YORK®
Heating and Air Conditioning

TECHNICAL GUIDE

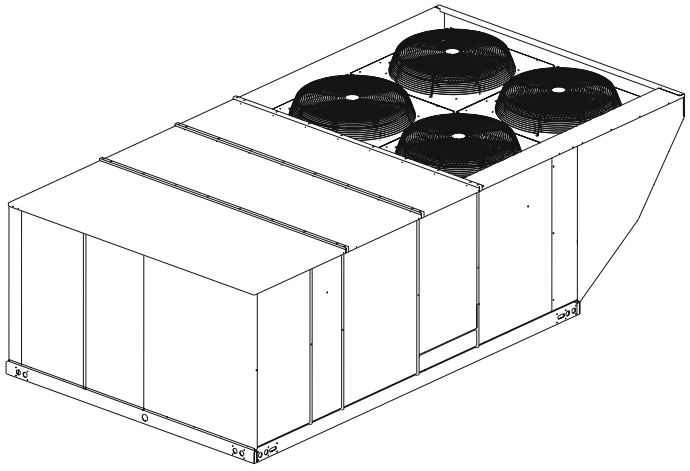
SUNLINE MagnaDRY™

GAS/ELECTRIC SINGLE PACKAGE AIR CONDITIONERS

WR 180, 240 & 300

15 thru 25 NOMINAL TONS

11.9 EER (15 TONS), 11.0 EER (20 TONS), 10.0 EER (25 TONS)



DESCRIPTION

YORK Sunline MagnaDRY™ units are convertible single package high efficiency rooftops. All models have independent dual refrigerant circuits for efficient part load operation. Although the units are primarily designed for curb mounting on a roof, they can also be slab-mounted at ground level or set on steel beams above a finished roof.

All units include:

- Powder Paint finish that meets ASTM-B-117 1000 hour salt spray standards
- Two-stage cooling provided by dual independent refrigeration circuits with expansion valves, filter-driers, high and low pressure/loss of charge switches and freezestats
- Scroll compressors
- Two-stage heating provided by dual independent heat exchangers with aluminized steel tubes, redundant gas valves, spark ignition with induced draft logic
- Permanently lubricated motors
- Bottom or side air discharge configuration capability (field convertible)
- Belt Drive Blower Motor with high static drive option
- Constant supply air volume (CV) with optional variable air volume (VAV)
- Manufactured under the quality standards of ISO9001
- Simplicity® Control Board
- Zero-25% fixed air damper with hood
- Copper tube/aluminum fin coils
- Hinged filter access and toolless latched doors
- Rigging holes in base rails for lifting
- Single point power connection
- Complete factory package - tested, charged and wired
- CSA agency approvals on all units

WARRANTY

- One-year parts warranty
- A Five-year parts warranty on the compressors and electric heat elements
- Ten-year parts warranty on the gas-fired heat exchangers

ARI Standard 340/360
Commercial and Industrial Unitary
Air Conditioning Equipment

FOR DISTRIBUTION USE ONLY - NOT TO BE USED AT POINT OF RETAIL SALE

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

PRODUCT NOMENCLATURE

15-25 Ton Sunline MagnaDRY™ Model Number Nomenclature

W	R	180	N24	A	2	A	AA	1	0	1	2	4	A

Product Category

W = A/C, Single Pkg., R-22 w/6-Row Evap.

Product Identifier

R = 90.1 w/Reheat

Nominal Cooling Capacity

180 = 15 Ton
240 = 20 Ton
300 = 25 Ton

Heat Type and Nominal Heat Capacity

C00 = Cooling Only. No field installed electric heat

Gas Heat Options

N24 = 240 MBH Output Aluminized Steel
N32 = 320 MBH Output Aluminized Steel
S24 = 240 MBH Output Stainless Steel
S32 = 320 MBH Output Stainless Steel

Electric Heat Options

E18 = 18 KW
E36 = 36 KW
E54 = 54 KW
E72 = 72 KW

Airflow

A = Std. Drive
B = Std. Drive/Single Input Econo.
C = Std. Drive/Single Input Econo./Power Exhaust (Downflow Only)
D = Std. Drive/Motorized Damper
N = Hi Static Drive
P = Hi Static Drive/Single Input Econo.
Q = Hi Static Drive/Single Input Econo./Power Exhaust (Downflow Only)
R = Hi Static Drive/Motorized Damper
2 = Low Static Drive
3 = Low Static Drive/Single Input Econo.
4 = Low Static Drive/Single Input Econo./Power Exhaust (Downflow Only)
5 = Low Static Drive/Motorized Damper

Voltage

2 = 208/230-3-60
4 = 460-3-60
5 = 575-3-60

Installation Options

A = No Options Installed
B = Option 1
C = Option 2
D = Options 1 & 2
E = Option 3
F = Option 4
G = Options 1 & 3
H = Options 1 & 4
J = Options 1, 2 & 3
K = Options 1, 2, & 4
L = Options 1,3 & 4
M = Options 1, 2, 3, & 4
N = Options 2 & 3
P = Options 2 & 4
Q = Options 2, 3, & 4
R = Options 3 & 4
S = Option 5
T = Options 1 & 5
U = Options 1, 3, & 5
V = Options 1, 4, & 5
W = Options 1, 3, 4, & 5
X = Options 3 & 5
Y = Options 4 & 5
Z = Options 3, 4 & 5

Options

1 = Disconnect
2 = Non-Pwr'd Conv. Outlet
3 = Smoke Detector S.A.
4 = Smoke Detector R.A.
5 = Pwr'd Conv. Outlet

Product Generation

1 = First Generation
2 = Second Generation

Additional Options

Standard Cabinet	Hinged Filter Door & Toolless Access Cabinet
AA = None AB = Phase Monitor AC = Coil Guard AD = Dirty Filter Switch AE = Phase Monitor & Coil Guard AF = Phase Monitor & Dirty Filter Switch AG = Coil Guard & Dirty Filter Switch AH = Phase Monitor, Coil Guard & Dirty Filter Switch RC = Coil Guard & American Flag TA = Technicoat Condenser Coil TJ = Technicoat Evaporator Coil TS = Technicoat Evaporator & Condenser Coils	BA = Hinged Filter Door & Toolless Access Panels BB = Phase Monitor, Hinged Filter Door & Toolless Access Panels BC = Coil Guard, Hinged Filter Door & Toolless Access Panels BD = Dirty Filter Switch, Hinged Filter Door & Toolless Access Panels BE = Phase Monitor & Coil Guard, Hinged Filter Door & Toolless Access Panels BF = Phase Monitor & Dirty Filter Switch, Hinged Filter Door & Toolless Access Panels BG = Coil Guard & Dirty Filter Switch, Hinged Filter Door & Toolless Access Panels BH = Phase Monitor, Coil Guard & Dirty Filter Switch, Hinged Filter Door & Toolless Access Panels

ZZ = If desired option combination is not listed above, ZZ will be assigned and configuration options will be located in digits 15-18.

Product Style

A = Style A

Configuration Options (not required for all units)
These four digits will not be assigned until a quote is requested, or an order placed.

- SS Drain Pan
- CPC Controller, DFS, APS
- Johnson Controller, DFS, APS
- Honeywell Controller, DFS, APS
- Novar Controller, DFS, APS
- Simplicity IntelliComfort Controller
- Simplicity IntelliComfort Controller w/ModLinc
- Hot Gas Bypass (Standard on VAV, Optional on CV)
- Variable Air Volume (VFD) - Not Available with Factory Installed BAS Options
- Variable Air Volume (VFD With Manual Bypass) - Not Available with Factory Installed BAS Options
- Variable Air Volume (VFD-Ready for Customer Installed Drive)
- 2" Pleated filters
- 4" Pleated filters
- BAS Ready Unit with Belimo Economizer
- Double Wall Construction
- Heat Reclaim Coil Options (2 or 3 Row, 1-5/8" or 2-1/8" Stub Out) (WJ and WR models only)
- Any Combination of Additional Options that Don't Have an Option Code Pre-assigned

FEATURES

All models are available with a wide variety of factory-mounted options such as stainless steel heat exchangers, phase monitor, dirty filter switch, and coil guard to make them suitable for almost every application.

All units are self-contained and assembled on full perimeter base rails with holes in the four corners for overhead rigging. Every unit is completely piped, wired, charged and tested at the factory to simplify the field installation and to provide years of dependable operation.

All models (including those with an economizer) are suitable for either bottom or horizontal duct connections. **Models with factory installed power exhaust are suitable for bottom duct connections only**. For bottom duct, you remove the sheet metal panels from the supply and return air openings through the base of the unit. For horizontal duct, you replace the supply and return air panels on the rear of the unit with a side duct flange accessory.

All models are available with these “factory mounted” outdoor air damper options:

- Single enthalpy economizer
- Single enthalpy economizer with power exhaust
- Motorized outdoor air damper

A fixed outdoor air intake assembly will be shipped in the return air compartment of all units ordered without an economizer or motorized outdoor air damper option. The assembly includes a rain hood with a damper that can be set for 10, 15 or 25% outdoor air. With bottom duct connections, the intake damper assembly should be mounted over the opening in the return air panel. With horizontal ductwork, it should be mounted on the return air duct.

All supply air blowers are equipped with a belt drive that can be adjusted to meet the exact requirements of the job. A high static drive option is available for applications with a higher CFM and/or static pressure requirement. A variable air volume (VAV) option using a variable frequency drive is available for applications requiring a constant supply duct pressure. A differential pressure transducer is used to monitor supply duct static pressure and return a speed reference signal to the VFD to control the output of the indoor blower motor.

All compressors include scroll compressors and internal pressure relief. Every refrigerant circuit includes an expansion valve, a liquid line filter-drier, a discharge line high pressure switch and a suction line with a freezestat and low pressure/loss of charge switch to protect all system components. A hot gas bypass option, consisting of an adjustable compressor discharge bypass valve, is available for low cooling load applications.

- **Simplicity® Controls** - Simplicity® control boards have standardized a number of features previously available only as options or by utilizing additional controls.
- **Low Ambient** - An integrated low-ambient control allows all units to operate in the cooling mode down to 0°F outdoor ambient without additional assistance. Optionally, the control board can be programmed to lockout the compressors when the outdoor air temperature is low or when free cooling is available.
- **Anti-Short Cycle Protection** - To aid compressor life, an anti-short cycle delay is incorporated into the standard controls. Compressor reliability is further ensured by programmable minimum run times. For testing, the anti short cycle delay can be temporarily overridden with the push of a button.
- **Lead-Lag** - An integrated Lead-Lag option allows equal run time hours on all compressors, thereby extending the life of all compressors. This option is selectable on the unit control board.
- **Fan Delays** - Fan on and fan off delays are fully programmable. Furthermore, the heating and cooling fan delay times are independent of one another. All units are programmed with default values based upon their configuration of cooling and heat.
- **Safety Monitoring** - The control board monitors the high and low-pressure switches, the freezestats, the gas valve, if applicable, and the temperature limit switch on gas and electric heat units. The unit control board will alarm on ignition failures, compressor lockouts and repeated limit switch trips.
- **Nuisance Trip Protection and Strikes** - To prevent nuisance trouble calls, the control board uses a “three times, you’re out” philosophy. The high and low-pressure switches and the freezestats must trip three times within two hours before the unit control board will lock out the associated compressor.
- **On Board Diagnostics** - Each alarm will energize a trouble light on the thermostat, if so equipped, and flash an alarm code on the control board LED. Each high and low-pressure switch alarm as well as each freezestat alarm has its own flash code. The control board saves the five most recent alarms in memory, and these alarms can be reviewed at any time. Alarms and programmed values are retained through the loss of power.

All units have long lasting powder paint cabinets with 1000 hour salt spray test approval under ASTM-B117 procedures.

All models are CSA approved.

- **Warranty** - All models include a one-year limited parts warranty on the complete unit. Compressors and electric heater elements carry a five-year warranty. Gas heat exchangers carry a 10-year parts warranty.
- **Gas Heat Operation** - All gas heat units are built with two heating sections for two equal stages of capacity control. Each section includes a durable heat exchanger with aluminized steel or optional stainless steel tubes, a redundant gas valve, spark ignition, power venting, an ignition module for 100% shut-off and all of the safety controls required to meet the latest ANSI standards.

  The gas supply piping can be routed into the heating compartment through a hole in the base pan of the unit or through a knockout in the piping panel on the front of the unit.

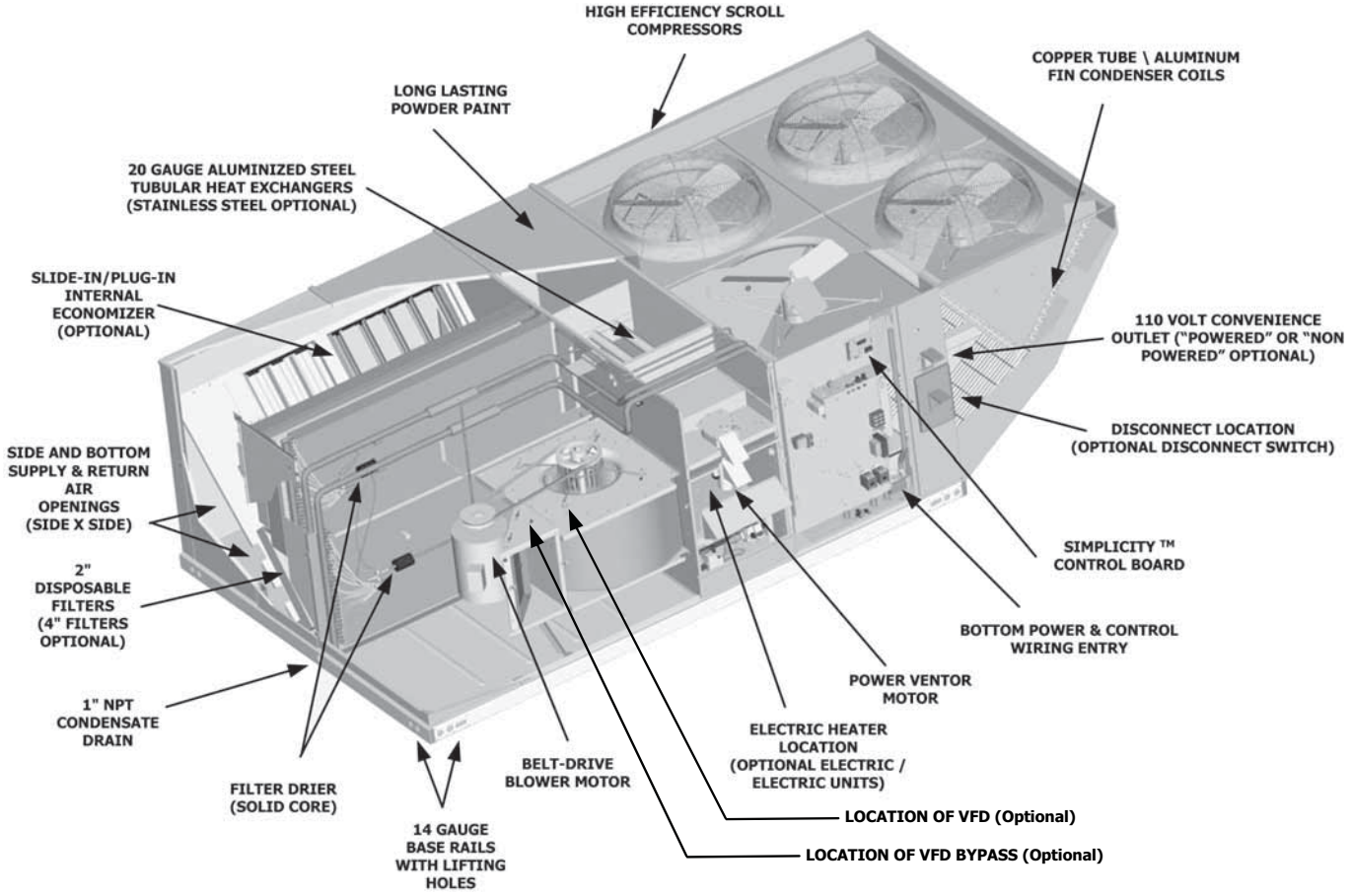


FIGURE 1: UNIT CUTAWAY

- **Electric Heat Operation** - All electric heat models (factory installed only) are wired for a single power source and include a bank of nickel chromium elements mounted at the discharge of the supply air blower to provide a high velocity and uniform distribution of air across the heating elements. Every element is fully protected against excessive current and temperature by fuses and two thermal limit switches.
- The power supply wiring can be routed into the control box through a threaded pipe connection in the base pan of the unit or through a knockout in the wiring panel on the front of the unit.
- **BAS Controls** - York's Magnum series units offer factory mounted BAS controls such as Novar, Honeywell, Johnson, and CPC.

REHEAT MODE SEQUENCE OF OPERATION

The reheat control board allows the user to select two different modes of operation via a jumper connection on the board. (See Figure 2.) Each mode is described below. Refer to Figures 2 - 4 when reading this section.

"NORMAL" MODE

When the reheat control board (RCB) detects a need for dehumidification (24VAC) at "HUM" via the field supplied dehumidistat connected to RHTB-1 and RHTB-2 and there is not a call for cooling, it energizes the hot gas relay (HGR), which energizes the 3-way valve (SOL 3), the condenser coil valve (SOL 2), and de-energizes the reheat coil bleed valve (SOL 1). The Y1 signal is passed to the unit control board (UCB), which engages circuit # 1, resulting in circuit #1 reheat mode operation.

When the room thermostat calls for first stage cooling, with or without a call for dehumidification, the RCB senses a signal through "Y1", de-energizing the HGR, which de-energizes SOL 3 and SOL 2, and energizes SOL 1, engaging circuit # 1, resulting in circuit #1 cooling mode operation.

When the room thermostat calls for second stage cooling, the RCB senses a signal through "Y1" & "Y2" and engages circuit #1 and circuit #2 in the cooling mode.

Indoor blower operation is initiated upon a call for first stage cooling, second stage cooling or dehumidification.

Anytime there is a call for 2 stages of cooling, the unit will not operate in the reheat mode, even if there is a call for dehumidification at "HUM".

The unit will not operate in the reheat mode if there is any call for heating.

On units with economizers, the unit will not operate in the reheat mode if there is a call for cooling and the economizer is operating as first stage of cooling.

All safety devices function as previously described.

"ALTERNATE" MODE

When the RCB detects a need for dehumidification (24VAC) at "HUM" via the field supplied dehumidistat connected to RHTB-1 and RHTB-2, and there is not a call for cooling, it energizes the HGR, which energizes the SOL 3, SOL 2, and de-energizes SOL 1. The unit then operates with circuit #1 in reheat mode and circuit #2 in cooling mode.

When the room thermostat calls for first stage cooling while there is still a call for dehumidification, no operational change is made. The call for cooling is ignored and the unit continues to operate with circuit #1 in reheat mode and circuit #2 in cooling mode.

When the room thermostat calls for second stage cooling, the RCB senses a signal through "Y1" & "Y2" and de-energizes the HGR, which de-energizes SOL 3 and SOL 2, and energizes SOL 1. Both circuits operate in the cooling mode.

Indoor blower operation is initiated upon a call for first stage cooling, second stage cooling or dehumidification.

Anytime there is a call for 2 stages of cooling, the unit will not operate in the reheat mode, even if there is still a call for dehumidification at "HUM".

The unit will not operate in the reheat mode if there is any call for heating.

All safety devices function as previously described.

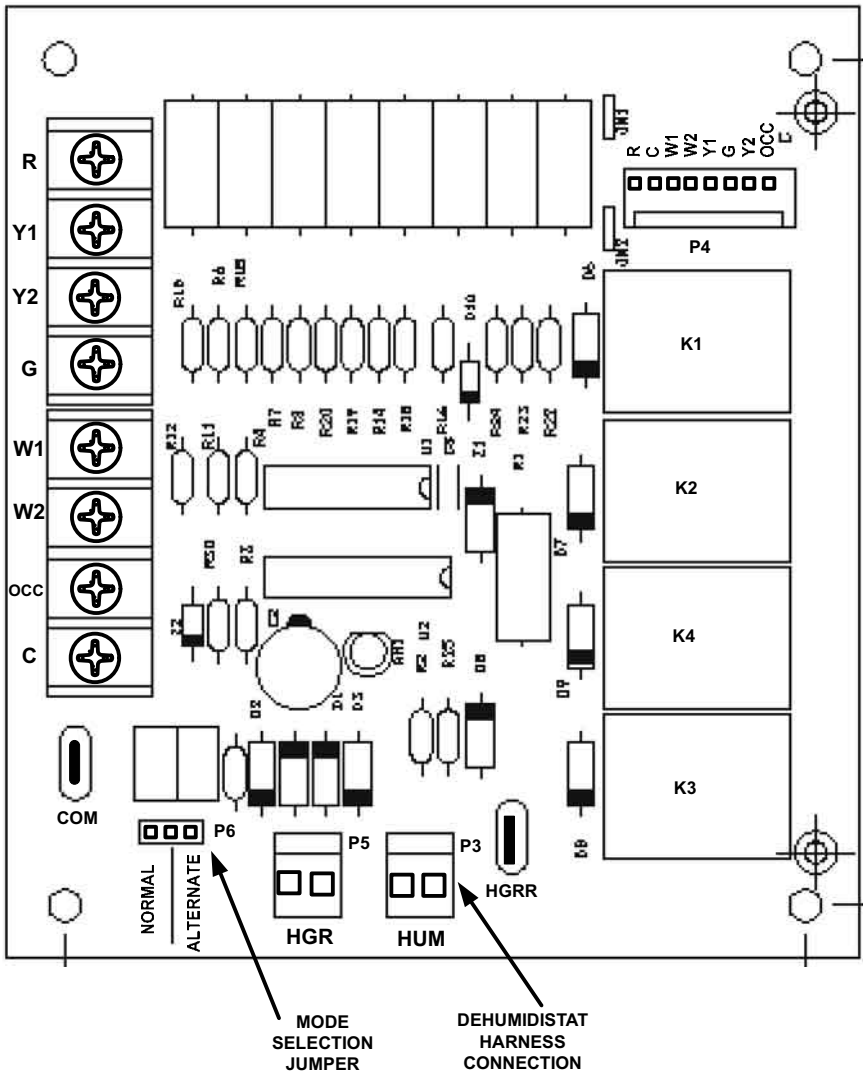


FIGURE 2: REHEAT CONTROL BOARD

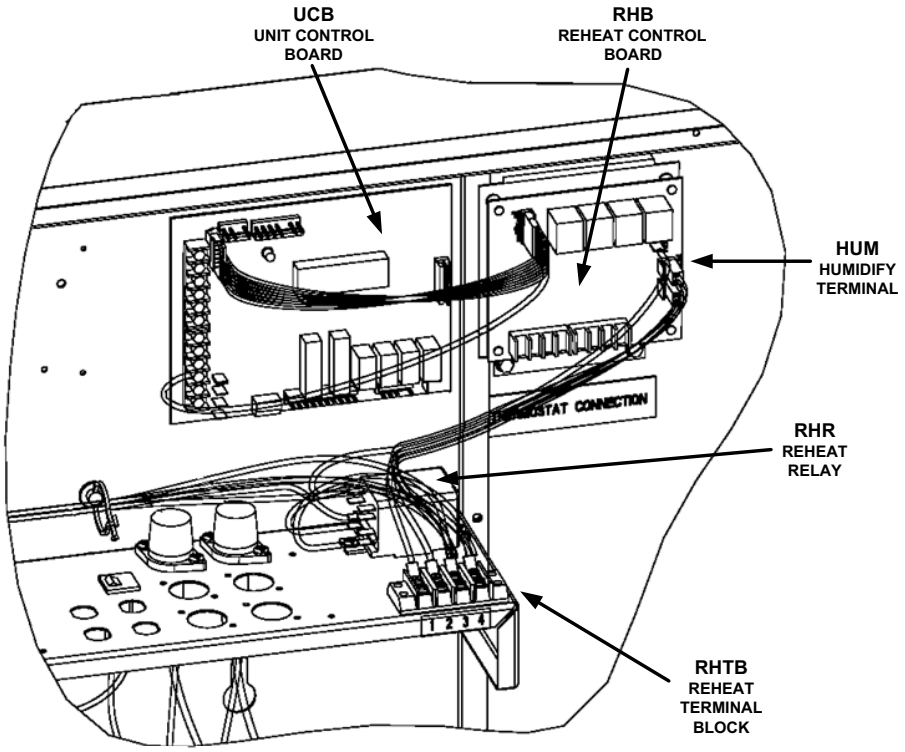


FIGURE 3: REHEAT CONTROLS - PART 1

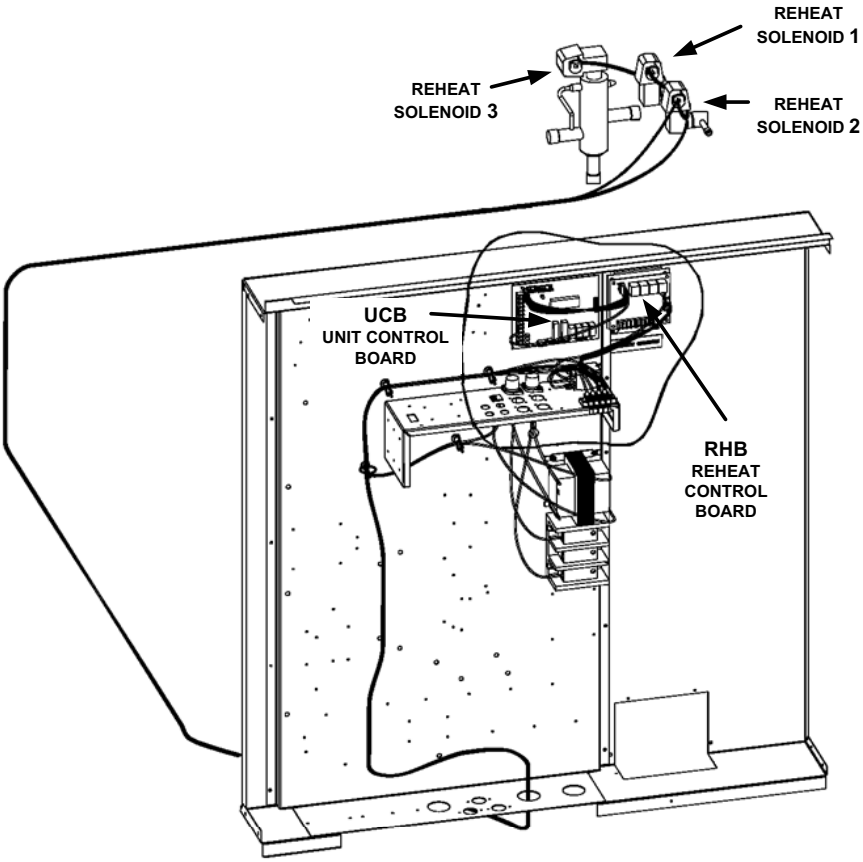


FIGURE 4: REHEAT CONTROLS - PART 2

FACTORY-INSTALLED OPTIONS

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

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

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

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

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

- **MOTORIZED OUTDOOR AIR INTAKE DAMPER** - Includes a slide-in / plug-in damper assembly with a 2-position, spring return motor actuator which opens to a pre-set position whenever the supply air blower is operating and will drive fully closed when the blower unit shuts down.

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

- **PHENOLIC COATED EVAPORATOR, REHEAT, AND CONDENSER COILS** - Special coating process that utilizes Technicoat 10-1" processes. Coating is applied by total immersion of the complete coil for maximum protection.

- **ELECTRIC HEATERS** wired for single point power supply. These nickel chromium heater elements are provided with limit and automatic reset capability to prevent operation at excessive temperatures.

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

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

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

  A 'VFD-ready' option provides the provisions for a customer-installed drive. The unit comes with a mounting bracket installed in the Blower Access compartment which may accommodate other vendor's drives depending on their size. In order to utilize the unit's mounting bracket, the maximum recommended drive dimensions are as follows:

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

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

  If the customer-installed drive will not fit in the allotted space, then it will have to be mounted within a NEMA-4 enclosure for outside installation or inside the building on a perpendicular wall not subjected to excessive temperature, vibration, humidity, dust, corrosive gas, explosive gas, etc.

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

- **HOT GAS BYPASS** - To allow for low cooling load operation, a direct-acting pressure-modulating bypass control valve installed on the system #1 discharge line is used to divert high temperature, high pressure refrigerant around the TXV in order to maintain a desired minimum evaporator pressure. HGBP is standard on all units with VAV and optional with CV units.

- **FILTER OPTIONS** - Standard units are shipped with 2" throw-away filters installed. 2" pleated and 4" pleated filters are offered as a factory installed option.

- **CONVENIENCE OUTLET** - This 110 volt outlet can be "powered" by the unit with a stepdown transformer or you may order the unit with a "non-powered" convenience outlet that can be wired in the field.

- **DISCONNECT SWITCH** - For gas heat units and cooling units with electric heat, a HACR breaker sized to the unit is provided. For cooling only units, a switch sized to the largest electric heat available for the particular unit is provided. Factory installed option only.

- **DOUBLE WALL CONSTRUCTION -** Optional double wall construction is available to provide smooth inner surfaces for easy and effective cleaning to reduce risk of dirt and bacterial accumulation. Fiberglass insulation is sandwiched between heavy gauge steel sheets to form a durable, rigid casing to withstand higher working pressures and impact forces. The heavy-duty construction provides excellent acoustic and thermal insulation and eliminates erosion of insulation material and contamination of the air stream.

- **BAS - Building Automation System Controls (available on two-system cooling product only).**

  Simplicity® INTELLI-Comfort™ CONTROL - The York® Simplicity® INTELLI-Comfort™ control is factory installed. It includes a supply air sensor, a return air sensor, and an outside air sensor. There are provisions for a field installed dirty filter indicator switch, an air-proving switch, an Outside Air Humidity sensor, a Return Air Humidity sensor, an Inside IAQ sensor, and an Outside Air IAQ sensor. Con-

struction mode operation, 365-day real time clock with 7 day programming plus holiday scheduling is built-in. Two different modes of demand ventilation are achieved through the INTELLI-Comfort™ using CO_2 sensors. It uses an inside CO_2 sensor to perform Demand Ventilation. It can also use an Outside CO_2 sensor to perform Differential Demand Ventilation. It uses a Patented Comfort Ventilation algorithm to provide comfortable ventilation air temperature. The patented economizer-loading algorithm will protect the equipment when harsh operating conditions exist. Humidity in the occupied space or return duct can be monitored and controlled via humidity sensors and the on-board connection for hot gas re-heat system. It uses the INTELLI-Start™ algorithm to maximize energy savings by recovering the building from the Unoccupied Setpoints to the Occupied Setpoints just in time for the Occupied Time Period to begin. The Simplicity® INTELLI-Comfort™ balances space temperature, ventilation air temperature, CO_2 and humidity for ultimate comfort.

Simplicity® INTELLI-Comfort™ with ModLINC CONTROL - The York® Simplicity® INTELLI-Comfort™ with ModLINC control is factory installed. It includes all the features of the INTELLI-Comfort™ control with an additional control to translate communications from MODBUS to the BACnet MSTP protocol.

Novar® BAS CONTROL - The Novar® ETC-3 building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.

JOHNSON CONTROLS BAS CONTROL - The Johnson Control YK-UNT-1126 building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.

CPC BAS CONTROL - The Computer Process Controls Model 810-3060 ARTC Advanced Rooftop building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch and air proving switch.

HONEYWELL BAS CONTROL - The Honeywell W7750C building automation system controller is factory installed. Includes air supply sensor, return air sensor, dirty filter indicator switch, and air proving switch.

- **COIL GUARD** - Customers can purchase a coil guard kit to protect the condenser coil from damage. This is not a hail guard kit.
- **SMOKE DETECTORS** - (supply air & return air) The smoke detectors stop operation of the unit by interrupting power to the control board if smoke is detected within the air compartment.

⚠WARNING

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

- **STAINLESS STEEL HEAT EXCHANGER** - For applications in corrosive environments, this option provides a full stainless steel heat exchanger assembly.
- **STAINLESS STEEL DRAIN PAN -** An optional rust-proof stainless steel drain pan is available to provide years of trouble-free operation in corrosive environments.
- **PHASE MONITORS** - Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of-phase condition.
- **HIGH SPEED DRIVE** - May include a belt, blower pulley, motor pulley or a motor change to enhance blower performance.
- **DIRTY FILTER SWITCH** - This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high pressure drop across the filters. Factory installed option or field installed accessory.
- **HINGED FILTER DOOR/”TOOLLESS” BLOWER AND ACCESS PANELS** (not hinged) - This option allows for easy access and maintenance.

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

- **LOW SPEED DRIVE** - Includes a motor change when high airflow is not required. (**WR300 & WR240 only**)

FIELD-INSTALLED ACCESSORIES

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

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

  The rainhood is painted to match the basic unit and must be field-assembled before installing.
- **MOTORIZED OUTDOOR AIR INTAKE DAMPER** - Includes a slide-in / plug-in damper assembly with a 2-position, spring return motor actuator which opens to some pre-set position whenever the supply air blower is operating and will drive fully closed when the blower unit shuts down.

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

Power exhaust is not available as a field installed option.

- **ROOF CURBS** - Fourteen-inch high roof curbs provide a water-tight seal between the unit and the finished roof. These full perimeter curbs meet the requirements of the National Roofing Contractors Association (NRCA) and are shipped knocked-down for field assembly.

  They're designed to fit inside the base rails of the unit and include both a wood nailing strip and duct hanger supports.
- **HIGH ALTITUDE NATURAL GAS** - Burner orifices and pilot orifices are provided for proper furnace operation at altitudes up to 6,000 feet.
- **PROPANE** - Burner orifices, pilot orifices and gas valve parts are provided to convert a natural gas furnace to propane.
- **HIGH ALTITUDE PROPANE** - Burner orifices and pilot orifices are provided for proper furnace operation at altitudes up to 6,000 feet. This accessory supplements the basic propane conversion kit.
- **SIDE DUCT FLANGES** - One-inch flanges replace the supply and return air panels on the rear of the unit to accommodate horizontal duct connections. These flanges can also be used individually for bottom supply/horizontal return or horizontal supply/bottom return. They cannot be used on units with power exhaust.
- **BAROMETRIC RELIEF DAMPER** - This damper accessory can be used to relieve internal building air pressure on units with an economizer without power exhaust. This accessory includes a rain hood, a bird screen and a fully assembled damper. With bottom duct connections, the damper should be mounted over the opening in the return air panel. With horizontal ductwork, the accessory should be mounted on the return air duct.
- **ENTHALPY ACCESSORY CONTROL KIT** - This kit contains the required components to convert a single enthalpy economizer to dual enthalpy.
- **BURGLAR BARS** - Mount in the supply and return openings to prevent entry into the duct work.
- **FLUE EXHAUST EXTENSION KIT** - In locations with wind or weather conditions which may interfere with proper exhausting of furnace combustion products, this kit can be installed to prevent the flue exhaust from entering nearby fresh air intakes.
- **WOOD SKID** - Allows unit to be handled with 90” forks.
- **CO_2 SENSOR** - Senses CO_2 levels and automatically overrides the economizer when levels rise above the present limits.
- **COIL GUARD** - Customers can purchase a coil guard kit to protect the condenser coil from damage. This is not a hail guard kit.
- **PHASE MONITORS** - Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of-phase condition.

TABLE 1: SOUND POWER RATING[1]

UNIT SIZE	CFM	ESP	BLOWER		SOUND POWER (db 10^{-12} Watts)									
					Octave Band Centerline Frequency (Hz)								SWL dB(A)	dB(A) @ 10Ft.[2]
		IWG	RPM	BHP	63	125	250	500	1,000	2,000	4,000	8,000		
WR180	6,000	1.00	1,080	4.60	99	99	89	82	84	77	72	67	89	56
WR240	8,000	1.00	1,120	6.65	102	102	92	85	87	80	75	70	92	59
WR300	10,000	1.30	1160	12.5	108	108	98	91	93	86	81	76	98	65

1. These values have been accessed using a model of sound propagation from a point source into the hemispheric\free field. The dBA values provided are to be used for reference only. Calculation of dBA values cover matters of system design and the fan manufacture has no way of knowing the details of each system. This constitutes and expectation to any specification or guarantee requiring a dBA value or sound data in any other form than sound power level ratings.
2. At a distance of 10 feet from the blower.

TABLE 2: CAPACITY RATINGS - (ARI 360)[1]

MODEL	MBH	EER[2]	IPLV[3]
COOLING ONLY			
WR180C/E00	180	11.9	12.7
WR240C/E00	240	11.0	11.3
WR300C/E00	300	10.0	10.6
COOLING WITH GAS HEAT			
WR180N/S	180	11.9	12.7
WR240N/S	240	11.0	11.3
WR300N/S	300	10.0	10.6
COOLING WITH ELECTRIC HEAT			
WR180E18	180	11.9	12.7
WR180E36	180	11.9	12.7
WR180E54	178	11.7	12.5
WR180E72	178	11.7	12.5
WR240E18	240	11.0	11.3
WR240E36	240	11.0	11.3
WR240E54	238	10.8	11.1
WR240E72	238	10.8	11.1
WR300E18	300	10.0	10.6
WR300E36	300	10.0	10.6
WR300E54	298	9.8	10.4
WR300E72	298	9.8	10.4

1. Certified in accordance with the Unitary Large Equipment certification program which is based on ARI Standard 340/360.
2. EER = Energy Efficiency Ratio at full load - the cooling capacity in Btu's per hour (Btuh) divided by the power input in watts, expressed in Btuh per watt (Btuh/watt).
3. IPLV = Integrated Part Load Value.

TABLE 3: GAS HEAT RATINGS

MODEL	MBH INPUT	MBH OUTPUT
WR180N/S24	300	240
WR180N/S32	400	320
WR240N/S24	300	240
WR240N/S32	400	320
WR300N/S24	300	240
WR300N/S32	400	320

NOTE: All gas units are two-stage heating.
First stage is 50% of total.
S.S.E. = Steady State Efficiency (80%) - output divided by input.

⚠ CAUTION

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

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

TABLE 4: COOLING CAPACITIES FOR WR180

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
		75°F								85°F									
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
3750	77	217	10.8	74	71	59	45	30	16	210	11.8	80	73	58	43	28	14
	72	200	10.5	115	100	86	72	57	43	193	11.6	114	99	85	70	55	40
	67	184	10.2	156	128	113	99	84	70	177	11.3	148	126	111	96	82	67
	62	165	9.9	163	153	132	117	103	88	160	11.0	159	152	130	116	101	86
4500	77	227	11.0	100	83	66	48	31	14	219	11.9	99	81	64	47	29	12
	72	210	10.6	130	113	96	78	61	44	202	11.7	128	111	93	76	59	41
	67	192	10.3	161	143	126	108	91	74	185	11.4	158	140	123	106	88	71
	62	172	10.0	171	164	147	129	112	95	167	11.1	166	162	144	127	109	92
	57	171	10.0	171	171	152	135	118	100	166	11.1	166	166	150	132	115	97
5250	77	237	11.1	127	95	72	52	32	11	228	12.1	117	90	70	50	30	10
	72	219	10.8	146	126	105	85	65	45	210	11.8	143	123	102	82	62	42
	67	201	10.4	165	159	139	118	98	78	192	11.5	168	155	135	115	94	74
	62	180	10.1	178	175	161	141	121	101	174	11.3	173	171	158	138	118	98
	57	178	10.1	178	178	168	148	127	107	173	11.2	173	173	164	144	124	104
6000	77	247	11.2	153	107	79	56	32	9	237	12.2	136	99	76	53	31	8
	72	228	10.9	161	138	115	92	69	45	219	11.9	157	134	111	88	66	43
	67	209	10.5	170	170	151	128	105	82	200	11.6	178	169	146	124	101	78
	62	187	10.2	186	186	176	153	130	107	181	11.4	180	180	172	149	126	103
	57	186	10.2	186	186	183	160	137	114	180	11.3	180	180	178	155	133	110
6750	72	236	10.9	176	150	125	99	73	47	226	11.9	171	145	120	95	70	44
	67	217	10.6	184	187	164	138	112	86	207	11.7	185	181	158	133	108	82
	62	194	10.3	193	193	188	162	136	110	187	11.4	186	186	182	157	131	106
	57	193	10.2	193	193	191	166	140	114	186	11.3	186	186	185	160	135	109
7500	72	245	10.9	191	163	134	106	77	49	233	12.0	184	157	129	101	74	46
	67	224	10.6	199	199	177	148	120	91	213	11.7	192	192	170	142	114	87
	62	201	10.3	199	199	199	171	142	114	193	11.4	192	192	192	164	137	109
	57	200	10.3	200	200	200	171	143	114	192	11.4	192	192	192	165	137	109
		95°F								105°F							
3750	77	203	12.8	87	72	57	42	27	12	195	14.3	77	69	53	38	22	6
	72	186	12.6	113	98	83	68	53	38	179	14.1	111	96	80	64	49	33
	67	170	12.4	139	124	109	94	79	64	164	13.9	144	122	107	91	75	60
	62	155	12.1	155	152	129	114	99	84	151	13.7	148	149	125	109	94	78
4500	77	211	12.9	97	80	62	45	27	10	202	14.4	95	77	59	41	23	5
	72	194	12.7	126	109	91	74	56	39	186	14.2	124	106	88	70	52	34
	67	177	12.5	155	137	120	103	85	68	170	14.0	153	135	117	99	81	63
	62	161	12.3	161	159	142	124	107	89	157	13.8	155	155	137	119	101	83
	57	161	12.2	161	161	147	129	112	95	156	13.7	156	156	141	123	105	87
5250	77	219	13.0	108	88	68	48	28	8	209	14.5	113	84	64	44	23	3
	72	202	12.8	139	119	99	79	59	39	192	14.3	136	116	96	75	55	35
	67	184	12.6	171	151	131	111	91	71	175	14.1	162	148	127	107	87	66
	62	168	12.4	168	167	155	135	115	95	162	13.8	162	161	149	129	109	88
	57	168	12.3	168	168	160	140	120	100	162	13.8	162	162	154	134	113	93
6000	77	228	13.2	119	96	74	51	29	6	216	14.6	131	92	69	47	24	1
	72	209	13.0	153	130	108	85	63	40	199	14.4	149	126	104	81	58	35
	67	191	12.7	186	164	141	119	96	74	181	14.2	167	161	138	115	92	70
	62	174	12.5	174	174	167	145	122	100	168	13.9	167	167	162	139	116	94
	57	174	12.4	174	174	173	151	128	106	167	13.9	167	167	166	144	121	98
6750	72	216	13.0	165	140	116	91	66	42	204	14.4	160	136	111	86	62	37
	67	197	12.8	186	174	152	127	103	78	187	14.2	172	169	148	123	99	74
	62	179	12.5	179	179	176	151	127	102	172	13.9	172	172	169	145	120	95
	57	179	12.5	179	179	179	154	130	105	172	13.9	172	172	172	147	122	98
7500	72	222	13.0	177	151	124	97	70	43	210	14.4	172	145	119	92	65	39
	67	203	12.8	185	185	163	136	109	82	192	14.2	177	177	158	131	105	78
	62	185	12.5	185	185	185	158	131	104	177	13.9	177	177	177	150	124	97
	57	185	12.5	185	185	185	158	131	104	177	13.9	177	177	177	150	123	97

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

All Sensible Capacity

TABLE 4: COOLING CAPACITIES FOR WR180 (CONTINUED)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		115°F								125°F							
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
3750	77	187	15.8	73	66	50	34	17	-	179	17.3	74	60	47	30	13	-
	72	172	15.6	110	93	77	61	44	28	165	17.1	108	91	74	57	40	23
	67	157	15.4	146	120	104	88	71	55	151	16.9	142	118	101	84	67	50
	62	147	15.2	147	147	121	104	88	72	143	16.7	145	143	117	100	83	66
4500	77	193	15.9	92	74	55	36	18	-	184	17.3	92	70	51	32	13	-
	72	177	15.7	122	103	84	66	47	29	169	17.1	119	100	81	62	43	24
	67	162	15.5	151	133	114	95	77	58	155	16.9	146	130	111	92	73	54
	62	152	15.2	151	151	133	114	96	77	147	16.7	147	146	128	109	90	71
	57	151	15.2	151	151	136	117	99	80	146	16.6	146	146	130	111	92	73
5250	77	198	15.9	111	81	60	39	18	-	188	17.4	111	80	56	35	14	-
	72	183	15.7	133	113	92	71	51	30	173	17.2	130	109	88	67	46	25
	67	167	15.5	156	145	124	103	83	62	159	17.0	150	142	121	100	79	58
	62	156	15.3	156	156	144	124	103	82	151	16.8	149	149	139	118	97	76
	57	156	15.2	156	156	148	127	106	86	150	16.7	150	150	141	120	99	78
6000	77	204	16.0	130	88	65	42	19	-	193	17.4	130	90	60	37	14	-
	72	188	15.8	145	122	99	77	54	31	177	17.2	142	118	95	72	49	26
	67	172	15.6	160	157	134	111	88	66	162	17.0	153	147	131	108	84	61
	62	161	15.4	160	160	156	133	110	87	154	16.8	153	153	151	127	104	81
	57	160	15.3	160	160	160	137	114	91	154	16.7	154	154	153	130	107	84
6750	72	193	15.8	156	131	106	82	57	32	182	17.2	151	127	102	77	52	28
	67	176	15.6	165	163	144	119	94	69	166	17.0	157	154	139	115	90	65
	62	165	15.4	165	165	163	138	113	89	158	16.8	157	157	156	131	107	82
	57	165	15.3	165	165	164	140	115	90	157	16.7	157	157	157	133	107	83
7500	72	198	15.8	167	140	113	87	60	34	186	17.1	161	135	108	82	55	29
	67	181	15.6	169	169	153	126	100	73	170	16.9	161	161	148	122	95	69
	62	169	15.3	169	169	169	143	116	90	162	16.7	161	161	161	135	109	82
	57	169	15.2	169	169	169	143	116	89	161	16.6	161	161	161	136	108	82

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

All Sensible Capacity

TABLE 5: COOLING CAPACITIES FOR WR240

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		75°F								85°F							
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
5000	77	287	15.1	117	99	80	62	43	25	278	16.4	112	96	77	58	39	20
	72	263	14.6	152	134	115	96	78	59	254	16.0	150	131	112	93	74	55
	67	238	14.2	187	168	150	131	113	94	230	15.6	187	165	146	127	108	89
	62	219	13.8	215	198	176	157	139	120	212	15.3	210	198	172	153	134	115
6000	77	304	15.2	133	111	89	67	45	23	294	16.5	130	108	85	63	41	19
	72	278	14.8	171	150	128	106	84	62	269	16.1	169	146	124	102	79	57
	67	252	14.3	210	188	166	144	122	100	243	15.7	207	185	162	140	118	95
	62	232	14.0	228	217	195	173	151	129	224	15.4	222	214	191	169	147	124
	57	229	13.8	229	227	205	183	161	139	222	15.2	222	221	199	177	154	132
7000	77	320	15.4	149	123	98	73	47	22	310	16.7	148	120	94	68	43	17
	72	293	14.9	190	165	140	115	90	64	283	16.3	187	162	136	111	85	59
	67	265	14.4	233	207	182	157	132	107	256	15.9	226	204	179	153	127	102
	62	244	14.1	241	235	214	189	164	138	236	15.5	234	230	210	185	159	134
	57	241	13.9	241	240	225	200	175	149	234	15.3	234	234	219	193	167	142
8000	77	337	15.5	165	135	107	78	50	21	325	16.8	167	131	102	74	45	16
	72	308	15.1	210	181	153	124	96	67	297	16.4	206	178	149	120	91	62
	67	279	14.6	254	227	199	170	142	113	269	16.0	246	224	195	166	137	108
	62	257	14.2	254	254	233	205	176	148	248	15.7	246	246	230	201	172	143
	57	254	14.1	254	254	245	217	188	160	246	15.5	246	246	239	210	181	152
8500	72	302	15.0	213	184	155	126	97	69	291	16.4	209	180	151	122	93	64
	67	274	14.5	249	230	202	173	144	115	264	16.0	241	227	198	169	140	110
	62	252	14.2	249	249	239	210	181	152	243	15.6	241	241	233	204	174	145
	57	249	14.0	249	249	245	216	187	158	241	15.4	241	241	237	208	179	150
9000	72	296	14.9	216	187	157	128	99	70	285	16.3	212	183	153	124	95	65
	67	268	14.4	244	224	205	176	147	118	258	15.9	236	231	201	172	142	113
	62	247	14.1	244	244	244	215	186	157	238	15.6	236	236	236	207	177	148
	57	244	13.9	244	244	244	215	186	157	236	15.3	236	236	236	207	177	148
		95°F								105°F							
5000	77	270	17.6	105	93	73	54	35	15	255	19.4	103	89	70	50	31	11
	72	246	17.3	147	127	108	89	69	50	234	19.1	143	124	104	85	65	46
	67	222	17.0	188	162	143	123	104	84	212	18.8	183	158	139	119	100	80
	62	206	16.7	205	197	169	149	130	111	195	18.5	192	190	164	144	125	105
6000	77	285	17.8	127	104	82	59	36	14	269	19.6	127	101	78	55	32	9
	72	259	17.5	166	143	120	97	75	52	246	19.3	162	139	116	93	70	48
	67	234	17.2	204	181	159	136	113	91	224	19.0	197	177	155	132	109	86
	62	217	16.8	216	210	188	165	142	120	206	18.7	204	202	183	160	137	114
	57	216	16.6	216	216	193	170	147	125	205	18.1	205	205	185	162	139	117
7000	77	299	17.9	149	116	90	64	38	12	283	19.8	150	112	86	59	33	7
	72	273	17.6	184	158	132	106	80	54	259	19.5	180	154	128	102	76	49
	67	247	17.3	220	201	175	149	123	97	236	19.2	211	197	170	144	118	92
	62	228	17.0	227	224	207	181	155	129	217	18.8	216	214	201	175	149	123
	57	227	16.7	227	227	212	186	160	134	216	18.3	216	216	204	178	152	125
8000	77	314	18.1	171	128	98	69	40	10	297	19.9	173	123	94	64	34	5
	72	286	17.8	203	174	145	115	86	56	272	19.6	199	169	140	110	81	51
	67	259	17.5	236	220	191	162	132	103	248	19.3	225	216	186	157	127	97
	62	239	17.1	238	238	226	196	167	138	228	19.0	226	226	220	190	161	131
	57	238	16.9	238	238	232	203	173	144	226	18.4	226	226	223	193	164	134
8500	72	280	17.7	206	177	147	117	88	58	266	19.6	202	172	143	113	83	53
	67	253	17.4	232	224	194	165	135	105	242	19.3	220	212	190	160	130	100
	62	234	17.1	233	233	227	197	168	138	223	18.9	222	222	218	188	159	129
	57	233	16.8	233	233	230	200	171	141	222	18.4	222	222	220	190	160	130
9000	72	274	17.7	209	179	150	120	90	60	261	19.5	206	175	145	115	85	55
	67	248	17.4	227	227	197	168	138	108	237	19.2	216	209	193	163	133	103
	62	229	17.1	228	228	228	198	168	139	218	18.9	217	217	217	186	156	126
	57	228	16.8	228	228	228	198	169	139	217	18.3	217	217	217	187	157	126

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

All Sensible Capacity

TABLE 5: COOLING CAPACITIES FOR WR240 (CONTINUED)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		115°F								125°F							
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
5000	77	240	21.3	101	86	66	46	27	-	225	23.1	100	81	63	43	23	-
	72	221	21.0	140	120	101	81	61	42	208	22.8	136	117	97	77	57	37
	67	202	20.7	179	155	135	115	96	76	192	22.5	174	151	131	111	92	72
	62	185	20.4	184	184	159	139	120	100	175	22.2	175	174	154	134	115	95
6000	77	253	21.4	126	97	74	51	28	-	238	23.3	126	93	70	47	23	-
	72	233	21.1	158	135	112	89	66	43	220	23.0	154	131	108	85	62	38
	67	214	20.8	190	173	150	127	104	81	203	22.7	183	169	146	123	100	77
	62	195	20.5	194	194	177	154	131	108	185	22.3	184	184	172	149	126	103
	57	194	19.7	194	194	177	154	131	108	184	21.2	184	184	170	147	123	100
7000	77	267	21.6	151	108	81	55	29	-	250	23.4	151	105	77	50	24	-
	72	246	21.3	176	150	124	97	71	44	232	23.1	172	146	119	93	66	39
	67	225	21.0	202	192	166	139	113	87	214	22.8	192	188	161	135	108	82
	62	206	20.7	205	205	196	169	143	116	195	22.5	193	194	190	163	137	110
	57	205	19.8	205	205	196	169	143	117	194	21.4	194	194	187	161	134	108
8000	77	280	21.8	176	119	89	59	29	-	263	23.6	176	117	84	54	24	-
	72	258	21.5	195	165	135	105	76	46	244	23.3	190	160	130	100	70	41
	67	236	21.1	213	211	181	152	122	92	225	23.0	204	204	177	147	117	87
	62	216	20.8	215	215	214	184	154	124	205	22.7	204	204	205	178	148	118
	57	215	20.0	215	215	214	184	154	125	204	21.5	204	204	204	175	145	115
8500	72	252	21.4	198	168	138	108	78	48	238	23.2	194	164	134	103	73	43
	67	231	21.1	209	201	185	155	125	95	220	22.9	198	189	181	151	120	90
	62	211	20.8	210	210	209	179	149	119	200	22.6	199	199	200	170	140	110
	57	210	19.9	210	210	210	180	149	119	199	21.5	199	199	199	169	139	108
9000	72	247	21.3	202	172	141	111	80	50	233	23.1	194	168	137	106	76	45
	67	226	21.0	205	190	190	159	129	98	215	22.8	194	171	186	155	124	94
	62	206	20.7	205	205	205	175	144	114	195	22.5	194	194	194	163	132	101
	57	205	19.8	205	205	205	175	144	114	194	21.4	194	194	194	163	132	102

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

All Sensible Capacity

TABLE 6: COOLING CAPACITIES FOR WR300

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
		75°F								85°F									
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
6250	77	331	17.7	186	162	137	113	88	64	322	20.0	168	144	119	95	70	46
	72	315	17.2	212	187	163	138	114	90	303	19.4	199	175	151	126	102	78
	67	299	16.7	237	213	188	164	140	115	284	18.8	231	206	182	158	133	109
	62	273	16.3	265	257	231	207	182	158	259	18.4	253	249	223	198	174	149
7500	77	380	20.7	217	189	160	131	102	73	371	23.3	197	168	139	110	82	53
	72	362	20.1	247	218	189	161	132	103	349	22.6	234	205	176	147	118	89
	67	343	19.5	277	248	219	190	161	133	327	21.9	271	242	213	184	155	126
	62	313	19.0	305	299	269	240	211	182	298	21.4	292	289	260	231	202	173
	57	305	18.5	305	305	288	259	230	201	292	20.9	292	292	279	250	221	192
7750	77	378	21.0	220	190	161	131	102	73	370	23.4	200	170	141	111	82	52
	72	360	20.3	249	220	191	161	132	102	348	22.7	237	207	178	148	119	89
	67	342	19.7	279	250	221	191	162	132	326	22.0	274	245	215	186	156	127
	62	312	19.2	304	301	270	241	212	182	298	21.5	292	290	263	233	204	174
	57	304	18.7	304	304	290	260	231	201	292	21.0	292	292	282	253	223	194
8000	77	376	21.2	222	192	162	132	102	72	370	23.6	203	172	142	112	82	52
	72	358	20.6	252	222	192	162	132	102	348	22.9	240	210	180	150	119	89
	67	340	19.9	282	252	222	192	162	132	326	22.1	278	248	217	187	157	127
	62	310	19.4	303	303	272	242	212	182	297	21.7	292	292	266	236	205	175
	57	303	18.9	303	303	291	261	231	201	292	21.1	292	292	285	255	225	195
8650	72	356	20.6	259	228	197	166	135	104	347	23.0	248	216	185	154	123	92
	67	338	20.0	290	259	228	197	166	135	326	22.3	284	255	224	193	162	131
	62	309	19.4	301	300	279	248	217	187	297	21.8	291	291	274	243	211	180
	57	301	18.9	301	301	295	264	233	202	291	21.3	291	291	288	257	226	195
9300	72	354	20.7	266	234	202	170	139	107	347	23.1	255	223	191	159	126	94
	67	336	20.1	299	265	234	202	170	138	325	22.4	291	263	230	198	166	134
	62	307	19.5	299	299	286	255	223	191	296	21.9	291	291	282	250	217	185
	57	299	19.0	299	299	299	267	235	203	291	21.4	291	291	291	259	227	194
		95°F								105°F							
6250	77	313	22.2	150	125	101	77	53	28	297	24.4	139	117	92	68	44	20
	72	291	21.5	187	163	138	114	90	66	276	23.7	180	155	131	107	83	59
	67	268	20.8	200	200	176	151	127	103	256	23.1	220	194	170	146	122	98
	62	245	20.5	241	241	214	190	165	141	232	22.6	230	225	199	175	151	127
7500	77	362	25.8	177	148	119	90	61	32	343	28.3	166	137	109	80	51	22
	72	336	25.0	220	192	163	134	105	76	319	27.6	212	183	154	125	97	68
	67	310	24.2	264	235	206	178	149	120	295	26.8	257	229	200	171	142	113
	62	283	23.8	279	279	251	222	194	165	268	26.3	266	262	234	205	177	148
	57	279	23.2	279	279	270	241	213	184	266	25.8	266	266	256	227	198	170
7750	77	362	25.9	180	150	121	91	61	32	343	28.5	171	140	110	81	51	22
	72	337	25.1	224	195	165	136	106	76	319	27.7	216	186	156	127	97	68
	67	311	24.3	269	239	210	180	150	121	296	26.9	260	232	203	173	144	114
	62	283	23.9	280	280	255	226	196	166	268	26.4	266	264	238	208	179	149
	57	280	23.3	280	280	275	245	215	186	266	25.9	266	266	260	230	201	171
8000	77	363	26.0	183	153	123	92	62	31	343	28.6	176	142	112	82	51	21
	72	338	25.2	229	198	168	137	107	77	320	27.8	219	189	159	129	98	68
	67	312	24.3	274	243	213	183	152	122	296	27.1	263	236	206	175	145	115
	62	284	23.9	281	281	259	229	198	168	269	26.6	266	266	241	211	181	150
	57	281	23.4	281	281	279	248	218	188	266	26.1	266	266	264	233	203	173
8650	72	339	25.3	236	205	173	142	111	79	321	27.9	227	196	165	133	102	71
	67	313	24.5	278	252	220	189	157	126	297	27.1	266	245	213	182	151	119
	62	285	24.1	282	282	268	237	205	174	270	26.6	267	267	250	219	187	156
	57	282	23.6	282	282	281	249	218	187	267	26.1	267	267	266	235	203	172
9300	72	340	25.5	244	211	179	147	114	82	322	28.0	235	203	170	138	106	73
	67	314	24.7	283	260	227	195	163	130	298	27.2	268	253	221	189	156	124
	62	286	24.3	283	283	277	244	212	180	271	26.7	268	268	259	226	194	162
	57	283	23.8	283	283	283	250	218	185	268	26.2	268	268	268	236	203	171

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

All Sensible Capacity

TABLE 6: COOLING CAPACITIES FOR WR300 (CONTINUED)

Air on Evaporator Coil		Temperature of Air on Condenser Coil															
		115°F								125°F							
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
6250	77	281	26.6	128	108	84	60	36	12	265	28.8	122	99	75	51	27	-
	72	262	26.0	172	148	124	100	76	52	248	28.2	165	141	117	93	69	45
	67	243	25.3	216	188	164	140	116	92	230	27.5	207	183	159	135	111	87
	62	220	24.8	218	209	185	161	137	113	208	26.9	207	193	170	146	122	98
7500	77	324	30.9	155	127	98	70	41	12	305	33.5	149	116	88	59	31	-
	72	302	30.2	203	174	146	117	88	60	285	32.8	194	166	137	109	80	52
	67	280	29.4	250	222	193	164	136	107	265	32.0	239	215	186	158	129	101
	62	254	28.8	252	245	217	188	159	131	239	31.3	239	228	199	171	142	114
	57	252	28.4	252	252	241	213	184	155	239	30.9	239	239	227	198	170	141
7750	77	324	31.1	162	129	100	70	41	11	304	33.7	157	118	89	60	31	-
	72	302	30.4	207	177	148	118	89	60	284	33.0	198	168	139	110	80	51
	67	280	29.6	251	225	196	166	137	108	264	32.3	238	218	189	160	130	101
	62	254	29.0	252	249	220	190	161	132	239	31.6	238	233	202	173	143	114
	57	252	28.5	252	252	245	215	186	157	238	31.1	238	238	230	201	171	142
8000	77	323	31.3	168	131	101	71	41	11	303	34.0	164	120	90	60	30	-
	72	302	30.5	210	180	150	120	89	59	284	33.2	201	171	141	111	81	51
	67	280	29.8	252	229	199	168	138	108	264	32.5	238	222	191	161	131	101
	62	253	29.2	252	252	223	193	163	132	238	31.8	238	238	205	175	145	115
	57	252	28.7	252	252	248	218	188	158	238	31.4	238	238	233	203	173	143
8650	72	303	30.5	218	187	156	125	93	62	284	33.1	209	178	147	116	85	53
	67	281	29.8	253	238	206	175	144	113	265	32.4	239	231	200	168	137	106
	62	254	29.2	253	253	232	201	169	138	239	31.7	239	239	214	182	151	120
	57	253	28.7	253	253	251	220	189	157	239	31.3	239	239	236	205	174	143
9300	72	304	30.5	226	194	162	129	97	65	285	33.0	218	185	153	121	89	56
	67	282	29.8	254	247	214	182	150	117	265	32.3	239	239	208	176	143	111
	62	255	29.1	254	254	241	208	176	144	240	31.6	239	239	222	190	158	126
	57	254	28.7	254	254	254	221	189	157	239	31.2	239	239	239	207	175	143

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

All Sensible Capacity

TABLE 7: COOLING CAPACITIES FOR WR180 (ALTERNATE REHEAT MODE)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
		75°F								85°F									
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)[x] Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)[x] Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
4500	67	88	10.6	23	21	19	16	14	11	80	11.2	18	16	14	12	10	9
	62	79	10.1	44	42	39	37	35	32	72	10.8	35	34	32	30	28	26
	57	70	9.9	48	46	44	41	39	36	66	10.6	39	37	35	34	32	30
5250	67	90	10.7	32	29	25	22	19	15	82	11.3	26	24	21	18	15	12
	62	81	10.2	59	56	53	49	46	43	74	10.8	53	50	47	44	41	39
	57	72	10.0	61	59	58	55	51	48	68	10.7	55	54	53	50	47	44
6000	67	92	10.8	40	36	32	28	23	19	85	11.3	35	31	27	24	20	16
	62	82	10.3	73	70	66	61	57	53	76	10.9	70	66	62	58	55	51
	57	73	10.0	73	73	72	68	64	60	70	10.7	70	70	70	66	62	58
6750	67	95	10.8	49	44	39	33	28	23	87	11.3	43	38	34	29	25	20
	62	85	10.2	75	74	72	66	61	56	78	10.9	72	70	68	63	59	55
	57	75	10.0	75	75	75	70	65	59	72	10.7	72	72	72	67	63	58
7500	67	98	10.7	58	52	46	39	33	27	90	11.3	51	45	40	34	29	24
	62	88	10.2	78	78	78	71	65	59	81	10.9	74	74	74	68	63	58
	57	78	10.0	78	78	78	72	65	59	74	10.7	74	74	74	68	63	58
		95°F								105°F							
4500	67	71	11.8	12	11	10	8	7	6	65	12.5	8	8	7	6	5	4
	62	64	11.4	27	25	24	23	22	20	60	12.1	21	20	19	18	17	16
	57	61	11.3	30	29	27	26	25	24	57	12.1	23	22	21	20	19	18
5250	67	74	11.8	21	19	16	14	12	10	69	12.6	16	15	13	11	9	8
	62	68	11.5	46	44	41	39	37	35	63	12.2	41	40	38	36	34	33
	57	64	11.4	48	48	47	45	43	40	60	12.1	43	42	42	40	38	36
6000	67	78	11.9	29	26	23	20	17	14	72	12.6	24	22	19	16	14	11
	62	71	11.5	65	62	59	56	52	49	66	12.2	62	60	57	54	52	49
	57	67	11.4	67	67	67	63	60	57	63	12.1	63	63	62	60	57	55
6750	67	79	11.9	36	32	29	25	21	17	73	12.6	31	28	24	21	18	15
	62	72	11.5	67	66	64	60	57	53	66	12.2	63	62	61	57	54	51
	57	68	11.4	68	68	68	64	60	57	64	12.1	64	64	63	60	57	54
7500	67	81	11.9	43	39	34	30	25	21	74	12.6	37	34	30	26	22	18
	62	73	11.5	70	70	70	65	61	56	67	12.2	64	64	64	60	57	53
	57	70	11.4	70	70	70	65	61	56	64	12.1	64	64	64	61	57	53
		115°F								125°F							
4500	67	60	13.3	5	4	4	3	3	2	54	14.0	-	-	-	-	-	-
	62	55	12.8	15	14	14	13	13	12	50	13.5	9	9	9	8	8	8
	57	53	12.8	16	15	15	14	14	13	50	13.5	9	8	8	8	8	8
5250	67	63	13.3	12	11	9	8	7	6	57	14.1	8	7	6	5	4	3
	62	58	12.9	37	36	35	33	32	31	53	13.6	33	31	31	30	29	29
	57	56	12.8	37	37	36	35	34	33	52	13.6	31	31	31	30	30	29
6000	67	66	13.4	19	17	15	13	11	9	60	14.1	14	13	11	9	8	6
	62	60	12.9	59	57	55	53	51	49	55	13.6	55	54	53	52	50	49
	57	59	12.9	59	59	58	56	54	52	54	13.6	54	54	54	53	51	50
6750	67	66	13.4	25	23	20	18	15	12	59	14.1	20	18	16	14	12	10
	62	61	12.9	59	58	57	54	52	49	55	13.6	54	54	53	52	49	47
	57	59	12.9	59	59	59	56	53	51	54	13.6	54	54	54	52	50	48
7500	67	66	13.4	32	28	25	22	19	16	59	14.1	26	23	21	18	16	13
	62	61	12.9	59	59	59	56	53	49	55	13.6	54	54	54	51	48	46
	57	59	12.9	59	59	59	56	53	50	54	13.6	54	54	54	52	49	46

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

All Sensible Capacity

TABLE 8: COOLING CAPACITIES FOR WR240 (ALTERNATE REHEAT MODE)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
		75°F								85°F									
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
6000	67	100	15.9	20	18	16	14	12	10	94	16.6	13	12	11	9	8	7
	62	93	15.1	44	42	40	38	36	35	86	15.9	30	29	27	26	25	23
	57	83	15.1	50	48	46	45	43	41	77	15.8	34	33	32	30	29	28
7000	67	109	15.8	31	28	24	21	18	15	103	16.5	25	23	20	18	15	12
	62	102	15.1	68	65	62	59	56	53	95	15.8	57	54	52	49	47	44
	57	90	15.0	74	74	71	68	64	61	85	15.7	63	63	60	58	55	52
8000	67	119	15.7	42	37	33	29	24	20	112	16.4	38	34	30	26	22	18
	62	110	15.0	92	88	83	79	75	70	103	15.8	84	80	76	72	69	65
	57	98	14.9	98	98	95	91	86	82	93	15.7	93	93	89	85	81	77
8450	67	113	15.7	42	38	33	29	25	21	107	16.4	39	35	31	27	23	19
	62	105	15.0	88	88	85	80	76	72	98	15.8	84	84	80	76	72	68
	57	93	14.9	93	93	92	87	83	79	88	15.7	88	88	86	82	78	75
8900	67	107	15.7	42	38	34	30	26	22	101	16.4	40	36	32	29	25	21
	62	99	14.9	88	88	86	82	78	73	93	15.8	84	84	83	79	75	71
	57	88	14.9	88	88	88	84	80	76	84	15.7	84	84	84	80	76	72
		95°F								105°F							
6000	67	87	17.3	7	6	5	5	4	3	77	18.2	3	3	3	2	2	2
	62	79	16.7	16	15	14	14	13	12	68	17.7	8	7	7	7	6	6
	57	72	16.5	18	18	17	16	16	15	63	17.4	9	9	9	8	8	7
7000	67	96	17.2	20	18	16	14	12	10	86	18.2	15	14	12	11	9	7
	62	88	16.6	46	44	42	40	38	35	76	17.7	36	35	33	32	30	28
	57	79	16.4	53	52	50	48	46	44	70	17.4	43	43	41	40	38	36
8000	67	106	17.2	34	30	27	23	20	16	94	18.2	28	25	22	19	16	13
	62	96	16.6	76	73	69	66	62	59	84	17.7	65	62	59	57	54	51
	57	87	16.4	87	86	83	79	76	72	78	17.4	78	77	74	71	68	65
8450	67	101	17.2	36	32	29	25	22	18	90	18.1	29	26	23	20	17	14
	62	92	16.6	78	78	75	71	68	64	80	17.6	68	66	63	60	57	54
	57	83	16.4	83	83	81	77	74	70	74	17.3	74	74	72	69	67	64
8900	67	96	17.2	38	35	31	27	24	20	86	18.1	30	27	24	21	19	16
	62	87	16.6	79	79	79	75	72	67	76	17.6	71	69	66	63	60	57
	57	79	16.4	79	79	79	75	72	68	71	17.3	71	71	71	68	65	62
		115°F								125°F							
6000	67	67	19.1	-	-	-	-	-	-	57	20.0	-	-	-	-	-	-
	62	57	18.7	-	-	-	-	-	-	46	19.7	-	-	-	-	-	-
	57	54	18.3	-	-	-	-	-	-	46	19.2	-	-	-	-	-	-
7000	67	75	19.1	11	10	8	7	6	5	64	20.1	6	5	5	4	3	3
	62	64	18.7	27	26	25	24	23	21	52	19.7	18	17	16	16	15	14
	57	61	18.3	34	33	32	31	30	29	52	19.2	25	24	24	23	22	22
8000	67	83	19.2	21	19	17	15	13	10	72	20.1	15	14	12	11	9	7
	62	71	18.7	54	52	50	47	45	43	58	19.8	43	41	40	38	37	35
	57	68	18.3	68	67	65	62	60	58	58	19.3	58	57	56	54	52	51
8450	67	80	19.1	22	19	17	15	13	11	70	20.0	14	13	12	10	9	7
	62	68	18.6	55	53	51	48	46	44	56	19.7	41	40	38	37	36	34
	57	65	18.2	65	65	64	61	59	57	56	19.2	56	56	55	54	52	51
8900	67	77	19.0	22	20	18	16	14	12	67	19.9	13	12	11	10	9	7
	62	65	18.5	55	53	51	49	47	45	54	19.5	40	38	37	36	35	33
	57	63	18.2	63	63	63	61	59	56	54	19.0	54	54	54	53	52	51

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

All Sensible Capacity

TABLE 9: COOLING CAPACITIES FOR WR300 (ALTERNATE REHEAT MODE)

Air on Evaporator Coil		Temperature of Air on Condenser Coil																	
		75°F								85°F									
CFM	WB (°F)	Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						Total Cap.[1] (MBH)	Total[2] Input (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)					
				90	85	80	75	70	65			90	85	80	75	70	65
7500	67	140	21.1	19	17	16	14	12	10	129	22.3	12	11	9	8	7	6
	62	128	19.9	88	86	84	82	80	78	119	21.1	68	67	66	65	64	62
	57	117	18.8	104	102	100	98	96	94	113	20.3	81	80	79	78	77	76
7750	67	139	21.2	21	19	17	15	12	10	128	22.4	13	12	10	9	8	7
	62	127	20.1	88	86	84	82	80	78	118	21.2	75	74	73	71	70	69
	57	116	18.9	104	102	100	98	96	94	112	20.4	90	88	87	86	84	83
8000	67	138	21.3	22	20	18	15	13	11	127	22.5	14	13	11	10	9	7
	62	126	20.2	88	86	84	82	80	78	117	21.3	82	81	79	78	76	75
	57	115	19.0	104	102	100	98	96	93	111	20.4	98	96	95	93	92	91
8500	67	138	21.4	24	22	19	17	15	12	127	22.5	16	15	13	12	10	9
	62	125	20.2	98	95	92	90	88	85	117	21.3	95	94	92	90	89	87
	57	115	19.1	109	108	107	105	102	100	111	20.5	104	104	103	101	100	98
9000	67	137	21.4	26	23	21	19	16	14	127	22.5	18	17	15	13	12	10
	62	125	20.2	107	104	100	98	96	93	117	21.3	108	107	105	103	102	100
	57	114	19.1	114	114	114	112	109	107	111	20.5	111	111	111	109	107	106
		95°F								105°F							
7500	67	118	23.4	4	4	3	3	2	2	108	24.8	3	3	2	2	1	1
	62	110	22.3	49	48	48	48	47	47	101	23.6	31	31	30	30	30	29
	57	108	21.7	59	59	58	58	57	57	98	23.1	37	37	36	36	36	35
7750	67	117	23.5	5	5	4	4	3	3	107	24.9	5	4	4	3	2	2
	62	109	22.3	62	62	61	61	60	60	100	23.7	51	50	50	49	48	48
	57	107	21.8	75	75	74	73	73	72	97	23.2	60	59	59	58	58	57
8000	67	116	23.6	6	6	5	4	4	3	106	24.9	6	6	5	4	3	3
	62	108	22.4	75	75	74	73	73	72	99	23.8	70	69	69	68	67	66
	57	106	21.9	91	90	90	89	89	88	96	23.3	82	82	81	80	79	79
8500	67	117	23.6	9	8	7	6	5	5	107	24.9	8	7	6	5	4	3
	62	109	22.4	93	92	92	91	90	89	100	23.8	79	79	78	77	76	75
	57	107	21.9	99	99	99	98	97	96	97	23.3	87	87	86	85	84	83
9000	67	118	23.6	11	10	9	8	7	6	108	24.9	9	8	7	6	5	4
	62	110	22.4	110	108	107	106	105	104	101	23.8	89	88	87	86	85	84
	57	108	21.9	108	108	108	107	106	105	98	23.3	92	92	91	90	89	88
		115°F								125°F							
7500	67	97	26.2	-	-	-	-	-	-	87	27.6	-	-	-	-	-	-
	62	91	25.0	14	13	13	12	12	12	82	26.4	-	-	-	-	-	-
	57	88	24.6	15	15	15	14	14	13	77	26.0	-	-	-	-	-	-
7750	67	97	26.2	4	4	3	2	2	1	87	27.6	4	3	2	2	-	-
	62	91	25.0	39	39	38	37	37	36	82	26.4	28	27	27	26	25	24
	57	87	24.6	45	44	43	43	42	41	77	26.0	29	29	28	27	27	26
8000	67	96	26.3	7	6	5	4	3	2	86	27.6	7	6	5	4	-	-
	62	90	25.1	65	64	63	62	62	61	81	26.5	60	59	58	57	56	55
	57	86	24.7	74	73	72	71	70	69	76	26.1	65	64	63	62	61	60
8500	67	98	26.3	7	6	5	4	3	2	88	27.7	6	5	4	3	-	-
	62	92	25.1	66	65	64	63	62	61	83	26.5	53	52	50	49	48	47
	57	88	24.7	75	74	73	72	71	70	78	26.1	63	62	60	59	58	57
9000	67	99	26.3	7	6	5	4	3	2	90	27.7	6	4	3	2	-	-
	62	93	25.1	68	66	65	64	63	62	85	26.5	47	45	43	42	40	39
	57	89	24.7	77	76	74	73	72	71	80	26.1	61	59	58	56	55	54

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

All Sensible Capacity

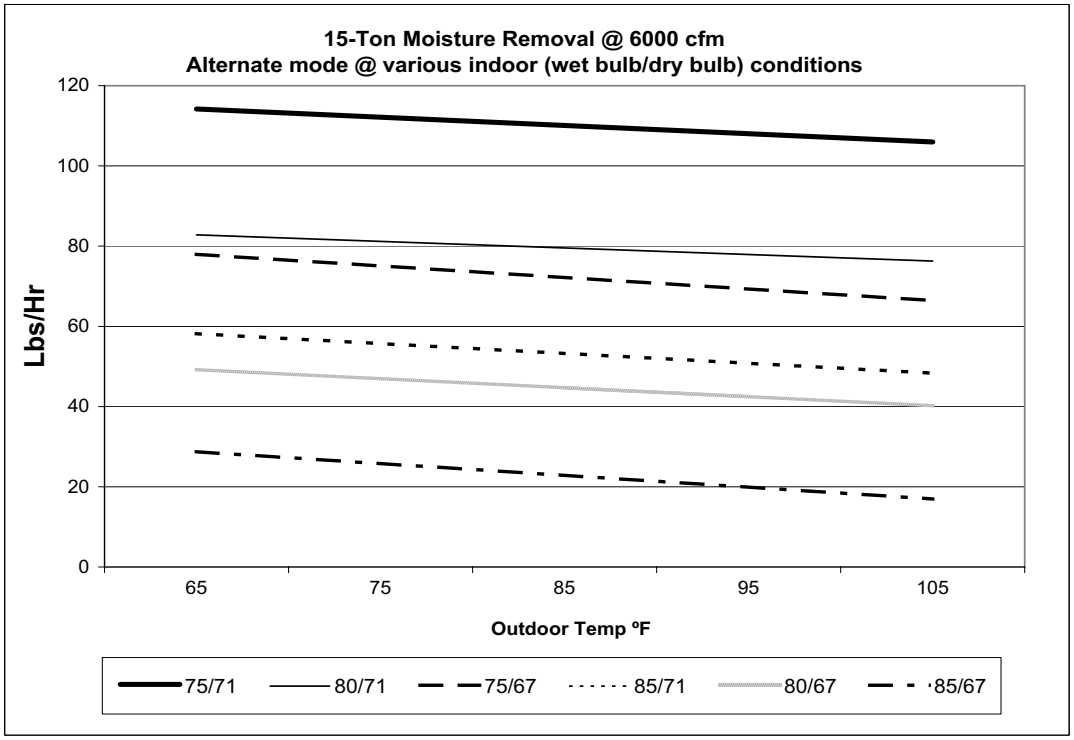


FIGURE 5: WR180 MOISTURE REMOVAL - ALTERNATE MODE

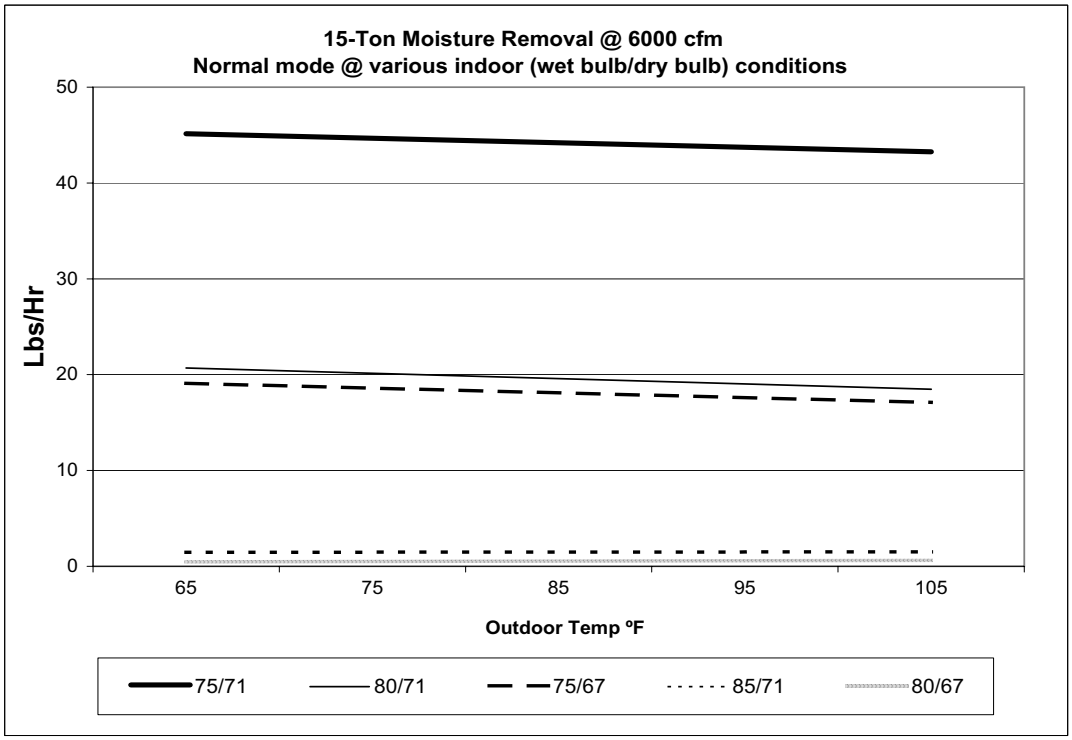


FIGURE 6: WR180 MOISTURE REMOVAL - NORMAL MODE

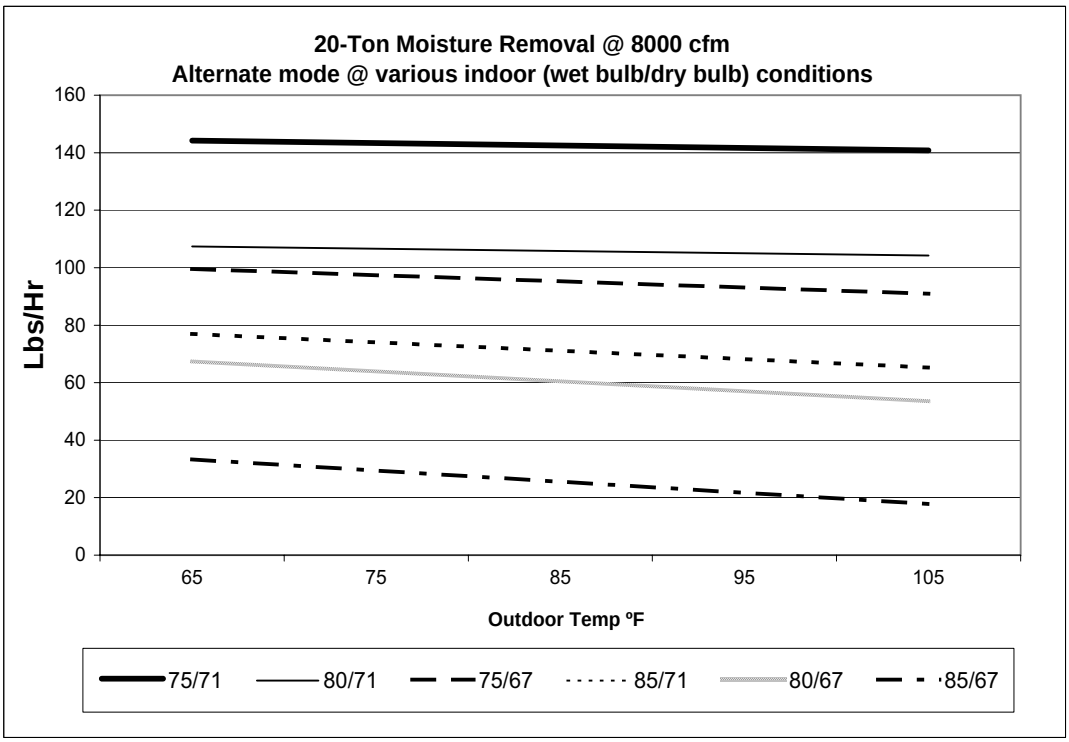


FIGURE 7: WR240 MOISTURE REMOVAL - ALTERNATE MODE

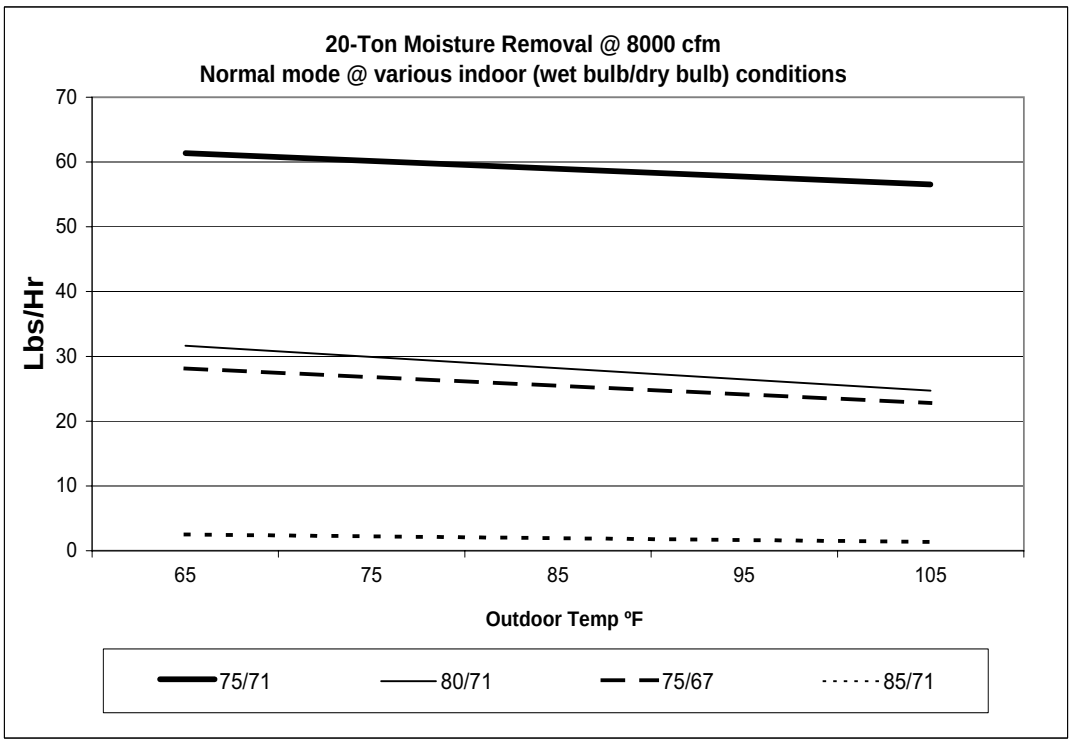


FIGURE 8: WR240 MOISTURE REMOVAL - NORMAL MODE

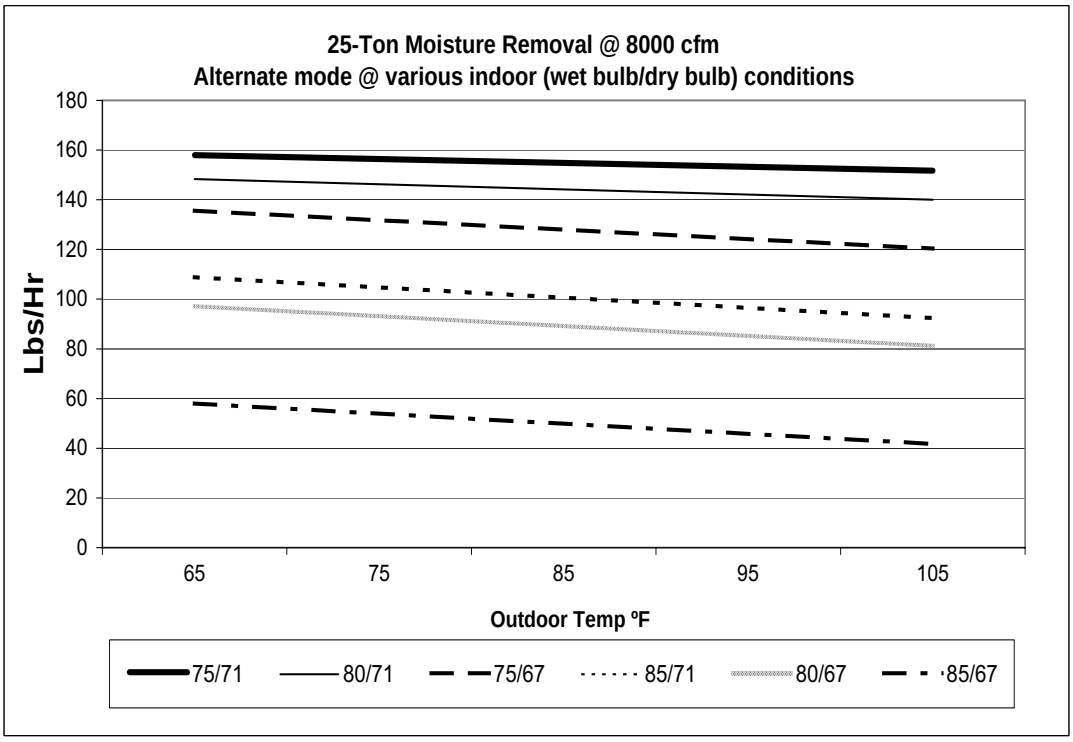


FIGURE 9: WR300 MOISTURE REMOVAL - ALTERNATE MODE

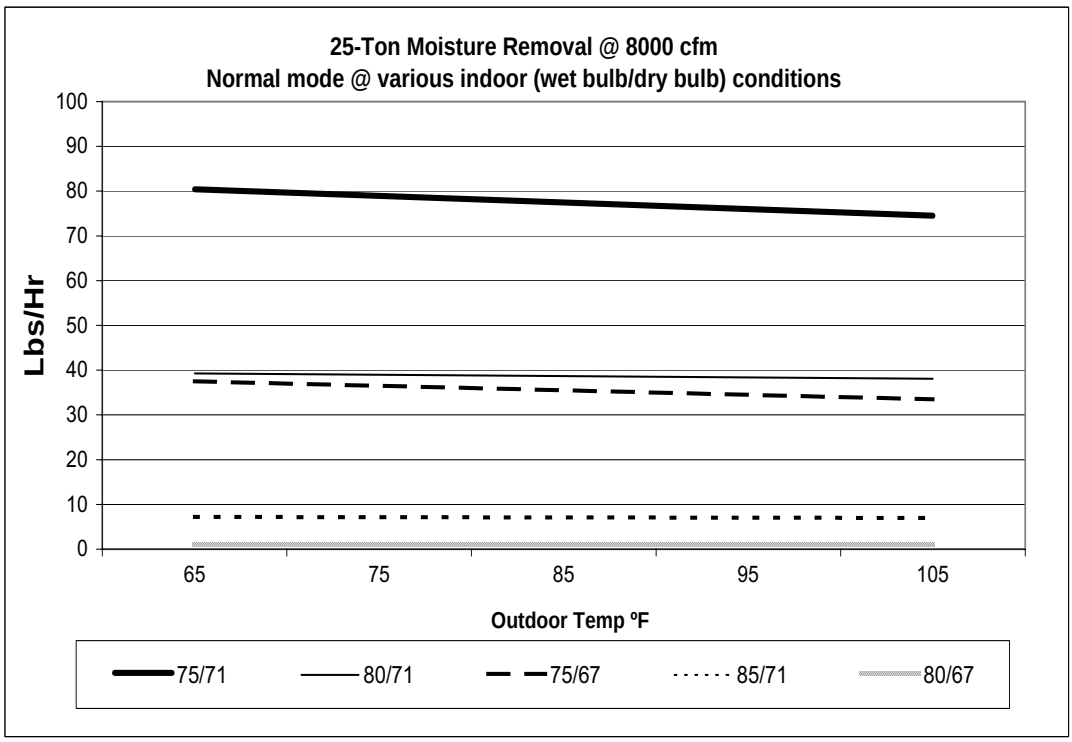


FIGURE 10:WR300 MOISTURE REMOVAL - NORMAL MODE

CFM, STATIC PRESSURE, AND POWER - ALTITUDE AND TEMPERATURE CORRECTIONS

The information below should be used to assist in application of product when being applied at altitudes at or exceeding 1000 feet above sea level.

The air flow rates listed in the standard blower performance tables are based on standard air at sea level. As the altitude or temperature increases, the density of air decreases. In order to use the indoor blower tables for high altitude applications, certain corrections are necessary.

A centrifugal fan is a "constant volume" device. This means that, if the rpm remains constant, the CFM delivered is the same regardless of the density of the air. However, since the air at high altitude is less dense, less static pressure will be generated and less power will be required than a similar application at sea level. Air density correction factors are shown in Table 10 and Figure 11.

TABLE 10: ALTITUDE CORRECTION FACTORS

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

The examples below will assist in determining the airflow performance of the product at altitude.

Example 1: What are the corrected CFM, static pressure, and BHP at an elevation of 5,000 ft. if the blower performance data is 6,000 CFM, 1.5 IWC and 4.0 BHP?

Solution: At an elevation of 5,000 ft the indoor blower will still deliver 6,000 CFM if the rpm is unchanged. However, Table 10 must be used to determine the static pressure and BHP. Since no temperature data is given, we will assume an air temperature of 70°F. Table 10 shows the correction factor to be 0.832.

Corrected static pressure = 1.5 x 0.832 = 1.248 IWC

Corrected BHP = 4.0 x 0.832 = 3.328

Example 2: A system, located at 5,000 feet of elevation, is to deliver 6,000 CFM at a static pressure of 1.5". Use the unit blower tables to select the blower speed and the BHP requirement.

Solution: As in the example above, no temperature information is given so 70°F is assumed.

The 1.5" static pressure given is at an elevation of 5,000 ft. The first step is to convert this static pressure to equivalent sea level conditions.

Sea level static pressure = 1.5 / .832 = 1.80"

Enter the blower table at 6000 sCFM and static pressure of 1.8". The rpm listed will be the same rpm needed at 5,000 ft.

Suppose that the corresponding BHP listed in the table is 3.2. This value must be corrected for elevation.

BHP at 5,000 ft = 3.2 x .832 = 2.66

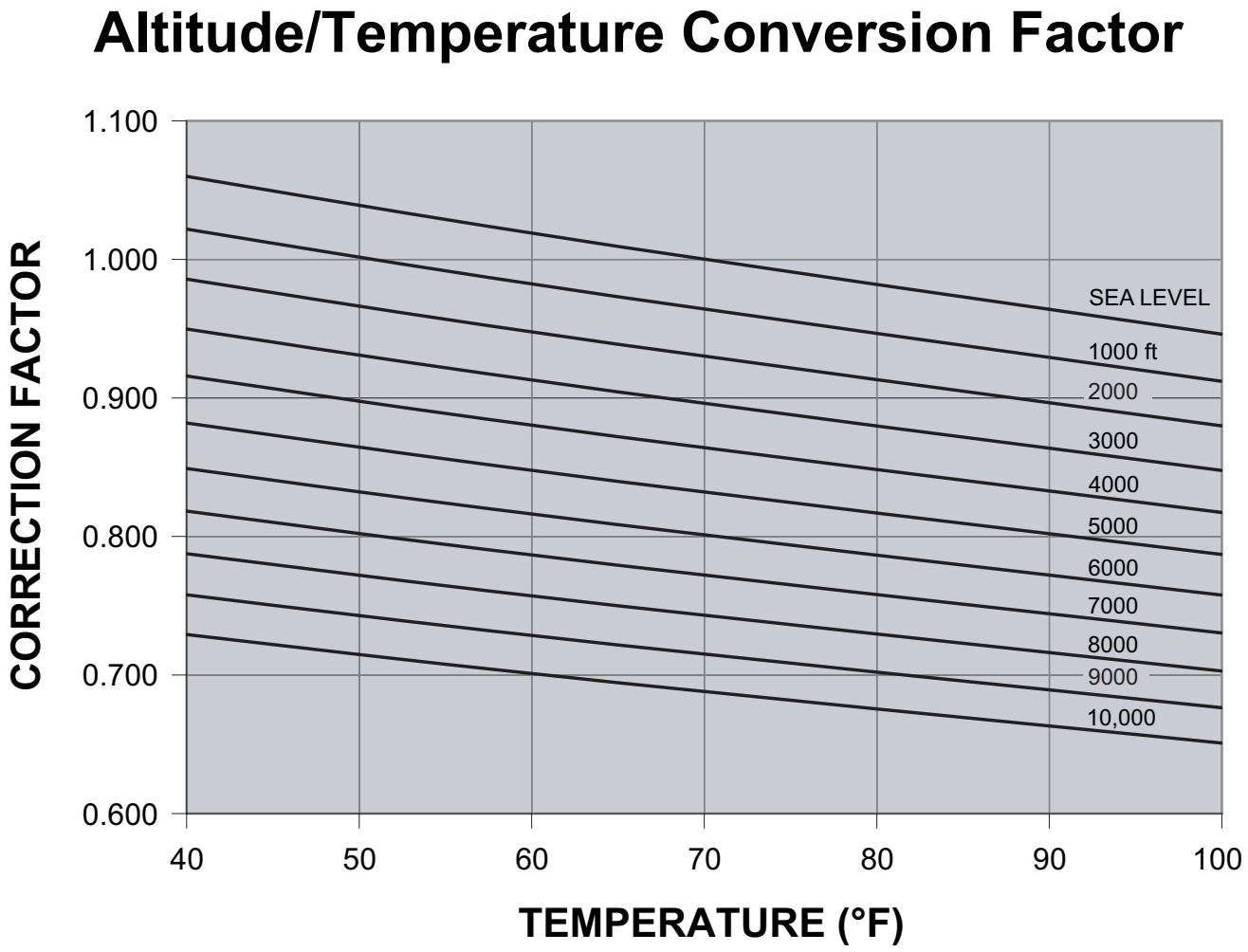


FIGURE 11: ALTITUDE/TEMPERATURE CONVERSION FACTOR

TABLE 11: WR180 BLOWER PERFORMANCE - 15 TON STANDARD DRIVE (COOLING ONLY) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**
0.2	6284	956	3.50	4.20	6080	922	3.14	3.77	5800	889	2.84	3.41	5514	856	2.536	3.04	5290	821	2.209	2.65	5056	788	1.992	2.39
0.4	5918	957	3.25	3.89	5718	923	2.92	3.51	5434	889	2.61	3.13	5228	857	2.32	2.78	4914	822	2.04	2.45	4668	789	1.85	2.22
0.6	5590	958	3.05	3.66	5379	925	2.74	3.28	5098	891	2.41	2.90	4829	858	2.18	2.61	4452	823	1.81	2.17	4175	790	1.67	2.01
0.8	5226	959	2.79	3.34	4985	926	2.45	2.95	4639	893	2.18	2.62	4336	860	1.91	2.30	3937	825	1.58	1.90	3608	791	1.42	1.70
1.0	4801	961	2.52	3.03	4529	928	2.23	2.68	4141	894	1.95	2.34	3754	861	1.69	2.03	3222	826	1.35	1.62	2752	792	1.13	1.35
1.2	4326	962	2.28	2.73	3912	930	1.95	2.34	3405	896	1.59	1.91	2964	863	1.38	1.65	-	-	-	-	-	-	-	-
1.4	3650	965	1.95	2.34	3199	931	1.62	1.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

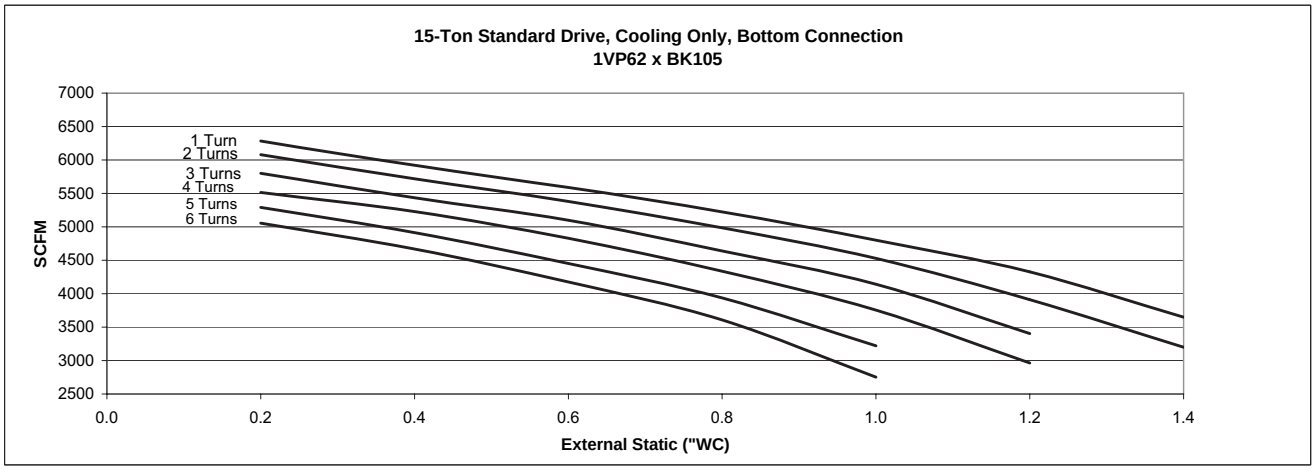


TABLE 12: WR180 BLOWER PERFORMANCE - 15 TON STANDARD DRIVE (GAS HEAT) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**
0.2	6158	956	3.29	3.95	5958	922	2.96	3.55	5684	889	2.67	3.20	5404	856	2.38	2.86	5184	821	2.08	2.49	4955	788	1.87	2.25
0.4	5800	957	3.05	3.66	5604	923	2.75	3.30	5325	889	2.45	2.94	5123	857	2.18	2.62	4816	822	1.92	2.31	4575	789	1.74	2.09
0.6	5478	958	2.87	3.44	5271	925	2.57	3.09	4996	891	2.27	2.72	4732	858	2.05	2.46	4363	823	1.70	2.04	4092	790	1.57	1.89
0.8	5121	959	2.62	3.14	4885	926	2.31	2.77	4546	893	2.05	2.46	4249	860	1.80	2.16	3858	825	1.48	1.78	3536	791	1.33	1.60
1.0	4705	961	2.37	2.85	4438	928	2.10	2.52	4058	894	1.83	2.20	3679	861	1.59	1.91	3158	826	1.27	1.52	2697	792	1.06	1.27
1.2	4239	962	2.14	2.57	3834	930	1.83	2.20	3337	896	1.49	1.79	2905	863	1.29	1.55	-	-	-	-	-	-	-	-
1.4	3577	965	1.83	2.20	3135	931	1.52	1.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

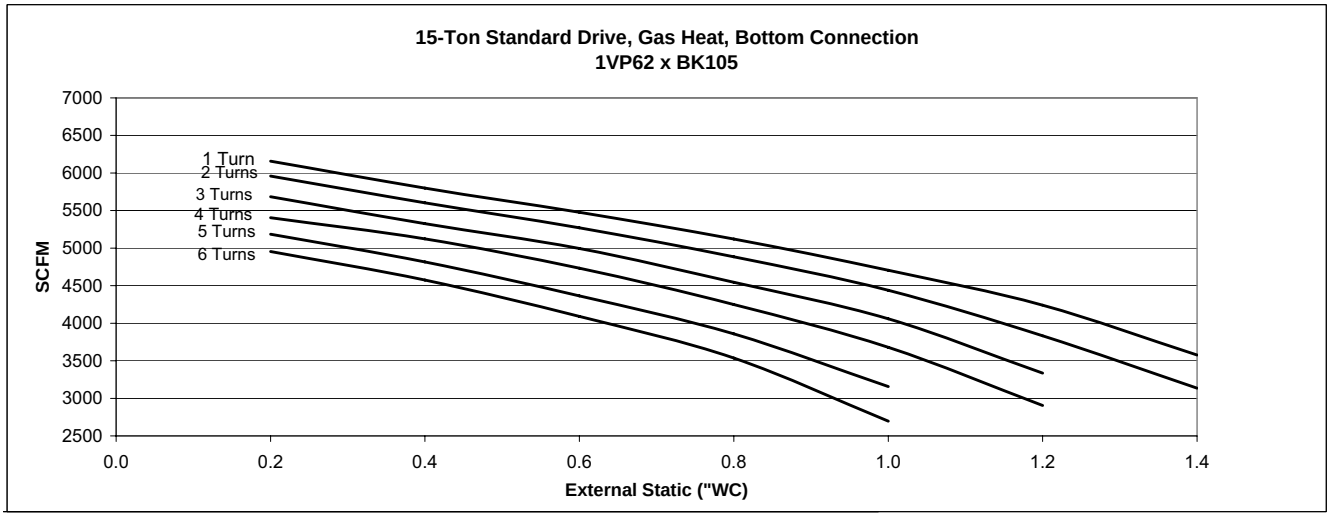


TABLE 13: WR180 BLOWER PERFORMANCE - 15 TON HIGH STATIC DRIVE (COOLING ONLY) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**
0.2	7695	1120	5.68	6.93	7434	1082	5.12	6.25	7139	1043	4.55	5.55	6853	1005	4.10	4.92	6537	966	3.614	4.34	6173	926	3.20	3.84
0.4	7344	1122	5.34	6.51	7089	1083	4.80	5.86	6791	1044	4.32	5.28	6497	1005	3.80	4.57	6157	966	3.28	3.94	5791	927	2.92	3.50
0.6	6994	1123	4.99	6.08	6751	1084	4.48	5.47	6477	1046	4.06	4.87	6190	1006	3.63	4.36	5855	967	3.25	3.90	5430	927	2.74	3.29
0.8	6711	1125	4.77	5.83	6478	1086	4.29	5.24	6196	1046	3.85	4.62	5864	1007	3.41	4.09	5434	968	2.95	3.54	5023	928	2.54	3.04
1.0	6415	1126	4.54	5.54	6193	1087	4.09	4.90	5802	1048	3.58	4.30	5449	1008	3.07	3.68	5017	969	2.71	3.25	4554	929	2.21	2.66
1.2	6032	1127	4.22	5.15	5823	1088	3.80	4.56	5418	1049	3.28	3.93	5011	1009	2.79	3.34	4554	970	2.40	2.88	4030	930	1.99	2.39
1.4	5659	1128	3.89	4.67	5463	1089	3.50	4.20	4996	1049	3.00	3.60	4549	1010	2.48	2.98	4120	970	2.09	2.51	3216	931	1.63	1.95
1.6	5315	1130	3.60	4.32	5042	1090	3.23	3.88	4481	1050	2.68	3.21	4004	1011	2.20	2.64	3222	971	1.75	2.09	-	-	-	-
1.8	4733	1131	3.15	3.78	4402	1091	2.83	3.40	3756	1052	2.28	2.73	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

7.5 HP motor 5 HP motor

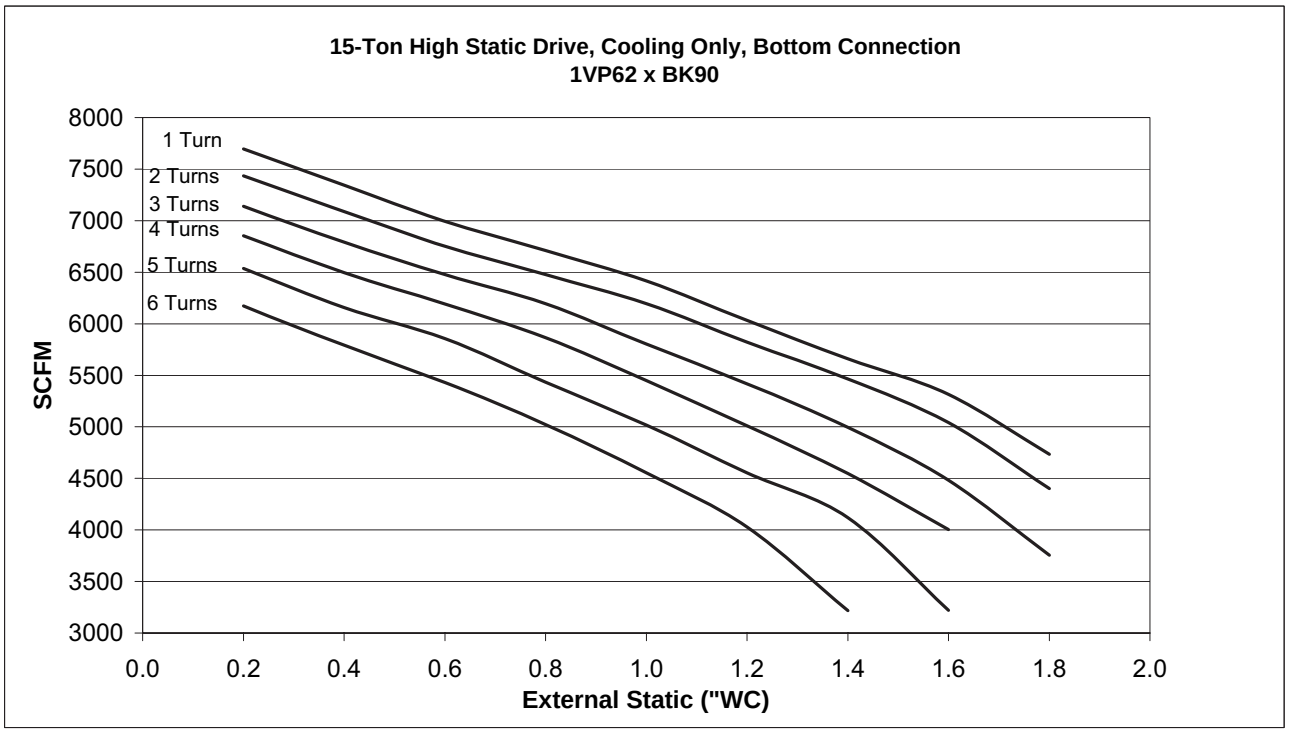


TABLE 14: WR180 BLOWER PERFORMANCE - 15 TON HIGH STATIC DRIVE (GAS HEAT) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**
0.2	7541	1120	5.34	6.51	7285	1082	4.81	5.87	6996	1043	4.28	5.22	6716	1005	3.85	4.63	6406	966	3.40	4.08	6050	926	3.00	3.61
0.4	7197	1122	5.02	6.12	6947	1083	4.51	5.50	6655	1044	4.06	4.88	6367	1005	3.58	4.29	6034	966	3.08	3.70	5675	927	2.74	3.29
0.6	6854	1123	4.69	5.72	6616	1084	4.21	5.14	6347	1046	3.81	4.58	6066	1006	3.41	4.09	5738	967	3.06	3.67	5321	927	2.58	3.09
0.8	6576	1125	4.49	5.48	6348	1086	4.04	4.84	6072	1046	3.62	4.35	5747	1007	3.20	3.84	5325	968	2.78	3.33	4923	928	2.38	2.86
1.0	6287	1126	4.27	5.21	6069	1087	3.84	4.61	5686	1048	3.37	4.04	5340	1008	2.88	3.46	4917	969	2.54	3.05	4463	929	2.08	2.50
1.2	5911	1127	3.97	4.76	5707	1088	3.57	4.29	5310	1049	3.08	3.69	4911	1009	2.62	3.14	4463	970	2.25	2.70	3949	930	1.87	2.24
1.4	5545	1128	3.66	4.39	5354	1089	3.29	3.95	4896	1049	2.82	3.38	4458	1010	2.33	2.80	4038	970	1.96	2.36	3152	931	1.53	1.83
1.6	5209	1130	3.38	4.06	4941	1090	3.04	3.65	4391	1050	2.51	3.02	3924	1011	2.07	2.48	3158	971	1.64	1.97	-	-	-	-
1.8	4638	1131	2.96	3.56	4314	1091	2.66	3.19	3681	1052	2.14	2.57	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

7.5 HP motor 5 HP motor

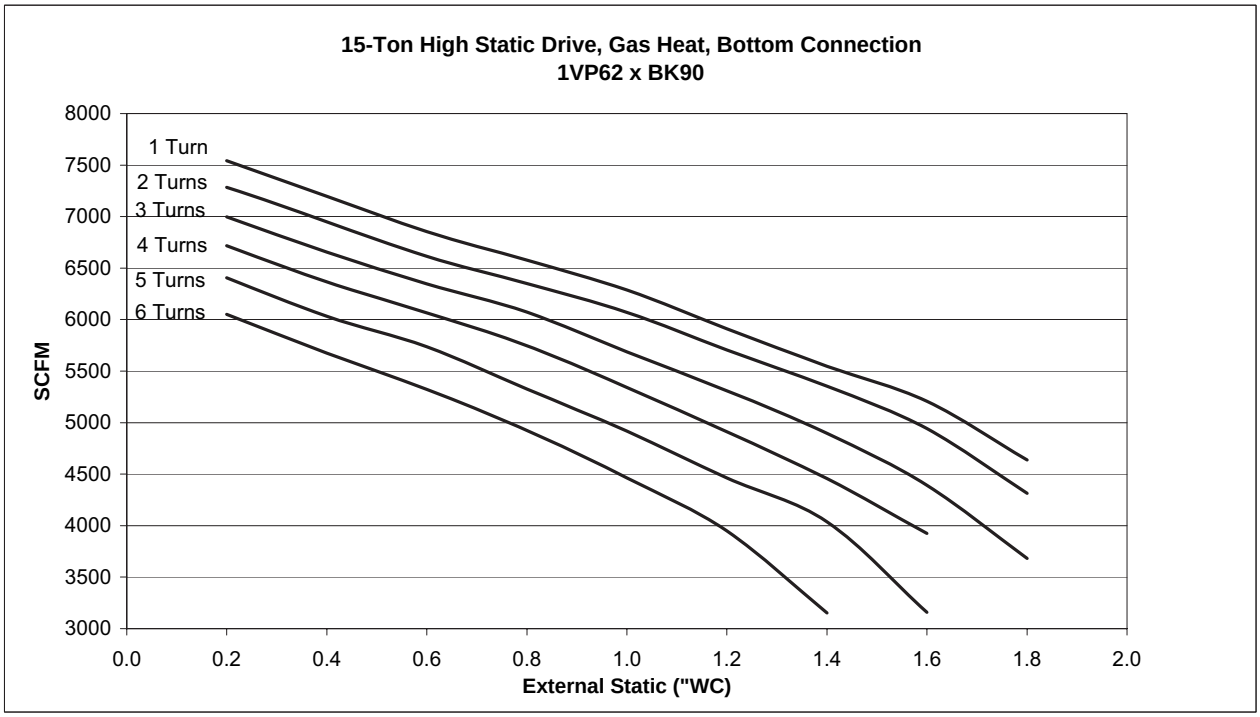


TABLE 15: WR240 BLOWER PERFORMANCE - 20 TON STANDARD DRIVE (COOLING ONLY) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP
0.4	-	-	-	-	9557	1071	7.78	9.49	9313	1036	7.22	8.81	8842	1002	6.35	7.75	8481	968	5.68	6.93	8267	932	5.22	6.38
0.6	9720	1107	8.33	10.16	9159	1073	7.58	9.25	8901	1038	6.79	8.29	8426	1003	6.02	7.34	8048	969	5.34	6.51	7805	934	4.83	5.90
0.8	9345	1108	8.04	9.81	8775	1074	7.26	8.86	8503	1039	6.50	7.94	7980	1005	5.64	6.88	7621	970	5.03	6.14	7340	935	4.39	5.35
1.0	8975	1109	7.62	9.29	8390	1076	6.82	8.32	8089	1040	6.10	7.45	7576	1006	5.33	6.51	7195	971	4.81	5.87	6858	936	4.21	5.13
1.2	8590	1110	7.32	8.93	7977	1077	6.29	7.67	7643	1041	5.72	6.97	7123	1007	5.00	6.10	6739	972	4.46	5.44	6288	937	3.79	4.62
1.4	8197	1112	6.75	8.24	7571	1078	5.98	7.29	7218	1043	5.43	6.62	6638	1008	4.54	5.54	-	-	-	-	-	-	-	-
1.6	7795	1113	6.40	7.81	7086	1079	5.71	6.97	6729	1044	4.95	6.04	-	-	-	-	-	-	-	-	-	-	-	-
1.8	7313	1115	6.27	7.65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

10 HP motor 7.5 HP motor

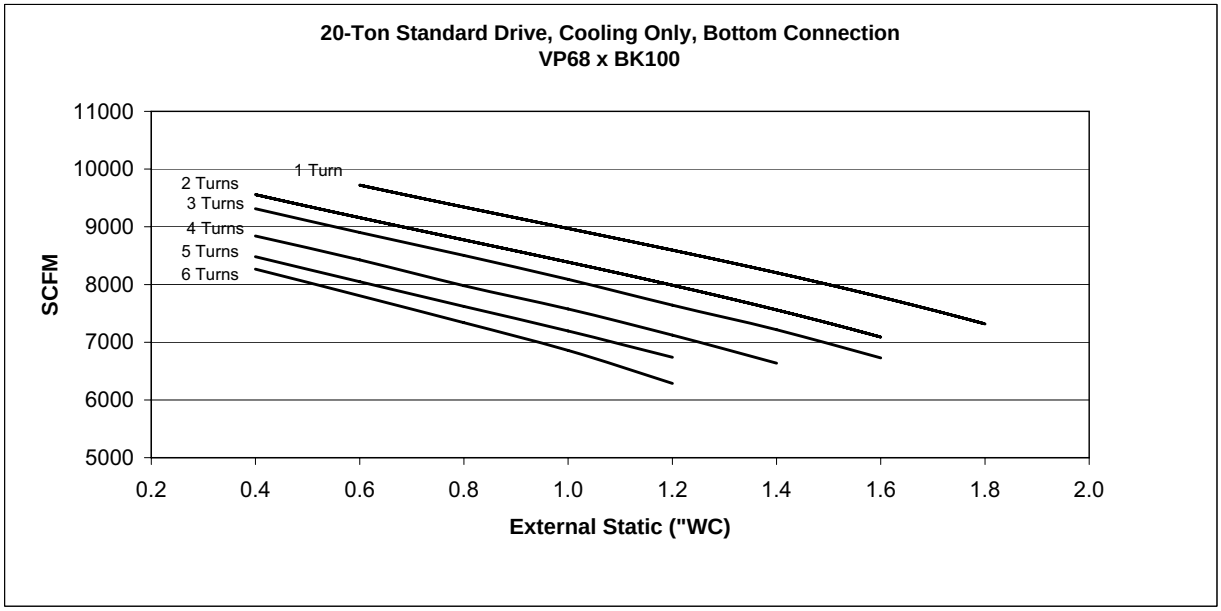


TABLE 16: WR240 BLOWER PERFORMANCE - 20 TON STANDARD DRIVE (GAS HEAT) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**
0.4	9892	1106	8.30	10.13	9366	1071	7.31	8.92	9127	1036	6.78	8.28	8665	1002	5.97	7.28	8311	968	5.34	6.52	8102	932	4.91	5.99
0.6	9526	1107	7.83	9.55	8976	1073	7.12	8.69	8723	1038	6.38	7.79	8257	1003	5.65	6.90	7887	969	5.01	6.12	7649	934	4.54	5.55
0.8	9158	1108	7.56	9.23	8600	1074	6.83	8.33	8333	1039	6.11	7.46	7820	1005	5.30	6.47	7469	970	4.73	5.77	7193	935	4.12	5.03
1.0	8796	1109	7.16	8.74	8222	1076	6.41	7.82	7927	1040	5.73	7.00	7424	1006	5.01	6.12	7051	971	4.52	5.51	6721	936	3.95	4.83
1.2	8418	1110	6.88	8.40	7817	1077	5.91	7.21	7490	1041	5.37	6.56	6981	1007	4.70	5.74	6604	972	4.19	5.12	6162	937	3.56	4.35
1.4	8033	1112	6.35	7.75	7420	1078	5.62	6.86	7074	1043	5.10	6.22	6505	1008	4.26	5.20	-	-	-	-	-	-	-	-
1.6	7639	1113	6.01	7.34	6944	1079	5.37	6.55	6594	1044	4.65	5.68	-	-	-	-	-	-	-	-	-	-	-	-
1.8	7167	1115	5.89	7.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

10 HP motor 7.5 HP motor

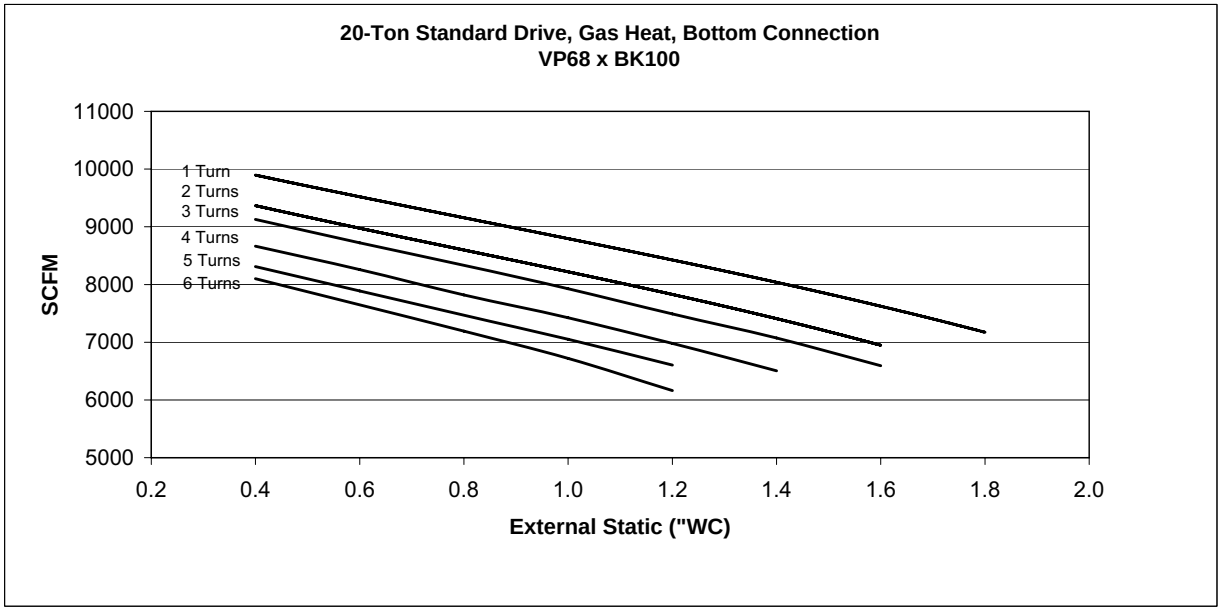


TABLE 17: WR240 BLOWER PERFORMANCE - 20 TON HIGH STATIC DRIVE (COOLING ONLY) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP
0.4	11465	1201	11.98	14.62	10938	1167	10.57	12.90	10528	1131	9.67	11.80	9886	1096	8.54	10.43	9525	1063	7.55	9.21	9054	1027	7.05	8.60
0.6	11056	1202	11.46	13.98	10545	1168	10.23	12.48	10137	1133	9.20	11.23	9488	1097	8.17	9.98	9092	1064	7.32	8.93	8633	1028	6.45	7.87
0.8	10697	1203	10.97	13.39	10169	1169	9.78	11.93	9769	1134	8.68	10.59	9109	1099	7.70	9.39	8729	1065	7.28	8.88	8237	1029	6.18	7.54
1.0	10354	1204	10.68	13.03	9808	1170	9.42	11.50	9370	1135	8.50	10.37	8721	1101	7.38	9.01	8314	1066	6.65	8.11	7835	1030	5.82	7.11
1.2	9993	1205	10.12	12.35	9450	1171	8.94	10.91	9000	1136	7.94	9.69	8355	1102	6.98	8.52	7899	1067	6.03	7.36	7412	1031	5.53	6.75
1.4	9637	1207	9.61	11.73	9050	1172	8.48	10.35	8624	1137	7.39	9.02	7990	1103	6.64	8.10	7500	1068	5.96	7.28	6962	1032	4.79	5.84
1.6	9229	1208	9.20	11.23	8658	1174	7.94	9.69	8239	1138	7.24	8.84	7591	1104	6.31	7.70	7009	1069	5.58	6.81	-	-	-	-
1.8	8833	1209	9.02	11.01	8287	1175	7.83	9.56	7852	1140	6.67	8.14	7135	1105	5.91	7.21	-	-	-	-	-	-	-	-
2.0	8446	1210	8.27	10.09	7916	1176	7.41	9.04	7356	1141	6.48	7.91	-	-	-	-	-	-	-	-	-	-	-	-
2.2	7996	1212	7.90	9.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

15 HP motor 10 HP motor 7.5 HP motor

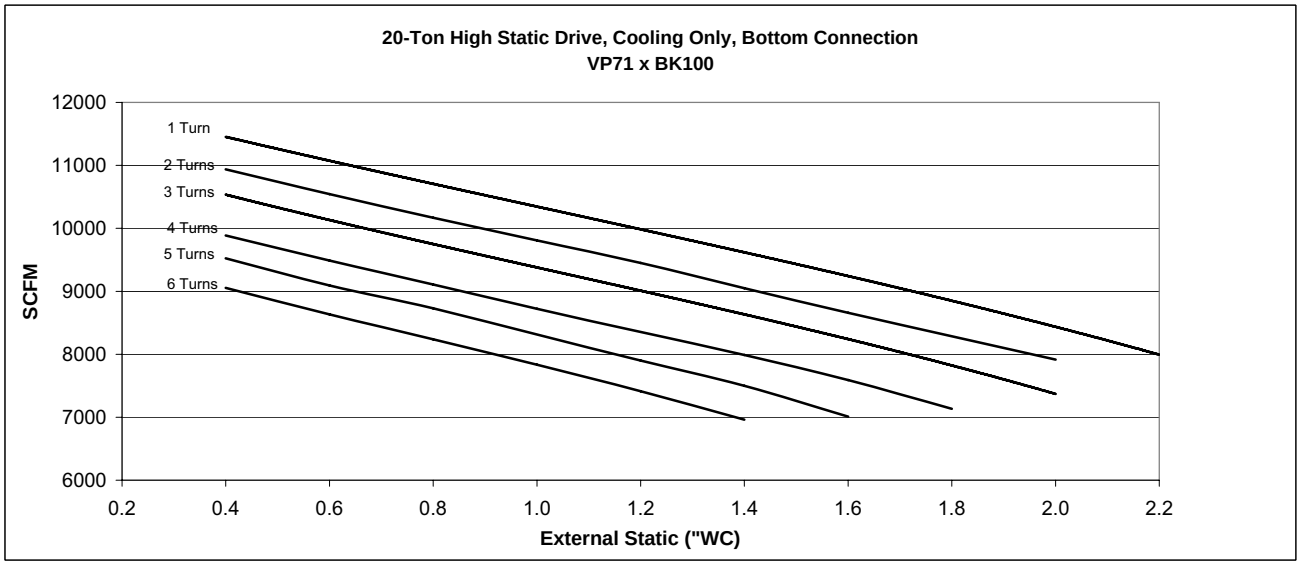


TABLE 18: WR240 BLOWER PERFORMANCE - 20 TON HIGH STATIC DRIVE (GAS HEAT) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP
0.4	11236	1201	11.26	13.74	10719	1167	9.94	12.13	10317	1131	9.09	11.09	9688	1096	8.03	9.80	9335	1063	7.10	8.66	8873	1027	6.62	8.08
0.6	10835	1202	10.77	13.14	10334	1168	9.62	11.73	9934	1133	8.65	10.56	9298	1097	7.68	9.38	8910	1064	6.88	8.39	8460	1028	6.06	7.40
0.8	10483	1203	10.31	12.58	9966	1169	9.19	11.22	9574	1134	8.16	9.96	8927	1099	7.23	8.83	8554	1065	6.84	8.35	8072	1029	5.81	7.09
1.0	10147	1204	10.04	12.25	9612	1170	8.86	10.81	9183	1135	7.99	9.75	8547	1101	6.94	8.47	8148	1066	6.25	7.62	7678	1030	5.48	6.68
1.2	9793	1205	9.52	11.61	9261	1171	8.40	10.25	8820	1136	7.46	9.11	8188	1102	6.56	8.01	7741	1067	5.67	6.92	7264	1031	5.20	6.35
1.4	9444	1207	9.03	11.02	8869	1172	7.97	9.73	8452	1137	6.95	8.48	7830	1103	6.24	7.61	7350	1068	5.61	6.84	6823	1032	4.50	5.49
1.6	9044	1208	8.65	10.55	8485	1174	7.47	9.11	8074	1138	6.81	8.31	7439	1104	5.93	7.24	6869	1069	5.24	6.40	-	-	-	-
1.8	8656	1209	8.48	10.35	8121	1175	7.36	8.99	7695	1140	6.27	7.65	6992	1105	5.55	6.78	-	-	-	-	-	-	-	-
2.0	8277	1210	7.77	9.49	7758	1176	6.97	8.50	7209	1141	6.09	7.44	-	-	-	-	-	-	-	-	-	-	-	-
2.2	7836	1212	7.43	9.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

15 HP motor 10 HP motor 7.5 HP motor

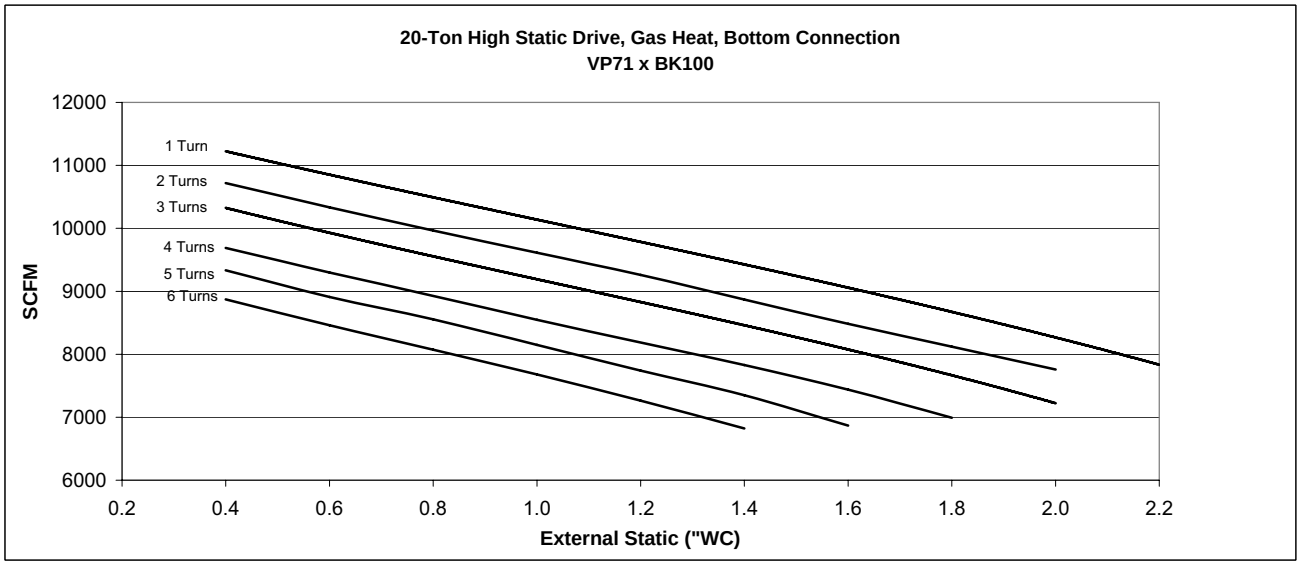


TABLE 19: WR300 BLOWER PERFORMANCE - 25 TON STANDARD DRIVE (COOLING ONLY) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP
0.4	10636	1106	9.46	11.55	10163	1072	8.55	10.44	9813	1036	7.76	9.47	9394	999	6.98	8.52	8936	963	6.14	7.49	8388	927	5.45	6.65
0.6	10312	1106	9.06	11.06	9824	1072	8.17	9.97	9463	1036	7.37	8.99	9006	1000	6.60	8.05	8553	963	5.83	7.11	7987	927	5.10	6.23
0.8	9975	1107	8.76	10.69	9466	1073	7.75	9.46	9087	1036	6.99	8.53	8626	1001	6.31	7.69	8159	964	5.51	6.73	7553	928	4.84	5.91
1.0	9629	1108	8.34	10.18	9108	1073	7.41	9.04	8706	1037	6.64	8.11	8218	1001	5.91	7.22	7717	965	5.16	6.29	7118	929	4.49	5.48
1.2	9262	1109	7.97	9.73	8730	1074	7.11	8.67	8319	1038	6.33	7.72	7783	1002	5.55	6.77	7265	966	4.83	5.89	6625	929	4.21	5.14
1.4	8897	1110	7.56	9.22	8326	1075	6.72	8.21	7879	1039	5.85	7.14	7351	1002	5.18	6.32	6804	967	4.52	5.51	6087	930	3.82	4.66
1.6	8488	1111	7.15	8.73	7919	1076	6.28	7.67	7414	1039	5.46	6.66	6800	1003	4.79	5.84	6205	968	4.12	5.03	5425	931	3.51	4.28
1.8	8068	1112	6.74	8.23	7472	1076	5.92	7.22	6919	1040	5.09	6.22	6187	1004	4.29	5.24	5478	969	3.74	4.56	4665	931	3.02	3.69
2.0	7654	1113	6.38	7.79	6906	1077	5.37	6.56	6327	1041	4.67	5.70	5539	1005	3.88	4.73	4750	969	3.18	3.88	-	-	-	-
2.2	7135	1114	5.92	7.22	6346	1078	4.91	5.99	5735	1042	4.25	5.19	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

15 HP motor 10 HP motor 7.5 HP motor

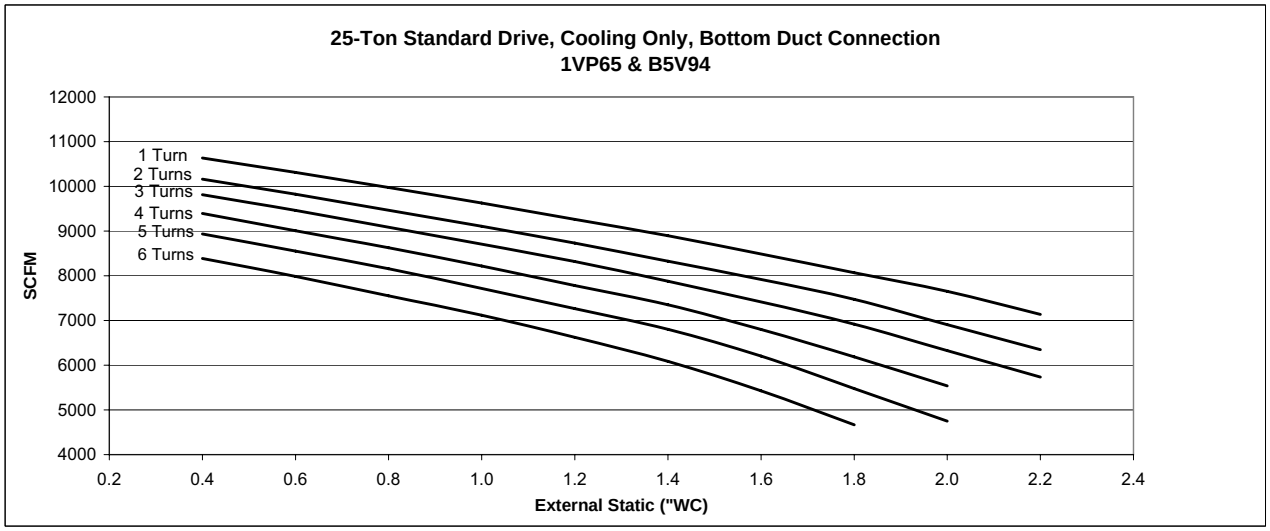


TABLE 20: WR300 BLOWER PERFORMANCE - 25 TON STANDARD DRIVE (GAS HEAT) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP
0.4	10423	1106	8.89	10.85	9960	1072	8.04	9.81	9617	1036	7.29	8.90	9206	999	6.56	8.01	8757	963	5.77	7.04	8220	927	5.12	6.25
0.6	10106	1106	8.52	10.40	9628	1072	7.68	9.38	9274	1036	6.92	8.45	8826	1000	6.20	7.57	8382	963	5.48	6.68	7827	927	4.80	5.85
0.8	9776	1107	8.24	10.05	9277	1073	7.28	8.89	8905	1036	6.57	8.01	8453	1001	5.93	7.23	7996	964	5.18	6.33	7402	928	4.55	5.55
1.0	9436	1108	7.84	9.57	8926	1073	6.97	8.50	8532	1037	6.24	7.62	8054	1001	5.56	6.78	7563	965	4.85	5.91	6976	929	4.22	5.15
1.2	9077	1109	7.49	9.14	8555	1074	6.68	8.15	8153	1038	5.95	7.26	7627	1002	5.21	6.36	7120	966	4.54	5.53	6493	929	3.96	4.83
1.4	8719	1110	7.10	8.67	8159	1075	6.32	7.71	7721	1039	5.50	6.71	7204	1002	4.87	5.94	6668	967	4.25	5.18	5965	930	3.59	4.38
1.6	8318	1111	6.72	8.20	7761	1076	5.91	7.21	7266	1039	5.13	6.26	6664	1003	4.50	5.49	6081	968	3.87	4.73	5317	931	3.30	4.02
1.8	7907	1112	6.34	7.74	7323	1076	5.56	6.79	6781	1040	4.79	5.84	6063	1004	4.03	4.92	5368	969	3.52	4.29	4572	931	2.84	3.47
2.0	7501	1113	6.00	7.32	6768	1077	5.05	6.16	6200	1041	4.39	5.36	5428	1005	3.65	4.45	4655	969	2.99	3.65	-	-	-	-
2.2	6992	1114	5.56	6.79	6219	1078	4.62	5.63	5620	1042	4.00	4.88	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

15 HP motor 10 HP motor 7.5 HP motor

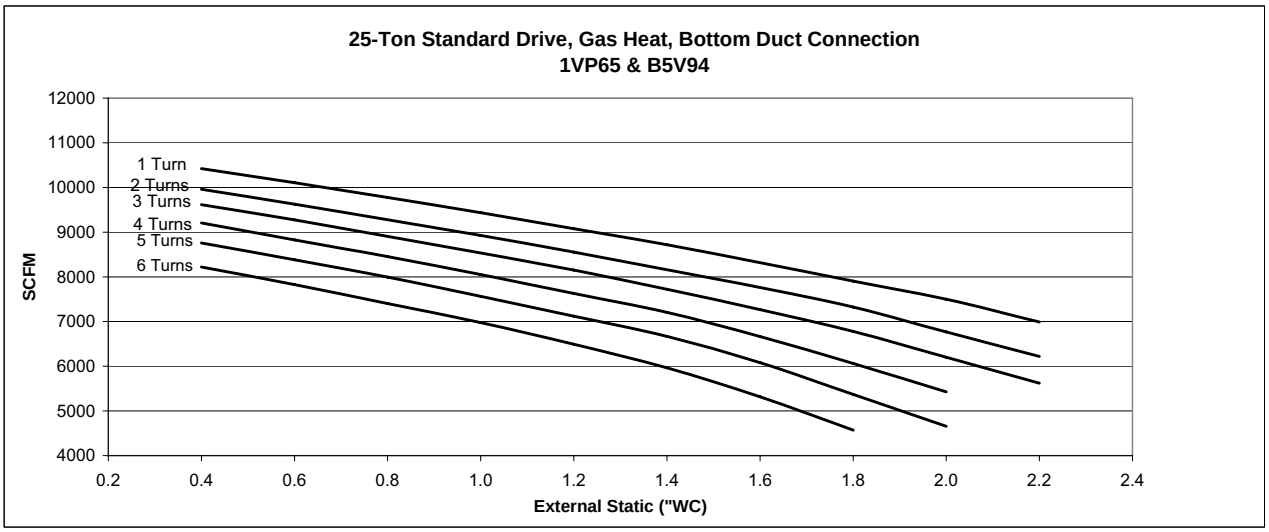


TABLE 21: WR300 BLOWER PERFORMANCE - 25 TON HIGH STATIC DRIVE (COOLING ONLY) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**	**CFM**	**RPM**	**KW**	**BHP**
0.4	11830	1216	12.80	15.62	11374	1181	11.51	14.05	11030	1146	10.55	12.87	10572	1111	9.50	11.59	10220	1075	8.67	10.58	9928	1041	7.91	9.65
0.6	11546	1217	12.31	15.02	11079	1181	11.12	13.57	10600	1147	10.00	12.20	10231	1112	9.11	11.12	9885	1076	8.28	10.10	9575	1040	7.52	9.18
0.8	11239	1217	11.87	14.49	10770	1182	10.79	13.17	10232	1147	9.63	11.75	9912	1112	8.87	10.82	9537	1077	7.94	9.69	9207	1042	7.08	8.63
1.0	10923	1218	11.48	14.01	10388	1183	10.25	12.51	9919	1148	9.28	11.32	9607	1114	8.39	10.24	9171	1078	7.54	9.20	8833	1043	6.72	8.21
1.2	10618	1219	11.14	13.60	10054	1185	9.82	11.98	9591	1149	8.93	10.90	9201	1114	8.01	9.77	8799	1079	7.18	8.76	8439	1044	6.39	7.80
1.4	10302	1221	10.66	13.01	9703	1186	9.42	11.50	9228	1150	8.48	10.35	8793	1115	7.55	9.21	8407	1080	6.76	8.25	7996	1044	6.03	7.36
1.6	9958	1222	10.21	12.45	9346	1186	9.05	11.04	8861	1151	8.12	9.91	8394	1116	7.13	8.69	7992	1081	6.42	7.84	7565	1045	5.66	6.90
1.8	9605	1223	9.71	11.85	9032	1187	8.61	10.51	8484	1153	7.58	9.25	8008	1117	6.86	8.37	7513	1081	6.01	7.33	7045	1047	5.20	6.35
2.0	9219	1225	9.25	11.29	8638	1189	8.18	9.98	8092	1154	7.26	8.86	7624	1118	6.37	7.77	6987	1082	5.53	6.75	-	-	-	-
2.2	8796	1226	8.82	10.76	8250	1190	7.78	9.49	7637	1155	6.67	8.14	7134	1119	5.99	7.31	-	-	-	-	-	-	-	-
2.4	8287	1227	8.19	10.00	7791	1191	7.26	8.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.6	7782	1229	7.98	9.74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

15 HP motor 10 HP motor 7.5 HP motor

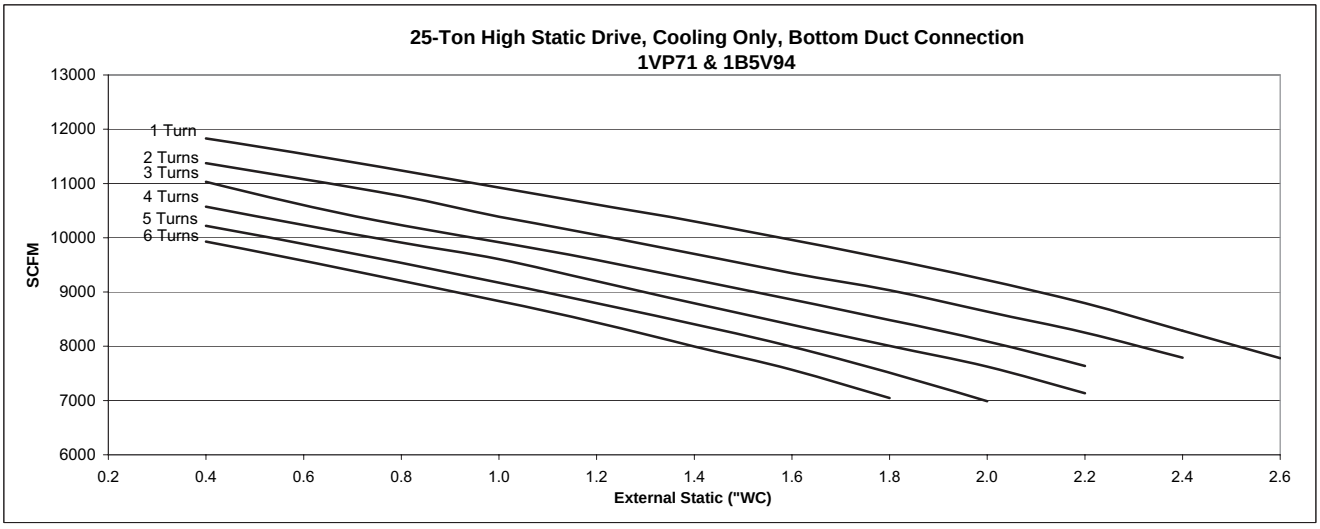


TABLE 22: WR300 BLOWER PERFORMANCE - 25 TON HIGH STATIC DRIVE (GAS HEAT) DOWNFLOW

Blower Performance (Downflow Discharge)																								
ESP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP	CFM	RPM	KW	BHP
0.4	11593	1216	12.03	14.68	11147	1181	10.82	13.20	10809	1146	9.91	12.10	10361	1111	8.93	10.90	10016	1075	8.15	9.95	9729	1041	7.43	9.07
0.6	11315	1217	11.57	14.12	10857	1181	10.45	12.76	10388	1147	9.40	11.47	10026	1112	8.56	10.45	9687	1076	7.78	9.49	9384	1040	7.07	8.63
0.8	11014	1217	11.16	13.62	10555	1182	10.14	12.38	10027	1147	9.05	11.05	9714	1112	8.34	10.17	9346	1077	7.46	9.11	9023	1042	6.65	8.12
1.0	10705	1218	10.79	13.17	10180	1183	9.64	11.76	9721	1148	8.72	10.65	9415	1114	7.88	9.62	8988	1078	7.09	8.65	8656	1043	6.32	7.71
1.2	10406	1219	10.47	12.78	9853	1185	9.23	11.26	9399	1149	8.39	10.24	9017	1114	7.53	9.19	8623	1079	6.75	8.23	8270	1044	6.01	7.33
1.4	10096	1221	10.02	12.23	9509	1186	8.85	10.81	9043	1150	7.97	9.73	8617	1115	7.10	8.66	8239	1080	6.36	7.76	7836	1044	5.67	6.92
1.6	9759	1222	9.59	11.71	9159	1186	8.51	10.38	8684	1151	7.63	9.31	8226	1116	6.70	8.17	7832	1081	6.04	7.37	7414	1045	5.32	6.49
1.8	9413	1223	9.13	11.14	8851	1187	8.09	9.88	8314	1153	7.13	8.70	7848	1117	6.45	7.87	7363	1081	5.65	6.89	6904	1047	4.89	5.97
2.0	9035	1225	8.70	10.61	8465	1189	7.69	9.38	7930	1154	6.82	8.33	7472	1118	5.98	7.30	6847	1082	5.20	6.34	-	-	-	-
2.2	8620	1226	8.29	10.12	8085	1190	7.31	8.92	7484	1155	6.27	7.65	6991	1119	5.63	6.87	-	-	-	-	-	-	-	-
2.4	8121	1227	7.70	9.40	7635	1191	6.82	8.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.6	7626	1229	7.50	9.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 turn				2 turns				3 turns				4 turns				5 turns				6 turns			

15 HP motor 10 HP motor 7.5 HP motor

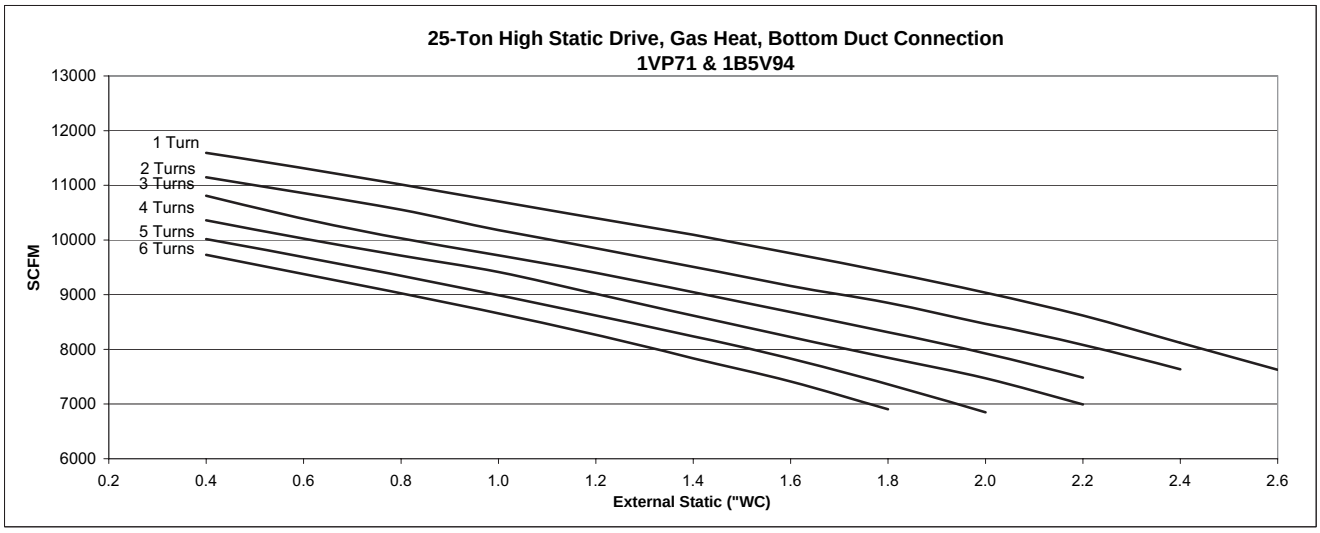


TABLE 23: BLOWER MOTOR AND DRIVE DATA

MODEL SIZE	DRIVE	BLOWER RANGE (RPM)	MOTOR[1]			ADJUSTABLE MOTOR PULLEY				FIXED BLOWER PULLEY				BELT (NOTCHED)		
			HP	FRAME	EFF. (%)	DESIG-NATION	OUTSIDE DIA. (IN.)	PITCH DIA. (IN.)	BORE (IN.)	DESIG-NATION	OUTSIDE DIA. (IN.)	PITCH DIA. (IN.)	BORE (IN.)	DESIG-NATION	PITCH LENGTH (IN.)	QTY.
15 TON	Standard	790/970	5	184 T	89.5	1VP62	5.95	4.9-5.9[2]	1-1/8	BK105	10.25	9.9	1	BX81	82.8	1
	High Speed Access	940/1130	7.5	213 T	91				1-3/8	BK90	8.75	8.4				
20 TON	Low Speed Drive	910/1100	7.5	213 T	91	1VP68	6.55	5.5-6.5	1-3/8	BK100	9.75	9.4	1-3/16	BX81	82.8	1
	Standard		10	215 T	91											
	High Speed Access	1000/1180	15	254 T	91	1VP71	7.1	5.4-6.6	1-5/8							
25 TON	Low Speed Drive	900/1100	7.5	213 T	91	1VP65	6.0	4.8-6.0	1-3/8	1B5V94	9.7	9.5	1-3/16	BX78	79.8	1
	Standard		15	254 T	91				1-5/8				1-7/16			
	High Speed Access	1000/1200				1VP71	7.1	5.5-6.5						BX81	82.8	

1. All motors have a nominal speed of 1800 RPM, a 1.15 service factor and a solid base. They can operate to the limit of their service factor because they are located in the moving air, upstream of any heating device.
2. Do NOT close this pully below 1 turn open.

TABLE 24: STATIC RESISTANCES[1]

DESCRIPTION		RESISTANCE, IWG								
		CFM								
		15 TON			20 TON			25 TON		
		4500	6000	7500	6000	8000	9000	7500	8000	9000
WET INDOOR COIL		0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2
ELECTRIC HEAT OPTIONS	18 KW	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5
	36 KW	0.3	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.5
	54 KW	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.6
	72 KW	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.6
ECONOMIZER OPTION		0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2
HORIZONTAL DUCT CONNECTIONS[2]		0.1	0.2	0.3	0.2	0.3	0.5	0.3	0.3	0.5

1. Deduct these resistance values from the available external static pressures shown in the respective Blower Performance Table.
2. Since the resistance to air flow will be less for horizontal duct connections than for bottom duct connections, add these pressures to the ESP values on the respective unit's blower performance table.

TABLE 25: POWER EXHAUST PERFORMANCE

MOTOR SPEED[1]	STATIC RESISTANCE OF RETURN DUCTWORK, IWG									
	0.2		0.3		0.4		0.5		0.6	
	CFM	kW	CFM	kW	CFM	kW	CFM	kW	CFM	kW
HIGH[2]	5250	0.83	4500	0.85	4200	0.88	3750	0.93	3000	0.99
MEDIUM	4900	0.77	3900	0.79	3500	0.82	2900	0.85	-	-
LOW	4400	0.72	3700	0.74	3000	0.78	-	-	-	-

1. Power exhaust motor is a 3/4 HP, PSC type with sleeve bearings, a 48 frame and inherent protection.
2. The factory setting.

TABLE 26: WR ELECTRICAL DATA - STANDARD DRIVE MOTOR W/O POWERED CONVENIENCE OUTLET

MODEL (TONNAGE)	VOLTAGE	COMPRESSORS		OD FAN MOTORS FLA EACH	ID BLOWER MOTOR FLA	CONV OUTLET AMPS	HEATER OPTION				MIN. CIRCUIT AMPACITY (AMPS)	MAX. FUSE/ BRKR[1] SIZE (AMPS)
		RLA EACH	LRA EACH				MODEL	KW	STAGES	AMPS		
180 (15)	208	22.4	164	2.1	17.7	0.0	None	-	-	-	76.5	90
							E18	13.5	1	37.5	76.5	90
							E36	27	2	74.9	115.8	125
							E54	40.6	2	112.7	163.0	175
							E72	54.1	2	150.2	172.3	200
	230	22.4	164	2.1	16.4	0.0	None	-	-	-	75.2	90
							E18	18.0	1	43.3	75.2	90
							E36	36.0	2	86.6	128.8	150
							E54	54.0	2	129.9	150.4	175
							E72	72.0	2	173.2	193.7	225
	460	10.9	100	1.2	8.2	0.0	None	-	-	-	37.5	45
							E18	18.0	1	21.7	37.5	45
							E36	36.0	2	43.3	64.4	70
							E54	54.0	2	65.0	75.2	90
							E72	72.0	2	86.6	96.9	110
	575	8.3	78	0.9	6.6	0.0	None	-	-	-	28.9	35
							E18	18.0	1	17.3	29.9	35
							E36	36.0	2	34.6	51.6	60
							E54	54.0	2	52.0	60.2	70
							E72	72.0	2	69.3	77.5	90
240 (20)	208	30.1	225	2.4	24.2	0.0	None	-	-	-	101.5	125
							E18	13.5	1	37.5	101.5	125
							E36	27	2	74.9	123.9	125
							E54	40.6	2	112.7	171.1	175
							E72	54.1	2	150.2	180.4	200
	230	30.1	225	2.4	24.2	0.0	None	-	-	-	101.5	125
							E18	18.0	1	43.3	101.5	125
							E36	36.0	2	86.6	138.5	150
							E54	54.0	2	129.9	160.2	175
							E72	72.0	2	173.2	203.5	225
	460	15.5	114	0.9	12.1	0.0	None	-	-	-	50.6	60
							E18	18.0	1	21.7	50.6	60
							E36	36.0	2	43.3	69.3	70
							E54	54.0	2	65.0	80.1	90
							E72	72.0	2	86.6	101.7	110
	575	12.1	80	0.6	10.3	0.0	None	-	-	-	39.9	50
							E18	18.0	1	17.3	39.9	50
							E36	36.0	2	34.6	56.2	60
							E54	54.0	2	52.0	64.8	70
							E72	72.0	2	69.3	82.2	90
300 (25)	208	42.3	245	2.4	38.6	0.0	None	-	-	-	143.4	175
							E18	13.5	1	37.5	143.4	175
							E36	27	2	74.9	143.4	175
							E54	40.6	2	112.7	189.1	200
							E72	54.1	2	150.2	198.4	225
	230	42.3	245	2.4	38.6	0.0	None	-	-	-	143.4	175
							E18	18.0	1	43.3	143.4	175
							E36	36.0	2	86.6	156.5	175
							E54	54.0	2	129.9	178.2	200
							E72	72.0	2	173.2	221.5	250
	460	17.6	125	0.9	19.3	0.0	None	-	-	-	62.9	80
							E18	18.0	1	21.7	62.9	80
							E36	36.0	2	43.3	78.3	80
							E54	54.0	2	65.0	89.1	100
							E72	72.0	2	86.6	110.7	125
	575	14.5	100	0.6	16.2	0.0	None	-	-	-	51.7	60
							E18	18.0	1	17.3	51.7	60
							E36	36.0	2	34.6	63.6	70
							E54	54.0	2	52.0	72.2	80
							E72	72.0	2	69.3	89.5	100

NOTE 1: HACR Type per NEC.

VOLTAGE LIMITATIONS				ELECTRIC HEAT CORRECTION FACTORS		
	POWER SUPPLY	VOLTAGE		NOMINAL VOLTAGE	VOLTAGE	kW CAP. MULTIPLIER
		MIN.	MAX.	208	208	1.00
VOLTAGE LIMITATIONS[1]	208/230-3-60	187	253	240	230	0.92
	460-3-60	414	506	480	460	0.92
	575-3-60	518	630	600	575	0.92

1. Utilization Range “A” in accordance with ARI Standard 110.

TABLE 27: WR ELECTRICAL DATA - HIGH STATIC DRIVE MOTOR W/O POWERED CONVENIENCE OUTLET

MODEL (TONNAGE)	VOLTAGE	COMPRESSORS		OD FAN MOTORS FLA EACH	ID BLOWER MOTOR FLA	CONV OUTLET AMPS	HEATER OPTION				MIN. CIRCUIT AMPACITY (AMPS)	MAX. FUSE/ BRKR[1] SIZE (AMPS)
		RLA EACH	LRA EACH				MODEL	KW	STAGES	AMPS		
180 (15)	208	22.4	164	2.1	20.0	0.0	None	-	-	-	78.8	100
							E18	13.5	1	37.5	78.8	100
							E36	27	2	74.9	118.7	125
							E54	40.6	2	112.7	165.9	175
							E72	54.1	2	150.2	175.2	200
	230	22.4	164	2.1	20.0	0.0	None	-	-	-	78.8	100
							E18	18.0	1	43.3	79.1	100
							E36	36.0	2	86.6	133.3	150
							E54	54.0	2	129.9	154.9	175
							E72	72.0	2	173.2	198.2	225
	460	10.9	100	1.2	10.0	0.0	None	-	-	-	39.3	50
							E18	18.0	1	21.7	39.6	50
							E36	36.0	2	43.3	66.6	70
							E54	54.0	2	65.0	77.5	90
							E72	72.0	2	86.6	99.1	110
	575	8.3	78	0.9	7.5	0.0	None	-	-	-	29.8	35
							E18	18.0	1	17.3	31.0	35
							E36	36.0	2	34.6	52.7	60
							E54	54.0	2	52.0	61.3	70
							E72	72.0	2	69.3	78.7	90
240 (20)	208	30.1	225	2.4	38.6	0.0	None	-	-	-	118.1	150
							E18	13.5	1	37.5	118.1	150
							E36	27	2	74.9	141.9	150
							E54	40.6	2	112.7	189.1	200
							E72	54.1	2	150.2	198.4	225
	230	30.1	225	2.4	38.6	0.0	None	-	-	-	118.1	150
							E18	18.0	1	43.3	118.1	150
							E36	36.0	2	86.6	156.5	175
							E54	54.0	2	129.9	178.2	200
							E72	72.0	2	173.2	221.5	250
	460	15.5	114	0.9	19.3	0.0	None	-	-	-	58.7	70
							E18	18.0	1	21.7	58.7	70
							E36	36.0	2	43.3	78.3	80
							E54	54.0	2	65.0	89.1	100
							E72	72.0	2	86.6	110.7	125
	575	12.1	80	0.6	16.2	0.0	None	-	-	-	46.9	60
							E18	18.0	1	17.3	46.9	60
							E36	36.0	2	34.6	63.6	70
							E54	54.0	2	52.0	72.2	80
							E72	72.0	2	69.3	89.5	100
300 (25)	208	42.3	245	2.4	38.6	0.0	None	-	-	-	143.4	175
							E18	13.5	1	37.5	143.4	175
							E36	27	2	74.9	143.4	175
							E54	40.6	2	112.7	189.1	200
							E72	54.1	2	150.2	198.4	225
	230	42.3	245	2.4	38.6	0.0	None	-	-	-	143.4	175
							E18	18.0	1	43.3	143.4	175
							E36	36.0	2	86.6	156.5	175
							E54	54.0	2	129.9	178.2	200
							E72	72.0	2	173.2	221.5	250
	460	17.6	125	0.9	19.3	0.0	None	-	-	-	62.9	80
							E18	18.0	1	21.7	62.9	80
							E36	36.0	2	43.3	78.3	80
							E54	54.0	2	65.0	89.1	100
							E72	72.0	2	86.6	110.7	125
	575	14.5	100	0.6	16.2	0.0	None	-	-	-	51.7	60
							E18	18.0	1	17.3	51.7	60
							E36	36.0	2	34.6	63.6	70
							E54	54.0	2	52.0	72.2	80
							E72	72.0	2	69.3	89.5	100

NOTE 1: HACR Type per NEC.

VOLTAGE LIMITATIONS				ELECTRIC HEAT CORRECTION FACTORS		
	POWER SUPPLY	VOLTAGE		NOMINAL VOLTAGE	VOLTAGE	kW CAP. MULTIPLIER
		MIN.	MAX.	208	208	1.00
VOLTAGE LIMITATIONS[1]	208/230-3-60	187	253	240	230	0.92
	460-3-60	414	506	480	460	0.92
	575-3-60	518	630	600	575	0.92

1. Utilization Range “A” in accordance with ARI Standard 110.

TABLE 28: WR ELECTRICAL DATA - LOW AIRFLOW DRIVE MOTOR W/O POWERED CONVENIENCE OUTLET

MODEL (TONNAGE)	VOLTAGE	COMPRESSORS		OD FAN MOTORS FLA EACH	ID BLOWER MOTOR FLA	CONV OUTLET AMPS	HEATER OPTION				MIN. CIRCUIT AMPACITY (AMPS)	MAX. FUSE/ BRKR[1] SIZE (AMPS)
		RLA EACH	LRA EACH				MODEL	KW	STAGES	AMPS		
240 (20)	208	30.1	225	2.4	20.0	0.0	None	0.0	-	-	97.3	125
							E18	13.5	1	37.5	97.3	125
							E36	27.0	2	75.1	118.7	125
							E54	40.6	2	112.7	165.9	175
							E72	54.1	2	150.2	175.2	200
	230	30.1	225	2.4	20.0	0.0	None	0.0	-	-	97.3	125
							E18	18.0	1	43.3	97.3	125
							E36	36.0	2	86.6	133.3	150
							E54	54.0	2	129.9	154.9	175
							E72	72.0	2	173.2	198.2	225
	460	15.5	114	0.9	10.0	0.0	None	0.0	-	-	48.5	60
							E18	18.0	1	21.7	48.5	60
							E36	36.0	2	43.3	66.6	70
							E54	54.0	2	65.0	77.5	90
							E72	72.0	2	86.6	99.1	110
	575	12.1	80	0.6	7.5	0.0	None	0.0	-	-	37.1	45
							E18	18.0	1	17.3	37.1	45
							E36	36.0	2	34.6	52.7	60
							E54	54.0	2	52.0	61.3	70
							E72	72.0	2	69.3	78.7	90
300 (25)	208	42.3	245	2.4	20.0	0.0	None	0.0	-	-	124.8	150
							E18	13.5	1	37.5	124.8	150
							E36	27.0	2	75.1	124.8	150
							E54	40.6	2	112.6	165.9	175
							E72	54.1	2	150.1	175.2	200
	230	42.3	245	2.4	20.0	0.0	None	0.0	-	-	124.8	150
							E18	18.0	1	43.3	124.8	150
							E36	36.0	2	86.6	133.3	150
							E54	54.0	2	129.9	154.9	175
							E72	72.0	2	173.2	198.2	225
	460	17.6	125	0.9	10.0	0.0	None	0.0	-	-	53.2	70
							E18	18.0	1	21.7	53.2	70
							E36	36.0	2	43.3	66.6	70
							E54	54.0	2	65.0	77.5	90
							E72	72.0	2	86.6	99.1	110
	575	14.5	100	0.6	7.5	0.0	None	0.0	-	-	42.5	50
							E18	18.0	1	17.3	42.5	50
							E36	36.0	2	34.6	52.7	60
							E54	54.0	2	52.0	61.3	70
							E72	72.0	2	69.3	78.7	90

NOTE 1: HACR Type per NEC.

VOLTAGE LIMITATIONS				ELECTRIC HEAT CORRECTION FACTORS		
	POWER SUPPLY	VOLTAGE		NOMINAL VOLTAGE	VOLTAGE	kW CAP. MULTIPLIER
		MIN.	MAX.	208	208	1.00
VOLTAGE LIMITATIONS[1]	208/230-3-60	187	253	240	230	0.92
	460-3-60	414	506	480	460	0.92
	575-3-60	518	630	600	575	0.92

1. Utilization Range “A” in accordance with ARI Standard 110.

TABLE 29: WR ELECTRICAL DATA - STANDARD DRIVE MOTOR WITH POWERED CONVENIENCE OUTLET

MODEL (TONNAGE)	VOLTAGE	COMPRESSORS		OD FAN MOTORS FLA EACH	ID BLOWER MOTOR FLA	CONV OUTLET AMPS	HEATER OPTION				MIN. CIRCUIT AMPACITY (AMPS)	MAX. FUSE/ BRKR[1] SIZE (AMPS)
		RLA EACH	LRA EACH				MODEL	KW	STAGES	AMPS		
180 (15)	208	22.4	164	2.1	17.7	10.0	None	-	-	-	86.5	100
							E18	13.5	1	37.5	86.5	100
							E36	27	2	74.9	128.3	150
							E54	40.6	2	112.7	175.5	200
							E72	54.1	2	150.2	184.8	200
	230	22.4	164	2.1	16.4	10.0	None	-	-	-	85.2	100
							E18	18.0	1	43.3	87.1	100
							E36	36.0	2	86.6	141.3	150
							E54	54.0	2	129.9	162.9	175
							E72	72.0	2	173.2	206.2	225
	460	10.9	100	1.2	8.2	5.0	None	-	-	-	42.5	50
							E18	18.0	1	21.7	43.6	50
							E36	36.0	2	43.3	70.6	80
							E54	54.0	2	65.0	81.5	90
							E72	72.0	2	86.6	103.1	110
	575	8.3	78	0.9	6.6	4.0	None	-	-	-	32.9	40
							E18	18.0	1	17.3	34.9	40
							E36	36.0	2	34.6	56.6	60
							E54	54.0	2	52.0	65.2	70
							E72	72.0	2	69.3	82.5	90
240 (20)	208	30.1	225	2.4	24.2	10.0	None	-	-	-	111.5	125
							E18	13.5	1	37.5	111.5	125
							E36	27	2	74.9	136.4	150
							E54	40.6	2	112.7	183.6	200
							E72	54.1	2	150.2	192.9	200
	230	30.1	225	2.4	24.2	10.0	None	-	-	-	111.5	125
							E18	18.0	1	43.3	111.5	125
							E36	36.0	2	86.6	151.0	175
							E54	54.0	2	129.9	172.7	175
							E72	72.0	2	173.2	216.0	225
	460	15.5	114	0.9	12.1	5.0	None	-	-	-	55.6	70
							E18	18.0	1	21.7	55.6	70
							E36	36.0	2	43.3	75.5	80
							E54	54.0	2	65.0	86.3	90
							E72	72.0	2	86.6	108.0	110
	575	12.1	80	0.6	10.3	4.0	None	-	-	-	43.9	50
							E18	18.0	1	17.3	43.9	50
							E36	36.0	2	34.6	61.2	70
							E54	54.0	2	52.0	69.8	70
							E72	72.0	2	69.3	87.2	90
300 (25)	208	42.3	245	2.4	38.6	10.0	None	-	-	-	153.4	175
							E18	13.5	1	37.5	153.4	175
							E36	27	2	74.9	154.4	175
							E54	40.6	2	112.7	201.6	225
							E72	54.1	2	150.2	210.9	225
	230	42.3	245	2.4	38.6	10.0	None	-	-	-	153.4	175
							E18	18.0	1	43.3	153.4	175
							E36	36.0	2	86.6	169.0	175
							E54	54.0	2	129.9	190.7	225
							E72	72.0	2	173.2	234.0	250
	460	17.6	125	0.9	19.3	5.0	None	-	-	-	67.9	80
							E18	18.0	1	21.7	67.9	80
							E36	36.0	2	43.3	84.5	90
							E54	54.0	2	65.0	95.3	110
							E72	72.0	2	86.6	117.0	125
	575	14.5	100	0.6	16.2	4.0	None	-	-	-	55.7	70
							E18	18.0	1	17.3	55.7	70
							E36	36.0	2	34.6	68.6	70
							E54	54.0	2	52.0	77.2	90
							E72	72.0	2	69.3	94.5	100

NOTE 1: HACR Type per NEC.

	VOLTAGE LIMITATIONS			ELECTRIC HEAT CORRECTION FACTORS		
	POWER SUPPLY	VOLTAGE		NOMINAL VOLTAGE	VOLTAGE	kW CAP. MULTIPLIER
		MIN.	MAX.	208	208	1.00
VOLTAGE LIMITATIONS[1]	208/230-3-60	187	253	240	230	0.92
	460-3-60	414	506	480	460	0.92
	575-3-60	518	630	600	575	0.92

1. Utilization Range “A” in accordance with ARI Standard 110.

TABLE 30: WR ELECTRICAL DATA - HIGH STATIC DRIVE MOTOR WITH POWERED CONVENIENCE OUTLET

MODEL (TONNAGE)	VOLTAGE	COMPRESSORS		OD FAN MOTORS FLA EACH	ID BLOWER MOTOR FLA	CONV OUTLET AMPS	HEATER OPTION				MIN. CIRCUIT AMPACITY (AMPS)	MAX. FUSE/ BRKR[1] SIZE (AMPS)
		RLA EACH	LRA EACH				MODEL	KW	STAGES	AMPS		
180 (15)	208	22.4	164	2.1	20.0	10.0	None	-	-	-	88.8	110
							E18	13.5	1	37.5	88.8	110
							E36	27	2	74.9	131.2	150
							E54	40.6	2	112.7	178.4	200
							E72	54.1	2	150.2	187.7	200
	230	22.4	164	2.1	20.0	10.0	None	-	-	-	88.8	110
							E18	18.0	1	43.3	91.6	110
							E36	36.0	2	86.6	145.8	150
							E54	54.0	2	129.9	167.4	175
							E72	72.0	2	173.2	210.7	225
	460	10.9	100	1.2	10.0	5.0	None	-	-	-	44.3	50
							E18	18.0	1	21.7	45.8	50
							E36	36.0	2	43.3	72.9	80
							E54	54.0	2	65.0	83.7	90
							E72	72.0	2	86.6	105.4	110
	575	8.3	78	0.9	7.5	4.0	None	-	-	-	33.8	40
							E18	18.0	1	17.3	36.0	40
							E36	36.0	2	34.6	57.7	60
							E54	54.0	2	52.0	66.3	70
							E72	72.0	2	69.3	83.7	90
240 (20)	208	30.1	225	2.4	38.6	10.0	None	-	-	-	128.1	150
							E18	13.5	1	37.5	128.1	150
							E36	27	2	74.9	154.4	175
							E54	40.6	2	112.7	201.6	225
							E72	54.1	2	150.2	210.9	225
	230	30.1	225	2.4	38.6	10.0	None	-	-	-	128.1	150
							E18	18.0	1	43.3	128.1	150
							E36	36.0	2	86.6	169.0	175
							E54	54.0	2	129.9	190.7	225
							E72	72.0	2	173.2	234.0	250
	460	15.5	114	0.9	19.3	5.0	None	-	-	-	63.7	80
							E18	18.0	1	21.7	63.7	80
							E36	36.0	2	43.3	84.5	90
							E54	54.0	2	65.0	95.3	110
							E72	72.0	2	86.6	117.0	125
	575	12.1	80	0.6	16.2	4.0	None	-	-	-	50.9	60
							E18	18.0	1	17.3	50.9	60
							E36	36.0	2	34.6	68.6	70
							E54	54.0	2	52.0	77.2	90
							E72	72.0	2	69.3	94.5	100
300 (25)	208	42.3	245	2.4	38.6	10.0	None	-	-	-	153.4	175
							E18	13.5	1	37.5	153.4	175
							E36	27	2	74.9	154.4	175
							E54	40.6	2	112.7	201.6	225
							E72	54.1	2	150.2	210.9	225
	230	42.3	245	2/4	38.6	10.0	None	-	-	-	153.4	175
							E18	18.0	1	43.3	153.4	175
							E36	36.0	2	86.6	169.0	175
							E54	54.0	2	129.9	190.7	225
							E72	72.0	2	173.2	234.0	250
	460	17.6	125	0.9	19.3	5.0	None	-	-	-	67.9	80
							E18	18.0	1	21.7	67.9	80
							E36	36.0	2	43.3	84.5	90
							E54	54.0	2	65.0	95.3	110
							E72	72.0	2	86.6	117.0	125
	575	14.5	100	0.6	16.2	4.0	None	-	-	-	55.7	70
							E18	18.0	1	17.3	55.7	70
							E36	36.0	2	34.6	68.6	70
							E54	54.0	2	52.0	77.2	90
							E72	72.0	2	69.3	94.5	100

NOTE 1: HACR Type per NEC.

	VOLTAGE LIMITATIONS			ELECTRIC HEAT CORRECTION FACTORS		
	POWER SUPPLY	VOLTAGE		NOMINAL VOLTAGE	VOLTAGE	kW CAP. MULTIPLIER
		MIN.	MAX.	208	208	1.00
VOLTAGE LIMITATIONS[1]	208/230-3-60	187	253	240	230	0.92
	460-3-60	414	506	480	460	0.92
	575-3-60	518	630	600	575	0.92

1. Utilization Range “A” in accordance with ARI Standard 110.

TABLE 31: WR ELECTRICAL DATA - LOW AIRFLOW DRIVE MOTOR WITH POWERED CONVENIENCE OUTLET

MODEL (TONNAGE)	VOLTAGE	COMPRESSORS		OD FAN MOTORS FLA EACH	ID BLOWER MOTOR FLA	CONV OUTLET AMPS	HEATER OPTION				MIN. CIRCUIT AMPACITY (AMPS)	MAX. FUSE/ BRKR[1] SIZE (AMPS)
		RLA EACH	LRA EACH				MODEL	KW	STAGES	AMPS		
240 (20)	208	30.1	225	2.4	20.0	10.0	None	0.0	-	-	107.3	125
							E18	13.5	1	37.5	107.3	125
							E36	27.0	2	75.1	131.2	150
							E54	40.6	2	112.7	178.4	200
							E72	54.1	2	150.2	187.7	200
	230	30.1	225	2.4	20.0	10.0	None	0.0	-	-	107.3	125
							E18	18.0	1	43.3	107.3	125
							E36	36.0	2	86.6	145.8	150
							E54	54.0	2	129.9	167.4	175
							E72	72.0	2	173.2	210.7	225
	460	15.5	114	0.9	10.0	5.0	None	0.0	-	-	53.5	60
							E18	18.0	1	21.7	53.5	60
							E36	36.0	2	43.3	72.9	80
							E54	54.0	2	65.0	83.7	90
							E72	72.0	2	86.6	105.4	110
	575	12.1	80	0.6	7.5	4.0	None	0.0	-	-	41.1	50
							E18	18.0	1	17.3	41.1	50
							E36	36.0	2	34.6	57.7	60
							E54	54.0	2	52.0	66.3	70
							E72	72.0	2	69.3	83.7	90
300 (25)	208	42.3	245	2.4	20.0	10.0	None	0.0	-	-	134.8	175
							E18	13.5	1	37.5	134.8	175
							E36	27.0	2	75.1	134.8	175
							E54	40.6	2	112.6	178.4	200
							E72	54.1	2	150.1	187.7	200
	230	42.3	245	2.4	20.0	10.0	None	0.0	-	-	134.8	175
							E18	18.0	1	43.3	134.8	175
							E36	36.0	2	86.6	145.8	175
							E54	54.0	2	129.9	167.4	175
							E72	72.0	2	173.2	210.7	225
	460	17.6	125	0.9	10.0	5.0	None	0.0	-	-	58.2	70
							E18	18.0	1	21.7	58.2	70
							E36	36.0	2	43.3	72.9	80
							E54	54.0	2	65.0	83.7	90
							E72	72.0	2	86.6	105.4	110
	575	14.5	100	0.6	7.5	4.0	None	0.0	-	-	46.5	60
							E18	18.0	1	17.3	46.5	60
							E36	36.0	2	34.6	57.7	60
							E54	54.0	2	52.0	66.3	70
							E72	72.0	2	69.3	83.7	90

NOTE 1: HACR Type per NEC.

VOLTAGE LIMITATIONS				ELECTRIC HEAT CORRECTION FACTORS		
	POWER SUPPLY	VOLTAGE		NOMINAL VOLTAGE	VOLTAGE	kW CAP. MULTIPLIER
		MIN.	MAX.			
VOLTAGE LIMITATIONS[1]	208/230-3-60	187	253	208	208	1.00
				240	230	0.92
	460-3-60	414	506	480	460	0.92
	575-3-60	518	630	600	575	0.92

1. Utilization Range “A” in accordance with ARI Standard 110.

TABLE 32: PHYSICAL DATA

MODELS				WR180	WR240	WR300
EVAPORATOR BLOWER	CENTRIFUGAL BLOWER (Dia. x Wd.)			15x15	18x15	
	FAN MOTOR HP			5/7.5	7.5/10.0/15.0	7.5/15.0
EVAPORATOR COIL	ROWS DEEP			6		
	FINS PER INCH			13		
	FACE AREA (Sq. Ft.)			20.52		
CONDENSER FAN (FOUR PER UNIT)	PROPELLER DIA. (In.)		(Each)	24	30	
	FAN MOTOR HP		(Each)	1/3	3/4	
	NOM. CFM TOTAL		(Each)	4,000	5,000	
CONDENSER COIL	ROWS DEEP			2		
	FINS PER INCH			20		
	FACE AREA (Sq. Ft.)			63.8		
REHEAT COIL	ROWS DEEP			2		
	FINS PER INCH			13		
	FACE AREA (Sq. Ft.)			17.2		
COMPRESSOR (QTY. PER UNIT)	SCROLL			2		
FILTERS	QUANTITY PER UNIT (16” X 25” X 2”)			4		
	QUANTITY PER UNIT (16” X 20” X 2”)			4		
	TOTAL FACE AREA (Sq. Ft.)			20		
CHARGE	REFRIGERANT 22 (Lb./Oz.)	SYSTEM No. 1		24/0	28/8	28/0
		SYSTEM No. 2		23/0	27/0	26/4
OPERATING WEIGHTS (LBS.)	BASIC UNIT	COOLING ONLY		2410	2710	2810
		GAS / ELECTRIC	N24	2610	2910	3010
			N32	2650	2950	3050
	OPTIONS	DOUBLE WALL		260		
		ECONOMIZER		160		
		ECONOMIZER WITH POWER EXHAUST		245		
		MOTORIZED DAMPER		150		
		ELECTRIC HEATER	18 KW	25		
			36 KW	30		
			54 KW	35		
			72 KW	40		
		HOT GAS BYPASS		10		
		SUPPLY FAN VFD		See Table 33		
	ACCESSORIES	ROOF CURB		185		
		BAROMETRIC DAMPER		45		
		ECONOMIZER / MOTORIZED DAMPER RAIN HOOD		55		
		ECONOMIZER / POWER EXHAUST RAIN HOOD		90		
		WOOD SKID		220		

TABLE 33: SUPPLY FAN VFD WEIGHTS, IN LBS.

SUPPLY FAN MOTOR	230V	460V	575V
W/O MANUAL BYPASS			
5.0 hp	25	25	30
7.5 hp	30	30	30
10.0 hp	30	30	35
15.0 hp	30	30	40
W/MANUAL BYPASS			
5.0 hp	30	30	35
7.5 hp	35	35	35
10.0 hp	35	35	40
15.0 hp	40	35	45

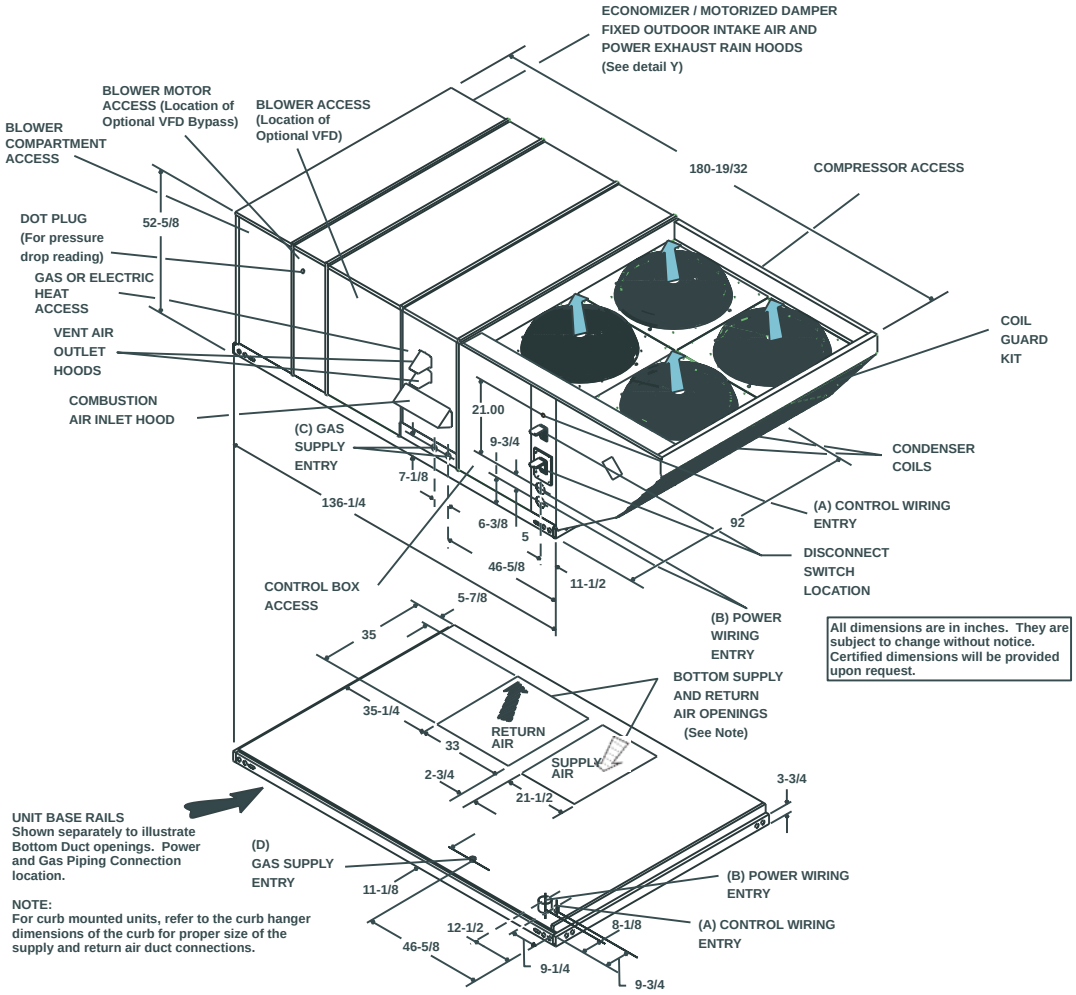


FIGURE 12: UNIT DIMENSIONS WR180, 240 & 300 (FRONT VIEW)

TABLE 34: UTILITIES ENTRY DATA

HOLE	OPENING SIZE (DIA.)	USED FOR	
A	1-1/8" KO	Control Wiring	Side
	3/4" NPS (Fem.)		Bottom
B	3-5/8" KO	Power Wiring	Side
	3" NPS (Fem.)		Bottom
C	2-3/8" KO	Gas Piping (Front)[1]	
D	1-11/16" Hole	Gas Piping (Bottom)[1, 2]	

1. One-inch gas piping NPT required.
2. Opening in the bottom of the unit can be located by the slice in the insulation.

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

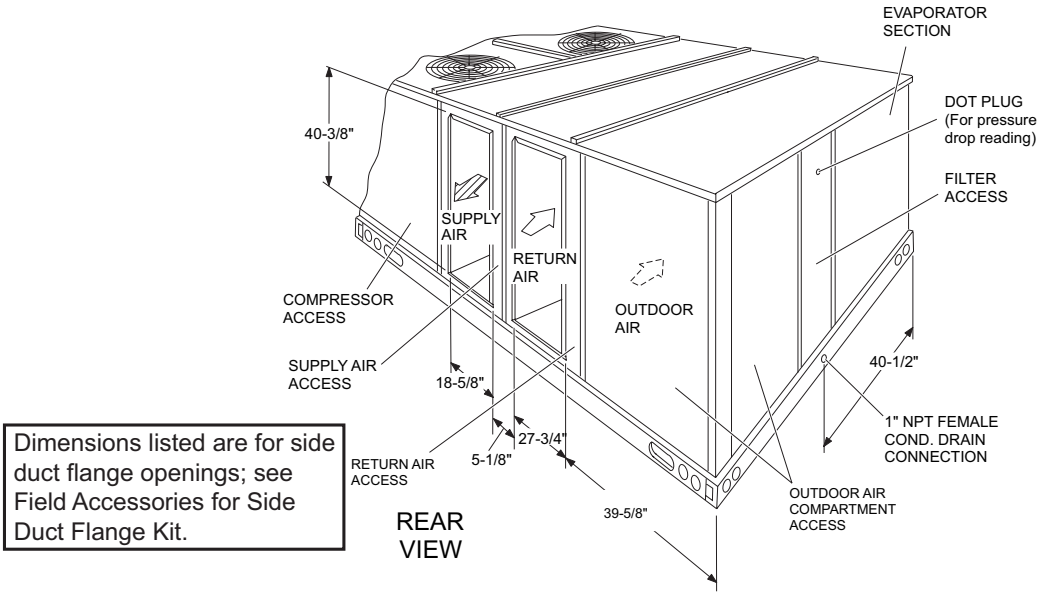


FIGURE 13: REAR VIEW DIMENSIONS

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

For <u>bottom</u> duct applications:

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

For <u>side</u> duct applications:

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

TABLE 35: MINIMUM CLEARANCES

LOCATION	CLEARANCE
Front	36”
Rear	24” (Less Economizer) 49” (With Economizer)
Left Side (Filter Access)	24” (Less Economizer) 36” (With Economizer)[3]
Right Side (Cond. Coil)	36”
Below Unit[1]	0”
Above Unit[2]	72” With 36” Maximum Horizontal Overhang (For Condenser Air Discharge)

1. Units may be installed on combustible floors made from wood or class A, B, or C roof covering material.
2. Units must be installed outdoors. Overhanging structures or shrubs should not obstruct condenser air discharge outlet.
3. If economizer is factory installed, the unassembled rain hood must be removed from its ride along position in front of evaporator coil, or in the outdoor air compartment, prior to final installation.

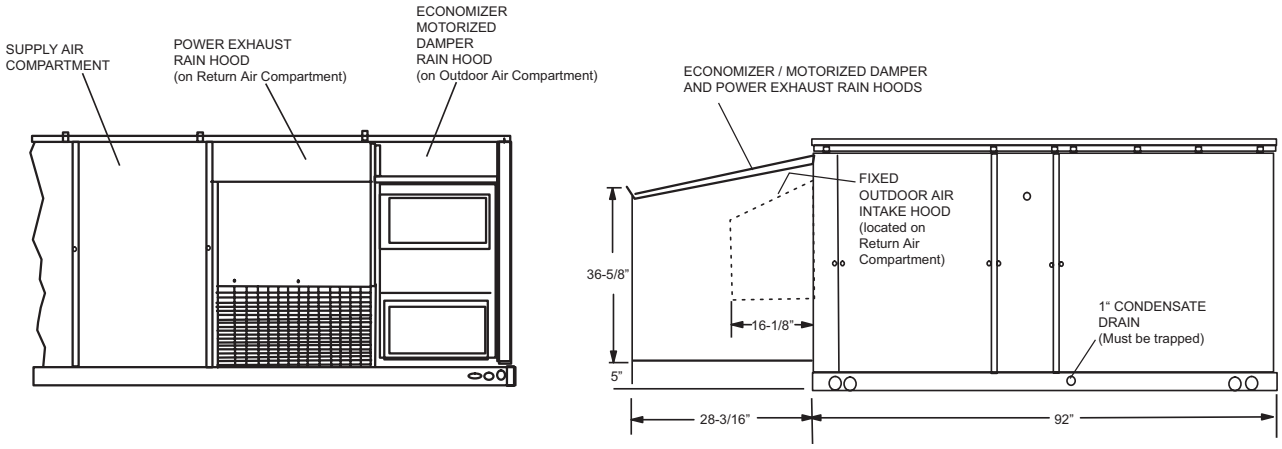
NOTE: ELEC / ELEC Models: Units and ductwork are approved for zero clearance to combustible material when equipped with electric heaters.

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

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

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

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



REAR VIEW

LH VIEW

DETAIL “Y”
UNIT WITH RAIN HOODS

FIGURE 14: UNIT DIMENSIONS WR180, 240 & 300 (RAINHOOD)

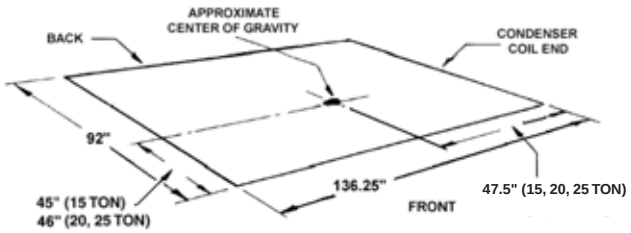


FIGURE 15: UNIT CENTER OF GRAVITY

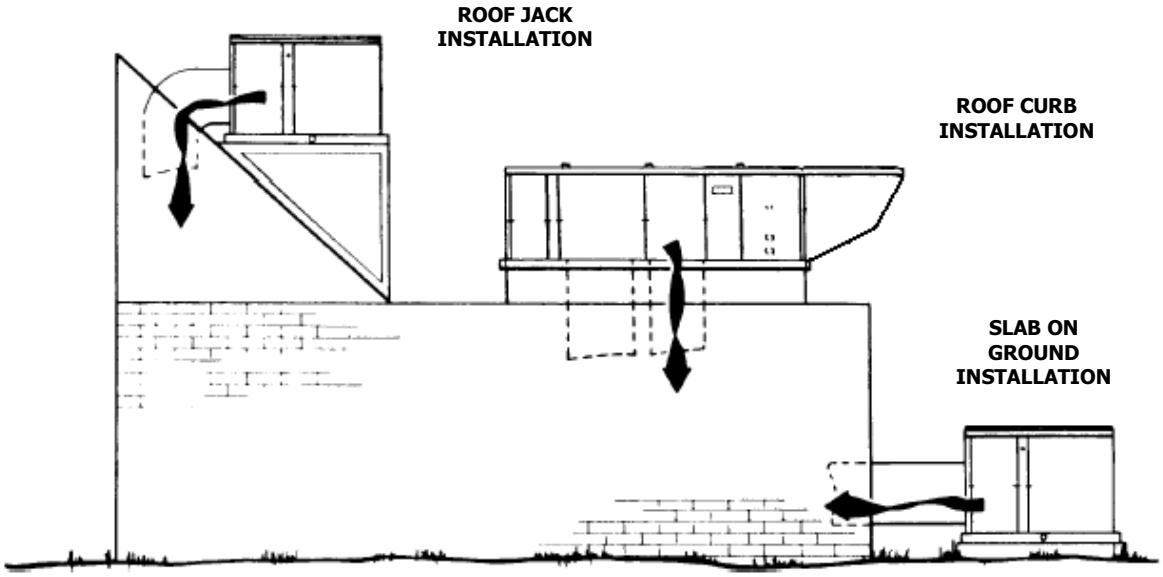


FIGURE 16: TYPICAL UNIT APPLICATIONS

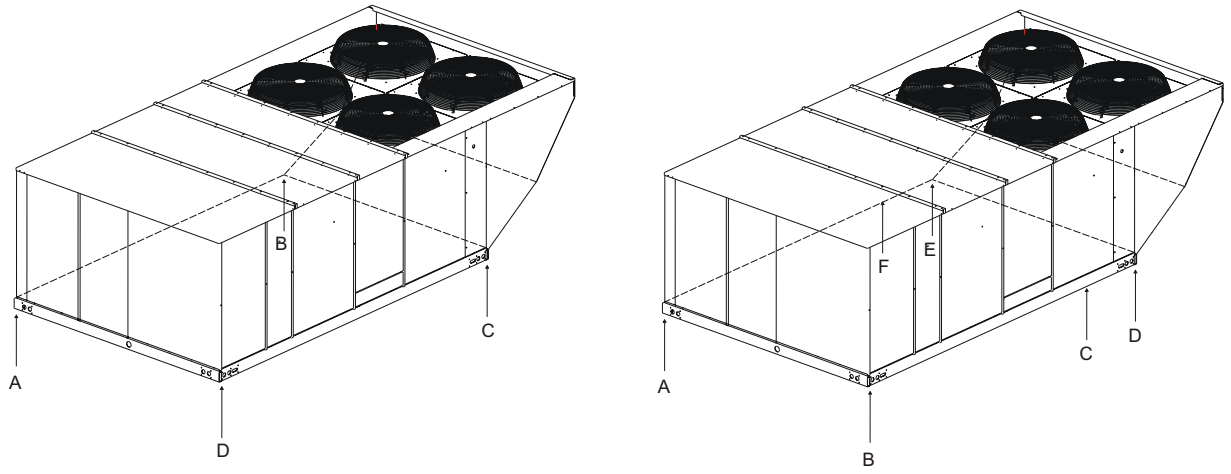


FIGURE 17:FOUR AND SIX POINT LOADS

TABLE 36: FOUR AND SIX POINT LOADS

Unit Size	Operating Weight	4 Point Loads (lbs)			
		A	B	C	D
WR180 Gas	2900	495	924	965	516
WR240 Gas	3200	558	1042	1042	558
WR300 Gas	3300	575	1075	1075	575
WR180 Elec	2700	460	860	898	481
WR240 Elec	3000	523	977	977	523
WR300 Elec	3100	540	1010	1010	540

Unit Size	Operating Weight	6 Point Loads (lbs)					
		A	B	C	D	E	F
WR180 Gas	2900	330	344	494	643	616	473
WR240 Gas	3200	372	372	533	695	695	533
WR300 Gas	3300	383	383	550	717	717	550
WR180 Elec	2700	307	321	460	599	573	440
WR240 Elec	3000	349	349	500	651	651	500
WR300 Elec	3100	360	360	517	673	673	517

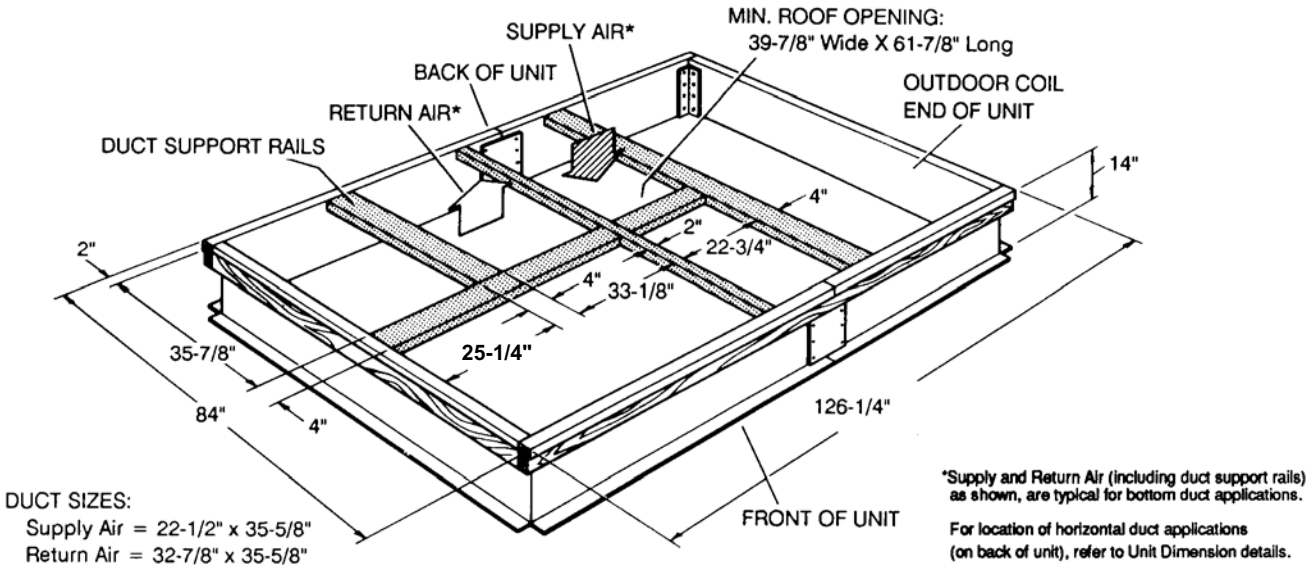


FIGURE 18: UNIT ROOF CURB DIMENSIONS

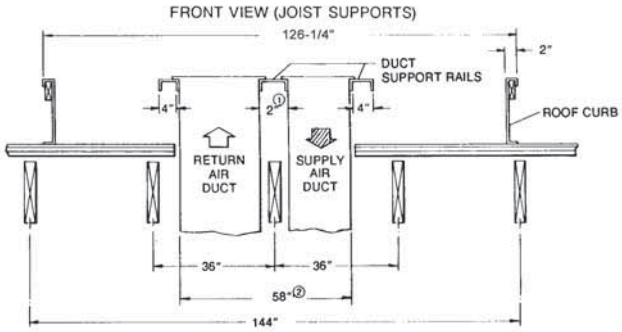


FIGURE 19: ROOF CURB DUCT OPENINGS DIMENSION

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

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

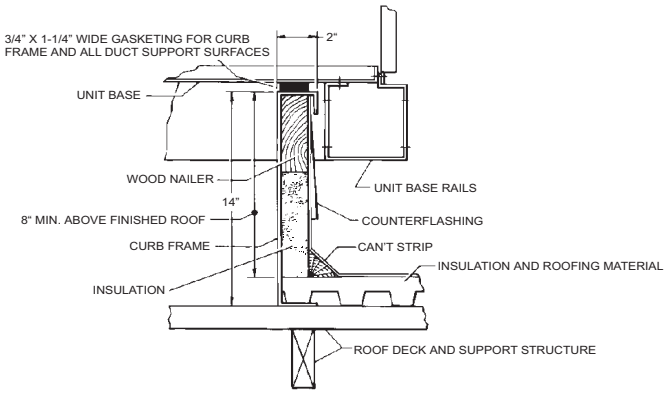
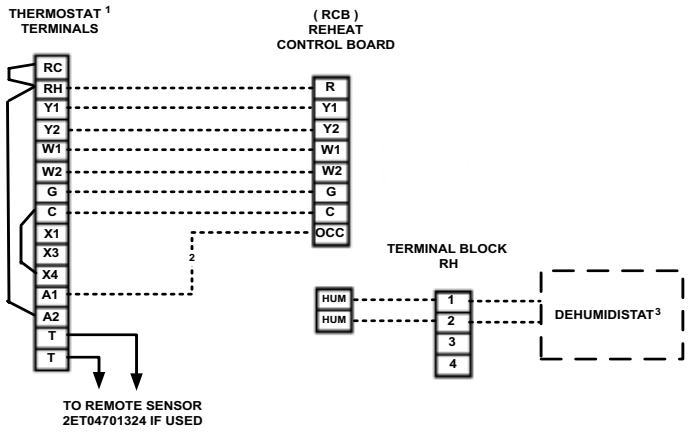


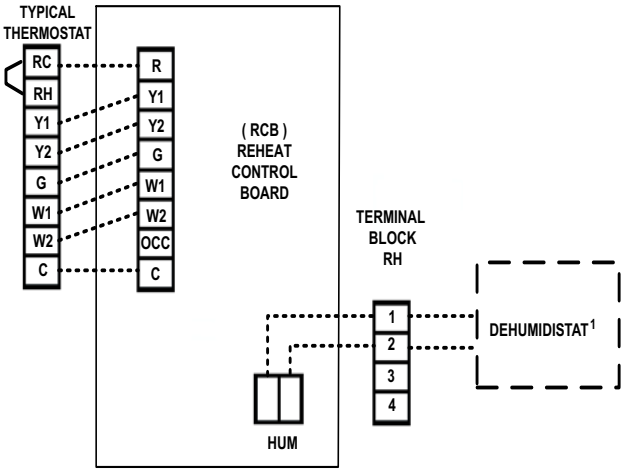
FIGURE 20: CUT AWAY OF ROOF CURB



[1] Electronic programmable Thermostat 2ET0770010024 (includes subbase).

[2] Terminals A1 and A2 provide a relay output to close the outdoor economizer dampers when the thermostat switches to the set-back position.

[3] Dehumidistat closes on rise in humidity.



[1] Dehumidistat closes on rise in humidity.

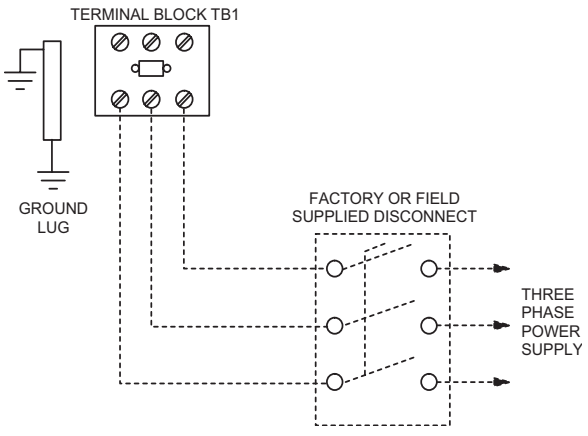


FIGURE 21: TYPICAL FIELD WIRING

GUIDE SPECIFICATIONS

GENERAL

Units shall be manufactured by York International Unitary Products Group in an ISO 9001 certified facility.

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

Each unit shall have 4 condenser fan motors. A high speed drive accessory is available for applications with a higher CFM and/or static pressure requirement. All compressors include crankcase heat and internal pressure relief. Every refrigerant circuit includes an expansion valve, a liquid line filter-drier, a discharge line high pressure switch and a suction line with a freezestat and low pressure/loss of charge switch. The unit control circuit includes a 75 VA transformer, a 24-volt circuit breaker and a relay board with two compressor lockout circuits, a terminal strip for thermostat wiring, plus an additional set of pin connectors to simplify the interface of additional field controls. All units have long lasting powder paint cabinets with 1000 hour salt spray test approval under ASTM-B117 procedures. All 208/230 and 460-volt models are ETL approved. All 208/230 and 575-volt models are CGA approved. All models include a 1-year limited warranty on the complete unit. Compressors and electric heater elements carry an additional 4-year warranty. Aluminized steel tubular heat exchangers carry an additional 9-year warranty.

DESCRIPTION

Units shall be factory-assembled, single packaged, WR***N Electric Cooling/Gas Heat, WR***C/E Electric Cooling/Optional Electric Heat, designed for outdoor mounted installation. The 15 and 20 ton units shall have minimum EER ratings of 9.7. The 25 ton unit shall have a minimum EER rating of 9.5.

They shall have built-in field convertible duct connections for down discharge supply/return or horizontal discharge supply/return, and be available with factory installed options or field installed accessories. The units shall be factory wired, piped, charged with R-22 refrigerant and factory tested prior to shipment. All unit wiring shall be both numbered and color coded. All units shall be manufactured in a facility certified to ISO 9001 standards and the cooling performance shall be rated in accordance with DOE and ARI test procedures. Units shall be ETL & CGA listed, classified to ANSIZ21.47 standards, UL 1995/CAN/CSA No. 236-M90 conditions.

UNIT CABINET

Unit cabinet shall be constructed of G90 galvanized steel, with exterior surfaces coated with a non-chalking, powdered paint finish, certified at 1000 hour salt spray test per ASTM-B117 standards. Indoor blower section shall be insulated with a minimum 1/2" thick insulation, coated on the airside. Aluminum foil faced insulation shall be used in the furnace compartment and be fastened with ridged fasteners to prevent insulation from entering the air stream. Cabinet panels shall be "large" size, easily removable for servicing and maintenance. Full perimeter base rails shall be provided to assure reliable transit of equipment, overhead rigging and proper sealing on roof curb applications. Disposable 2" filters shall be furnished and be accessible through a removable access door, sealed airtight. Units filter track shall be designed to accommodate either 1" or 2" filters. Fan performance measuring ports shall be provided on the outside of the cabinet to allow accurate air measurements of evaporator fan performance without removing panels or creating air by-pass of the coils. Condensate pan shall be internally sloped and conform to ASHRAE 62-89 self-draining standards. Condensate connection shall be a minimum of 1" I.D. female and be a ridged mount connection. Unit shall incorporate a fixed outdoor air damper with an outdoor air intake opening covered with a bird screen and a rain hood painted to match the exterior of the unit.

INDOOR (EVAPORATOR) FAN ASSEMBLY

Fan shall be a belt drive assembly and include an adjustable-pitch motor pulley. Job site selected (B.H.P.) brake horsepower shall not exceed the motors nameplate horsepower rating, plus the service factor. Units shall be designed not to operate above service factor. Fan wheel shall be double-inlet type with forward-curved blades, dynamically balanced to operate smoothly throughout the entire range of operation. Airflow design shall be constant air volume.

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

OUTDOOR (CONDENSER) FAN ASSEMBLY

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

REFRIGERANT COMPONENTS

Compressors:

a. Shall be Scroll compressors internally protected with internal high-pressure relief and over temperature protection.

b. Shall have internal spring isolation and sound muffling to minimize vibration and noise, and be externally isolated on a dedicated, independent mounting.

Coils:

a. Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless internally enhanced copper tubes with all joints brazed. Special Phenolic coating shall be available as a factory option.

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

Refrigerant Circuit and Refrigerant Safety Components shall include:

a. Balance-port thermostatic expansion valve with independent circuit feed system.

b. Filter drier/strainer to eliminate any moisture or foreign matter.

c. Accessible service gage connections on both suction and discharge lines to charge, evacuate, and measure refrigerant pressure during any necessary servicing or troubleshooting, without losing charge.

d. The refrigeration system shall provide at least 10° F of sub-cooling at design conditions.

e. All models shall have two independent circuits.

f. Hot gas bypass option shall be factory-installed on compressor #1 discharge line to provide cooling in low-load applications. HGBP shall be a standard feature on VAV models and an optional feature on CV models.

UNIT CONTROLS

a. Unit shall be complete with self-contained low-voltage control circuit protected by a resetable circuit breaker on the 24-volt transformer side.

b. Unit shall incorporate a lockout circuit which provides reset capability at the space thermostat or base unit, should any of the following standard safety devices trip and shut off compressor.

c. Loss-of-charge/Low-pressure switch.

1. High-pressure switch.

2. Freeze-protection thermostat, evaporator coil. If any of the above safety devices trip, a LED (light-emitting diode) indicator shall flash a diagnostic code that indicates which safety switch has tripped.

d. Unit shall incorporate "AUTO RESET" compressor over temperature, over current protection.

e. Unit shall operate with conventional thermostat designs and have a low voltage terminal strip for easy hook-up.

f. Unit control board shall have on-board diagnostics and fault code display.

g. Standard controls shall include anti-short cycle and low voltage protection, and permit cooling operation down to 0 °F.

h. Control board shall monitor each refrigerant safety switch independently.

i. Control board shall retain last 5 fault codes in non volatile memory, which will not be lost in the event of a power loss.

GAS HEATING SECTION (WR*N MODELS)**

Shall be designed with induced draft combustion with post purge logic and energy saving direct spark ignition, redundant main gas valve. Ventor wheel shall be constructed of stainless steel for corrosion resistance. The heat exchanger shall be of the tubular type, constructed of T1-40 aluminized steel for corrosion resistance and allowing minimum mixed air entering temperature of 25° F. Burners shall be of the in-shot type, constructed of aluminum coated steel and contain air mixture adjustments. All gas piping shall enter the unit cabinet at a single location through either the side or curb, without any field modifications. An integrated control board shall provide timed control of evaporator fan functioning and burner ignition. Heating section shall be provided with the following minimum protection:

a. Primary and auxiliary high-temperature limit switches.

b. Induced draft motor speed sensor.

c. Flame roll out switch (automatic reset).

d. Flame proving controls. Unit shall have two independent stages of capacity.

ELECTRIC HEATING (WR*C/E MODELS)**

Nickel chromium electric heating elements shall be provided as required by the application with 1 or 2 stage control, as required, from 13.5 KW to 72 KW capacities. The heating section shall have a primary limit control(s) and automatic reset to prevent the heating element system from operating at an excessive temperature. Units with Electric Heating shall be wired for a single point power supply with branch circuit fusing (where required).

UNIT OPERATING CHARACTERISTICS

Unit shall be capable of starting and running at 125° F outdoor temperature, exceeding maximum load criteria of ARI Standard 340/360. The compressor, with standard controls, shall be capable of operation down to 25° F outdoor temperature. Accessory low ambient kit shall be available for operation to 0° F. Unit shall be provided with fan time delay to prevent cold air delivery before heat exchanger warms up (Gas heat only).

ELECTRICAL REQUIREMENTS

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

STANDARD LIMITED WARRANTIES

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

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

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

OTHER PRE-ENGINEERED ACCESSORIES AVAILABLE

- **ROOF CURB** - 14" high, full perimeter curb with wood nailer (shipped knocked-down).
- **100% BAROMETRIC RELIEF DAMPER** - Contains a rain hood, air inlet screen, exhaust damper and mounting hardware. Used to relieve internal air pressure through the unit.
- **PROPANE CONVERSION KIT** - Contains new orifices and gas valve parts to convert from natural to L.P. gas. One per unit required.
- **HIGH ALTITUDE - NATURAL GAS** - Contains orifices required for applications between 2000 and 6000 feet altitude.
- **HIGH ALTITUDE - PROPANE GAS** - Contains orifices required for applications between 2000 and 6000 feet altitude. Must be used with propane conversion kit.
- **BURGLAR BARS** - Designed to work with above roof curbs, depending on unit model. Fits duct openings of curb supply and return air openings.
- **SIDE DUCT FLANGE** - Supply and return air duct flanges for side duct applications. Do not use on units with power exhaust.
- **HIGH SPEED DRIVE** - Includes blower pulley and belt for higher CFM and/or static pressure requirements.
- **WOOD SKID** - Allows unit to be handled with 90" forks.
- **ECONOMIZER/MOTORIZED DAMPER RAIN HOOD (WRN/E/C30 only)** - Contains all hood panels and the hardware for assembling.
- **ANTI-RECYCLE TIMER** - Assures 5-minute off time between compressor cycles.
- **LOW AMBIENT KIT** - Provides unit cooling operation down to 0°F.
- **COIL GUARD KIT** - Guard for cooling coil.

OTHER FACTORY INSTALLED OPTIONS

- **POWER EXHAUST OPTION** - To work in conjunction with economizers.
- **STAINLESS STEEL HEAT EXCHANGER**
- **STAINLESS STEEL DRAIN PAN**
- **TECHNICOAT PHENOLIC COATED CONDENSER AND EVAPORATOR COIL**
- **ELECTRONIC SINGLE ENTHALPY ECONOMIZER**
- **DIRTY FILTER SWITCH**
- **DOUBLE WALL**
- **PHASE MONITOR**
- **COIL GUARD**
- **POWERED GFI CONVENIENCE OUTLET**
- **NON-POWERED GFI CONVENIENCE OUTLET**
- **BAS CONTROLS** (Simplicity® INTELLI-Comfort™, CPC, JOHNSON, HONEYWELL, NOVAR)

- **BAS READY ECONOMIZER** (BELIMO ACTUATOR WITHOUT A CONTROLLER)
- **HINGED FILTER DOOR ACCESS AND TOOLLESS ACCESS PANELS**
- **HIGH SPEED DRIVE**
- **2" PLEATED FILTERS**
- **4" THROW AWAY FILTERS**
- **DISCONNECT SWITCH**
- **SUPPLY AIR SMOKE DETECTOR**
- **RETURN AIR SMOKE DETECTOR**
- **LOW SPEED DRIVE (WR240 & WR300 only)**

Subject to change without notice. Printed in U.S.A.
Copyright © 2007 by Unitary Products Group. All rights reserved.

262292-YTG-B-0107
Supersedes: 262292-YTG-A-0706

Unitary Products Group
5005 York Drive
Norman OK 73069