	72.0	711.2	661.3	711.2	592.2	711.2	540.4	711.2	488.5	711.2	436.7	711.2	384.9	711.2	333.0	711.2	281.2
	62	71.7	662.4	662.4	662.4	653.7	662.4	604.5	662.4	552.6	662.4	500.8	662.4	449.0	662.4	397.1	662.4	345.3
17750	75	72.4	789.5	618.5	789.5	541.8	789.5	484.3	789.5	426.8	789.5	369.2	789.5	311.7	789.5	254.2	789.5	196.7
	73	72.3	776.7	638.2	776.7	561.5	776.7	504.0	776.7	446.5	776.7	389.0	776.7	331.5	776.7	274.0	776.7	216.4
	71	72.3	763.8	657.0	763.8	580.4	763.8	522.8	763.8	465.3	763.8	407.8	763.8	350.3	763.8	292.8	763.8	235.3
	67	72.1	732.6	695.2	732.6	625.3	732.6	567.8	732.6	510.3	732.6	452.8	732.6	395.3	732.6	337.8	732.6	280.3
	62	71.8	682.3	682.3	682.3	675.8	682.3	634.5	682.3	577.3	682.3	519.8	682.3	462.3	682.3	404.8	682.3	347.2
19500	75	72.5	812.5	655.6	812.5	571.3	812.5	508.2	812.5	445.0	812.5	381.8	812.5	318.6	812.5	255.4	812.5	192.3
	73	72.4	799.3	676.1	799.3	591.9	799.3	528.7	799.3	465.5	799.3	402.4	799.3	339.2	799.3	276.0	799.3	212.8
	71	72.3	786.1	695.8	786.1	611.6	786.1	548.4	786.1	485.2	786.1	422.0	786.1	358.8	786.1	295.7	786.1	232.5
	67	72.1	754.0	729.1	754.0	658.5	754.0	595.3	754.0	532.1	754.0	468.9	754.0	405.7	754.0	342.6	754.0	279.4
	62	71.9	702.2	702.2	702.2	697.9	702.2	664.4	702.2	601.9	702.2	538.8	702.2	475.6	702.2	412.4	702.2	349.2
21250	75	72.6	835.6	692.7	835.6	600.9	835.6	532.0	835.6	463.2	835.6	394.3	835.6	325.5	835.6	256.6	835.6	187.8
	73	72.5	822.0	714.1	822.0	622.3	822.0	553.5	822.0	484.6	822.0	415.8	822.0	346.9	822.0	278.1	822.0	209.2
	71	72.4	808.4	734.5	808.4	642.7	808.4	573.9	808.4	505.0	808.4	436.2	808.4	367.3	808.4	298.5	808.4	229.6
	67	72.2	775.4	762.9	775.4	691.6	775.4	622.7	775.4	553.9	775.4	485.0	775.4	416.2	775.4	347.3	775.4	278.5
	62	72.0	722.1	722.1	722.1	719.9	722.1	694.4	722.1	626.6	722.1	557.7	722.1	488.9	722.1	420.0	722.1	351.2
23000	75	72.7	858.6	729.8	858.6	630.5	858.6	555.9	858.6	481.4	858.6	406.9	858.6	332.4	858.6	257.9	858.6	183.3
	73	72.6	844.7	752.1	844.7	652.7	844.7	578.2	844.7	503.7	844.7	429.1	844.7	354.6	844.7	280.1	844.7	205.6
	71	72.5	830.7	773.3	830.7	673.9	830.7	599.4	830.7	524.9	830.7	450.4	830.7	375.9	830.7	301.3	830.7	226.8
	67	72.3	796.8	796.8	796.8	724.7	796.8	650.2	796.8	575.7	796.8	501.1	796.8	426.6	796.8	352.1	796.8	277.6
	62	72.1	742.0	742.0	742.0	742.0	742.0	724.4	742.0	651.2	742.0	576.7	742.0	502.2	742.0	427.7	742.0	353.1
24750	75	72.7	874.0	763.4	874.0	656.4	874.0	576.2	874.0	496.1	874.0	415.9	874.0	335.7	874.0	255.5	874.0	175.3
	73	72.7	859.7	785.0	859.7	679.3	859.7	599.2	859.7	519.0	859.7	438.8	859.7	358.6	859.7	278.4	859.7	198.2
	71	72.6	845.5	802.5	845.5	701.2	845.5	621.0	845.5	540.9	845.5	460.7	845.5	380.5	845.5	300.3	845.5	220.1
	67	72.4	811.0	811.0	811.0	752.5	811.0	673.3	811.0	593.2	811.0	513.0	811.0	432.8	811.0	352.6	811.0	272.4
	62	72.1	755.3	755.3	755.3	755.3	755.3	742.1	755.3	671.0	755.3	590.8	755.3	510.6	755.3	430.5	755.3	350.3
26500	75	72.8	889.3	796.9	889.3	682.4	889.3	596.6	889.3	510.7	889.3	424.8	889.3	339.0	889.3	253.1	889.3	167.3
	73	72.7	874.8	817.9	874.8	706.0	874.8	620.1	874.8	534.3	874.8	448.4	874.8	362.6	874.8	276.7	874.8	190.8
	71	72.6	860.4	831.7	860.4	728.5	860.4	642.7	860.4	556.8	860.4	470.9	860.4	385.1	860.4	299.2	860.4	213.4
	67	72.5	825.2	825.2	825.2	780.3	825.2	696.5	825.2	610.7	825.2	524.8	825.2	438.9	825.2	353.1	825.2	267.2
	62	72.2	768.6	768.6	768.6	768.6	768.6	759.7	768.6	690.8	768.6	605.0	768.6	519.1	768.6	433.2	768.6	347.4
28250	75	72.9	904.6	830.4	904.6	708.4	904.6	616.9	904.6	525.3	904.6	433.8	904.6	342.3	904.6	250.7	904.6	159.2
	73	72.8	889.9	850.9	889.9	732.6	889.9	641.1	889.9	549.6	889.9	458.1	889.9	366.5	889.9	275.0	889.9	183.5
	71	72.7	875.2	860.9	875.2	755.8	875.2	664.3	875.2	572.8	875.2	481.2	875.2	389.7	875.2	298.2	875.2	206.6
	67	72.5	839.5	839.5	839.5	808.0	839.5	719.7	839.5	628.2	839.5	536.6	839.5	445.1	839.5	353.6	839.5	262.0
	62	72.3	781.8	781.8	781.8	781.8	781.8	777.4	781.8	710.6	781.8	619.1	781.8	527.6	781.8	436.0	781.8	344.5
30000	75	73.0	920.0	864.0	920.0	734.4	920.0	637.2	920.0	540.0	920.0	442.8	920.0	345.6	920.0	248.4	920.0	151.2
	73	72.9	905.0	883.8	905.0	759.3	905.0	662.1	905.0	564.9	905.0	467.7	905.0	370.5	905.0	273.3	905.0	176.1
	71	72.8	890.0	890.0	890.0	783.1	890.0	685.9	890.0	588.7	890.0	491.5	890.0	394.3	890.0	297.1	890.0	199.9
	67	72.6	853.7	853.7	853.7	835.8	853.7	742.9	853.7	645.7	853.7	548.5	853.7	451.3	853.7	354.1	853.7	256.9
	62	72.4	795.1	795.1	795.1	795.1	795.1	795.1	795.1	730.4	795.1	633.2	795.1	536.0	795.1	438.8	795.1	341.6

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 9 – COOLING PERFORMANCE DATA* – 70 TON MODEL (cont'd)

115° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	79.9	741.4	572.0	741.4	502.9	741.4	451.1	741.4	399.2	741.4	347.4	741.4	295.6	741.4	243.7	741.4	191.9
	73	79.8	729.4	586.0	729.4	516.9	729.4	465.1	729.4	413.2	729.4	361.4	729.4	309.5	729.4	257.7	729.4	205.9
	71	79.7	717.4	599.3	717.4	530.2	717.4	478.4	717.4	426.5	717.4	374.7	717.4	322.9	717.4	271.0	717.4	219.2
	67	79.6	687.7	645.0	687.7	575.9	687.7	524.0	687.7	472.2	687.7	420.4	687.7	368.5	687.7	316.7	687.7	264.8
	62	79.4	637.5	637.5	637.5	637.5	637.5	590.9	637.5	539.1	637.5	487.2	637.5	435.4	637.5	383.5	637.5	331.7
17750	75	79.9	762.5	609.3	762.5	532.6	762.5	475.1	762.5	417.6	762.5	360.1	762.5	302.6	762.5	245.1	762.5	187.6
	73	79.9	750.1	623.9	750.1	547.3	750.1	489.7	750.1	432.2	750.1	374.7	750.1	317.2	750.1	259.7	750.1	202.2
	71	79.8	737.8	637.9	737.8	561.2	737.8	503.7	737.8	446.2	737.8	388.6	737.8	331.1	737.8	273.6	737.8	216.1
	67	79.7	707.3	675.2	707.3	608.9	707.3	551.4	707.3	493.9	707.3	436.4	707.3	378.9	707.3	321.4	707.3	263.9
	62	79.4	655.6	655.6	655.6	655.6	655.6	620.7	655.6	563.9	655.6	506.3	655.6	448.8	655.6	391.3	655.6	333.8
19500	75	80.0	783.6	646.6	783.6	562.3	783.6	499.2	783.6	436.0	783.6	372.8	783.6	309.6	783.6	246.4	783.6	183.3
	73	79.9	770.9	661.8	770.9	577.6	770.9	514.4	770.9	451.2	770.9	388.1	770.9	324.9	770.9	261.7	770.9	198.5
	71	79.9	758.2	676.4	758.2	592.1	758.2	529.0	758.2	465.8	758.2	402.6	758.2	339.4	758.2	276.2	758.2	213.1
	67	79.7	726.9	705.5	726.9	642.0	726.9	578.8	726.9	515.6	726.9	452.4	726.9	389.3	726.9	326.1	726.9	262.9
	62	79.5	673.8	673.8	673.8	673.8	673.8	650.5	673.8	588.6	673.8	525.5	673.8	462.3	673.8	399.1	673.8	335.9
21250	75	80.0	804.7	683.8	804.7	592.0	804.7	523.2	804.7	454.3	804.7	385.5	804.7	316.6	804.7	247.8	804.7	178.9
	73	80.0	791.7	699.7	791.7	607.9	791.7	539.1	791.7	470.2	791.7	401.4	791.7	332.5	791.7	263.7	791.7	194.8
	71	79.9	778.7	714.9	778.7	623.1	778.7	554.2	778.7	485.4	778.7	416.5	778.7	347.7	778.7	278.8	778.7	210.0
	67	79.8	746.4	735.8	746.4	675.0	746.4	606.2	746.4	537.3	746.4	468.5	746.4	399.6	746.4	330.8	746.4	261.9
	62	79.6	691.9	691.9	691.9	691.9	691.9	680.3	691.9	613.4	691.9	544.6	691.9	475.7	691.9	406.9	691.9	338.0
23000	75	80.1	825.8	721.1	825.8	621.7	825.8	547.2	825.8	472.7	825.8	398.2	825.8	323.7	825.8	249.1	825.8	174.6
	73	80.0	812.4	737.7	812.4	638.3	812.4	563.8	812.4	489.3	812.4	414.7	812.4	340.2	812.4	265.7	812.4	191.2
	71	80.0	799.1	753.4	799.1	654.1	799.1	579.5	799.1	505.0	799.1	430.5	799.1	356.0	799.1	281.5	799.1	206.9
	67	79.8	766.0	766.0	766.0	708.1	766.0	633.6	766.0	559.1	766.0	484.5	766.0	410.0	766.0	335.5	766.0	261.0
	62	79.6	710.1	710.1	710.1	710.1	710.1	710.1	710.1	638.2	710.1	563.7	710.1	489.2	710.1	414.7	710.1	340.2
24750	75	80.1	838.9	754.7	838.9	647.8	838.9	567.6	838.9	487.4	838.9	407.2	838.9	327.0	838.9	246.8	838.9	166.6
	73	80.1	825.3	769.2	825.3	664.9	825.3	584.7	825.3	504.5	825.3	424.3	825.3	344.1	825.3	263.9	825.3	183.7
	71	80.0	811.8	777.5	811.8	681.1	811.8	600.9	811.8	520.7	811.8	440.5	811.8	360.3	811.8	280.2	811.8	200.0
	67	79.9	778.2	778.2	778.2	734.7	778.2	656.7	778.2	576.5	778.2	496.3	778.2	416.1	778.2	335.9	778.2	255.7
	62	79.7	721.4	721.4	721.4	721.4	721.4	721.4	721.4	658.1	721.4	577.9	721.4	497.7	721.4	417.5	721.4	337.3
26500	75	80.2	852.0	788.3	852.0	673.8	852.0	588.0	852.0	502.1	852.0	416.3	852.0	330.4	852.0	244.5	852.0	158.7
	73	80.1	838.2	800.8	838.2	691.4	838.2	605.6	838.2	519.7	838.2	433.8	838.2	348.0	838.2	262.1	838.2	176.3
	71	80.1	824.4	801.6	824.4	708.2	824.4	622.3	824.4	536.4	824.4	450.6	824.4	364.7	824.4	278.9	824.4	193.0
	67	79.9	790.3	790.3	790.3	761.3	790.3	679.7	790.3	593.9	790.3	508.0	790.3	422.1	790.3	336.3	790.3	250.4
	62	79.7	732.6	732.6	732.6	732.6	732.6	732.6	732.6	678.0	732.6	592.1	732.6	506.2	732.6	420.4	732.6	334.5
28250	75	80.2	865.1	821.9	865.1	699.9	865.1	608.4	865.1	516.8	865.1	425.3	865.1	333.8	865.1	242.2	865.1	150.7
	73	80.2	851.1	832.4	851.1	718.0	851.1	626.5	851.1	534.9	851.1	443.4	851.1	351.9	851.1	260.3	851.1	168.8
	71	80.1	837.1	825.7	837.1	735.2	837.1	643.7	837.1	552.2	837.1	460.6	837.1	369.1	837.1	277.6	837.1	186.0
	67	80.0	802.4	802.4	802.4	788.0	802.4	702.8	802.4	611.3	802.4	519.7	802.4	428.2	802.4	336.7	802.4	245.1
	62	79.8	743.9	743.9	743.9	743.9	743.9	743.9	743.9	697.8	743.9	606.3	743.9	514.8	743.9	423.2	743.9	331.7
30000	75	80.3	878.2	855.5	878.2	725.9	878.2	628.7	878.2	531.5	878.2	434.3	878.2	337.1	878.2	239.9	878.2	142.7
	73	80.2	864.0	864.0	864.0	744.5	864.0	647.3	864.0	550.1	864.0	452.9	864.0	355.7	864.0	258.5	864.0	161.3
	71	80.2	849.8	849.8	849.8	762.3	849.8	665.1	849.8	567.9	849.8	470.7	849.8	373.5	849.8	276.3	849.8	179.1
	67	80.0	814.6	814.6	814.6	814.6	814.6	725.8	814.6	628.6	814.6	531.4	814.6	434.2	814.6	337.0	814.6	239.8
	62	79.8	755.1	755.1	755.1	755.1	755.1	755.1	755.1	717.7	755.1	620.5	755.1	523.3	755.1	426.1	755.1	328.9

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 75 Ton Model

TABLE 10 – COOLING PERFORMANCE DATA* – 75 TON MODEL

85° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	68.7	859.8	719.6	859.8	650.5	859.8	598.7	859.8	546.8	859.8	495.0	859.8	443.2	859.8	391.3	859.8	339.5
	73	66.4	844.3	732.1	844.3	663.0	844.3	611.1	844.3	559.3	844.3	507.4	844.3	455.6	844.3	403.8	844.3	351.9
	71	64.0	828.9	743.7	828.9	674.6	828.9	622.8	828.9	570.9	828.9	519.1	828.9	467.2	828.9	415.4	828.9	363.6
	67	64.7	799.0	750.5	799.0	681.4	799.0	629.6	799.0	577.7	799.0	525.9	799.0	474.1	799.0	422.2	799.0	370.4
	62	63.8	757.9	757.9	757.9	743.9	757.9	692.0	757.9	640.2	757.9	588.3	757.9	536.5	757.9	484.7	757.9	432.8
17750	75	69.5	888.3	752.1	888.3	675.4	888.3	617.9	888.3	560.4	888.3	502.9	888.3	445.4	888.3	387.9	888.3	330.4
	73	67.2	872.3	764.9	872.3	688.2	872.3	630.7	872.3	573.2	872.3	515.7	872.3	458.2	872.3	400.6	872.3	343.1
	71	64.8	856.4	776.8	856.4	700.1	856.4	642.6	856.4	585.1	856.4	527.6	856.4	470.1	856.4	412.6	856.4	355.1
	67	65.5	825.5	783.8	825.5	707.1	825.5	649.6	825.5	592.1	825.5	534.6	825.5	477.1	825.5	419.6	825.5	362.0
	62	64.6	783.0	783.0	783.0	771.1	783.0	713.6	783.0	656.1	783.0	598.6	783.0	541.1	783.0	483.5	783.0	426.0
19500	75	70.3	916.9	784.6	916.9	700.4	916.9	637.2	916.9	574.0	916.9	510.8	916.9	447.6	916.9	384.5	916.9	321.3
	73	67.9	900.4	797.7	900.4	713.4	900.4	650.2	900.4	587.1	900.4	523.9	900.4	460.7	900.4	397.5	900.4	334.3
	71	65.6	883.8	809.9	883.8	725.6	883.8	662.5	883.8	599.3	883.8	536.1	883.8	472.9	883.8	409.7	883.8	346.6
	67	66.2	852.0	817.0	852.0	732.8	852.0	669.6	852.0	606.4	852.0	543.3	852.0	480.1	852.0	416.9	852.0	353.7
	62	65.3	808.1	808.1	808.1	798.3	808.1	735.2	808.1	672.0	808.1	608.8	808.1	545.6	808.1	482.4	808.1	419.3
21250	75	71.1	945.4	817.1	945.4	725.3	945.4	656.4	945.4	587.6	945.4	518.7	945.4	449.9	945.4	381.0	945.4	312.2
	73	68.7	928.4	830.5	928.4	738.7	928.4	669.8	928.4	601.0	928.4	532.1	928.4	463.3	928.4	394.4	928.4	325.6
	71	66.3	911.3	843.0	911.3	751.2	911.3	682.3	911.3	613.5	911.3	544.6	911.3	475.8	911.3	406.9	911.3	338.1
	67	67.0	878.5	850.3	878.5	758.5	878.5	689.6	878.5	620.8	878.5	551.9	878.5	483.1	878.5	414.2	878.5	345.4
	62	66.1	833.3	833.3	833.3	825.6	833.3	756.7	833.3	687.9	833.3	619.0	833.3	550.2	833.3	481.3	833.3	412.5
23000	75	72.0	973.9	849.6	973.9	750.2	973.9	675.7	973.9	601.2	973.9	526.6	973.9	452.1	973.9	377.6	973.9	303.1
	73	69.5	956.4	863.3	956.4	763.9	956.4	689.4	956.4	614.9	956.4	540.3	956.4	465.8	956.4	391.3	956.4	316.8
	71	67.1	938.8	876.0	938.8	776.7	938.8	702.2	938.8	627.6	938.8	553.1	938.8	478.6	938.8	404.1	938.8	329.6
	67	67.8	905.0	883.5	905.0	784.2	905.0	709.7	905.0	635.1	905.0	560.6	905.0	486.1	905.0	411.6	905.0	337.1
	62	66.8	858.4	858.4	858.4	852.8	858.4	778.3	858.4	703.8	858.4	629.3	858.4	554.7	858.4	480.2	858.4	405.7
24750	75	72.3	996.6	885.3	996.6	778.4	996.6	698.2	996.6	618.0	996.6	537.8	996.6	457.6	996.6	381.2	996.6	301.0
	73	69.8	978.7	899.4	978.7	792.4	978.7	712.3	978.7	632.1	978.7	551.9	978.7	471.7	978.7	395.1	978.7	314.9
	71	67.4	960.7	913.6	960.7	805.6	960.7	725.4	960.7	645.2	960.7	567.1	960.7	486.9	960.7	406.7	960.7	326.5
	67	68.1	926.2	910.0	926.2	813.3	926.2	733.1	926.2	652.9	926.2	572.7	926.2	492.5	926.2	412.4	926.2	332.2
	62	67.1	878.4	878.4	878.4	874.2	878.4	803.7	878.4	723.5	878.4	643.3	878.4	563.1	878.4	482.9	878.4	402.7
26500	75	72.6	1019.3	921.0	1019.3	806.5	1019.3	720.7	1019.3	634.8	1019.3	549.0	1019.3	463.1	1019.3	384.9	1019.3	299.0
	73	70.1	1001.0	935.5	1001.0	821.0	1001.0	735.1	1001.0	649.3	1001.0	563.4	1001.0	477.6	1001.0	398.8	1001.0	313.0
	71	67.7	982.6	951.2	982.6	834.5	982.6	748.6	982.6	662.8	982.6	581.1	982.6	495.2	982.6	409.4	982.6	323.5
	67	68.4	947.3	936.5	947.3	842.4	947.3	756.6	947.3	670.7	947.3	584.8	947.3	499.0	947.3	413.1	947.3	327.3
	62	67.4	898.5	898.5	898.5	895.7	898.5	829.1	898.5	743.2	898.5	657.3	898.5	571.5	898.5	485.6	898.5	399.8
28250	75	72.9	1042.0	956.8	1042.0	834.7	1042.0	743.2	1042.0	651.7	1042.0	560.1	1042.0	468.6	1042.0	388.5	1042.0	297.0
	73	70.4	1023.3	971.6	1023.3	849.6	1023.3	758.0	1023.3	666.5	1023.3	575.0	1023.3	483.4	1023.3	402.6	1023.3	311.0
	71	68.0	1004.5	988.8	1004.5	863.4	1004.5	771.9	1004.5	680.4	1004.5	595.1	1004.5	503.6	1004.5	412.0	1004.5	320.5
	67	68.7	968.4	963.0	968.4	871.5	968.4	780.0	968.4	688.5	968.4	597.0	968.4	505.4	968.4	413.9	968.4	322.4
	62	67.7	918.5	918.5	918.5	917.1	918.5	854.4	918.5	762.9	918.5	671.4	918.5	579.8	918.5	488.3	918.5	396.8
30000	75	73.2	1064.7	992.5	1064.7	862.9	1064.7	765.7	1064.7	668.5	1064.7	571.3	1064.7	474.1	1064.7	392.1	1064.7	294.9
	73	70.7	1045.6	1007.7	1045.6	878.1	1045.6	780.9	1045.6	683.7	1045.6	586.5	1045.6	489.3	1045.6	406.3	1045.6	309.1
	71	68.3	1026.4	1026.4	1026.4	892.3	1026.4	795.1	1026.4	697.9	1026.4	609.1	1026.4	511.9	1026.4	414.7	1026.4	317.5
	67	68.9	989.5	989.5	989.5	900.7	989.5	803.5	989.5	706.3	989.5	609.1	989.5	511.9	989.5	414.7	989.5	317.5
	62	68.0	938.5	938.5	938.5	938.5	938.5	879.8	938.5	782.6	938.5	685.4	938.5	588.2	938.5	491.0	938.5	393.8
	62	67.0	938.4	938.4	938.4	938.4	938.4	883.7	938.4	786.5	938.4	689.3	938.4	592.1	938.4	494.9	938.4	397.7

TABLE 10 – COOLING PERFORMANCE DATA* – 75 TON MODEL (cont'd)**95° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	72.0	840.6	676.4	840.6	607.3	840.6	555.5	840.6	503.6	840.6	451.8	840.6	399.9	840.6	348.1	840.6	296.3
	73	70.8	824.8	677.0	824.8	607.9	824.8	556.1	824.8	504.2	824.8	452.4	824.8	400.5	824.8	348.7	824.8	296.9
	71	69.6	809.0	677.2	809.0	608.1	809.0	556.3	809.0	504.4	809.0	452.6	809.0	400.8	809.0	348.9	809.0	297.1
	67	71.0	775.4	707.2	775.4	638.1	775.4	586.2	775.4	534.4	775.4	482.5	775.4	430.7	775.4	378.9	775.4	327.0
	62	70.0	731.4	731.4	731.4	701.6	731.4	649.8	731.4	598.0	731.4	546.1	731.4	494.3	731.4	442.4	731.4	390.6
17750	75	73.0	869.8	715.7	869.8	639.1	869.8	581.6	869.8	524.0	869.8	466.5	869.8	409.0	869.8	351.5	869.8	294.0
	73	71.8	853.5	716.4	853.5	639.7	853.5	582.2	853.5	524.7	853.5	467.2	853.5	409.7	853.5	352.2	853.5	294.6
	71	70.5	837.1	716.6	837.1	639.9	837.1	582.4	837.1	524.9	837.1	467.4	837.1	409.9	837.1	352.4	837.1	294.9
	67	71.9	802.4	747.8	802.4	671.1	802.4	613.6	802.4	556.1	802.4	498.5	802.4	441.0	802.4	383.5	802.4	326.0
	62	71.0	756.8	756.8	756.8	734.5	756.8	679.7	756.8	622.2	756.8	564.7	756.8	507.2	756.8	449.7	756.8	392.2
19500	75	74.0	899.0	755.1	899.0	670.8	899.0	607.7	899.0	544.5	899.0	481.3	899.0	418.1	899.0	354.9	899.0	291.8
	73	72.7	882.1	755.7	882.1	671.5	882.1	608.3	882.1	545.1	882.1	482.0	882.1	418.8	882.1	355.6	882.1	292.4
	71	71.5	865.2	756.0	865.2	671.7	865.2	608.6	865.2	545.4	865.2	482.2	865.2	419.0	865.2	355.8	865.2	292.7
	67	72.9	829.3	788.3	829.3	704.1	829.3	640.9	829.3	577.7	829.3	514.6	829.3	451.4	829.3	388.2	829.3	325.0
	62	71.9	782.2	782.2	782.2	767.4	782.2	709.7	782.2	646.5	782.2	583.3	782.2	520.1	782.2	456.9	782.2	393.8
21250	75	74.9	928.3	794.4	928.3	702.6	928.3	633.8	928.3	564.9	928.3	496.1	928.3	427.2	928.3	358.4	928.3	289.5
	73	73.7	910.8	795.1	910.8	703.3	910.8	634.5	910.8	565.6	910.8	496.8	910.8	427.9	910.8	359.1	910.8	290.2
	71	72.4	893.4	795.4	893.4	703.6	893.4	634.7	893.4	565.9	893.4	497.0	893.4	428.2	893.4	359.3	893.4	290.5
	67	73.9	856.3	828.9	856.3	737.1	856.3	668.3	856.3	599.4	856.3	530.6	856.3	461.7	856.3	392.9	856.3	324.0
	62	72.9	807.7	807.7	807.7	800.2	807.7	739.6	807.7	670.7	807.7	601.9	807.7	533.0	807.7	464.2	807.7	395.3
23000	75	75.9	957.5	833.8	957.5	734.4	957.5	659.9	957.5	585.4	957.5	510.8	957.5	436.3	957.5	361.8	957.5	287.3
	73	74.6	939.5	834.5	939.5	735.1	939.5	660.6	939.5	586.1	939.5	511.5	939.5	437.0	939.5	362.5	939.5	288.0
	71	73.4	921.5	834.7	921.5	735.4	921.5	660.8	921.5	586.3	921.5	511.8	921.5	437.3	921.5	362.8	921.5	288.2
	67	74.8	883.3	869.5	883.3	770.2	883.3	695.6	883.3	621.1	883.3	546.6	883.3	472.1	883.3	397.6	883.3	323.0
	62	73.8	833.1	833.1	833.1	833.1	833.1	769.5	833.1	695.0	833.1	620.5	833.1	546.0	833.1	471.5	833.1	396.9
24750	75	76.2	977.6	869.0	977.6	762.1	977.6	681.9	977.6	601.7	977.6	521.5	977.6	441.3	977.6	361.1	977.6	280.9
	73	74.9	959.2	869.7	959.2	762.8	959.2	682.6	959.2	602.4	959.2	522.2	959.2	442.0	959.2	361.8	959.2	281.7
	71	73.7	940.8	870.0	940.8	763.1	940.8	682.9	940.8	602.7	940.8	522.5	940.8	442.3	940.8	362.1	940.8	281.9
	67	75.1	901.8	891.5	901.8	798.8	901.8	718.6	901.8	638.4	901.8	558.3	901.8	478.1	901.8	397.9	901.8	317.7
	62	74.1	850.6	850.6	850.6	850.6	850.6	794.6	850.6	714.4	850.6	634.2	850.6	554.0	850.6	473.8	850.6	393.6
26500	75	76.5	997.7	904.2	997.7	789.7	997.7	703.9	997.7	618.0	997.7	532.2	997.7	446.3	997.7	360.4	997.7	274.6
	73	75.3	979.0	905.0	979.0	790.5	979.0	704.6	979.0	618.8	979.0	532.9	979.0	447.0	979.0	361.2	979.0	275.3
	71	74.0	960.2	905.2	960.2	790.8	960.2	704.9	960.2	619.0	960.2	533.2	960.2	447.3	960.2	361.5	960.2	275.6
	67	75.4	920.4	913.5	920.4	827.5	920.4	741.6	920.4	655.8	920.4	569.9	920.4	484.0	920.4	398.2	920.4	312.3
	62	74.4	868.1	868.1	868.1	868.1	868.1	819.6	868.1	733.8	868.1	647.9	868.1	562.1	868.1	476.2	868.1	390.3
28250	75	76.9	1017.9	939.4	1017.9	817.4	1017.9	725.9	1017.9	634.3	1017.9	542.8	1017.9	451.3	1017.9	359.8	1017.9	268.2
	73	75.6	998.7	940.2	998.7	818.2	998.7	726.6	998.7	635.1	998.7	543.6	998.7	452.0	998.7	360.5	998.7	269.0
	71	74.3	979.6	940.5	979.6	818.4	979.6	726.9	979.6	635.4	979.6	543.9	979.6	452.3	979.6	360.8	979.6	269.3
	67	75.7	939.0	935.5	939.0	856.1	939.0	764.6	939.0	673.1	939.0	581.6	939.0	490.0	939.0	398.5	939.0	307.0
	62	74.7	885.6	885.6	885.6	885.6	885.6	844.7	885.6	753.2	885.6	661.6	885.6	570.1	885.6	478.6	885.6	387.0
30000	75	77.2	1038.0	974.7	1038.0	845.1	1038.0	747.9	1038.0	650.7	1038.0	553.5	1038.0	456.3	1038.0	359.1	1038.0	261.9
	73	75.9	1018.5	975.5	1018.5	845.9	1018.5	748.7	1018.5	651.5	1018.5	554.3	1018.5	457.1	1018.5	359.9	1018.5	262.7
	71	74.6	999.0	975.7	999.0	846.1	999.0	748.9	999.0	651.7	999.0	554.5	999.0	457.3	999.0	360.1	999.0	262.9
	67	76.0	957.5	957.5	957.5	884.8	957.5	787.6	957.5	690.4	957.5	593.2	957.5	496.0	957.5	398.8	957.5	301.6
	62	75.0	903.1	903.1	903.1	903.1	903.1	869.8	903.1	772.6	903.1	675.4	903.1	578.2	903.1	481.0	903.1	383.8

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 75 Ton Model (cont'd.)

TABLE 10 – COOLING PERFORMANCE DATA* – 75 TON MODEL (cont'd)

105° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	78.7	815.1	635.8	815.1	566.6	815.1	514.8	815.1	463.0	815.1	411.1	815.1	359.3	815.1	307.4	815.1	255.6
	73	78.0	800.6	647.4	800.6	578.3	800.6	526.5	800.6	474.6	800.6	422.8	800.6	370.9	800.6	319.1	800.6	267.3
	71	77.3	786.0	658.4	786.0	589.3	786.0	537.4	786.0	485.6	786.0	433.7	786.0	381.9	786.0	330.1	786.0	278.2
	67	79.0	753.4	689.5	753.4	620.3	753.4	568.5	753.4	516.7	753.4	464.8	753.4	413.0	753.4	361.1	753.4	309.3
	62	77.9	717.4	717.4	717.4	691.5	717.4	639.6	717.4	587.8	717.4	535.9	717.4	484.1	717.4	432.3	717.4	380.4
17750	75	79.8	841.9	674.0	841.9	597.4	841.9	539.9	841.9	482.3	841.9	424.8	841.9	367.3	841.9	309.8	841.9	252.3
	73	79.1	826.8	686.2	826.8	609.5	826.8	552.0	826.8	494.5	826.8	437.0	826.8	379.5	826.8	322.0	826.8	264.5
	71	78.4	811.8	697.6	811.8	621.0	811.8	563.5	811.8	505.9	811.8	448.4	811.8	390.9	811.8	333.4	811.8	275.9
	67	80.1	778.1	728.5	778.1	653.4	778.1	595.8	778.1	538.3	778.1	480.8	778.1	423.3	778.1	365.8	778.1	308.3
	62	79.0	740.9	740.9	740.9	721.5	740.9	670.0	740.9	612.4	740.9	554.9	740.9	497.4	740.9	439.9	740.9	382.4
19500	75	80.9	868.7	712.3	868.7	628.1	868.7	564.9	868.7	501.7	868.7	438.5	868.7	375.4	868.7	312.2	868.7	249.0
	73	80.2	853.1	725.0	853.1	640.8	853.1	577.6	853.1	514.4	853.1	451.2	853.1	388.0	853.1	324.9	853.1	261.7
	71	79.4	837.6	736.9	837.6	652.7	837.6	589.5	837.6	526.3	837.6	463.1	837.6	400.0	837.6	336.8	837.6	273.6
	67	81.2	802.8	767.5	802.8	686.4	802.8	623.2	802.8	560.0	802.8	496.8	802.8	433.7	802.8	370.5	802.8	307.3
	62	80.0	764.5	764.5	764.5	751.5	764.5	700.3	764.5	637.1	764.5	573.9	764.5	510.8	764.5	447.6	764.5	384.4
21250	75	82.0	895.4	750.6	895.4	658.8	895.4	590.0	895.4	521.1	895.4	452.3	895.4	383.4	895.4	314.6	895.4	245.7
	73	81.2	879.4	763.8	879.4	672.0	879.4	603.1	879.4	534.3	879.4	465.4	879.4	396.6	879.4	327.7	879.4	258.9
	71	80.5	863.4	776.2	863.4	684.4	863.4	615.5	863.4	546.7	863.4	477.8	863.4	409.0	863.4	340.1	863.4	271.3
	67	82.3	827.6	806.4	827.6	719.4	827.6	650.5	827.6	581.7	827.6	512.8	827.6	444.0	827.6	375.1	827.6	306.3
	62	81.1	788.0	788.0	788.0	781.5	788.0	730.6	788.0	661.8	788.0	592.9	788.0	524.1	788.0	455.2	788.0	386.4
23000	75	83.1	922.2	788.9	922.2	689.5	922.2	615.0	922.2	540.5	922.2	466.0	922.2	391.5	922.2	316.9	922.2	242.4
	73	82.3	905.7	802.6	905.7	703.2	905.7	628.7	905.7	554.2	905.7	479.7	905.7	405.1	905.7	330.6	905.7	256.1
	71	81.6	889.2	815.4	889.2	716.1	889.2	641.6	889.2	567.0	889.2	492.5	889.2	418.0	889.2	343.5	889.2	269.0
	67	83.4	852.3	845.4	852.3	752.4	852.3	677.9	852.3	603.4	852.3	528.8	852.3	454.3	852.3	379.8	852.3	305.3
	62	82.2	811.6	811.6	811.6	811.6	811.6	761.0	811.6	686.5	811.6	611.9	811.6	537.4	811.6	462.9	811.6	388.4
24750	75	83.3	940.0	823.3	940.0	716.3	940.0	636.2	940.0	556.0	940.0	475.8	940.0	395.6	940.0	315.4	940.0	235.2
	73	82.6	923.2	837.4	923.2	730.4	923.2	650.2	923.2	570.1	923.2	489.9	923.2	409.7	923.2	329.5	923.2	249.3
	71	81.8	906.3	848.1	906.3	743.7	906.3	663.5	906.3	583.3	906.3	503.1	906.3	422.9	906.3	342.7	906.3	262.5
	67	83.7	868.7	863.6	868.7	781.0	868.7	700.8	868.7	620.7	868.7	540.5	868.7	460.3	868.7	380.1	868.7	299.9
	62	82.5	827.2	827.2	827.2	827.2	827.2	785.1	827.2	706.1	827.2	625.9	827.2	545.8	827.2	465.6	827.2	385.4
26500	75	83.6	957.8	857.6	957.8	743.2	957.8	657.3	957.8	571.4	957.8	485.6	957.8	399.7	957.8	313.9	957.8	228.0
	73	82.8	940.6	872.1	940.6	757.6	940.6	671.8	940.6	585.9	940.6	500.1	940.6	414.2	940.6	328.3	940.6	242.5
	71	82.1	923.5	880.8	923.5	771.3	923.5	685.4	923.5	599.5	923.5	513.7	923.5	427.8	923.5	342.0	923.5	256.1
	67	83.9	885.2	881.7	885.2	809.7	885.2	723.8	885.2	637.9	885.2	552.1	885.2	466.2	885.2	380.4	885.2	294.5
	62	82.7	842.8	842.8	842.8	842.8	842.8	809.2	842.8	725.8	842.8	640.0	842.8	554.1	842.8	468.2	842.8	382.4
28250	75	83.8	975.5	892.0	975.5	770.0	975.5	678.4	975.5	586.9	975.5	495.4	975.5	403.8	975.5	312.3	975.5	220.8
	73	83.1	958.1	906.9	958.1	784.9	958.1	693.3	958.1	601.8	958.1	510.3	958.1	418.7	958.1	327.2	958.1	235.7
	71	82.3	940.6	913.5	940.6	798.9	940.6	707.3	940.6	615.8	940.6	524.3	940.6	432.7	940.6	341.2	940.6	249.7
	67	84.2	901.6	899.9	901.6	838.3	901.6	746.8	901.6	655.2	901.6	563.7	901.6	472.2	901.6	380.6	901.6	289.1
	62	83.0	858.5	858.5	858.5	858.5	858.5	833.3	858.5	745.5	858.5	654.0	858.5	562.4	858.5	470.9	858.5	379.4
30000	75	84.1	993.3	926.4	993.3	796.8	993.3	699.6	993.3	602.4	993.3	505.2	993.3	408.0	993.3	310.8	993.3	213.6
	73	83.3	975.5	941.7	975.5	812.1	975.5	714.9	975.5	617.7	975.5	520.5	975.5	423.3	975.5	326.1	975.5	228.9
	71	82.6	957.8	946.2	957.8	826.5	957.8	729.3	957.8	632.1	957.8	534.9	957.8	437.7	957.8	340.5	957.8	243.3
	67	84.4	918.0	918.0	918.0	866.9	918.0	769.7	918.0	672.5	918.0	575.3	918.0	478.1	918.0	380.9	918.0	283.7
	62	83.2	874.1	874.1	874.1	874.1	874.1	857.4	874.1	765.2	874.1	668.0	874.1	570.8	874.1	473.6	874.1	376.4

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 10 – COOLING PERFORMANCE DATA* – 75 TON MODEL (cont'd)**115° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	85.4	789.7	595.1	789.7	526.0	789.7	474.1	789.7	422.3	789.7	370.5	789.7	318.6	789.7	266.8	789.7	214.9
	73	85.2	776.3	617.8	776.3	548.7	776.3	496.9	776.3	445.0	776.3	393.2	776.3	341.3	776.3	289.5	776.3	237.7
	71	85.0	763.0	639.5	763.0	570.4	763.0	518.6	763.0	466.7	763.0	414.9	763.0	363.0	763.0	311.2	763.0	259.4
	67	87.1	731.3	671.8	731.3	602.6	731.3	550.8	731.3	499.0	731.3	447.1	731.3	395.3	731.3	343.4	731.3	291.6
	62	85.8	703.4	703.4	703.4	681.3	703.4	629.4	703.4	577.6	703.4	525.8	703.4	473.9	703.4	422.1	703.4	370.2
17750	75	86.6	814.0	632.3	814.0	555.7	814.0	498.1	814.0	440.6	814.0	383.1	814.0	325.6	814.0	268.1	814.0	210.6
	73	86.4	800.2	656.0	800.2	579.4	800.2	521.9	800.2	464.3	800.2	406.8	800.2	349.3	800.2	291.8	800.2	234.3
	71	86.2	786.5	678.7	786.5	602.0	786.5	544.5	786.5	487.0	786.5	429.5	786.5	372.0	786.5	314.5	786.5	256.9
	67	88.3	753.8	709.2	753.8	635.6	753.8	578.1	753.8	520.6	753.8	463.1	753.8	405.6	753.8	348.1	753.8	290.6
	62	87.0	725.1	725.1	725.1	708.5	725.1	660.2	725.1	602.7	725.1	545.2	725.1	487.6	725.1	430.1	725.1	372.6
19500	75	87.8	838.3	669.6	838.3	585.3	838.3	522.1	838.3	459.0	838.3	395.8	838.3	332.6	838.3	269.4	838.3	206.2
	73	87.6	824.1	694.3	824.1	610.0	824.1	546.8	824.1	483.7	824.1	420.5	824.1	357.3	824.1	294.1	824.1	230.9
	71	87.4	810.0	717.8	810.0	633.6	810.0	570.4	810.0	507.2	810.0	444.1	810.0	380.9	810.0	317.7	810.0	254.5
	67	89.5	776.4	746.6	776.4	668.6	776.4	605.5	776.4	542.3	776.4	479.1	776.4	415.9	776.4	352.7	776.4	289.6
	62	88.2	746.7	746.7	746.7	735.6	746.7	690.9	746.7	627.7	746.7	564.6	746.7	501.4	746.7	438.2	746.7	375.0
21250	75	89.0	862.6	706.8	862.6	615.0	862.6	546.2	862.6	477.3	862.6	408.5	862.6	339.6	862.6	270.8	862.6	201.9
	73	88.8	848.0	732.5	848.0	640.7	848.0	571.8	848.0	503.0	848.0	434.1	848.0	365.3	848.0	296.4	848.0	227.6
	71	88.6	833.4	757.0	833.4	665.2	833.4	596.4	833.4	527.5	833.4	458.7	833.4	389.8	833.4	321.0	833.4	252.1
	67	90.7	798.9	784.0	798.9	701.6	798.9	632.8	798.9	563.9	798.9	495.1	798.9	426.2	798.9	357.4	798.9	288.5
	62	89.4	768.4	768.4	768.4	762.8	768.4	721.7	768.4	652.8	768.4	584.0	768.4	515.1	768.4	446.3	768.4	377.4
23000	75	90.2	886.9	744.0	886.9	644.7	886.9	570.2	886.9	495.6	886.9	421.1	886.9	346.6	886.9	272.1	886.9	197.6
	73	90.0	871.9	770.7	871.9	671.3	871.9	596.8	871.9	522.3	871.9	447.8	871.9	373.3	871.9	298.7	871.9	224.2
	71	89.8	856.9	796.2	856.9	696.8	856.9	622.3	856.9	547.8	856.9	473.2	856.9	398.7	856.9	324.2	856.9	249.7
	67	92.0	821.4	821.4	821.4	734.6	821.4	660.1	821.4	585.6	821.4	511.1	821.4	436.6	821.4	362.0	821.4	287.5
	62	90.6	790.0	790.0	790.0	790.0	790.0	752.4	790.0	677.9	790.0	603.4	790.0	528.8	790.0	454.3	790.0	379.8
24750	75	90.4	902.3	777.5	902.3	670.6	902.3	590.4	902.3	510.2	902.3	430.1	902.3	349.9	902.3	269.7	902.3	189.5
	73	90.2	887.1	805.0	887.1	698.1	887.1	617.9	887.1	537.7	887.1	457.5	887.1	377.3	887.1	297.1	887.1	216.9
	71	90.0	871.8	826.3	871.8	724.3	871.8	644.1	871.8	563.9	871.8	483.7	871.8	403.5	871.8	323.3	871.8	243.2
	67	92.2	835.7	835.7	835.7	763.2	835.7	683.1	835.7	602.9	835.7	522.7	835.7	442.5	835.7	362.3	835.7	282.1
	62	90.8	803.8	803.8	803.8	803.8	803.8	775.6	803.8	697.9	803.8	617.7	803.8	537.5	803.8	457.3	803.8	377.1
26500	75	90.6	917.8	811.1	917.8	696.6	917.8	610.7	917.8	524.9	917.8	439.0	917.8	353.1	917.8	267.3	917.8	181.4
	73	90.4	902.3	839.3	902.3	724.8	902.3	639.0	902.3	553.1	902.3	467.2	902.3	381.4	902.3	295.5	902.3	209.7
	71	90.2	886.8	856.4	886.8	751.8	886.8	665.9	886.8	580.1	886.8	494.2	886.8	408.3	886.8	322.5	886.8	236.6
	67	92.4	850.0	850.0	850.0	791.8	850.0	706.0	850.0	620.1	850.0	534.3	850.0	448.4	850.0	362.5	850.0	276.7
	62	91.0	817.5	817.5	817.5	817.5	817.5	798.7	817.5	717.9	817.5	632.0	817.5	546.1	817.5	460.3	817.5	374.4
28250	75	90.8	933.2	844.6	933.2	722.5	933.2	631.0	933.2	539.5	933.2	447.9	933.2	356.4	933.2	264.9	933.2	173.3
	73	90.6	917.4	873.6	917.4	751.6	917.4	660.0	917.4	568.5	917.4	477.0	917.4	385.4	917.4	293.9	917.4	202.4
	71	90.4	901.7	886.5	901.7	779.3	901.7	687.7	901.7	596.2	901.7	504.7	901.7	413.2	901.7	321.6	901.7	230.1
	67	92.6	864.3	864.3	864.3	820.4	864.3	728.9	864.3	637.4	864.3	545.9	864.3	454.3	864.3	362.8	864.3	271.3
	62	91.2	831.3	831.3	831.3	831.3	831.3	821.9	831.3	737.8	831.3	646.3	831.3	554.8	831.3	463.3	831.3	371.7
30000	75	91.0	948.7	878.1	948.7	748.5	948.7	651.3	948.7	554.1	948.7	456.9	948.7	359.7	948.7	262.5	948.7	165.3
	73	90.8	932.6	907.9	932.6	778.3	932.6	681.1	932.6	583.9	932.6	486.7	932.6	389.5	932.6	292.3	932.6	195.1
	71	90.6	916.6	916.6	916.6	806.8	916.6	709.6	916.6	612.4	916.6	515.2	916.6	418.0	916.6	320.8	916.6	223.6
	67	92.8	878.6	878.6	878.6	849.1	878.6	751.9	878.6	654.7	878.6	557.5	878.6	460.3	878.6	363.1	878.6	265.9
	62	91.4	845.0	845.0	845.0	845.0	845.0	845.0	845.0	757.8	845.0	660.6	845.0	563.4	845.0	466.2	845.0	369.0

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 80 Ton Model

TABLE 11 – COOLING PERFORMANCE DATA* – 80 TON MODEL

85° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	73.7	883.3	618.8	883.3	549.7	883.3	497.9	883.3	446.0	883.3	394.2	883.3	342.4	883.3	290.5	883.3	238.7
	73	73.6	880.2	641.5	880.2	572.4	880.2	520.6	880.2	468.7	880.2	416.9	880.2	365.1	880.2	313.2	880.2	261.4
	71	73.4	877.2	664.1	877.2	594.9	877.2	543.1	877.2	491.3	877.2	439.4	877.2	387.6	877.2	335.7	877.2	283.9
	67	73.4	838.6	699.8	838.6	630.7	838.6	578.9	838.6	527.0	838.6	475.2	838.6	423.4	838.6	371.5	838.6	319.7
	62	72.2	783.4	764.6	783.4	695.4	783.4	643.6	783.4	591.8	783.4	539.9	783.4	488.1	783.4	436.2	783.4	384.4
18250	75	72.7	917.9	673.2	917.9	594.4	917.9	535.2	917.9	476.1	917.9	417.0	917.9	357.9	917.9	298.7	917.9	239.6
	73	72.6	914.8	697.4	914.8	618.6	914.8	559.5	914.8	500.3	914.8	441.2	914.8	382.1	914.8	322.9	914.8	263.8
	71	72.5	911.7	721.5	911.7	642.6	911.7	583.5	911.7	524.4	911.7	465.2	911.7	406.1	911.7	347.0	911.7	287.9
	67	72.5	871.5	759.7	871.5	680.8	871.5	621.7	871.5	562.6	871.5	503.4	871.5	444.3	871.5	385.2	871.5	326.1
	62	71.2	814.2	800.0	814.2	748.2	814.2	690.8	814.2	631.6	814.2	572.5	814.2	513.4	814.2	454.3	814.2	395.1
20500	75	71.8	952.6	727.6	952.6	639.0	952.6	572.6	952.6	506.2	952.6	439.8	952.6	373.3	952.6	306.9	952.6	240.5
	73	71.7	949.3	753.3	949.3	664.8	949.3	598.3	949.3	531.9	949.3	465.5	949.3	399.1	949.3	332.7	949.3	266.2
	71	71.6	946.1	778.9	946.1	690.3	946.1	623.9	946.1	557.5	946.1	491.1	946.1	424.6	946.1	358.2	946.1	291.8
	67	71.5	904.4	819.5	904.4	730.9	904.4	664.5	904.4	598.1	904.4	531.7	904.4	465.3	904.4	398.8	904.4	332.4
	62	70.3	844.9	835.5	844.9	800.9	844.9	738.0	844.9	671.5	844.9	605.1	844.9	538.7	844.9	472.3	844.9	405.9
22750	75	70.8	987.2	782.0	987.2	683.7	987.2	610.0	987.2	536.3	987.2	462.5	987.2	388.8	987.2	315.1	987.2	241.4
	73	70.7	983.8	809.2	983.8	710.9	983.8	637.2	983.8	563.5	983.8	489.8	983.8	416.1	983.8	342.4	983.8	268.7
	71	70.6	980.5	836.3	980.5	738.0	980.5	664.3	980.5	590.6	980.5	516.9	980.5	443.2	980.5	369.5	980.5	295.8
	67	70.6	937.3	879.3	937.3	781.0	937.3	707.3	937.3	633.6	937.3	559.9	937.3	486.2	937.3	412.5	937.3	338.8
	62	69.4	875.6	870.9	875.6	853.6	875.6	785.1	875.6	711.4	875.6	637.7	875.6	564.0	875.6	490.3	875.6	416.6
25000	75	69.9	1021.9	836.3	1021.9	728.3	1021.9	647.3	1021.9	566.3	1021.9	485.3	1021.9	404.3	1021.9	323.3	1021.9	242.3
	73	69.8	1018.4	865.1	1018.4	757.1	1018.4	676.1	1018.4	595.1	1018.4	514.1	1018.4	433.1	1018.4	352.1	1018.4	271.1
	71	69.7	1014.9	893.7	1014.9	785.7	1014.9	704.7	1014.9	623.7	1014.9	542.7	1014.9	461.7	1014.9	380.7	1014.9	299.7
	67	69.6	970.2	939.2	970.2	831.2	970.2	750.2	970.2	669.2	970.2	588.2	970.2	507.2	970.2	426.2	970.2	345.2
	62	68.4	906.4	906.4	906.4	906.4	906.4	832.3	906.4	751.3	906.4	670.3	906.4	589.3	906.4	508.3	906.4	427.3
27250	75	70.1	1043.5	881.4	1043.5	763.6	1043.5	675.4	1043.5	587.1	1043.5	498.8	1043.5	410.5	1043.5	330.4	1043.5	242.2
	73	70.0	1040.0	911.2	1040.0	793.5	1040.0	705.2	1040.0	616.9	1040.0	528.6	1040.0	440.3	1040.0	360.2	1040.0	272.0
	71	69.9	1036.4	945.5	1036.4	823.1	1036.4	734.9	1036.4	646.6	1036.4	571.3	1036.4	483.0	1036.4	394.7	1036.4	306.4
	67	69.8	990.7	967.5	990.7	870.2	990.7	782.0	990.7	693.7	990.7	605.4	990.7	517.1	990.7	428.8	990.7	340.5
	62	68.7	925.6	925.6	925.6	925.6	925.6	867.1	925.6	778.8	925.6	690.5	925.6	602.3	925.6	514.0	925.6	425.7
29500	75	70.3	1065.2	926.4	1065.2	799.0	1065.2	703.4	1065.2	607.8	1065.2	512.2	1065.2	416.6	1065.2	337.6	1065.2	242.0
	73	70.2	1061.5	957.3	1061.5	829.9	1061.5	734.3	1061.5	638.7	1061.5	543.1	1061.5	447.6	1061.5	368.4	1061.5	272.8
	71	70.1	1057.9	997.3	1057.9	860.6	1057.9	765.0	1057.9	669.4	1057.9	599.9	1057.9	504.3	1057.9	408.7	1057.9	313.1
	67	70.1	1011.3	995.8	1011.3	909.3	1011.3	813.8	1011.3	718.2	1011.3	622.6	1011.3	527.0	1011.3	431.4	1011.3	335.9
	62	68.9	944.8	944.8	944.8	944.8	944.8	901.9	944.8	806.4	944.8	710.8	944.8	615.2	944.8	519.6	944.8	424.0
31750	75	70.5	1086.8	971.5	1086.8	834.3	1086.8	731.4	1086.8	628.6	1086.8	525.7	1086.8	422.8	1086.8	344.7	1086.8	241.8
	73	70.4	1083.1	1003.4	1083.1	866.3	1083.1	763.4	1083.1	660.5	1083.1	557.7	1083.1	454.8	1083.1	376.5	1083.1	273.6
	71	70.3	1079.4	1049.1	1079.4	898.0	1079.4	795.1	1079.4	692.3	1079.4	628.5	1079.4	525.6	1079.4	422.7	1079.4	319.9
	67	70.3	1031.8	1024.1	1031.8	948.4	1031.8	845.6	1031.8	742.7	1031.8	639.8	1031.8	537.0	1031.8	434.1	1031.8	331.2
	62	69.1	964.0	964.0	964.0	964.0	964.0	936.8	964.0	833.9	964.0	731.0	964.0	628.1	964.0	525.3	964.0	422.4
34000	75	70.8	1108.5	1016.5	1108.5	869.6	1108.5	759.5	1108.5	649.3	1108.5	539.1	1108.5	429.0	1108.5	351.8	1108.5	241.7
	73	70.6	1104.7	1049.5	1104.7	902.6	1104.7	792.5	1104.7	682.3	1104.7	572.2	1104.7	462.0	1104.7	384.6	1104.7	274.5
	71	70.5	1100.9	1100.9	1100.9	935.4	1100.9	825.3	1100.9	715.1	1100.9	657.0	1100.9	546.9	1100.9	436.7	1100.9	326.6
	67	70.5	1052.4	1052.4	1052.4	987.5	1052.4	877.4	1052.4	767.2	1052.4	657.0	1052.4	546.9	1052.4	436.7	1052.4	326.6
	62	69.3	983.2	983.2	983.2	983.2	983.2	971.6	983.2	861.4	983.2	751.2	983.2	641.1	983.2	530.9	983.2	420.8

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 11 – COOLING PERFORMANCE DATA* – 80 TON MODEL (cont'd)**95° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	79.2	851.0	612.8	851.0	543.6	851.0	491.8	851.0	440.0	851.0	388.1	851.0	336.3	851.0	284.4	851.0	232.6
	73	79.1	850.5	629.6	850.5	560.5	850.5	508.6	850.5	456.8	850.5	405.0	850.5	353.1	850.5	301.3	850.5	249.4
	71	79.0	850.1	646.4	850.1	577.3	850.1	525.5	850.1	473.6	850.1	421.8	850.1	369.9	850.1	318.1	850.1	266.3
	67	78.7	812.9	687.0	812.9	617.9	812.9	566.0	812.9	514.2	812.9	462.4	812.9	410.5	812.9	358.7	812.9	306.8
	62	77.5	757.7	752.1	757.7	683.0	757.7	631.1	757.7	579.3	757.7	527.5	757.7	475.6	757.7	423.8	757.7	371.9
18250	75	78.5	885.1	668.0	885.1	589.1	885.1	530.0	885.1	470.9	885.1	411.8	885.1	352.6	885.1	293.5	885.1	234.4
	73	78.4	884.6	686.0	884.6	607.2	884.6	548.0	884.6	488.9	884.6	429.8	884.6	370.7	884.6	311.5	884.6	252.4
	71	78.3	884.1	704.0	884.1	625.2	884.1	566.0	884.1	506.9	884.1	447.8	884.1	388.7	884.1	329.5	884.1	270.4
	67	78.0	845.4	747.4	845.4	668.6	845.4	609.5	845.4	550.3	845.4	491.2	845.4	432.1	845.4	373.0	845.4	313.8
	62	76.9	788.0	783.9	788.0	732.0	788.0	679.2	788.0	620.0	788.0	560.9	788.0	501.8	788.0	442.6	788.0	383.5
20500	75	77.8	919.2	723.2	919.2	634.7	919.2	568.2	919.2	501.8	919.2	435.4	919.2	369.0	919.2	302.6	919.2	236.1
	73	77.7	918.7	742.4	918.7	653.9	918.7	587.4	918.7	521.0	918.7	454.6	918.7	388.2	918.7	321.8	918.7	255.3
	71	77.7	918.2	761.6	918.2	673.1	918.2	606.6	918.2	540.2	918.2	473.8	918.2	407.4	918.2	341.0	918.2	274.5
	67	77.4	878.0	807.9	878.0	719.3	878.0	652.9	878.0	586.5	878.0	520.1	878.0	453.7	878.0	387.2	878.0	320.8
	62	76.2	818.4	815.6	818.4	781.0	818.4	727.2	818.4	660.8	818.4	594.3	818.4	527.9	818.4	461.5	818.4	395.1
22750	75	77.1	953.2	778.5	953.2	680.2	953.2	606.5	953.2	532.8	953.2	459.0	953.2	385.3	953.2	311.6	953.2	237.9
	73	77.1	952.7	798.8	952.7	700.6	952.7	626.9	952.7	553.1	952.7	479.4	952.7	405.7	952.7	332.0	952.7	258.3
	71	77.0	952.2	819.2	952.2	720.9	952.2	647.2	952.2	573.5	952.2	499.8	952.2	426.1	952.2	352.4	952.2	278.7
	67	76.7	910.6	868.3	910.6	770.1	910.6	696.4	910.6	622.6	910.6	548.9	910.6	475.2	910.6	401.5	910.6	327.8
	62	75.6	848.7	847.3	848.7	830.1	848.7	775.2	848.7	701.5	848.7	627.8	848.7	554.1	848.7	480.4	848.7	406.7
25000	75	76.5	987.3	833.7	987.3	725.7	987.3	644.7	987.3	563.7	987.3	482.7	987.3	401.7	987.3	320.7	987.3	239.7
	73	76.4	986.8	855.3	986.8	747.3	986.8	666.3	986.8	585.3	986.8	504.3	986.8	423.3	986.8	342.3	986.8	261.3
	71	76.3	986.3	876.8	986.3	768.8	986.3	687.8	986.3	606.8	986.3	525.8	986.3	444.8	986.3	363.8	986.3	282.8
	67	76.0	943.1	928.8	943.1	820.8	943.1	739.8	943.1	658.8	943.1	577.8	943.1	496.8	943.1	415.8	943.1	334.8
	62	74.9	879.1	879.1	879.1	879.1	879.1	823.2	879.1	742.2	879.1	661.2	879.1	580.2	879.1	499.2	879.1	418.2
27250	75	76.6	1006.8	878.6	1006.8	760.9	1006.8	672.6	1006.8	584.3	1006.8	496.0	1006.8	407.7	1006.8	319.4	1006.8	231.1
	73	76.6	1006.3	901.0	1006.3	783.2	1006.3	694.9	1006.3	606.7	1006.3	518.4	1006.3	430.1	1006.3	341.8	1006.3	253.5
	71	76.5	1005.7	923.3	1005.7	805.6	1005.7	717.3	1005.7	629.0	1005.7	540.7	1005.7	452.4	1005.7	364.1	1005.7	275.8
	67	76.2	961.8	951.0	961.8	859.5	961.8	771.2	961.8	682.9	961.8	594.6	961.8	506.3	961.8	418.0	961.8	329.7
	62	75.1	896.5	896.5	896.5	896.5	896.5	854.6	896.5	769.4	896.5	681.1	896.5	592.8	896.5	504.5	896.5	416.2
29500	75	76.8	1026.3	923.5	1026.3	796.1	1026.3	700.5	1026.3	604.9	1026.3	509.3	1026.3	413.7	1026.3	318.2	1026.3	222.6
	73	76.7	1025.8	946.6	1025.8	819.2	1025.8	723.6	1025.8	628.0	1025.8	532.5	1025.8	436.9	1025.8	341.3	1025.8	245.7
	71	76.6	1025.2	969.8	1025.2	842.3	1025.2	746.8	1025.2	651.2	1025.2	555.6	1025.2	460.0	1025.2	364.4	1025.2	268.9
	67	76.3	980.4	973.2	980.4	898.1	980.4	802.5	980.4	707.0	980.4	611.4	980.4	515.8	980.4	420.2	980.4	324.6
	62	75.2	913.8	913.8	913.8	913.8	913.8	885.9	913.8	796.5	913.8	700.9	913.8	605.3	913.8	509.7	913.8	414.2
31750	75	76.9	1045.9	968.4	1045.9	831.2	1045.9	728.4	1045.9	625.5	1045.9	522.6	1045.9	419.8	1045.9	316.9	1045.9	214.0
	73	76.9	1045.3	992.3	1045.3	855.2	1045.3	752.3	1045.3	649.4	1045.3	546.6	1045.3	443.7	1045.3	340.8	1045.3	238.0
	71	76.8	1044.7	1016.3	1044.7	879.1	1044.7	776.2	1044.7	673.4	1044.7	570.5	1044.7	467.6	1044.7	364.7	1044.7	261.9
	67	76.5	999.0	995.5	999.0	936.8	999.0	833.9	999.0	731.0	999.0	628.2	999.0	525.3	999.0	422.4	999.0	319.6
	62	75.4	931.2	931.2	931.2	931.2	931.2	917.3	931.2	823.6	931.2	720.7	931.2	617.9	931.2	515.0	931.2	412.1
34000	75	77.1	1065.4	1013.3	1065.4	866.4	1065.4	756.3	1065.4	646.1	1065.4	535.9	1065.4	425.8	1065.4	315.6	1065.4	205.5
	73	77.0	1064.8	1038.0	1064.8	891.2	1064.8	781.0	1064.8	670.8	1064.8	560.7	1064.8	450.5	1064.8	340.4	1064.8	230.2
	71	76.9	1064.2	1062.7	1064.2	915.9	1064.2	805.7	1064.2	695.5	1064.2	585.4	1064.2	475.2	1064.2	365.1	1064.2	254.9
	67	76.7	1017.7	1017.7	1017.7	975.4	1017.7	865.3	1017.7	755.1	1017.7	645.0	1017.7	534.8	1017.7	424.6	1017.7	314.5
	62	75.5	948.6	948.6	948.6	948.6	948.6	948.6	948.6	850.7	948.6	740.6	948.6	630.4	948.6	520.3	948.6	410.1

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 80 Ton Model (cont'd.)

TABLE 11 – COOLING PERFORMANCE DATA* – 80 TON MODEL (cont'd)

105° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	85.7	826.7	607.0	826.7	537.9	826.7	486.1	826.7	434.2	826.7	382.4	826.7	330.5	826.7	278.7	826.7	226.9
	73	85.5	825.5	622.4	825.5	553.3	825.5	501.4	825.5	449.6	825.5	397.8	825.5	345.9	825.5	294.1	825.5	242.2
	71	85.3	824.4	637.7	824.4	568.6	824.4	516.8	824.4	464.9	824.4	413.1	824.4	361.3	824.4	309.4	824.4	257.6
	67	85.1	787.2	683.6	787.2	614.5	787.2	562.7	787.2	510.8	787.2	459.0	787.2	407.2	787.2	355.3	787.2	303.5
	62	83.7	732.0	729.2	732.0	680.6	732.0	628.8	732.0	576.9	732.0	525.1	732.0	473.3	732.0	421.4	732.0	369.6
18250	75	85.5	858.6	659.6	858.6	580.8	858.6	521.7	858.6	462.5	858.6	403.4	858.6	344.3	858.6	285.2	858.6	226.0
	73	85.3	857.4	676.0	857.4	597.2	857.4	538.1	857.4	478.9	857.4	419.8	857.4	360.7	857.4	301.5	857.4	242.4
	71	85.1	856.2	692.4	856.2	613.5	856.2	554.4	856.2	495.3	856.2	436.2	856.2	377.0	856.2	317.9	856.2	258.8
	67	84.9	817.6	738.1	817.6	662.4	817.6	603.3	817.6	544.2	817.6	485.0	817.6	425.9	817.6	366.8	817.6	307.6
	62	83.5	760.2	758.1	760.2	721.7	760.2	673.7	760.2	614.6	760.2	555.4	760.2	496.3	760.2	437.2	760.2	378.0
20500	75	85.4	890.5	712.3	890.5	623.7	890.5	557.3	890.5	490.9	890.5	424.5	890.5	358.0	890.5	291.6	890.5	225.2
	73	85.1	889.2	729.7	889.2	641.1	889.2	574.7	889.2	508.3	889.2	441.9	889.2	375.4	889.2	309.0	889.2	242.6
	71	84.9	888.0	747.0	888.0	658.5	888.0	592.1	888.0	525.6	888.0	459.2	888.0	392.8	888.0	326.4	888.0	260.0
	67	84.7	847.9	792.6	847.9	710.3	847.9	643.9	847.9	577.5	847.9	511.1	847.9	444.6	847.9	378.2	847.9	311.8
	62	83.4	788.5	787.1	788.5	762.8	788.5	718.6	788.5	652.2	788.5	585.8	788.5	519.3	788.5	452.9	788.5	386.5
22750	75	85.2	922.4	764.9	922.4	666.6	922.4	592.9	922.4	519.2	922.4	445.5	922.4	371.8	922.4	298.1	922.4	224.4
	73	84.9	921.1	783.3	921.1	685.0	921.1	611.3	921.1	537.6	921.1	463.9	921.1	390.2	921.1	316.5	921.1	242.8
	71	84.7	919.8	801.7	919.8	703.4	919.8	629.7	919.8	556.0	919.8	482.3	919.8	408.6	919.8	334.9	919.8	261.1
	67	84.6	878.3	847.0	878.3	758.2	878.3	684.5	878.3	610.8	878.3	537.1	878.3	463.4	878.3	389.7	878.3	316.0
	62	83.2	816.7	816.0	816.7	803.9	816.7	763.5	816.7	689.8	816.7	616.1	816.7	542.4	816.7	468.7	816.7	395.0
25000	75	85.0	954.3	817.5	954.3	709.5	954.3	628.5	954.3	547.5	954.3	466.5	954.3	385.5	954.3	304.5	954.3	223.5
	73	84.8	952.9	837.0	952.9	729.0	952.9	648.0	952.9	567.0	952.9	486.0	952.9	405.0	952.9	324.0	952.9	243.0
	71	84.5	951.6	856.3	951.6	748.3	951.6	667.3	951.6	586.3	951.6	505.3	951.6	424.3	951.6	343.3	951.6	262.3
	67	84.4	908.7	901.5	908.7	806.1	908.7	725.1	908.7	644.1	908.7	563.1	908.7	482.1	908.7	401.1	908.7	320.1
	62	83.0	845.0	845.0	845.0	845.0	845.0	808.4	845.0	727.4	845.0	646.4	845.0	565.4	845.0	484.4	845.0	403.4
27250	75	85.1	971.3	860.4	971.3	742.7	971.3	654.4	971.3	566.1	971.3	477.8	971.3	389.5	971.3	301.2	971.3	213.0
	73	84.8	969.9	879.6	969.9	762.8	969.9	674.5	969.9	586.2	969.9	497.9	969.9	409.6	969.9	321.3	969.9	233.0
	71	84.6	968.5	896.9	968.5	782.8	968.5	694.5	968.5	606.2	968.5	517.9	968.5	429.7	968.5	341.4	968.5	253.1
	67	84.5	924.9	919.5	924.9	842.5	924.9	754.2	924.9	665.9	924.9	577.7	924.9	489.4	924.9	401.1	924.9	312.8
	62	83.1	860.0	860.0	860.0	860.0	860.0	832.6	860.0	752.1	860.0	663.8	860.0	575.5	860.0	487.2	860.0	398.9
29500	75	85.2	988.3	903.3	988.3	775.9	988.3	680.3	988.3	584.7	988.3	489.1	988.3	393.5	988.3	298.0	988.3	202.4
	73	84.9	986.9	922.2	986.9	796.6	986.9	701.0	986.9	605.4	986.9	509.9	986.9	414.3	986.9	318.7	986.9	223.1
	71	84.7	985.5	937.5	985.5	817.3	985.5	721.7	985.5	626.1	985.5	530.6	985.5	435.0	985.5	339.4	985.5	243.8
	67	84.5	941.0	937.5	941.0	878.9	941.0	783.4	941.0	687.8	941.0	592.2	941.0	496.6	941.0	401.0	941.0	305.5
	62	83.2	875.1	875.1	875.1	875.1	875.1	856.8	875.1	776.7	875.1	681.1	875.1	585.6	875.1	490.0	875.1	394.4
31750	75	85.3	1005.3	946.2	1005.3	809.0	1005.3	706.1	1005.3	603.3	1005.3	500.4	1005.3	397.5	1005.3	294.7	1005.3	191.8
	73	85.0	1003.8	964.8	1003.8	830.4	1003.8	727.5	1003.8	624.7	1003.8	521.8	1003.8	418.9	1003.8	316.1	1003.8	213.2
	71	84.8	1002.4	978.0	1002.4	851.8	1002.4	748.9	1002.4	646.0	1002.4	543.2	1002.4	440.3	1002.4	337.4	1002.4	234.6
	67	84.6	957.2	955.4	957.2	915.4	957.2	812.5	957.2	709.6	957.2	606.8	957.2	503.9	957.2	401.0	957.2	298.1
	62	83.2	890.1	890.1	890.1	890.1	890.1	881.0	890.1	801.4	890.1	698.5	890.1	595.6	890.1	492.8	890.1	389.9
34000	75	85.3	1022.2	989.0	1022.2	842.2	1022.2	732.0	1022.2	621.8	1022.2	511.7	1022.2	401.5	1022.2	291.4	1022.2	181.2
	73	85.1	1020.8	1007.4	1020.8	864.2	1020.8	754.1	1020.8	643.9	1020.8	533.8	1020.8	423.6	1020.8	313.4	1020.8	203.3
	71	84.9	1019.3	1018.6	1019.3	886.2	1019.3	776.1	1019.3	665.9	1019.3	555.8	1019.3	445.6	1019.3	335.4	1019.3	225.3
	67	84.7	973.4	973.4	973.4	951.8	973.4	841.6	973.4	731.5	973.4	621.3	973.4	511.1	973.4	401.0	973.4	290.8
	62	83.3	905.2	905.2	905.2	905.2	905.2	905.2	905.2	826.0	905.2	715.9	905.2	605.7	905.2	495.6	905.2	385.4

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 11 – COOLING PERFORMANCE DATA* – 80 TON MODEL (cont'd)**115° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
16000	75	92.3	802.5	601.3	802.5	532.1	802.5	480.3	802.5	428.5	802.5	376.6	802.5	324.8	802.5	272.9	802.5	221.1
	73	91.9	800.6	615.2	800.6	546.1	800.6	494.2	800.6	442.4	800.6	390.6	800.6	338.7	800.6	286.9	800.6	235.0
	71	91.6	798.7	629.0	798.7	559.9	798.7	508.1	798.7	456.2	798.7	404.4	798.7	352.6	798.7	300.7	798.7	248.9
	67	91.5	761.5	680.3	761.5	611.2	761.5	559.3	761.5	507.5	761.5	455.7	761.5	403.8	761.5	352.0	761.5	300.1
	62	89.9	706.3	706.3	706.3	678.2	706.3	626.4	706.3	574.6	706.3	522.7	706.3	470.9	706.3	419.0	706.3	367.2
18250	75	92.6	832.2	651.3	832.2	572.5	832.2	513.3	832.2	454.2	832.2	395.1	832.2	335.9	832.2	276.8	832.2	217.7
	73	92.2	830.2	666.1	830.2	587.2	830.2	528.1	830.2	469.0	830.2	409.8	830.2	350.7	830.2	291.6	830.2	232.4
	71	91.9	828.2	680.8	828.2	601.9	828.2	542.8	828.2	483.7	828.2	424.5	828.2	365.4	828.2	306.3	828.2	247.1
	67	91.8	789.7	728.8	789.7	656.2	789.7	597.1	789.7	538.0	789.7	478.8	789.7	419.7	789.7	360.6	789.7	301.5
	62	90.2	732.4	732.4	732.4	711.4	732.4	668.2	732.4	609.1	732.4	549.9	732.4	490.8	732.4	431.7	732.4	372.6
20500	75	92.9	861.9	701.3	861.9	612.8	861.9	546.4	861.9	479.9	861.9	413.5	861.9	347.1	861.9	280.7	861.9	214.3
	73	92.5	859.8	716.9	859.8	628.4	859.8	562.0	859.8	495.5	859.8	429.1	859.8	362.7	859.8	296.3	859.8	229.9
	71	92.2	857.8	732.5	857.8	643.9	857.8	577.5	857.8	511.1	857.8	444.6	857.8	378.2	857.8	311.8	857.8	245.4
	67	92.1	817.9	777.3	817.9	701.3	817.9	634.9	817.9	568.5	817.9	502.0	817.9	435.6	817.9	369.2	817.9	302.8
	62	90.5	758.6	758.6	758.6	744.5	758.6	710.0	758.6	643.6	758.6	577.2	758.6	510.7	758.6	444.3	758.6	377.9
22750	75	93.2	891.5	751.4	891.5	653.1	891.5	579.4	891.5	505.7	891.5	432.0	891.5	358.3	891.5	284.5	891.5	210.8
	73	92.8	889.4	767.8	889.4	669.5	889.4	595.8	889.4	522.1	889.4	448.4	889.4	374.7	889.4	301.0	889.4	227.3
	71	92.4	887.3	784.2	887.3	685.9	887.3	612.2	887.3	538.5	887.3	464.7	887.3	391.0	887.3	317.3	887.3	243.6
	67	92.4	846.0	825.7	846.0	746.4	846.0	672.6	846.0	598.9	846.0	525.2	846.0	451.5	846.0	377.8	846.0	304.1
	62	90.8	784.7	784.7	784.7	777.7	784.7	751.8	784.7	678.1	784.7	604.4	784.7	530.7	784.7	457.0	784.7	383.3
25000	75	93.5	921.2	801.4	921.2	693.4	921.2	612.4	921.2	531.4	921.2	450.4	921.2	369.4	921.2	288.4	921.2	207.4
	73	93.1	919.1	818.7	919.1	710.7	919.1	629.7	919.1	548.7	919.1	467.7	919.1	386.7	919.1	305.7	919.1	224.7
	71	92.7	916.9	835.9	916.9	727.9	916.9	646.9	916.9	565.9	916.9	484.9	916.9	403.9	916.9	322.9	916.9	241.9
	67	92.7	874.2	874.2	874.2	791.4	874.2	710.4	874.2	629.4	874.2	548.4	874.2	467.4	874.2	386.4	874.2	305.4
	62	91.0	810.8	810.8	810.8	810.8	810.8	793.6	810.8	712.6	810.8	631.6	810.8	550.6	810.8	469.6	810.8	388.6
27250	75	93.5	935.7	842.2	935.7	724.5	935.7	636.2	935.7	547.9	935.7	459.7	935.7	371.4	935.7	283.1	935.7	194.8
	73	93.1	933.5	858.2	933.5	742.3	933.5	654.0	933.5	565.8	933.5	477.5	933.5	389.2	933.5	300.9	933.5	212.6
	71	92.8	931.3	870.5	931.3	760.1	931.3	671.8	931.3	583.5	931.3	495.2	931.3	406.9	931.3	318.6	931.3	230.3
	67	92.7	887.9	887.9	887.9	825.6	887.9	737.3	887.9	649.0	887.9	560.7	887.9	472.4	887.9	384.1	887.9	295.9
	62	91.1	823.6	823.6	823.6	823.6	823.6	810.6	823.6	734.8	823.6	646.5	823.6	558.2	823.6	469.9	823.6	381.6
29500	75	93.5	950.2	883.1	950.2	755.7	950.2	660.1	950.2	564.5	950.2	468.9	950.2	373.3	950.2	277.8	950.2	182.2
	73	93.2	947.9	897.7	947.9	774.0	947.9	678.4	947.9	582.8	947.9	487.3	947.9	391.7	947.9	296.1	947.9	200.5
	71	92.8	945.7	905.2	945.7	792.3	945.7	696.7	945.7	601.1	945.7	505.5	945.7	409.9	945.7	314.4	945.7	218.8
	67	92.8	901.7	901.7	901.7	859.8	901.7	764.2	901.7	668.6	901.7	573.0	901.7	477.4	901.7	381.9	901.7	286.3
	62	91.1	836.3	836.3	836.3	836.3	836.3	827.7	836.3	757.0	836.3	661.4	836.3	565.8	836.3	470.2	836.3	374.6
31750	75	93.6	964.6	923.9	964.6	786.8	964.6	683.9	964.6	581.0	964.6	478.2	964.6	375.3	964.6	272.4	964.6	169.6
	73	93.2	962.4	937.3	962.4	805.7	962.4	702.8	962.4	599.9	962.4	497.0	962.4	394.2	962.4	291.3	962.4	188.4
	71	92.8	960.1	939.8	960.1	824.4	960.1	721.6	960.1	618.7	960.1	515.8	960.1	413.0	960.1	310.1	960.1	207.2
	67	92.8	915.4	915.4	915.4	893.9	915.4	791.1	915.4	688.2	915.4	585.3	915.4	482.5	915.4	379.6	915.4	276.7
	62	91.1	849.0	849.0	849.0	849.0	849.0	844.7	849.0	779.2	849.0	676.3	849.0	573.4	849.0	470.5	849.0	367.7
34000	75	93.6	979.1	964.8	979.1	817.9	979.1	707.7	979.1	597.6	979.1	487.4	979.1	377.3	979.1	267.1	979.1	156.9
	73	93.2	976.8	976.8	976.8	837.3	976.8	727.2	976.8	617.0	976.8	506.8	976.8	396.7	976.8	286.5	976.8	176.4
	71	92.8	974.5	974.5	974.5	856.6	974.5	746.5	974.5	636.3	974.5	526.2	974.5	416.0	974.5	305.8	974.5	195.7
	67	92.8	929.1	929.1	929.1	928.1	929.1	818.0	929.1	707.8	929.1	597.6	929.1	487.5	929.1	377.3	929.1	267.2
	62	91.1	861.8	861.8	861.8	861.8	861.8	861.8	861.8	801.3	861.8	691.2	861.8	581.0	861.8	470.9	861.8	360.7

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 90 Ton Model

TABLE 12 – COOLING PERFORMANCE DATA* – 90 TON MODEL

85° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
20000	75	80.1	1056.3	764.4	1056.3	678.0	1056.3	613.2	1056.3	548.4	1056.3	483.6	1056.3	418.8	1056.3	354.0	1056.3	289.2
	73	79.8	1040.9	802.9	1040.9	716.5	1040.9	651.7	1040.9	586.9	1040.9	522.1	1040.9	457.3	1040.9	392.5	1040.9	327.7
	71	79.6	1025.5	839.9	1025.5	753.5	1025.5	688.7	1025.5	623.9	1025.5	559.1	1025.5	494.3	1025.5	429.5	1025.5	364.7
	67	78.6	981.6	876.8	981.6	790.4	981.6	725.6	981.6	660.8	981.6	596.0	981.6	531.2	981.6	466.4	981.6	401.6
	62	77.4	915.2	915.2	915.2	867.4	915.2	802.6	915.2	737.8	915.2	673.0	915.2	608.2	915.2	543.4	915.2	478.6
22000	75	80.7	1088.5	806.8	1088.5	711.8	1088.5	640.5	1088.5	569.2	1088.5	498.0	1088.5	426.7	1088.5	355.4	1088.5	284.1
	73	80.4	1072.7	846.7	1072.7	751.7	1072.7	680.4	1072.7	609.1	1072.7	537.8	1072.7	466.6	1072.7	395.3	1072.7	324.0
	71	80.1	1056.8	885.2	1056.8	790.1	1056.8	718.9	1056.8	647.6	1056.8	576.3	1056.8	505.0	1056.8	433.7	1056.8	362.5
	67	79.2	1011.6	923.4	1011.6	828.4	1011.6	757.1	1011.6	685.8	1011.6	614.6	1011.6	543.3	1011.6	472.0	1011.6	400.7
	62	77.9	943.1	943.1	943.1	907.3	943.1	837.0	943.1	765.8	943.1	694.5	943.1	623.2	943.1	551.9	943.1	480.6
24000	75	81.2	1120.8	849.3	1120.8	745.6	1120.8	667.8	1120.8	590.1	1120.8	512.3	1120.8	434.5	1120.8	356.8	1120.8	279.0
	73	80.9	1104.5	890.6	1104.5	786.9	1104.5	709.2	1104.5	631.4	1104.5	553.6	1104.5	475.9	1104.5	398.1	1104.5	320.4
	71	80.7	1088.1	930.5	1088.1	826.8	1088.1	749.0	1088.1	671.3	1088.1	593.5	1088.1	515.7	1088.1	438.0	1088.1	360.2
	67	79.7	1041.6	970.1	1041.6	866.4	1041.6	788.7	1041.6	710.9	1041.6	633.2	1041.6	555.4	1041.6	477.6	1041.6	399.9
	62	78.4	971.1	971.1	971.1	947.2	971.1	871.5	971.1	793.8	971.1	716.0	971.1	638.2	971.1	560.5	971.1	482.7
26000	75	81.7	1153.1	891.7	1153.1	779.4	1153.1	695.1	1153.1	610.9	1153.1	526.6	1153.1	442.4	1153.1	358.2	1153.1	273.9
	73	81.5	1136.3	934.5	1136.3	822.1	1136.3	737.9	1136.3	653.7	1136.3	569.4	1136.3	485.2	1136.3	400.9	1136.3	316.7
	71	81.2	1119.5	975.7	1119.5	863.4	1119.5	779.2	1119.5	694.9	1119.5	610.7	1119.5	526.5	1119.5	442.2	1119.5	358.0
	67	80.3	1071.5	1016.8	1071.5	904.5	1071.5	820.2	1071.5	736.0	1071.5	651.7	1071.5	567.5	1071.5	483.3	1071.5	399.0
	62	78.9	999.0	999.0	999.0	987.1	999.0	906.0	999.0	821.8	999.0	737.5	999.0	653.3	999.0	569.0	999.0	484.8
28000	75	82.3	1185.3	934.1	1185.3	813.1	1185.3	722.4	1185.3	631.7	1185.3	541.0	1185.3	450.2	1185.3	359.5	1185.3	268.8
	73	82.0	1168.1	978.3	1168.1	857.4	1168.1	766.7	1168.1	675.9	1168.1	585.2	1168.1	494.5	1168.1	403.8	1168.1	313.1
	71	81.8	1150.8	1021.0	1150.8	900.1	1150.8	809.3	1150.8	718.6	1150.8	627.9	1150.8	537.2	1150.8	446.5	1150.8	355.7
	67	80.8	1101.5	1063.5	1101.5	942.5	1101.5	851.8	1101.5	761.1	1101.5	670.3	1101.5	579.6	1101.5	488.9	1101.5	398.2
	62	79.5	1027.0	1027.0	1027.0	1027.0	1027.0	940.5	1027.0	849.8	1027.0	759.0	1027.0	668.3	1027.0	577.6	1027.0	486.9
30000	75	82.7	1205.4	974.1	1205.4	844.5	1205.4	747.3	1205.4	650.1	1205.4	552.9	1205.4	455.7	1205.4	370.9	1205.4	273.7
	73	82.4	1187.9	1019.7	1187.9	890.1	1187.9	792.9	1187.9	695.7	1187.9	598.5	1187.9	501.3	1187.9	416.0	1187.9	318.8
	71	82.1	1170.3	1073.0	1170.3	934.0	1170.3	836.8	1170.3	739.6	1170.3	654.3	1170.3	557.1	1170.3	459.9	1170.3	362.7
	67	81.1	1120.2	1091.6	1120.2	977.7	1120.2	880.5	1120.2	783.3	1120.2	686.1	1120.2	588.9	1120.2	491.7	1120.2	394.5
	62	79.8	1044.4	1044.4	1044.4	1044.4	1044.4	971.8	1044.4	874.6	1044.4	777.4	1044.4	680.2	1044.4	583.0	1044.4	485.8
32000	75	83.0	1225.5	1014.2	1225.5	876.0	1225.5	772.3	1225.5	668.6	1225.5	564.9	1225.5	461.2	1225.5	382.3	1225.5	278.6
	73	82.7	1207.6	1061.0	1207.6	922.8	1207.6	819.1	1207.6	715.4	1207.6	611.8	1207.6	508.1	1207.6	428.2	1207.6	324.6
	71	82.5	1189.8	1124.9	1189.8	968.0	1189.8	864.3	1189.8	760.6	1189.8	680.6	1189.8	577.0	1189.8	473.3	1189.8	369.6
	67	81.5	1138.9	1119.8	1138.9	1012.9	1138.9	909.2	1138.9	805.5	1138.9	701.9	1138.9	598.2	1138.9	494.5	1138.9	390.8
	62	80.2	1061.8	1061.8	1061.8	1061.8	1061.8	1003.1	1061.8	899.4	1061.8	795.7	1061.8	692.1	1061.8	588.4	1061.8	484.7
34000	75	83.4	1245.6	1054.3	1245.6	907.4	1245.6	797.2	1245.6	687.1	1245.6	576.9	1245.6	466.7	1245.6	393.7	1245.6	283.5
	73	83.1	1227.4	1102.4	1227.4	955.5	1227.4	845.4	1227.4	735.2	1227.4	625.0	1227.4	514.9	1227.4	440.5	1227.4	330.3
	71	82.8	1209.3	1176.8	1209.3	1001.9	1209.3	891.8	1209.3	781.6	1209.3	707.0	1209.3	596.9	1209.3	486.7	1209.3	376.5
	67	81.8	1157.5	1148.0	1157.5	1048.1	1157.5	937.9	1157.5	827.8	1157.5	717.6	1157.5	607.5	1157.5	497.3	1157.5	387.1
	62	80.5	1079.2	1079.2	1079.2	1079.2	1079.2	1034.4	1079.2	924.3	1079.2	814.1	1079.2	703.9	1079.2	593.8	1079.2	483.6
36000	75	83.7	1265.7	1094.3	1265.7	938.8	1265.7	822.2	1265.7	705.5	1265.7	588.9	1265.7	472.2	1265.7	405.0	1265.7	288.4
	73	83.5	1247.2	1143.7	1247.2	988.2	1247.2	871.6	1247.2	754.9	1247.2	638.3	1247.2	521.7	1247.2	452.7	1247.2	336.1
	71	83.2	1228.8	1228.8	1228.8	1035.9	1228.8	919.3	1228.8	802.6	1228.8	733.4	1228.8	616.7	1228.8	500.1	1228.8	383.5
	67	82.2	1176.2	1176.2	1176.2	1083.3	1176.2	966.7	1176.2	850.0	1176.2	733.4	1176.2	616.7	1176.2	500.1	1176.2	383.5
	62	80.9	1096.6	1096.6	1096.6	1096.6	1096.6	1065.7	1096.6	949.1	1096.6	832.4	1096.6	715.8	1096.6	599.2	1096.6	482.5
	62	80.9	1096.6	1096.6	1096.6	1096.6	1096.6	1065.7	1096.6	949.1	1096.6	832.4	1096.6	715.8	1096.6	599.2	1096.6	482.5

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 12 – COOLING PERFORMANCE DATA* – 90 TON MODEL (cont'd)**95° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
20000	75	88.1	1034.5	789.7	1034.5	703.3	1034.5	638.5	1034.5	573.7	1034.5	508.9	1034.5	444.1	1034.5	379.3	1034.5	314.5
	73	87.7	1019.3	802.2	1019.3	715.8	1019.3	651.0	1019.3	586.2	1019.3	521.4	1019.3	456.6	1019.3	391.8	1019.3	327.0
	71	87.3	1004.1	814.0	1004.1	727.6	1004.1	662.8	1004.1	598.0	1004.1	533.2	1004.1	468.4	1004.1	403.6	1004.1	338.8
	67	86.4	959.2	861.2	959.2	774.8	959.2	710.0	959.2	645.2	959.2	580.4	959.2	515.6	959.2	450.8	959.2	386.0
	62	85.3	894.2	894.2	894.2	847.0	894.2	782.2	894.2	717.4	894.2	652.6	894.2	587.8	894.2	523.0	894.2	458.2
22000	75	88.6	1064.3	835.4	1064.3	740.3	1064.3	669.1	1064.3	597.8	1064.3	526.5	1064.3	455.2	1064.3	383.9	1064.3	312.7
	73	88.2	1048.7	848.4	1048.7	753.4	1048.7	682.1	1048.7	610.8	1048.7	539.5	1048.7	468.3	1048.7	397.0	1048.7	325.7
	71	87.8	1033.0	860.8	1033.0	765.8	1033.0	694.5	1033.0	623.2	1033.0	551.9	1033.0	480.6	1033.0	409.4	1033.0	338.1
	67	86.9	986.8	909.9	986.8	814.9	986.8	743.6	986.8	672.3	986.8	601.0	986.8	529.8	986.8	458.5	986.8	387.2
	62	85.8	919.9	919.9	919.9	884.5	919.9	818.8	919.9	747.5	919.9	676.3	919.9	605.0	919.9	533.7	919.9	462.4
24000	75	89.1	1094.1	881.1	1094.1	777.4	1094.1	699.7	1094.1	621.9	1094.1	544.2	1094.1	466.4	1094.1	388.6	1094.1	310.9
	73	88.7	1078.0	894.7	1078.0	791.0	1078.0	713.2	1078.0	635.5	1078.0	557.7	1078.0	480.0	1078.0	402.2	1078.0	324.4
	71	88.3	1061.9	907.6	1061.9	803.9	1061.9	726.1	1061.9	648.4	1061.9	570.6	1061.9	492.8	1061.9	415.1	1061.9	337.3
	67	87.4	1014.5	958.7	1014.5	855.0	1014.5	777.2	1014.5	699.5	1014.5	621.7	1014.5	543.9	1014.5	466.2	1014.5	388.4
	62	86.3	945.7	945.7	945.7	922.1	945.7	855.5	945.7	777.7	945.7	700.0	945.7	622.2	945.7	544.4	945.7	466.7
26000	75	89.7	1123.9	926.8	1123.9	814.5	1123.9	730.3	1123.9	646.0	1123.9	561.8	1123.9	477.6	1123.9	393.3	1123.9	309.1
	73	89.2	1107.4	940.9	1107.4	828.6	1107.4	744.4	1107.4	660.1	1107.4	575.9	1107.4	491.7	1107.4	407.4	1107.4	323.2
	71	88.8	1090.9	954.3	1090.9	842.0	1090.9	757.8	1090.9	673.5	1090.9	589.3	1090.9	505.0	1090.9	420.8	1090.9	336.6
	67	87.9	1042.1	1007.4	1042.1	895.1	1042.1	810.8	1042.1	726.6	1042.1	642.4	1042.1	558.1	1042.1	473.9	1042.1	389.6
	62	86.8	971.4	971.4	971.4	959.6	971.4	892.1	971.4	807.9	971.4	723.7	971.4	639.4	971.4	555.2	971.4	470.9
28000	75	90.2	1153.7	972.6	1153.7	851.6	1153.7	760.9	1153.7	670.2	1153.7	579.5	1153.7	488.7	1153.7	398.0	1153.7	307.3
	73	89.7	1136.8	987.2	1136.8	866.2	1136.8	775.5	1136.8	684.8	1136.8	594.1	1136.8	503.4	1136.8	412.6	1136.8	321.9
	71	89.3	1119.8	1001.1	1119.8	880.1	1119.8	789.4	1119.8	698.7	1119.8	608.0	1119.8	517.2	1119.8	426.5	1119.8	335.8
	67	88.4	1069.7	1056.1	1069.7	935.2	1069.7	844.5	1069.7	753.7	1069.7	663.0	1069.7	572.3	1069.7	481.6	1069.7	390.9
	62	87.3	997.2	997.2	997.2	997.2	997.2	928.8	997.2	838.1	997.2	747.4	997.2	656.6	997.2	565.9	997.2	475.2
30000	75	90.5	1172.8	1011.7	1172.8	882.1	1172.8	784.9	1172.8	687.7	1172.8	590.5	1172.8	493.3	1172.8	396.1	1172.8	298.9
	73	90.1	1155.6	1026.7	1155.6	897.1	1155.6	799.9	1155.6	702.7	1155.6	605.5	1155.6	508.3	1155.6	411.1	1155.6	313.9
	71	89.6	1138.3	1041.0	1138.3	911.4	1138.3	814.2	1138.3	717.0	1138.3	619.8	1138.3	522.6	1138.3	425.4	1138.3	328.2
	67	88.7	1087.4	1077.2	1087.4	967.9	1087.4	870.7	1087.4	773.5	1087.4	676.3	1087.4	579.1	1087.4	481.9	1087.4	384.7
	62	87.6	1013.7	1013.7	1013.7	1013.7	1013.7	957.2	1013.7	860.0	1013.7	762.8	1013.7	665.6	1013.7	568.4	1013.7	471.2
32000	75	90.8	1191.9	1050.8	1191.9	912.6	1191.9	808.9	1191.9	705.2	1191.9	601.6	1191.9	497.9	1191.9	394.2	1191.9	290.5
	73	90.4	1174.4	1066.2	1174.4	928.0	1174.4	824.3	1174.4	720.6	1174.4	616.9	1174.4	513.3	1174.4	409.6	1174.4	305.9
	71	90.0	1156.9	1080.8	1156.9	942.6	1156.9	838.9	1156.9	735.2	1156.9	631.5	1156.9	527.9	1156.9	424.2	1156.9	320.5
	67	89.0	1105.1	1098.3	1105.1	1000.5	1105.1	896.8	1105.1	793.2	1105.1	689.5	1105.1	585.8	1105.1	482.1	1105.1	378.4
	62	87.9	1030.2	1030.2	1030.2	1030.2	1030.2	985.6	1030.2	881.9	1030.2	778.2	1030.2	674.6	1030.2	570.9	1030.2	467.2
34000	75	91.2	1211.0	1090.0	1211.0	943.1	1211.0	832.9	1211.0	722.8	1211.0	612.6	1211.0	502.4	1211.0	392.3	1211.0	282.1
	73	90.7	1193.2	1105.7	1193.2	958.8	1193.2	848.7	1193.2	738.5	1193.2	628.4	1193.2	518.2	1193.2	408.0	1193.2	297.9
	71	90.3	1175.4	1120.7	1175.4	973.8	1175.4	863.7	1175.4	753.5	1175.4	643.3	1175.4	533.2	1175.4	423.0	1175.4	312.9
	67	89.4	1122.8	1119.4	1122.8	1033.2	1122.8	923.0	1122.8	812.9	1122.8	702.7	1122.8	592.6	1122.8	482.4	1122.8	372.2
	62	88.2	1046.7	1046.7	1046.7	1046.7	1046.7	1014.0	1046.7	903.8	1046.7	793.7	1046.7	683.5	1046.7	573.3	1046.7	463.2
36000	75	91.5	1230.1	1129.1	1230.1	973.6	1230.1	856.9	1230.1	740.3	1230.1	623.7	1230.1	507.0	1230.1	390.4	1230.1	273.7
	73	91.1	1212.0	1145.2	1212.0	989.7	1212.0	873.1	1212.0	756.4	1212.0	639.8	1212.0	523.2	1212.0	406.5	1212.0	289.9
	71	90.6	1193.9	1160.6	1193.9	1005.1	1193.9	888.4	1193.9	771.8	1193.9	655.1	1193.9	538.5	1193.9	421.9	1193.9	305.2
	67	89.7	1140.5	1140.5	1140.5	1065.9	1140.5	949.2	1140.5	832.6	1140.5	716.0	1140.5	599.3	1140.5	482.7	1140.5	366.0
	62	88.6	1063.2	1063.2	1063.2	1063.2	1063.2	1042.4	1063.2	925.7	1063.2	809.1	1063.2	692.5	1063.2	575.8	1063.2	459.2

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 90 Ton Model (cont'd.)

TABLE 12 – COOLING PERFORMANCE DATA* – 90 TON MODEL (cont'd)

105° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
20000	75	97.9	1004.7	780.8	1004.7	694.4	1004.7	629.6	1004.7	564.8	1004.7	500.0	1004.7	435.2	1004.7	370.4	1004.7	305.6
	73	97.5	990.4	790.9	990.4	704.5	990.4	639.7	990.4	574.9	990.4	510.1	990.4	445.3	990.4	380.5	990.4	315.7
	71	97.0	976.2	800.4	976.2	714.0	976.2	649.2	976.2	584.4	976.2	519.6	976.2	454.8	976.2	390.0	976.2	325.2
	67	96.0	931.2	847.3	931.2	760.9	931.2	696.1	931.2	631.3	931.2	566.5	931.2	501.7	931.2	436.9	931.2	372.1
	62	94.7	868.8	868.8	868.8	841.1	868.8	776.3	868.8	711.5	868.8	646.7	868.8	581.9	868.8	517.1	868.8	452.3
22000	75	98.4	1031.0	824.2	1031.0	729.2	1031.0	657.9	1031.0	586.6	1031.0	515.3	1031.0	444.0	1031.0	372.8	1031.0	301.5
	73	97.9	1016.4	834.7	1016.4	739.7	1016.4	668.4	1016.4	597.1	1016.4	525.8	1016.4	454.5	1016.4	383.3	1016.4	312.0
	71	97.5	1001.8	844.7	1001.8	749.6	1001.8	678.3	1001.8	607.1	1001.8	535.8	1001.8	464.5	1001.8	393.2	1001.8	321.9
	67	96.4	955.6	891.0	955.6	798.3	955.6	727.0	955.6	655.7	955.6	584.4	955.6	513.2	955.6	441.9	955.6	370.6
	62	95.2	891.6	891.6	891.6	870.8	891.6	810.3	891.6	739.0	891.6	667.8	891.6	596.5	891.6	525.2	891.6	453.9
24000	75	98.9	1057.3	867.6	1057.3	764.0	1057.3	686.2	1057.3	608.4	1057.3	530.7	1057.3	452.9	1057.3	375.2	1057.3	297.4
	73	98.4	1042.4	878.5	1042.4	774.9	1042.4	697.1	1042.4	619.3	1042.4	541.6	1042.4	463.8	1042.4	386.1	1042.4	308.3
	71	98.0	1027.4	888.9	1027.4	785.2	1027.4	707.4	1027.4	629.7	1027.4	551.9	1027.4	474.2	1027.4	396.4	1027.4	318.6
	67	96.9	980.1	934.7	980.1	835.7	980.1	757.9	980.1	680.2	980.1	602.4	980.1	524.6	980.1	446.9	980.1	369.1
	62	95.6	914.4	914.4	914.4	900.5	914.4	844.3	914.4	766.5	914.4	688.8	914.4	611.0	914.4	533.3	914.4	455.5
26000	75	99.3	1083.7	911.1	1083.7	798.8	1083.7	714.5	1083.7	630.3	1083.7	546.1	1083.7	461.8	1083.7	377.6	1083.7	293.3
	73	98.9	1068.3	922.4	1068.3	810.1	1068.3	725.8	1068.3	641.6	1068.3	557.3	1068.3	473.1	1068.3	388.9	1068.3	304.6
	71	98.4	1053.0	933.1	1053.0	820.8	1053.0	736.5	1053.0	652.3	1053.0	568.1	1053.0	483.8	1053.0	399.6	1053.0	315.3
	67	97.4	1004.5	978.4	1004.5	873.1	1004.5	788.8	1004.5	704.6	1004.5	620.4	1004.5	536.1	1004.5	451.9	1004.5	367.6
	62	96.1	937.1	937.1	937.1	930.2	937.1	878.3	937.1	794.0	937.1	709.8	937.1	625.6	937.1	541.3	937.1	457.1
28000	75	99.8	1110.0	954.5	1110.0	833.6	1110.0	742.9	1110.0	652.1	1110.0	561.4	1110.0	470.7	1110.0	380.0	1110.0	289.3
	73	99.4	1094.3	966.2	1094.3	845.3	1094.3	754.6	1094.3	663.8	1094.3	573.1	1094.3	482.4	1094.3	391.7	1094.3	301.0
	71	98.9	1078.6	977.3	1078.6	856.4	1078.6	765.6	1078.6	674.9	1078.6	584.2	1078.6	493.5	1078.6	402.8	1078.6	312.0
	67	97.8	1028.9	1022.1	1028.9	910.5	1028.9	819.8	1028.9	729.0	1028.9	638.3	1028.9	547.6	1028.9	456.9	1028.9	366.2
	62	96.6	959.9	959.9	959.9	959.9	959.9	912.3	959.9	821.6	959.9	730.8	959.9	640.1	959.9	549.4	959.9	458.7
30000	75	100.1	1127.2	994.0	1127.2	864.4	1127.2	767.2	1127.2	670.0	1127.2	572.8	1127.2	475.6	1127.2	378.4	1127.2	281.2
	73	99.7	1111.3	1006.0	1111.3	876.4	1111.3	779.2	1111.3	682.0	1111.3	584.8	1111.3	487.6	1111.3	390.4	1111.3	293.2
	71	99.2	1095.3	1015.2	1095.3	887.8	1095.3	790.6	1095.3	693.4	1095.3	596.2	1095.3	499.0	1095.3	401.8	1095.3	304.6
	67	98.2	1044.8	1039.8	1044.8	943.4	1044.8	846.2	1044.8	749.0	1044.8	651.8	1044.8	554.6	1044.8	457.4	1044.8	360.2
	62	96.9	974.8	974.8	974.8	974.8	974.8	936.5	974.8	844.0	974.8	746.8	974.8	649.6	974.8	552.4	974.8	455.2
32000	75	100.5	1144.5	1033.4	1144.5	895.2	1144.5	791.5	1144.5	687.8	1144.5	584.1	1144.5	480.5	1144.5	376.8	1144.5	273.1
	73	100.0	1128.3	1045.7	1128.3	907.5	1128.3	803.8	1128.3	700.1	1128.3	596.5	1128.3	492.8	1128.3	389.1	1128.3	285.4
	71	99.6	1112.0	1053.1	1112.0	919.2	1112.0	815.5	1112.0	711.8	1112.0	608.1	1112.0	504.5	1112.0	400.8	1112.0	297.1
	67	98.5	1060.8	1057.4	1060.8	976.3	1060.8	872.6	1060.8	768.9	1060.8	665.2	1060.8	561.5	1060.8	457.9	1060.8	354.2
	62	97.2	989.7	989.7	989.7	989.7	989.7	960.7	989.7	866.5	989.7	762.8	989.7	659.1	989.7	555.5	989.7	451.8
34000	75	100.8	1161.7	1072.8	1161.7	926.0	1161.7	815.8	1161.7	705.6	1161.7	595.5	1161.7	485.3	1161.7	375.2	1161.7	265.0
	73	100.4	1145.2	1085.5	1145.2	938.6	1145.2	828.5	1145.2	718.3	1145.2	608.1	1145.2	498.0	1145.2	387.8	1145.2	277.7
	71	99.9	1128.8	1091.0	1128.8	950.6	1128.8	840.4	1128.8	730.3	1128.8	620.1	1128.8	510.0	1128.8	399.8	1128.8	289.6
	67	98.8	1076.8	1075.1	1076.8	1009.1	1076.8	899.0	1076.8	788.8	1076.8	678.7	1076.8	568.5	1076.8	458.3	1076.8	348.2
	62	97.6	1004.6	1004.6	1004.6	1004.6	1004.6	984.9	1004.6	889.0	1004.6	778.8	1004.6	668.7	1004.6	558.5	1004.6	448.3
36000	75	101.2	1178.9	1112.3	1178.9	956.8	1178.9	840.1	1178.9	723.5	1178.9	606.8	1178.9	490.2	1178.9	373.6	1178.9	256.9
	73	100.7	1162.2	1125.2	1162.2	969.7	1162.2	853.1	1162.2	736.4	1162.2	619.8	1162.2	503.2	1162.2	386.5	1162.2	269.9
	71	100.3	1145.5	1128.8	1145.5	982.0	1145.5	865.4	1145.5	748.7	1145.5	632.1	1145.5	515.4	1145.5	398.8	1145.5	282.2
	67	99.2	1092.7	1092.7	1092.7	1042.0	1092.7	925.4	1092.7	808.8	1092.7	692.1	1092.7	575.5	1092.7	458.8	1092.7	342.2
	62	97.9	1019.5	1019.5	1019.5	1019.5	1019.5	1009.1	1019.5	911.5	1019.5	794.8	1019.5	678.2	1019.5	561.5	1019.5	444.9

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 12 – COOLING PERFORMANCE DATA* – 90 TON MODEL (cont'd)**115° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
20000	75	107.7	974.8	771.9	974.8	685.5	974.8	620.7	974.8	555.9	974.8	491.1	974.8	426.3	974.8	361.5	974.8	296.7
	73	107.2	961.5	779.5	961.5	693.1	961.5	628.3	961.5	563.5	961.5	498.7	961.5	433.9	961.5	369.1	961.5	304.3
	71	106.7	948.3	786.8	948.3	700.4	948.3	635.6	948.3	570.8	948.3	506.0	948.3	441.2	948.3	376.4	948.3	311.6
	67	105.5	903.2	833.4	903.2	747.0	903.2	682.2	903.2	617.4	903.2	552.6	903.2	487.8	903.2	423.0	903.2	358.2
	62	104.2	843.4	843.4	843.4	835.3	843.4	770.5	843.4	705.7	843.4	640.9	843.4	576.1	843.4	511.3	843.4	446.5
22000	75	108.1	997.7	813.0	997.7	718.0	997.7	646.7	997.7	575.4	997.7	504.1	997.7	432.9	997.7	361.6	997.7	290.3
	73	107.6	984.1	821.0	984.1	725.9	984.1	654.7	984.1	583.4	984.1	512.1	984.1	440.8	984.1	369.5	984.1	298.3
	71	107.2	970.6	828.5	970.6	733.5	970.6	662.2	970.6	590.9	970.6	519.6	970.6	448.3	970.6	377.1	970.6	305.8
	67	106.0	924.4	872.1	924.4	781.7	924.4	710.4	924.4	639.1	924.4	567.9	924.4	496.6	924.4	425.3	924.4	354.0
	62	104.6	863.2	863.2	863.2	857.1	863.2	801.8	863.2	730.5	863.2	659.2	863.2	588.0	863.2	516.7	863.2	445.4
24000	75	108.6	1020.5	854.2	1020.5	750.5	1020.5	672.7	1020.5	595.0	1020.5	517.2	1020.5	439.5	1020.5	361.7	1020.5	283.9
	73	108.1	1006.7	862.4	1006.7	758.7	1006.7	681.0	1006.7	603.2	1006.7	525.4	1006.7	447.7	1006.7	369.9	1006.7	292.2
	71	107.6	992.8	870.2	992.8	766.5	992.8	688.7	992.8	611.0	992.8	533.2	992.8	455.5	992.8	377.7	992.8	299.9
	67	106.4	945.6	910.7	945.6	816.4	945.6	738.6	945.6	660.9	945.6	583.1	945.6	505.3	945.6	427.6	945.6	349.8
	62	105.0	883.0	883.0	883.0	879.0	883.0	833.1	883.0	755.4	883.0	677.6	883.0	599.8	883.0	522.1	883.0	444.3
26000	75	109.0	1043.4	895.3	1043.4	783.0	1043.4	698.8	1043.4	614.5	1043.4	530.3	1043.4	446.1	1043.4	361.8	1043.4	277.6
	73	108.5	1029.3	903.8	1029.3	791.5	1029.3	707.3	1029.3	623.0	1029.3	538.8	1029.3	454.6	1029.3	370.3	1029.3	286.1
	71	108.1	1015.1	911.9	1015.1	799.6	1015.1	715.3	1015.1	631.1	1015.1	546.8	1015.1	462.6	1015.1	378.4	1015.1	294.1
	67	106.8	966.8	949.4	966.8	851.1	966.8	766.8	966.8	682.6	966.8	598.4	966.8	514.1	966.8	429.9	966.8	345.6
	62	105.5	902.8	902.8	902.8	900.8	902.8	864.4	902.8	780.2	902.8	696.0	902.8	611.7	902.8	527.5	902.8	443.2
28000	75	109.4	1066.3	936.5	1066.3	815.5	1066.3	724.8	1066.3	634.1	1066.3	543.4	1066.3	452.7	1066.3	361.9	1066.3	271.2
	73	109.0	1051.8	945.3	1051.8	824.3	1051.8	733.6	1051.8	642.9	1051.8	552.2	1051.8	461.4	1051.8	370.7	1051.8	280.0
	71	108.5	1037.3	953.6	1037.3	832.6	1037.3	741.9	1037.3	651.2	1037.3	560.4	1037.3	469.7	1037.3	379.0	1037.3	288.3
	67	107.3	988.0	988.0	988.0	885.8	988.0	795.0	988.0	704.3	988.0	613.6	988.0	522.9	988.0	432.2	988.0	341.4
	62	105.9	922.6	922.6	922.6	922.6	922.6	895.8	922.6	805.0	922.6	714.3	922.6	623.6	922.6	532.9	922.6	442.2
30000	75	109.8	1081.7	976.2	1081.7	846.6	1081.7	749.4	1081.7	652.2	1081.7	555.0	1081.7	457.8	1081.7	360.6	1081.7	263.4
	73	109.3	1067.0	985.3	1067.0	855.7	1067.0	758.5	1067.0	661.3	1067.0	564.1	1067.0	466.9	1067.0	369.7	1067.0	272.5
	71	108.8	1052.3	989.4	1052.3	864.2	1052.3	767.0	1052.3	669.8	1052.3	572.6	1052.3	475.4	1052.3	378.2	1052.3	281.0
	67	107.6	1002.3	1002.3	1002.3	918.9	1002.3	821.7	1002.3	724.5	1002.3	627.3	1002.3	530.1	1002.3	432.9	1002.3	335.7
	62	106.2	935.9	935.9	935.9	935.9	935.9	915.8	935.9	828.1	935.9	730.9	935.9	633.7	935.9	536.5	935.9	439.3
32000	75	110.1	1097.0	1016.0	1097.0	877.8	1097.0	774.1	1097.0	670.4	1097.0	566.7	1097.0	463.0	1097.0	359.4	1097.0	255.7
	73	109.7	1082.1	1025.3	1082.1	887.0	1082.1	783.3	1082.1	679.7	1082.1	576.0	1082.1	472.3	1082.1	368.6	1082.1	264.9
	71	109.2	1067.2	1025.3	1067.2	895.8	1067.2	792.1	1067.2	688.4	1067.2	584.7	1067.2	481.1	1067.2	377.4	1067.2	273.7
	67	108.0	1016.5	1016.5	1016.5	952.0	1016.5	848.3	1016.5	744.6	1016.5	640.9	1016.5	537.3	1016.5	433.6	1016.5	329.9
	62	106.5	949.2	949.2	949.2	949.2	949.2	935.8	949.2	851.1	949.2	747.4	949.2	643.7	949.2	540.1	949.2	436.4
34000	75	110.5	1112.4	1055.7	1112.4	908.9	1112.4	798.7	1112.4	688.5	1112.4	578.4	1112.4	468.2	1112.4	358.1	1112.4	247.9
	73	110.0	1097.3	1065.3	1097.3	918.4	1097.3	808.2	1097.3	698.1	1097.3	587.9	1097.3	477.7	1097.3	367.6	1097.3	257.4
	71	109.5	1082.2	1061.2	1082.2	927.4	1082.2	817.2	1082.2	707.1	1082.2	596.9	1082.2	486.7	1082.2	376.6	1082.2	266.4
	67	108.3	1030.7	1030.7	1030.7	985.1	1030.7	874.9	1030.7	764.8	1030.7	654.6	1030.7	544.5	1030.7	434.3	1030.7	324.1
	62	106.9	962.5	962.5	962.5	962.5	962.5	955.8	962.5	874.1	962.5	764.0	962.5	653.8	962.5	543.7	962.5	433.5
36000	75	110.8	1127.7	1095.5	1127.7	940.0	1127.7	823.3	1127.7	706.7	1127.7	590.0	1127.7	473.4	1127.7	356.8	1127.7	240.1
	73	110.3	1112.4	1105.2	1112.4	949.7	1112.4	833.1	1112.4	716.4	1112.4	599.8	1112.4	483.2	1112.4	366.5	1112.4	249.9
	71	109.9	1097.1	1097.1	1097.1	959.0	1097.1	842.3	1097.1	725.7	1097.1	609.0	1097.1	492.4	1097.1	375.8	1097.1	259.1
	67	108.6	1045.0	1045.0	1045.0	1018.2	1045.0	901.6	1045.0	784.9	1045.0	668.3	1045.0	551.7	1045.0	435.0	1045.0	318.4
	62	107.2	975.8	975.8	975.8	975.8	975.8	975.8	975.8	897.2	975.8	780.5	975.8	663.9	975.8	547.2	975.8	430.6

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 105 Ton Model

TABLE 13 – COOLING PERFORMANCE DATA* – 105 TON MODEL

85° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
20000	75	107.5	1210.7	939.3	1210.7	852.9	1210.7	788.1	1210.7	723.3	1210.7	658.5	1210.7	593.7	1210.7	528.9	1210.7	464.1
	73	105.4	1156.2	913.8	1156.2	827.4	1156.2	762.6	1156.2	697.8	1156.2	633.0	1156.2	568.2	1156.2	503.4	1156.2	438.6
	71	103.3	1101.8	887.7	1101.8	801.3	1101.8	736.5	1101.8	671.7	1101.8	606.9	1101.8	542.1	1101.8	477.3	1101.8	412.5
	67	103.0	1078.1	930.8	1078.1	844.4	1078.1	779.6	1078.1	714.8	1078.1	650.0	1078.1	585.2	1078.1	520.4	1078.1	455.6
	62	100.4	1002.7	1002.7	1002.7	924.4	1002.7	859.6	1002.7	794.8	1002.7	730.0	1002.7	665.2	1002.7	600.4	1002.7	535.6
22000	75	106.9	1255.2	990.6	1255.2	895.5	1255.2	824.3	1255.2	753.0	1255.2	681.7	1255.2	610.4	1255.2	539.1	1255.2	467.9
	73	104.8	1198.7	964.1	1198.7	869.1	1198.7	797.8	1198.7	726.5	1198.7	655.2	1198.7	583.9	1198.7	512.7	1198.7	441.4
	71	102.7	1142.2	936.9	1142.2	841.9	1142.2	770.6	1142.2	699.3	1142.2	628.0	1142.2	556.8	1142.2	485.5	1142.2	414.2
	67	102.4	1117.8	981.8	1117.8	886.8	1117.8	815.5	1117.8	744.2	1117.8	672.9	1117.8	601.7	1117.8	530.4	1117.8	459.1
	62	99.9	1039.5	1039.5	1039.5	970.1	1039.5	898.8	1039.5	827.5	1039.5	756.2	1039.5	684.9	1039.5	613.7	1039.5	542.4
24000	75	106.3	1299.6	1041.9	1299.6	938.2	1299.6	860.5	1299.6	782.7	1299.6	704.9	1299.6	627.2	1299.6	549.4	1299.6	471.7
	73	104.2	1241.2	1014.4	1241.2	910.7	1241.2	832.9	1241.2	755.2	1241.2	677.4	1241.2	599.7	1241.2	521.9	1241.2	444.1
	71	102.2	1182.7	986.1	1182.7	882.4	1182.7	804.7	1182.7	726.9	1182.7	649.2	1182.7	571.4	1182.7	493.6	1182.7	415.9
	67	101.8	1157.4	1032.8	1157.4	929.1	1157.4	851.4	1157.4	773.6	1157.4	695.8	1157.4	618.1	1157.4	540.3	1157.4	462.6
	62	99.3	1076.3	1076.3	1076.3	1015.7	1076.3	937.9	1076.3	860.2	1076.3	782.4	1076.3	704.7	1076.3	626.9	1076.3	549.1
26000	75	105.7	1344.1	1093.2	1344.1	980.9	1344.1	896.7	1344.1	812.4	1344.1	728.2	1344.1	644.0	1344.1	559.7	1344.1	475.5
	73	103.7	1283.6	1064.7	1283.6	952.3	1283.6	868.1	1283.6	783.9	1283.6	699.6	1283.6	615.4	1283.6	531.1	1283.6	446.9
	71	101.6	1223.2	1035.3	1223.2	923.0	1223.2	838.8	1223.2	754.5	1223.2	670.3	1223.2	586.1	1223.2	501.8	1223.2	417.6
	67	101.3	1197.0	1083.8	1197.0	971.5	1197.0	887.2	1197.0	803.0	1197.0	718.7	1197.0	634.5	1197.0	550.3	1197.0	466.0
	62	98.8	1113.2	1113.2	1113.2	1061.3	1113.2	977.1	1113.2	892.8	1113.2	808.6	1113.2	724.4	1113.2	640.1	1113.2	555.9
28000	75	105.1	1388.6	1144.6	1388.6	1023.6	1388.6	932.9	1388.6	842.2	1388.6	751.4	1388.6	660.7	1388.6	570.0	1388.6	479.3
	73	103.1	1326.1	1114.9	1326.1	994.0	1326.1	903.3	1326.1	812.5	1326.1	721.8	1326.1	631.1	1326.1	540.4	1326.1	449.7
	71	101.0	1263.7	1084.5	1263.7	963.6	1263.7	872.9	1263.7	782.1	1263.7	691.4	1263.7	600.7	1263.7	510.0	1263.7	419.3
	67	100.7	1236.6	1134.8	1236.6	1013.8	1236.6	923.1	1236.6	832.4	1236.6	741.6	1236.6	650.9	1236.6	560.2	1236.6	469.5
	62	98.2	1150.0	1150.0	1150.0	1107.0	1150.0	1016.2	1150.0	925.5	1150.0	834.8	1150.0	744.1	1150.0	653.4	1150.0	562.6
30000	75	105.7	1416.3	1192.9	1416.3	1063.3	1416.3	966.1	1416.3	868.9	1416.3	771.7	1416.3	674.5	1416.3	568.9	1416.3	471.7
	73	103.7	1352.6	1162.3	1352.6	1032.7	1352.6	935.5	1352.6	838.3	1352.6	741.1	1352.6	643.9	1352.6	538.1	1352.6	440.9
	71	101.6	1288.9	1130.9	1288.9	1001.3	1288.9	904.1	1288.9	806.9	1288.9	723.9	1288.9	626.7	1288.9	529.5	1288.9	432.3
	67	101.3	1261.2	1182.8	1261.2	1053.2	1261.2	956.0	1261.2	858.8	1261.2	761.6	1261.2	664.4	1261.2	567.2	1261.2	470.0
	62	98.8	1172.9	1172.9	1172.9	1140.6	1172.9	1052.1	1172.9	954.9	1172.9	857.7	1172.9	760.5	1172.9	663.3	1172.9	566.1
32000	75	106.3	1444.0	1241.1	1444.0	1102.9	1444.0	999.2	1444.0	895.5	1444.0	791.9	1444.0	688.2	1444.0	567.8	1444.0	464.1
	73	104.3	1379.0	1209.7	1379.0	1071.4	1379.0	967.7	1379.0	864.1	1379.0	760.4	1379.0	656.7	1379.0	535.9	1379.0	432.2
	71	102.2	1314.1	1177.3	1314.1	1039.1	1314.1	935.4	1314.1	831.7	1314.1	756.3	1314.1	652.7	1314.1	549.0	1314.1	445.3
	67	101.8	1285.9	1230.7	1285.9	1092.5	1285.9	988.8	1285.9	885.1	1285.9	781.5	1285.9	677.8	1285.9	574.1	1285.9	470.4
	62	99.3	1195.9	1195.9	1195.9	1174.3	1195.9	1087.9	1195.9	984.2	1195.9	880.5	1195.9	776.8	1195.9	673.1	1195.9	569.5
34000	75	107.0	1471.7	1289.4	1471.7	1142.6	1471.7	1032.4	1471.7	922.2	1471.7	812.1	1471.7	701.9	1471.7	566.7	1471.7	456.6
	73	104.9	1405.5	1257.0	1405.5	1110.1	1405.5	1000.0	1405.5	889.8	1405.5	779.6	1405.5	669.5	1405.5	533.6	1405.5	423.5
	71	102.8	1339.3	1223.7	1339.3	1076.8	1339.3	966.7	1339.3	856.5	1339.3	788.8	1339.3	678.6	1339.3	568.5	1339.3	458.3
	67	102.4	1310.6	1278.7	1310.6	1131.8	1310.6	1021.7	1310.6	911.5	1310.6	801.4	1310.6	691.2	1310.6	581.0	1310.6	470.9
	62	99.9	1218.8	1218.8	1218.8	1208.0	1218.8	1123.7	1218.8	1013.5	1218.8	903.4	1218.8	793.2	1218.8	683.0	1218.8	572.9
36000	75	107.6	1499.4	1337.7	1499.4	1182.2	1499.4	1065.6	1499.4	948.9	1499.4	832.3	1499.4	715.7	1499.4	565.6	1499.4	449.0
	73	105.5	1431.9	1304.4	1431.9	1148.8	1431.9	1032.2	1431.9	915.6	1431.9	798.9	1431.9	682.3	1431.9	531.4	1431.9	414.8
	71	103.4	1364.5	1270.1	1364.5	1114.6	1364.5	998.0	1364.5	881.3	1364.5	821.3	1364.5	704.6	1364.5	588.0	1364.5	471.3
	67	103.0	1335.2	1326.7	1335.2	1171.2	1335.2	1054.5	1335.2	937.9	1335.2	821.3	1335.2	704.6	1335.2	588.0	1335.2	471.3
	62	100.5	1241.7	1241.7	1241.7	1241.7	1241.7	1159.5	1241.7	1042.9	1241.7	926.2	1241.7	809.6	1241.7	692.9	1241.7	576.3
	62	100.5	1241.7	1241.7	1241.7	1241.7	1241.7	1159.5	1241.7	1042.9	1241.7	926.2	1241.7	809.6	1241.7	692.9	1241.7	576.3

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 13 – COOLING PERFORMANCE DATA* – 105 TON MODEL (cont'd)**95° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
20000	75	109.0	1086.1	833.5	1086.1	747.1	1086.1	682.3	1086.1	617.5	1086.1	552.7	1086.1	487.9	1086.1	423.1	1086.1	358.3
	73	109.1	1091.0	852.3	1091.0	765.9	1091.0	701.1	1091.0	636.3	1091.0	571.5	1091.0	506.7	1091.0	441.9	1091.0	377.1
	71	109.3	1096.0	871.2	1096.0	784.8	1096.0	720.0	1096.0	655.2	1096.0	590.4	1096.0	525.6	1096.0	460.8	1096.0	396.0
	67	107.3	1059.6	917.1	1059.6	830.7	1059.6	765.9	1059.6	701.1	1059.6	636.3	1059.6	571.5	1059.6	506.7	1059.6	441.9
	62	105.2	961.6	961.6	961.6	892.2	961.6	827.4	961.6	762.6	961.6	697.8	961.6	633.0	961.6	568.2	961.6	503.4
22000	75	109.9	1123.5	882.5	1123.5	787.5	1123.5	716.2	1123.5	644.9	1123.5	573.6	1123.5	502.3	1123.5	431.1	1123.5	359.8
	73	110.1	1128.6	902.1	1128.6	807.1	1128.6	735.8	1128.6	664.5	1128.6	593.2	1128.6	522.0	1128.6	450.7	1128.6	379.4
	71	110.2	1133.6	921.9	1133.6	826.8	1133.6	755.6	1133.6	684.3	1133.6	613.0	1133.6	541.7	1133.6	470.4	1133.6	399.2
	67	108.2	1096.0	969.8	1096.0	874.8	1096.0	803.5	1096.0	732.2	1096.0	660.9	1096.0	589.7	1096.0	518.4	1096.0	447.1
	62	106.1	994.7	994.7	994.7	939.1	994.7	867.8	994.7	796.5	994.7	725.2	994.7	654.0	994.7	582.7	994.7	511.4
24000	75	110.8	1160.8	931.5	1160.8	827.8	1160.8	750.1	1160.8	672.3	1160.8	594.6	1160.8	516.8	1160.8	439.0	1160.8	361.3
	73	111.0	1166.1	952.0	1166.1	848.3	1166.1	770.5	1166.1	692.8	1166.1	615.0	1166.1	537.2	1166.1	459.5	1166.1	381.7
	71	111.2	1171.3	972.6	1171.3	868.9	1171.3	791.1	1171.3	713.4	1171.3	635.6	1171.3	557.8	1171.3	480.1	1171.3	402.3
	67	109.2	1132.5	1022.6	1132.5	918.9	1132.5	841.1	1132.5	763.4	1132.5	685.6	1132.5	607.8	1132.5	530.1	1132.5	452.3
	62	107.0	1027.7	1027.7	1027.7	985.9	1027.7	908.1	1027.7	830.4	1027.7	752.6	1027.7	674.9	1027.7	597.1	1027.7	519.3
26000	75	111.8	1198.2	980.5	1198.2	868.2	1198.2	784.0	1198.2	699.7	1198.2	615.5	1198.2	531.3	1198.2	447.0	1198.2	362.8
	73	111.9	1203.6	1001.8	1203.6	889.5	1203.6	805.3	1203.6	721.0	1203.6	636.8	1203.6	552.5	1203.6	468.3	1203.6	384.1
	71	112.1	1209.0	1023.3	1209.0	910.9	1209.0	826.7	1209.0	742.5	1209.0	658.2	1209.0	574.0	1209.0	489.7	1209.0	405.5
	67	110.1	1168.9	1075.3	1168.9	963.0	1168.9	878.7	1168.9	794.5	1168.9	710.3	1168.9	626.0	1168.9	541.8	1168.9	457.5
	62	107.9	1060.8	1060.8	1060.8	1032.7	1060.8	948.5	1060.8	864.2	1060.8	780.0	1060.8	695.8	1060.8	611.5	1060.8	527.3
28000	75	112.7	1235.5	1029.6	1235.5	908.6	1235.5	817.9	1235.5	727.2	1235.5	636.4	1235.5	545.7	1235.5	455.0	1235.5	364.3
	73	112.9	1241.1	1051.7	1241.1	930.7	1241.1	840.0	1241.1	749.3	1241.1	658.6	1241.1	567.8	1241.1	477.1	1241.1	386.4
	71	113.1	1246.7	1074.0	1246.7	953.0	1246.7	862.3	1246.7	771.6	1246.7	680.8	1246.7	590.1	1246.7	499.4	1246.7	408.7
	67	111.0	1205.3	1128.0	1205.3	1007.1	1205.3	916.3	1205.3	825.6	1205.3	734.9	1205.3	644.2	1205.3	553.5	1205.3	462.7
	62	108.8	1093.9	1093.9	1093.9	1079.6	1093.9	988.8	1093.9	898.1	1093.9	807.4	1093.9	716.7	1093.9	626.0	1093.9	535.2
30000	75	113.6	1256.7	1070.1	1256.7	940.5	1256.7	843.3	1256.7	746.1	1256.7	648.9	1256.7	551.7	1256.7	454.5	1256.7	357.3
	73	113.8	1262.4	1092.8	1262.4	963.2	1262.4	866.0	1262.4	768.8	1262.4	671.6	1262.4	574.4	1262.4	477.2	1262.4	380.0
	71	113.9	1268.1	1115.7	1268.1	986.1	1268.1	888.9	1268.1	791.7	1268.1	694.5	1268.1	597.3	1268.1	500.1	1268.1	402.9
	67	111.9	1226.0	1168.0	1226.0	1041.6	1226.0	944.4	1226.0	847.2	1226.0	750.0	1226.0	652.8	1226.0	555.6	1226.0	458.4
	62	109.6	1112.6	1112.6	1112.6	1101.9	1112.6	1018.8	1112.6	921.6	1112.6	824.4	1112.6	727.2	1112.6	630.0	1112.6	532.8
32000	75	114.5	1277.9	1110.7	1277.9	972.5	1277.9	868.8	1277.9	765.1	1277.9	661.4	1277.9	557.8	1277.9	454.1	1277.9	350.4
	73	114.6	1283.7	1134.0	1283.7	995.7	1283.7	892.1	1283.7	788.4	1283.7	684.7	1283.7	581.0	1283.7	477.3	1283.7	373.7
	71	114.8	1289.5	1157.4	1289.5	1019.2	1289.5	915.5	1289.5	811.8	1289.5	708.1	1289.5	604.5	1289.5	500.8	1289.5	397.1
	67	112.7	1246.7	1208.0	1246.7	1076.1	1246.7	972.4	1246.7	868.7	1246.7	765.0	1246.7	661.4	1246.7	557.7	1246.7	454.0
	62	110.5	1131.4	1131.4	1131.4	1124.3	1131.4	1048.7	1131.4	945.0	1131.4	841.3	1131.4	737.6	1131.4	633.9	1131.4	530.3
34000	75	115.3	1299.1	1151.3	1299.1	1004.4	1299.1	894.2	1299.1	784.1	1299.1	673.9	1299.1	563.8	1299.1	453.6	1299.1	343.4
	73	115.5	1305.0	1175.1	1305.0	1028.3	1305.0	918.1	1305.0	807.9	1305.0	697.8	1305.0	587.6	1305.0	477.5	1305.0	367.3
	71	115.7	1310.9	1199.2	1310.9	1052.3	1310.9	942.1	1310.9	832.0	1310.9	721.8	1310.9	611.6	1310.9	501.5	1310.9	391.3
	67	113.6	1267.4	1248.0	1267.4	1110.6	1267.4	1000.4	1267.4	890.3	1267.4	780.1	1267.4	669.9	1267.4	559.8	1267.4	449.6
	62	111.3	1150.2	1150.2	1150.2	1146.6	1150.2	1078.6	1150.2	968.4	1150.2	858.3	1150.2	748.1	1150.2	637.9	1150.2	527.8
36000	75	116.2	1320.3	1191.9	1320.3	1036.3	1320.3	919.7	1320.3	803.1	1320.3	686.4	1320.3	569.8	1320.3	453.1	1320.3	336.5
	73	116.4	1326.3	1216.3	1326.3	1060.8	1326.3	944.1	1326.3	827.5	1326.3	710.8	1326.3	594.2	1326.3	477.6	1326.3	360.9
	71	116.6	1332.3	1240.9	1332.3	1085.4	1332.3	968.7	1332.3	852.1	1332.3	735.4	1332.3	618.8	1332.3	502.2	1332.3	385.5
	67	114.5	1288.1	1288.1	1288.1	1145.1	1288.1	1028.4	1288.1	911.8	1288.1	795.2	1288.1	678.5	1288.1	561.9	1288.1	445.2
	62	112.2	1168.9	1168.9	1168.9	1168.9	1168.9	1108.5	1168.9	991.9	1168.9	875.2	1168.9	758.6	1168.9	641.9	1168.9	525.3

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 105 Ton Model (cont'd.)

TABLE 13 – COOLING PERFORMANCE DATA* – 105 TON MODEL (cont'd)

105° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
20000	75	121.4	1048.9	808.7	1048.9	722.3	1048.9	657.5	1048.9	592.7	1048.9	527.9	1048.9	463.1	1048.9	398.3	1048.9	333.5
	73	121.4	1051.4	836.3	1051.4	749.9	1051.4	685.1	1051.4	620.3	1051.4	555.5	1051.4	490.7	1051.4	425.9	1051.4	361.1
	71	121.4	1053.8	863.9	1053.8	777.5	1053.8	712.7	1053.8	647.9	1053.8	583.1	1053.8	518.3	1053.8	453.5	1053.8	388.7
	67	119.6	1017.6	902.3	1017.6	815.9	1017.6	751.1	1017.6	686.3	1017.6	621.5	1017.6	556.7	1017.6	491.9	1017.6	427.1
	62	117.3	933.4	933.4	933.4	885.9	933.4	821.1	933.4	756.3	933.4	691.5	933.4	626.7	933.4	561.9	933.4	497.1
22000	75	122.3	1086.2	855.3	1086.2	760.3	1086.2	689.0	1086.2	617.7	1086.2	546.4	1086.2	475.1	1086.2	403.9	1086.2	332.6
	73	122.4	1088.7	884.0	1088.7	788.9	1088.7	717.7	1088.7	646.4	1088.7	575.1	1088.7	503.8	1088.7	432.5	1088.7	361.3
	71	122.4	1091.2	912.8	1091.2	817.7	1091.2	746.4	1091.2	675.2	1091.2	603.9	1091.2	532.6	1091.2	461.3	1091.2	390.0
	67	120.6	1053.7	952.8	1053.7	857.8	1053.7	786.5	1053.7	715.2	1053.7	643.9	1053.7	572.6	1053.7	501.4	1053.7	430.1
	62	118.2	966.5	966.5	966.5	929.1	966.5	859.4	966.5	788.1	966.5	716.9	966.5	645.6	966.5	574.3	966.5	503.0
24000	75	123.3	1123.4	901.9	1123.4	798.2	1123.4	720.4	1123.4	642.7	1123.4	564.9	1123.4	487.2	1123.4	409.4	1123.4	331.6
	73	123.4	1126.0	931.7	1126.0	828.0	1126.0	750.3	1126.0	672.5	1126.0	594.8	1126.0	517.0	1126.0	439.2	1126.0	361.5
	71	123.4	1128.6	961.6	1128.6	857.9	1128.6	780.2	1128.6	702.4	1128.6	624.7	1128.6	546.9	1128.6	469.1	1128.6	391.4
	67	121.6	1089.9	1003.3	1089.9	899.6	1089.9	821.9	1089.9	744.1	1089.9	666.3	1089.9	588.6	1089.9	510.8	1089.9	433.1
	62	119.2	999.7	999.7	999.7	972.4	999.7	897.7	999.7	820.0	999.7	742.2	999.7	664.5	999.7	586.7	999.7	508.9
26000	75	124.3	1160.7	948.5	1160.7	836.2	1160.7	751.9	1160.7	667.7	1160.7	583.4	1160.7	499.2	1160.7	415.0	1160.7	330.7
	73	124.3	1163.4	979.4	1163.4	867.1	1163.4	782.9	1163.4	698.6	1163.4	614.4	1163.4	530.2	1163.4	445.9	1163.4	361.7
	71	124.4	1166.0	1010.5	1166.0	898.2	1166.0	813.9	1166.0	729.7	1166.0	645.5	1166.0	561.2	1166.0	477.0	1166.0	392.7
	67	122.5	1126.0	1053.8	1126.0	941.5	1126.0	857.2	1126.0	773.0	1126.0	688.8	1126.0	604.5	1126.0	520.3	1126.0	436.0
	62	120.1	1032.8	1032.8	1032.8	1015.6	1032.8	936.0	1032.8	851.8	1032.8	767.6	1032.8	683.3	1032.8	599.1	1032.8	514.8
28000	75	125.3	1198.0	995.1	1198.0	874.1	1198.0	783.4	1198.0	692.7	1198.0	601.9	1198.0	511.2	1198.0	420.5	1198.0	329.8
	73	125.3	1200.7	1027.2	1200.7	906.2	1200.7	815.5	1200.7	724.8	1200.7	634.1	1200.7	543.3	1200.7	452.6	1200.7	361.9
	71	125.4	1203.4	1059.4	1203.4	938.4	1203.4	847.7	1203.4	757.0	1203.4	666.2	1203.4	575.5	1203.4	484.8	1203.4	394.1
	67	123.5	1162.1	1104.3	1162.1	983.3	1162.1	892.6	1162.1	801.9	1162.1	711.2	1162.1	620.5	1162.1	529.7	1162.1	439.0
	62	121.1	1066.0	1066.0	1066.0	1058.8	1066.0	974.4	1066.0	883.6	1066.0	792.9	1066.0	702.2	1066.0	611.5	1066.0	520.8
30000	75	126.0	1217.6	1034.9	1217.6	905.3	1217.6	808.1	1217.6	710.9	1217.6	613.7	1217.6	516.5	1217.6	419.3	1217.6	322.1
	73	126.1	1220.4	1067.8	1220.4	938.2	1220.4	841.0	1220.4	743.8	1220.4	646.6	1220.4	549.4	1220.4	452.2	1220.4	355.0
	71	126.1	1223.2	1100.9	1223.2	971.3	1223.2	874.1	1223.2	776.9	1223.2	679.7	1223.2	582.5	1223.2	485.3	1223.2	388.1
	67	124.2	1181.2	1137.8	1181.2	1017.4	1181.2	920.2	1181.2	823.0	1181.2	725.8	1181.2	628.6	1181.2	531.4	1181.2	434.2
	62	121.8	1083.5	1083.5	1083.5	1078.1	1083.5	1004.1	1083.5	906.9	1083.5	809.7	1083.5	712.5	1083.5	615.3	1083.5	518.1
32000	75	126.8	1237.3	1074.7	1237.3	936.4	1237.3	832.7	1237.3	729.1	1237.3	625.4	1237.3	521.7	1237.3	418.0	1237.3	314.3
	73	126.8	1240.1	1108.5	1240.1	970.2	1240.1	866.5	1240.1	762.9	1240.1	659.2	1240.1	555.5	1240.1	451.8	1240.1	348.1
	71	126.9	1243.0	1142.3	1243.0	1004.1	1243.0	900.4	1243.0	796.7	1243.0	693.1	1243.0	589.4	1243.0	485.7	1243.0	382.0
	67	125.0	1200.3	1171.4	1200.3	1051.4	1200.3	947.7	1200.3	844.0	1200.3	740.4	1200.3	636.7	1200.3	533.0	1200.3	429.3
	62	122.5	1101.0	1101.0	1101.0	1097.4	1101.0	1033.8	1101.0	930.1	1101.0	826.4	1101.0	722.7	1101.0	619.0	1101.0	515.4
34000	75	127.5	1256.9	1114.5	1256.9	967.6	1256.9	857.4	1256.9	747.3	1256.9	637.1	1256.9	526.9	1256.9	416.8	1256.9	306.6
	73	127.6	1259.8	1149.1	1259.8	1002.2	1259.8	892.1	1259.8	781.9	1259.8	671.7	1259.8	561.6	1259.8	451.4	1259.8	341.3
	71	127.6	1262.7	1183.8	1262.7	1037.0	1262.7	926.8	1262.7	816.6	1262.7	706.5	1262.7	596.3	1262.7	486.2	1262.7	376.0
	67	125.7	1219.4	1204.9	1219.4	1085.4	1219.4	975.3	1219.4	865.1	1219.4	755.0	1219.4	644.8	1219.4	534.6	1219.4	424.5
	62	123.3	1118.5	1118.5	1118.5	1116.7	1118.5	1063.5	1118.5	953.3	1118.5	843.1	1118.5	733.0	1118.5	622.8	1118.5	512.7
36000	75	128.3	1276.6	1154.3	1276.6	998.7	1276.6	882.1	1276.6	765.5	1276.6	648.8	1276.6	532.2	1276.6	415.5	1276.6	298.9
	73	128.3	1279.5	1189.7	1279.5	1034.2	1279.5	917.6	1279.5	800.9	1279.5	684.3	1279.5	567.7	1279.5	451.0	1279.5	334.4
	71	128.3	1282.5	1225.3	1282.5	1069.8	1282.5	953.2	1282.5	836.5	1282.5	719.9	1282.5	603.3	1282.5	486.6	1282.5	370.0
	67	126.4	1238.5	1238.5	1238.5	1119.5	1238.5	1002.8	1238.5	886.2	1238.5	769.5	1238.5	652.9	1238.5	536.3	1238.5	419.6
	62	124.0	1135.9	1135.9	1135.9	1135.9	1135.9	1093.2	1135.9	976.5	1135.9	859.9	1135.9	743.2	1135.9	626.6	1135.9	510.0

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 13 – COOLING PERFORMANCE DATA* – 105 TON MODEL (cont'd)**115° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
20000	75	133.8	1011.8	783.9	1011.8	697.5	1011.8	632.7	1011.8	567.9	1011.8	503.1	1011.8	438.3	1011.8	373.5	1011.8	308.7
	73	133.7	1011.7	820.3	1011.7	733.9	1011.7	669.1	1011.7	604.3	1011.7	539.5	1011.7	474.7	1011.7	409.9	1011.7	345.1
	71	133.5	1011.6	856.6	1011.6	770.2	1011.6	705.4	1011.6	640.6	1011.6	575.8	1011.6	511.0	1011.6	446.2	1011.6	381.4
	67	131.9	975.6	887.5	975.6	801.1	975.6	736.3	975.6	671.5	975.6	606.7	975.6	541.9	975.6	477.1	975.6	412.3
	62	129.4	905.1	905.1	905.1	879.6	905.1	814.8	905.1	750.0	905.1	685.2	905.1	620.4	905.1	555.6	905.1	490.8
22000	75	134.8	1048.9	828.1	1048.9	733.0	1048.9	661.8	1048.9	590.5	1048.9	519.2	1048.9	447.9	1048.9	376.6	1048.9	305.4
	73	134.7	1048.8	865.9	1048.8	770.8	1048.8	699.5	1048.8	628.3	1048.8	557.0	1048.8	485.7	1048.8	414.4	1048.8	343.1
	71	134.6	1048.7	903.6	1048.7	808.6	1048.7	737.3	1048.7	666.0	1048.7	594.8	1048.7	523.5	1048.7	452.2	1048.7	380.9
	67	132.9	1011.5	935.8	1011.5	840.7	1011.5	769.4	1011.5	698.2	1011.5	626.9	1011.5	555.6	1011.5	484.3	1011.5	413.0
	62	130.4	938.4	938.4	938.4	919.2	938.4	851.1	938.4	779.8	938.4	708.5	938.4	637.2	938.4	565.9	938.4	494.7
24000	75	135.8	1086.1	872.2	1086.1	768.6	1086.1	690.8	1086.1	613.0	1086.1	535.3	1086.1	457.5	1086.1	379.8	1086.1	302.0
	73	135.7	1086.0	911.5	1086.0	807.8	1086.0	730.0	1086.0	652.3	1086.0	574.5	1086.0	496.7	1086.0	419.0	1086.0	341.2
	71	135.6	1085.9	950.7	1085.9	847.0	1085.9	769.2	1085.9	691.5	1085.9	613.7	1085.9	536.0	1085.9	458.2	1085.9	380.4
	67	133.9	1047.3	984.0	1047.3	880.4	1047.3	802.6	1047.3	724.8	1047.3	647.1	1047.3	569.3	1047.3	491.6	1047.3	413.8
	62	131.4	971.6	971.6	971.6	958.8	971.6	887.3	971.6	809.6	971.6	731.8	971.6	654.1	971.6	576.3	971.6	498.5
26000	75	136.9	1123.2	916.4	1123.2	804.1	1123.2	719.8	1123.2	635.6	1123.2	551.4	1123.2	467.1	1123.2	382.9	1123.2	298.6
	73	136.7	1123.1	957.1	1123.1	844.7	1123.1	760.5	1123.1	676.3	1123.1	592.0	1123.1	507.8	1123.1	423.5	1123.1	339.3
	71	136.6	1123.0	997.7	1123.0	885.4	1123.0	801.2	1123.0	716.9	1123.0	632.7	1123.0	548.4	1123.0	464.2	1123.0	380.0
	67	135.0	1083.1	1032.3	1083.1	920.0	1083.1	835.7	1083.1	751.5	1083.1	667.3	1083.1	583.0	1083.1	498.8	1083.1	414.5
	62	132.4	1004.8	1004.8	1004.8	998.5	1004.8	923.6	1004.8	839.4	1004.8	755.1	1004.8	670.9	1004.8	586.6	1004.8	502.4
28000	75	137.9	1160.4	960.6	1160.4	839.6	1160.4	748.9	1160.4	658.2	1160.4	567.4	1160.4	476.7	1160.4	386.0	1160.4	295.3
	73	137.8	1160.3	1002.7	1160.3	881.7	1160.3	791.0	1160.3	700.3	1160.3	609.5	1160.3	518.8	1160.3	428.1	1160.3	337.4
	71	137.6	1160.2	1044.8	1160.2	923.8	1160.2	833.1	1160.2	742.4	1160.2	651.7	1160.2	560.9	1160.2	470.2	1160.2	379.5
	67	136.0	1118.9	1080.6	1118.9	959.6	1118.9	868.9	1118.9	778.2	1118.9	687.5	1118.9	596.7	1118.9	506.0	1118.9	415.3
	62	133.4	1038.1	1038.1	1038.1	1038.1	1038.1	959.9	1038.1	869.2	1038.1	778.4	1038.1	687.7	1038.1	597.0	1038.1	506.3
30000	75	138.5	1178.5	999.6	1178.5	870.0	1178.5	772.8	1178.5	675.6	1178.5	578.4	1178.5	481.2	1178.5	384.0	1178.5	286.8
	73	138.4	1178.4	1042.8	1178.4	913.2	1178.4	816.0	1178.4	718.8	1178.4	621.6	1178.4	524.4	1178.4	427.2	1178.4	330.0
	71	138.3	1178.3	1086.0	1178.3	956.4	1178.3	859.2	1178.3	762.0	1178.3	664.8	1178.3	567.6	1178.3	470.4	1178.3	373.2
	67	136.6	1136.4	1107.6	1136.4	993.2	1136.4	896.0	1136.4	798.8	1136.4	701.6	1136.4	604.4	1136.4	507.2	1136.4	410.0
	62	134.0	1054.3	1054.3	1054.3	1054.3	1054.3	989.4	1054.3	892.2	1054.3	795.0	1054.3	697.8	1054.3	600.6	1054.3	503.4
32000	75	139.1	1196.6	1038.6	1196.6	900.4	1196.6	796.7	1196.6	693.0	1196.6	589.3	1196.6	485.6	1196.6	382.0	1196.6	278.3
	73	139.0	1196.5	1082.9	1196.5	944.7	1196.5	841.0	1196.5	737.3	1196.5	633.7	1196.5	530.0	1196.5	426.3	1196.5	322.6
	71	138.9	1196.4	1127.3	1196.4	989.0	1196.4	885.4	1196.4	781.7	1196.4	678.0	1196.4	574.3	1196.4	470.6	1196.4	367.0
	67	137.2	1153.9	1134.7	1153.9	1026.7	1153.9	923.1	1153.9	819.4	1153.9	715.7	1153.9	612.0	1153.9	508.3	1153.9	404.7
	62	134.6	1070.5	1070.5	1070.5	1070.5	1070.5	1018.8	1070.5	915.2	1070.5	811.5	1070.5	707.8	1070.5	604.1	1070.5	500.4
34000	75	139.7	1214.8	1077.6	1214.8	930.7	1214.8	820.6	1214.8	710.4	1214.8	600.3	1214.8	490.1	1214.8	379.9	1214.8	269.8
	73	139.6	1214.7	1123.1	1214.7	976.2	1214.7	866.0	1214.7	755.9	1214.7	645.7	1214.7	535.6	1214.7	425.4	1214.7	315.2
	71	139.5	1214.6	1168.5	1214.6	1021.6	1214.6	911.5	1214.6	801.3	1214.6	691.2	1214.6	581.0	1214.6	470.8	1214.6	360.7
	67	137.8	1171.4	1161.8	1171.4	1060.3	1171.4	950.1	1171.4	840.0	1171.4	729.8	1171.4	619.6	1171.4	509.5	1171.4	399.3
	62	135.2	1086.7	1086.7	1086.7	1086.7	1086.7	1048.3	1086.7	938.2	1086.7	828.0	1086.7	717.9	1086.7	607.7	1086.7	497.5
36000	75	140.3	1232.9	1116.6	1232.9	961.1	1232.9	844.5	1232.9	727.8	1232.9	611.2	1232.9	494.6	1232.9	377.9	1232.9	261.3
	73	140.2	1232.8	1163.2	1232.8	1007.7	1232.8	891.1	1232.8	774.4	1232.8	657.8	1232.8	541.1	1232.8	424.5	1232.8	307.9
	71	140.1	1232.7	1209.8	1232.7	1054.3	1232.7	937.6	1232.7	821.0	1232.7	704.3	1232.7	587.7	1232.7	471.1	1232.7	354.4
	67	138.4	1188.9	1188.9	1188.9	1093.8	1188.9	977.2	1188.9	860.6	1188.9	743.9	1188.9	627.3	1188.9	510.6	1188.9	394.0
	62	135.8	1102.9	1102.9	1102.9	1102.9	1102.9	1077.8	1102.9	961.2	1102.9	844.5	1102.9	727.9	1102.9	611.3	1102.9	494.6

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 120 Ton Model

TABLE 14 – COOLING PERFORMANCE DATA* – 120 TON MODEL

85° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
26000	75	114	1393	1056	1393	943	1393	859	1393	775	1393	740	1393	607	1393	522	1393	438
	73	114	1391	1053	1391	941	1391	857	1391	772	1391	741	1391	604	1391	520	1391	435
	71	115	1412	1020	1412	908	1412	823	1412	739	1412	699	1412	571	1412	487	1412	402
	67	112	1333	1130	1333	1018	1333	933	1333	849	1333	807	1333	681	1333	597	1333	512
	62	109	1230	1230	1230	1158	1230	1074	1230	990	1230	957	1230	821	1230	737	1230	653
28500	75	115	1423	1107	1423	984	1423	892	1423	800	1423	755	1423	615	1423	547	1423	463
	73	115	1421	1105	1421	982	1421	889	1421	797	1421	755	1421	612	1421	544	1421	460
	71	115	1442	1071	1442	947	1442	855	1442	763	1442	712	1442	578	1442	486	1442	393
	67	113	1361	1184	1361	1061	1361	969	1361	876	1361	823	1361	692	1361	599	1361	507
	62	110	1256	1256	1256	1202	1256	1113	1256	1021	1256	977	1256	836	1256	744	1256	652
31000	75	115	1452	1159	1452	1025	1452	925	1452	824	1452	769	1452	623	1452	572	1452	487
	73	115	1450	1156	1450	1022	1450	922	1450	821	1450	770	1450	621	1450	569	1450	485
	71	116	1472	1121	1472	987	1472	887	1472	786	1472	725	1472	585	1472	485	1472	384
	67	114	1390	1238	1390	1104	1390	1004	1390	903	1390	839	1390	702	1390	602	1390	501
	62	111	1282	1282	1282	1246	1282	1153	1282	1053	1282	997	1282	852	1282	751	1282	651
33500	75	116	1482	1211	1482	1066	1482	957	1482	849	1482	783	1482	632	1482	596	1482	512
	73	116	1479	1208	1479	1063	1479	955	1479	846	1479	784	1479	629	1479	593	1479	509
	71	117	1502	1172	1502	1027	1502	918	1502	810	1502	738	1502	593	1502	484	1502	376
	67	115	1418	1292	1418	1147	1418	1039	1418	930	1418	854	1418	713	1418	605	1418	496
	62	111	1308	1308	1308	1290	1308	1193	1308	1084	1308	1017	1308	867	1308	758	1308	650
36000	75	117	1511	1262	1511	1107	1511	990	1511	874	1511	797	1511	640	1511	621	1511	537
	73	117	1509	1259	1509	1104	1509	987	1509	871	1509	798	1509	637	1509	618	1509	534
	71	118	1532	1222	1532	1067	1532	950	1532	833	1532	751	1532	600	1532	483	1532	367
	67	115	1446	1346	1446	1191	1446	1074	1446	957	1446	870	1446	724	1446	607	1446	491
	62	112	1334	1334	1334	1334	1334	1232	1334	1115	1334	1037	1334	882	1334	766	1334	649
38500	75	118	1528	1313	1528	1146	1528	1021	1528	897	1528	815	1528	647	1528	644	1528	560
	73	118	1526	1309	1526	1143	1526	1018	1526	894	1526	816	1526	644	1526	641	1526	557
	71	119	1549	1271	1549	1105	1549	980	1549	855	1549	836	1549	640	1549	515	1549	391
	67	116	1462	1387	1462	1232	1462	1107	1462	983	1462	890	1462	733	1462	608	1462	484
	62	113	1349	1349	1349	1349	1349	1270	1349	1145	1349	1061	1349	896	1349	771	1349	646
41000	75	118	1545	1363	1545	1186	1545	1053	1545	920	1545	832	1545	654	1545	667	1545	583
	73	118	1542	1360	1542	1182	1542	1050	1542	917	1542	833	1542	651	1542	664	1542	580
	71	119	1566	1320	1566	1143	1566	1010	1566	877	1566	921	1566	680	1566	548	1566	415
	67	116	1478	1428	1478	1274	1478	1141	1478	1008	1478	909	1478	742	1478	610	1478	477
	62	113	1364	1364	1364	1364	1364	1308	1364	1175	1364	1086	1364	909	1364	776	1364	643
43500	75	119	1562	1413	1562	1225	1562	1084	1562	943	1562	850	1562	661	1562	690	1562	606
	73	119	1559	1410	1559	1222	1559	1081	1559	940	1559	851	1559	658	1559	687	1559	603
	71	120	1583	1369	1583	1181	1583	1041	1583	900	1583	1006	1583	721	1583	580	1583	439
	67	117	1494	1469	1494	1315	1494	1174	1494	1033	1494	929	1494	752	1494	611	1494	470
	62	114	1379	1379	1379	1379	1379	1345	1379	1204	1379	1110	1379	922	1379	782	1379	641
46000	75	119	1579	1463	1579	1264	1579	1115	1579	966	1579	867	1579	668	1579	714	1579	629
	73	119	1576	1460	1576	1261	1576	1112	1576	963	1576	868	1576	665	1576	710	1576	626
	71	120	1600	1419	1600	1220	1600	1071	1600	922	1600	1091	1600	761	1600	612	1600	463
	67	117	1511	1511	1511	1357	1511	1208	1511	1059	1511	949	1511	761	1511	612	1511	463
	62	114	1394	1394	1394	1394	1394	1383	1394	1234	1394	1134	1394	936	1394	787	1394	638

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 14 – COOLING PERFORMANCE DATA* – 120 TON MODEL (cont'd)**95° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
26000	75	124	1333	1006	1333	894	1333	809	1333	725	1333	641	1333	557	1333	473	1333	388
	73	124	1326	1000	1326	888	1326	804	1326	719	1326	635	1326	551	1326	467	1326	382
	71	124	1345	976	1345	864	1345	779	1345	695	1345	611	1345	527	1345	442	1345	358
	67	122	1269	1088	1269	976	1269	892	1269	807	1269	723	1269	639	1269	555	1269	470
	62	118	1159	1159	1159	1106	1159	1022	1159	938	1159	853	1159	769	1159	685	1159	601
28500	75	125	1362	1060	1362	937	1362	845	1362	752	1362	660	1362	568	1362	500	1362	415
	73	125	1355	1054	1355	931	1355	838	1355	746	1355	654	1355	561	1355	493	1355	409
	71	125	1375	1029	1375	906	1375	813	1375	721	1375	629	1375	536	1375	444	1375	352
	67	123	1297	1145	1297	1022	1297	930	1297	837	1297	745	1297	653	1297	560	1297	468
	62	119	1184	1184	1184	1145	1184	1065	1184	973	1184	880	1184	788	1184	695	1184	603
31000	75	126	1391	1114	1391	980	1391	880	1391	779	1391	679	1391	578	1391	527	1391	442
	73	126	1384	1108	1384	974	1384	873	1384	773	1384	672	1384	572	1384	520	1384	436
	71	126	1404	1082	1404	948	1404	847	1404	747	1404	646	1404	546	1404	446	1404	345
	67	124	1325	1202	1325	1068	1325	968	1325	867	1325	767	1325	667	1325	566	1325	466
	62	120	1209	1209	1209	1183	1209	1108	1209	1007	1209	907	1209	807	1209	706	1209	606
33500	75	127	1420	1168	1420	1023	1420	915	1420	806	1420	698	1420	589	1420	554	1420	469
	73	127	1413	1161	1413	1017	1413	908	1413	800	1413	691	1413	583	1413	547	1413	463
	71	127	1433	1135	1433	990	1433	881	1433	773	1433	664	1433	556	1433	447	1433	339
	67	124	1353	1259	1353	1115	1353	1006	1353	898	1353	789	1353	680	1353	572	1353	463
	62	121	1235	1235	1235	1221	1235	1151	1235	1042	1235	934	1235	825	1235	717	1235	608
36000	75	128	1449	1222	1449	1067	1449	950	1449	833	1449	717	1449	600	1449	581	1449	496
	73	128	1442	1215	1442	1060	1442	943	1442	826	1442	710	1442	593	1442	574	1442	489
	71	128	1463	1187	1463	1032	1463	915	1463	799	1463	682	1463	565	1463	449	1463	332
	67	125	1380	1316	1380	1161	1380	1044	1380	928	1380	811	1380	694	1380	578	1380	461
	62	121	1260	1260	1260	1260	1260	1194	1260	1077	1260	961	1260	844	1260	727	1260	611
38500	75	128	1461	1270	1461	1103	1461	979	1461	854	1461	729	1461	605	1461	601	1461	517
	73	128	1454	1263	1454	1096	1454	972	1454	847	1454	722	1454	597	1454	594	1454	510
	71	129	1475	1234	1475	1068	1475	943	1475	819	1475	694	1475	569	1475	444	1475	320
	67	126	1392	1344	1392	1200	1392	1075	1392	951	1392	826	1392	701	1392	577	1392	452
	62	122	1270	1270	1270	1270	1270	1221	1270	1104	1270	979	1270	855	1270	730	1270	605
41000	75	128	1473	1318	1473	1140	1473	1008	1473	875	1473	742	1473	609	1473	622	1473	538
	73	128	1466	1310	1466	1133	1466	1000	1466	868	1466	735	1466	602	1466	615	1466	531
	71	129	1487	1281	1487	1104	1487	971	1487	838	1487	706	1487	573	1487	440	1487	307
	67	126	1404	1372	1404	1240	1404	1107	1404	974	1404	841	1404	708	1404	575	1404	442
	62	122	1281	1281	1281	1281	1281	1248	1281	1131	1281	998	1281	865	1281	732	1281	600
43500	75	129	1486	1365	1486	1177	1486	1036	1486	896	1486	755	1486	614	1486	643	1486	559
	73	129	1478	1358	1478	1170	1478	1029	1478	888	1478	747	1478	606	1478	635	1478	551
	71	129	1499	1328	1499	1140	1499	999	1499	858	1499	717	1499	576	1499	436	1499	295
	67	127	1415	1399	1415	1279	1415	1138	1415	997	1415	856	1415	715	1415	574	1415	433
	62	123	1292	1292	1292	1292	1292	1275	1292	1158	1292	1017	1292	876	1292	735	1292	594
46000	75	129	1498	1413	1498	1214	1498	1065	1498	916	1498	767	1498	618	1498	664	1498	579
	73	129	1491	1406	1491	1207	1491	1058	1491	909	1491	760	1491	611	1491	656	1491	572
	71	130	1512	1375	1512	1176	1512	1027	1512	878	1512	729	1512	580	1512	431	1512	282
	67	127	1427	1427	1427	1318	1427	1169	1427	1020	1427	871	1427	722	1427	573	1427	424
	62	123	1302	1302	1302	1302	1302	1302	1302	1185	1302	1036	1302	887	1302	738	1302	588

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 120 Ton Model (cont'd.)

TABLE 14 – COOLING PERFORMANCE DATA* – 120 TON MODEL (cont'd)

105° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
26000	75	135	1267	961	1267	849	1267	765	1267	680	1267	596	1267	512	1267	428	1267	344
	73	136	1275	941	1275	829	1275	745	1275	660	1275	576	1275	492	1275	408	1275	324
	71	136	1273	940	1273	828	1273	743	1273	659	1273	575	1273	491	1273	406	1273	322
	67	133	1201	1054	1201	942	1201	858	1201	773	1201	689	1201	605	1201	521	1201	437
	62	130	1098	1098	1098	1071	1098	990	1098	906	1098	821	1098	737	1098	653	1098	569
28500	75	136	1291	1014	1291	890	1291	798	1291	706	1291	613	1291	521	1291	453	1291	369
	73	137	1300	993	1300	870	1300	777	1300	685	1300	593	1300	500	1300	432	1300	348
	71	137	1297	991	1297	868	1297	776	1297	684	1297	591	1297	499	1297	407	1297	314
	67	134	1224	1106	1224	987	1224	895	1224	802	1224	710	1224	618	1224	525	1224	433
	62	131	1119	1119	1119	1099	1119	1030	1119	939	1119	847	1119	755	1119	662	1119	570
31000	75	137	1316	1066	1316	932	1316	832	1316	731	1316	631	1316	530	1316	478	1316	394
	73	137	1325	1044	1325	911	1325	810	1325	710	1325	609	1325	509	1325	457	1325	373
	71	137	1322	1043	1322	909	1322	809	1322	708	1322	608	1322	507	1322	407	1322	306
	67	134	1248	1158	1248	1032	1248	932	1248	831	1248	731	1248	630	1248	530	1248	429
	62	132	1141	1141	1141	1127	1141	1070	1141	973	1141	873	1141	772	1141	672	1141	571
33500	75	138	1341	1118	1341	974	1341	865	1341	757	1341	648	1341	539	1341	504	1341	420
	73	138	1350	1096	1350	951	1350	843	1350	734	1350	626	1350	517	1350	482	1350	397
	71	138	1347	1095	1347	950	1347	841	1347	733	1347	624	1347	516	1347	407	1347	299
	67	135	1271	1211	1271	1077	1271	968	1271	860	1271	751	1271	643	1271	534	1271	426
	62	132	1162	1162	1162	1155	1162	1110	1162	1007	1162	898	1162	790	1162	681	1162	573
36000	75	139	1365	1171	1365	1015	1365	899	1365	782	1365	665	1365	549	1365	529	1365	445
	73	139	1375	1148	1375	992	1375	876	1375	759	1375	642	1375	526	1375	506	1375	422
	71	139	1372	1146	1372	991	1372	874	1372	757	1372	641	1372	524	1372	407	1372	291
	67	136	1295	1263	1295	1122	1295	1005	1295	889	1295	772	1295	655	1295	539	1295	422
	62	133	1183	1183	1183	1183	1183	1150	1183	1041	1183	924	1183	807	1183	691	1183	574
38500	75	139	1377	1218	1377	1052	1377	927	1377	802	1377	678	1377	553	1377	550	1377	465
	73	139	1386	1194	1386	1028	1386	903	1386	779	1386	654	1386	529	1386	526	1386	442
	71	139	1383	1193	1383	1027	1383	902	1383	777	1383	652	1383	528	1383	403	1383	278
	67	136	1305	1281	1305	1161	1305	1037	1305	912	1305	787	1305	662	1305	538	1305	413
	62	133	1193	1193	1193	1193	1193	1168	1193	1068	1193	943	1193	818	1193	693	1193	569
41000	75	140	1388	1265	1388	1088	1388	955	1388	823	1388	690	1388	557	1388	570	1388	486
	73	140	1397	1241	1397	1064	1397	931	1397	798	1397	666	1397	533	1397	546	1397	461
	71	140	1394	1240	1394	1062	1394	930	1394	797	1394	664	1394	531	1394	398	1394	265
	67	137	1316	1300	1316	1201	1316	1068	1316	935	1316	802	1316	669	1316	537	1316	404
	62	134	1203	1203	1203	1203	1203	1186	1203	1095	1203	962	1203	829	1203	696	1203	564
43500	75	140	1399	1313	1399	1125	1399	984	1399	843	1399	702	1399	561	1399	590	1399	506
	73	140	1408	1288	1408	1100	1408	959	1408	818	1408	677	1408	536	1408	565	1408	481
	71	140	1405	1286	1405	1098	1405	957	1405	817	1405	676	1405	535	1405	394	1405	253
	67	137	1326	1318	1326	1240	1326	1099	1326	958	1326	817	1326	676	1326	535	1326	395
	62	134	1212	1212	1212	1212	1212	1204	1212	1122	1212	981	1212	840	1212	699	1212	558
46000	75	140	1410	1360	1410	1161	1410	1012	1410	863	1410	714	1410	565	1410	611	1410	526
	73	141	1419	1335	1419	1136	1419	987	1419	838	1419	689	1419	540	1419	585	1419	501
	71	141	1417	1333	1417	1134	1417	985	1417	836	1417	687	1417	538	1417	389	1417	240
	67	138	1337	1337	1337	1280	1337	1131	1337	981	1337	832	1337	683	1337	534	1337	385
	62	135	1222	1222	1222	1222	1222	1222	1222	1149	1222	1000	1222	851	1222	702	1222	553

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 14 – COOLING PERFORMANCE DATA* – 120 TON MODEL (cont'd)**115° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
26000	75	147	1201	916	1201	804	1201	720	1201	636	1201	551	1201	467	1201	383	1201	299
	73	148	1224	882	1224	770	1224	686	1224	602	1224	517	1224	433	1224	349	1224	265
	71	147	1200	904	1200	792	1200	707	1200	623	1200	539	1200	455	1200	370	1200	286
	67	144	1133	1020	1133	908	1133	824	1133	740	1133	655	1133	571	1133	487	1133	403
	62	142	1037	1037	1037	1037	1037	958	1037	874	1037	789	1037	705	1037	621	1037	537
28500	75	148	1221	967	1221	844	1221	752	1221	659	1221	567	1221	475	1221	407	1221	322
	73	148	1245	932	1245	809	1245	716	1245	624	1245	532	1245	439	1245	371	1245	287
	71	148	1220	954	1220	831	1220	739	1220	646	1220	554	1220	462	1220	369	1220	277
	67	145	1152	1067	1152	952	1152	859	1152	767	1152	675	1152	582	1152	490	1152	398
	62	143	1054	1054	1054	1054	1054	995	1054	906	1054	814	1054	721	1054	629	1054	537
31000	75	148	1241	1018	1241	884	1241	784	1241	683	1241	583	1241	482	1241	430	1241	346
	73	149	1266	981	1266	847	1266	747	1266	647	1266	546	1266	446	1266	394	1266	310
	71	148	1240	1004	1240	870	1240	770	1240	670	1240	569	1240	469	1240	368	1240	268
	67	145	1171	1115	1171	996	1171	895	1171	795	1171	694	1171	594	1171	493	1171	393
	62	143	1072	1072	1072	1072	1072	1032	1072	939	1072	838	1072	738	1072	637	1072	537
33500	75	149	1261	1069	1261	924	1261	815	1261	707	1261	598	1261	490	1261	454	1261	370
	73	150	1286	1031	1286	886	1286	778	1286	669	1286	560	1286	452	1286	416	1286	332
	71	149	1261	1055	1261	910	1261	801	1261	693	1261	584	1261	476	1261	367	1261	259
	67	146	1190	1162	1190	1039	1190	931	1190	822	1190	714	1190	605	1190	497	1190	388
	62	144	1089	1089	1089	1089	1089	1070	1089	971	1089	863	1089	754	1089	646	1089	537
36000	75	150	1282	1119	1282	964	1282	847	1282	731	1282	614	1282	497	1282	478	1282	394
	73	151	1307	1080	1307	925	1307	808	1307	691	1307	575	1307	458	1307	439	1307	354
	71	150	1281	1105	1281	949	1281	833	1281	716	1281	599	1281	483	1281	366	1281	249
	67	147	1209	1209	1209	1083	1209	967	1209	850	1209	733	1209	617	1209	500	1209	383
	62	145	1107	1107	1107	1107	1107	1107	1107	1004	1107	887	1107	771	1107	654	1107	537
38500	75	150	1292	1166	1292	1000	1292	875	1292	751	1292	626	1292	501	1292	498	1292	414
	73	151	1317	1126	1317	960	1317	835	1317	710	1317	586	1317	461	1317	458	1317	373
	71	150	1291	1151	1291	985	1291	860	1291	736	1291	611	1291	486	1291	361	1291	237
	67	147	1218	1218	1218	1123	1218	998	1218	873	1218	748	1218	624	1218	499	1218	374
	62	145	1116	1116	1116	1116	1116	1116	1116	1031	1116	907	1116	782	1116	657	1116	532
41000	75	151	1302	1213	1302	1036	1302	903	1302	770	1302	638	1302	505	1302	518	1302	434
	73	151	1328	1172	1328	995	1328	862	1328	729	1328	596	1328	464	1328	477	1328	392
	71	151	1301	1198	1301	1021	1301	888	1301	755	1301	622	1301	489	1301	357	1301	224
	67	148	1228	1228	1228	1162	1228	1029	1228	896	1228	764	1228	631	1228	498	1228	365
	62	145	1124	1124	1124	1124	1124	1124	1124	1059	1124	926	1124	793	1124	660	1124	527
43500	75	151	1312	1260	1312	1072	1312	931	1312	790	1312	650	1312	509	1312	538	1312	453
	73	152	1338	1218	1338	1030	1338	889	1338	748	1338	607	1338	466	1338	495	1338	411
	71	151	1311	1245	1311	1057	1311	916	1311	775	1311	634	1311	493	1311	352	1311	211
	67	148	1238	1238	1238	1201	1238	1061	1238	920	1238	779	1238	638	1238	497	1238	356
	62	146	1133	1133	1133	1133	1133	1133	1133	1086	1133	945	1133	804	1133	663	1133	523
46000	75	152	1322	1307	1322	1109	1322	959	1322	810	1322	661	1322	512	1322	558	1322	473
	73	152	1348	1264	1348	1065	1348	916	1348	767	1348	618	1348	469	1348	514	1348	430
	71	152	1321	1291	1321	1092	1321	943	1321	794	1321	645	1321	496	1321	347	1321	198
	67	149	1247	1247	1247	1241	1247	1092	1247	943	1247	794	1247	645	1247	496	1247	347
	62	146	1142	1142	1142	1142	1142	1142	1142	1114	1142	965	1142	816	1142	667	1142	518

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 130 Ton Model

TABLE 15 –COOLING PERFORMANCE DATA* – 130 TON MODEL

85° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
26000	75	141	1468	1155	1468	1042	1468	958	1468	874	1468	856	1468	705	1468	621	1468	537
	73	141	1463	1162	1463	1049	1463	965	1463	881	1463	862	1463	712	1463	628	1463	544
	71	149	1534	1162	1534	1050	1534	966	1534	881	1534	860	1534	713	1534	629	1534	544
	67	140	1447	1172	1447	1060	1447	975	1447	891	1447	849	1447	723	1447	638	1447	554
	62	143	1377	1356	1377	1244	1377	1160	1377	1076	1377	1042	1377	907	1377	823	1377	739
28500	75	142	1508	1208	1508	1085	1508	993	1508	900	1508	872	1508	716	1508	648	1508	564
	73	142	1502	1215	1502	1092	1502	1000	1502	907	1502	878	1502	723	1502	655	1502	571
	71	150	1576	1216	1576	1093	1576	1001	1576	908	1576	876	1576	724	1576	631	1576	539
	67	142	1486	1226	1486	1103	1486	1011	1486	918	1486	865	1486	734	1486	641	1486	549
	62	144	1415	1399	1415	1293	1415	1201	1415	1108	1415	1063	1415	924	1415	831	1415	739
31000	75	143	1548	1262	1548	1128	1548	1027	1548	927	1548	888	1548	726	1548	674	1548	590
	73	143	1542	1269	1542	1135	1542	1035	1542	934	1542	894	1542	733	1542	682	1542	597
	71	151	1618	1270	1618	1136	1618	1035	1618	935	1618	892	1618	734	1618	634	1618	533
	67	143	1526	1280	1526	1146	1526	1046	1526	945	1526	881	1526	744	1526	644	1526	544
	62	145	1452	1442	1452	1342	1452	1241	1452	1141	1452	1084	1452	940	1452	840	1452	739
33500	75	145	1588	1315	1588	1171	1588	1062	1588	954	1588	904	1588	737	1588	701	1588	617
	73	145	1582	1323	1582	1178	1582	1070	1582	961	1582	911	1582	744	1582	708	1582	624
	71	152	1660	1324	1660	1179	1660	1070	1660	962	1660	908	1660	745	1660	636	1660	528
	67	144	1565	1334	1565	1189	1565	1081	1565	972	1565	897	1565	755	1565	647	1565	538
	62	146	1490	1484	1490	1391	1490	1282	1490	1174	1490	1104	1490	957	1490	848	1490	740
36000	75	146	1628	1369	1628	1213	1628	1097	1628	980	1628	920	1628	747	1628	727	1628	643
	73	146	1622	1377	1622	1221	1622	1104	1622	988	1622	927	1622	754	1622	735	1622	651
	71	154	1701	1377	1701	1222	1701	1105	1701	989	1701	925	1701	755	1701	639	1701	522
	67	145	1604	1388	1604	1233	1604	1116	1604	999	1604	913	1604	766	1604	650	1604	533
	62	147	1527	1527	1527	1440	1527	1323	1527	1206	1527	1125	1527	973	1527	856	1527	740
38500	75	148	1663	1468	1663	1322	1663	1197	1663	1072	1663	1060	1663	823	1663	819	1663	735
	73	148	1656	1472	1656	1330	1656	1205	1656	1080	1656	1068	1656	831	1656	828	1656	743
	71	156	1737	1494	1737	1331	1737	1206	1737	1081	1737	1073	1737	836	1737	711	1737	586
	67	147	1638	1476	1638	1343	1638	1218	1638	1093	1638	1054	1638	844	1638	719	1638	594
	62	150	1559	1559	1559	1494	1559	1406	1559	1319	1559	1296	1559	1069	1559	945	1559	820
41000	75	151	1697	1567	1697	1430	1697	1297	1697	1164	1697	1200	1697	898	1697	911	1697	827
	73	151	1690	1568	1690	1439	1690	1306	1690	1173	1690	1209	1690	907	1690	920	1690	836
	71	159	1773	1611	1773	1440	1773	1307	1773	1174	1773	1221	1773	916	1773	783	1773	650
	67	150	1672	1564	1672	1453	1672	1320	1672	1187	1672	1196	1672	921	1672	788	1672	656
	62	152	1592	1592	1592	1548	1592	1490	1592	1431	1592	1467	1592	1166	1592	1033	1592	900
43500	75	153	1731	1667	1731	1538	1731	1397	1731	1256	1731	1340	1731	974	1731	1003	1731	919
	73	153	1725	1663	1725	1548	1725	1407	1725	1266	1725	1350	1725	984	1725	1013	1725	929
	71	162	1809	1728	1809	1549	1809	1408	1809	1267	1809	1370	1809	996	1809	855	1809	714
	67	152	1706	1652	1706	1563	1706	1422	1706	1281	1706	1337	1706	999	1706	858	1706	717
	62	155	1624	1624	1624	1602	1624	1573	1624	1544	1624	1638	1624	1262	1624	1121	1624	980
46000	75	156	1766	1766	1766	1646	1766	1497	1766	1348	1766	1479	1766	1050	1766	1095	1766	1011
	73	156	1759	1759	1759	1656	1759	1507	1759	1358	1759	1490	1759	1060	1759	1106	1759	1021
	71	164	1845	1845	1845	1658	1845	1509	1845	1360	1845	1518	1845	1076	1845	927	1845	778
	67	155	1740	1740	1740	1673	1740	1524	1740	1375	1740	1479	1740	1076	1740	927	1740	778
	62	158	1656	1656	1656	1656	1656	1656	1656	1656	1656	1809	1656	1358	1656	1209	1656	1060

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 15 – COOLING PERFORMANCE DATA* – 130 TON MODEL (cont'd)**95° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
26000	75	155	1405	1089	1405	977	1405	892	1405	808	1405	724	1405	640	1405	555	1405	471
	73	155	1402	1096	1402	984	1402	900	1402	816	1402	731	1402	647	1402	563	1402	479
	71	163	1474	1100	1474	988	1474	903	1474	819	1474	735	1474	651	1474	566	1474	482
	67	153	1391	1130	1391	1017	1391	933	1391	849	1391	764	1391	680	1391	596	1391	512
	62	156	1315	1306	1315	1193	1315	1109	1315	1025	1315	941	1315	856	1315	772	1315	688
28500	75	156	1445	1145	1445	1022	1445	929	1445	837	1445	745	1445	652	1445	584	1445	500
	73	156	1441	1152	1441	1029	1441	937	1441	845	1441	752	1441	660	1441	592	1441	508
	71	164	1516	1156	1516	1033	1516	941	1516	848	1516	756	1516	664	1516	571	1516	479
	67	155	1430	1187	1430	1064	1430	971	1430	879	1430	787	1430	694	1430	602	1430	510
	62	157	1352	1345	1352	1246	1352	1154	1352	1061	1352	969	1352	877	1352	784	1352	692
31000	75	157	1484	1201	1484	1067	1484	966	1484	866	1484	765	1484	665	1484	613	1484	529
	73	157	1480	1209	1480	1075	1480	974	1480	874	1480	773	1480	673	1480	621	1480	537
	71	165	1557	1212	1557	1078	1557	978	1557	877	1557	777	1557	677	1557	576	1557	476
	67	156	1469	1244	1469	1110	1469	1010	1469	909	1469	809	1469	708	1469	608	1469	507
	62	158	1389	1384	1389	1299	1389	1198	1389	1098	1389	997	1389	897	1389	797	1389	696
33500	75	158	1523	1256	1523	1112	1523	1003	1523	895	1523	786	1523	678	1523	642	1523	558
	73	158	1519	1265	1519	1120	1519	1011	1519	903	1519	794	1519	686	1519	650	1519	566
	71	166	1598	1268	1598	1124	1598	1015	1598	907	1598	798	1598	690	1598	581	1598	473
	67	157	1508	1301	1508	1157	1508	1048	1508	940	1508	831	1508	722	1508	614	1508	505
	62	159	1425	1423	1425	1352	1425	1243	1425	1134	1425	1026	1425	917	1425	809	1425	700
36000	75	159	1562	1312	1562	1157	1562	1040	1562	923	1562	807	1562	690	1562	671	1562	586
	73	159	1558	1321	1558	1165	1558	1049	1558	932	1558	815	1558	699	1558	679	1558	595
	71	167	1639	1325	1639	1169	1639	1053	1639	936	1639	819	1639	703	1639	586	1639	469
	67	158	1547	1359	1547	1203	1547	1086	1547	970	1547	853	1547	737	1547	620	1547	503
	62	160	1462	1462	1462	1404	1462	1288	1462	1171	1462	1054	1462	938	1462	821	1462	704
38500	75	161	1593	1375	1593	1209	1593	1084	1593	959	1593	835	1593	710	1593	707	1593	622
	73	162	1588	1384	1588	1218	1588	1093	1588	968	1588	844	1588	719	1588	716	1588	631
	71	170	1671	1388	1671	1222	1671	1097	1671	972	1671	848	1671	723	1671	598	1671	473
	67	160	1577	1423	1577	1257	1577	1132	1577	1008	1577	883	1577	758	1577	633	1577	509
	62	163	1490	1490	1490	1447	1490	1341	1490	1217	1490	1092	1490	967	1490	843	1490	718
41000	75	164	1623	1438	1623	1261	1623	1128	1623	996	1623	863	1623	730	1623	743	1623	659
	73	164	1618	1447	1618	1270	1618	1138	1618	1005	1618	872	1618	739	1618	752	1618	668
	71	173	1702	1452	1702	1275	1702	1142	1702	1009	1702	876	1702	743	1702	610	1702	478
	67	163	1606	1488	1606	1311	1606	1178	1606	1046	1606	913	1606	780	1606	647	1606	514
	62	166	1518	1518	1518	1490	1518	1395	1518	1262	1518	1130	1518	997	1518	864	1518	731
43500	75	167	1653	1501	1653	1313	1653	1173	1653	1032	1653	891	1653	750	1653	779	1653	695
	73	167	1649	1511	1649	1323	1649	1182	1649	1041	1649	900	1649	759	1649	788	1649	704
	71	176	1734	1515	1734	1327	1734	1186	1734	1046	1734	905	1734	764	1734	623	1734	482
	67	166	1636	1553	1636	1365	1636	1224	1636	1083	1636	942	1636	802	1636	661	1636	520
	62	168	1547	1547	1547	1532	1547	1449	1547	1308	1547	1167	1547	1026	1547	885	1547	744
46000	75	169	1683	1564	1683	1366	1683	1217	1683	1068	1683	919	1683	770	1683	815	1683	731
	73	170	1679	1574	1679	1376	1679	1226	1679	1077	1679	928	1679	779	1679	825	1679	740
	71	178	1766	1579	1766	1380	1766	1231	1766	1082	1766	933	1766	784	1766	635	1766	486
	67	168	1666	1618	1666	1419	1666	1270	1666	1121	1666	972	1666	823	1666	674	1666	525
	62	171	1575	1575	1575	1575	1575	1503	1575	1354	1575	1205	1575	1056	1575	907	1575	758

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Cooling Performance Data – 130 Ton Model (cont'd.)

TABLE 15 – COOLING PERFORMANCE DATA* – 130 TON MODEL (cont'd)

105° AIR ON CONDENSER COIL

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
26000	75	169	1360	1046	1360	934	1360	850	1360	766	1360	681	1360	597	1360	513	1360	429
	73	169	1356	1048	1356	936	1356	851	1356	767	1356	683	1356	599	1356	515	1356	430
	71	177	1422	1049	1422	937	1422	852	1422	768	1422	684	1422	600	1422	515	1422	431
	67	168	1327	1097	1327	984	1327	900	1327	816	1327	732	1327	647	1327	563	1327	479
	62	170	1258	1253	1258	1163	1258	1079	1258	995	1258	910	1258	826	1258	742	1258	658
28500	75	170	1394	1100	1394	977	1394	884	1394	792	1394	700	1394	607	1394	539	1394	455
	73	170	1389	1101	1389	978	1389	886	1389	794	1389	701	1389	609	1389	541	1389	457
	71	178	1457	1102	1457	979	1457	887	1457	795	1457	702	1457	610	1457	518	1457	425
	67	169	1360	1152	1360	1029	1360	936	1360	844	1360	752	1360	659	1360	567	1360	475
	62	170	1289	1285	1289	1211	1289	1121	1289	1029	1289	936	1289	844	1289	752	1289	659
31000	75	171	1428	1153	1428	1019	1428	919	1428	818	1428	718	1428	617	1428	565	1428	481
	73	171	1423	1155	1423	1021	1423	920	1423	820	1423	719	1423	619	1423	567	1423	483
	71	179	1492	1156	1492	1022	1492	921	1492	821	1492	720	1492	620	1492	520	1492	419
	67	169	1393	1207	1393	1073	1393	972	1393	872	1393	771	1393	671	1393	571	1393	470
	62	171	1320	1318	1320	1258	1320	1163	1320	1063	1320	962	1320	862	1320	761	1320	661
33500	75	172	1461	1206	1461	1061	1461	953	1461	844	1461	736	1461	627	1461	592	1461	507
	73	172	1456	1208	1456	1063	1456	955	1456	846	1456	738	1456	629	1456	593	1456	509
	71	180	1527	1209	1527	1064	1527	956	1527	847	1527	739	1527	630	1527	522	1527	413
	67	170	1426	1262	1426	1117	1426	1008	1426	900	1426	791	1426	683	1426	574	1426	466
	62	172	1351	1350	1351	1306	1351	1205	1351	1097	1351	988	1351	880	1351	771	1351	663
36000	75	173	1495	1259	1495	1104	1495	987	1495	871	1495	754	1495	637	1495	618	1495	534
	73	173	1490	1261	1490	1106	1490	989	1490	872	1490	756	1490	639	1490	620	1490	535
	71	181	1562	1262	1562	1107	1562	990	1562	874	1562	757	1562	640	1562	524	1562	407
	67	171	1459	1317	1459	1161	1459	1044	1459	928	1459	811	1459	694	1459	578	1459	461
	62	173	1382	1382	1382	1354	1382	1247	1382	1131	1382	1014	1382	898	1382	781	1382	664
38500	75	175	1522	1321	1522	1155	1522	1030	1522	905	1522	781	1522	656	1522	653	1522	568
	73	175	1517	1323	1517	1157	1517	1032	1517	907	1517	783	1517	658	1517	655	1517	570
	71	183	1591	1324	1591	1158	1591	1033	1591	908	1591	784	1591	659	1591	534	1591	409
	67	174	1485	1373	1485	1214	1485	1090	1485	965	1485	840	1485	715	1485	591	1485	466
	62	176	1408	1408	1408	1386	1408	1297	1408	1176	1408	1051	1408	926	1408	802	1408	677
41000	75	177	1549	1383	1549	1206	1549	1073	1549	940	1549	807	1549	674	1549	687	1549	603
	73	177	1544	1385	1544	1208	1544	1075	1544	942	1544	809	1544	676	1544	689	1544	605
	71	186	1619	1386	1619	1209	1619	1076	1619	943	1619	810	1619	678	1619	545	1619	412
	67	176	1512	1429	1512	1267	1512	1135	1512	1002	1512	869	1512	736	1512	603	1512	470
	62	178	1433	1433	1433	1418	1433	1347	1433	1221	1433	1088	1433	955	1433	823	1433	690
43500	75	180	1576	1445	1576	1257	1576	1116	1576	975	1576	834	1576	693	1576	722	1576	638
	73	180	1571	1447	1571	1259	1571	1118	1571	977	1571	836	1571	695	1571	724	1571	640
	71	188	1647	1448	1647	1260	1647	1119	1647	978	1647	837	1647	696	1647	555	1647	414
	67	178	1538	1485	1538	1321	1538	1180	1538	1039	1538	898	1538	757	1538	616	1538	475
	62	180	1458	1458	1458	1451	1458	1397	1458	1266	1458	1125	1458	984	1458	843	1458	703
46000	75	182	1603	1506	1603	1308	1603	1159	1603	1010	1603	861	1603	712	1603	757	1603	673
	73	182	1598	1508	1598	1310	1598	1161	1598	1012	1598	863	1598	714	1598	759	1598	675
	71	191	1676	1510	1676	1311	1676	1162	1676	1013	1676	864	1676	715	1676	566	1676	417
	67	181	1565	1541	1565	1374	1565	1225	1565	1076	1565	927	1565	778	1565	629	1565	480
	62	183	1483	1483	1483	1483	1483	1447	1483	1311	1483	1162	1483	1013	1483	864	1483	715

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

TABLE 15 – COOLING PERFORMANCE DATA* – 130 TON MODEL (cont'd)**115° AIR ON CONDENSER COIL**

			ENT AIR DB															
			90		86		83		80		77		74		71		68	
CFM	EWB	TKW	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH	TMBH	SMBH
26000	75	183	1315	1004	1315	892	1315	807	1315	723	1315	639	1315	555	1315	471	1315	386
	73	183	1310	1000	1310	887	1310	803	1310	719	1310	635	1310	550	1310	466	1310	382
	71	191	1369	998	1369	886	1369	802	1369	717	1369	633	1369	549	1369	465	1369	380
	67	182	1263	1064	1263	952	1263	867	1263	783	1263	699	1263	615	1263	531	1263	446
	62	183	1201	1201	1201	1133	1201	1049	1201	964	1201	880	1201	796	1201	712	1201	627
28500	75	184	1343	1055	1343	932	1343	839	1343	747	1343	655	1343	562	1343	494	1343	410
	73	184	1338	1050	1338	927	1338	835	1338	742	1338	650	1338	558	1338	490	1338	405
	71	192	1398	1049	1398	925	1398	833	1398	741	1398	648	1398	556	1398	464	1398	371
	67	183	1290	1117	1290	994	1290	901	1290	809	1290	717	1290	624	1290	532	1290	439
	62	184	1226	1226	1226	1175	1226	1088	1226	996	1226	904	1226	811	1226	719	1226	627
31000	75	185	1371	1105	1371	971	1371	871	1371	771	1371	670	1371	570	1371	518	1371	434
	73	185	1365	1101	1365	967	1365	866	1365	766	1365	666	1365	565	1365	513	1365	429
	71	192	1427	1099	1427	965	1427	865	1427	764	1427	664	1427	563	1427	463	1427	362
	67	183	1317	1169	1317	1035	1317	935	1317	834	1317	734	1317	634	1317	533	1317	433
	62	184	1252	1252	1252	1218	1252	1128	1252	1028	1252	927	1252	827	1252	726	1252	626
33500	75	185	1399	1156	1399	1011	1399	903	1399	794	1399	686	1399	577	1399	541	1399	457
	73	186	1393	1151	1393	1007	1393	898	1393	789	1393	681	1393	572	1393	537	1393	453
	71	193	1456	1150	1456	1005	1456	896	1456	788	1456	679	1456	571	1456	462	1456	354
	67	184	1344	1222	1344	1077	1344	969	1344	860	1344	752	1344	643	1344	534	1344	426
	62	185	1277	1277	1277	1260	1277	1168	1277	1059	1277	951	1277	842	1277	733	1277	625
36000	75	186	1427	1207	1427	1051	1427	935	1427	818	1427	701	1427	585	1427	565	1427	481
	73	186	1421	1202	1421	1046	1421	930	1421	813	1421	696	1421	580	1421	560	1421	476
	71	194	1486	1200	1486	1044	1486	928	1486	811	1486	695	1486	578	1486	461	1486	345
	67	185	1371	1274	1371	1119	1371	1002	1371	886	1371	769	1371	652	1371	536	1371	419
	62	186	1303	1303	1303	1303	1303	1207	1303	1091	1303	974	1303	857	1303	741	1303	624
38500	75	188	1451	1267	1451	1101	1451	976	1451	851	1451	727	1451	602	1451	599	1451	514
	73	189	1445	1262	1445	1096	1445	971	1445	846	1445	721	1445	597	1445	593	1445	509
	71	196	1511	1260	1511	1094	1511	969	1511	844	1511	720	1511	595	1511	470	1511	345
	67	187	1394	1322	1394	1171	1394	1047	1394	922	1394	797	1394	672	1394	548	1394	423
	62	188	1325	1325	1325	1325	1325	1253	1325	1135	1325	1010	1325	886	1325	761	1325	636
41000	75	191	1476	1328	1476	1150	1476	1018	1476	885	1476	752	1476	619	1476	632	1476	548
	73	191	1469	1322	1469	1145	1469	1012	1469	879	1469	747	1469	614	1469	627	1469	542
	71	199	1536	1320	1536	1143	1536	1010	1536	877	1536	745	1536	612	1536	479	1536	346
	67	189	1417	1369	1417	1224	1417	1091	1417	958	1417	825	1417	692	1417	560	1417	427
	62	190	1347	1347	1347	1347	1347	1299	1347	1180	1347	1047	1347	914	1347	781	1347	648
43500	75	193	1500	1388	1500	1200	1500	1059	1500	918	1500	777	1500	636	1500	665	1500	581
	73	193	1493	1382	1493	1195	1493	1054	1493	913	1493	772	1493	631	1493	660	1493	576
	71	201	1561	1380	1561	1193	1561	1052	1561	911	1561	770	1561	629	1561	488	1561	347
	67	191	1441	1416	1441	1276	1441	1135	1441	994	1441	853	1441	712	1441	571	1441	431
	62	192	1369	1369	1369	1369	1369	1345	1369	1224	1369	1083	1369	942	1369	802	1369	661
46000	75	195	1524	1448	1524	1250	1524	1101	1524	952	1524	803	1524	653	1524	699	1524	615
	73	195	1517	1443	1517	1244	1517	1095	1517	946	1517	797	1517	648	1517	693	1517	609
	71	203	1586	1441	1586	1242	1586	1093	1586	944	1586	795	1586	646	1586	497	1586	348
	67	193	1464	1464	1464	1329	1464	1180	1464	1030	1464	881	1464	732	1464	583	1464	434
	62	195	1391	1391	1391	1391	1391	1391	1391	1269	1391	1120	1391	971	1391	822	1391	673

* Rated performance is at sea level. Cooling capacities are gross cooling capacity.

Heating Performance Data – Gas/Electric Heat

GAS HEATING

TABLE 16 – GAS HEAT PERFORMANCE DATA

Unit	Gas Input Capacity (Btu/hr x 1000)	Maximum Output Capacity (Btu/hr x 1000)	Airflow	Temp. Rise (°F)
			Minimum	
70-80	375	300	7,500	10-40
	750	600	11,150	20-50
	1125	900	15,150	25-55
90-105	375	300	6,950	10-40
	750	600	11,150	20-50
	1125	900	15,150	25-55
120-130	1125	900	19350	43

NOTE:

Gas valve rated for .5 PSIG. If gas pressure greater than .5 PSIG then a gas pressure regulator is required.
Minimum gas pressure is 3.5 iwg.

ELECTRIC HEATING

TABLE 17 – ELECTRIC HEAT PERFORMANCE DATA

UNIT	SIZE (KW)	HEAT CAPACITY (MBH)	AIR FLOW MIN (CFM)	MAX TEMP RISE (°F)
70-80 TON	80	273	10,000	25
	108	369	12,000	28
	150	512	14,000	34
	200	683	15,000	42
90-105 TON	80	273	10,000	25
	108	369	12,000	28
	150	512	14,000	34
	200	683	15,000	42
	250	854	16,000	49
120-130 TON	80	273	15,000	22
	108	369	15,000	28
	150	512	15,000	36
	200	683	15,000	47
	250	854	15,000	44

This page intentionally left blank

Supply Fan Data

TABLE 18 – YPAL070-080 : 28X25 FORWARD CURVED FAN

TOTAL STATIC PRESSURE (inches of water column)												
CFM STD. AIR	1.0		2.0		3.0		4.0		5.0		6.0	
	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
18000			10.0	513	13.9	616						
20000			11.7	520	15.9	619	20.8	717				
22000			13.6	527	18.3	629	22.9	712	28.9	808		
24000			15.8	537	20.9	637	25.9	720	31.1	795		
26000			18.3	549	23.6	643	29.1	729	34.5	801		
28000			21.2	562	26.6	651	32.6	736	38.5	810		
30000			24.2	574	30.1	662	36.3	742	42.8	819		
32000			27.4	585	34.0	674	40.3	750	47.2	825		
34000			30.9	597	38.2	686	44.8	760				

NOTE: For performance at operating points not included in these tables, consult your local JOHNSON CONTROLS representative

TABLE 19 – YPAL090-105 : 28X28 FORWARD CURVED FAN

TOTAL STATIC PRESSURE (inches of water column)												
CFM STD. AIR	1.0		2.0		3.0		4.0		5.0		6.0	
	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
20000			12.1	526	16.9	629	24.8	764				
22000			14.1	534	18.9	631	25.1	731				
24000			16.3	543	21.5	641	27.1	726	34.8	825		
26000			18.6	552	24.5	651	30.1	732	36.7	812		
28000			21.2	562	27.5	659	33.7	741	39.9	814		
30000			24.2	574	30.9	668	37.6	751	44.1	823		
32000			27.5	587	34.5	676	41.7	760	48.7	832		
34000			31.1	601	38.5	687	46.1	768	53.7	842		
36000			35.0	615	42.7	698	50.7	776	58.8	850		

TABLE 20 – YPAL070-105 : 32" AIRFOIL FAN

TOTAL STATIC PRESSURE (inches of water column)												
CFM STD. AIR	1.0		2.0		3.0		4.0		5.0		6.0	
	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
18000					11.6	923	15.5	1036	19.5	1145	23.8	1236
20000					13.0	954	17.2	1055	21.6	1157	26.0	1256
22000					14.7	991	18.9	1083	23.7	1176	28.5	1269
24000			12.4	936	16.5	1030	21.0	1119	25.7	1202	31.0	1287
26000			14.4	978	18.5	1074	23.3	1155	28.2	1235	33.4	1313
28000			16.6	1021	20.9	1117	25.7	1195	31.1	1272	36.3	1344
30000			18.9	1067	23.7	1159	28.5	1240	34.0	1310	39.7	1381
32000			21.3	1114	26.8	1201	31.6	1283	37.1	1352	43.2	1418
YPAL090-095 Only												
34000			23.8	1161	30.0	1245	35.2	1325	40.6	1396	46.7	1458
36000			26.6	1209	33.3	1289	39.2	1366	44.6	1438	50.6	1501

NOTE: For performance at operating points not included in these tables, consult your local JOHNSON CONTROLS representative.

TABLE 21 – YPAL0120 -130 : 40" AIRFOIL FAN

TOTAL STATIC PRESSURE (inches of water column)										
CFM STD. AIR	1.0		2.0		3.0		4.0		5.0	
	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
24000			10.5	615	16	715	22.1	812		
26000			11.6	634	17.2	729	23.5	820		
28000			12.7	653	18.4	742	24.9	828		
30000			14.0	675	19.9	760	26.5	841		
32000	9.2	607	15.3	696	21.4	777	28.1	854		
34000			16.8	719	23.2	797	30.0	871		
36000			18.2	742	24.9	817	31.9	888		
38000			19.9	767	26.9	839	34.1	908		
40000			21.5	791	28.9	861	36.3	927	44.2	991
42000			23.2	817	31.2	885	38.9	949	47.0	1011
44000			24.9	842	33.4	908	41.5	970	49.7	1030
46000			26.7	869	35.8	932	44.3	993	52.8	1050

Component Static Pressure Drops

TABLE 22 – COMPONENT STATIC PRESSURE DROPS (INCHES OF WATER COLUMN)

Size	Air Flow CFM Std. Air	Evaporator Coils		Return Air Opening			Filters			
		Wet	Dry	Bottom	front	side	2" throwaway	2" cleanable	2" pleated	2" carbon
70	14000	0.20	0.20	0.06	0.03	0.07	0.06	0.02	0.05	0.10
	16000	0.24	0.24	0.07	0.03	0.08	0.08	0.02	0.06	0.12
	18000	0.29	0.29	0.08	0.04	0.09	0.09	0.03	0.07	0.14
	20000	0.35	0.33	0.09	0.05	0.11	0.11	0.04	0.09	0.16
	22000	0.40	0.37	0.11	0.05	0.13	0.12	0.05	0.10	0.19
	24000	0.46	0.43	0.13	0.06	0.15	0.14	0.06	0.12	0.21
	26000	0.52	0.48	0.15	0.08	0.18	0.15	0.07	0.13	0.24
	28000	0.59	0.54	0.18	0.09	0.21	0.17	0.08	0.15	0.26
75	30000	0.66	0.61	0.21	0.10	0.24	0.19	0.09	0.16	0.29
	14000	0.33	0.20	0.06	0.03	0.07	0.06	0.02	0.05	0.10
	16000	0.39	0.25	0.07	0.03	0.08	0.08	0.02	0.06	0.12
	18000	0.46	0.30	0.08	0.04	0.09	0.09	0.03	0.07	0.14
	20000	0.53	0.35	0.09	0.05	0.11	0.11	0.04	0.09	0.16
	22000	0.61	0.41	0.11	0.05	0.13	0.12	0.05	0.10	0.19
	24000	0.68	0.47	0.13	0.06	0.15	0.14	0.06	0.12	0.21
	26000	0.76	0.54	0.15	0.08	0.18	0.15	0.07	0.13	0.24
80	28000	0.84	0.61	0.18	0.09	0.21	0.17	0.08	0.15	0.26
	30000	0.92	0.68	0.21	0.10	0.24	0.19	0.09	0.16	0.29
	16000	0.24	0.24	0.07	0.03	0.08	0.08	0.02	0.06	0.12
	18000	0.29	0.29	0.08	0.04	0.09	0.09	0.03	0.07	0.14
	20000	0.35	0.33	0.09	0.05	0.11	0.11	0.04	0.09	0.16
	22000	0.40	0.37	0.11	0.05	0.13	0.12	0.05	0.10	0.19
	24000	0.46	0.43	0.13	0.06	0.15	0.14	0.06	0.12	0.21
	26000	0.52	0.48	0.15	0.08	0.18	0.15	0.07	0.13	0.24
90	28000	0.58	0.54	0.18	0.09	0.21	0.17	0.08	0.15	0.26
	30000	0.66	0.61	0.21	0.10	0.24	0.19	0.09	0.16	0.29
	32000	0.73	0.67	0.24	0.12	0.29	0.21	0.10	0.18	0.32
	18000	0.29	0.29	0.08	0.05	0.09	0.07	0.02	0.06	0.11
	20000	0.35	0.33	0.09	0.06	0.10	0.08	0.03	0.06	0.13
	22000	0.40	0.37	0.11	0.07	0.11	0.09	0.03	0.08	0.14
	24000	0.46	0.43	0.12	0.08	0.13	0.11	0.04	0.09	0.16
	26000	0.52	0.48	0.14	0.09	0.15	0.12	0.05	0.10	0.18
105	28000	0.58	0.54	0.16	0.10	0.17	0.13	0.05	0.11	0.20
	30000	0.66	0.61	0.19	0.12	0.19	0.15	0.06	0.12	0.22
	32000	0.73	0.67	0.22	0.13	0.22	0.16	0.07	0.14	0.24
	34000	0.80	0.74	0.25	0.15	0.26	0.18	0.08	0.15	0.27
	36000	0.88	0.81	0.29	0.18	0.29	0.19	0.09	0.16	0.29
	18000	0.29	0.29	0.08	0.05	0.09	0.07	0.02	0.06	0.11
	20000	0.35	0.33	0.09	0.06	0.10	0.08	0.03	0.06	0.13
	22000	0.40	0.37	0.11	0.07	0.11	0.09	0.03	0.08	0.14
	24000	0.46	0.43	0.12	0.08	0.13	0.11	0.04	0.09	0.16
	26000	0.52	0.48	0.14	0.09	0.15	0.12	0.05	0.10	0.18
	28000	0.58	0.54	0.16	0.10	0.17	0.13	0.05	0.11	0.20
	30000	0.66	0.61	0.19	0.12	0.19	0.15	0.06	0.12	0.22
	32000	0.73	0.67	0.22	0.13	0.22	0.16	0.07	0.14	0.24
	34000	0.80	0.74	0.25	0.15	0.26	0.18	0.08	0.15	0.27
	36000	0.88	0.81	0.29	0.18	0.29	0.19	0.09	0.16	0.29

NOTES: *Includes 2" pleated filters. ** Power exhaust pressure drops are for sizing supply fan.

1. Return air opening pressure drop does not include an exhaust fan. Use the value in the Powered Exhaust column to determine return air pressure drop attributed to the exhaust fan assembly.
2. Front return is not available with barometric relief, exhaust fans or return fans.
3. Pressure drop for 12-inch rigid filter media includes a 2-inch prefilter.

Filters				Outside Air Dampers	Powered Exhaust
Rigid Filter Rack, No Media	12" Rigid, 65%*	12" Rigid, 95%*	12" Rigid, 95% (Final Filter Position)*		
0.10	0.24	0.33	0.26	0.13	0.01
0.12	0.29	0.39	0.31	0.15	0.01
0.14	0.34	0.46	0.36	0.18	0.02
0.17	0.40	0.53	0.41	0.21	0.02
0.19	0.45	0.60	0.46	0.25	0.02
0.22	0.51	0.67	0.51	0.29	0.03
0.25	0.58	0.75	0.56	0.34	0.03
0.28	0.64	0.82	0.61	0.40	0.04
0.31	0.71	0.90	0.67	0.47	0.04
0.10	0.24	0.33	0.26	0.13	0.01
0.12	0.29	0.39	0.31	0.15	0.01
0.14	0.34	0.46	0.36	0.18	0.02
0.17	0.40	0.53	0.41	0.21	0.02
0.19	0.45	0.60	0.46	0.25	0.02
0.22	0.51	0.67	0.51	0.29	0.03
0.25	0.58	0.75	0.56	0.34	0.03
0.28	0.64	0.82	0.61	0.40	0.04
0.31	0.71	0.90	0.67	0.47	0.04
0.12	0.29	0.39	0.31	0.15	0.01
0.14	0.34	0.46	0.36	0.18	0.02
0.17	0.40	0.53	0.41	0.21	0.02
0.19	0.45	0.60	0.46	0.25	0.02
0.22	0.51	0.67	0.51	0.29	0.03
0.25	0.58	0.75	0.56	0.34	0.03
0.28	0.64	0.82	0.61	0.40	0.04
0.31	0.71	0.90	0.67	0.47	0.04
0.34	0.78	0.98	0.72	0.55	0.05
0.07	0.29	0.40	0.31	0.18	0.01
0.08	0.34	0.46	0.36	0.21	0.01
0.09	0.39	0.52	0.40	0.24	0.02
0.11	0.45	0.59	0.45	0.27	0.02
0.12	0.50	0.65	0.49	0.32	0.02
0.13	0.56	0.72	0.54	0.36	0.03
0.15	0.61	0.79	0.59	0.42	0.03
0.16	0.67	0.86	0.64	0.48	0.03
0.18	0.74	0.93	0.69	0.55	0.04
0.19	0.80	1.01	0.74	0.64	0.04
0.07	0.29	0.40	0.31	0.18	0.01
0.08	0.34	0.46	0.36	0.21	0.01
0.09	0.39	0.52	0.40	0.24	0.02
0.11	0.45	0.59	0.45	0.27	0.02
0.12	0.50	0.65	0.49	0.32	0.02
0.13	0.56	0.72	0.54	0.36	0.03
0.15	0.61	0.79	0.59	0.42	0.03
0.16	0.67	0.86	0.64	0.48	0.03
0.18	0.74	0.93	0.69	0.55	0.04
0.19	0.80	1.01	0.74	0.64	0.04

Component Static Pressure Drops (continued)

TABLE 22 – COMPONENT STATIC PRESSURE DROPS (INCHES OF WATER COLUMN)

Size	Air Flow CFM Std. Air	Evaporator Coils Wet	Return Air Opening		Filters			
			Bottom	End	2" throwaway	2" cleanable	2" pleated	2" carbon
120- 130	24000	0.32	0.08	0.14	0.10	0.04	0.08	0.16
	26000	0.37	0.10	0.16	0.11	0.04	0.10	0.18
	28000	0.42	0.11	0.18	0.13	0.05	0.11	0.20
	30000	0.47	0.12	0.20	0.14	0.06	0.12	0.22
	32000	0.53	0.14	0.23	0.16	0.07	0.13	0.24
	34000	0.59	0.15	0.26	0.17	0.08	0.15	0.26
	36000	0.65	0.17	0.29	0.19	0.09	0.16	0.28
	38000	0.71	0.20	0.33	0.20	0.10	0.17	0.30
	40000	0.78	0.22	0.37	0.22	0.11	0.19	0.32
	42000	0.85	0.25	0.42	0.23	0.12	0.20	0.35
	44000	0.92	0.28	0.47	0.25	0.13	0.22	0.37
	46000	1.00	0.32	0.53	0.27	0.15	0.23	0.39

NOTES: *Includes 2" pleated filters. ** Power exhaust pressure drops are for sizing supply fan.

1. Return air opening pressure drop does not include an exhaust fan. Use the value in the Powered Exhaust column to determine return air pressure drop attributed to the exhaust fan assembly.
2. Front return is not available with barometric relief, exhaust fans or return fans.
3. Pressure drop for 12-inch rigid filter media includes a 2-inch prefilter.

Rigid Filter Rack, No Media	Filters		Outside Air Dampers	Powered Exhaust (use with bottom return)
	12" Rigid, 65%*	12" Rigid, 95%*		
0.12	0.34	0.46	0.11	0.12
0.14	0.38	0.51	0.13	0.14
0.16	0.43	0.56	0.14	0.15
0.17	0.47	0.62	0.16	0.17
0.19	0.52	0.67	0.18	0.20
0.21	0.56	0.73	0.20	0.22
0.23	0.61	0.79	0.23	0.25
0.25	0.66	0.84	0.26	0.28
0.27	0.71	0.90	0.29	0.32
0.30	0.76	0.96	0.33	0.36
0.32	0.82	1.03	0.37	0.40
0.34	0.87	1.09	0.42	0.46

Gas Heat Pressure Drops

TABLE 23 – GAS HEAT AIR PRESSURE DROPS

Size	Air Flow CFM Std. Air	Size (mbh)		
		375	750	1125
70	16000	0.16	0.32	0.48
	18000	0.18	0.36	0.54
	20000	0.20	0.40	0.60
	22000	0.22	0.44	0.66
	24000	0.24	0.48	0.72
	26000	0.26	0.52	0.78
	27000	0.27	0.54	0.81
75	16000	0.16	0.32	0.48
	18000	0.18	0.36	0.54
	20000	0.20	0.40	0.60
	22000	0.22	0.44	0.66
	24000	0.24	0.48	0.72
	26000	0.26	0.52	0.78
	27000	0.27	0.54	0.81
80	18000	0.18	0.36	0.54
	20000	0.20	0.40	0.60
	22000	0.22	0.44	0.66
	24000	0.24	0.48	0.72
	26000	0.26	0.52	0.78
	28000	0.28	0.56	0.84
	30000	0.30	0.60	0.90
90	32000	0.32	0.64	0.95
	20000	0.18	0.35	0.53
	22000	0.19	0.39	0.58
	24000	0.21	0.42	0.64
	26000	0.23	0.46	0.69
	28000	0.25	0.50	0.74
	30000	0.27	0.53	0.80
105	31500	0.28	0.56	0.84
	32000	0.28	0.57	0.85
	34000	0.30	0.60	0.90
	36000	0.32	0.64	0.95
	20000	0.18	0.35	0.53
	22000	0.19	0.39	0.58
	24000	0.21	0.42	0.64
120-130	26000	0.23	0.46	0.69
	28000	0.25	0.50	0.74
	30000	0.27	0.53	0.80
	31500	0.28	0.56	0.84
	32000	0.28	0.57	0.85
	34000	0.30	0.60	0.90
	36000	0.32	0.64	0.95

Size	Air Flow CFM Std. Air	Size (mbh)
		1125
120-130	20000	0.52
	22000	0.57
	24000	0.63
	26000	0.68
	28000	0.74
	30000	0.81
	31500	0.86
	32000	0.88
	34000	0.96
	36000	1.05
	38000	1.14
	40000	1.24
	42000	1.35
	44000	1.46
	46000	1.59

This page intentionally left blank

Electric Heat Pressure Drops

TABLE 24 – ELECTRIC HEATER SIZE AVAILABILITY BY UNIT SIZE

Model	80kW	108kW	150kW	200kW*	250kW*
YPAL070-080	X	X	X	X	
YPAL090-105**		X	X	X	X
YPAL120-130	X	X	X	X	X

* 150-250kW electric heat not available in 200-230V configurations.

** For 208V YPAL105, contact JOHNSON CONTROLS.

TABLE 25 – ELECTRIC HEAT AIR PRESSURE DROPS

Heating Stages							
	1	2	3	4	5	6	7
Voltage	Heating Capacity (kW)						
208V/3/60Hz			40 kW		80 kW	108 kW	108 kW
240V/3/60Hz			40 kW		80 kW	108 kW	
480V/3/60Hz		40 kW	80 & 108 kW	150 kW		200 kW	250kW
600V/3/60Hz	40 kW	80 kW	108 kW	150 kW	200 kW	250 kW	

Model	Air Flow CFM Std. Air	Electric Heater Air Pressure Drop (in w.c.)						
YPAL070-080	16000	0.02	0.03	0.04	0.06	0.07	0.09	0.10
	18000	0.02	0.04	0.06	0.07	0.09	0.11	0.13
	20000	0.03	0.05	0.07	0.09	0.11	0.13	0.15
	22000	0.03	0.06	0.08	0.11	0.14	0.16	0.19
	24000	0.04	0.07	0.10	0.13	0.16	0.19	0.22
	26000	0.04	0.08	0.12	0.15	0.19	0.23	0.26
	27000	0.05	0.09	0.13	0.16	0.20	0.24	0.28
	28000	0.05	0.09	0.13	0.18	0.22	0.26	0.30
	30000	0.06	0.11	0.15	0.20	0.25	0.30	0.35
	32000	0.07	0.12	0.18	0.23	0.29	0.34	0.40
YPAL090-105	20000	0.02	0.04	0.05	0.07	0.09	0.10	0.12
	22000	0.02	0.04	0.06	0.08	0.10	0.12	0.14
	24000	0.03	0.05	0.08	0.10	0.12	0.15	0.17
	26000	0.03	0.06	0.09	0.12	0.15	0.17	0.20
	28000	0.04	0.07	0.10	0.14	0.17	0.20	0.23
	30000	0.04	0.08	0.12	0.16	0.19	0.23	0.27
	31500	0.05	0.09	0.13	0.17	0.21	0.25	0.30
	32000	0.05	0.09	0.14	0.18	0.22	0.26	0.31
	34000	0.06	0.11	0.15	0.20	0.25	0.30	0.34
	36000	0.06	0.12	0.17	0.23	0.28	0.33	0.39

TABLE 25 – ELECTRIC HEAT AIR PRESSURE DROPS (cont'd)

Heating Stages								
	1	2	3	4	5	6	7	
Voltage	Heating Capacity (kW)							
208V/3/60Hz					80 kW	108kW	108 kW	
240V/3/60Hz					80 kW	108 kW		
480V/3/60Hz			80 & 108 kW	150 kW		200 kW	250kW	
600V/3/60Hz		80 kW	108 kW	150 kW	200 kW	250 kW		

Model	Air Flow CFM Std. Air	Electric Heater Air Pressure Drop (in w.c.)						
YPAL120-130	24000	0.03	0.05	0.08	0.10	0.12	0.15	0.17
	26000	0.03	0.06	0.09	0.12	0.15	0.17	0.20
	28000	0.04	0.07	0.10	0.14	0.17	0.20	0.23
	30000	0.04	0.08	0.12	0.16	0.19	0.23	0.27
	32000	0.05	0.09	0.14	0.18	0.22	0.26	0.31
	34000	0.06	0.11	0.15	0.20	0.25	0.30	0.34
	36000	0.06	0.12	0.17	0.23	0.28	0.33	0.39
	38000	0.07	0.13	0.19	0.25	0.31	0.37	0.43
	40000	0.08	0.15	0.21	0.28	0.34	0.41	0.48
	42000	0.09	0.16	0.23	0.31	0.38	0.45	0.53
	44000	0.10	0.18	0.26	0.34	0.42	0.50	0.58
	46000	0.11	0.19	0.28	0.37	0.46	0.54	0.63

Exhaust Fan Data

EXHAUST FAN MOTOR SIZING INSTRUCTIONS

In order to determine the proper exhaust fan motor size, add the return duct static pressure to the appropriate damper pressure drop value in Table 23 to get the total static pressure applied to the exhaust fan. Based on the exhaust fan air flow and total static pressure, determine the brake horsepower and RPM of the exhaust fan.

TABLE 26 – EXHAUST FAN PERFORMANCE

FAN TYPE	18x18	20x18	32x32
YPAL070-080	X	X	
YPAL090-105	X	X	
YPAL120-130			X

TABLE 27 – YPAL070-105 : 18X18 FORWARD-CURVED FAN

TOTAL STATIC PRESSURE (inches of water column)								
CFM STD. AIR	0.25		0.50		0.75		1.00	
	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
6000	0.6	332	0.9	433	1.4	526	1.9	604
8000	1.0	370	1.5	465	1.9	543	2.3	605
10000	1.7	413	2.2	495	2.8	572	3.4	642
12000	2.6	459	3.3	539	3.9	601	4.6	664
14000	3.8	509	4.6	581	5.4	645	6.1	697
16000	5.4	562	6.3	626	7.3	687	8.1	741
18000	7.3	617	8.5	675	9.5	730	10.5	784
20000	9.6	672	11.1	726	12.2	776	13.4	826
22000	12.3	728	14.1	779	15.5	825	16.7	870
24000	15.6	785	17.7	832	19.3	876		
26000	19.3	843						

NOTE: For performance at operating points not included in these tables, consult your local JOHNSON CONTROLS representative.

TABLE 28 – YPAL070-105 : 20X18 FORWARD-CURVED FAN

TOTAL STATIC PRESSURE (inches of water column)								
CFM STD. AIR	0.25		0.50		0.75		1.00	
	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
12000	1.7	317	2.4	397	3.2	470	3.9	531
14000	2.4	343	3.2	414	4.1	482	5.0	544
16000	3.4	372	4.2	437	5.1	496	6.1	556
18000	4.6	403	5.5	461	6.5	516	7.5	569
20000	6.0	434	7.0	488	8.1	540	9.2	587
22000	7.7	467	8.9	517	10.0	564	11.2	610
24000	9.7	499	11.1	547	12.3	591	13.6	634
26000	11.9	532	13.6	578	14.9	619	16.3	659
28000	14.5	566	16.5	610	18.0	648	19.4	686
30000	17.5	599	19.8	642	21.4	679	22.9	714
32000	20.7	633	23.4	674	25.3	710	26.9	744
34000	24.4	667	27.5	707	29.6	742		
36000	28.4	701						

NOTE: For performance at operating points not included in these tables, consult your local JOHNSON CONTROLS representative.

TABLE 29 – YPAL120-130 : 32" FORWARD-CURVED FAN

TOTAL STATIC PRESSURE (inches of water column)												
CFM	0.25		0.50		0.75		1.00		1.25		1.50	
STD. AIR	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
24000	4.9	248	6.1	280	7.2	313	8.5	347	9.9	379	11.4	410
26000	6.2	264	7.4	293	8.6	324	10.0	355	11.4	386	12.9	415
28000	7.4	280	8.7	306	10.0	334	11.4	363	12.8	392	14.4	420
30000	9.0	297	10.4	321	11.8	347	13.3	374	14.7	401	16.4	428
32000	10.6	313	12.0	335	13.6	359	15.1	384	16.6	409	18.3	435
34000	12.6	330	14.1	351	15.8	373	17.4	397	19.0	420	20.7	444
36000	14.6	347	16.2	366	18.0	387	19.7	409	21.4	431	23.1	453
38000	17.1	364	18.8	383	20.7	402	22.5	423	24.3	443	26.1	464
40000	19.6	381	21.4	399	23.3	417	25.2	436	27.1	455	29.0	475
42000	22.7	399	24.6	416	26.5	433	28.5	451	30.5	469	32.5	488
44000	25.7	416	27.7	432	29.7	448	31.8	465	33.9	482	36.0	500
46000	29.2	434	31.2	449	33.3	464	35.5	480	37.7	496		

NOTE: For performance at operating points not included in these tables, consult your local JOHNSON CONTROLS representative.

Return Fan Data

TABLE 30 – RETURN FAN PERFORMANCE

FAN TYPE	2X270	1X445
YPAL070-080	X	
YPAL090-105	X	
YPAL120-130		X

TABLE 31 – YPAL070-105 : 270 SWSI AIRFOIL FAN

TOTAL STATIC PRESSURE (inches of water column)										
CFM STD. AIR	1.0		1.5		2.0		2.5		3.0	
	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
16000	5.4	966	7.3	1056	9.2	1139	11.2	1217	13.3	1295
18000	6.6	1041	8.6	1126	8.6	1126	12.9	1277	16.1	1618
20000	7.9	1119	10.2	1198	12.5	1272	14.9	1342	18.8	1709
22000	9.6	1199	12.0	1273	14.5	1343	17.1	1410	21.7	1803
24000	11.5	1283	14.0	1351	16.8	1417	19.5	1481	24.9	1900
26000	13.7	1369	16.4	1430	19.3	1493	22.2	1554	25.1	1611
28000	16.2	1456	19.0	1512	22.0	1571	25.2	1629	28.4	1684
30000	19.0	1544	22.0	1597	25.1	1651	28.5	1705	31.9	1759
32000	22.2	1633	25.4	1683	28.6	1733	32.1	1784	35.7	1835
34000	25.7	1723	29.1	1770	32.5	1817	36.1	1864	39.8	1912
36000	29.7	1813	33.3	1859	36.9	1902				

NOTE: For performance at operating points not included in these tables, consult your local JOHNSON CONTROLS representative.

TABLE 32 – YPAL120-130 : 445 PLENUM FAN

TOTAL STATIC PRESSURE (inches of water column)												
CFM	0.25		0.50		0.75		1.00		1.25		1.50	
STD. AIR	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
24000	5.5	563	6.7	592	8.0	623	9.4	655	10.8	683	12.0	709
26000	6.9	606	8.2	633	9.5	661	11.0	690	12.5	718	13.9	744
28000	8.3	648	9.6	673	11.0	698	12.6	725	14.2	752	15.8	778
30000	10.1	691	11.5	715	13.0	738	14.6	763	16.3	788	18.0	813
32000	11.9	734	13.4	756	15.0	777	16.6	800	18.4	823	20.2	847
34000	14.2	778	15.8	798	17.5	818	19.2	839	21.0	861	22.9	883
36000	16.5	821	18.2	840	19.9	859	21.7	878	23.5	898	25.5	919
38000	19.4	865	21.1	883	22.9	901	24.8	919	26.7	938	28.7	957
40000	22.2	908	24.0	925	25.9	942	27.8	960	29.8	977	31.9	995
42000	25.7	952	27.6	968	29.6	985	31.6	1001	33.6	1018	35.8	1035
44000	29.1	995	31.1	1011	33.2	1027	35.3	1042	37.4	1058	39.6	1074
46000	33.1	1039	35.2	1054	37.3	1069	39.5	1084	41.7	1099	44.0	1114

TOTAL STATIC PRESSURE (inches of water column)												
CFM	1.75		2.00		2.25		2.50		2.75		3.00	
STD. AIR	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
24000	13.3	732	14.5	755	15.8	776	17.1	797	18.5	819	19.8	839
26000	15.2	767	16.7	790	18.1	810	19.5	830	20.9	851	24.7	900
28000	17.4	802	18.9	824	20.3	844	21.8	863	23.2	882	30.7	968
30000	19.6	836	21.4	858	23.0	879	24.6	898	26.2	917	37.6	1037
32000	22.1	870	23.9	892	25.7	913	27.4	933	29.1	951	45.4	1105
34000	24.7	905	26.8	927	28.7	948	30.6	968	32.5	986		
36000	27.5	940	29.6	961	31.7	982	33.8	1002	35.8	1020		
38000	30.7	976	33.0	997	35.2	1017	37.4	1036	39.6	1055		
40000	34.1	1013	36.3	1032	38.6	1051	40.9	1070	43.3	1089		
42000	37.8	1051	40.3	1070	42.7	1088	45.0	1106	47.3	1123		
44000	41.9	1090	44.2	1107	46.7	1124	49.1	1141				
46000	46.3	1130	48.7	1145								

NOTE: For performance at operating points not included in these tables, consult your local JOHNSON CONTROLS representative.

Electrical Data

ELECTRICAL SERVICE SIZING

In order to use the electrical service required for the cooling only Series 100 single package unit, use the appropriate calculations listed below from U.L. 1995. Based on the configuration of the single package unit, the calculations will yield different MCA (minimum circuit ampacity), and MOP (maximum overcurrent protection).

Using the following load definitions and calculations, determine the correct electrical sizing for your unit. All concurrent load conditions must be considered in the calculations, and you must use the highest value for any combination of loads.

Load Definitions:

- **LOAD1** is the current of the largest motor – compressor or fan motor.
- **LOAD2** is the sum of the remaining motor currents

that may run concurrently with LOAD1.

- **LOAD3** is the current of the electric heaters – zero for cooling only units.
- **LOAD4** is the sum of any remaining currents greater than or equal to 1.0 amp.

Use the following calculations to determine MCA and MOP for units supplied with a single-point power connection:

$$\text{MCA} = (1.25 \times \text{LOAD1}) + \text{LOAD2} + \text{LOAD3} + \text{LOAD4}$$

$$\text{MOP} = (2.25 \times \text{LOAD1}) + \text{LOAD2} + \text{LOAD3} + \text{LOAD4}$$

If the MOP does not equal a standard current rating of an overcurrent protective device, then the marked maximum rating is to be the next lower standard rating. However, if the device selected for MOP is less than the MCA, then select the lowest standard maximum fuse size greater than or equal to the MCA.

TABLE 33 – COMPRESSOR DATA — R410A

MODEL	COMPRESSOR		NOMINAL VOLTAGE					
	QTY	MODEL	208/230		460		575	
			RLA	LRA	RLA	LRA	RLA	LRA
YPAL 70 Ton	2	ZP137	53.6	245	20.7	125	16.4	100
	4	ZP120	37.1	239	20	125	14.3	80
YPAL 75 Ton	2	ZP154	57.1	300	25.7	150	22.1	109
	4	ZP137	53.6	245	20.7	125	16.4	100
YPAL 80 Ton	4	ZP154	57.1	300	25.7	150	22.1	109
	2	ZP137	53.6	245	20.7	125	16.4	100
YPAL 90 Ton	4	ZP182	62.1	340	30	173	26.4	132
	2	ZP154	57.1	300	26	150	22.1	109
YPAL 105 Ton	4	ZP235	82.4	505	33.9	225	27.4	180
	2	ZP182	62.1	340	30	173	26.4	132
YPAL 120 Ton	6	ZP235	N/A	N/A	33.9	225	27.4	180
YPAL 130 Ton	6	ZP295	N/A	N/A	46.7	272	38.7	238

NOTE: *RLA data is per compressor

**For YPAL120-130, contact JOHNSON CONTROLS.

TABLE 34 – SUPPLY AND EXHAUST FAN MOTOR (ODP OR TEFC)**High Efficiency**

MOTOR HP	NOMINAL VOLTAGE			
	208/3/60	230/3/60	460/3/60	575/3/60
	FLA	FLA	FLA	FLA
5	16.1	13.2	6.6	5.3
7.5	25.0	21.6	10.8	8.2
10	33.0	28.4	14.2	11.4
15	44.8	40.6	20.3	16.2
20	61.0	50.0	25.0	20.0
25	74.0	62.0	31.0	24.2
30	87.0	74.0	37.0	29.6
40	113.0	98.0	49.0	38.8
50	144.0	124.0	62.0	49.2
60	—	144.0	72.0	57.4

Premium Efficiency

MOTOR HP	NOMINAL VOLTAGE			
	208/3/60	230/3/60	460/3/60	575/3/60
	FLA	FLA	FLA	FLA
5	15.2	13.4	6.7	5.4
7.5	24.8	20.4	10.2	8.2
10	29.0	25.8	12.9	10.3
15	42.4	37.0	18.5	14.8
20	56.0	48.0	24.0	19.0
25	69.5	60.0	30.0	24.2
30	83.0	72.0	36.0	29.0
40	111.0	94.0	47.0	37.4
50	137.0	118.0	59.0	46.0
60	162.0	138.0	69.0	56.0

TABLE 35 – POWER SUPPLY VOLTAGE LIMITS

Nominal Voltage	Power Supply	Minimum voltage	Maximum voltage
208	200V/3Ph/60Hz	187	218
240	230V/3Ph/60Hz	216	252
480	460V/3Ph/60Hz	432	504
600	575V/3Ph/60Hz	540	630

TABLE 36 – CONDENSER FAN MOTOR RLA

RLA EACH MOTOR		208V/3PH/60HZ	230V/3PH/60HZ	460V/3PH/60HZ	575V/3PH/60HZ
		7.3	6.2	3.1	2.5
MODEL	QUANTITY OF FANS	208V/3PH/60HZ	230V/3PH/60HZ	460V/3PH/60HZ	575V/3PH/60HZ
YPAL070-130	6	43.8	37.2	18.6	15.0

Electrical Data (continued)

TABLE 37 – MISCELLANEOUS ELECTRICAL DATA

DESCRIPTION	NOMINAL VOLTAGE				
	208V	230V	460V	575V	380V-60
	AMPS	AMPS	AMPS	AMPS	AMPS
Contrl X'fmr. 750 VA	3.6	3.3	1.6	1.3	2
Contrl X'fmr, 1.0 KVA	4.8	4.4	2.2	1.8	2.6
Convenience Outlet	9.6	8.7	4.4	3.5	N/A
Gas Heat	9.6	8.7	4.4	3.5	5.3

TABLE 38 – ELECTRIC HEAT AMP DRAW

KW*	200V/3Ph/60Hz	240V/3Ph/60Hz	480V/3Ph/60Hz	600V/3Ph/60Hz
	AMPS	AMPS	AMPS	AMPS
40	96	96	48	40
80	193	193	96	80
108	260	260	130	109
150			181	151
200			241	201
250			301	251

Notes:

- Heaters will be sized as follows: 208V heaters rated at 208V,
230V heaters rated at 240V, 460V heaters rated at 480V,
575V heaters rated at 600V.

TABLE 39 – ELECTRICAL HEAT STAGES

		75-85 tons			
		80 kW	108 kW	150 kW	200 kW
Available Voltages	200V/3/60Hz	5	6	NA	NA
	230V/3/60Hz	5	6	NA	NA
	460V/3/60Hz	3	3	4	6
	575V/3/60Hz	2	3	4	5

		90-105 tons			
		108 kW	150 kW	200 kW	250 kW
Available Voltages	200V/3/60Hz	6	NA	NA	NA
	230V/3/60Hz	6	NA	NA	NA
	460V/3/60Hz	3	4	6	6
	575V/3/60Hz	3	4	5	6

		120-130 tons				
		80kW	108kW	150kW	200kW	250kW
Available Voltages	200V/3/60Hz	NA	NA	NA	NA	NA
	230V/3/60Hz	NA	NA	NA	NA	NA
	460V/3/60Hz	3	3	4	6	7
	575V/3/60Hz	2	3	4	5	6

Controls

CONTROL SEQUENCES (CV and VAV)

GENERAL

The control system for the JOHNSON CONTROLS Series 100 single package unit is fully self-contained and based around a single package unit controller. To aid in unit setup, maintenance, and operation, the single package unit controller is equipped with a user interface that is based around a 4 line x 20 character backlit LCD display. The LCD displays plain language text in a menu-driven format to facilitate use.

Based on the unit type (constant volume or VAV), the Johnson Controls Series 100 Single Package units can be operated by a typical 7-wire thermostat (constant volume only), a space temperature sensor, or stand alone. A field wiring terminal block is provided to facilitate unit setup and installation.

In lieu of the hard-wired control options, the single package unit controller can be connected to and operated by a Building Automation System (BAS).

The IPU Controller uses the latest technology and provides complete control for the unit along with standard BACnet™ MS/TP and Modbus RTU communications. The IPU also has an SD card slot that can be used to capture historic data on unit operation.

If required, the unit can be equipped with an optional field installed gateway which allows N2 or Echelon® communications. The E-Link gateway device is field installed and purchased through the Advanced Order Management System (AOMS).

YK-ELNKE01-0 – E-Link for Echelon®

YK-ELNKE00-0 – E-Link for N2

UNOCCUPIED / OCCUPIED SWITCHING

Depending on application, the unit can be indexed between unoccupied and occupied modes of operation by one of three methods, hard-wired input, internal time clock, or BAS. A contact-closure input is provided for hard-wiring to an external indexing device such as a central time clock, thermostat with built in scheduling, or a manual switch. The unit controller is also equipped with a built in 7-day time clock which can be used, in lieu of the contact closure input, to switch the unit between Unoccupied and Occupied modes of operation.

The internal time clock is fully configurable via the user interface and includes Holiday scheduling. In addition to the hard-wired input or the internal time clock, the unit can also be indexed between unoccupied and occupied modes of operation via a BAS command.

GAS HEATING OPERATION

Units supplied with gas heat can be equipped one, two, or three independently operated burner modules. Each module is fully self-contained furnace with all necessary ignition controls, safeties, and gas valves. The IPU single package unit controller determines how the furnaces are started and stopped and prevents furnace operation if the Supply Fan airflow is not sufficient or if the Supply Air Temperature is excessively high. If a furnace module receives a signal to start from the IPU controller, the ignition control engages the furnace inducer (draft) fan for a 30-second pre-purge cycle. At the end of the 30-second pre-purge, the ignition control will stop the furnace and allows the inducer fan to operate for a 30-second post-purge. Each furnace contains a direct spark ignition system and included safeties for flame and inducer fan verification, high temperature and flame roll-out.

HYDRONIC HEAT

If the unit is configured with either of the wet heat options (steam or hot water) the single package unit controls will modulate the hydronic valve to maintain a supply air set point. In the event temperatures off the hydronic coil are below 34 degrees the fans will be shut down and the hydronic valve will open 100%. This function is an automatic reset so as the temperature rises above 36 degrees, the unit will automatically begin normal operation.

ELECTRIC HEATING OPERATION

For units equipped with electric heaters, the unit can control up to six stages of electric heat which are staged on based on heating demand calculates by the IPU controller.

MORNING WARM-UP

Morning Warm-Up can be initialized by BAS or by the IPU controller if the Internal Scheduling is used. If the Internal Scheduling is used, the Morning Warm-Up start time is calculated through an adaptive algorithm. When Morning Warm-Up is required, the IPU controller energizes the VAV heat relay, starts the Supply Fan and qualifies the Return Air Temperature for 5 minutes. The internal heat source (Gas, HW/Steam, or Electric) is controlled to maintain the Return Air Temperature to the Return Air Heating Setpoint, Morning Warm-Up ends when occupancy occurs (BAS, Internal Scheduling, or contact closure), or when the Maximum Morning Warm-Up Time has expired.

Controls (continued)

ECONOMIZER OPERATION

The unit can be equipped with one of three types of optional economizers, dry bulb, single enthalpy, or comparative enthalpy. When the unit controller determines that Outside Air is suitable for economizing, the unit controller will control the outside air damper(s) open to provide economizer cooling. If economizer cooling alone is insufficient for the cooling load, the unit controller shall stage up compressors, one at a time, to meet demand.

The control logic for the three types of economizers is as follows:

Dry Bulb Economizer

The dry bulb economizer is the default economizer control scheme. With the dry bulb economizer, the unit controller monitors the Outside Air temperature only and compares it to a reference temperature setting. Outside Air is deemed suitable for economizing when the Outside Air temperature is determined to be less than the reference temperature setting. This method of economizing is effective, but is prone to some change-over inefficiencies due to the fact that this method is based on sensible temperatures only and does not take Outside Air moisture content into consideration.

Single Enthalpy Economizer

With the optional single enthalpy economizer, the unit controller monitors the Outside Air enthalpy in addition to the Outside Air temperature and compares it to a reference enthalpy setting and a reference temperature setting. Outside Air is deemed suitable for economizing when the Outside Air enthalpy is determined to be less than the reference enthalpy setting and the Outside Air temperature is less than the reference temperature setting. This method of economizing allows the reference temperature setting to be set higher than the DB Economizer and is consequently a more efficient single package unit economizer.

Dual Enthalpy Economizer

With the optional dual enthalpy economizer, the unit controller monitors and compares the Outside Air and Return Air enthalpies in addition to comparing the Outside Air temperature to the reference temperature setting. Outside Air is deemed suitable for economizing when the Outside Air enthalpy is determined to be less than the Return Air enthalpy and the Outside Air temperature is less than the reference temperature setting. This method of economizing is the most accurate and provides the highest degree of energy efficiency for a packaged single package unit economizer.

VENTILATION CONTROL SEQUENCES

Minimum OA Damper Position (CV Units)

When the unit goes into the Occupied mode of operation, the unit controller shall open the Outside Air Damper to a fixed minimum position. The damper shall remain at this position as long as the unit is in the occupied mode, and the economizer is not suitable for cooling.

Minimum OA Damper Position (VAV Units)

With Variable Air Volume units, there are two Minimum OA Damper Positions, one when the unit is at full speed and the second when the unit is at approximately half speed. These two points allow the control to linearly reset the position of the OA damper in response to fan speed.

When the unit goes into the Occupied mode of operation, the unit controller shall monitor the speed of the supply fan and open the Outside Air damper to a calculated minimum position based on the fan speed. This minimum position shall vary as the speed of the fan changes. The damper shall remain at this calculated position as long as the unit is in the occupied mode, and the economizer is not suitable for cooling.

Air Measurement Stations

When the unit is equipped with an air measurement station, the unit controller shall control the Outside Air damper to a measured flow rate through the Air Measurement Station.

When the unit goes into the Occupied mode of operation, the unit controller shall control the Outside Air damper to maintain the Minimum AirFlow Setpoint through the Air Measurement Station. The unit controller shall control the Outside Air damper to this flow rate as long as the unit is in the Occupied mode, and the economizer is not suitable for cooling.

Demand Ventilation

If optional CO₂ sensors are connected to the unit, the unit controller can reset the minimum OA damper position(s) or minimum flow rate based on demand.

The unit controller shall monitor the CO₂ level within the building. If the CO₂ level rises above the CO₂ setpoint, the controller will temporarily increase the Minimum OA Damper Position or Minimum OA flow rate to increase ventilation. If the CO₂ level drops below the CO₂ setpoint, the controller will decrease the Minimum OA Damper Position or Minimum OA flow rate to decrease ventilation. Demand Ventilation shall remain active as long as the unit is in the Occupied mode of operation.

EXHAUST CONTROL SEQUENCES

Barometric

The optional barometric exhaust system consists of a lightweight barometric relief damper installed on the end of the unit in the Return Air section. As more outside air is introduced into the controlled zone due to Economizer and Ventilation control sequences, the pressure inside the building rises. As building static pressure increases to overcome any exhaust duct static pressure, air will be allowed to escape through the barometric relief damper. Because this type of exhaust is not powered, the amount of air exhausted will be limited to the static pressure that will need to be overcome.

Powered Variable Volume Exhaust-Discharge Damper Controlled

This optional variable volume powered exhaust system consists of a fixed speed fan configured with a proportionally controlled discharge damper. The single package unit controller monitors the pressure inside the building and controls the Exhaust Damper and the Exhaust Fan. If the Building Pressure rises, the Exhaust Damper is proportionally controlled open and the Exhaust Fan is controlled ON. If the Building Pressure falls, the Exhaust Damper is proportionally controlled closed and the Exhaust Fan is controlled OFF. The position of the Exhaust Damper in which the Exhaust Fan is controlled ON and OFF as well as the Building Pressure setpoint is user selectable from the single package unit User Interface.

Powered Variable Volume Exhaust-VFD Controlled

This optional variable volume powered exhaust system consist of an Exhaust Fan driven by a Variable Frequency Drive (VFD), which is controlled by the single package unit controller. The single package unit controller monitors the pressure within the building. As the pressure rises, the VFD is controlled to increase Exhaust Fan speed. As the pressure falls, the VFD is controlled to decrease Exhaust Fan speed. The Building Pressure Setpoint is user selectable from the single package unit User Interface. On/Off control is maintained the same as Exhaust-Discharge Damper control stated above.

Return Fan Controlled

This optional variable volume powered return fan system consists of two return fans controlled by one VFD that is controlled by the single package unit control center. The VFD is controlled to maintain a slightly positive pressure over the mixing box section to prevent reverse flow. As the return and/or exhaust air dampers open, the return plenum pressure drops, the fan will speed up to maintain pressure. When the return and/or exhaust air dampers

close, the return plenum pressure increases causing the VFD to slow the fan speed down.

LOW AMBIENT/HEAD PRESSURE CONTROL OPERATION

The single package unit controller continuously monitors the outside air temperature to determine if mechanical cooling should be allowed. As a safety, if the Outside Air temperature falls to or below the Low Ambient Lockout temperature, mechanical cooling is prevented from operating. For units with economizers, the Low Ambient Lockout temperature is typically low enough that mechanical cooling will rarely be required. However, for some applications mechanical cooling is required when the Outside Air temperature is lower than the Low Ambient Lockout temperature.

For these applications, the unit must be equipped with optional Low Ambient controls. For optional Low Ambient operation, the single package unit controller monitors the refrigeration system discharge pressure and controls the speed of the condenser fans. If the discharge pressure falls, the speeds of the condenser fans are reduced to maintain acceptable condensing pressures in the refrigeration system. With the optional Low Ambient controls, mechanical cooling is allowed down to Outside Air temperatures of 0°F.

SMOKE PURGE SEQUENCES

General

The controls of the Series 100 are designed as standard with a Ventilation Override sequence to remove, exhaust or ventilate smoke, fumes or other air born contaminants from the occupied space. This feature offers 3 selectable operations, which include, Purge, Pressurization and Evacuation. The sequence is activated via one of three binary inputs. Some typical contact closures are smoke detectors, fire alarms, manual switches etc . . .

Note: all cooling and heating modes are disabled during Smoke purge.

Purge

Purge – Purge shall be used to displace the air inside the space with fresh outside air. When this sequence is started, the following shall occur:

Start the Supply Fan if not already on. (Note, with VAV and FlexSys units, the fan speed shall be controlled to maintain the active Duct Pressure Set Point.) Start the Return Fan if not already on. Start the Exhaust Fan if not already ON and set the VFD to 100%. Set the OA damper position to 100%. Set the Exhaust damper to 100%.

Controls (continued)

Pressurization

Pressurization – Pressurization shall be used to pressurize the building or space in order to force the air inside the space through the walls to adjacent spaces or outside the building envelope. When this sequence is started, the following shall occur:

Start the Supply Fan if not already on. (Note, with VAV and FlexSys units, the fan speed shall be controlled to maintain the active Duct Pressure Set Point.) Start the Return Fan if not already on. Stop the Exhaust fan if on and set Exhaust/Return Fan VFD to 0%. Set the OA damper to 100%. Set the Exhaust damper to 0%.

Evacuation

Evacuation – Evacuation shall be used to evacuate (negatively pressurize) the building or space in order to draw air through the walls from adjacent spaces or outside the building envelope. When this sequence is started, the following shall occur:

Stop the Supply Fan if on. Start the Return Fan if not already on. Start the Exhaust fan if not already on and set the Exhaust/Return Fan VFD to 100%. Set the OA damper to 0%. Set the Exhaust damper to 100%

SPECIFIC SEQUENCES (See IOM for further detail)

Variable Air Volume Mode

Occupied Cooling – In the OCCUPIED COOLING mode the Unit Controller monitors the “RETURN AIR TEMP” and compares it to the “RAT COOLING SETPOINT”. The “RAT COOLING SETPOINT” is entered into the Unit Controller through the SET POINT key COOLING subsection of the User Interface. If the “RETURN AIR TEMP” is equal to or greater than the “RAT COOLING SETPOINT” plus 0.50 F the Unit Controller will place the unit in the OCCUPIED COOLING mode. The unit will remain in the OCCUPIED COOLING mode until the “RETURN AIR TEMP” is equal to or less than the “RAT COOLING SETPOINT” minus 0.5°F.

Occupied Heating – In the OCCUPIED HEATING mode the Unit Controller monitors the “RETURN AIR TEMP” and compares it to the “RAT HEATING SETPOINT”. The “RAT HEATING SETPOINT” is entered into the Unit Controller through the SET POINTS key HEATING subsection of the User Interface. If the “RETURN AIR TEMP” is equal to or LESS than the “RAT HEATING

SETPOINT” minus 0.50 F the Unit Controller will place the unit in the OCCUPIED HEATING mode. The unit will remain in the OCCUPIED HEATING mode until the “RETURN AIR TEMP” is equal to or greater than the “RAT HEATING SETPOINT” plus 0.5°F.

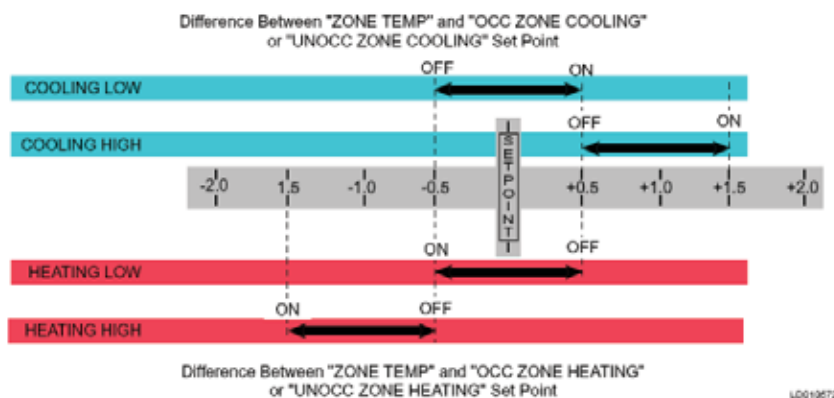
Unoccupied Cooling – In the UNOCCUPIED COOLING mode the Unit Controller will monitor the “ZONE TEMP” and compare it to the “UNOCC ZONE COOLING SETPOINT”. The “UNOCC ZONE COOLING SETPOINT” is set through the SET POINTS key, COOLING subsection of the User Interface. If the “ZONE TEMP” is equal to or greater than the “UNOCC ZONE COOLING SETPOINT” temperature plus 0.50 F, the Unit Controller will place the unit in the UNOCCUPIED COOLING mode. The unit will remain in the UNOCCUPIED COOLING mode until the “ZONE TEMP” is equal to or less than the “UNOCC ZONE COOLING SETPOINT” minus 0.5°F.

Unoccupied Heating – In order for the UNOCCUPIED HEATING to function, the “NIGHT SET BACK” setting must be set to ENABLE. This can be done through the PROGRAM key, HEATING subsection of the User Interface. In the UNOCCUPIED HEATING mode the Unit Controller will monitor the “ZONE TEMP” and compare it to the “UNOCC ZONE HEATING SETPOINT”. The “UNOCC ZONE HEATING SETPOINT” is set through the SET POINTS key, HEATING subsection of the User Interface. If “ZONE TEMP” is equal to or less than the “UNOCC ZONE HEATING S” minus 0.50 F, the Unit Controller will place the unit in the UNOCCUPIED HEATING mode. The unit will remain in the UNOCCUPIED HEATING mode until the “ZONE TEMP” is equal to or greater than the “UNOCC ZONE HEATING SETPOINT” plus 0.5°F.

Constant Volume Mode

A “CONSTANT VOLUME” unit will be controlled by one of three “CONTROL METHOD”: • “STAGED” (Thermostat) • “WIRED ZONE TEMP” (Hardwired) • “COMM ZONE TEMP” (Communicated) The “CONTROL METHOD” is entered into the Unit Controller through the OPTION key, UNIT DATA subsection of the User Interface.

Staged Input – The unit compares the analog “WIRED ZONE TEMP” or “COMM ZONE TEMP” input to the “OCC ZONE COOLING”, “OCC ZONE HEATING”, “UNOCC ZONE COOLING”, or “UNOCC ZONE HEATING” set points to determine the sub-mode of operation.



This graphic shows what the UNIT MODE would be, based on the difference between the zone temperature and the zone temperature set points. The only difference between Hard Wired and Communicated is the method the Unit Controller uses to determine the "ZONE TEMP". In the Hard Wired mode the input is an analog input to the control. In the Communicated mode the input is a serial input from a BAS control system.

COOLING OPERATION

Thermostat Control

If a 7-wire thermostat (2 Cool/2 Heat) controls the unit, all zone temperature setpoint control is maintained at the thermostat. With this operation, the unit remains idle until it receives a stage call from the thermostat. If "G" is called from the thermostat, the Supply Fan will start. Ventilation functions (if equipped) will be permitted to run with an occupied signal. Economizer functions will operate with a "G" call and a call for cooling.

Stage 1 ("Y1") Call

If Y1 is called and the unit is equipped with an economizer, the control will check to see if the Outside Air is suitable for economizing. If conditions are suitable for economizing, the control will control the economizer and stage up compressors, as required, to maintain the economizer first-stage setpoint. If conditions are not suitable for economizing or not equipped with an economizer, the control will stage up 50% of the compressors. This shall be maintained until Stage 1 is deactivated or Stage 2 is called.

Stage 2 ("Y2") Call

If Y2 is called and the unit is equipped with an economizer, the control will check to see if the Outside Air is suitable for economizing. If conditions are suitable for economizing, the control will control the economizer

and stage up compressors, as required, to maintain the economizer second-stage setpoint. If conditions are not suitable for economizing or not equipped with an economizer, the control will stage up 100% of the compressors. This shall be maintained until Stage 2 is deactivated.

Zone Sensor Control

If a zone sensor controls the unit, the single package unit controller shall maintain the zone temperature setpoint. This setpoint is user selectable at the single packaged unit User Interface.

When a zone sensor is used for control, the single package unit controller will monitor the temperature within the space and control the unit accordingly. A closed-loop staging algorithm is used to stage compressors up and down as required to maintain the desired zone temperature setpoint. If the unit is equipped with an economizer, Outside Air conditions are continuously monitored by the control to determine if conditions are suitable for economizing. If conditions are suitable for economizing, the single package unit controller will modulate the Outside Air damper in addition to staging compressors up and down to maintain the zone temperature setpoint.

HEATING OPERATION

Thermostat Control

If a 7-wire thermostat (2 Cool/2 Heat) controls the unit, all zone temperature setpoint control is maintained at the thermostat. With this operation, the unit remains idle until it receives a stage call from the thermostat. If "G" is called from the thermostat, the Supply Fan will start.

Ventilation functions (if equipped) will be permitted to run with an occupied signal.

Controls (continued)

Stage 1 ("W1") Call

If W1 is called and the unit is equipped with an economizer, the economizer will go to minimum position with an occupied signal or close with an unoccupied signal and the control will stage up 50% of the heating steps. This shall remain active until Stage 1 call is deactivated or a Stage 2 call is activated.

Stage 2 ("W2") Call

If W2 is called and the unit is equipped with an economizer, the economizer will go to minimum position with an occupied signal or close with an unoccupied signal, and the control will stage up 100% of the heating steps. This shall remain active until Stage 2 call is deactivated.

Zone Sensor Control

If a zone sensor controls the unit, the single package unit controller shall maintain all zone temperature setpoints. These setpoints are user selectable at the single package unit User Interface.

When a zone sensor is used for control, the single package unit controller will monitor the temperature within the space and control the unit accordingly. A closed-loop staging algorithm is used to stage heating steps up and down as required to maintain the desired zone temperature setpoint. If the unit is equipped with an economizer, Outside Air conditions are continuously monitored by the control to determine if conditions are suitable for economizing. If conditions are suitable for economizing, the single package unit controller will modulate the Outside Air damper in addition to staging heating steps up and down to maintain the zone temperature setpoint.

TABLE 40 – THREE PHASE POWER SUPPLY CONDUCTOR SIZE RANGE**70-75 Ton Units**

Supply Voltage	Single Point TB	Single Point Disconnect	Dual Point TB TB 1	TB 2
208V	(2*) 250 kcmil-500 kcmil	(2*) 2 AWG-500 kcmil	4 AWG-500 kcmil	6 AWG-350 kcmil
230V	(2*) 250 kcmil-500 kcmil	(2*) 2 AWG-500 kcmil	6 AWG-400 kcmil	6 AWG-350 kcmil
380V-60	(2*) 3/0-250 kcmil	4 AWG-500 kcmil	6 AWG-400 kcmil	14 AWG-2/0
460V	(2*) 3/0-250 kcmil	4 AWG-500 kcmil	14 AWG-2/0	14 AWG-2/0
575V	6 AWG-400 kcmil	6 AWG-350 kcmil	14 AWG-2/0	14 AWG-2/0

80 Ton Units

Supply Voltage	Single Point TB	Single Point Disconnect	Dual Point TB TB 1	TB 2
208V	(3*) 2/0-400 kcmil	(2*) 2 AWG-500 kcmil	(2*) 2 AWG-500 kcmil	6 AWG-350 kcmil
230V	(2*) 250 kcmil-500 kcmil	(2*) 2 AWG-500 kcmil	4 AWG-500 kcmil	6 AWG-350 kcmil
380V-60	(2*) 3/0-250 kcmil	4 AWG-500 kcmil	6 AWG-400 kcmil	14 AWG-2/0
460V	(2*) 3/0-250 kcmil	4 AWG-500 kcmil	6 AWG-400 kcmil	14 AWG-2/0
575V	(2*) 3/0-250 kcmil	6 AWG-350 kcmil	14 AWG-2/0	14 AWG-2/0

90-105 Ton Units

Supply Voltage	Single Point TB	Single Point Disconnect	Dual Point TB TB 1	TB 2
208V	(3*) 2/0-400 kcmil	(2*) 2 AWG-500 kcmil	(2*) 2 AWG-500 kcmil	4 AWG-600 kcmil
230V	(3*) 2/0-400 kcmil	(2*) 2 AWG-500 kcmil	(2*) 2 AWG-500 kcmil	4 AWG-600 kcmil
380V-60	(2*) 3/0-250 kcmil	4 AWG-500 kcmil	4 AWG-500 kcmil	14 AWG-2/0
460V	(2*) 3/0-250 kcmil	4 AWG-500 kcmil	6 AWG-400 kcmil	14 AWG-2/0
575V	(2*) 3/0-250 kcmil	6 AWG-350 kcmil	14 AWG-2/0	14 AWG-2/0

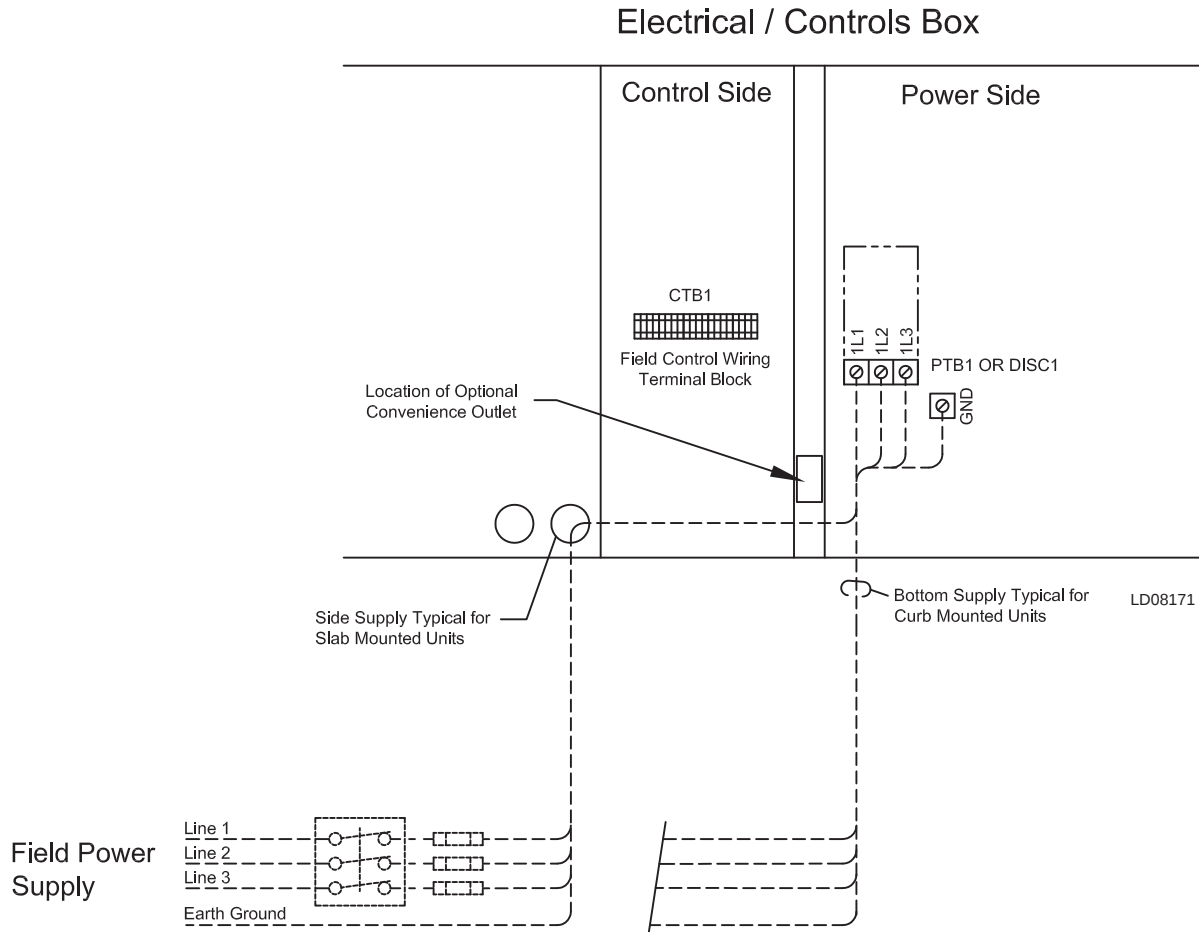
120-130 Ton Unit

Supply Voltage	Single Point TB	Single Point Disconnect	Dual Point TB TB 1	TB 2
460V	6 AWG thru 500 kcmil (2 per phase)	3/0 thru 500 kcmil (2 per phase)	2 AWG thru 300 kcmil (2 per phase)	14 AWG thru 2/0 (1 per phase)
575V	6 AWG thru 500 kcmil (2 per phase)	3/0 thru 500 kcmil (2 per phase)	2 AWG thru 300 kcmil (2 per phase)	14 AWG thru 2/0 (1 per phase)

* Note, indicates supply connection with multiple connection points per phase. (2 for 2* and 3 for 3*)

Power Wiring: YPAL120-130

UNIT POWER SUPPLY WIRING, STANDARD SINGLE POINT, W/ OR W/O DISCONNECT

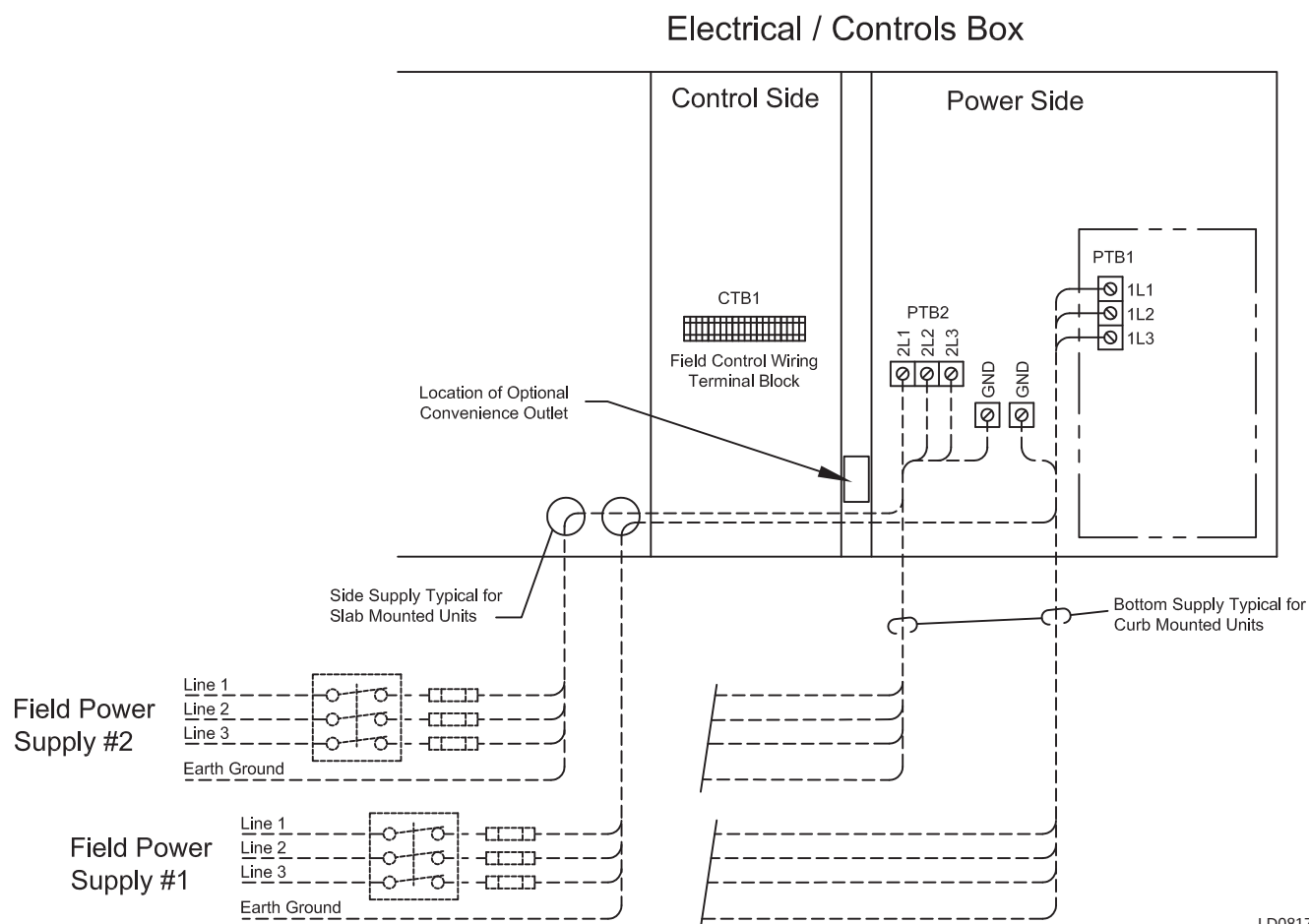


NOTES:

1. All field wiring must be provided through a field-supplied fused disconnect switch to the unit terminals (or optional molded disconnect switch).
2. All electrical wiring must be made in accordance with all N.E.C. and/or local code requirements.
3. Consult the I.O.M manual or unit nameplate data to determine Minimum Circuit Ampacities (MCA) and recommended Dual Element fuse sizes.
4. Minimum Circuit Ampacity (MCA) is based on U.L. Standard 1995, Section 36.14 (N.E.C. Section 440.34).
5. Maximum Dual Element Fuse size is based on U.L. Standard 1995, Section 36.15 (N.E.C. Section 440.22).
6. The "Incoming Wire Range" is the minimum and maximum wire sizes that can be accommodated by the unit wiring lugs. A (2) preceding the wire range indicates the number of termination points available per phase of the wire range specified. Actual wire size and number of wires per phase must be determined based on N.E.C.
7. Use copper conductors only.
8. On units with an optional disconnect switch, the supplied disconnect switch is a "Disconnecting Means" as defined in the N.E.C. Section 100, and is intended for isolating the unit from the available power supply to perform maintenance and troubleshooting. This disconnect switch is not intended to be a Load Break Device.

FIG. 3 – SINGLE-POINT POWER SUPPLY WIRING

UNIT POWER SUPPLY WIRING, OPTIONAL DUAL POINT



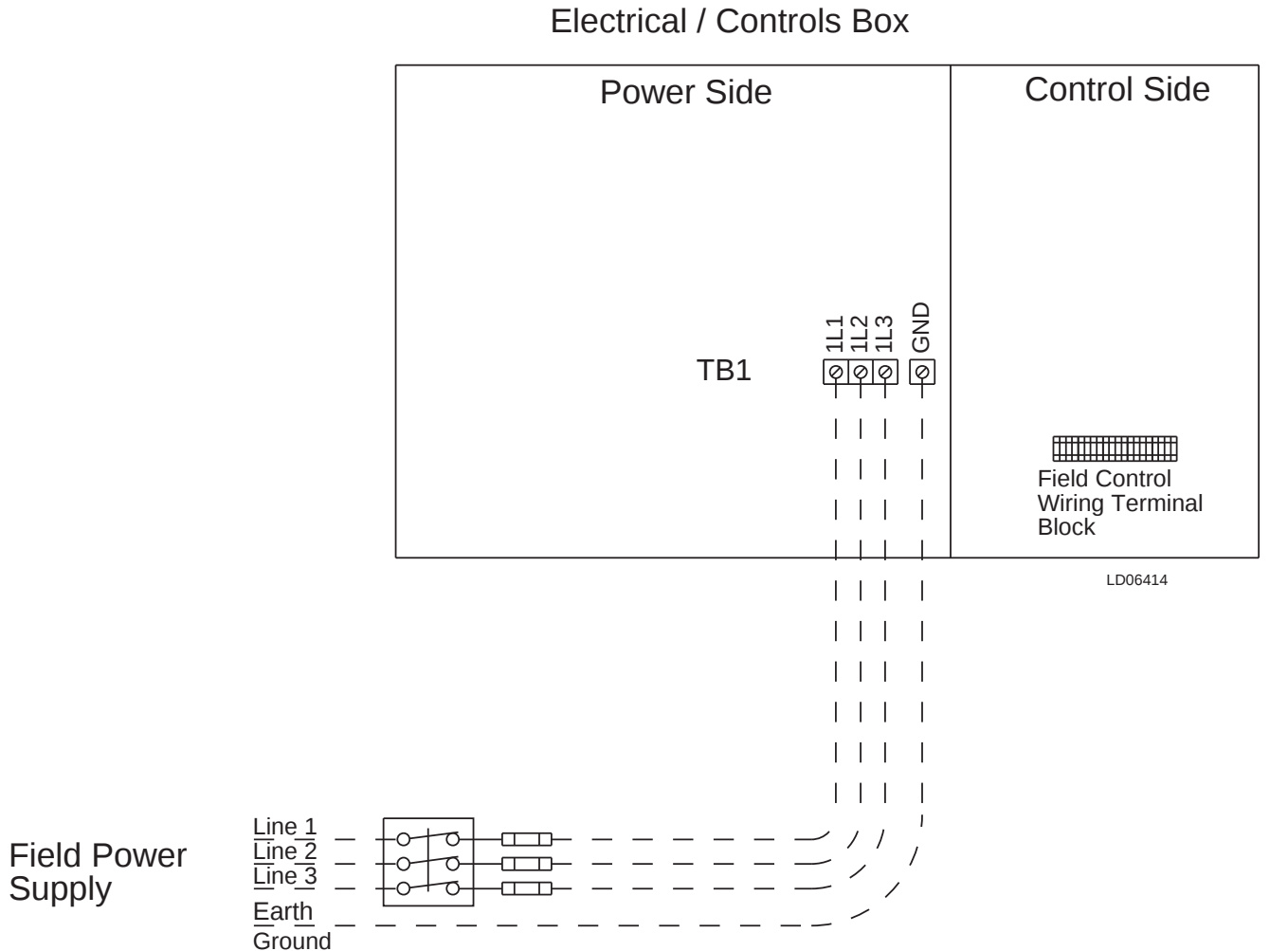
NOTES:

1. All field wiring must be provided through a field-supplied fused disconnect switch to the unit terminals (or optional molded disconnect switch).
2. All electrical wiring must be made in accordance with all N.E.C. and/or local code requirements.
3. Consult the I.O.M manual or unit nameplate data to determine Minimum Circuit Ampacities (MCA) and recommended Dual Element fuse sizes.
4. Minimum Circuit Ampacity (MCA) is based on U.L. Standard 1995, Section 36.14 (N.E.C. Section 440.34).
5. Maximum Dual Element Fuse size is based on U.L. Standard 1995, Section 36.15 (N.E.C. Section 440.22).
6. The "Incoming Wire Range" is the minimum and maximum wire sizes that can be accommodated by the unit wiring lugs. A (2) preceding the wire range indicates the number of termination points available per phase of the wire range specified. Actual wire size and number of wires per phase must be determined based on N.E.C.
7. Use copper conductors only.
8. On units with an optional disconnect switch, the supplied disconnect switch is a "Disconnecting Means" as defined in the N.E.C. Section 100, and is intended for isolating the unit from the available power supply to perform maintenance and troubleshooting. This disconnect switch is not intended to be a Load Break Device.

FIG. 4 – SINGLE-POINT POWER SUPPLY WIRING WITH NON-FUSED DISCONNECT

Power Wiring: YPAL070-105

SINGLE-POINT POWER SUPPLY WIRING

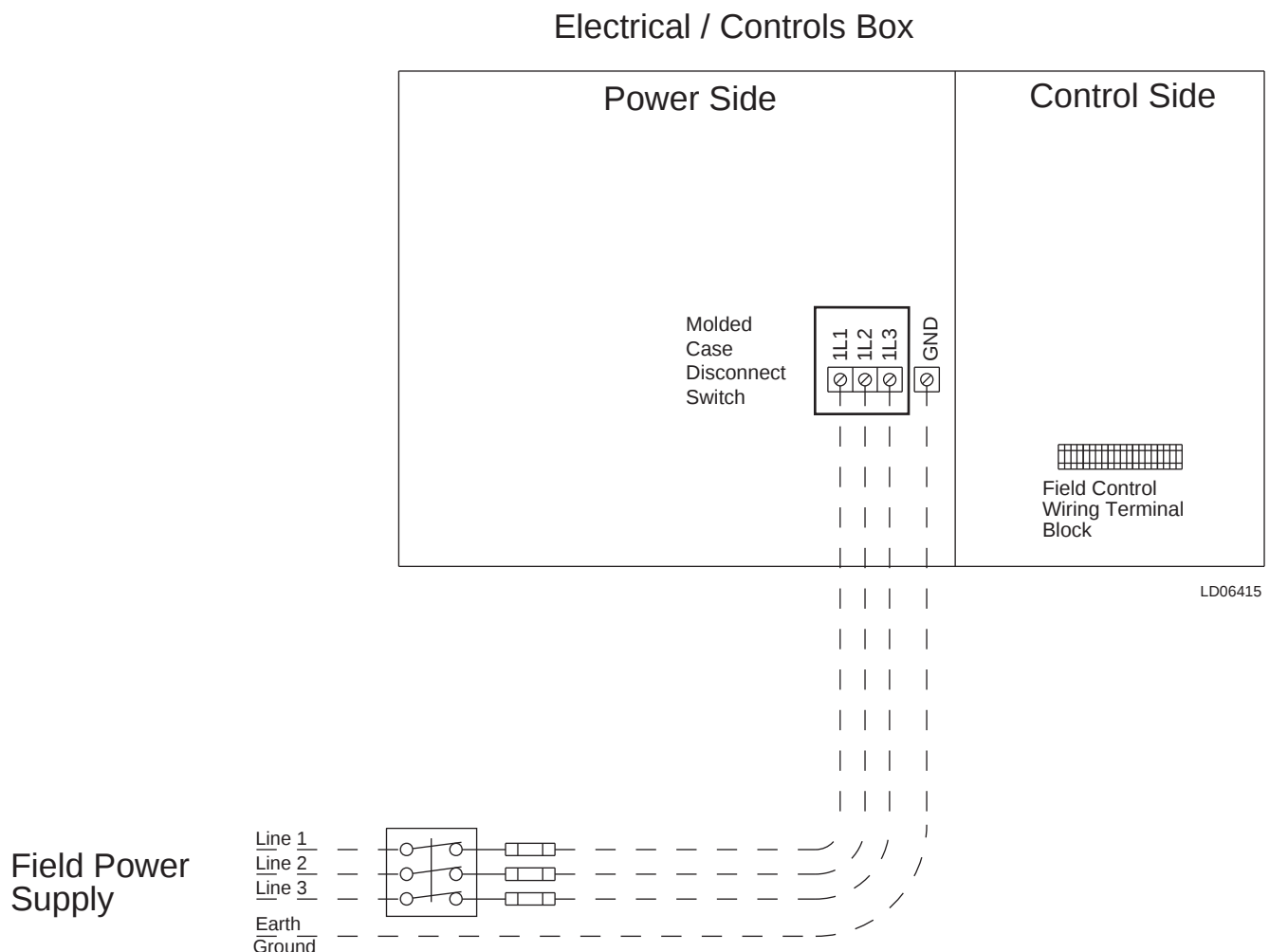


NOTES:

1. All field wiring must be provided through a field-supplied fused disconnect switch to the unit terminals (or optional molded disconnect switch).
2. All electrical wiring must be made in accordance with all N.E.C. and/or local code requirements.
3. Minimum Circuit Ampacity (MCA) is based on U.L. Standard 1995, Section 36.14 (N.E.C. Section 440.34).
4. Maximum Dual Element Fuse size is based on U.L. Standard 1995, Section 36.15 (N.E.C. Section 440.22)
5. Use copper conductors only.
6. On units with an optional disconnect switch, the supplied disconnect switch is a "Disconnecting Means" as defined in the N.E.C. Section 100, and is intended for isolating the unit from the available power supply to perform maintenance and troubleshooting. This disconnect switch is not intended to be a Load Break Device.

FIG. 5 – SINGLE-POINT POWER SUPPLY WIRING

SINGLE-POINT POWER SUPPLY WIRING WITH NON-FUSED DISCONNECT



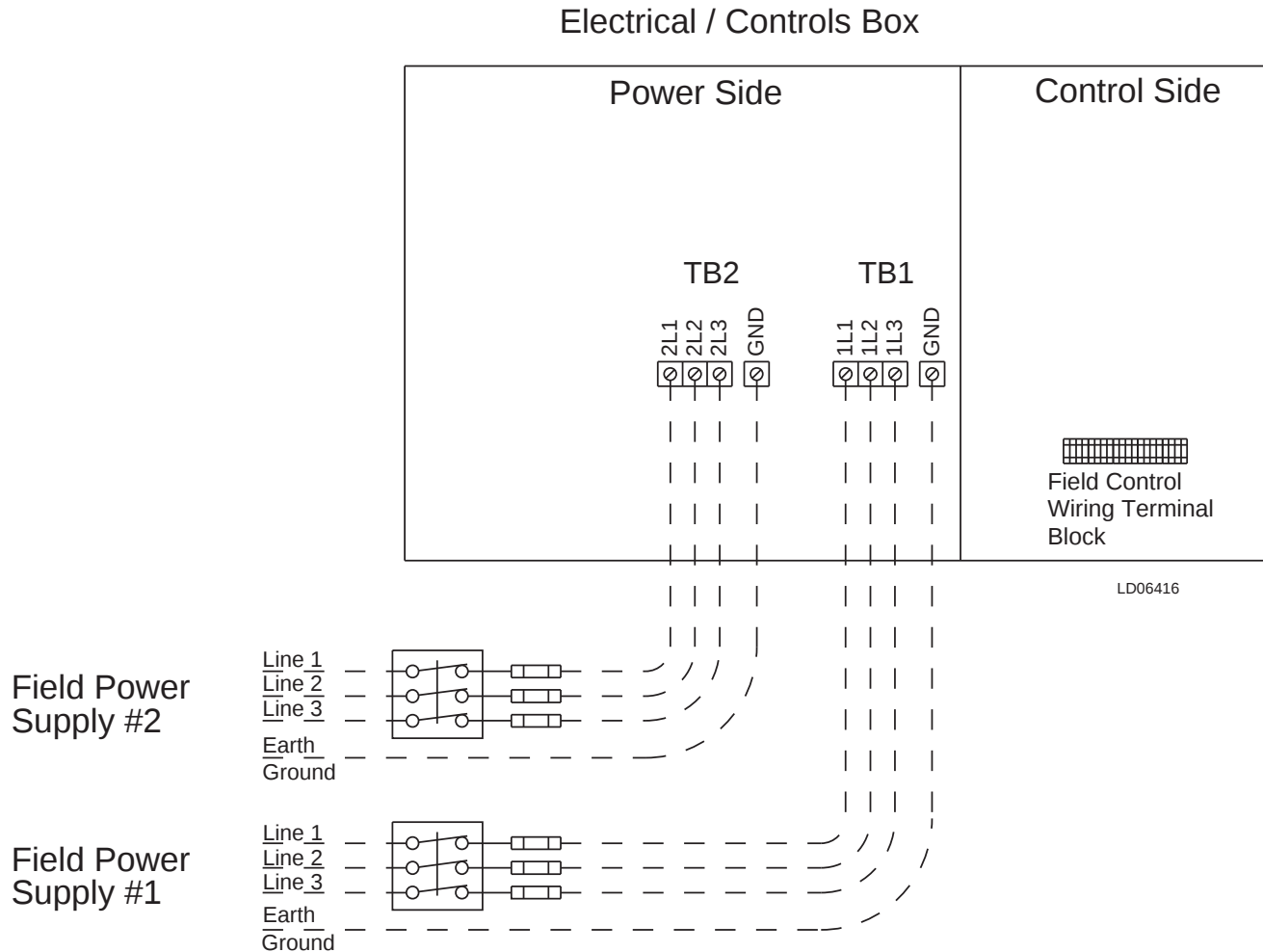
NOTES:

1. All field wiring must be provided through a field-supplied fused disconnect switch to the unit terminals (or optional molded disconnect switch).
2. All electrical wiring must be made in accordance with all N.E.C. and/or local code requirements.
3. Minimum Circuit Ampacity (MCA) is based on U.L. Standard 1995, Section 36.14 (N.E.C. Section 440.34).
4. Maximum Dual Element Fuse size is based on U.L. Standard 1995, Section 36.15 (N.E.C. Section 440.22)
5. Use copper conductors only.
6. On units with an optional disconnect switch, the supplied disconnect switch is a "Disconnecting Means" as defined in the N.E.C. Section 100, and is intended for isolating the unit from the available power supply to perform maintenance and troubleshooting. This disconnect switch is not intended to be a Load Break Device.

FIG. 6 – SINGLE-POINT POWER SUPPLY WIRING WITH NON-FUSED DISCONNECT

Power Wiring: YPAL070-105 (continued)

DUAL-POINT POWER SUPPLY WIRING



NOTES:

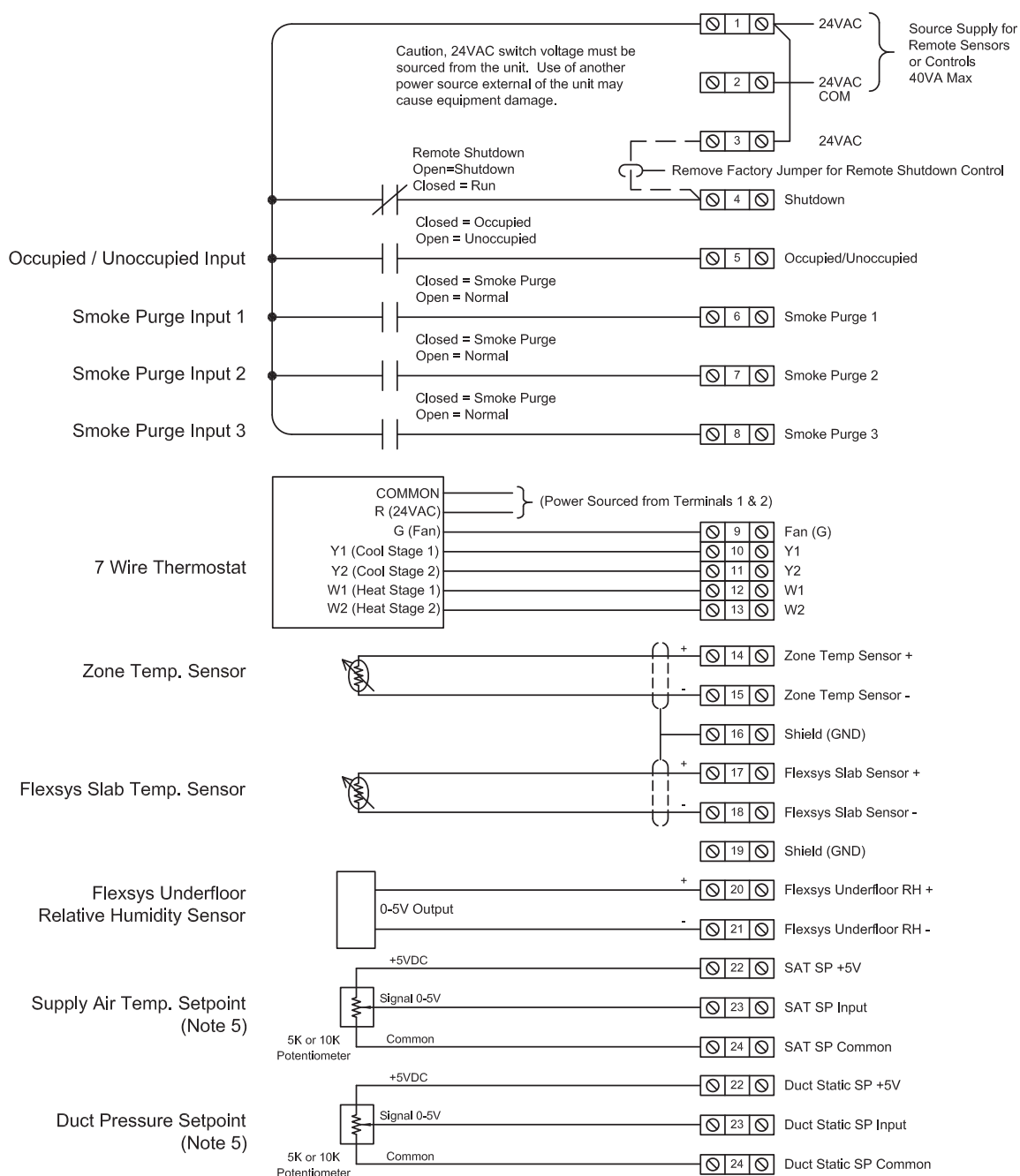
1. All field wiring must be provided through a field-supplied fused disconnect switch to the unit terminals (or optional molded disconnect switch).
2. All electrical wiring must be made in accordance with all N.E.C. and/or local code requirements.
3. Minimum Circuit Ampacity (MCA) is based on U.L. Standard 1995, Section 36.14 (N.E.C. Section 440.34).
4. Maximum Dual Element Fuse size is based on U.L. Standard 1995, Section 36.15 (N.E.C. Section 440.22).
5. Use copper conductors only.
6. On units with an optional disconnect switch, the supplied disconnect switch is a "Disconnecting Means" as defined in the N.E.C. Section 100, and is intended for isolating the unit from the available power supply to perform maintenance and troubleshooting. This disconnect switch is not intended to be a Load Break Device.

FIG. 7 – DUAL-POINT POWER SUPPLY WIRING

Field Control Wiring

Wiring Notes:

1. Wiring shown indicates typical wiring. Refer to the I.O.M. manual for more detailed wiring methods and options.
2. All wiring is Class 2, low voltage.
3. Maximum power available from the 24 VAC terminal is 40 VA.
4. Use shielded wire where shown.
5. Potentiometer application shown. As an alternative, signal inputs can be driven from an analog output of a third party controller. Note: Input load resistance is 15K ohms.



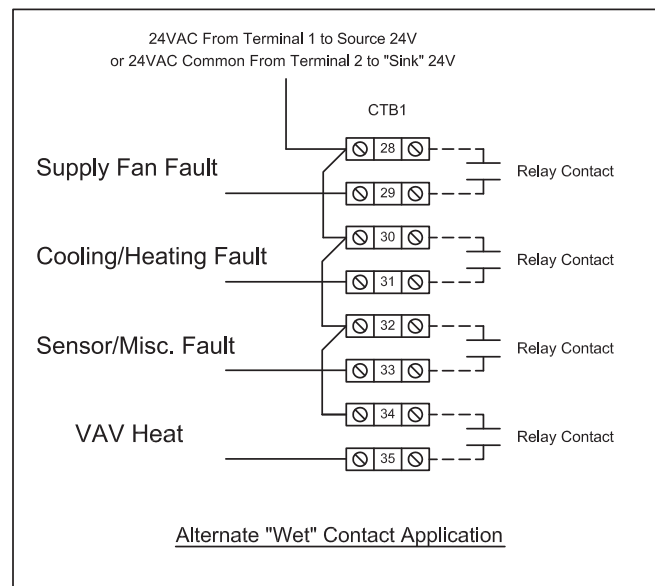
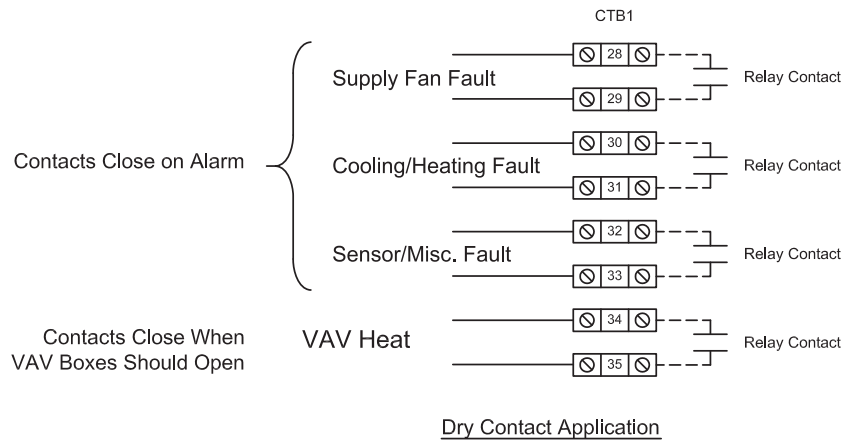
LD08184

FIG. 8 – FIELD CONTROL WIRING

Field Control Wiring (continued)

Wiring Notes:

1. Wiring shown indicates typical wiring. Refer to the I.O.M. manual for more detailed wiring methods and options.
2. All wiring is Class 2, low voltage.
3. Maximum power available from the 24 VAC terminal is 40 VA.
4. Use shielded wire where shown.
5. Relay contacts suitable for pilot duty to 1A from 24VAC to 120VAC



LD08186

FIG. 9 – FIELD CONTROL WIRING

General Arrangement Drawing – 70-80 Ton Models

BOTTOM SUPPLY / BOTTOM RETURN

SECTION DESCRIPTIONS:

EE = Economizer
FE = Fan Exhaust
MB = Mixing Box
F = Filter Segments
CC = Cooling Coils
FS = Supply Fan
DP = Discharge Plenum
CO = Condenser Section
CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

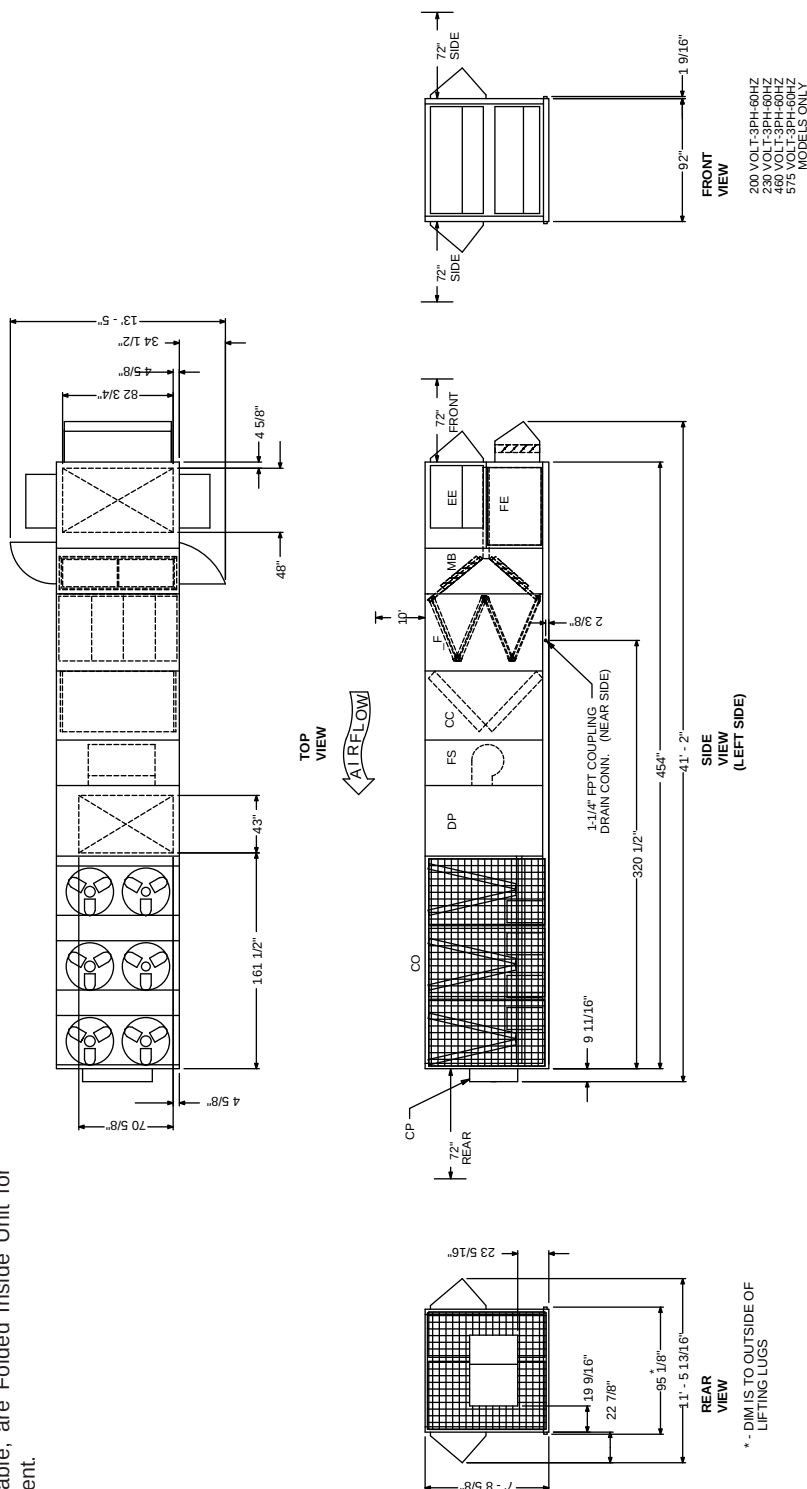


FIG. 10 – GENERAL ARRANGEMENT DRAWING

General Arrangement Drawing – 70-80 Ton Models

LEFT SUPPLY / LEFT RETURN

SECTION DESCRIPTIONS:

EE = Economizer
FE = Fan Exhaust
MB = Mixing Box
F = Filter Segments
CC = Cooling Coils
FS = Supply Fan
DP = Discharge Plenum
CO = Condenser Section
CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

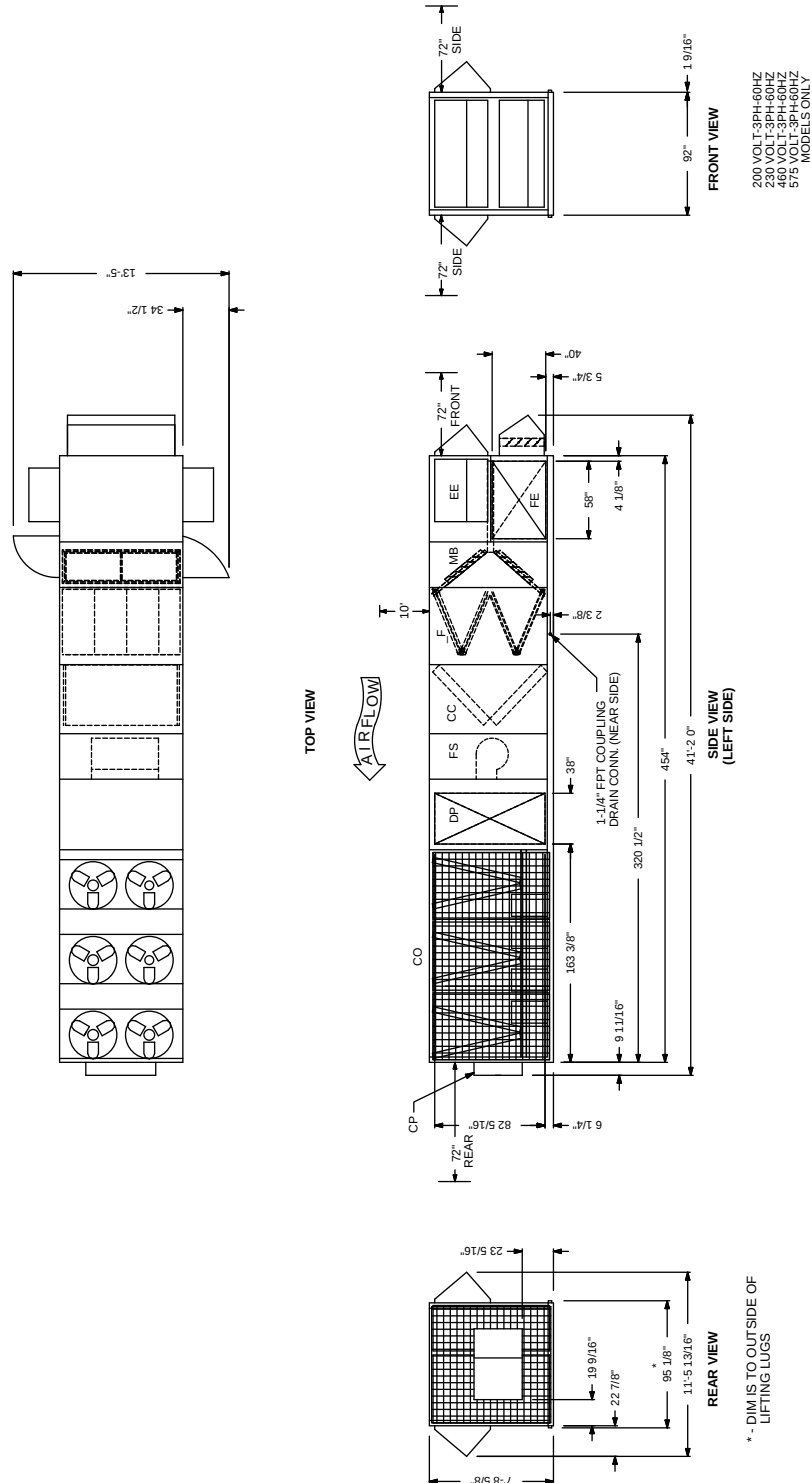


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08129

LEFT SUPPLY / FRONT RETURN

SECTION DESCRIPTIONS:

EE = Economizer
 FE = Fan Exhaust
 MB = Mixing Box
 F = Filter Segments
 CC = Cooling Coils
 FS = Supply Fan
 DP = Discharge Plenum
 CO = Condenser Section
 CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

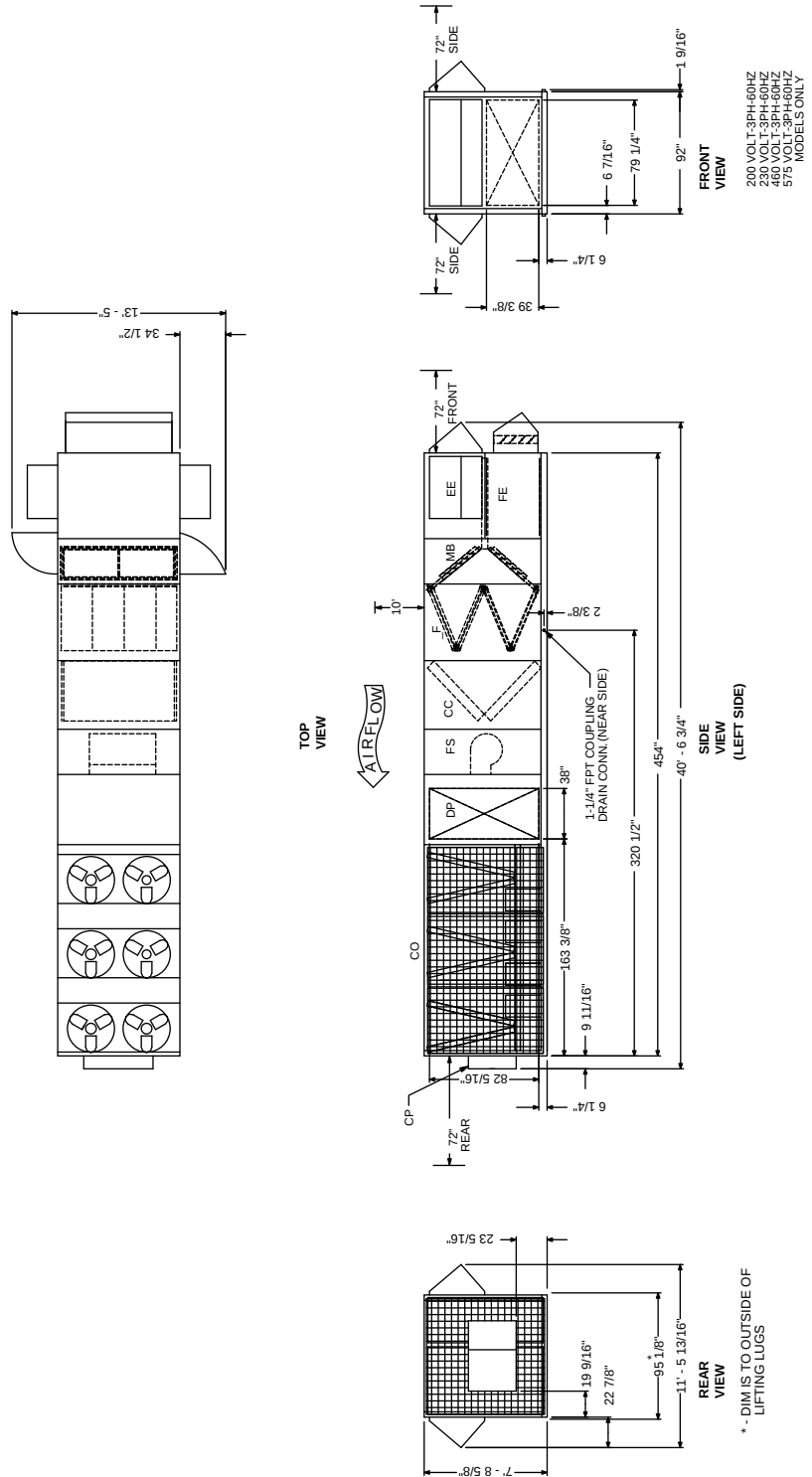


FIG. 10 – GENERAL ARRANGEMENT DRAWING

General Arrangement Drawing – 90-105 Ton Models

BOTTOM SUPPLY / BOTTOM RETURN

SECTION DESCRIPTIONS:

EE = Economizer
FE = Fan Exhaust
MB = Mixing Box
F = Filter Segments
CC = Cooling Coils
FS = Supply Fan
DP = Discharge Plenum
CO = Condenser Section
CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

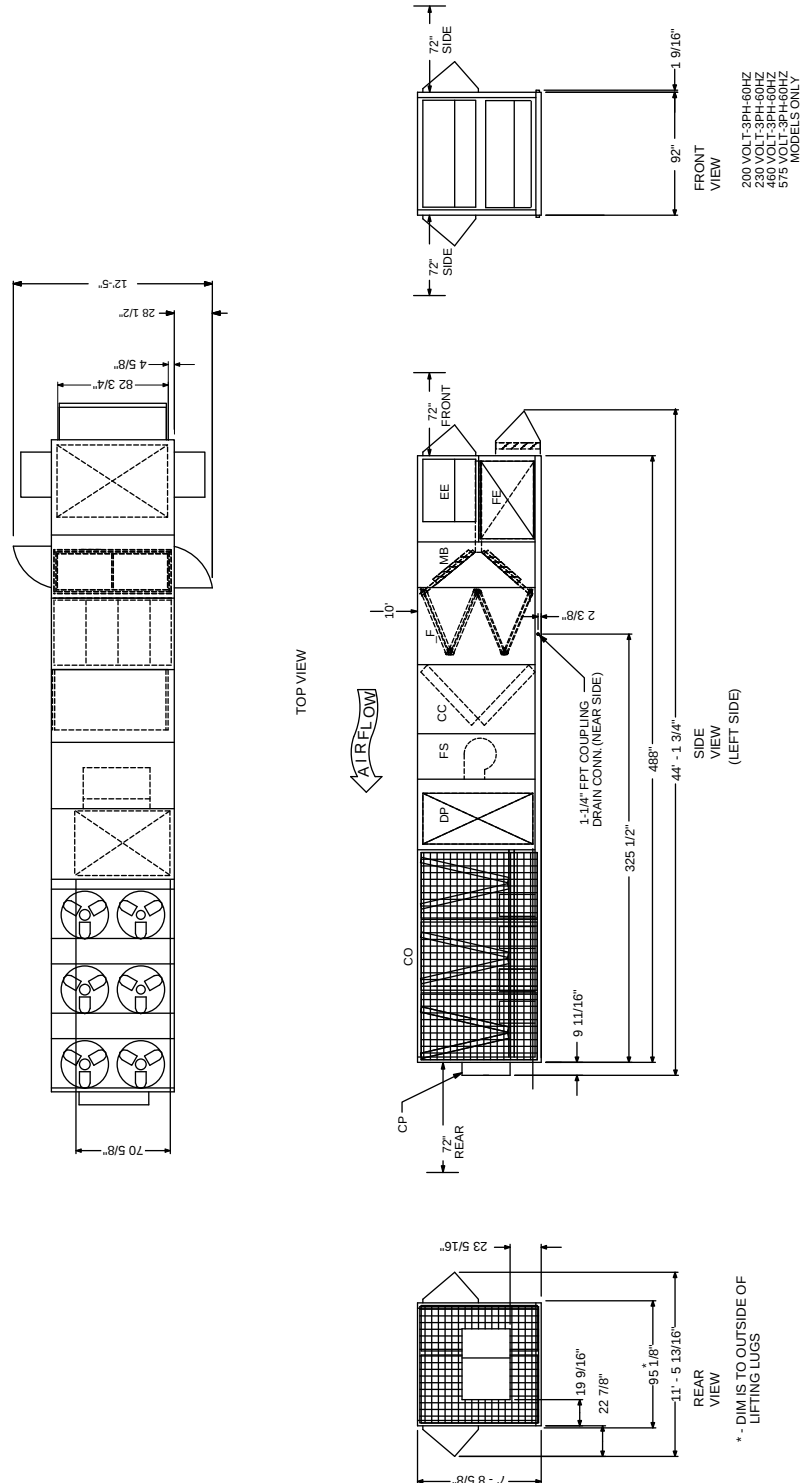


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08131

LEFT SUPPLY / LEFT RETURN

SECTION DESCRIPTIONS:

EE = Economizer
 FE = Fan Exhaust
 MB = Mixing Box
 F = Filter Segments
 CC = Cooling Coils
 FS = Supply Fan
 DP = Discharge Plenum
 CO = Condenser Section
 CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

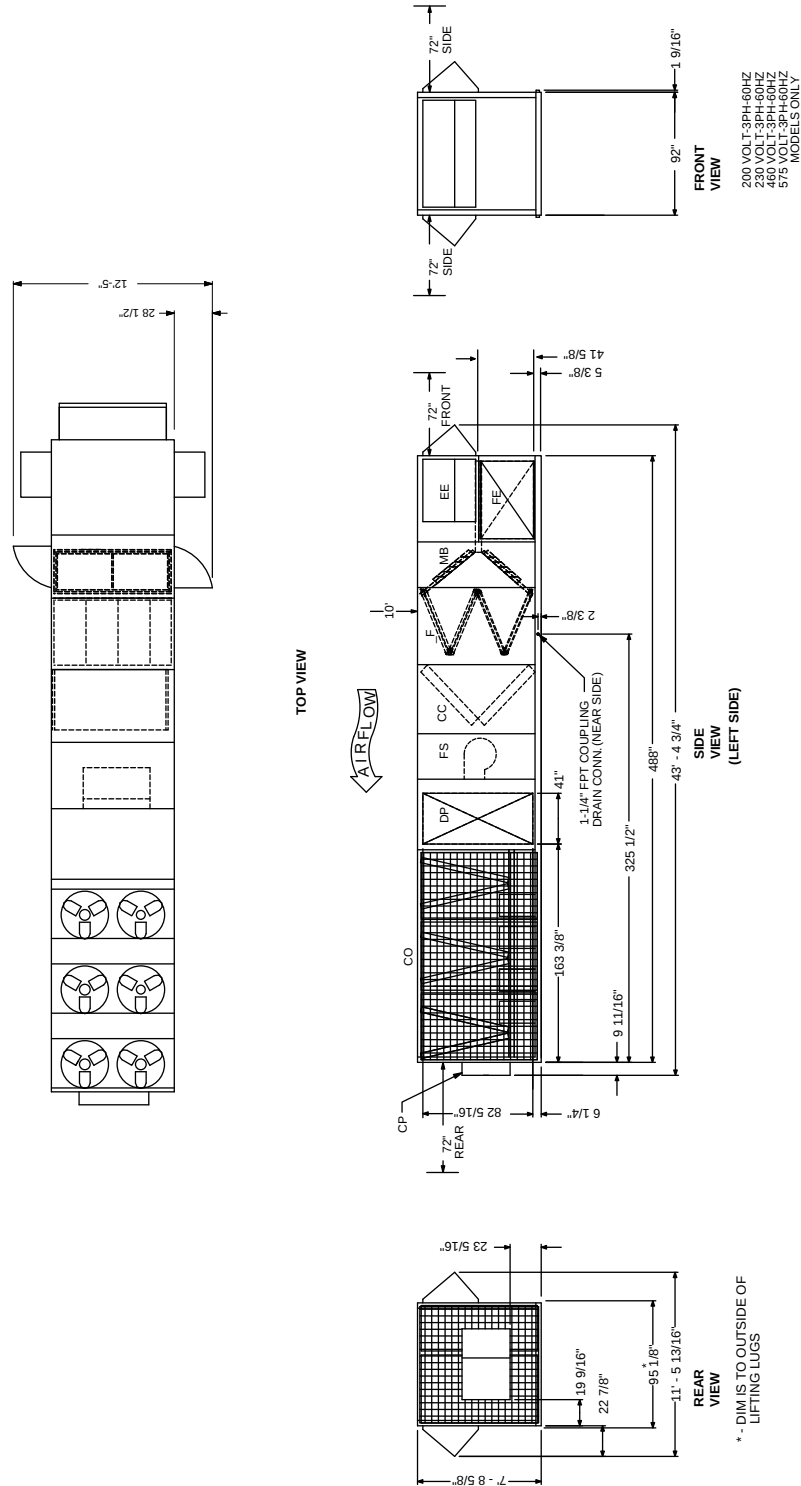


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08132

General Arrangement Drawing – 90-105 Ton Models

LEFT SUPPLY / FRONT RETURN

SECTION DESCRIPTIONS:

EE = Economizer
FE = Fan Exhaust
MB = Mixing Box
F = Filter Segments
CC = Cooling Coils
FS = Supply Fan
DP = Discharge Plenum
CO = Condenser Section
CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

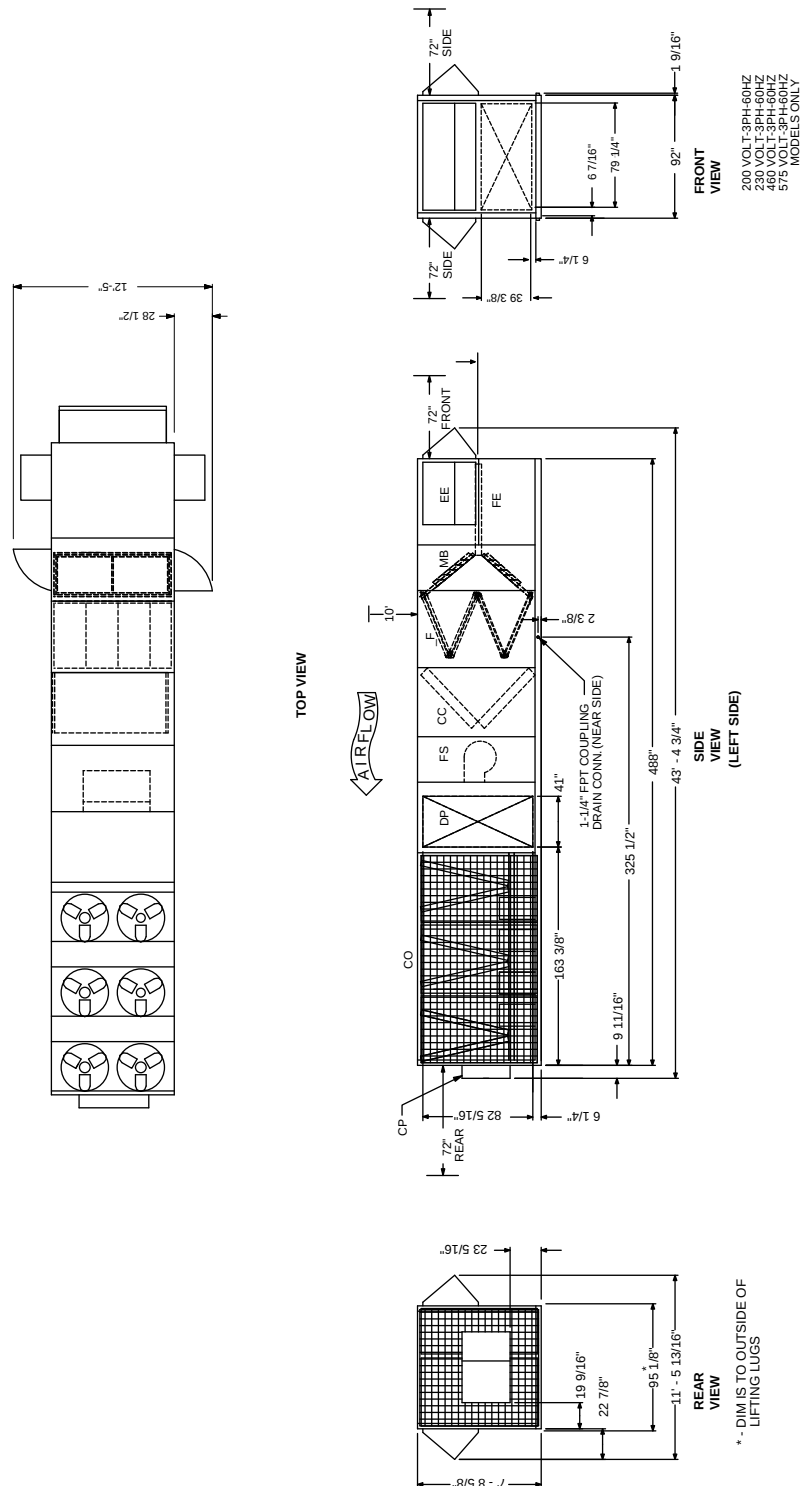


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08133

EXTENDED CABINET / BOTTOM SUPPLY / BOTTOM RETURN

SECTION DESCRIPTIONS:

EE = Economizer
 FE = Fan Exhaust
 MB = Mixing Box
 F = Filter Segments
 CC = Cooling Coils
 FS = Supply Fan
 FF = Final Filter
 DP = Discharge Plenum
 CO = Condenser Section
 CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.
6. Clearance Downstream of the Diffuser. If the Diffuser Factory Option is Not Installed, Clearance, Downstream of the Supply Fan Outlet is Required to Provide Adequate Air Flow and Reduce Air Pressure Drop.

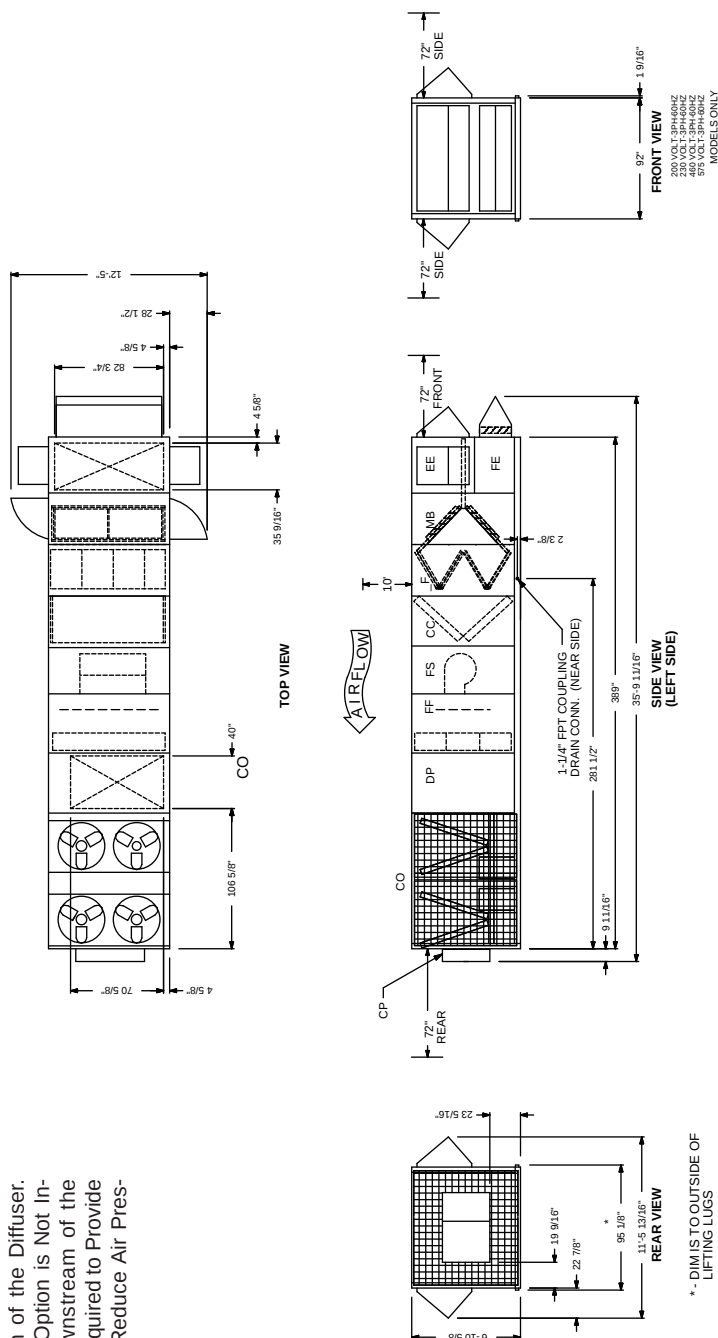


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08134

General Arrangement Drawing – 70-80 Ton Models

EXTENDED CABINET / BOTTOM SUPPLY / BOTTOM RETURN

SECTION DESCRIPTIONS:

EE = Economizer
FE = Fan Exhaust
MB = Mixing Box
F = Filter Segments
CC = Cooling Coils
FS = Supply Fan
DP = Discharge Plenum
CO = Condenser Section
CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.
6. Clearance Downstream of the Diffuser. If the Diffuser Factory Option is Not Installed, Clearance, Downstream of the Supply Fan Outlet is Required to Provide Adequate Air Flow and Reduce Air Pressure Drop.

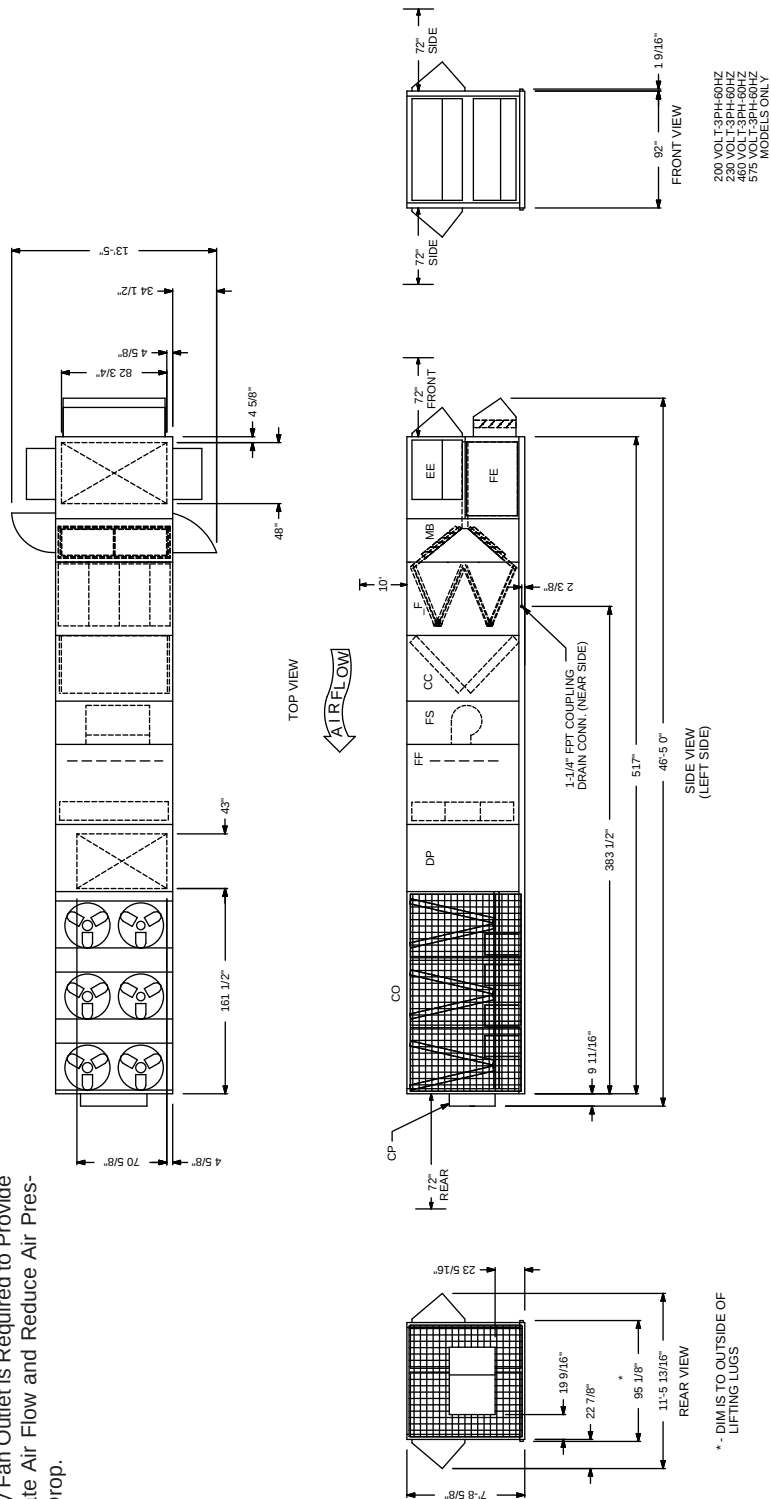


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08138

EXTENDED CABINET / LEFT SUPPLY / LEFT RETURN

SECTION DESCRIPTIONS:

EE = Economizer
 FE = Fan Exhaust
 MB = Mixing Box
 _F = Filter Segments
 CC = Cooling Coils
 FS = Supply Fan
 FF = Final Filter
 DP = Discharge Plenum
 CO = Condenser Section
 CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.
6. Clearance Downstream of the Diffuser. If the Diffuser Factory Option is Not Installed, Clearane, Downstream of the Supply Fan Outlet is Required to Provide Adequate Air Flow and Reduce Air Pressure Drop.

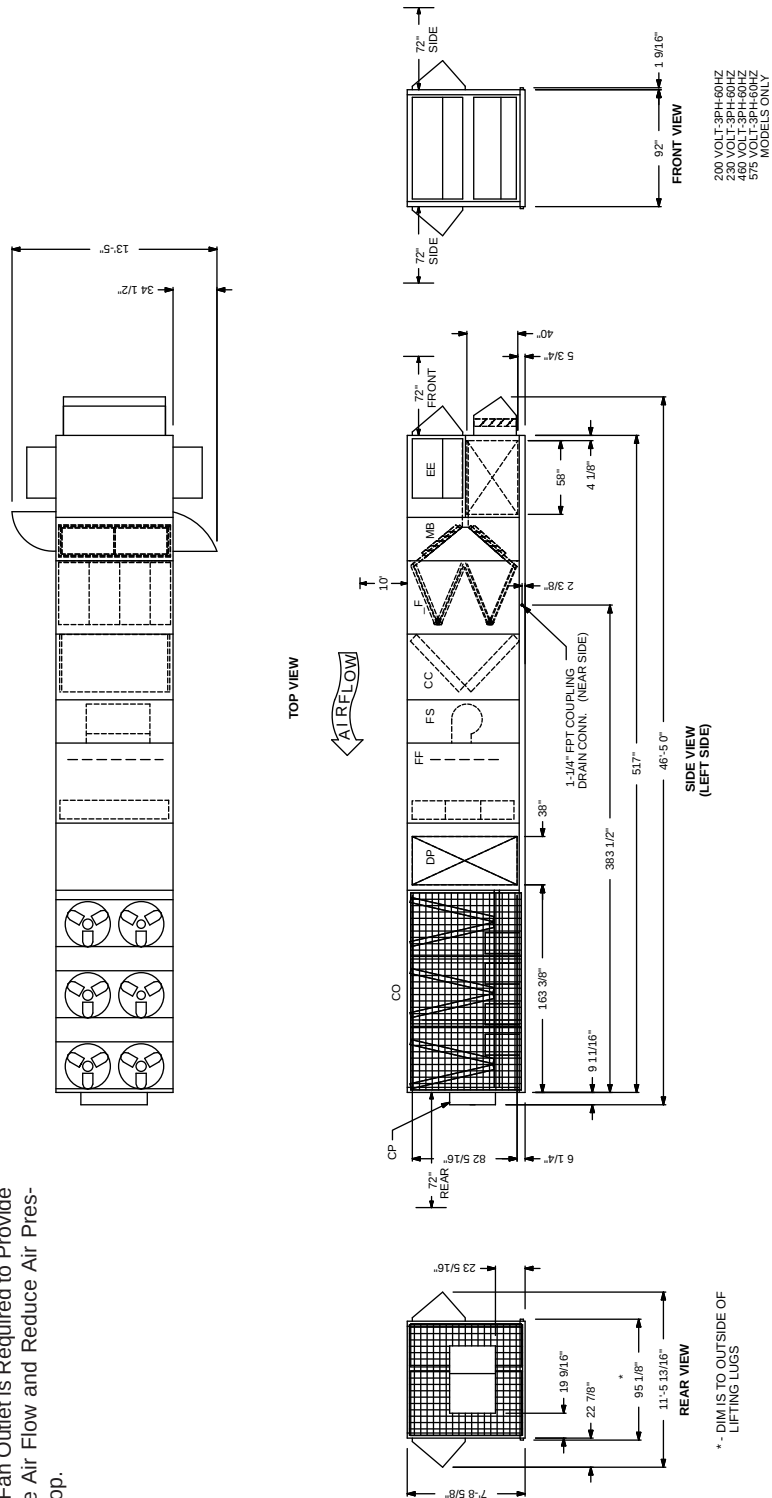


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08137

General Arrangement Drawing – 70-80 Ton Models

EXTENDED CABINET / LEFT SUPPLY / FRONT RETURN

SECTION DESCRIPTIONS:

EE = Economizer
FE = Fan Exhaust
MB = Mixing Box
F = Filter Segments
CC = Cooling Coils
FS = Supply Fan
DP = Discharge Plenum
CO = Condenser Section
CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.
6. Clearance Downstream of the Diffuser. If the Diffuser Factory Option is Not Installed, Clearane, Downstream of the Supply Fan Outlet is Required to Provide Adequate Air Flow and Reduce Air Pressure Drop.

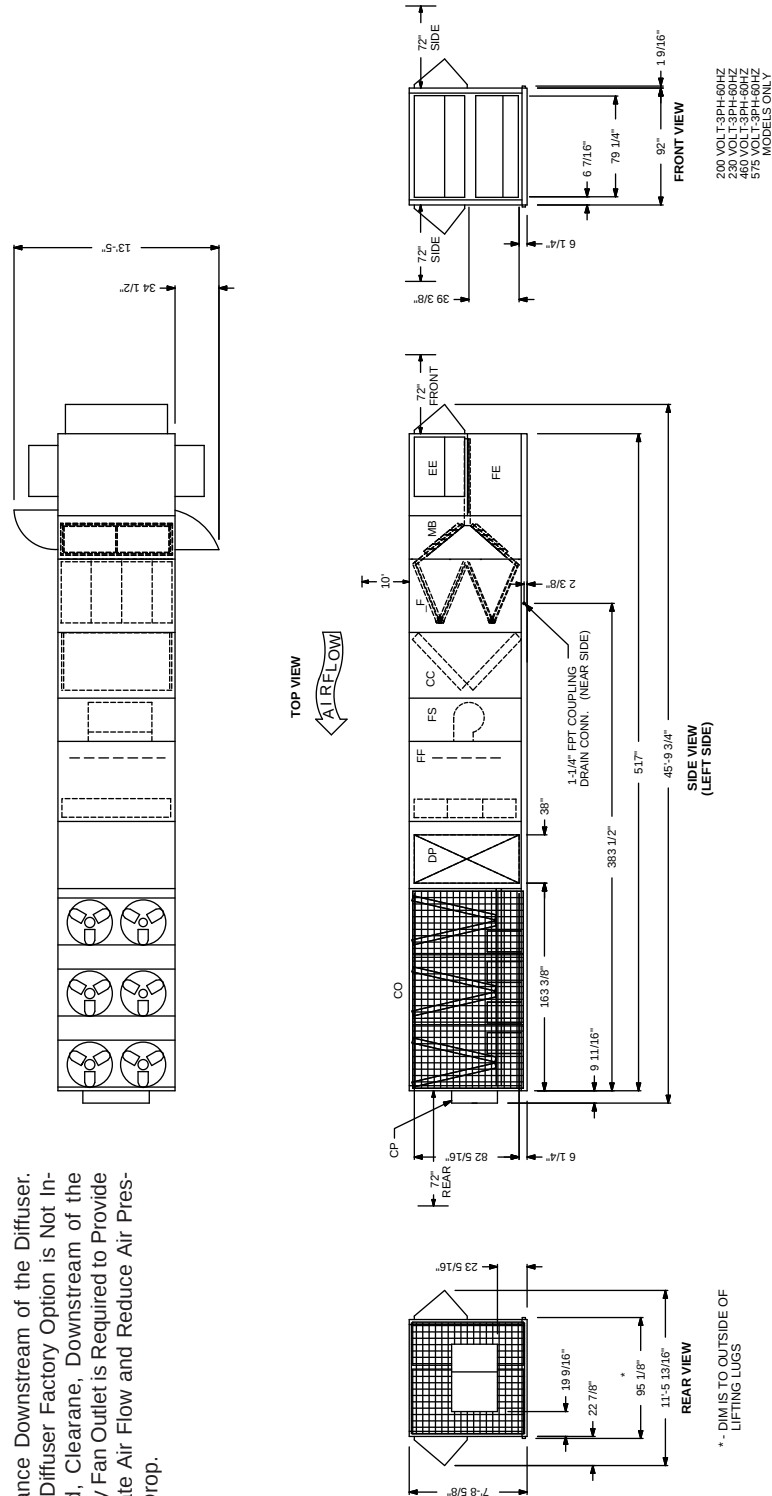


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08138

SECTION DESCRIPTIONS:

EE = Economizer
FE = Fan Exhaust
MB = Mixing Box
_F = Filter Segments
CC = Cooling Coils
CS = Supply Fan
FF = Final Filter
DP = Discharge Plenum
CO = Condenser Section
CP = Control Panel

- NOTES:**
1. 10' Clearance Minimal Over The Top of the Condensing Unit.
 2. Only One Adjacent Wall Can Exceed Unit Height.
 3. 12' Clearance Required to Adjacent Units
 4. 8' Service Access Recommended on One Side.
 5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.
 6. Clearance Downstream of the Diffuser. If the Diffuser Factory Option is Not Installed, Clearane, Downstream of the Supply Fan Outlet is Required to Provide Adequate Air Flow and Reduce Air Pressure Drop.

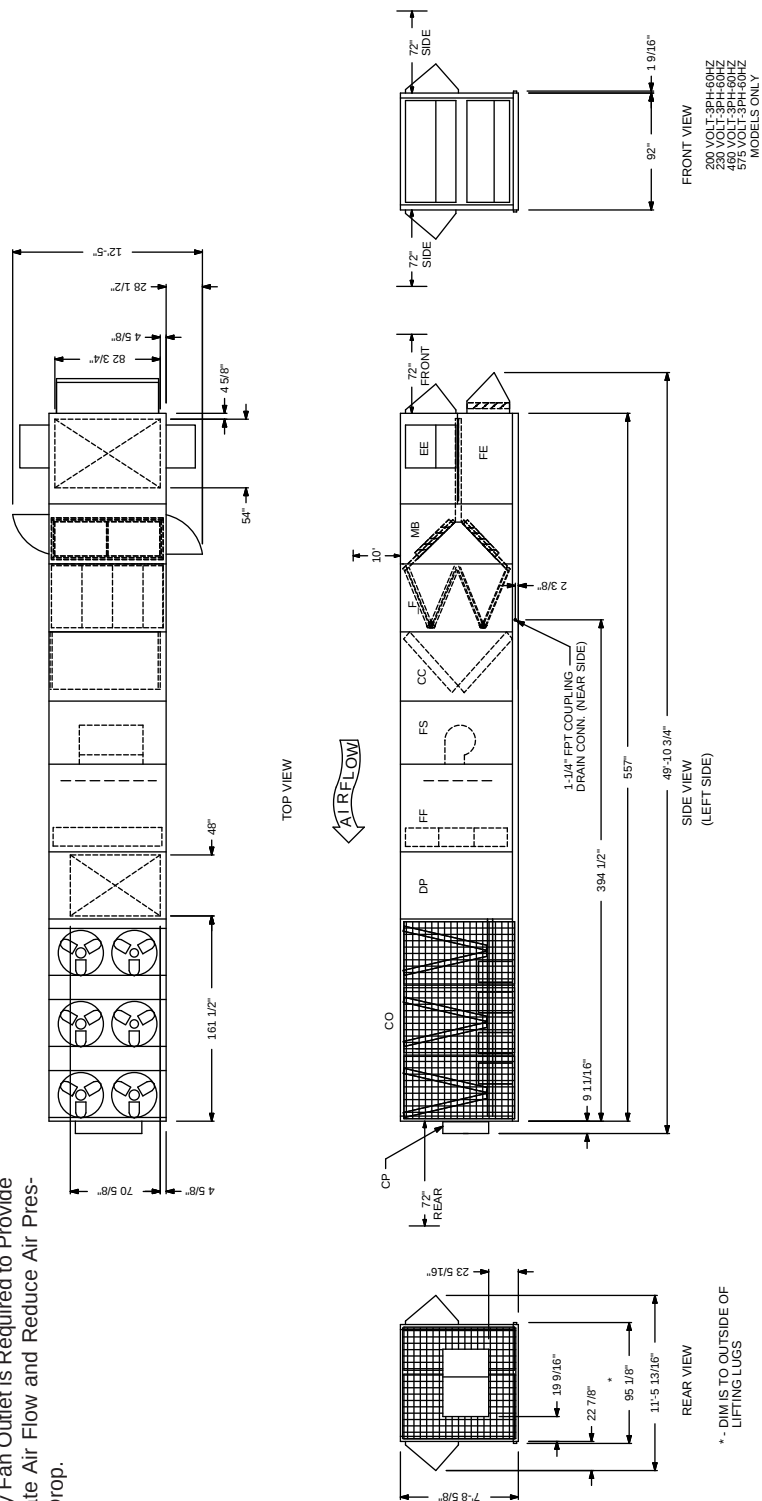


FIG. 10 – GENERAL ARRANGEMENT DRAWING

General Arrangement Drawing – 90-105 Ton Models

EXTENDED CABINET / LEFT SUPPLY / LEFT RETURN

SECTION DESCRIPTIONS:

EE = Economizer
FE = Fan Exhaust
MB = Mixing Box
F = Filter Segments
CC = Cooling Coils
FS = Supply Fan
FF = Final Filter
DP = Discharge Plenum
CO = Condenser Section
CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.
6. Clearance Downstream of the Diffuser. If the Diffuser Factory Option is Not Installed, Clearance, Downstream of the Supply Fan Outlet is Required to Provide Adequate Air Flow and Reduce Air Pressure Drop.

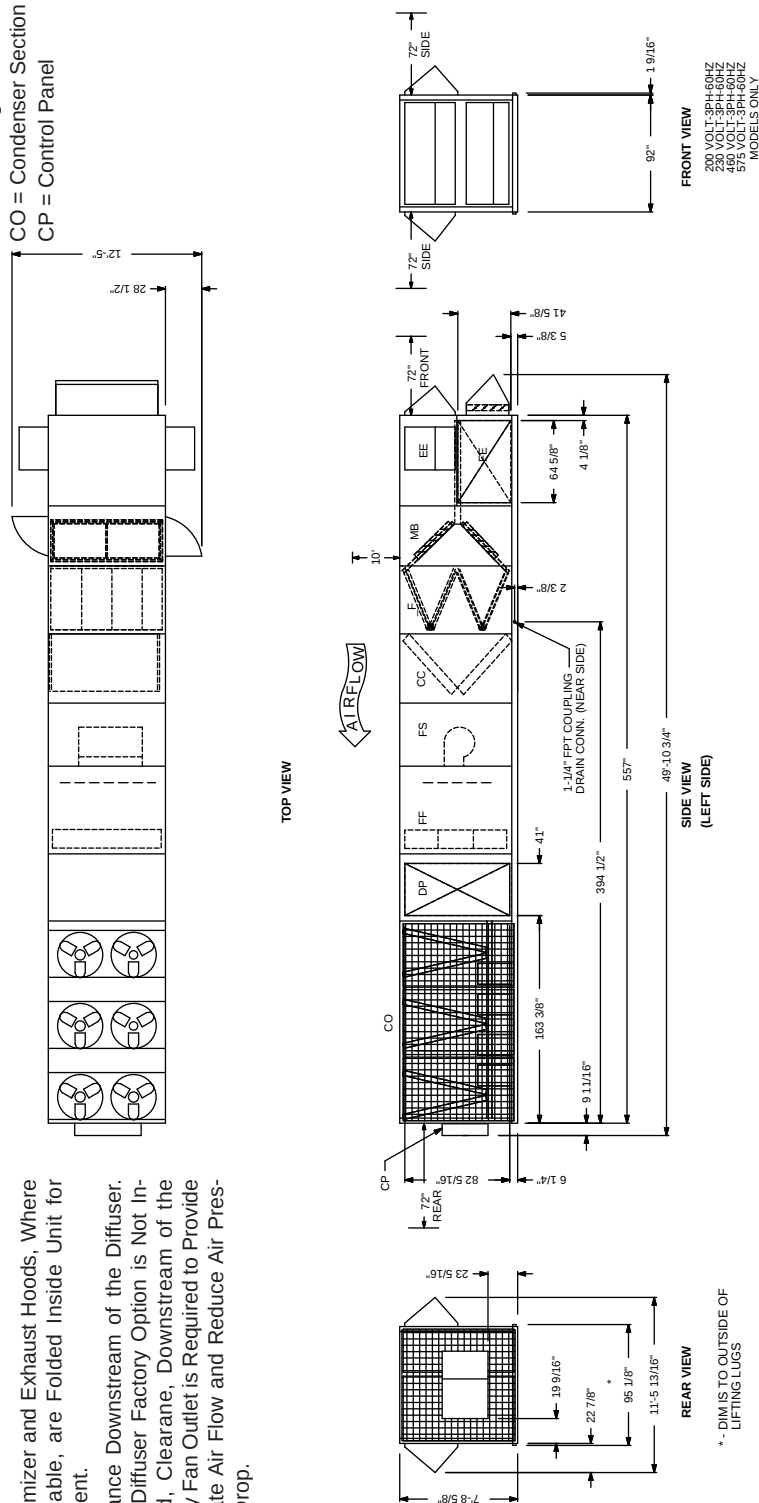


FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08137

EXTENDED CABINET / LEFT SUPPLY / BOTTOM RETURN

SECTION DESCRIPTIONS:

EE = Economizer
 FE = Fan Exhaust
 MB = Mixing Box
 _F = Filter Segments
 CC = Cooling Coils
 FS = Supply Fan
 FF = Final Filter
 DP = Discharge Plenum
 CO = Condenser Section
 CP = Control Panel

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.
6. Clearance Downstream of the Diffuser. If the Diffuser Factory Option is Not Installed, Clearance, Downstream of the Supply Fan Outlet is Required to Provide Adequate Air Flow and Reduce Air Pressure Drop.

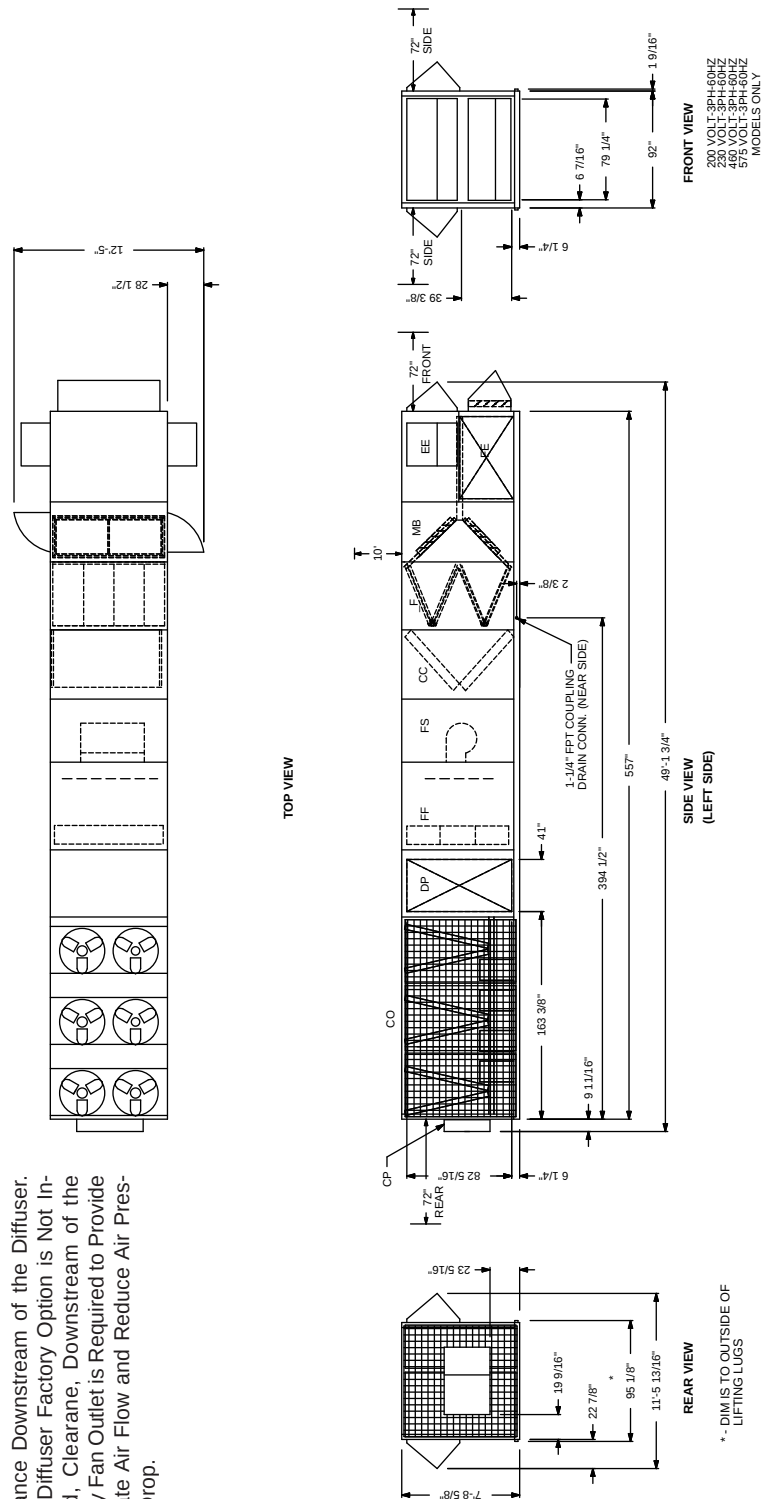
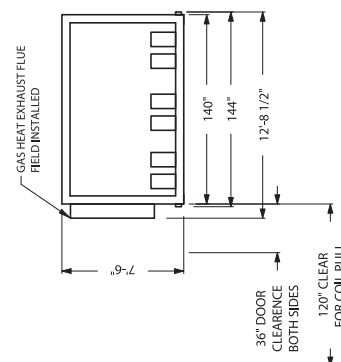
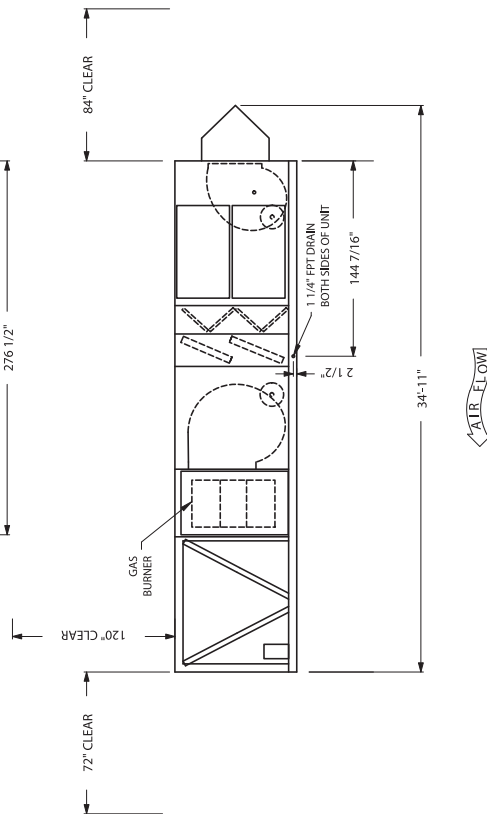
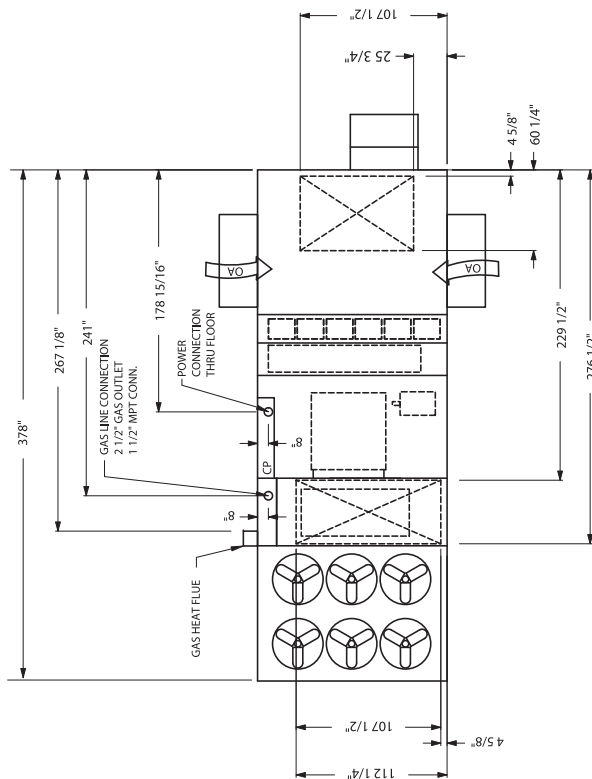


FIG. 10 – GENERAL ARRANGEMENT DRAWING

60" CLEAR
FOR AIR
INTAKE
BOTH SIDES



NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

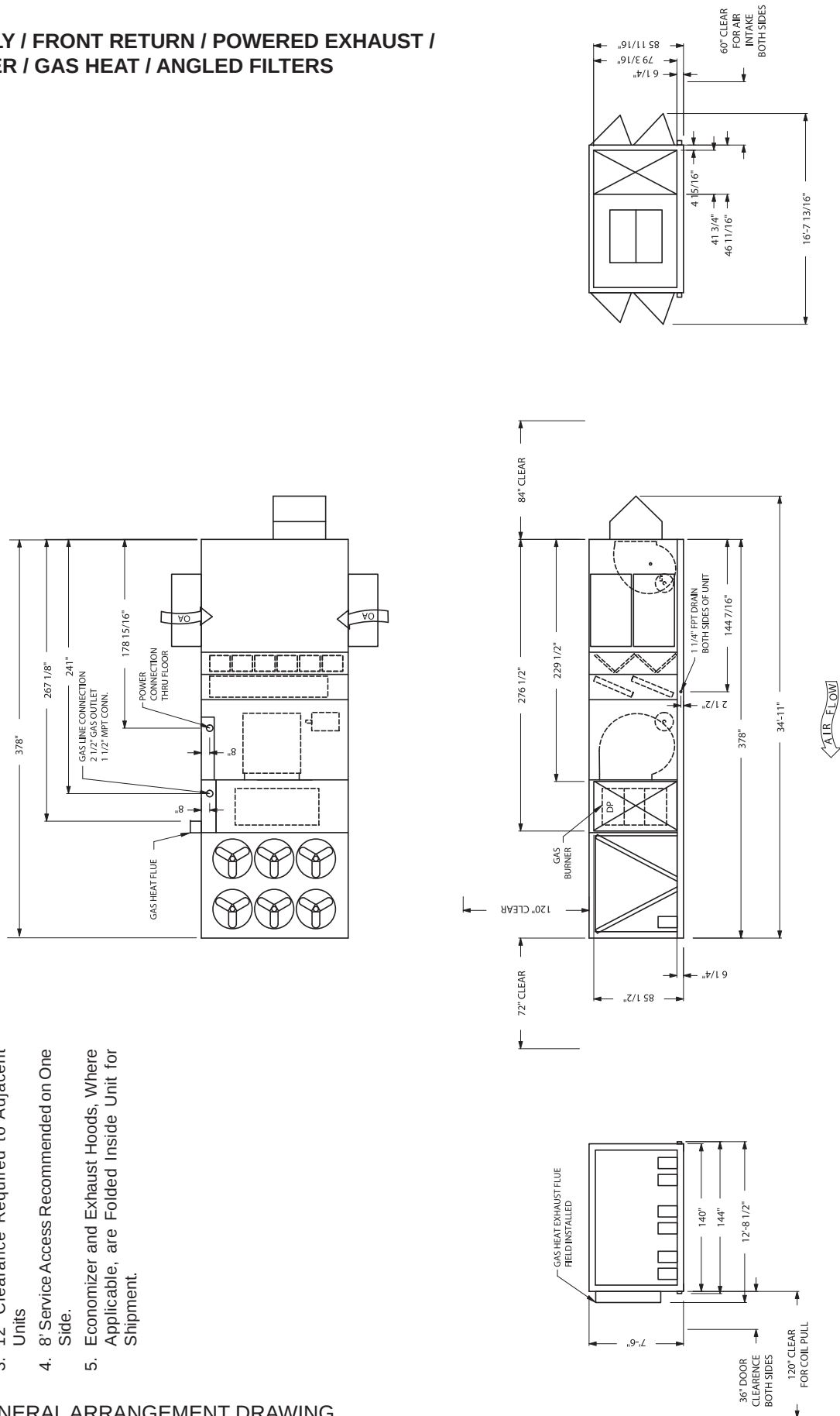
FIG. 10 – GENERAL ARRANGEMENT DRAWING

LEFT SUPPLY / FRONT RETURN / POWERED EXHAUST / ECONOMIZER / GAS HEAT / ANGLED FILTERS

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

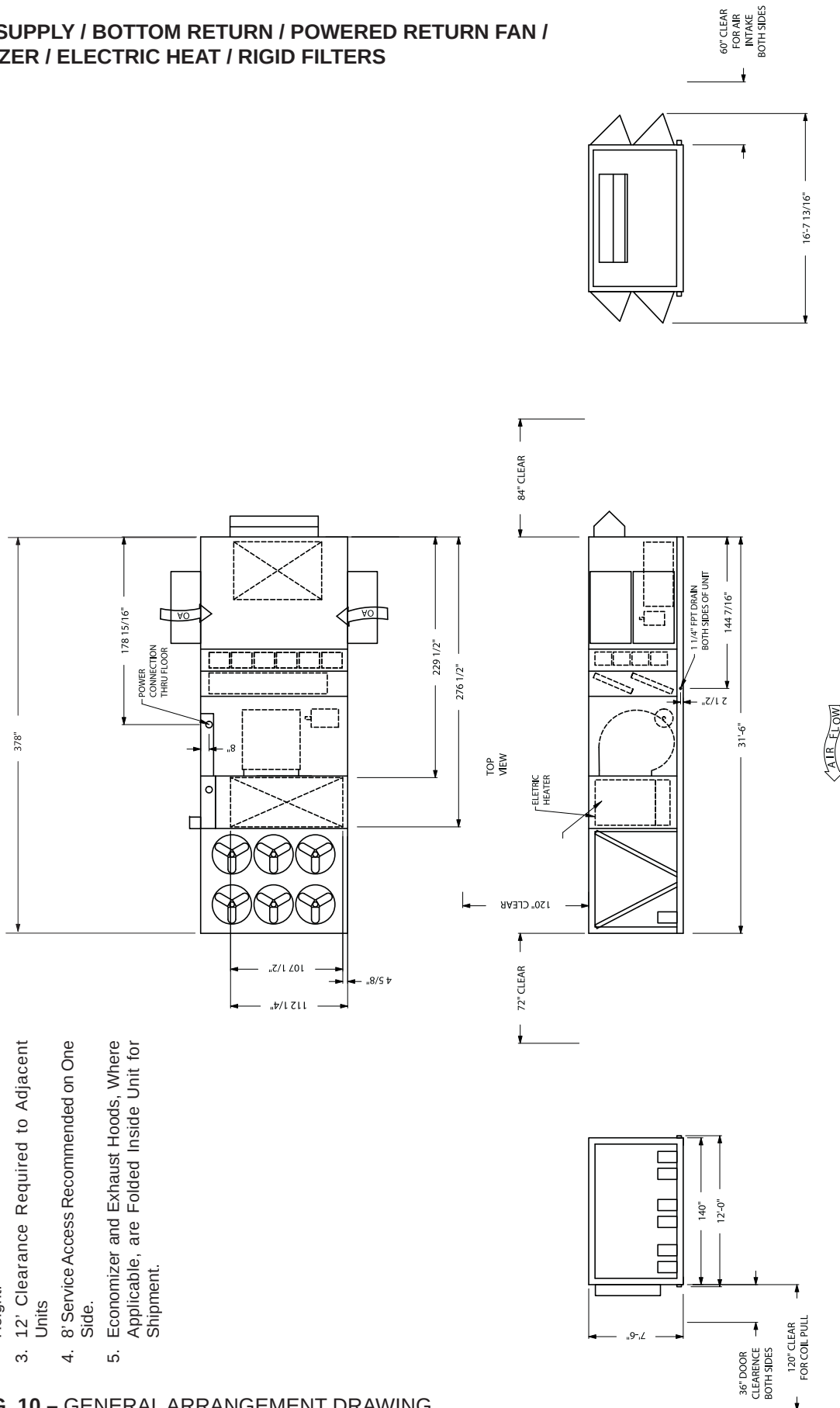
FIG. 10 – GENERAL ARRANGEMENT DRAWING



LD08174

General Arrangement Drawing – 120-130 Ton Models

BOTTOM SUPPLY / BOTTOM RETURN / POWERED RETURN FAN /
ECONOMIZER / ELECTRIC HEAT / RIGID FILTERS



NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

FIG. 10 – GENERAL ARRANGEMENT DRAWING

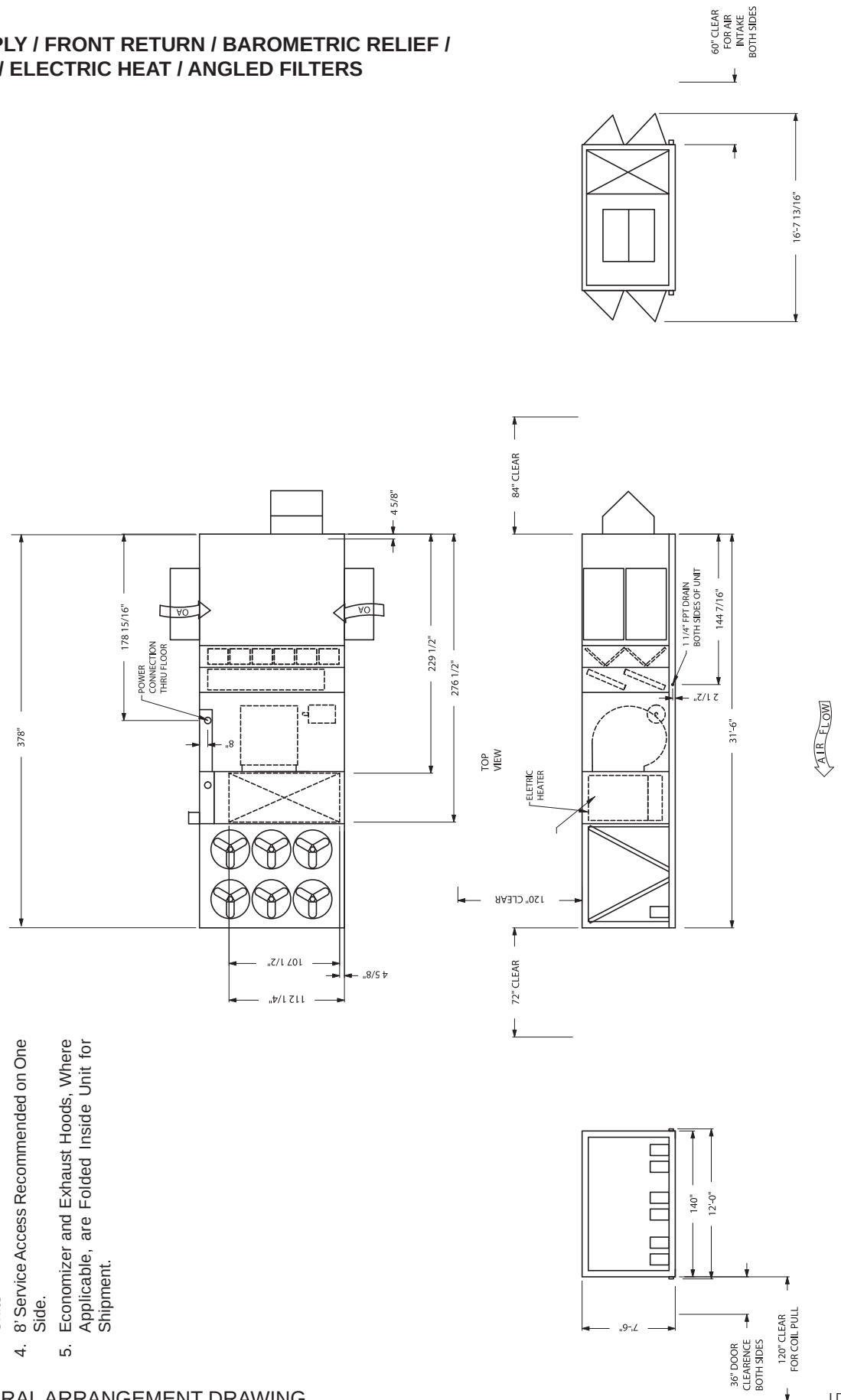
LD08175

**BOTTOM SUPPLY / FRONT RETURN / BAROMETRIC RELIEF /
ECONOMIZER / ELECTRIC HEAT / ANGLED FILTERS**

NOTES:

1. 10' Clearance Minimal Over The Top of the Condensing Unit.
2. Only One Adjacent Wall Can Exceed Unit Height.
3. 12' Clearance Required to Adjacent Units
4. 8' Service Access Recommended on One Side.
5. Economizer and Exhaust Hoods, Where Applicable, are Folded Inside Unit for Shipment.

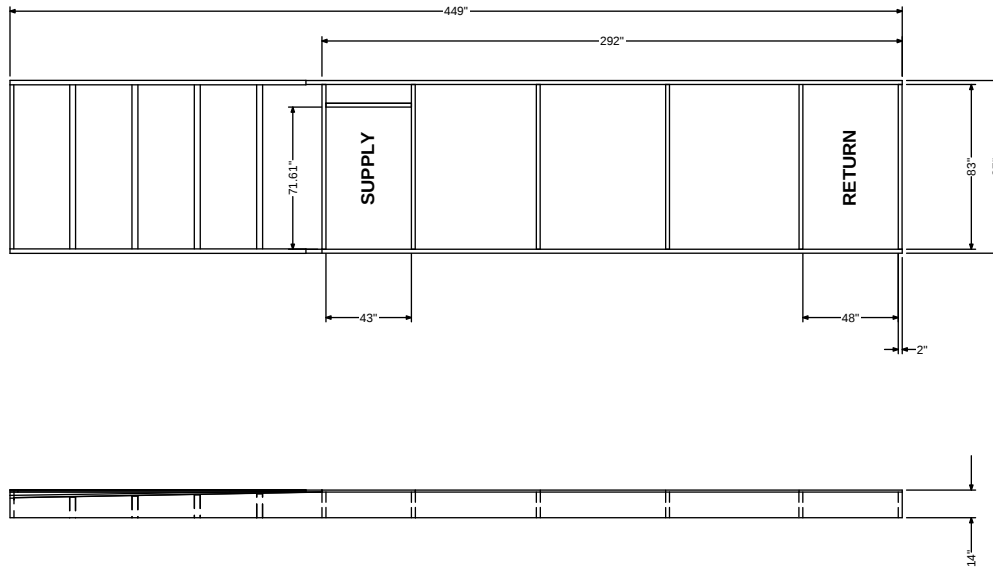
FIG. 10 – GENERAL ARRANGEMENT DRAWING



LD08176

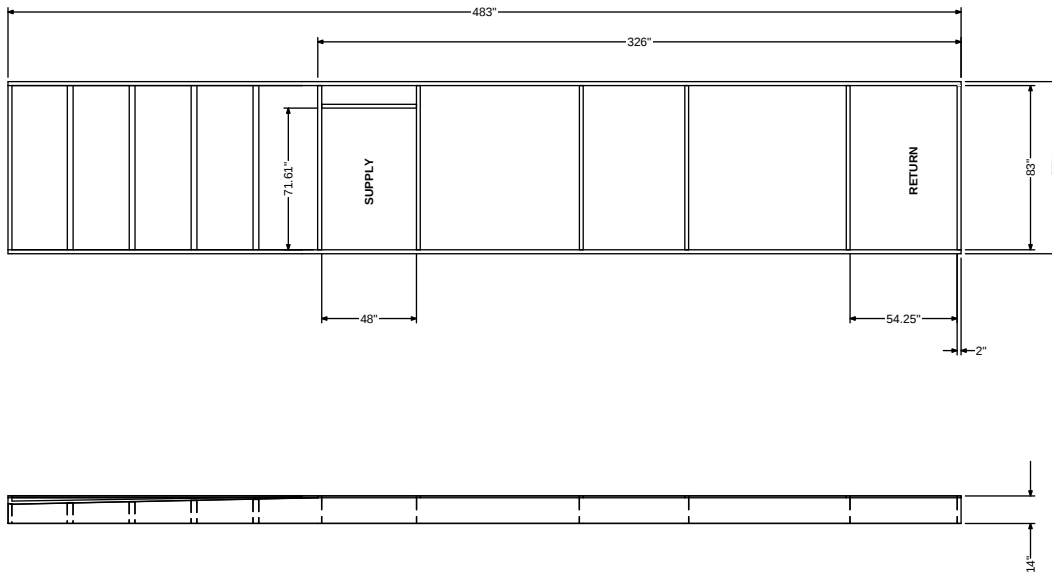
General Arrangement Drawing

CURB LAYOUT DRAWING / 70-80 TON MODEL



LD08143

CURB LAYOUT DRAWING / 90-105 TON MODEL



LD08144

NOTES:

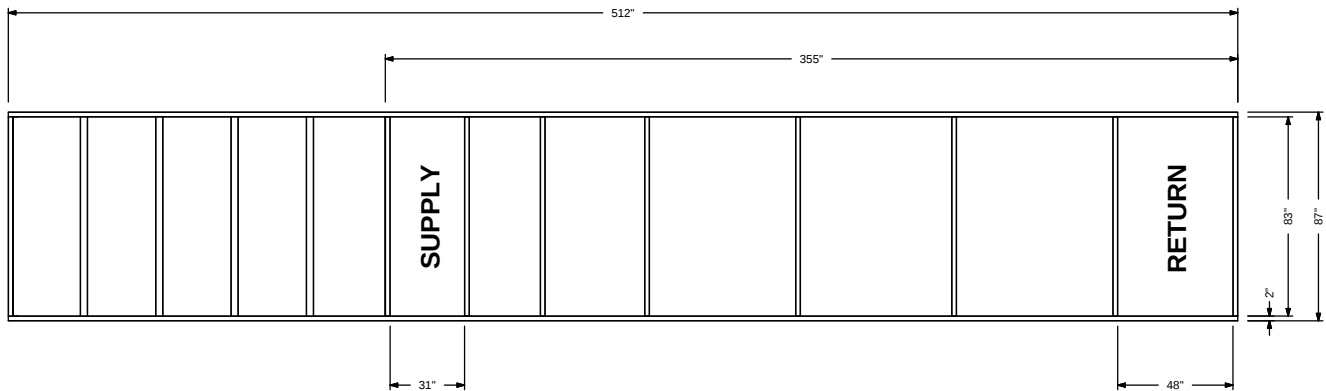
1. Unit must be installed square and level.
2. Curb configuration for "bottom" return and "bottom" supply.
3. These drawings are not intended as construction documents for the field fabricated roof curbs. JOHNSON CONTROLS will not be responsible for the unit fit up, leak integrity, or sound level for installation using field fabricated roof curbs.
4. The YPAL unit does not have a base pan under the condensing section of the unit. Field fabricated roof curbs must have a cap on the top of the condensing section of the curb to prevent moisture from entering the space. The cap design must be sloped away from the supply duct opening to the end of the unit for the drainage of the moisture off of the top of the cap.

FIG. 10 – GENERAL ARRANGEMENT DRAWING

This page intentionally left blank

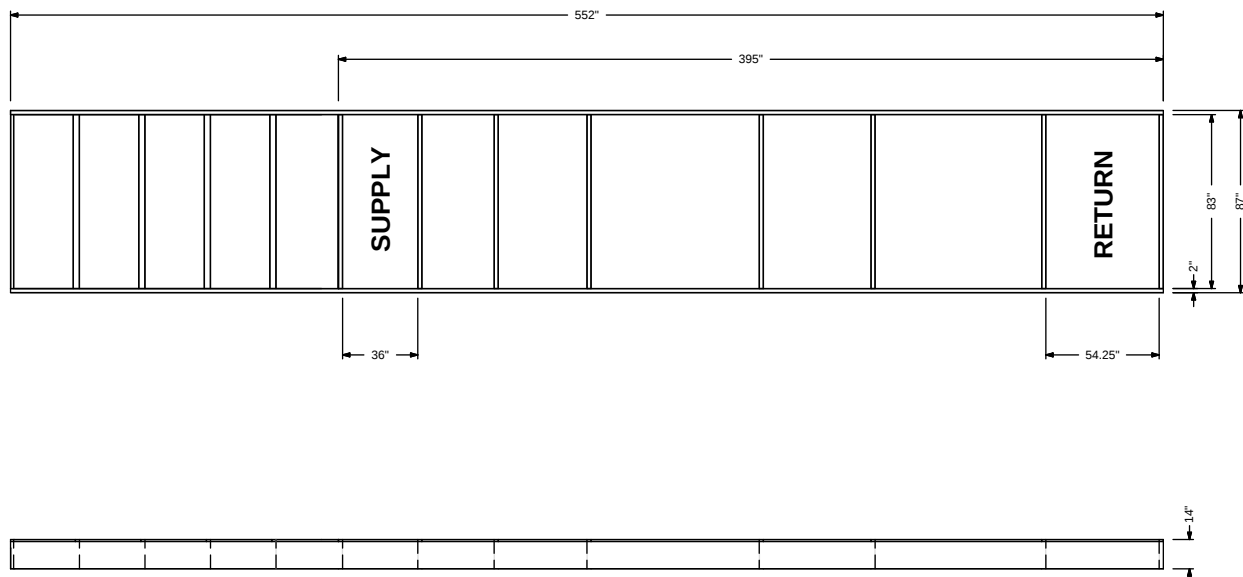
General Arrangement Drawing (continued)

EXTENDED CURB LAYOUT DRAWING / 90-105 TON MODEL



LD08146

EXTENDED CURB LAYOUT DRAWING / 70-80 TON MODEL

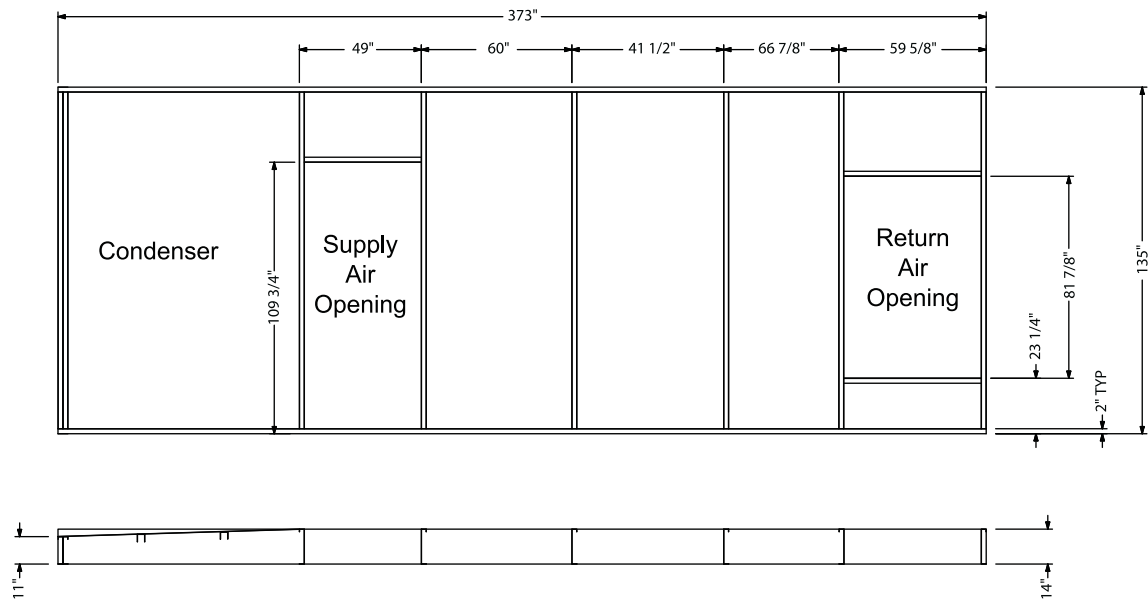


NOTES:

1. Unit must be installed square and level.
2. Curb configuration for "bottom" return and "bottom" supply.
3. These drawings are not intended as construction documents for the field fabricated roof curbs. JOHNSON CONTROLS will not be responsible for the unit fit up, leak integrity, or sound level for installation using field fabricated roof curbs.
4. The YPAL unit does not have a base pan under the condensing section of the unit. Field fabricated roof curbs must have a cap on the top of the condensing section of the curb to prevent moisture from entering the space. The cap design must be sloped away from the supply duct opening to the end of the unit for the drainage of the moisture off of the top of the cap.

FIG. 10 – GENERAL ARRANGEMENT DRAWING

LD08147

CURB LAYOUT DRAWING / 120-130 TON MODEL

LD08177

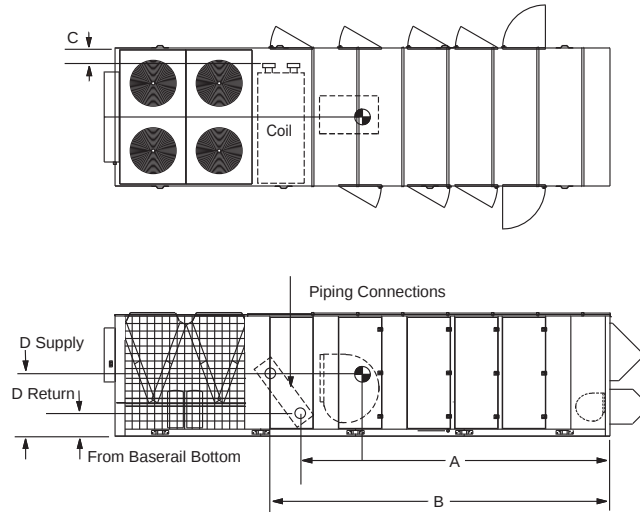
NOTES:

1. Unit must be installed square and level.
2. Curb configuration for "bottom" return and "bottom" supply.
3. These drawings are not intended as construction documents for the field fabricated roof curbs. JOHNSON CONTROLS will not be responsible for the unit fit up, leak integrity, or sound level for installation using field fabricated roof curbs.
4. The YPAL unit does not have a base pan under the condensing section of the unit. Field fabricated roof curbs must have a cap on the top of the condensing section of the curb to prevent moisture from entering the space. The cap design must be sloped away from the supply duct opening to the end of the unit for the drainage of the moisture off of the top of the cap.

FIG. 10 – GENERAL ARRANGEMENT DRAWING

Hot Water/Steam Coil Connection Locations

HOT WATER & STEAM COIL CONNECTION LOCATIONS



LD08119

TABLE 41 – FITTING LOCATION DIMENSIONS

Unit Size	A	B	C	D _{supply}	D _{return}	Connection Sizes inches)	
	Note 1	Note 2	Note 3	Note 4	Note 4	Supply	Return
Hot Water							
70-85	254.60	285.60	6.25	45.60	16.00	2" FPS	2" FPS
90-105	283.10	319.80	6.25	50.10	15.50	2" FPS	2" FPS
Steam							
70-85	254.60	270.50	5.75	31.90	16.00	2" MPT	1.5" MPT
90-105	283.10	301.50	5.75	32.60	15.60	2" MPT	1.5" MPT

NOTES:

- A. Location of return line connection, horizontal from economizer corner post, in direction of airflow
 B. Location of supply line connection, horizontal from economizer cornerpost, in direction of airflow
 C. Location of both supply and return lines, horizontal from outside casing of unit, across direction of airflow
 D. Location of supply and return lines, vertical from bottom edge of base rail

MPT = Male Pipe Thread FPS = Female Pipe Sweat FPT = Female Pipe Thread

Hot Water Coil Connections w/ controls are valve connections facing bottom of the unit, at locations indicated.

Steam and Hot Water connections w/o controls are fittings connections facing side of the unit, at locations indicated.

Lifting Lug Locations

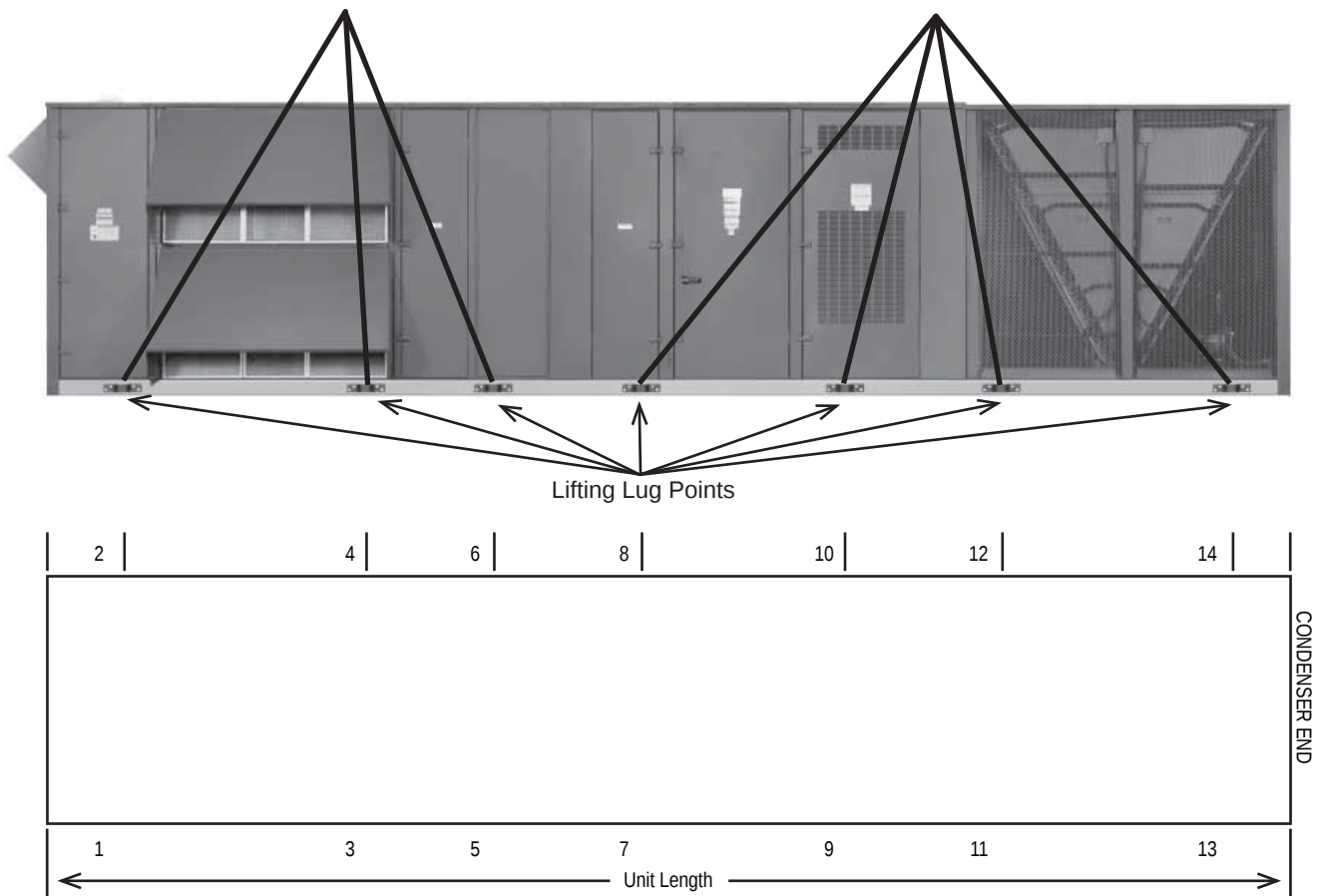


TABLE 42 – LIFTING LUG DISTANCES

Unit Size	Unit Length (inches)	Lifting Lug Distance from Non-Condenser End (inches)						
		1, 2	3, 4	5, 6	7, 8	9, 10	11, 12	13, 14
70-80 Std Cabinet	454.00	29.88	77.00	197.00	270.50	318.63	373.75	428.88
70-80 Extended Cabinet	517.00	29.88	77.00	197.00	270.50	381.63	436.75	491.88
90-105 Std Cabinet	488.00	29.88	99.00	190.00	302.50	353.13	408.25	463.38
90-105 Extended Cabinet	557.00	29.88	99.00	190.00	302.50	422.13	477.25	532.38

Unit Size	Unit Length (inches)	Lifting Lug Distance from Non-Condenser End (inches)						
		1, 2	3, 4	5, 6	7, 8	9, 10	11, 12	13, 14
120 Std Cabinet	378.00	22.75	117.38	180.75	243.00	290.50	360.38	-
120 Extended Cabinet	442.00	22.75	117.38	180.75	243.00	307.00	354.50	424.38
130 Std Cabinet	378.00	22.75	117.38	180.75	243.00	290.50	360.38	-
130 Extended Cabinet	442.00	22.75	117.38	180.75	243.00	307.00	354.50	424.38

Power/Control Entry Drawing – 70-105 Ton Models

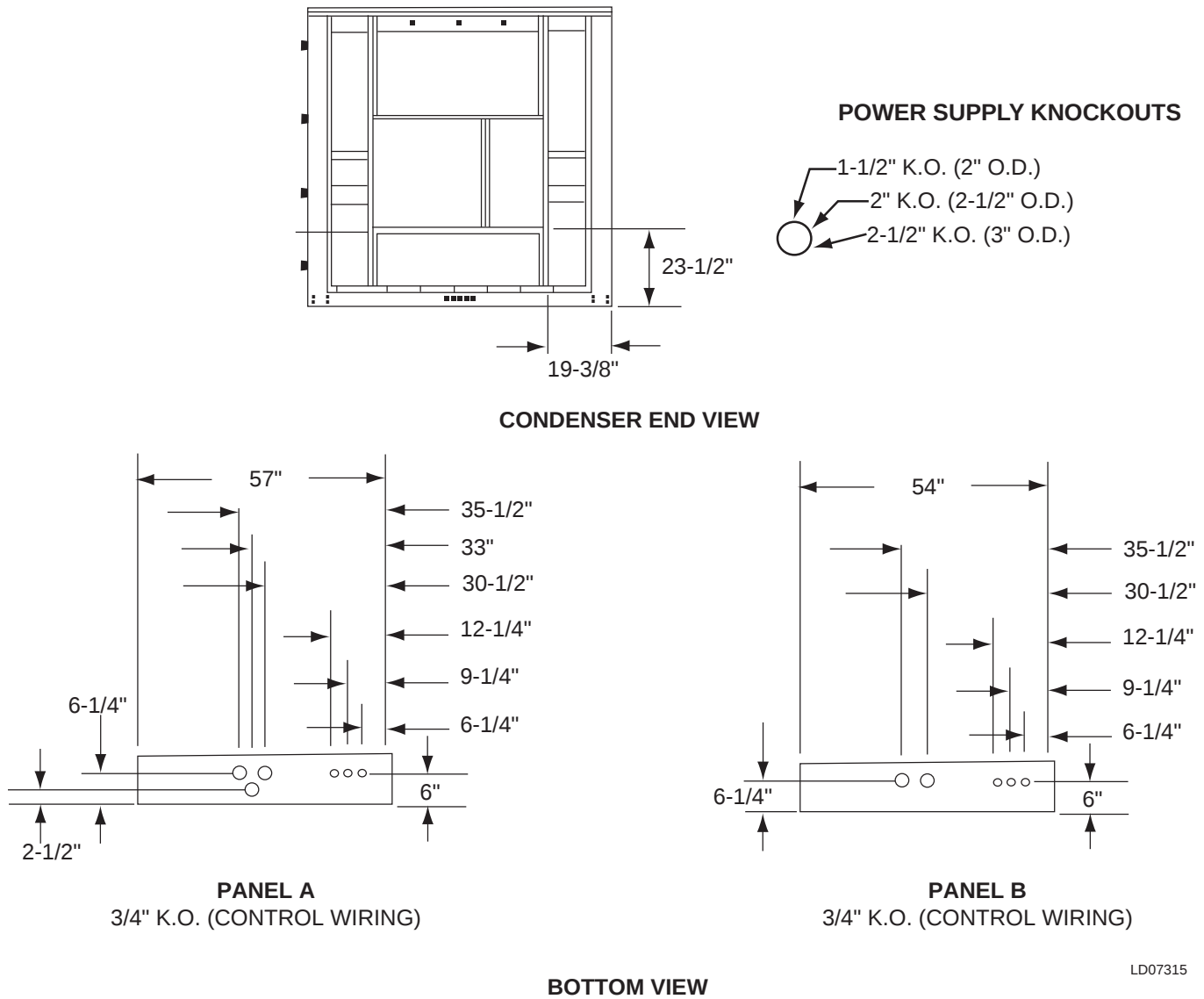


TABLE 43 – POWER/CONTROL ENTRY DIMENSIONS

Model	208V	230V	460V	575V
70	A	A	B	B
75	A	A	B	B
80	A	A	B	B
90	A	A	A	A
105	A	A	A	A

FIG. 11 – POWER/CONTROL ENTRY DRAWING – 70 - 105 TON MODELS

Guide Specifications

GENERAL

Scope

The requirements of the General Conditions, Supplementary Conditions, Division 1 and drawings apply to all work herein.

Provide Microprocessor-controlled, air-cooled, double-wall construction outdoor packaged single package unit air conditioning product of the scheduled capacities and performance as shown and indicated on the Drawings, including but not limited to:

1. Single-piece single package unit package
2. Charge of refrigerant and oil
3. Electrical power and control connections
4. Supply and return duct connections
5. Factory start-up

Quality Assurance

All units are tested, rated or certified, as applicable, in accordance with the following standards, guidelines and codes:

1. All units shall meet the latest ASHRAE 90.1 minimum energy-efficiency requirements (EER)
2. All units shall meet the latest ASHRAE 62 requirements for ventilation and indoor air quality.
3. All units shall be rated in accordance with the ARI Standard 340/360
4. All units shall be tested to ANSI/UL 1995 and CAN/CSA C22.2 No. 236 standards
5. Gas heating units shall be designed in conform to ANSI Z21.47-1998/CSA 2.3-M98 standards and be carry the UL listing
6. Units shall be ETL and ETL Canada listed

Manufacturers: The design shown on the drawing is based upon products of the manufacturer scheduled. Alternate equipment manufacturers shall be acceptable if equipment meets the scheduled performance and complies with these specifications. If equipment manufactured by manufacturer other than that scheduled is utilized, then the Mechanical Contractor shall be responsible for coordinating with the General Contractor and all affected Subcontractors to insure proper provisions for installation of the furnished unit. This coordination shall include, but not be limited to, the following:

1. Structural supports for units.
2. Roof curb transition.
3. Piping size and connection/header locations.

4. Electrical power requirements and wire/conduit and overcurrent protection sizes.
5. All costs incurred to modify the building provisions to accept the furnished units.

Warranty: Manufacturer shall warrant all equipment and material of its manufacture against defects in workmanship and material for a period of eighteen (18) months from date of shipment.

1. The warranty shall include parts only during this period.
2. The warranty shall not include parts associated with routine maintenance, such as belts, air filters, etc.

Delivery and Handling

Unit shall be delivered to the job site fully assembled, wired, and charged with refrigerant and oil by the manufacturer.

Unit shall be stored and handled per Manufacturer's instructions.

All handling and storage procedures shall be per manufacturer's recommendations.

Submittals

Shop Drawings: Shop drawing submittals shall include, but not limited to, the following: drawings indicating components, dimensions, weights, required clearances, and location, type and size of field connections, and power and control wiring connections.

Product Data: Product data shall include dimensions, weights, capacities, ratings, fan performance, motor electrical characteristics, and gauges and finishes of materials.

Documentation:

1. Fan curves with specified operating point clearly plotted shall be provided.
2. Product data of filter media, filter performance data, filter assembly, and filter frames shall be provided.
3. Electrical requirements for power supply wiring; including wiring diagrams for interlock and control wiring shall be supplied. Factory and field-installed wiring shall be clearly indicated.
4. Operation and maintenance documentation shall be supplied in accordance with Section 01830 – Operation and Maintenance, including but not limited to instructions for lubrication, filter replacement, compressor, motor and drive replacement, coil cleaning, filter maintenance, spare parts lists, and wiring diagrams.

Guide Specifications (continued)

Warranties

Equipment shall include the manufacturer's warranty not less than eighteen months from the date of shipment.

Extended parts warranty [optional] shall be included for an additional one [five] years

Extended parts and labor warranty [optional] shall be included for an additional one [five] years

EQUIPMENT

Product Specification

Summary: Completely factory assembled unitized construction packaged single package unit air conditioning unit including a factory-mounted and wired unit controller and sensors, single-point power connection 460V [208V/230V/575V] three-phase, 60Hz power supply, outdoor air handling section with return and supply openings, discharge plenum, direct-expansion refrigerant condensing section.

Factory Test: The refrigerant circuit shall be pressure-tested, evacuated and fully charged with refrigerant and oil. The completed refrigerant circuit shall undergo a factory helium leak test and undergo an automated operational run test and quality inspection prior to shipment. The unit controller shall be configured and run tested at the factory to minimize field setup time. If the unit is not configured and tested, then the manufacturer shall provide field start up and testing to ensure that the controller is functioning properly.

Unit Construction:

Base Rail: The unit shall include an integral design base rail with lifting points clearly marked and visible on the base rail and a 1-1/4" FPT connection for condensate drainage. The unit base shall be designed with a recessed curb mounting location. The recessed curb-mounting surface shall provide a continuous surface for field application of curb gasketing to create a weather tight seal between the curb and unit.

Casing: Casing shall be complete post and panel construction with exterior skin. All panels, doors, walls, uprights, floor panels and roofing shall be one-inch thick; 1-1/2 pound density insulation. Units are specifically designed for outdoor installation.

Roof: The unit roof shall be bowed with the peak in the middle of the unit and sloped to both sides of the unit for drainage. A drip lip shall run the length of the unit to prevent water drainage down the side of the unit. Roof and sidewall seams shall be continuously caulked and

covered with formed galvanized seam caps. All panel fasteners shall be secured through standing seams to prevent fastener penetrations that are exposed to the air stream.

Paint: Exterior painted surfaces are designed to withstand a minimum of 500 salt spray hours when tested in accordance with ASTM B-117.

Markings and Diagrams: All necessary tags and decals to aid in the service and/or indicating caution areas shall be provided. Electrical wiring diagrams shall be attached to the control panel access door.

Documentation: Installation and maintenance manuals shall be supplied with each unit.

Access Doors: Double wall access doors shall be provided in the fan, coil, filter and inlet sections of the unit on both sides of the unit. Doors shall be double-wall construction with a solid liner and a minimum thickness of 1-inch. Doors shall be attached to the unit with piano-type stainless steel hinges. Latches shall be positive-action, creating an airtight seal between the door and unit. Panels and doors shall be completely gasketed with a closed-cell, neoprene gasket. Door tiebacks shall be provided for all doors to secure doors while servicing.

Economizer Section:

[SELECT NONE, OR ONE OF THE FOLLOWING]

1. No Outside Air: the unit has no provisions for outside ventilation air.
2. Manual Outside Air Damper: A manually adjustable outside air damper capable of admitting 0-25% outside air shall be provided.
3. Two-Position Outside Air Damper: A two position damper outside air damper capable of admitting 0-25% outside air shall be provided. The minimum position shall be manually adjustable from 0-25%. Control shall be based on the occupied mode of the unit. For occupied mode, the damper shall be open to the minimum position and for unoccupied, it shall be closed.
4. Modulating Economizer: The economizer segment shall be designed to use outside air for cooling and ventilation and provide a means of exhausting air from the air-handling unit. The segment shall consist of parallel acting low-leak dampers. The return air, outside air and exhaust air dampers shall be sized for 100% of nominal unit airflow. The exhaust air damper assembly shall have a factory-assembled rain hood. The rain hood shall have a drip-lip the full width of the hood to channel moisture away from the air being drawn into the unit.

[SELECT ONE OF THE FOLLOWING TYPES OF BUILDING PRESSURE CONTROL]

1. No Building Exhaust/Relief: The unit has no provisions to exhaust building return air.
2. Barometric Relief Damper: Building air exhaust shall be accomplished through barometric relief dampers installed in the return air plenum. The dampers open relative to the building pressure. The opening pressure shall be adjustable.
3. On/Off Fan Powered Exhaust: A DWDI Class II forward-curved centrifugal exhaust fan shall be provided to exhaust building return air to relieve building static pressure. The fans shall be constant volume and operate based on either a building static pressure, or outside air damper position.
4. Powered Exhaust with Modulating Discharge Damper: A DWDI Class II forward-curved centrifugal exhaust fan shall be provided to exhaust building return air to relieve building static pressure. The fans shall operate at a constant volume and operate based on building static pressure. Exhaust airflow shall be modulated via a parallel-acting control damper. The exhaust air dampers shall be sized for 100% of the exhaust airflow.
5. Powered Exhaust with Variable-Frequency-Drive: A twin DWDI Class II forward-curved centrifugal exhaust fan shall be provided to exhaust building return air to relieve building static pressure. Exhaust airflow shall be modulated via a factory-installed and commissioned variable-frequency-drive with the same nameplate horsepower as the supply fan motor.
6. Power Return Fan – A SWSI plenum fan shall be provided to draw return air from the building to the single package unit. An access door shall be provided on at least one side of the unit for fan/motor access. The return fan shall operate to maintain a constant pressure within the return plenum.
7. Power Return Fan – A SWSI plenum fan shall be provided to draw return air from the building to the single package unit. An access door shall be provided on at least one side of the unit for fan/motor access. The return fan shall operate to maintain a constant pressure within the return plenum. A discharge damper shall be provided to modulate building exhaust. The damper shall be controlled via building pressure. The return damper shall be linked with the outside air damper to modulate volumes of return and outside airflows.

[FOR POWERED EXHAUST OR RETURN FAN OPTIONS ABOVE, USE THE FOLLOWING]

1. Fan Motor: Fan motors shall be NEMA design ball-bearing types with electrical characteristics

and horsepower as specified. Motors shall be 1750 RPM, open drip-proof type. The motor shall be located within the unit on an adjustable base.

Mountings: Fan and fan motor shall be internally mounted and isolated on a full width isolator support channel using 1-inch springs **[2-inch springs and seismic restraints]**. The fan discharge shall be connected to the fan cabinet using a flexible connection to insure vibration-free operation.

Bearings and Drives: Fan bearings shall be self-aligning, pillow block or flanged type regreaseable ball bearings and shall be designed for an average life (L50) of at least 200,000 hours. All bearings shall be factory lubricated and equipped with standard hydraulic grease fittings and lube lines extended to the motor side of the fan. Fan drives shall be selected for a 1.5 service factor and anti-static belts shall be furnished. All drives shall be fixed pitch. Fan shafts shall be selected to operate well below the first critical speed and each shaft shall be factory coated after assembly with an anti-corrosion coating.

Filter Section:**[SELECT A FILTER RACK, FILTER MEDIA, AND SWITCH IF DESIRED]**

1. Angled Filter Rack: two-inch throwaway filters shall be provided in an angled filter rack.
2. Angled Filter Rack: two-inch carbon media filters shall be provided in an angled filter rack.
3. Angled Filter Rack: two-inch cleanable filters shall be provided in an angled filter rack.
4. Angled Filter Rack: two-inch high-efficiency (30%) pleated filters shall be provided in an angled filter rack.
5. Flat Filter Rack: 60-65% Efficient Rigid Filters with a two-inch high-efficiency pleated pre-filters shall be provided in a flat filter rack.
6. Flat Filter Rack: 90-95% Efficient Rigid Filters with a two-inch high-efficiency pleated pre-filters shall be provided in a flat filter rack.
7. Dirty Filter Alarm: A dirty filter switch shall be provided and wired to the single package unit control panel. Upon closure of the switch, the controller shall display a dirty filter fault. The setting of the switch can be changed manually to close at a specified pressure drop across the filters.

Evaporator Section

1. Cooling Coil: Evaporator coils shall be direct expansion type with intertwined circuiting to assure complete coil face activity during part load operation. Coil tubes shall be 1/2" OD copper, with internally enhanced tubes. Fins shall be enhanced mechani-

Guide Specifications (continued)

cally expanded to bond with the copper tubes. Coil casing shall be fabricated from heavy gauge galvanized steel. All coils shall be pressure tested at a minimum of 450 PSIG.

2. IAQ Drain Pan: The main coil drain pan shall be double-sloped with a condensate connection through the base rail of the unit. Clearance between the evaporator coil and the drain pan shall allow for easy access to the drain pan for cleaning, and shall be visible for inspection without the removal of components.
3. Intermediate Drain Pan: Coils with finned height greater than 48" shall have an intermediate drain pan extending the entire finned length of the coil. The intermediate pans shall have drop tubes to guide condensate to the main drain pan.

Supply Fan Section

1. Fan: The fan section shall be equipped with a single double width, double inlet (DWDI) forward-curved **[airfoil optional]** centrifugal type wheels for horizontal discharge. An access door shall be provided on both sides of the unit for fan/motor access.
2. Fan Motor: Fan motors shall be NEMA design ball-bearing types with electrical characteristics and horsepower as specified. Motors shall be 1750 RPM, open drip-proof type **[TEAO optional]**. The motor shall be located within the unit on an adjustable base.

Mountings: Fan and fan motor shall be internally mounted and isolated on a full width isolator support channel using 1-inch **[2-inch optional]** springs **[with optional seismic restraints]**. The fan discharge shall be connected to the fan cabinet using a flexible connection to insure vibration-free operation.

Bearings and Drives: Fan bearings shall be self-aligning, pillow block or flanged type regreaseable ball bearings and shall be designed for an average life (L50) of at least 200,000 hours. All bearings shall be factory lubricated and equipped with standard hydraulic grease fittings and lube lines extended to the motor side of the fan. Fan drives shall be selected for a 1.5 service factor and anti-static belts shall be furnished. All drives shall be fixed pitch. Fan shafts shall be selected to operate well below the first critical speed and each shaft shall be factory coated after assembly with an anti-corrosion coating.

3. VAV Fan Control: VAV supply fan control shall be accomplished by using a variable-frequency-drive matched to the supply fan motor HP. The VFD shall include an integral DC line reactor to reduce harmonic distortion in the incoming and outgoing power feeds. If a DC line reactor is not provided, an AC line reactor must be provided. Inlet guide vanes

shall not be acceptable. VFD control keypads shall be located in the control cabinet for accessibility and servicing while the unit is operating.

4. Optional VFD manual bypass: a three contactor manual bypass shall be provided to permit replacement of the VFD in the event of a power failure.

Discharge Plenum

[SELECT ONE OF THE FOLLOWING HEAT/NO HEAT CONFIGURATIONS]

1. Cooling Only: The discharge air temperature sensor shall be located in the discharge plenum and be located such that it accurately measures the supply air temperature. Walls shall be lined with a solid liner to prevent erosion of the insulation and separate insulation from the air stream.
2. Staged Gas Heat: The heating section shall include an induced draft furnace in two stages [four stages or six stages] of heating capacity.

Heat Exchanger: The heat exchanger shall be constructed of tubular aluminized steel [stainless steel], with stainless steel flue baffles and flue assembly.

Burner and Ignition Control: The burner shall include a direct-driven induced-draft combustion fan with energy efficient intermittent pilot spark ignition, redundant main gas valves with pressure regulator.

Combustion Air Fan: The inducer fan(s) shall maintain a positive flow of air through each tube, to expel the flue gas and to maintain a negative pressure within the heat exchanger relative to the conditioned space.

Safety Devices: A high limit controller with automatic reset to prevent the heat exchanger from operating at an excessive temperature shall be included. A centrifugal switch on the induced draft fan motor shaft shall prevent ignition until sufficient airflow is established through the heat exchanger. A rollout switch shall provide secondary airflow safety protection. The rollout switch shall discontinue furnace operation if the flue becomes restricted.

Propane Conversion (For 50 - 105 ton units): Optional Propane Conversion Kits contain the necessary orifices and gas valve/parts to convert staged heat only (Not modulating) from natural gas to propane.

Flue: The furnace flue shall be shipped loose to protect it from damage during transit. The flue shall be field-mounted by the installing contractor. The flue outlet shall be located above the unit to help prevent recycling of combustion gases back through the heat exchanger. Agency Certification: Gas heating sections are both UL and CGA approved to both US and Canadian safety standards.

3. **Modulating Gas Heat:** The heating section shall include an induced draft furnace in 8:1 modulation [16:1, 24:1] of heating capacity.

Heat Exchanger(s): The heat exchanger(s) shall be constructed of tubular aluminized steel [stainless steel], with stainless steel flue baffles and flue assembly.

Burner(s) and Ignition Control: The burner(s) shall include a direct-driven induced-draft combustion fan with energy efficient intermittent pilot spark ignition, redundant main gas valves with pressure regulator.

Combustion Air Fan(s): The inducer fan(s) shall maintain a positive flow of air through each tube, to expel the flue gas and to maintain a negative pressure within the heat exchanger relative to the conditioned space.

Safety Devices: A high limit controller with automatic reset to prevent the heat exchanger from operating at an excessive temperature shall be included. A centrifugal switch on the induced draft fan motor shaft shall prevent ignition until sufficient airflow is established through the heat exchanger. A rollout switch shall provide secondary airflow safety protection. The rollout switch shall discontinue furnace operation if the flue becomes restricted.

Flue: The furnace flue shall be shipped loose to protect it from damage during transit. The flue shall be field-mounted by the installing contractor. The flue outlet shall be located above the unit to help prevent recycling of combustion gases back through the heat exchanger.

Agency Certification: Gas heating sections are both UL and CGA approved to both US and Canadian safety standards.

4. **Electric Heat**

An electric slip-in heater is installed within the single package unit discharge plenum to provide the heating requirements per the schedule shown on the plans. The electric heater is wired in such a manner as to provide a minimum of two steps of capacity.

Heat Exchanger: The furnace is an industrial grade design using an open coil made of the highest-grade resistance wire containing 80% nickel and 20% chromium. The resistance coils are adequately supported in the air stream using ceramic bushings in the supporting framework. Terminals of the coil are stainless steel with high temperature ceramic bushings.

Safety Devices: The primary high temperature protection is an automatic reset type thermal cut out. Secondary protection is an automatic reset type thermal cut out. Secondary protection is a replaceable thermal link.

Agency Certification: The operation of the electric heater is an integral part of the single package units control system. Power connection to the heater is through the power panel for the unit. Electric heat is ETL certified to both US and Canadian safety standards.

5. **Hot Water Heating Coil**

A hot water coil shall be installed in the single package unit discharge plenum.

Construction: The hot water coil shall have eight [10, 12, 14] fins per inch, 2 tubes per circuit, and an 2" inlet and outlet connection. Primary surface shall be 1/2" OD copper tube, staggered in direction of airflow. Connections have 1/4" FPT drain plug on each connection. A structural galvanized steel casing shall protect the coil. An intermediate coil support shall be provided. The coil shall be circuited to provide free draining and venting, through one vent and drain. Freezestat shall be provided to prevent coil freeze up.

Testing: Completed coil, including headers, connections and return bends shall be tested with 325 pounds compressed air under water. Coils shall be designed for operation at 250 psig design working pressure.

6. **Steam Heating Coil**

A steam heating coil shall be installed in the single package unit discharge plenum.

Construction: The steam coil shall be constructed in the non-freeze style. The steam coil shall have six fins per inch, an 2" inlet, and 1 1/2" outlet connection. Tubes shall be 1" OD seamless copper tubing with a minimum wall thickness of 0.035" and expanded into the fin collars for maximum fin-tube bond. Inner distributing tubes shall be 5/8" OD seamless copper tubing with a minimum wall thickness of 1/4". All header connections shall be of red brass or steel, with male pipe threads and silver braze to headers. Casing shall be galvanized steel. The core shall be pitched in the direction of the condensate connection for proper drainage. Freezestat shall be provided to prevent coil freeze up.

Testing: The completed coil, including headers and connections, shall be tested underwater with 325 lbs. compressed air to ensure a leak free coil.

7. **Diffuser Section:** For applications with an extended discharge plenum with downstream filtration or heating, a diffuser section is provided. A diffuser shall be included to distribute the airflow from the fan evenly across the heating coil or filter bank to optimize coil/filter life and effectiveness. The diffuser shall be sized for 50% free area and provide adequate upstream and downstream clearance to minimize airside pressure drop.

Guide Specifications (continued)

[FOR EXTENDED DISCHARGE PLENUMS, SELECT ONE OF THE FOLLOWING]

1. Downstream Final Filter Rack: A 12-inch rigid filter rack and filters shall be provided downstream of the supply fan and diffuser segment for hospital applications. The filter shall be 90-95% efficient. A magna-helic pressure gauge shall be included and visible from the outside of the unit for servicing and code compliance.
2. Blank Section: A blank section shall be provided downstream of the supply fan and diffuser section.

Condenser Section

1. Condenser Fans: Condenser fans shall be matched up with compressors to optimize system control. Condenser fans shall be propeller type, directly driven by permanently lubricated TEAO motor.
2. Condenser Coil: Condenser coils shall be all aluminum micro-channel coils or seamless copper tubes, arranged in staggered rows, mechanically expanded into the aluminum fins. Coils are configured in a V-bank configuration, with individual flat coils rotated from the vertical plane for protection from hail damage for each condensing circuit. Condensing coils shall have a subcooler for more efficient, stable operation.
3. Compressors: Units shall use industrial-duty hermetic scroll compressors, piped and charged with oil and P.O.E R410A refrigerant. Compressors shall have an enlarged liquid carrying capacity to withstand rugged operating conditions. Compressor frame shall be cast iron, with cast iron fixed and orbiting scrolls. Each compressor shall feature a solid state protection module, designed to protect the compressor from over-temperature and over-current conditions. Compressors shall be vibration-isolated from the unit, and installed in an easily accessible area of the unit. All compressor-to-pipe connections shall be brazed to minimize potential for leaks. Each compressor shall include a replaceable suction screen, discharge line check valve, and oil sight glass.
4. Low Ambient: Compressors shall operate down to 0°F [optional on YPAL070-105] by monitoring the refrigeration system discharge pressure and adjusting condenser airflow to maintain the proper head pressure to protect compressor operation. Refrigerant pressure transducers shall be included and provide the discharge pressure on the single package unit control display.
5. In-Line Refrigerant Driers [replaceable core driers]: Refrigerant piping includes check valves, thermal expansion valves with replaceable thermostatic elements, high and low pressure switches, anti-recycling timing device to prevent compressor restart for five minutes after shutdown.
6. Condenser Wire Grill [optional louvered condenser enclosure or no enclosure]: The condenser section shall be enclosed by a wire grill [louvered or none] condenser enclosure on the three exposed sides. Paint finish shall match the color and salt spray specifications of the unit exterior.
7. Hot Gas Bypass [optional on constant volume units]: Hot gas bypass piping shall be provided to enable compressor unloading to as low as 5% to better match cooling demand at low loads, prevent excessive cycling of the compressor, and reduce the risk of coil freeze-up.
8. Compressor sound treatment [optional]: Compressor sound blankets shall be provided to attenuate radiated sound from the compressors.
9. Service Valves [optional]: Liquid, suction and discharge service valves shall be included to provide a means of isolating the refrigerant charge in the system so that the refrigeration system may be serviced without removing the charge of the unit.

Controls

1. Enclosure: Unit shall be shipped complete with factory configured, installed, wired and tested single package unit controller housed in a rain and dust tight enclosure with hinged, latched, and gasket sealed door.
2. Basic Controls: Control shall include automatic start, stop, operating, and protection sequences across the range of scheduled conditions and transients. The single package unit controller shall provide automatic control of compressor start/stop, energy saver delay and anti-recycle timers, condenser fans, and unit alarms. Automatic reset to normal operation after power failure. Software stored in non-volatile memory, with programmed setpoints retained in lithium battery backed real time clock (RTC) memory for minimum 5 years. Eighty character liquid crystal display, descriptions and numeric data in English (or Metric) units. The sealed keypad shall include buttons for Setpoints, Display, Entry, Unit Options & clock, and an On/Off Switch.
3. Diagnostics: Upon startup, the controller shall run through a self-diagnostic check to verify proper operation and sequence loading. The single package unit controller shall continually monitor all input and output points on the controller and to maintain proper operation. The unit shall continue to operate in a trouble mode or shut down as necessary to prevent an unsafe condition for the building occupants, or to prevent damage to the equipment. In the event of

a unit shutdown or alarm, the operating conditions, date and time shall be stored in the shutdown history to facilitate service and troubleshooting.

4. Controls and BAS Communications

BACnet MSTP (RS-485) or Modbus: The unit shall include BACnet or Modbus communications directly from the unit controller. Equipment that is not native BACnet at the unit control board shall include any necessary interface or translator device factory-mounted and wired within the unit. If a field-installed gateway device is required by the manufacturer, the manufacturer shall include all necessary materials, equipment, service and commissioning of the gateway. A control points list, BIBBs and PICS statement shall be provided by the manufacturer to facilitate communications programming with the building automation system. Programming, establishing communications and commissioning shall be the responsibility of the installing controls contractor. Start-up assistance and support may be purchased from the manufacturer.

Analog inputs: 0-5VDC inputs shall be provided for remote reset of supply air temperature, and duct static pressure

Binary inputs: Dry (or "wet") contacts shall be provided for alarm outputs for supply fan fault, cooling/heating fault, or general/sensor faults. Contacts shall also be provided for occupied/unoccupied (start/stop) switching; shutdown, smoke purge, exhaust or pressurization operations; call for cooling or heating; and for morning warm-up.

EXECUTION

Installation

General: Installing contractor shall install single package unit(s), including components and controls required for operation, in accordance with single package unit manufacturer's written instructions and recommendations. Single package units shall be installed as specified.

1. Unit(s) specified shall include a protective covering membrane for such equipment being shipped by truck, rail, or ship. The membrane is fully formed around the equipment exterior. The membrane covers the entire top, side and end panel surface as to protect the product effectively during shipping & storage including "Long Term Storage". Storing on job-site shall no longer require the unit(s) to be covered with a tarp as long as the covering membrane has not been removed.
2. All size or shape equipment including electrical components, especially those not built with weatherproof enclosures, variable-frequency drives and end devices shall be effectively covered for protection against rain, snow, wind, dirt, sun fading, road salt/chemicals, rust, and corrosion during shipping cycle. Equipment shall remain clean and dry.
3. Manufacturers of units not having a protective membrane, fully formed around the equipment exterior, covering the entire top, side and end panel surface area shall be required to ship equipment covered with a tarp, in crating or in a closed truck as is necessary to ensure product protection from road salt/chemicals damage, moisture and dirt infiltration. Arrangements for long term storage at the job site shall be required.

Location: Locate the single package unit as indicated on drawings, including cleaning and service maintenance clearance per Manufacturer instructions. Adjust and level the single package unit on support structure.

INSPECTION AND START-UP SUPERVISION

A factory-trained service representative of the manufacturer shall supervise the unit startup and application specific calibration of control components.

Notes

Notes

Printed on recycled paper

Form: 100.50-EG7 (1110) Supersedes: 100.50-EG7 (909)
© 2009 Johnson Controls, Inc. P.O. Box 423, Milwaukee, WI 53201 Printed in USA
www.johnsoncontrols.com

