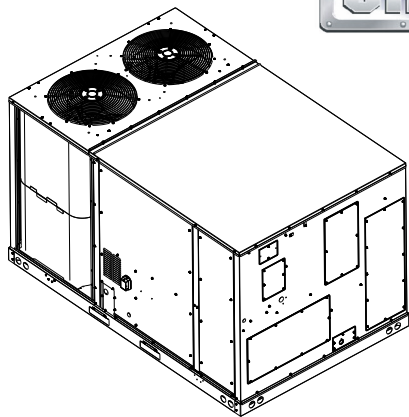


## DHG SERIES

## LIGHT COMMERCIAL PACKAGED GAS /ELECTRIC UNIT

## 7.5 TO 12.5 TON INSTALLATION INSTRUCTIONS



### WARNING

ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE, MAINTENANCE OR REPAIR (HEREINAFTER, "SERVICE") THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT.

THIS EQUIPMENT IS NOT INTENDED FOR USE BY PERSONS (INCLUDING CHILDREN) WITH REDUCED PHYSICAL, SENSORY OR MENTAL CAPABILITIES, OR LACK OF EXPERIENCE AND KNOWLEDGE, UNLESS THEY HAVE BEEN GIVEN SUPERVISION OR INSTRUCTION CONCERNING USE OF THE APPLIANCE BY A PERSON RESPONSIBLE FOR THEIR SAFETY.

CHILDREN SHOULD BE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE EQUIPMENT.

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SUPERVISION, SERVICE OR SERVICE PROCEDURES. IF YOU SERVICE THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. IN ADDITION, IN JURISDICTIONS THAT REQUIRE ONE OR MORE LICENSES TO SERVICE THE EQUIPMENT SPECIFIED IN THIS MANUAL, ONLY LICENSED PERSONNEL SHOULD SERVICE THE EQUIPMENT. IMPROPER SUPERVISION, INSTALLATION, ADJUSTMENT, SERVICING, MAINTENANCE OR REPAIR OF THE EQUIPMENT SPECIFIED IN THIS MANUAL, OR ATTEMPTING TO INSTALL, ADJUST, SERVICE OR REPAIR THE EQUIPMENT SPECIFIED IN THIS MANUAL WITHOUT PROPER SUPERVISION OR TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



### ATTENTION INSTALLING PERSONNEL:

Prior to installation, thoroughly familiarize yourself with this Installation Manual. Observe all safety warnings. During installation or repair, caution is to be observed.

It is your responsibility to install the product safely and to educate the customer on its safe use.



### RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION

These installation instructions cover the outdoor installation of single package heating and cooling units. See the Specification Sheet applicable to your model for information regarding accessories.

**NOTE:** Please contact your distributor or our website for the applicable Specification Sheet referred to in this manual.

This forced air central unit design complies with requirements embodied in The American National Standard / National Standard of Canada: **ANSI Z21.47-CSA-2.3 Gas-fired central furnaces.**



### WARNING

DO NOT BYPASS SAFETY DEVICES

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Our continuing commitment to quality products may mean a change in specifications without notice.

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[www.daikincomfort.com](http://www.daikincomfort.com)



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## REPLACEMENT PARTS

### ORDERING PARTS

When reporting shortages or damages report this to <https://www.goodmanmfg.com/logistics-feedback>. When ordering repair parts give the complete unit model and serial numbers as stamped on the unit's nameplate.

Refrigerant sensors for refrigerant detection systems shall only be replaced with sensors specified by the manufacturer.

Replacement parts for this appliance are available through your contractor or local distributor. Location of your local distributor can be found at [www.daikinac.com](http://www.daikinac.com) or contact:

### EQUIPMENT SUPPORT

**Daikin Comfort Technologies Manufacturing, L.P.**

**19001 Kermier Road •Waller, Texas 77484**

**855-DAIKIN-1**

## SAFETY INSTRUCTIONS



**RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION**

### To THE INSTALLER

Before installing this unit, please read this manual to familiarize yourself on the specific items which must be adhered to, including maximum external static pressure to unit, air temperature rise, minimum or maximum CFM and motor speed connections.

**Keep this literature in a safe place for future reference.**



### WARNING

**SHOULD OVERHEATING OCCUR OR THE GAS SUPPLY FAIL TO SHUT OFF, TURN OFF THE MANUAL GAS SHUTOFF VALVE EXTERNAL TO THE FURNACE BEFORE TURNING OFF THE ELECTRICAL SUPPLY.**



### CAUTION

**SHEET METAL PARTS, SCREWS, CLIPS AND SIMILAR ITEMS INHERENTLY HAVE SHARP EDGES, AND IT IS NECESSARY THAT THE INSTALLER AND SERVICE PERSONNEL EXERCISE CAUTION.**



### WARNING

**IF THE INFORMATION IN THESE INSTRUCTIONS IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.**

**- DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.**

**-WHAT TO DO IF YOU SMELL GAS:**

**DO NOT TRY TO LIGHT ANY APPLIANCE.**

**DO NOT TOUCH ANY ELECTRICAL SWITCH; DO NOT USE ANY PHONE IN YOUR BUILDING.**

**IMMEDIATELY CALL YOUR GAS SUPPLIER FROM A NEIGHBOR'S PHONE. FOLLOW THE GAS SUPPLIER'S INSTRUCTIONS.**

**IF YOU CANNOT REACH YOUR GAS SUPPLIER, CALL THE FIRE DEPARTMENT.**

**- INSTALLATION AND SERVICE MUST BE PERFORMED BY A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.**



### WARNING

**DO NOT CONNECT TO OR USE ANY DEVICE THAT IS NOT CERTIFIED BY THE MANUFACTURER FOR USE WITH THIS UNIT. SERIOUS PROPERTY DAMAGE, PERSONAL INJURY, REDUCED UNIT PERFORMANCE AND/OR HAZARDOUS CONDITIONS MAY RESULT FROM THE USE OF SUCH NON-APPROVED DEVICES.**



### WARNING

**TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, DO NOT USE THIS UNIT IF ANY PART HAS BEEN UNDER WATER. IMMEDIATELY CALL A QUALIFIED SERVICE TECHNICIAN TO INSPECT THE FURNACE AND TO REPLACE ANY PART OF THE CONTROL SYSTEM AND ANY GAS CONTROL HAVING BEEN UNDER WATER.**



### WARNING

**THIS UNIT MUST NOT BE USED AS A "CONSTRUCTION HEATER" DURING THE FINISHING PHASES OF CONSTRUCTION ON A NEW STRUCTURE. THIS TYPE OF USE MAY RESULT IN PREMATURE FAILURE OF THE UNIT DUE TO EXTREMELY LOW RETURN AIR TEMPERATURE AND EXPOSURE TO CORROSIVE OR VERY DIRTY ATMOSPHERES.**



### WARNING

**HIGH VOLTAGE!  
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**



### WARNING

**TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, DO NOT STORE COMBUSTIBLE MATERIALS OR USE GASOLINE OR OTHER FLAMMABLE LIQUIDS OR VAPORS IN THE VICINITY OF THIS APPLIANCE.**



### WARNING

**TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, DUE TO FIRE, EXPLOSIONS, SMOKE, SOOT, CONDENSATION, ELECTRIC SHOCK OR CARBON MONOXIDE, THIS UNIT MUST BE PROPERLY INSTALLED, REPAIRED, OPERATED, AND MAINTAINED.**



### WARNING

**DO NOT USE MEANS TO ACCELERATE DEFROSTING PROCESS OR TO CLEAN, OTHER THAN THOSE RECOMMENDED BY THE MANUFACTURER.**

**THE APPLIANCE SHALL BE STORED IN A ROOM WITHOUT CONTINUOUSLY OPERATING IGNITION SOURCES (FOR EXAMPLE: OPEN FLAMES, AN OPERATING GAS APPLIANCE OR AN OPERATING ELECTRIC HEATER.)**

**DO NOT PIERCE OR BURN.**

**BE AWARE THAT REFRIGERANTS MAY NOT CONTAIN AN ODOR.**



### WARNING

**LEAK DETECTION SYSTEM INSTALLED. UNIT MUST BE POWERED EXCEPT FOR SERVICE.**



## DANGER PELIGRO



### CARBON MONOXIDE POISONING HAZARD

Special Warning for Installation of Furnace or Air Handling Units in Enclosed Areas such as Garages, Utility Rooms or Parking Areas

Carbon monoxide producing devices (such as an automobile, space heater, gas water heater, etc.) should not be operated in enclosed areas such as unventilated garages, utility rooms or parking areas because of the danger of carbon monoxide (CO) poisoning resulting from the exhaust emissions. If a furnace or air handler is installed in an enclosed area such as a garage, utility room or parking area and a carbon monoxide producing device is operated therein, there must be adequate, direct outside ventilation.

This ventilation is necessary to avoid the danger of CO poisoning which can occur if a carbon monoxide producing device continues to operate in the enclosed area. Carbon monoxide emissions can be (re)circulated throughout the structure if the furnace or air handler is operating in any mode.

CO can cause serious illness including permanent brain damage or death.

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### RIESGO DE INTOXICACIÓN POR MONÓXIDO DE CARBONO

Advertencia especial para la instalación de calentadores ó manejadoras de aire en áreas cerradas como estacionamientos ó cuartos de servicio.

Los equipos ó aparatos que producen monóxido de carbono (tal como automóvil, calentador de gas, calentador de agua por medio de gas, etc) no deben ser operados en áreas cerradas debido al riesgo de envenenamiento por monóxido de carbono (CO) que resulta de las emisiones de gases de combustión. Si el equipo ó aparato se opera en dichas áreas, debe existir una adecuada ventilación directa al exterior.

Esta ventilación es necesaria para evitar el peligro de envenenamiento por CO, que puede ocurrir si un dispositivo que produce monóxido de carbono sigue operando en el lugar cerrado.

Las emisiones de monóxido de carbono pueden circular a través del aparato cuando se opera en cualquier modo.

El monóxido de carbono puede causar enfermedades severas como daño cerebral permanente ó muerte.

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### RISQUE D'EMPOISONNEMENT AU MONOXYDE DE CARBONE

Avertissement special au sujet de l'installation d'appareils de chauffage ou de traitement d'air dans des endroits clos, tels les garages, les locaux d'entretien et les stationnements.

Evitez de mettre en marche les appareils produisant du monoxyde de carbone (tels que les automobile, les appareils de chauffage autonome, etc.) dans des endroits non ventilés tels que les d'empoisonnement au monoxyde de carbone. Si vous devez faire fonctionner ces appareils dans un endroit clos, assurez-vous qu'il y ait une ventilation directe provenant de l'exterieur.

Cette ventilation est nécessaire pour éviter le danger d'intoxication au CO pouvant survenir si un appareil produisant du monoxyde de carbone continue de fonctionner au sein de la zone confinée.

Les émissions de monoxyde de carbone peuvent étre recirculés dans les endroits clos, si l'appareil de chauffage ou de traitement d'air sont en marche.

Le monoxyde de carbone peut causer des maladies graves telles que des dommages permanents au cerveau et meme la mort.

B10259-216



### WARNING

**ONLY AUXILIARY DEVICES APPROVED BY THE APPLIANCE MANUFACTURER OR DECLARED SUITABLE WITH THE REFRIGERANT SHALL BE INSTALLED IN CONNECTING DUCTWORK.**



### WARNING

**AUXILIARY DEVICES WHICH MAY BE A POTENTIAL IGNITION SOURCE SHALL NOT BE INSTALLED IN THE DUCT WORK. EXAMPLES OF SUCH POTENTIAL IGNITION SOURCES ARE HOT SURFACES WITH A TEMPERATURE EXCEEDING 700°C AND ELECTRIC SWITCHING DEVICES.**



### WARNING

**THIS UNIT IS EQUIPPED WITH ELECTRICALLY POWERED SAFETY MEASURES. TO BE EFFECTIVE, THE UNIT MUST BE ELECTRICALLY POWERED AT ALL TIMES AFTER INSTALLATION, OTHER THAN WHEN SERVICING.**



### WARNING

**DO NOT OPERATE THE COMPRESSOR(S) WITHOUT THE TERMINAL PLUG FULLY ENGAGED OR THE TERMINAL COVER PROPERLY INSTALLED.**



### WARNING

**A TRIPPED CIRCUIT BREAKER OR BLOWN FUSE MAY INDICATE THAT AN ELECTRICAL PROBLEM EXISTS. DO NOT RESET A CIRCUIT BREAKER OR REPLACE FUSES WITHOUT FIRST PERFORMING THOROUGH ELECTRICAL TROUBLESHOOTING AND TESTING PROCEDURES.**



### WARNING

**HIGH VOLTAGE - PRIOR TO SERVICING THE UNIT OR REMOVING THE COMPRESSOR TERMINAL PLUG OR TERMINAL COVER, DISCONNECT ALL ELECTRICAL POWER FROM THE UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT.**



### WARNING

**HERMETIC COMPRESSOR ELECTRICAL TERMINAL VENTING CAN BE DANGEROUS. IN CERTAIN CIRCUMSTANCES, THE TERMINAL MAY BE EXPELLED, VENTING THE REFRIGERANT VAPOR AND COMPRESSOR OIL CONTAINED WITHIN THE COMPRESSOR HOUSING AND SYSTEM. BE ALERT FOR SOUNDS OF ARCING (SIZZLING, SPATTERING, OR POPPING) INSIDE THE COMPRESSOR. IMMEDIATELY GET AWAY IF YOU HEAR THESE SOUNDS AND DISCONNECT ELECTRICAL POWER FROM THE UNIT.**

## GENERAL INFORMATION

**This unit is approved for outdoor installation ONLY.**

Rated performance is achieved after 20 hours of operation. Rated performance is delivered at the specified airflow. See product specification sheet for light commercial models. Specification sheets can be found at [www.daikinac.com](http://www.daikinac.com) for Daikin brand products. Within the website, please select the commercial products menu and then select the submenu for the type of product to be installed, such as air conditioners or heat pumps, to access a list of product pages that each contain links to that model's specification sheet.

To assure that your unit operates safely and efficiently, it must be installed, operated, and maintained in accordance with these installation and operating instructions, all local building codes and ordinances, or in their absence, with the latest edition of the National Fuel Gas Code NFPA54/ANSI Z223.1 and National Standard of Canada CAN/CSA B149 Installation Codes.

### QUALIFICATION OF WORKERS

Personnel must be certified to service, work, and/or repair units with FLAMMABLE REFRIGERANTS. A certificate should document the competence and qualification achieved through training that included the substance of the following:

- Information about the explosion potential of FLAMMABLE REFRIGERANTS to show that flammables may be dangerous when handled without care.
- Information about POTENTIAL IGNITION SOURCES, especially those that are not obvious, such as lighters, light switches, vacuum cleaners, electric heaters.
- Information about the different safety concepts, including ventilated and unventilated areas.
- Information about refrigerant detectors, including function, operation, and service measures.
- Information about the concept of sealed components and sealed enclosures according to IEC 60079-15:2010
- Information about the correct working procedures, including commissioning, maintenance, repair, decommissioning, and disposal procedures.

### EPA REGULATIONS

**Important: The United States Environmental Protection Agency (EPA) has issued various regulations regarding the introduction and disposal of refrigerants in this unit. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. Because regulations may vary due to passage of new laws, we suggest a certified technician perform any work done on this unit. Should you have any questions please contact the local office of the EPA.**



## NATIONAL CODES

This product is designed and manufactured to permit installation in accordance with National Codes. It is the installer's responsibility to install the product in accordance with National Codes and/or prevailing local codes and regulations.

The heating and cooling capacities of the unit should be greater than or equal to the design heating and cooling loads of the area to be conditioned. The loads should be calculated by an approved method or in accordance with ASHRAE Guide or Manual J - Load Calculations published by the Air Conditioning Contractors of America.

Obtain from:

American National Standards Institute

[www.ansi.org](http://www.ansi.org)

System design and installation should also, where applicable, follow information presented in accepted industry guides such as the ASHRAE Handbooks. The manufacturer assumes no responsibility for equipment installed in violation of any code or regulation. The mechanical installation of the packaged roof top units consists of making final connections between the unit and building services; supply and return duct connections; and drain connections (if required). The internal systems of the unit are completely factory-installed and tested prior to shipment.

Units are generally installed on a steel roof mounting curb assembly which has been shipped to the job site for installation on the roof structure prior to the arrival of the unit. The model number shown on the unit's identification plate identifies the various components of the unit such as refrigeration tonnage, heating input and voltage.

Carefully inspect the unit for damage including damage to the cabinetry. Any bolts or screws which may have loosened in transit must be re-tightened.

In the event of damage, the receiver should:

1. Make notation on delivery receipt of any visible damage to shipment or container.
2. Notify the carrier promptly and request an inspection.
3. In case of concealed damage, the carrier should be notified as soon as possible-preferably within 5 days.
4. File the claim with the following supporting documents:
  - a. Original Bill of Lading, certified copy, or indemnity bond.
  - b. Original paid freight bill or indemnity in lieu thereof.
  - c. Original invoice or certified copy thereof, showing trade and other discounts or reductions.

- d. Copy of the inspection report issued by the carrier representative at the time damage is reported to the carrier. The carrier is responsible for making prompt inspection of damage and for a thorough investigation of each claim. The distributor or manufacturer will not accept claims from dealers for transportation damage.

**NOTE:** When inspecting the unit for transportation damage, remove all packaging materials. Recycle or dispose of the packaging material according to local codes.

## TERMINAL VENTING

Never operate the compressor without the terminal cover secured and properly in place or without the electrical plug fully seated and engaged to the terminal posts. If a terminal is damaged, electrically overloaded, or short circuits to ground, there is a remote possibility that the terminal can be suddenly expelled from the terminal housing thereby venting the refrigerant and compressor oil mixture to atmosphere. This discharge can be ignited from electrical arcing, or other open sources of ignition, and can cause potentially severe or fatal injury. This event is known as "Terminal Venting." To reduce the possibility of external ignition, all open flames or other heat sources must be extinguished, and all electrical power must be turned off and made to comply with "lockout-tagout" procedure prior to opening the terminal cover or removing the electrical plug and servicing the system. Proper sealed system evacuation is required during equipment service to maintain adequate internal system cleanliness while eliminating contaminants. Be alert for sounds of arcing (sizzling, sputtering, or popping) inside the compressor. **IMMEDIATELY GET AWAY** from the unit if you hear these sounds and disconnect electrical power.

## PRE-INSTALLATION CHECKS

Carefully read all instructions for the installation prior to installing unit. Ensure each step or procedure is understood and any special considerations are taken into account before starting installation. Assemble all tools, hardware and supplies needed to complete the installation. Some items may need to be purchased locally.

## WIRING

Check that wiring will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

## DETECTION OF FLAMMABLE REFRIGERANTS

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/ extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system.

**NOTE: THIS UNIT SHOULD BE INSTALLED IN A MANNER SO THAT IT IS NOT ACCESSIBLE TO THE PUBLIC.**

**NOTE: UNITS MAY BE INSTALLED IN HEAVY SNOW CLIMATES. ENSURE NO SNOW OBSTRUCTS OR COVERS THE UNIT, AS IT MAY AFFECT PERFORMANCE. REGULARLY CHECK FOR SNOW BUILDUP.**

**IMPORTANT:** Refer to the Altitude Adjusted Room Area Calculation referenced later in this manual

**IMPORTANT NOTE:** Remove wood shipping rails prior to installation of the unit.

**ALL INSTALLATIONS:**

**Important Note:** *unit should be energized 24 hours prior to compressor start up to ensure crankcase heater has sufficiently warmed the compressors. Compressor damage may occur if this step is not followed.*

**NOTE:** Appliance is shipped from factory for vertical duct application.

Proper installation of the unit ensures trouble-free operation. Improper installation can result in problems ranging from noisy operation to property or equipment damages, dangerous conditions that could result in injury or personal property damage and that are not covered by the warranty. Give this booklet to the user and explain it's provisions. The user should retain these instructions for future reference.

- For proper flame pattern within the heat exchanger and proper condensate drainage, the unit must be mounted level.
- The flue outlet must be at least 12 inches from any opening through which flue gases could enter a building, and at least three feet above any forced air inlet located within ten feet. The economizer/ manual fresh air intake/motorized fresh air intake and combustion air inlet mounted on the unit are not affected by this restriction.
- To avoid possible corrosion of the heat exchanger, do not locate the unit in an area where the outdoor air (i.e. combustion air for the unit) will be frequently contaminated by compounds containing chlorine or fluorine. Common sources of such compounds include swimming pool chemicals and chlorine bleaches, paint stripper, adhesives, paints, varnishes, sealers, waxes (which are not yet dried) and solvents used during construction and remodeling. Various commercial and industrial processes may also be sources of chlorine/fluorine compounds.
- To avoid possible illness or death of the building occupants, do NOT locate outside air intake device (economizer, manual fresh air intake, motorized fresh air intake) too close to an exhaust outlet, gas vent termination, or plumbing vent outlet. For specific distances required, consult local codes.
- Allow minimum clearances from the enclosure for fire protection, proper operation, and service access (see unit clearances). These clearances must be permanently maintained.

**UNIT LOCATION**



**WARNING**

**TO PREVENT POSSIBLE EQUIPMENT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, THE FOLLOWING BULLET POINTS MUST BE OBSERVED WHEN INSTALLING THE UNIT.**



**WARNING**

**THE APPLIANCE SHALL BE INSTALLED, OPERATED AND STORED IN A ROOM WITH A FLOOR AREA NOT LESS THAN THE MINIMUM ROOM AREA.**



**≥ 15.3 m<sup>2</sup>  
164.7 ft<sup>2</sup>**

- The combustion air inlet and flue outlet on the unit must never be obstructed. If used, do not allow the economizer/manual fresh air damper/ motorized fresh air damper to become blocked by snow or debris. In some climates or locations, it may be necessary to elevate the unit to avoid these problems.
- When the unit is heating, the temperature of the return air entering the unit must be a minimum of 55° F.

**GROUND LEVEL INSTALLATIONS ONLY:**

- When the unit is installed on the ground adjacent to the building, a level concrete (or equal) base is recommended. Prepare a base that is 3” larger than the package unit footprint and a minimum of 3” thick.
- The base should also be located where no runoff of water from higher ground can collect in the unit.

**ROOF TOP INSTALLATIONS ONLY:**

- To avoid possible property damage or personal injury, the roof must have sufficient structural strength to carry the weight of the unit(s) and snow or water loads as required by local codes. Consult a structural engineer to determine the weight capabilities of the roof.
- The unit may be installed directly on wood floors or on Class A, Class B, or Class C roof covering material.
- To avoid possible personal injury, a safe, flat surface for service personnel should be provided.
- As indicated on the unit data plate, a minimum clearance of 36” to any combustible material is required on the furnace access side of the unit. All combustible materials must be kept out of this area.
- This 36” clearance must also be maintained to insure proper combustion air and flue gas flow. The combustion air intake and furnace flue discharge must not be blocked for any reason, including blockage by snow.
- Adequate clearances from the furnace flue discharge to any adjacent public walkways, adjacent buildings, building openings or openable windows must be maintained in accordance with the latest edition of the National Fuel Gas Code ANSI Z223.1/NFPA 54.
- Minimum horizontal clearance of 48” from the furnace flue discharge to any electric meters, gas meters, regulators and relief equipment is required.

**UNIT PRECAUTIONS**

- Do not stand or walk on the unit.
- Do not drill holes anywhere in panels or in the base frame of the unit except where indicated. Unit access panels provide structural support.
- Do not remove any access panels until unit has been installed on roof curb or field supplied structure.
- Do not roll unit across finished roof without prior approval of owner or architect.

- Do not skid or slide on any surface as this may damage unit base. The unit must be stored on a flat, level surface. Protect the condenser coil because it is easily damaged.

**ROOF CURB INSTALLATIONS ONLY:**

Curb installations must comply with local codes and should be done in accordance with the established guidelines of the National Roofing Contractors Association.


Proper unit installation requires that the roof curb be firmly and permanently attached to the roof structure. Check for adequate fastening method prior to setting the unit on the curb.

Full perimeter roof curbs are available from the factory and are shipped unassembled. Field assembly, squaring, leveling and mounting on the roof structure are the responsibility of the installing contractor. All required hardware necessary for the assembly of the sheet metal curb is included in the curb accessory.

 <b>WARNING</b>
<p><b>TO PREVENT POSSIBLE EQUIPMENT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, THE FOLLOWING BULLET POINTS MUST BE OBSERVED WHEN INSTALLING THE UNIT.</b></p>

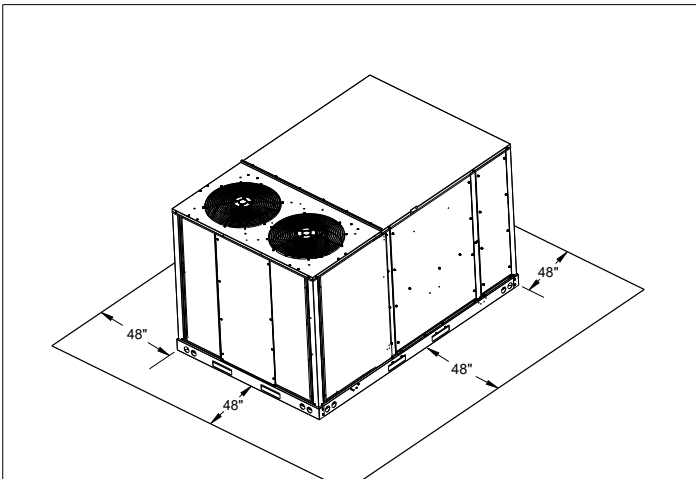
- Sufficient structural support must be determined prior to locating and mounting the curb and package unit.
- Ductwork must be constructed using industry guidelines. The duct work must be placed into the roof curb before mounting the package unit. Our full perimeter curbs include duct connection frames to be assembled with the curb. Cantilevered type curbs are not available from the factory.
- Curb insulation, cant strips, flashing and general roofing material are furnished by the contractor.
- The curbs must be supported on parallel sides by roof members.
- The roof members must not penetrate supply and return duct opening areas as damage to the unit might occur.

**NOTE:** The unit and curb accessories are designed to allow vertical duct installation before unit placement. Duct installation after unit placement is not recommended.

 <b>CAUTION</b>
<p><b>ALL CURBS LOOK SIMILAR. TO AVOID INCORRECT CURB POSITIONING, CHECK JOB PLANS CAREFULLY AND VERIFY MARKINGS ON CURB ASSEMBLY. INSTRUCTIONS MAY VARY IN CURB STYLES AND SUPERSEDES INFORMATION SHOWN.</b></p>

See the manual shipped with the roof curb for assembly and installation instructions.

## CLEARANCES



Unit Clearances

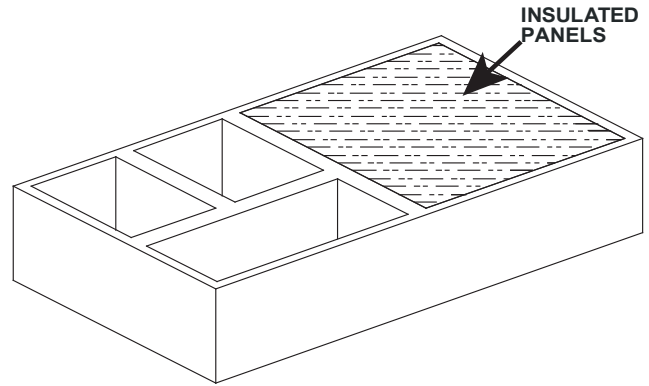
*\*In situations that have multiple units, a 48" minimum clearance is required between the condenser coils.*

Adequate clearance around the unit should be kept for safety, service, maintenance, and proper unit operation. A clearance of at least 60" is required on duct panel side to allow evaporator coil and drain pan removal. A clearance of 48" is recommended on all other sides of the unit to facilitate possible parts replacement, to allow service access and to insure proper ventilation and condenser airflow. The top of the unit should be completely unobstructed. If units are to be located under an overhang, the unit must not be installed beneath any obstruction. There should be a minimum of 48" clearance and provisions made to deflect the warm discharge air out from the overhang. The unit should be installed remote from all building exhausts to inhibit ingestion of exhaust air into the unit fresh air intake.

**NOTE:** If the 48" minimum clearance is used on the control panel side of a DRG unit, a flue extension kit needs to be installed to prevent flue gas recirculation. See table below for the kit selection

Model size	Kit part number
7.5 to 10 ton	HEFLUE090120RH
12.5 ton	HEFLUE150RH

Flue Extension Kits



Roof Curb Installation

## ROOF CURB POST-INSTALLATION CHECKS

After installation, check the top of the curb, duct connection frame and duct flanges to make sure gasket has been applied properly. Gasket should be firmly applied to the top of the curb perimeter, duct flanges and any exposed duct connection frame. If gasket is loose, re-apply using strong weather resistant adhesive.

**NOTE:** Do not stretch gasket to make it fit.

### PROTRUSION

Inspect curb to ensure that none of the utility services (electric) routed through the curb protrude above the curb.

 <b>CAUTION</b>
<b>IF PROTRUSIONS EXIST, DO NOT ATTEMPT TO SET UNIT ON CURB.</b>

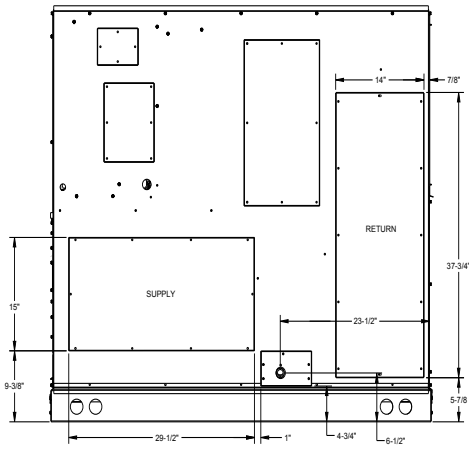
## ROOF TOP DUCT CONNECTIONS

Install all duct connections on the unit before placing the unit on rooftop. If fasteners such as screws are used to secure the duct to the curb these should be installed horizontally into the duct frame of the curb.

### HORIZONTAL DISCHARGE

Refer to IOD-7082 included in the literature pack for installing horizontal duct covers.

Flexible duct connectors between the unit and ducts are recommended. Insulate and weatherproof all external ductwork and joints as required and in accordance with local codes.



Horizontal Discharge Duct Connections|

## RIGGING DETAILS



### WARNING

**TO PREVENT PROPERTY DAMAGE, THE UNIT SHOULD REMAIN IN AN UPRIGHT POSITION DURING ALL RIGGING AND MOVING OPERATIONS. TO FACILITATE LIFTING AND MOVING WHEN A CRANE IS USED, PLACE THE UNIT IN AN ADEQUATE CABLE SLING.**



### CAUTION

**DO NOT LIFT UNITS TWO AT A TIME. PROVISIONS FOR FORKS HAVE BEEN INCLUDED IN THE UNIT BASE FRAME. MINIMUM FORK LENGTH IS 48" TO PREVENT DAMAGE TO THE UNIT. 72" IS RECOMMENDED.**

**Provisions for forks have been included in the unit base frame. No other fork locations are approved.**



### WARNING

**TO PREVENT POSSIBLE EQUIPMENT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, THE FOLLOWING BULLET POINTS MUST BE OBSERVED WHEN INSTALLING THE UNIT.**

- Unit must be lifted by the four lifting holes located at the base frame corners.
- Lifting cables should be attached to the unit with shackles.
- The distance between the crane hook and the top of the unit must not be less than 60".

- Two spreader bars must span over the unit to prevent damage to the cabinet by the lift cables. Spreader bars must be of sufficient length so that cables do not come in contact with the unit during transport. Remove wood struts mounted beneath unit base frame before setting unit on roof curb. These struts are intended to protect unit base frame from fork lift damage. Removal is accomplished by extracting the sheet metal retainers and pulling the struts through the base of the unit. Refer to rigging label on the unit.
- The unit is equipped with a steel shipping brace located underneath the unit (under compressors). If installing on a roof curb, the brace **MUST** be removed. Follow the following instructions for removal.

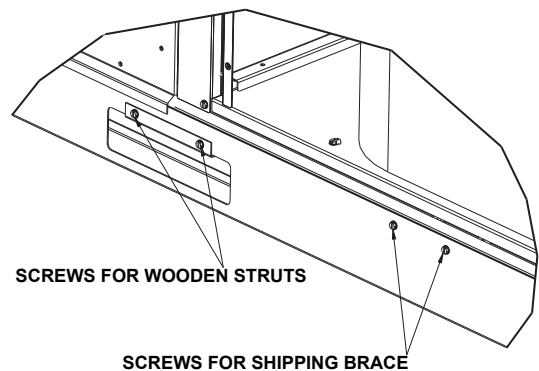


### CAUTION

**WHEN UNIT IS SUSPENDED, BOARDS AND SHIPPING BRACE WILL DROP WHEN SCREWS ARE REMOVED. TO PREVENT PERSONAL INJURY, STAND CLEAR. REMOVE FORK HOLE BRACKETS, BOARDS AND SHIPPING BRACE FROM BOTTOM OF UNIT BEFORE PLACING UNIT ONTO CURB.**

#### BEFORE INSTALLING THIS UNIT ON A ROOF CURB:

1. Remove wooden struts per installation instructions. These are the struts that are located in the fork holes and are used to protect the unit from damage while lifting with forks.
2. Locate and remove the four (4) screws that attach the shipping brace to the side rails. There will be two (2) screws on each side of the unit. See following figure.

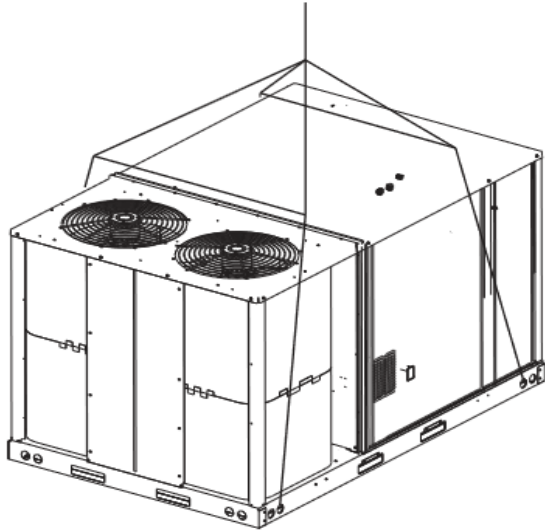


3. Lift unit per the "Rigging Details" section of the installation instructions, observing all warnings and cautions. Lift the unit high enough off the ground to reach under and grasp the shipping brace.
4. Rotate the brace by tapping the ends until the brace falls free from the unit.
5. Dispose of the brace appropriately.

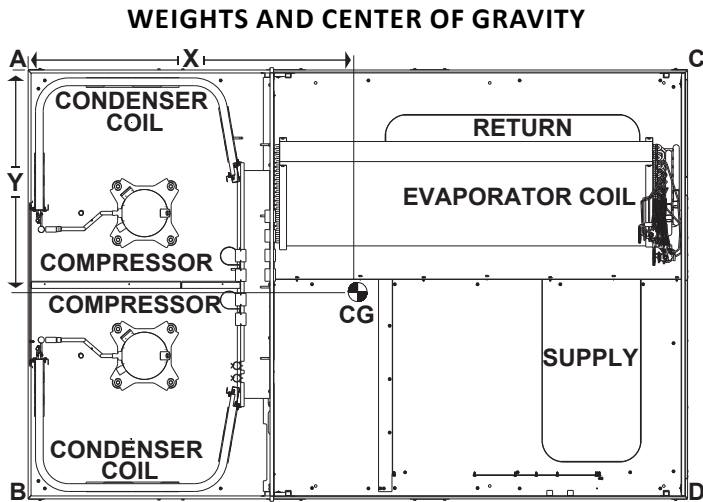


**Important: If using bottom discharge with roof curb, ductwork should be attached to the curb prior to installing the unit. Ductwork dimensions are shown in Roof Curb Installation Instructions.**

Refer to the Roof Curb Installation Instructions for proper curb installation. Curbing must be installed in compliance with the National Roofing Contractors Association Manual.



To assist in determining rigging requirements, unit weights and center of gravity are shown as follows:



Corner and center of gravity locations

**Note: Unit should be lifted at a point above center of gravity.**

DHG WEIGHTS (lbs)				
Data	7.5T	8.5T	10T	12.5T
Corner weight- A	453	399	328	304
Corner weight- B	194	233	313	366
Corner weight- C	121	206	302	334
Corner weight- D	485	430	353	306
Unit operating weight	1253	1268	1296	1310
Unit shipping weight	1319	1327	1353	1368
X Center (inches)	46.5	46.6	45.2	46.4
Y Center (inches)	30.5	31.1	31.7	29.8

The numbers may slightly vary depending on installed options.

 **CAUTION**

**TO PREVENT SEVERE DAMAGE TO THE BOTTOM OF THE UNIT, DO NOT FORK LIFT UNIT AFTER WOOD STRUTS HAVE BEEN REMOVED.**

Bring condenser end of unit into alignment with the curb first. Lower unit carefully onto roof mounting curb. When a rectangular cantilever curb is used, care should be taken to center the unit. Check for proper alignment and orientation of supply and return openings with duct.


**RIGGING REMOVAL**

 **CAUTION**


**TO PREVENT DAMAGE TO THE UNIT, DO NOT ALLOW CRANE HOOKS AND SPREADER BARS TO REST ON THE ROOF OF THE UNIT.**

Remove spreader bars, lifting cables and other rigging equipment.

**ELECTRICAL WIRING**


 **WARNING**

**HIGH VOLTAGE!**  
**DISCONNECT ALL POWER AND LOCK OUT/ TAG OUT BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**



**! WARNING**

**HIGH VOLTAGE!**  
**TO AVOID PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, DO NOT TAMPER WITH FACTORY WIRING. THE INTERNAL POWER AND CONTROL WIRING OF THESE UNITS ARE FACTORY-INSTALLED AND HAVE BEEN THOROUGHLY TESTED PRIOR TO SHIPMENT. CONTACT YOUR LOCAL REPRESENTATIVE IF ASSISTANCE IS REQUIRED.**



**! CAUTION**

**TO PREVENT DAMAGE TO THE WIRING, PROTECT WIRING FROM SHARP EDGES. FOLLOW NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES AND ORDINANCES. DO NOT ROUTE WIRES THROUGH REMOVABLE ACCESS PANELS.**

**! CAUTION**

**CONDUIT AND FITTINGS MUST BE WEATHER-TIGHT TO PREVENT WATER ENTRY INTO THE BUILDING.**

For unit protection, use a fuse or HACR circuit breaker that is in excess of the circuit ampacity, but less than or equal to the maximum overcurrent protection device. **DO NOT EXCEED THE MAXIMUM OVERCURRENT DEVICE SIZE SHOWN ON UNIT DATA PLATE.**

All line voltage connections must be made through weatherproof fittings. All exterior power supply and ground wiring must be in approved weatherproof conduit.

The main power supply wiring to the unit and low voltage wiring to accessory controls must be done in accordance with these instructions, the latest edition of the National Electrical Code (ANSI/NFPA 70), and all local codes and ordinances.

The unit is factory wired for the voltage shown on the unit's data plate.

**NOTE: If supply voltage is 208V, lead on primary of transformer(s) must be moved from the 240V to the 208V tap. Refer to wiring diagram on unit for details.**

Main power wiring should be sized for the minimum circuit ampacity shown on the unit's database. Size wires in accordance with the ampacity tables in Article 310 of the National Electrical Code. If long wires are required, it may be necessary to increase the wire size to prevent excessive voltage drop. Wires should be sized for a maximum of 3% voltage drop.

**! CAUTION**

**TO AVOID RISK OF PROPERTY DAMAGE, PERSONAL INJURY OR FIRE, USE ONLY COPPER CONDUCTORS.**

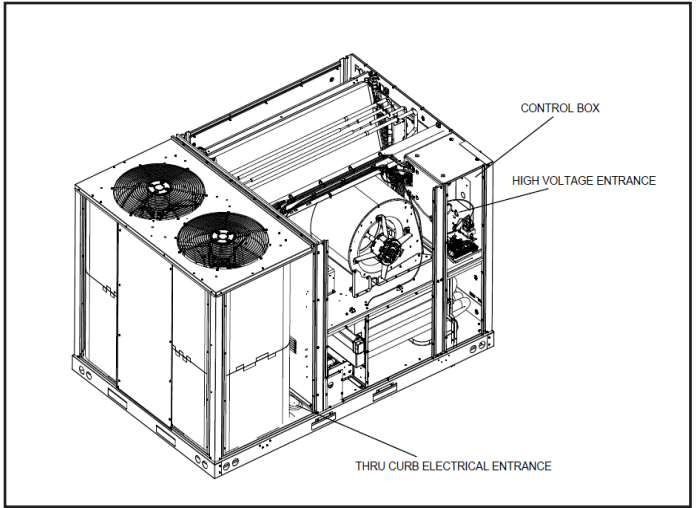
**! CAUTION**

**TO PREVENT IMPROPER AND DANGEROUS OPERATION DUE TO WIRING ERRORS, LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. VERIFY PROPER OPERATION AFTER SERVICING.**

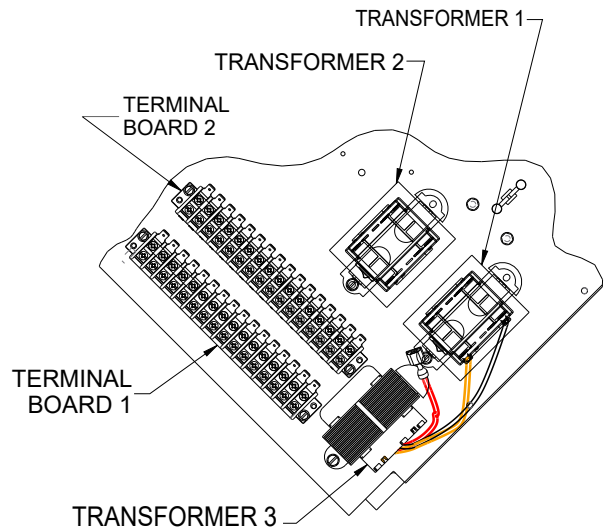
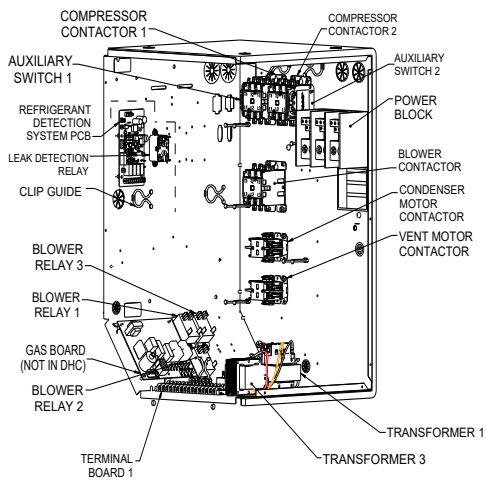
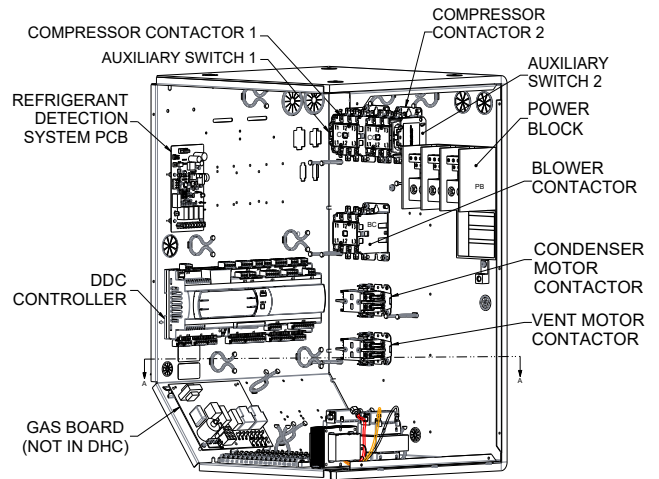
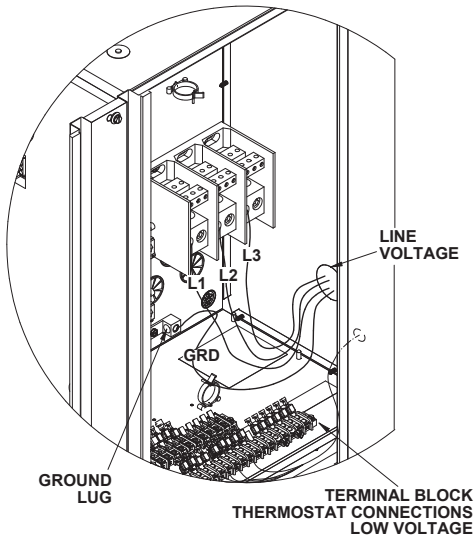
**NOTE: A weather-tight disconnect switch, properly sized for the unit total load, must be field or factory installed. An external field supplied disconnect may be mounted on the exterior panel.**

Ensure the data plate is not covered by the field-supplied disconnect switch.

- Some disconnect switches are not fused. Protect the power leads at the point of distribution in accordance with the unit data plate.
- The unit must be electrically grounded in accordance with local codes or, in the absence of local codes, with the latest edition of the National Electrical Code ANSI/NFPA 70, and/or the Canadian Electrical Code, CSA C22.1, Part 1. A ground lug is provided for this purpose. Do not use the ground lug for connecting a neutral conductor.
- Connect power wiring to the electrical power block located within the main control box.



Power and low voltage block connections



DDC Control Box

**NOTE :** depending on the options installed, the location of the components may vary in some models.

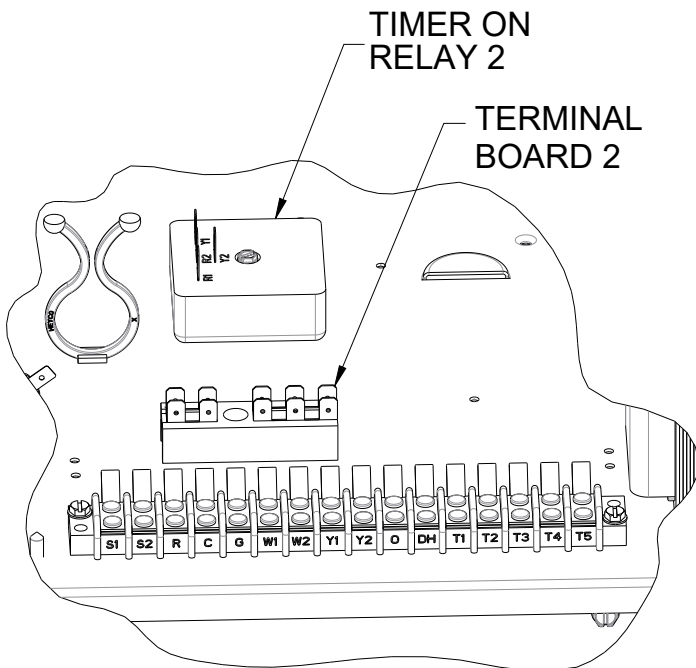
**⚠ WARNING**

**FAILURE OF UNIT DUE TO OPERATION ON IMPROPER LINE VOLTAGE OR WITH EXCESSIVE PHASE UNBALANCE CONSTITUTES PRODUCT ABUSE AND IS NOT COVERED BY THE WARRANTY AND MAY CAUSE SEVERE DAMAGE TO THE UNIT ELECTRICAL COMPONENTS.**

**AREAS WITHOUT CONVENIENCE OUTLET**

It is recommended that an independent 115V power source be brought to the vicinity of the roof top unit for portable lights and tools used by the service mechanic.

**NOTE:** Refer to local codes for requirements. These outlets can also be factory installed.

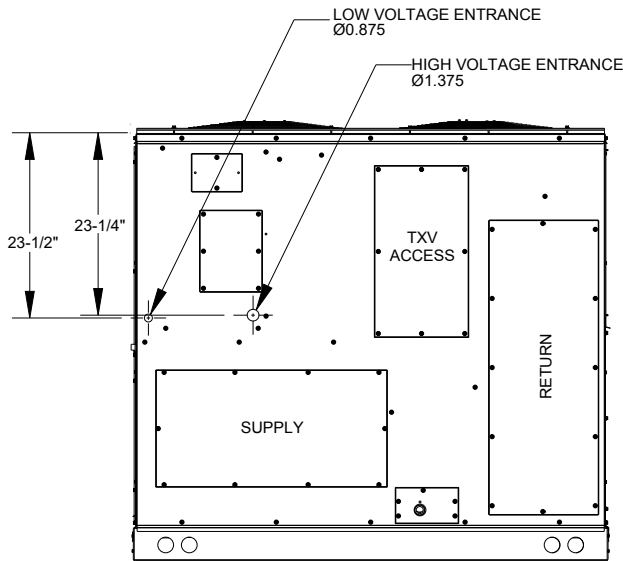


Thermostat Control Box

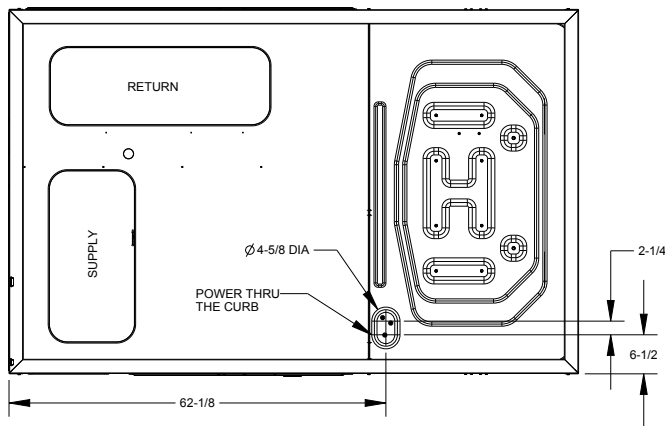
## UNITS INSTALLED ON ROOF TOPS

Main power and low voltage wiring may enter the unit through the condenser end of unit or through the roof curb. Install conduit connectors at the designated entrance locations. External connectors must be weatherproof. All holes in the unit base must be sealed (including those around conduit nuts) to prevent water leakage into building. All required conduit and fittings are to be field supplied.

Supply voltage to roof top unit must not vary by more than 10% of the value indicated on the unit data plate. Phase voltage unbalance must not exceed 2%. Contact your local power company for correction of improper voltage or phase unbalance.



Duct Panel



Electrical Entrance and Thru Curb

(bottom view of unit)

Through the Base Pan Electrical Connection

Kit part number: TTBACKHE02

## LOW VOLTAGE CONTROL WIRING

1. A 24V thermostat must be installed for unit operation unless the DDC control option has been installed. (Refer to DDC QUICKSTART GUIDE). It may be purchased with the unit or field-supplied. Thermostats may be programmable or electromechanical as required.

2. Locate thermostat or remote sensor in the conditioned space where it will sense average temperature. Do not locate the device where it may be directly exposed to supply air, sunlight or other sources of heat. Follow installation instructions packaged with the thermostat.
3. Use #18 AWG wire for 24V control wiring runs not exceeding 75 feet. Use #16 AWG wire for 24V control wiring runs not exceeding 125 feet. Use #14 AWG wire for 24V control wiring runs not exceeding 200 feet. Low voltage wiring may be National Electrical Code (NEC) Class 2 where permitted by local codes.
4. Route thermostat wires from sub-base terminals to the unit. Control wiring should enter through the duct panel opening or through curb indicated in "Electrical Entrance" figure. Connect thermostat and any accessory wiring to low voltage terminal block TB1 in the main control box. The hole on the duct panel that control wires enter through must be sealed to prevent water leakage into the unit.
5. For two-stage heating operation, remove the factory installed jumper connecting W1 and W2 terminals on terminal block.

**NOTE:** Field-supplied conduit may need to be installed depending on unit/curb configuration. Use #18 AWG solid conductor wire whenever connecting thermostat wires to terminals on sub-base. DO NOT use larger than #18 AWG wire. A transition to #18 AWG wire may be required before entering thermostat sub-base.

**NOTE:** Refer to unit wiring diagrams for thermostat hookups.

## GAS SUPPLY PIPING



### WARNING

**TO PREVENT PERSONAL INJURY OR DEATH DUE TO IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE, REFER TO THIS MANUAL. FOR ADDITIONAL ASSISTANCE OR INFORMATION, CONSULT A QUALIFIED INSTALLER, SERVICER AGENCY OR THE GAS SUPPLIER.**

**IMPORTANT NOTE:** This unit is factory set to operate on natural gas at the altitudes shown on the rating plate.



### WARNING

**TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH WHEN EITHER USING PROPANE GAS ALONE OR AT HIGHER ALTITUDES, OBTAIN AND INSTALL THE PROPER CONVERSION KIT(S). FAILURE TO DO SO CAN RESULT IN UNSATISFACTORY OPERATION AND/OR EQUIPMENT DAMAGE. HIGH ALTITUDE KITS ARE FOR U.S. INSTALLATIONS ONLY AND ARE NOT APPROVED FOR USE IN CANADA.**

The rating plate is stamped with the model number, type of gas and gas input rating. Make sure the unit is equipped to operate on the type of gas available. Conversion to propane (LP) gas is permitted with the use of the factory authorized conversion kit (see the unit Technical Manual for the appropriate kit). For High Altitude derates, refer to the latest edition of the National Fuel Gas Code NFPA 54/ANSI Z223.1 or National Standard of Canada, Natural Gas and Propane Installation Code, CSA B149.1.

INLET GAS PRESSURE	
NATURAL	Min. 5.0" W.C., Max. 10.0" W.C.
PROPANE	Min. 11.0" W.C., Max. 14.0" W.C.

Inlet gas pressure must not exceed maximum value shown in table above.

The minimum supply pressure should not vary from that shown in the table above because this could prevent the unit from having dependable ignition. In addition, gas input to the burners must not exceed the rated input shown on the rating plate. Overfiring of the unit could result in premature heat exchanger failure.

**PIPING**

**IMPORTANT NOTE: To avoid possible unsatisfactory operation or equipment damage due to under firing of equipment, do not undersize the natural/propane gas piping from the meter/tank to the unit. When sizing a trunk line, include all appliances on that line that could be operated simultaneously.**

The gas line installation must comply with local codes, or in the absence of local codes, with the latest edition of the National Fuel Gas Code NFPA 54 / ANSI Z223.1.

**NATURAL GAS CONNECTION**

Natural Gas Capacity of Pipe in Cubic Feet of Gas Per Hour (CFH)					
Length of Pipe in Feet	Nominal Black Pipe Size (inches)				
	1/2	3/4	1	1 1/4	1 1/2
10	132	278	520	1050	1600
20	92	190	350	730	1100
30	73	152	285	590	980
40	63	130	245	500	760
50	56	115	215	440	670
60	50	105	195	400	610
70	46	96	180	370	560
80	43	90	170	350	530
90	40	84	160	320	490
100	38	79	150	305	460

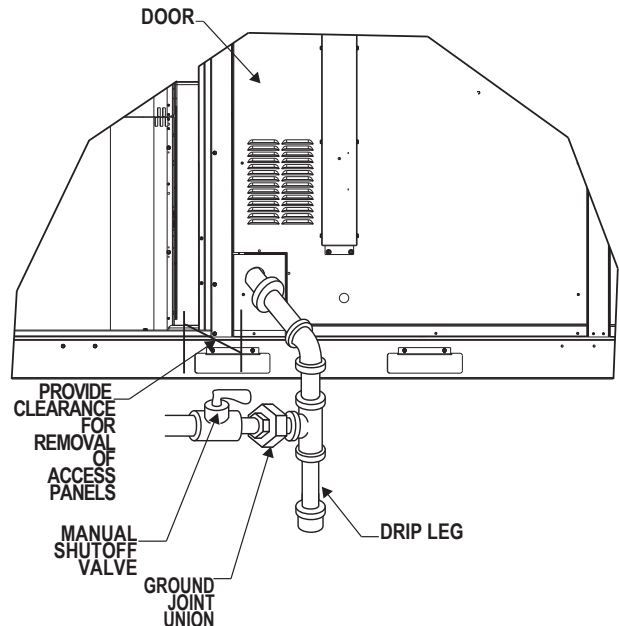
Pressure= .50 PSIG or less and Pressure Drop of 0.3" W.C.  
(Based on 0.60 Specific Gravity Gas)

$$CFH = \frac{BTUH \text{ Furnace Input}}{\text{Heating Value of Gas (BTU/Cubic Foot)}}$$

Refer to the Proper Piping Practice drawing for the general layout at the unit. The following rules apply:

1. Use black iron pipe and fittings for the supply piping. The use of a flex connector and/or copper piping is permitted as long as it is in agreement with local codes.

2. Use pipe joint compound on male threads only. Pipe joint compound must be resistant to the action of the fuel used.
3. Use ground joint unions.
4. Install a drip leg to trap dirt and moisture before it can enter the gas valve. The drip leg must be a minimum of three inches long.
5. Use two pipe wrenches when making connection to the gas valve to keep it from turning.
6. Install a manual shut-off valve in a convenient location (within six feet of unit) between the meter and the unit.
7. Tighten all joints securely.
8. The unit must be connected to the building piping by one of the following methods:
  - Rigid metallic pipe and fittings
  - Semi-rigid metallic tubing and metallic fittings (Aluminum alloy tubing must not be used in exterior locations).
  - Listed gas appliance connectors used in accordance with the terms of their listing that are completely in the same room as the equipment. Always use a new listed connector.
  - In the prior two methods above the connector or tubing must be protected from physical and thermal damage. Aluminum alloy tubing and connectors must be coated to protect against external corrosion when in contact with masonry, plaster or insulation or are subject to repeated wettings by liquids (water - not rain water, detergents or sewage).



Proper piping practice

**NOTE:** The unit gas supply entrance is factory sealed with plugs. Keep plugs in place until gas supply is ready to be installed. Once ready, replace the plugs with the supplied grommets and install gas supply line.



## GAS PIPING CHECKS



### CAUTION

**TO PREVENT PROPERTY DAMAGE OR PERSONAL INJURY DUE TO FIRE, THE FOLLOWING INSTRUCTIONS MUST BE PERFORMED REGARDING GAS CONNECTIONS AND PRESSURE TESTING:**

- **THE UNIT AND ITS GAS CONNECTIONS MUST BE LEAK TESTED BEFORE PLACING IN OPERATION. BECAUSE OF THE DANGER OF EXPLOSION OR FIRE, NEVER USE A MATCH OR OPEN FLAME TO TEST FOR LEAKS. NEVER EXCEED SPECIFIED PRESSURES FOR TESTING. HIGHER PRESSURE MAY DAMAGE GAS VALVE AND CAUSE OVERFIRING WHICH MAY RESULT IN PREMATURE HEAT EXCHANGER FAILURE.**
- **THIS UNIT AND ITS SHUT-OFF VALVE MUST BE DISCONNECTED FROM THE GAS SUPPLY DURING ANY PRESSURE TESTING OF THAT SYSTEM AT TEST PRESSURES IN EXCESS OF ½ PSIG (3.48 kPa).**
- **THIS UNIT MUST BE ISOLATED FROM THE GAS SUPPLY SYSTEM BY CLOSING ITS MANUAL SHUT-OFF VALVE DURING ANY PRESSURE TESTING OF THE GAS SUPPLY PIPING SYSTEM AT TEST PRESSURES EQUAL TO OR LESS THAN ½ PSIG (3.48 kPa).**



### WARNING

**TO AVOID PROPERTY DAMAGE OR PERSONAL INJURY, BE SURE THERE IS NO OPEN FLAME IN THE VICINITY DURING AIR BLEEDING.**

There will be air in the gas supply line after testing for leaks on a new installation. Therefore, the air must be bled from the line by loosening the ground joint union until pure gas is expelled. Tighten union and wait for five minutes until all gas has been dissipated in the air. Be certain there is no open flame in the vicinity during air bleeding procedure. The unit is placed in operation by closing the main electrical disconnect switch for the unit.

## PROPANE GAS INSTALLATIONS



### WARNING

**TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO FIRE OR EXPLOSION CAUSED BY A PROPANE GAS LEAK, INSTALL A GAS DETECTING WARNING DEVICE. SINCE RUST CAN REDUCE THE LEVEL OF ODORANT IN PROPANE GAS, A GAS DETECTING WARNING DEVICE IS THE ONLY RELIABLE WAY TO DETECT A PROPANE GAS LEAK. CONTACT A LOCAL PROPANE GAS SUPPLIER ABOUT INSTALLING A GAS DETECTING WARNING DEVICE.**

**IMPORTANT NOTE:** Propane gas conversion kits must be installed to convert units to propane gas.

All propane gas equipment must conform to the safety standards of NFPA 58 - Liquefied Petroleum Gas Code.

For satisfactory operation, propane gas pressure must be within 9.7 - 10.3 inches w.c. for high fire at the manifold with all gas appliances in operation. Maintaining proper gas pressure depends on three main factors:

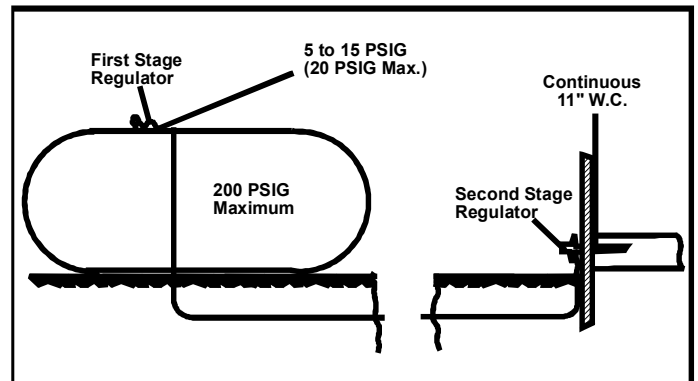
1. Vaporization rate, which depends on (a) temperature of the liquid, and (b) wetted surface area of the container or containers.
2. Proper pressure regulation.
3. Pressure drop in lines between regulators, and between second stage regulator and the appliance. Pipe size required will depend on length of pipe run and total load of all appliances.

### TANKS AND PIPING

Complete information regarding tank sizing for vaporization, recommended regulator settings and pipe sizing is available from most regulator manufacturers and propane gas suppliers.

Since propane gas will quickly dissolve white lead or most standard commercial compounds, special pipe dope must be used. Shellac base compounds resistant to the actions of liquefied petroleum gases such as Gasolac®, Stalactic®, Clyde's® or John Crane® are satisfactory.

See the following figure for typical propane gas piping.



Typical propane gas piping

### ROOF TOP LOCATION AND INSTALLATION

The gas supply piping location and installation for roof top units must be in accordance with local codes or, in the absence of local codes, with ordinances of the latest edition of the National Fuel Gas Code ANSI Z223.1/NFPA 54.

A manual gas shut off valve must be field installed external to the roof top unit. In addition, a drip leg must be installed near the inlet connection. A ground joint union connection is required between the external shut off valve and the unit connection to the gas valve to permit removal of the burner assembly for servicing.

1. Route gas piping to unit so that it does not interfere with the removal of access panels. Support and align piping to prevent strains or misalignment of the manifold assembly.

- All units are furnished with standard female 1/2" NPT pipe connections. The size of the gas supply piping to the unit must be based on length of run, number of units on the system, gas characteristics, BTU requirement and available supply pressure. All piping must be done in accordance with local codes or, in the absence of local codes, with the latest edition of the National Fuel Gas Code ANSI Z223.1/NFPA 54.

**NOTE: The gas connection size at the unit does NOT establish the size of the supply line.**

- These units are designed for either natural or propane (LP) gas and are specifically constructed at the factory for natural gas. The fuels are NOT interchangeable. However, the furnace can be converted in the field from natural gas to LP gas with the appropriate factory kit (see unit Technical Manual for the appropriate kit). Only a qualified contractor, experienced with natural and propane gas systems, should attempt conversion. Kit instructions must be followed closely to assure safe and reliable unit operation.
- With all units on a common line operating under full fire, natural gas main supply pressure should be adjusted to approximately 7.0" w.c., measured at the unit gas valve. If the gas pressure at the unit is greater than 10.0" w.c., the contractor must furnish and install an external type positive shut off service pressure regulator. The unit will not function satisfactorily if supply gas pressure is less than 5.0" w.c. or greater than 10.0" w.c..

**NOTE: A minimum horizontal distance of 48" between the regulator and the furnace flue discharge is required.**

- With all units on a common line operating under full LP gas main supply pressure should be at least 11.0" w.c. and must be no greater than 13.0" w.c., measured at the unit gas valve. Unit will not function satisfactorily if supply gas pressure is less than 11.0" w.c. or greater than 13.0" w.c..
- All pipe connections should be sealed with a pipe thread compound, which is resistant to the fuel used with the furnace. A soapy water solution should be used to check all joints for leaks. A tap is located on the entering side of the gas valve for test gauge connection to measure supply (main) gas pressure. Another tap is provided on the manifold side of the gas valve for checking manifold pressure.



## CAUTION

**THIS UNIT MUST BE ISOLATED FROM THE GAS SUPPLY PIPING SYSTEM BY CLOSING ITS INDIVIDUAL MANUAL SHUTOFF VALVE DURING ANY PRESSURE TESTING EQUAL TO OR LESS THAN 1/2 PSIG.**

- There must be no obstruction to prevent the flow of combustion and ventilating air. A vent stack is not required and must never be used. The power venter will supply an adequate amount of combustion air as long as the air passageways are kept free of any obstructions and the recommended external unit clearances are maintained.

## CIRCULATING AIR AND FILTERS

### DUCTWORK

The supply duct from the unit through a wall may be installed without clearance. However, minimum unit clearances must be maintained (see "Clearances" section). The supply duct should be provided with an access panel large enough to inspect the air chamber downstream of the heat exchanger. A cover should be tightly attached to prevent air leaks.

False ceilings or drop ceilings may be used as a return air plenum. Note: adequate return grills have to be supplied for each room for proper return for that space.

Ductwork dimensions are shown in the roof curb installation manual.

If desired, supply and return duct connections to the unit may be made with flexible connections to reduce possible unit operating sound transmission.

## CONDENSATE DRAIN CONNECTION

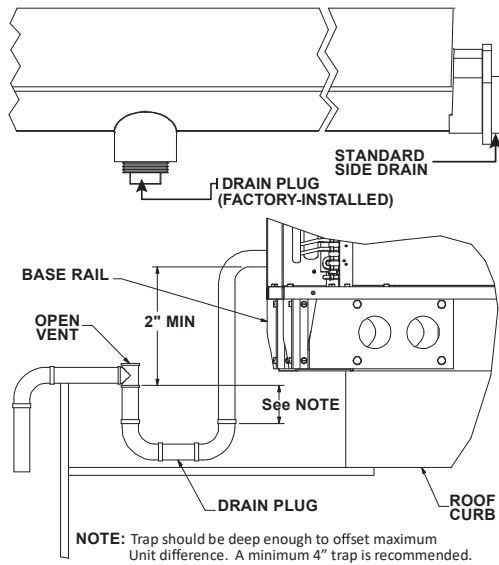
### CONDENSATE DRAIN CONNECTION

A 3/4" female NPT drain connection is supplied on the end of the unit and bottom of the drain pan for condensate piping. An external trap must be installed for proper condensate drainage. Hand tighten drain fitting to the drain connection.



## WARNING

**THIS UNIT AND ITS INDIVIDUAL SHUTOFF VALVE MUST BE DISCONNECTED FROM THE GAS SUPPLY SYSTEM DURING ANY PRESSURE TESTING OF THAT SYSTEM AT TEST PRESSURES IN EXCESS OF 1/2 PSIG (13.8" w.c.).**



### Drain Connection

Install condensate drain trap as shown. Use 3/4" drain line and fittings or larger. Do not operate without trap.

### HORIZONTAL DRAIN

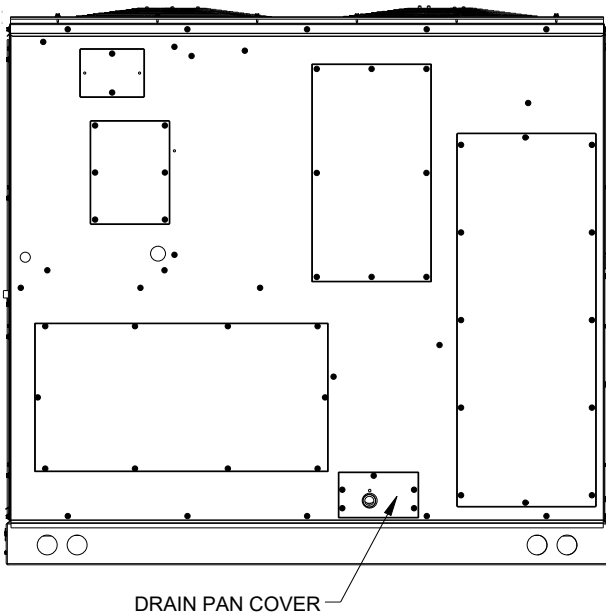
Drainage of condensate directly onto the roof may be acceptable; refer to local code. It is recommended that a small drip pad of either stone, mortar, wood or metal be provided to prevent any possible damage to the roof.

### VERTICAL DRAIN

To use the bottom drain connection, remove the drain plug from the bottom connection and install it in the horizontal connection.

### CLEANING

Due to the fact that drain pans in any air conditioning unit will have some moisture in them, algae and fungus will grow due to airborne bacteria and spores. Periodic cleaning is necessary to prevent this build-up from plugging the drain. To remove drain pan for cleaning, remove the drain pan cover first, then slide out the drain pan.



## STARTUP, ADJUSTMENTS, AND CHECKS

### WARNING

#### HIGH VOLTAGE!

**TO AVOID PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, BOND THE FRAME OF THIS UNIT TO THE BUILDING ELECTRICAL GROUND BY USE OF THE GROUNDING TERMINAL PROVIDED OR OTHER ACCEPTABLE MEANS. DISCONNECT ALL POWER AND LOCK OUT / TAG OUT BEFORE SERVICING OR INSTALLING THIS UNIT.**



### PRE-STARTUP INSTRUCTIONS - GENERAL

### CAUTION

**TO PREVENT PROPERTY DAMAGE OR PERSONAL INJURY, DO NOT START THE UNIT UNTIL ALL NECESSARY PRE-CHECKS AND TESTS HAVE BEEN PERFORMED.**

Prior to the beginning of Startup, Adjustments, and Checks procedures, the steps within the following warning should be completed in the building.

### WARNING

#### MOVING MACHINERY HAZARD!

**TO PREVENT POSSIBLE PERSONAL INJURY OR DEATH, DISCONNECT POWER TO THE UNIT AND PADLOCK IN THE "OFF" POSITION BEFORE SERVICING FANS.**

This unit is equipped with an electronic ignition device to automatically light the main burners. It also has a power vent blower to exhaust combustion products.

On new installations, or if a major component has been replaced, the operation of the unit must be checked.

Check unit operation as outlined in the following instructions. If any sparking, odors, or unusual sounds are encountered, shut off electrical power and recheck for wiring errors, or obstructions in or near the blower motors. **Duct covers must be removed before operating unit.**

The Startup, Adjustments, and Checks procedure provides a step-by-step sequence which, if followed, will assure the proper startup of the equipment in the minimum amount of time. Air balancing of duct system is not considered part of this procedure. However, it is an important phase of any air conditioning system startup and should be performed upon completion of the Startup, Adjustments, and Checks procedure. The Startup, Adjustments, and Checks procedure at outside ambients below 55°F should be limited to a readiness check of the refrigeration system with the required final check and calibration left to be completed when the outside ambient rises above 55°F.

## TEMPORARY HEATING OR COOLING

If the unit is to be used for temporary heating or cooling, a "Startup, Adjustments, and Checks" must first be performed in accordance with this manual. Damage or repairs due to failure to comply with these requirements are not covered under the warranty. **After** the machines are used for temporary heating or cooling, inspect the coils, fans, and motors for unacceptable levels of construction dust and dirt and install new filters.

## CONTRACTOR RESPONSIBILITY

The installing contractor must be certain that:

- All supply and return air ductwork is in place, properly sealed, and corresponds with installation instructions.
- All thermostats and sensors are mounted and wired in accordance with installation instructions.
- All electric power, all gas, and the condensate drain installation have been made to each unit on the job. These main supply lines must be functional and capable of operating all units simultaneously.
- Requirements are met for venting and combustion air.
- Air filters are in place.
- Input rate and temperature rise are adjusted per rating plate.

## ROOF CURB INSTALLATION CHECK

Inspect the roof curb for correct installation. The unit and curb assembly should be level. Inspect the flashing of the roof mounting curb to the roof, especially at the corners, for good workmanship. Also check for leaks around gaskets. Note any deficiencies in a separate report and forward to the contractor.

## OBSTRUCTIONS, FAN CLEARANCE AND WIRING

Remove any extraneous construction and shipping materials that may be found during this procedure. Rotate all fans manually to check for proper clearances and that they rotate freely. Check for bolts and screws that may have jarred loose during shipment to the job site. Re-tighten if necessary. Re-tighten all electrical connections.

## FIELD DUCT CONNECTIONS

Verify that all duct connections are tight and that there is no air bypass between supply and return.

## FILTER SECTION CHECK

Remove filter section access panels and check that filters are properly installed. Note airflow arrows on filter frames.

## PRE-STARTUP PRECAUTIONS

It is important to your safety that the unit has been properly grounded during installation. Check ground lug connection in main control box for tightness prior to closing circuit breaker or disconnect switch. Verify that supply voltage on line side of disconnect agrees with voltage on unit identification plate and is within the utilization voltage range as indicated in Appendix B Electrical Data.

**System Voltage** - That nominal voltage value assigned to a circuit or system for the purpose of designating its voltage class.

**Nameplate Voltage** - That voltage assigned to a piece of equipment for the purpose of designating its voltage class and for the purpose of defining the minimum and maximum voltage at which the equipment will operate.

**Utilization Voltage** - The voltage of the line terminals of the equipment at which the equipment must give fully satisfactory performance. Once it is established that supply voltage will be maintained within the utilization range under all system conditions, check and calculate if an unbalanced condition exists between phases. Calculate percent voltage unbalance as follows.

### THREE PHASE MODELS ONLY

$$3) \text{ PERCENT VOLTAGE UNBALANCE} = 100 \times \frac{2) \text{ MAXIMUM VOLTAGE DEVIATIONS FROM AVERAGE VOLTAGE}}{1) \text{ AVERAGE VOLTAGE}}$$

HOW TO USE THE FORMULA:

EXAMPLE: Line to Neutral Voltage of 220, 216, and 213

1) Average Voltage =  $220+216+213=649 / 3 = 216$

2) Maximum Voltage Deviations from Average Voltage =  $220 - 216 = 4$

3) Percent Voltage Unbalance =  $100 \times \frac{4}{216} = \frac{400}{216} = 1.8\%$

Percent voltage unbalance MUST NOT exceed 2%.

## CONTROL VOLTAGE CHECK

Close the disconnect switch to energize control transformer. Check primary and secondary voltage (24V) of control transformer.

## AIR FLOW ADJUSTMENTS

When the final adjustments are complete, the current draw of the motor should be checked and compared to the full load current rating of the motor. The amperage must not exceed the service factor stamped on the motor nameplate. The total airflow must not be less than that required for operation of the furnace.

If an economizer is installed, check the unit operating balance with the economizer at full outside air and at minimum outside air.

**NOTE:** Never run CFM below 300 CFM per ton evaporator freezing or poor unit performance is possible.

The unit has one set of taps for cooling (T1-T5) and a second set of taps for heating (T6-T10). When Heat is called TB1-W1 will also call TB1-DH activating the second set of taps T6-T10. If cooling and heating is called at the same time heating will take priority and T6-T10 will be chosen by default. Taps T1 and T2 are for low cool operation (cooling stage 1) and Taps T3 to T5 are for high cool operation (cooling stage 2). Taps T6 and T7 are for low heat operation (heating stage 1) and Taps T7 to T10 are for high heat operation (heating stage 2).

Taps are selected by changing the position of the low voltage leads on the terminal block TB1. Refer to Appendix A for blower performance at each speed tap.

Fan speed for G (Fan) is fixed at TB1-T1 and cannot be moved.

Low Cool Y1, Yellow (YL) is movable and set to TB1-T1.

Low Heat W1, White (WH) is movable and set to TB1-T6.

High Cool Y2, Purple (PU) is movable and set to TB1-T3.

High Heat W2, Brown (BR) is movable and set to TB1-T8.

These wires can be moved together or separately and placed on any unoccupied terminal.

Note: YL can be moved to tap T2 as long as YL does not share the tap with PU. WH can be moved to tap T7 as long as WH does not share the tap with BR.

If more than one lead is energized simultaneously, the motor will run at the higher numerical speed tap.

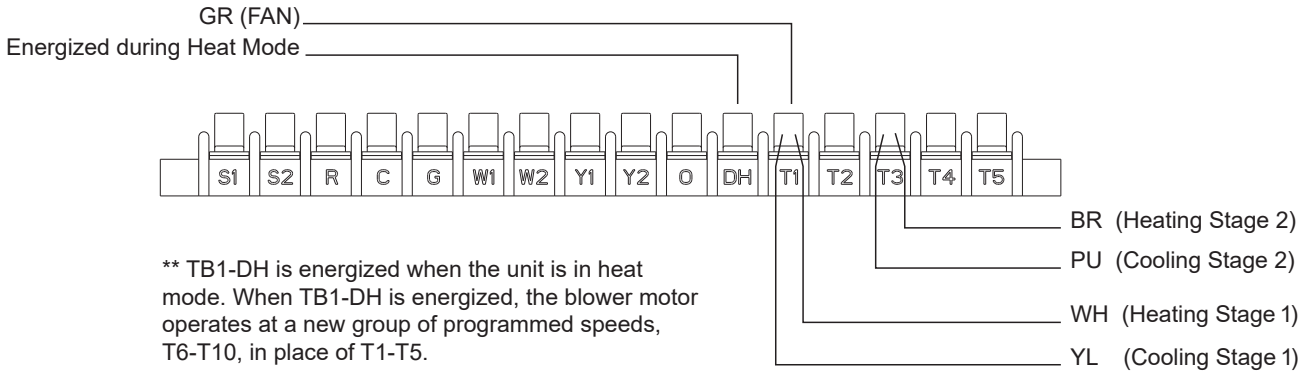
If high cool operation is set at Tap 4 or T5, low cool operation must be set at T2.

If high heat operation is set at T9 or T10, low heat operation must be set at T7.

**Note:** On units with DDC controls installed, air flow adjustments are made through settings in the DDC controller and speed tap adjustments are not required. Refer to the DDC User Manual for details on making airflow adjustments. Individual settings are available for Fan Only, Low Stage Cooling, High Stage Cooling, Low Stage Heating, and High Stage Heating which can be adjusted as needed to meet airflow requirements.



### DHG Model Wiring



- Move YELLOW (YL) wire from TB1-T1 to T2 to change blower speed during cooling stage 1 operation. (Do not move wires YL and PU to the same taps)
- Move WHITE (WH) wire from TB1-T6 to T7 to change blower speed during heating stage 1 operation. (Do not move wires WH and BR to the same taps)
- Move PURPLE (PU) wire from TB1-T3 to T4 or T5 to change blower speed during cooling stage 2 operation. (Do not move wires YL and PU to the same taps)
- Move BROWN (BR) wire from TB1-T8 to T9 or T10 to change blower speed during heating stage 2 operation. (Do not move wires WH and BR to the same taps)

### DHG OPERATION and WIRE RANGE CHART

DHG OPERATION							WIRE RANGE									
AC	G	Y1	Y2	W1	W2	DH	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Fan Only	X						GR									
Cooling Mode LO	X	X					● →									
Cooling Mode HI	X	X	X					● →								
Heating Mode Lo	X			X							● →					
Heating Mode HI	X			X	X									● →		

X= 24V Signal

● → = Range of AVAILABLE TAPS

For wire color information and placement, view DHG Model Wiring

### ELECTRICAL INPUT CHECK


Make preliminary check of evaporator fan ampere draw and verify that motor nameplate amps are not exceeded. A final check of amp draw should be made upon completion of air balancing of the duct system (see Appendix B).\


## GAS SYSTEM CHECK

### PRE-OPERATION CHECKS

1. Close the manual gas valve external to the unit.
2. Turn off the electrical power supply to the unit.
3. Set the room thermostat to its lowest possible setting.
4. Remove the heat exchanger door on the side of the unit by removing screws.
5. This unit is equipped with an ignition device which automatically lights the main burner. DO NOT try to light burner by any other method.
6. Move the gas control valve switch to the OFF position.
7. Wait five minutes to clear out any gas.
8. Smell for gas, including near the ground. This is important because some types of gas are heavier than air. If you have waited five minutes and you do smell gas, immediately follow the warning WHAT TO DO IF YOU SMELL GAS on page 2 of this manual. If having waited for five minutes and no gas smell is noted, move the gas control valve switch to the ON position.
9. Replace the heat exchanger door on the side of the unit.
10. Open the manual gas valve external to the unit.
11. Turn on the electrical power supply to the unit.
12. Set the thermostat to desired setting.

### GAS SUPPLY PRESSURES & REGULATOR ADJUSTMENTS

 <b>WARNING</b>
<p><b>SHOULD OVERHEATING OCCUR OR THE GAS SUPPLY FAIL TO SHUT OFF, TURN OFF THE MANUAL GAS SHUTOFF VALVE EXTERNAL TO THE UNIT BEFORE TURNING OFF THE ELECTRICAL SUPPLY.</b></p>

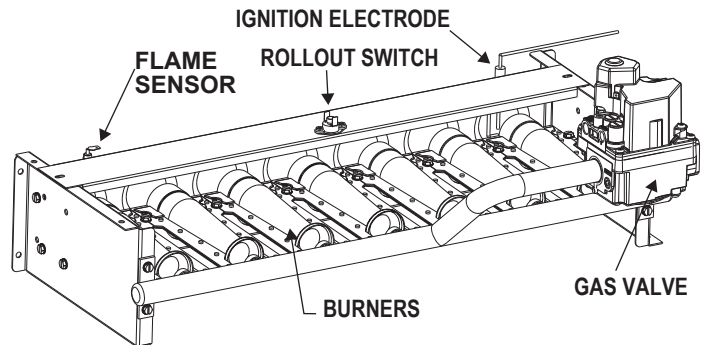
 <b>WARNING</b>
<p><b>TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, DO NOT FIRE GAS UNIT WITH FLUE BOX COVER REMOVED.</b></p>

**NOTE:** Except during brief periods when gas pressures are being measured by qualified service personnel, the furnace access panel must always be secured in place when the furnace is in operation. An inspection port in the access panel is provided to monitor the flame.

The first step in checking out the gas-fired furnace is to test the gas supply piping to the unit for tightness and purge the system of air using methods outlined in the latest edition of the National Fuel Gas Code ANSI Z223.1 / NFPA 54. Verify that the disconnect switch is in the "OFF" position. A soapy water solution should be used to check for gas leaks. Since the unit is subject to considerable jarring during shipment, it is extremely important that all gas connections and joints be tested for tightness. Gas piping downstream from the unit inlet should be checked for leaks during the subsequent sequence check.

The supply gas pressure should be adjusted to 7.0" w.c. on natural gas and 11" to 13.0" w.c. on LP gas with the gas burners operating. If there is more than one unit on a common gas line, the pressures should be checked with all units under full fire. A supply pressure tap is provided on the upstream side of the gas valve. A manifold pressure tap is provided on the manifold side of the gas valve. The normal manifold pressure for High fire is 3.5" w.c. on natural gas and 10.0" w.c. for propane gas. Low fire natural gas 2.0" w.c., 6.0" w.c. low fire propane gas. Minimum gas supply pressure is 5.0" w.c. for natural gas and 11.0" w.c. for propane gas.

Do not attempt adjustment of the built-in pressure regulator unless the supply pressure is at least 5.0" w.c. on natural gas or 11.0" w.c. on propane gas.



Burner and Manifold Assembly

TON	MODEL	HIGH FIRE RATE BTU / HR	No. of BURNERS	N.G. ORIFICE DRILL #	L.P. ORIFICE DRILL #
7.5	DHG090	130,000	5	41	54
		180,000	6	37	53
		225,000	7	36	52
8.5	DHG102	130,000	5	41	54
		180,000	6	37	53
		225,000	7	36	52
10	DHG120	130,000	5	41	54
		180,000	6	37	53
		240,000	7	34	51
12.5	DHG150	130,000	5	41	54
		180,000	6	37	53
		240,000	7	34	51

Heat Exchanger and Burner Orifice Specifications

**NOTE: Gas appliances located more than 2000 feet above sea level must be derated 4% per 1000 feet of total elevation and that variance in gas heating value and specific gravity require change in manifold pressure to obtain rating, it is mandatory that the input be adjusted at the installation site. All installations should be made as outlined in the latest edition of the National Fuel Gas Code ANSI Z223.1, section "Procedures To Be Followed To Place An Appliance in Operation". Refer also to the "User's Information Manual" supplied with the unit for additional information on the gas furnace.**

**GAS SUPPLY AND MANIFOLD CHECK**

Gas supply pressure and manifold pressure with the burners operating must be as specified on the rating plate.

**GAS INLET PRESSURE CHECK**

Gas inlet pressure must be checked and adjusted in accordance to the type of fuel being consumed.

**WITH POWER AND GAS OFF:**

1. Connect a manometer to the inlet pressure tap of the gas valve.
  - Remove inlet pressure tap plug on the gas valve using 3/16" Allen wrench.
  - Install 1/8" NPT hose barb fitting into the pressure tap.
  - Connect the manometer to the fittings. The manometer must have a scale range of at least 0" to 20" w.c..

Inlet gas pressure can also be measured by removing the cap from the dripleg and installing a predrilled cap with a hose fitting.

**WITH POWER AND GAS ON:**

2. Put unit into heating cycle and turn on all other gas consuming appliances.

INLET GAS PRESSURE	
NATURAL	Min. 5.0" W.C., Max. 10.0" W.C.
PROPANE	Min. 11.0" W.C., Max. 13.0" W.C.

**NOTE: Inlet gas pressure must be within limits shown above.**

If operating pressures differ from above, make necessary pressure regulator adjustments, check piping size, etc., and/or consult with local utility.

3. To remove manometer from the inlet pressure tap of the gas valve:
  - Turn off the gas and electrical supply to the unit.
  - Remove the manometer and hose barb fitting from the pressure tap of the gas valve.
  - Reinstall the pressure tap plug using pipe joint compound.

- With supply gas ON, using leak detection solution, check for gas leaks around pressure tap. Bubbles forming indicate a leak. SHUT OFF GAS AND FIX ALL LEAKS IMMEDIATELY.

**Gas Input (Natural Gas Only) Check**

It is the responsibility of the contractor to adjust the gas input to the unit. To measure the gas input use a gas meter and proceed as follows:

1. Turn off gas supply to all other appliances except the unit.
2. With the unit operating, time the smallest dial on the meter for one complete revolution. If this is a 2 cubic foot dial, divide the seconds by 2; if it is a 1 cubic foot dial, use the seconds as is. This gives the seconds per cubic foot of gas being delivered to the unit.
3. INPUT=GAS HTG VALUE x 3600 / SEC. PER CUBIC FOOT

**Example:** Natural gas with a heating value of 1000 BTU per cubic foot and 34 seconds per cubic foot as determined by Step 2, then:

Input = 1000 x 3600 / 34 = 106,000 BTU per Hour.

NOTE: BTU content of the gas should be obtained from the gas supplier. This measured input must not be greater than shown on the unit rating plate.

Adjust input rate by varying the adjustment of the gas pressure regulator on the gas valve. All adjustments must be made with furnace operating at high fire and at normal operating temperature. A manometer should be connected to the gas valve to verify pressure is within the specified range.

Clockwise rotation of the pressure regulator screw increases pressure and gas flow rate. Turn screw counterclockwise to decrease pressure and gas flow rate. After adjustment the furnace temperature rise must be within the range specified on the unit data plate.

NOTE: Thermal efficiency of the furnace is a product efficiency rating determined under continuous operating conditions independent of any installed system.

**MANIFOLD PRESSURE CHECK AND ADJUSTMENT**

The gas valve has a pressure tap to facilitate measurement of the manifold pressure. The manifold pressure must be measured with the burners operating.

1. With disconnect switch open, remove field connected thermostat wire from terminal R, W1 and W2 on TB1. Place jumper wire between R, W1 and W2 to engage high stage heat.
2. See Figure in gas input check section for gas valve adjustment.

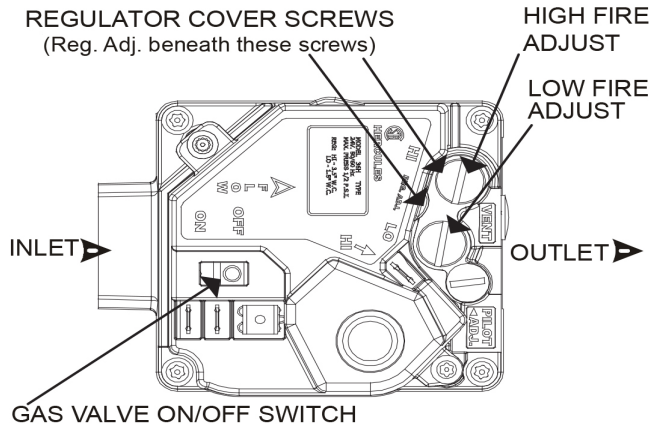
To adjust the pressure regulator, remove the adjustment screw cover on the gas valve. Turn the adjustment screw out (counterclockwise) to decrease pressure, turn in (clockwise) to increase pressure. Only small variations in gas flow should be made by means of the pressure regulator adjustment.

The measured input rate to the furnace must not exceed the rating specified on the unit rating plate.

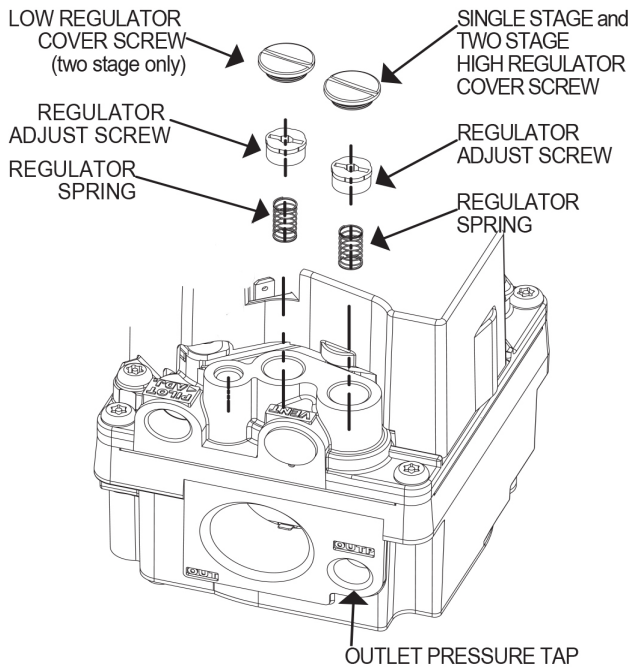
For natural gas, the high stage manifold pressure must be between 3.2 and 3.8 inches water column (3.5 nominal). Low stage manifold pressure must be between 1.7 to 2.3 inches water column (2.0 nominal).

3. To set low fire rate, open disconnect switch and remove jumper from R to W2. To set low fire manifold pressure, repeat steps above. Refer to Figure in gas input check section for location of high and low stage pressure adjustment.

For propane gas, the manifold pressure must be between 9.7 and 10.3 inches water column (10.0 nominal). Low stage manifold must be between 5.7 and 6.3 inches water column (6.0 nominal).



36H valve features



36H two-stage valve pressure regulator

## WHITE-RODGERS 2 STAGE GAS CONTROL VALVE

To connect a manometer to the outlet pressure tap of the gas valve:

1. Turn off the gas and electrical supply to the unit
2. Remove outlet pressure tap plug on the gas valve using 3/16" Allen wrench
3. Install 1/8" NPT hose barb fitting into the pressure tap.
4. Connect the manometer to the fitting with a hose.

To remove manometer from gas valve:

1. Turn off the gas and electrical supply to the unit.
2. Remove the manometer and hose barb fitting from the pressure tap of the gas valve.
3. Reinstall the pressure tap plug using pipe joint compound
4. Turn on electrical power and gas supply to the system.
5. Turn on system power and energize valve.
6. Using leak detection solution, check for gas leaks around pressure tap. Bubbles forming indicate a leak. SHUT OFF GAS AND FIX ALL LEAKS IMMEDIATELY



### CAUTION

**TO PREVENT UNRELIABLE OPERATION OR EQUIPMENT DAMAGE, THE GAS MANIFOLD PRESSURE MUST BE SPECIFIED ON THE UNIT RATING PLATE. ONLY MINOR ADJUSTMENTS SHOULD BE MADE BY ADJUSTING THE GAS VALVE PRESSURE REGULATOR.**

### MAIN BURNER FLAME CHECK

Flames should be stable, soft and blue (dust may cause orange tips but they must not be yellow) and extending directly outward from the burner without curling, floating or lifting off.

### TEMPERATURE RISE CHECK

Check the temperature rise through the unit by placing thermometers in supply and return air registers as close to the unit as possible. Thermometers must not be able to sample temperature directly from the unit heat exchangers, or false readings could be obtained.

1. All registers must be open; all duct dampers must be in their final (fully or partially open) position and the unit operated for 15 minutes before taking readings
2. The temperature rise must be within the range specified on the rating plate.

**NOTE:** Air temperature rise is the temperature difference between supply and return air.

With a properly designed system, the proper amount of temperature rise will normally be obtained when the unit is operated at rated input with the recommended blower speed.



If the correct amount of temperature rise is not obtained, it may be necessary to change the blower speed. A higher blower speed will lower the temperature rise. A slower blower speed will increase the temperature rise.

**NOTE:** Blower speed MUST be set to give the correct air temperature rise through the unit as marked on the rating plate.

## NORMAL SEQUENCE OF OPERATION

### HEATING

**NOTE:** On units with DDC controls option installed, refer to the DDC controller user manual for sequence of operation details.

1. With electricity and gas turned on, the system switch in the "HEAT" or "AUTO" position and the fan switch in the "AUTO" position, the thermostat will close the circuit between unit terminals R and W (R-W) when the temperature falls below the thermostat setting.
2. D1 on IIC energizes Induced Draft Motor contactor.
3. Relay IDMR energizes the Induced Draft Motor IDM.
4. Operation of the Induced Draft Motor closes the pressure switch PS located in the burner compartment. Unless excessive temperatures have opened high limit control ALS, power is fed to the integrated ignition control, which then initiates a 15-second pre-purge time delay. During this period, the venter fan will clear the combustion chamber of any residual gas.
5. After the pre-purge period, the ignition control energizes the WI-C gas valve and simultaneously initiates a "three (3)-try" spark ignition sequence.
6. When the burners are ignited, a minimum four (4) micro-amp DC current will flow through the flame between the sensor electrode and the grounded burner.
7. When the controller proves that the flame has been established, it will keep the gas valve energized and discontinue the ignition spark.
8. If the control is unable to ignite the burners after its initial attempt, it will initiate another purge and spark sequence. A third purge and spark sequence will be initiated if the second attempt is unsuccessful. If the third attempt is unsuccessful, the controller will close the gas valve and lock itself out. It may be reset by momentarily interrupting power. This may be accomplished by briefly lowering the room thermostat set-point below room temperature, or by shutting off the main power to the unit.
9. Integrated ignition control will close its normally open contacts after a delay of approximately 30 seconds. This action energizes the blower motor contactor and starts the blower motor. Operation of the supply fan circulates air across the heat exchanger and delivers heated air to the conditioned space.

10. When the space temperature rises, the thermostat will open R-W. Opening R-W will cause the gas valve to close, and the furnace to shut down.
11. The furnace has three high temperature limit controls, which can shut down the burner. They do not shut down the vent motor.

This unit is equipped with an ignition control that automatically lights the main burner. DO NOT attempt to light the main burners by any other method.

12. R and W thermostat contacts close, initiating a call for heat.
13. Integrated control module performs safety circuit checks.
14. Inducer draft blower is energized for 30 second prepurge period causing pressure sensor contacts to close.
15. At the end of pre-purge period, integrated control module transitions the induced draft blower to light-off setting.
16. Once the light-off pressure setting is verified by the integrated control module, the spark igniter and gas valve are energized for 4 seconds.

**NOTE:** The igniter produces a very intense electrical spark that ignites the gas.

17. Integrated control module monitors flame presence. Gas valve will remain open only if the flame is detected.
18. The 30-second HEAT FAN ON delay time begins after main burner lights.
19. The unit delivers heat to the conditioned space until the thermostat temperature setting is reached. The integrated control module monitors the safety circuits continuously.
20. R and W thermostat contacts open, completing the call for heat; gas valve de-energizes.
21. Induced draft blower keeps operating for 30-seconds post purge.
22. Ignition control begins timing the HEAT FAN OFF delay. There is an adjustable HEAT FAN OFF delay of approximately 90/120/150/180 seconds (factory set at 150).

**NOTE:** This delay allows any additional heat in the heat exchanger to be transferred to the conditioned space. After the HEAT FAN OFF delay time has elapsed, the blower will de-energize.

### UNIT SHUTDOWN

1. Set the room heating set point to lowest setting.
2. Turn off the electrical power supply to the unit.
3. Remove the heat exchanger door on the side of the unit by removing screws.
4. Move the gas control valve switch to the OFF position.
5. Close manual gas shut off valve external to the unit.



6. Replace the heat exchanger door on the unit.
7. If cooling and/or air circulation are still desired, turn ON the electrical power supply to the unit.

#### **AUTOMATIC RESET HIGH LIMIT CONTROL (LS)**

Located on the heat exchanger side of the partition panel, the primary limit switch senses the discharge air temperature. It will cycle the furnace off if the discharge air temperature exceeds 200°F.

#### **BLOCKED INLET LIMIT CONTROL**

The Blocked Inlet Limit Control is located in the burner compartment at the top of the burner assembly and senses high temperature that could occur if the burner inlet is blocked.

#### **AUXILIARY HIGH LIMIT CONTROL (ALS)**


Located in the blower compartment on the blower housing, it senses air temperature within the blower compartment and protects the filters from excessive temperature. It will shut down the furnace if it senses excessive temperatures.

Elevated temperatures at the control are normally caused by blower failure. The reason for the shut down should be determined and repaired prior to resetting.

#### **MANUAL RESET FLAME ROLLOUT CONTROL (RS)**

Located in the burner compartment at the top of the burner assembly, it senses high temperature that could occur if the heat exchanger tubes were plugged and the flame was rolling out instead of entering the tubes. It has a manual push-button reset that cannot be actuated until the limit control has cooled.

The reason for elevated temperatures at the control should be determined and repaired prior to resetting this manual reset control.

 <b>WARNING</b>
<p><b>TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO FIRE OR EXPLOSION, A QUALIFIED SERVICER MUST INVESTIGATE THE REASON FOR THE ROLLOUT PROTECTION DEVICE TO OPEN BEFORE MANUALLY RESETTING THE ROLLOUT PROTECTION DEVICE.</b></p>

#### **RDS FUNCTION**

The mitigation system is a stationary device that detects the presence of R-32 refrigerant above 25% LFL using refrigerant sensors and then initiates mitigation actions. The mitigation system's primary function is to reduce the concentration of leaked R-32 refrigerant to prevent serious safety hazards. The mitigation actions are accomplished by halting HVAC operation and continuing indoor blower operation to provide airflow. Once refrigerant concentration reaches below a safe threshold, the unit will remain in mitigation mode for five minutes to evacuate any remaining R-32 refrigerant within the unit. Upon completion, the unit will resume its normal operation.

#### **RDS OPERATION**

The mitigation system is controlled by a refrigerant sensor(s), which is secured to a designated location(s) for active monitoring. If a leak is detected, HVAC operation is disabled and the indoor blower fan is activated, providing airflow at or above minimum required airflow to evacuate excess concentration. If a Zone Control system is installed in the ductwork attached to this system, the Zone controller must be powered through a Daikin Zoning/Accessory PCB to ensure that the Zoning Dampers open during mitigation mode to provide ventilation throughout all ducting. If the unit is installed with a communicating thermostat, the thermostat will display relevant alerts/information concerning mitigation mode. Once sensors read concentration levels below a safe threshold, a five-minute timer will initiate. Once the time is over, the unit will resume back to its normal operation. If the sensors detect another concentration excess, the unit will go back into mitigation mode and will repeat the same process.

#### **REFRIGERATION SYSTEM CHECKS**

This unit is equipped with thermal expansion valves.

Ensure the hold-down bolts on the compressor are secure and have not vibrated loose during shipment. Check that the vibration grommets have been installed and visually check all piping for damage and leaks and repair if necessary. The entire system has been factory charged and tested, making it unnecessary to field charge. Factory refrigerant charge is shown on the unit's nameplate.

To confirm charge levels or, if a leak occurs and charge needs to be added to the system, it is recommended to evacuate the system and recharge refrigerant to the unit's nameplate specifications. This unit has been rated in the cooling mode at the AHRI rated conditions of: indoor (80°F db/67°F wb) and outdoor (95°F db). While operating at this condition, the superheat should range from 9°F to 11°F for each refrigeration circuit measured at the suction service port located near the compressor.

#### **START-UP PROCEDURE AND CHECKLIST**

Begin with power turned off at all disconnects.

1. Turn thermostat system switch to "Cool," and fan switch to "Auto" and turn temperature setting as high as it will go. On units with DDC controls installed, use Test/Balance Menu to force the unit to OFF MODE.
2. Inspect all registers and set them to the normal open position.
3. Turn on the electrical supply at the disconnect.
4. Turn the fan switch to the "ON" position. The blower should operate after a 7 second delay. On units with DDC controls installed, use Test/Balance Menu to force the unit to VENT MODE. This test bypasses internal delays.
5. Turn the fan switch to "Auto" position. The blower should stop after a 60 second delay. On units with DDC controls installed, use Test/Balance Menu to force the unit to OFF MODE. This test bypasses internal delays.

6. Slowly lower the cooling temperature until the unit starts. The compressor, blower and fan should now be operating. Allow the unit to run 10 minutes, make sure cool air is being supplied by the unit. On units with DDC controls installed, use Test/Balance Menu to force the unit to Low Cool Mode or High Cool Mode. This test bypasses internal delays.
7. Turn the temperature setting to the highest position, stopping the unit. The indoor blower will continue to run for 60 seconds. On units with DDC controls installed, use Test/Balance Menu to force the unit to VENT MODE. This test bypasses internal delays.
8. Turn the thermostat system switch to "OFF" and disconnect all power when servicing the unit. On units with DDC controls installed, use Test/Balance Menu to disable FORCE MODE operation and allow the unit to return to normal operation.

### REFRIGERATION SEQUENCE CHECK

With the disconnect switch open, remove the field connected thermostat wire from terminal R on TB1 terminal block. Place a jumper across terminals R and G, and across R and Y on TB1 terminal block. Close the disconnect switch. The following operational sequence should be observed. On units with DDC controls installed, use TEST/Balance Menu to force the unit to Cool Mode. This test bypasses internal delays.

1. Current through primary winding of transformer TR1 energizes the 24-volt control circuit.
2. To simulate a mechanical call for cooling from the wall thermostat, place a jumper across terminals R and Y1 of terminal block TB1. The cooling is energized when the room temperature is above the thermostat set-point for cooling. The thermostat makes R to Y.
3. **UNIT WITH ECONOMIZER OPTION:** The compressor circuit is interlocked through the economizer module. If the outdoor air enthalpy (temperature and humidity) is not suitable for cooling, the economizer will permit the compressor to be energized.
4. The blower contactor closes its contacts providing power to the blower motor.
5. Blower rotation should not be used to identify proper phasing of the unit. For phasing, please refer to step 7 below. If the blower is rotating in the wrong direction, please contact your local distributor or tech services for instructions.
6. Compressor contactor closes its contacts L1, L2 and L3 to T1, T2 and T3 to provide power to the compressor motor COMP. 1 and to COMP. 2 if conditions are correct. In addition, contactor C1 closes its contact L3 to T3 energizing the condenser fan motor.



### WARNING

**BURN HAZARD!  
DO NOT TOUCH! DISCHARGE LINE MAY BE HOT!**

7. Check that each compressor is operating correctly. The scroll compressors in these units **MUST** operate in the proper rotation. To ensure the compressors are operating in the correct direction, check the compressor discharge line pressure or temperature after the compressor is started. The discharge pressure and discharge line temperature should increase. If this does not occur and the compressor is producing an exceptional amount of noise, perform the following checks.
  - If a single compressor is operating backwards, check the power wiring for that compressor and correct any leads that have been interchanged at the contactor.
  - If both of the compressors are operating backward, disconnect the unit power supply and lockout-tagout in the "OFF" position. Switch two leads of the power supply at the unit Single Point Power Block. Reconnect power and check for compressor operation.
8. With all safety devices closed, the system will continue cooling operation until the thermostat is satisfied.
9. Disconnecting the jumper wire between R and Y1 and Y2 and between R and G on TB1 terminal block will simulate a satisfied thermostat. The compressor and the condenser fans will cycle off and IIC (pin 12) will initiate its time delay cycle. At the end of the time delay the indoor blower will cycle off.
10. After a time delay of approximately 3 minutes, the compressor control circuits will be ready to respond to a subsequent call for cooling from the wall thermostat.
11. Open disconnect switch. Reconnect the field thermostat wire at terminal R on terminal block TB1.
12. On units with DDC controls installed, use Test/Balance Menu to force the unit to Vent Mode. Use Test/Balance Menu to disable Force Mode operation and allow the unit to return to normal operation.

### REFRIGERATION PERFORMANCE CHECK

Check that compressor RLA corresponds to values shown in Appendix B. RLA draw can be much lower than values listed at low load conditions and low ambient condensing temperatures. Values maybe slightly higher than those shown in Appendix B at high load conditions and high ambient condensing temperatures.

## CHECKING SUBCOOLING

**NOTE: MAKE SURE THE AIR FLOW IS CORRECT BEFORE MAKING ANY ADJUSTMENTS. UNITS WITH A TXV SHOULD BE CHARGED TO SUBCOOLING ONLY.**

**SUBCOOLING FORMULA = SATURATED LIQUID LINE TEMPERATURE - LIQUID LINE TEMPERATURE**

EXAMPLE:

- Liquid Line Pressure = 417 PSI
- Corresponding Temp. = 120°F
- Thermometer on Liquid line = 109°F.

To obtain the amount of subcooling, subtract 109°F from 120°F. The difference is 11° subcooling. The appropriate range for each model is available in the Unit Subcooling and Superheat table.

## CHECKING SUPERHEAT

EXAMPLE:

- Suction Pressure = 143 PSI
- Corresponding Temp. = 50°F
- Thermometer on Suction Line = 59°F

To obtain the degrees temperature of superheat, subtract 50.0 from 59.0°F. The difference is 9° Superheat. The 9° Superheat would fall in the ± range of allowable superheat.

**SUPERHEAT = SUCTION LINE TEMP - SAT. SUCTION TEMP.**

## SUPERHEAT ADJUSTMENT

**NOTE: SUPERHEAT ADJUSTMENTS SHOULD NOT BE MADE UNTIL INDOOR AMBIENT CONDITIONS HAVE STABILIZED. THIS COULD TAKE UP TO 24 HOURS DEPENDING ON INDOOR TEMPERATURE AND HUMIDITY. BEFORE CHECKING SUPERHEAT, RUN THE UNIT IN COOLING FOR 15-20 MINUTES OR UNTIL REFRIGERANT PRESSURES STABILIZE. USE THE FOLLOWING GUIDELINES AND METHODS TO CHECK UNIT OPERATION AND ENSURE THAT THE REFRIGERANT CHARGE IS WITHIN LIMITS.**

For TXV systems, to adjust superheat, unscrew the cover from the expansion valve, locate the adjustment screw, and turn it clockwise (in) to increase superheat or counterclockwise (out) to decrease superheat. It is recommended to make small adjustments at a time, 1/8-1/4 turn increments. Replace adjustment cap. Wait a minimum of 15 minutes between adjustments to allow time for the TXV and pressures to stabilize.

**SEE THE SPECIFICATION SHEET OR TECHNICAL INFORMATION MANUAL FOR THE DESIGN SUBCOOLING RANGE FOR YOUR UNIT.**

## REFRIGERANT CHARGE CHECK

**NOTE: FOR OPTIMAL PERFORMANCE, FOLLOW CHARGING INSTRUCTIONS BELOW.**

**(UNITS WITH EXPANSION VALVE (TXV))**

Run unit on High Stage cooling and refer to Design Superheat & Subcooling table

- Purge gauge lines. Connect service gauge manifold to access fittings. Run system at least 10 minutes to allow pressure to stabilize.
- Temporarily install thermometer on liquid (small) line near liquid line access fitting with adequate contact and insulate for best possible reading.
- Check subcooling and superheat. System should have a subcooling and superheat within the range listed on the Design Superheat and Subcooling table.
  - If subcooling and superheat are low, adjust TXV superheat, then check subcooling.
 

**NOTE: To ADJUST SUPERHEAT, TURN THE VALVE STEM CLOCKWISE TO INCREASE AND COUNTERCLOCKWISE TO DECREASE.**
  - If subcooling is low and superheat is high, add charge to raise subcooling then check superheat.
  - If subcooling and superheat are high, adjust TXV valve superheat, then check subcooling.
  - If subcooling is high and superheat is low, adjust TXV valve superheat and remove charge to lower the subcooling.

NOTE: Do NOT adjust the charge based on suction pressure unless there is a gross undercharge. If an under charge is suspected recover the charge, re-evacuate the system and recharge per data plate. No adjustments should be made if suspecting a charge issue.

- Disconnect manifold set, installation is complete.

Design Superheat and Subcooling					
Model	Superheat ±2°F (Circuit 1/2)	Subcooling ±1°F (Circuit 1/2)	Expansion Device	Cooling Stage	Outdoor ambient (°F)
DHG090*	17/18	9/10	TXV	High	95
DHG102*	23/19	10/8	TXV	High	95
DHG120*	15/17	10/11	TXV	High	95
DHG150*	19/18	9/9	TXV	High	95

## RECOVERY

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

## CHARGING PROCEDURES

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the REFRIGERATING SYSTEM is grounded prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.

**NOTE: "GROUNDING" IS DEFINED AS ACHIEVING AN EARTH GROUND BY CONNECTING THE EQUIPMENT'S SUPPLIED GROUNDING LUG TO THE EARTH. THIS SHOULD BE VERIFIED BY A CERTIFIED TECHNICIAN.**

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

**IMPORTANT: REFER TO THE STANDING PRESSURE TEST / LEAK DETECTION METHOD REFERENCED LATER IN THIS MANUAL.**

## THE FOLLOWING INSTRUCTIONS ARE MANDATORY FOR A2L SYSTEMS AND SUPERSEDE OTHER INSTRUCTIONS

### WARNING

ONLY BRAZING TECHNIQUES AND APPROVED MECHANICAL JOINTS SHOULD BE USED TO CONNECT REFRIGERANT TUBING CONNECTIONS. NON-APPROVED MECHANICAL CONNECTORS AND OTHER METHODS ARE NOT PERMITTED IN THIS SYSTEM CONTAINING A2L REFRIGERANT. APPROVED MECHANICAL JOINTS WILL BE DETAILED IN THE PRODUCT'S SPECIFICATION SHEETS.

## STANDING PRESSURE TEST/ LEAK DETECTION METHOD

Using dry nitrogen or dry helium, pressurize the system to 450 PSIG. Allow the pressure to stabilize and hold for 15 minutes (minimum). The system is considered leak-free if the pressure does not drop below 450 PSIG. If, after 15 minutes, the pressure drops below 450 PSIG, it implies a leak in the system. Proceed with identifying and sealing the leak and repeating the Standing Pressure Test. Leak test the system using dry nitrogen or dry helium and soapy water to identify leaks. **No refrigerant shall be used for pressure testing to detect leaks.** Proceed to system evacuation using the Deep Vacuum Method.

## DEEP VACUUM METHOD

The Deep Vacuum Method requires a vacuum pump rated for 500 microns or less. This method effectively and efficiently ensures the system is free of non-condensable air and moisture. The Triple Evacuation Method is detailed in the Service Manual for this product model as an alternative. To expedite the evacuation procedure, it is recommended that the Schrader Cores be removed from the service valves using a core-removal tool.

1. Connect the vacuum pump, micron gauge, and vacuum-rated hoses to both service valves. Evacuation must use both service valves to eliminate system mechanical seals.
2. Evacuate the system to less than 500 microns.
3. Isolate the pump from the system and hold the vacuum for 10 minutes (minimum). Typically, pressure will rise slowly during this period. If the pressure rises to less than 1000 microns and remains steady, the system is considered leak-free; proceed to system charging and startup.
4. If pressure rises above 1000 microns but holds steady below 2000 microns, non-condensable air or moisture may remain, or a small leak may be present. Return to step 2: If the same result is achieved, check for leaks and repair. Repeat the evacuation procedure.
5. If pressure rises above 2000 microns, a leak is present. Check for leaks and repair them. Then, repeat the evacuation procedure.

## ACCESSORY INSTALLATION

### WARNING

ALL ACCESSORIES THAT MAY BECOME A POTENTIAL IGNITION SOURCE IF INSTALLED, SUCH AS ELECTRONIC AIR CLEANERS, MUST ONLY BE POWERED THROUGH OUR ACCESSORY CONTROL BOARD KIT. IF AN ELECTRONIC AIR CLEANER IS ALREADY INSTALLED IN THE DUCT WORK AND NOT CONNECTED TO THE ACCESSORY CONTROL BOARD, IT WILL HAVE TO BE DISABLED OR REMOVED. ENSURE THAT ANY ADDITIONAL WIRING FROM THE INDOOR UNIT TO THE ACCESSORY CONTROL BOARD IS ROUTED AND PROTECTED FROM DAMAGE AND WEAR, AVOIDING THE FLUE PIPE AND ANY JOINTS THAT MAY NEED BRAZED OR DISCONNECTED FOR SERVICE. REFER TO THE PRODUCT SPECIFICATION SHEET FOR THE ACCESSORY CONTROL BOARD KIT PART NUMBER



# ALTITUDE ADJUSTMENT FACTOR TO CALCULATE MINIMUM ROOM AREA

The Indoor equipment mitigation requirements are calculated at sea level. For higher altitudes adjust the minimum room area specified on or near the Serial Plate by the corresponding altitude adjustment factor shown below. This table is provided as a reference.

Adjusted room area ( $A_{\text{min adj}}$ ) is the product of the minimum room area specified in the serial plate and the adjustment factor AF, as shown in below formula

$$A_{\text{min adj}} = A_{\text{min}} (\text{serial plate}) * AF$$

Height in meters	Height in feet	Altitude Adjustment Factor (AF)
At sea level	At sea level	1.00
1~200	1~660	1.02
200~400	660~1320	1.03
400~600	1320~1970	1.05
600~800	1970~2630	1.07
800~1000	2630~3290	1.09
1000~1200	3290~3940	1.11
1200~1400	3940~4600	1.13
1400~1600	4600~5250	1.15
1600~1800	5250~5910	1.17
1800~2000	5910~6570	1.19
2000~2200	6570~7220	1.21
2200~2400	7220~7880	1.24
2400~2600	7880~8540	1.26
2600~2800	8540~9190	1.29
2800~3000	9190~9850	1.31
3000~3200	9850~10500	1.34

## FINAL SYSTEM CHECKS

1. Check to see if all supply and return air grilles are adjusted and the air distribution system is balanced for the best compromise between heating and cooling.
2. Check for air leaks in the ductwork. See Sections on Air Flow Adjustments.
3. Make sure the unit is free of “rattles”, and the tubing in the unit is free from excessive vibration. Also make sure tubes or lines are not rubbing against each other or sheet metal surfaces or edges. If so, correct the trouble.
4. Set the thermostat at the appropriate setting for cooling and heating or automatic changeover for normal use.
5. Be sure the Owner is instructed on the unit operation, filter, servicing, correct thermostat operation, etc.

## MAINTENANCE



### WARNING

**ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD**  
**FAILURE TO FOLLOW SAFETY WARNINGS EXACTLY COULD RESULT IN DANGEROUS OPERATION, SERIOUS INJURY, DEATH OR PROPERTY DAMAGE.**  
**IMPROPER SERVICING COULD RESULT IN DANGEROUS OPERATION, SERIOUS INJURY, DEATH OR PROPERTY DAMAGE.**

- **BEFORE SERVICING, DISCONNECT ALL ELECTRICAL POWER TO FURNACE.**
- **WHEN SERVICING CONTROLS, LABEL ALL WIRES PRIOR TO DISCONNECTING. RECONNECT WIRES CORRECTLY.**
- **VERIFY PROPER OPERATION AFTER SERVICING.**



### WARNING

**HIGH VOLTAGE!**  
**DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**



### WARNING

**TO PREVENT PERSONAL INJURY OR DEATH DUE TO IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE, REFER TO THIS MANUAL. FOR ADDITIONAL ASSISTANCE OR INFORMATION, CONSULT A QUALIFIED INSTALLER, SERVICER AGENCY OR THE GAS SUPPLIER.**



### CAUTION

**SHEET METAL PARTS, SCREWS, CLIPS AND SIMILAR ITEMS INHERENTLY HAVE SHARP EDGES, AND IT IS NECESSARY THAT THE INSTALLER AND SERVICE PERSONNEL EXERCISE CAUTION.**

Preventive maintenance is the best way to avoid unnecessary expense and inconvenience. Have this system inspected at regular intervals by qualified service personnel, at least twice a year. Routine maintenance should cover the following items:

1. Tighten all set screws, and wire connections.
2. Clean evaporator and condenser coils mechanically or with cold water, if necessary. Usually any fouling is only matted on the entering air face of the coil and can be removed by brushing.
3. Replace filters as needed (see below).
4. Check for blockage of condensate drain.
5. Check power and control voltages.
6. Check running amperage.
7. Check operating temperatures and pressures.
8. Check and adjust temperature and pressure controls.
9. Check and adjust damper linkages.
10. Check operation of all safety controls.
11. Examine gas furnaces (see below and the User's Information Manual).
12. Check condenser fans and tighten set screws.

## FILTERS



### CAUTION

**TO PREVENT PROPERTY DAMAGE DUE TO FIRE AND LOSS OF EQUIPMENT EFFICIENCY OR EQUIPMENT DAMAGE DUE TO DUST AND LINT BUILD UP ON INTERNAL PARTS, NEVER OPERATE UNIT WITHOUT AN AIR FILTER INSTALLED IN THE RETURN AIR SYSTEM.**

Every application may require a different frequency of replacement of dirty filters. Filters must be replaced at least every three (3) months during operating seasons.

Dirty filters are the most common cause of inadequate heating or cooling performance. Filter inspection should be made at least every two months; more often if necessary because of local conditions and usage.

Dirty throwaway filters should be discarded and replaced with a new, clean filter.

Disposable return air filters are supplied with this unit. See the unit Specification Sheet or Technical Manual for the correct size and part number. To remove the filters, remove the filter access panel on return side of the unit.

## CABINET FINISH MAINTENANCE

Use a fine grade automotive wax on the cabinet finish to maintain the finishes original high luster. This is especially important in installations with extended periods of direct sunlight.

## CLEAN INDOOR COIL (QUALIFIED SERVICER ONLY)

Before cleaning the indoor coil, A2L sensor must be removed from the unit to avoid damage and contamination. Air filters should also be removed before performing maintenance. The coil with the filtered air flowing over it should be inspected and cleaned as frequently as necessary to keep the finned areas free of debris. Any air blowing or water rinsing should be performed from inside-out (opposite operating airflow direction) to prevent damage to the tube, fin coil and any other components.

## CLEAN OUTSIDE COIL (QUALIFIED SERVICER ONLY)

The coil with the outside air flowing over it should be inspected annually and cleaned as frequently as necessary to keep the finned areas free of lint, hair and debris.

## CONDENSER AND INDUCED DRAFT MOTORS

Bearings on the condenser fan motors and the combustion fan motor are permanently lubricated. No additional oiling is required.

## FLAME SENSOR (QUALIFIED SERVICER ONLY)

A drop in the flame current can be caused by a nearly invisible coating on the flame sensor. This coating, created by the fuel or combustion air supply, can be removed by carefully cleaning the flame sensor with steel wool.

**NOTE: After cleaning, the microamp signal should be stable and in the range of 4 - 6 microamps DC.**

## FLUE PASSAGES (QUALIFIED SERVICER ONLY)

At the start of each heating season, inspect and, if necessary, clean the unit flue passage.

## LUBRICATION

The fan shaft bearings, the blower motor, the condenser fan motors and compressors are permanently lubricated.

## INSPECTION & CLEANING

All flue product carrying areas of the furnace, its vent system, and main burners should be examined by a qualified service agency, and cleaned if necessary, before the start of each heating season. This examination is necessary for continued safe operation. Particular attention should be given to deterioration from corrosion or other sources. This examination is accomplished in the following manner.

1. Disconnect power to the unit, close the manual gas shut off valve external to the unit, and remove furnace section access panel.
2. Remove burner assembly:
  - a. Disconnect the wires from the gas valve after noting which wires are connected to each terminal.

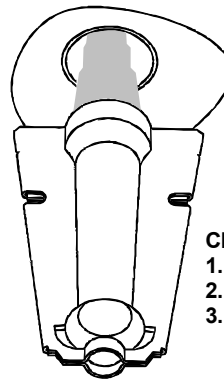
- b. Disconnect wires from the flame rod and ignition electrode.
- c. Disconnect the gas piping at the union.
- d. The entire burner assembly can now be removed from the unit.

**NOTE:** Use all screws that were removed; they are necessary for safe and proper operation of the unit.

3. Inspect and periodically clean the vent outlet (bird screen) on the access panel.

**NOTE:** Periodic observation of the flame and a log of CO<sub>2</sub> measurements are recommended. This will aid in determining whether the furnace is operating efficiently or if the furnace requires cleaning.


Flames should be stable, soft and blue (dust may cause orange tips but must not be yellow). The flames must extend directly outward from the burner without curling, floating or lifting off.



Check the burner flames for:

1. Good adjustment
2. Stable, soft and blue
3. Not curling, floating, or lifting off.

Burner Flame

 <b>WARNING</b>
<b>TO AVOID PERSONAL INJURY OR DEATH DUE TO ELECTRIC SHOCK, DO NOT REMOVE ANY INTERNAL COMPARTMENT COVERS OR ATTEMPT ANY ADJUSTMENT. CONTACT A QUALIFIED SERVICER AT ONCE IF AN ABNORMAL FLAME SHOULD DEVELOP.</b>

At least once a year, prior to or during the heating season, make a visual check of the burner flames.

**NOTE:** This will involve removing and reinstalling the heat exchanger door on the unit, which is held by two screws. If you are uncertain about your ability to do this, contact a qualified servicer.

If a strong wind is blowing, it may alter the airflow pattern within the unit enough that an inspection of the burner flames is not possible.

## FUNCTIONAL PARTS

Refer to the unit Parts Catalog for a list of functional parts. Parts are available from your distributor.

## TROUBLESHOOTING

### IGNITION CONTROL ERROR CODES

The following presents probable causes of questionable unit operation. Refer to *Diagnostic Indicator Chart* for an interpretation of the signal and to this section for an explanation.

Remove the control box access panel and note the number of diagnostic LED flashes.

#### **INTERNAL CONTROL FAILURE**

If the integrated ignition control in this unit encounters an internal fault, it will go into a "hard" lockout and turn off the diagnostic LED. If diagnostic LED indicates an internal fault, check power supply to unit for proper voltage, check all fuses, circuit breakers and wiring. Disconnect electric power for five seconds. If LED remains off after restoring power, replace control.

#### **ABNORMAL OPERATION - HEATING CODES**

##### **EXTERNAL LOCKOUT (1 FLASH CODE)**

An external lockout occurs if the integrated ignition control determines that a measurable combustion cannot be established within three (3) consecutive ignition attempts. If flame is not established within the seven (7) second trial for ignition, the gas valve is deenergized, 15 second inter-purge cycle is completed, and ignition is reattempted. The control will repeat this routine three times if a measurable combustion is not established. The control will then shut off the induced draft blower and go into a lockout state.

If flame is established but lost, the control will energize the circulator blower at the heat speed and then begin a new ignition sequence. If flame is established then lost on subsequent attempts, the control will recycle for four (4) consecutive ignition attempts (five attempts total) before locking out.

The diagnostic fault code is 1 flash for a lockout due to failed ignition attempts or flame dropouts. The integrated control will automatically reset after one hour, or it can be reset by removing the thermostat signal or disconnecting the electrical power supply for over five seconds. If the diagnostic LED indicates an external lockout, perform the following checks:

- *Check the supply and manifold gas pressures*
- *Check the gas orifices for debris*
- *Check gas valve for proper operation*
- *Check secondary limit*

A dirty filter, excessive duct static, insufficient air flow, a faulty limit, or a failed circulator blower can cause this limit to open. Check filters, total external duct static, circulator blower motor, blower motor speed tap (see wiring diagram) and limit. An interruption in electrical power during a heating cycle may also cause the auxiliary limit to open. The automatic reset secondary limit is located on top of the circulator blower assembly.

- *Check rollout limit*

If the burner flames are not properly drawn into the heat exchanger, the flame rollout protection device will open. Possible causes are restricted or blocked flue passages, blocked or cracked heat exchanger, a failed induced draft blower, or insufficient combustion air. The rollout protection device is a manual reset limit located on the burner bracket. The cause of the flame rollout must be determined and corrected before resetting the limit.

- *Check flame sensor*

A drop in flame signal can be caused by nearly invisible coating on the sensor. Remove the sensor and carefully clean with steel wool.

- *Check wiring*

Check wiring for opens/shorts and miswiring.

**IMPORTANT:** IF YOU HAVE TO FREQUENTLY RESET YOUR GAS/ELECTRIC PACKAGE UNIT, IT MEANS THAT A PROBLEM EXISTS THAT SHOULD BE CORRECTED. CONTACT A QUALIFIED SERVICER FOR FURTHER INFORMATION.

##### **PRESSURE SWITCH STUCK OPEN (2 FLASH CODE)**

A stuck open pressure switch can be caused by a faulty pressure switch, faulty wiring, a disconnected or damaged hose, a blocked or restricted flue, or a faulty induced draft blower. If the control senses an open pressure switch during the pre-purge cycle, the induced draft blower only will be energized.

If the pressure switch opens after ignition has begun the gas valve is deenergized, the circulator blower heat off cycle begins, and the induced draft blower remains on. The diagnostic fault code is two (2) flashes.

##### **PRESSURE SWITCH STUCK CLOSED (3 FLASH CODE)**

A stuck closed pressure switch can be caused by a faulty pressure switch or faulty wiring. If the control encounters a pressure switch stuck closed, the induced draft blower remains off. The diagnostic LED code for this fault is three (3) flashes.

##### **OPEN THERMAL PROTECTION DEVICE (4 FLASH CODE)**

If the primary limit switch opens, the gas valve is immediately deenergized, the induced draft and air circulating blowers are energized. The induced draft and air circulator blowers remain energized until the limit switch recloses. The diagnostic fault code for an open limit is four (4) flashes.

A primary limit will open due to excessive supply air temperatures. This can be caused by a dirty filter, excessive duct static, insufficient air flow, or a faulty limit. Check filters, total external duct static, blower motor, blower motor speed tap (see wiring diagram), and limit. This limit will automatically reset once the temperature falls below a preset level.

**FLAME DETECTED WITH GAS VALVE CLOSED (5 FLASH CODE)**

If flame is detected with the gas valve deenergized, the combustion and air circulator blowers are energized. The diagnostic fault code is five (5) flashes for this condition. The control can be reset by removing the power supply to the unit or it will automatically reset after one hour. Miswiring is the probable cause for this fault.

**ABNORMAL OPERATION - COOLING CODES**

**SHORT CYCLE COMPRESSOR DELAY (6 FLASH CODE)**

The automatic ignition control has a built-in feature that prevents damage to the compressor in short cycling situations. In the event of intermittent power losses or intermittent thermostat operation, the ignition control will delay output to the compressor contactor for three minutes from the time power is restored. (Compressor is off a total of three minutes). The diagnostic LED will flash six (6) times to indicate the compressor contactor output is being delayed.

**NOTE:** Some electronic thermostats also have a built-in compressor short cycle timer that may be longer than the three minute delay given above. If you are using an electronic thermostat and the compressor has not started after three minutes, wait an additional five minutes to allow the thermostat to complete its short cycle delay time.

**SERVICING MEASURES FOR THE REFRIGERANT DETECTION SYSTEM:**

Before servicing, identify the mode of operation of the system by reading the LED flashing pattern on the PCB within the control box and matching the LED flashing pattern with mode of operation in the REFRIGERANT DETECTION SYSTEM TROUBLESHOOTING GUIDE on the wiring diagram which is attached on the back side of the control box panel (RDS PCB Fault Code table). After identifying the mode of operation, take recommended actions as specified in the Recommended Actions for PCB LED Flashing Codes table.

**REFRIGERANT SENSORS for REFRIGERANT**

DETECTION SYSTEMS shall only be replaced with sensors specified by the manufacturer. If REFRIGERANT SENSOR requires replacement, please replace with Sensata R32 Sensor PN#RGD-00ML12 (Daikin PN#SER2A08011).

LED STATUS	
MODE	LED FLASHING PATTERN
NORMAL OPERATION	SLOW LED FLASHING PATTERN (2 SECONDS ON 2 SECONDS OFF)
R-32 LEAK ALARM	FAST LED FLASHING PATTERN
DELAY MODE	LED WILL BE ON CONTINUOUSLY
SYSTEM VERIFICATION MODE	FAST LED FLASHING PATTERN
CONTROL BOARD INTERNAL FAULT	LED WILL FLASH 2 TIMES AND THEN BE OFF FOR 5 SECONDS
R32 SENSOR COMMUNICATION FAULT	LED WILL FLASH 3 TIMES AND THEN BE OFF FOR 5 SECONDS
R32 SENSOR FAULT	LED WILL FLASH 4 TIMES AND THEN BE OFF FOR 5 SECONDS

RDS PCB Fault Code Table



# APPENDIX A BLOWER PERFORMANCE TABLES

**7.5 Ton**  
**130 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG0903DL, DHG0904DL, DHG0907DL**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1882	544	0.38	T1	0.2	2029	488	0.34
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2589	629	0.67	T2	0.2	2748	571	0.61
	0.4	2410	681	0.73		0.4	2554	627	0.67
	0.6	2216	734	0.79		0.6	2337	697	0.75
	0.8	2038	782	0.84		0.8	2148	750	0.80
T3	0.2	3144	708	1.01	T3	0.2	3289	649	0.93
	0.4	2961	753	1.08		0.4	3133	690	0.99
	0.6	2802	799	1.14		0.6	2972	745	1.06
	0.8	2651	841	1.20		0.8	2802	792	1.13
T4	0.2	3413	753	1.23	T4	0.2	3539	693	1.13
	0.4	3222	794	1.29		0.4	3419	726	1.18
	0.6	3070	836	1.36		0.6	3282	773	1.26
	0.8	2940	875	1.43		0.8	3132	816	1.33
T5	0.2	3622	793	1.43	T5	0.2	3724	732	1.32
	0.4	3422	830	1.50		0.4	3647	757	1.37
	0.6	3268	868	1.57		0.6	3525	797	1.44
	0.8	3160	904	1.64		0.8	3401	836	1.51
T6	0.2	1901	546	0.38	T6	0.2	2048	490	0.34
	0.4	1713	605	0.42		0.4	1853	561	0.39
	0.6	1453	667	0.47		0.6	1559	646	0.45
	0.8	-	-	-		0.8	1374	707	0.49
T7	0.2	2107	569	0.46	T7	0.2	2260	513	0.41
	0.4	1922	627	0.50		0.4	2061	580	0.47
	0.6	1684	686	0.55		0.6	1791	660	0.53
	0.8	1495	738	0.59		0.8	1602	719	0.58
T8	0.2	2301	592	0.54	T8	0.2	2458	535	0.49
	0.4	2119	648	0.59		0.4	2259	598	0.54
	0.6	1900	704	0.64		0.6	2011	674	0.61
	0.8	-	-	-		0.8	1820	731	0.66
T9	0.2	2920	674	0.86	T9	0.2	3074	616	0.79
	0.4	2740	722	0.92		0.4	2897	663	0.85
	0.6	2569	771	0.98		0.6	2715	724	0.92
	0.8	2405	816	1.04		0.8	2534	774	0.99
T10	0.2	3427	756	1.24	T10	0.2	3552	696	1.14
	0.4	3236	797	1.31		0.4	3435	728	1.20
	0.6	3084	838	1.38		0.6	3299	774	1.27
	0.8	2955	877	1.44		0.8	3151	817	1.34

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

**7.5 Ton**  
**130 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG0903LL, DHG0904LL, DHG0907LL**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1882	544	0.38	T1	0.2	2029	488	0.34
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T2	0.2	3059	695	0.95	T2	0.2	3208	636	0.87
	0.4	2877	741	1.01		0.4	3043	680	0.93
	0.6	2714	788	1.08		0.6	2874	737	1.01
	0.8	2558	831	1.14		0.8	2699	785	1.07
	1.0	2412	870	1.19		1.0	2519	829	1.13
	1.2	2218	922	1.26		1.2	2312	884	1.21
T3	0.2	3144	708	1.01	T3	0.2	3289	649	0.93
	0.4	2961	753	1.08		0.4	3133	690	0.99
	0.6	2802	799	1.14		0.6	2972	745	1.06
	0.8	2651	841	1.20		0.8	2802	792	1.13
	1.0	2493	880	1.26		1.0	2632	836	1.19
	1.2	2307	930	1.33		1.2	2436	889	1.27
T4	0.2	3622	793	1.43	T4	0.2	3724	732	1.32
	0.4	3422	830	1.50		0.4	3647	757	1.37
	0.6	3268	868	1.57		0.6	3525	797	1.44
	0.8	3160	904	1.64		0.8	3401	836	1.51
	1.0	2994	953	1.71		1.0	3282	884	1.58
	1.2	2822	1002	1.78		1.2	3162	932	1.65
T5	0.2	1901	546	0.38	T5	0.2	2048	490	0.34
	0.4	1713	605	0.42		0.4	1853	561	0.39
	0.6	1453	667	0.47		0.6	1559	646	0.45
	0.8	-	-	-		0.8	1374	707	0.49
	1.0	2107	569	0.46		1.0	2260	513	0.41
	1.2	1922	627	0.50		1.2	2061	580	0.47
T6	0.2	2107	569	0.46	T6	0.2	2260	513	0.41
	0.4	1922	627	0.50		0.4	2061	580	0.47
	0.6	1684	686	0.55		0.6	1791	660	0.53
	0.8	1495	738	0.59		0.8	1602	719	0.58
	1.0	2301	592	0.54		1.0	2458	535	0.49
	1.2	2119	648	0.59		1.2	2259	598	0.54
T7	0.2	2301	592	0.54	T7	0.2	2458	535	0.49
	0.4	2119	648	0.59		0.4	2259	598	0.54
	0.6	1900	704	0.64		0.6	2011	674	0.61
	0.8	-	-	-		0.8	1820	731	0.66
	1.0	2920	674	0.86		1.0	3074	616	0.79
	1.2	2740	722	0.92		1.2	2897	663	0.85
T8	0.2	2920	674	0.86	T8	0.2	3074	616	0.79
	0.4	2740	722	0.92		0.4	2897	663	0.85
	0.6	2569	771	0.98		0.6	2715	724	0.92
	0.8	2405	816	1.04		0.8	2534	774	0.99
	1.0	3427	756	1.24		1.0	3552	696	1.14
	1.2	3236	797	1.31		1.2	3435	728	1.20
T9	0.2	3084	838	1.38	T9	0.2	3299	774	1.27
	0.4	2955	877	1.44		0.4	3151	817	1.34
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T10	0.2	-	-	-	T10	0.2	-	-	-
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-

# APPENDIX A BLOWER PERFORMANCE TABLES

7.5 Ton  
130 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG0903WL, DHG0904WL, DHG0907WL

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1882	544	0.38	T1	0.2	2029	488	0.34	T6	0.2	2457	612	0.61	T6	0.2	2616	554	0.55
	0.4	-	-	-		0.4	-	-	-		0.4	2277	665	0.66		0.4	2418	613	0.61
	0.6	-	-	-		0.6	-	-	-		0.6	2072	720	0.72		0.6	2188	686	0.68
	0.8	-	-	-		0.8	-	-	-		0.8	1891	769	0.77		0.8	1997	741	0.74
	1.0	-	-	-		1.0	-	-	-		1.0	1881	810	0.81		1.0	1729	785	0.78
	1.2	-	-	-		1.2	-	-	-		1.2	1636	872	0.87		1.2	1439	852	0.85
	1.4	-	-	-		1.4	-	-	-		1.4	1447	921	0.92		1.4	-	-	-
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
2.0	-	-	-	2.0	-	-	-	2.0	-	-	-	2.0	-	-	-				
T2	0.2	3527	774	1.34	T2	0.2	3642	714	1.23	T7	0.2	-	-	-	T7	0.2	-	-	-
	0.4	3332	814	1.40		0.4	3544	743	1.28		0.4	2838	735	0.99		0.4	-	-	-
	0.6	3180	853	1.47		0.6	3415	786	1.36		0.6	2672	783	1.05		0.6	2828	733	0.98
	0.8	3061	891	1.54		0.8	3278	827	1.43		0.8	2514	827	1.11		0.8	2651	782	1.05
	1.0	2889	927	1.60		1.0	3147	870	1.50		1.0	2374	866	1.16		1.0	2466	825	1.11
	1.2	2735	969	1.67		1.2	2998	915	1.58		1.2	2177	918	1.23		1.2	2253	882	1.18
	1.4	2563	1008	1.74		1.4	2852	971	1.68		1.4	1986	962	1.29		1.4	2038	946	1.27
	1.6	2392	1050	1.81		1.6	2666	1010	1.74		1.6	1815	1006	1.35		1.6	1869	991	1.33
	1.8	2237	1086	1.87		1.8	2482	1060	1.83		1.8	1667	1046	1.40		1.8	1668	1038	1.39
2.0	2077	1119	1.93	2.0	2323	1096	1.89	2.0	1522	1077	1.44	2.0	1495	1074	1.44				
T3	0.2	3144	708	1.01	T3	0.2	3289	649	0.93	T8	0.2	3482	766	1.29	T8	0.2	3601	706	1.19
	0.4	2961	753	1.08		0.4	3133	690	0.99		0.4	3289	806	1.36		0.4	3495	736	1.24
	0.6	2802	799	1.14		0.6	2972	745	1.06		0.6	3137	846	1.43		0.6	3363	780	1.32
	0.8	2651	841	1.20		0.8	2802	792	1.13		0.8	3014	884	1.49		0.8	3221	822	1.39
	1.0	2493	880	1.26		1.0	2632	836	1.19		1.0	2840	921	1.55		1.0	3086	866	1.46
	1.2	2307	930	1.33		1.2	2436	889	1.27		1.2	2682	964	1.63		1.2	2932	912	1.54
	1.4	-	-	-		1.4	-	-	-		1.4	2507	1003	1.69		1.4	2780	969	1.63
	1.6	-	-	-		1.6	-	-	-		1.6	2335	1045	1.76		1.6	2594	1008	1.70
	1.8	-	-	-		1.8	-	-	-		1.8	2182	1082	1.83		1.8	2408	1058	1.78
2.0	-	-	-	2.0	-	-	-	2.0	2022	1115	1.88	2.0	2247	1094	1.85				
T4	0.2	-	-	-	T4	0.2	-	-	-	T9	0.2	-	-	-	T9	0.2	-	-	-
	0.4	-	-	-		0.4	-	-	-		0.4	3783	918	2.06		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-		0.6	3598	946	2.12		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-		0.8	3556	976	2.19		0.8	-	-	-
	1.0	3620	1023	2.37		1.0	-	-	-		1.0	3525	1010	2.26		1.0	3833	930	2.08
	1.2	3514	1048	2.43		1.2	-	-	-		1.2	3415	1037	2.32		1.2	3735	960	2.15
	1.4	3412	1078	2.50		1.4	3718	1010	2.34		1.4	3300	1069	2.39		1.4	3629	1005	2.25
	1.6	3263	1117	2.59		1.6	3610	1040	2.41		1.6	3146	1108	2.48		1.6	3503	1036	2.32
	1.8	3081	1148	2.66		1.8	3473	1094	2.54		1.8	2969	1139	2.55		1.8	3358	1089	2.44
2.0	2915	1184	2.75	2.0	3351	1130	2.62	2.0	2802	1175	2.63	2.0	3229	1125	2.52				
T5	0.2	-	-	-	T5	0.2	-	-	-	T10	0.2	-	-	-	T10	0.2	-	-	-
	0.4	-	-	-		0.4	-	-	-		0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-		0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-		0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-		1.0	-	-	-		1.0	3659	998	2.50
	1.2	3728	1071	2.68		1.2	-	-	-		1.2	3653	1072	2.68		1.2	3638	1008	2.52
	1.4	3656	1100	2.75		1.4	-	-	-		1.4	3550	1101	2.75		1.4	3585	1022	2.56
	1.6	3519	1137	2.84		1.6	3825	1049	2.62		1.6	3452	1131	2.83		1.6	3500	1052	2.63
	1.8	3325	1166	2.91		1.8	3707	1104	2.76		1.8	3353	1163	2.91		1.8	3382	1091	2.73
2.0	3161	1203	3.01	2.0	3599	1140	2.85	2.0	3247	1196	2.99	2.0	3286	1124	2.81				

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place.  
Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**7.5 Ton**  
**180 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG0903DM, DHG0904DM, DHG0907DM**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1954	552	0.40	T1	0.2	2030	500	0.36
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2589	629	0.67	T2	0.2	2675	594	0.64
	0.4	2410	681	0.73		0.4	2487	642	0.69
	0.6	2216	734	0.79		0.6	2336	698	0.75
	0.8	2038	782	0.84		0.8	2089	777	0.83
T3	0.2	3017	730	1.06	T3	0.2	3161	679	0.99
	0.4	2897	773	1.13		0.4	3068	713	1.04
	0.6	2760	818	1.19		0.6	2899	768	1.12
	0.8	2633	859	1.25		0.8	2776	809	1.18
T4	0.2	3251	774	1.26	T4	0.2	3413	704	1.15
	0.4	3095	813	1.33		0.4	3244	742	1.21
	0.6	2954	853	1.39		0.6	3108	785	1.28
	0.8	2827	893	1.46		0.8	2963	823	1.34
T5	0.2	3417	815	1.47	T5	0.2	3563	693	1.25
	0.4	3274	846	1.53		0.4	3526	771	1.39
	0.6	3126	887	1.60		0.6	3402	814	1.47
	0.8	2988	923	1.66		0.8	3317	858	1.55
T6	0.2	1416	213	0.21	T6	0.2	1604	448	0.25
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T7	0.2	1975	554	0.41	T7	0.2	2056	505	0.37
	0.4	-	-	-		0.4	1832	582	0.43
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T8	0.2	2156	579	0.54	T8	0.2	2434	558	0.52
	0.4	1956	637	0.59		0.4	2251	616	0.57
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T9	0.2	2936	677	0.87	T9	0.2	2975	642	0.83
	0.4	2756	724	0.93		0.4	2799	680	0.88
	0.6	2586	773	0.99		0.6	2585	734	0.94
	0.8	-	-	-		0.8	-	-	-
T10	0.2	3427	756	1.24	T10	0.2	3413	704	1.15
	0.4	3236	797	1.31		0.4	3244	742	1.21
	0.6	3084	838	1.38		0.6	3108	785	1.28
	0.8	2955	877	1.44		0.8	2963	823	1.34

**Note:**

- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
- Shaded area are not recommended for cooling or heating operation.
- Airflow table includes resistance for base unit only with 2" clean air filters in place.  
Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

**7.5 Ton**  
**180 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG0903LM, DHG0904LM, DHG0907LM**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1954	552	0.40	T1	0.2	2030	500	0.36
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T2	0.2	2908	718	0.98	T2	0.2	3067	653	0.89
	0.4	2754	759	1.04		0.4	2922	693	0.95
	0.6	2608	806	1.10		0.6	2711	750	1.03
	0.8	2473	845	1.16		0.8	2551	794	1.09
	1.0	2322	892	1.22		1.0	2396	837	1.15
	1.2	2105	945	1.29		1.2	2121	908	1.24
T3	0.2	3017	730	1.06	T3	0.2	3161	679	0.99
	0.4	2897	773	1.13		0.4	3068	713	1.04
	0.6	2760	818	1.19		0.6	2899	768	1.12
	0.8	2633	859	1.25		0.8	2776	809	1.18
	1.0	2499	900	1.31		1.0	2647	851	1.24
	1.2	2280	957	1.40		1.2	2405	922	1.35
T4	0.2	3629	851	1.72	T4	0.2	3730	803	1.62
	0.4	3548	882	1.79		0.4	3644	845	1.71
	0.6	3484	917	1.86		0.6	3566	881	1.78
	0.8	3375	955	1.93		0.8	3473	921	1.86
	1.0	3293	989	2.00		1.0	3374	946	1.91
	1.2	3185	1020	2.06		1.2	3374	946	1.91
T5	0.2	3765	876	1.89	T5	0.2	3776	862	1.86
	0.4	3676	902	1.94		0.4	3699	898	1.94
	0.6	3614	937	2.02		0.6	3616	938	2.02
	0.8	3386	980	2.11		0.8	3502	964	2.08
	1.0	3274	1020	2.19		1.0	3440	1011	2.18
	1.2	3153	1049	2.25		1.2	3289	996	2.02
T6	0.2	2730	647	0.75	T6	0.2	2782	575	0.63
	0.4	2551	698	0.81		0.4	2589	631	0.69
	0.6	2367	749	0.87		0.6	2376	699	0.76
	0.8	2195	796	0.92		0.8	2187	753	0.82
	1.0	2113	836	0.97		1.0	1946	796	0.87
	1.2	1891	894	1.03		1.2	-	-	-
T7	0.2	3108	758	1.17	T7	0.2	3284	678	1.05
	0.4	3019	797	1.23		0.4	3187	726	1.12
	0.6	2932	835	1.29		0.6	3081	772	1.19
	0.8	2818	876	1.36		0.8	2988	814	1.26
	1.0	2696	916	1.42		1.0	2876	857	1.32
	1.2	2538	949	1.47		1.2	2770	907	1.40
T8	0.2	3541	835	1.62	T8	0.2	3730	746	1.44
	0.4	3458	868	1.68		0.4	3640	790	1.53
	0.6	3391	903	1.75		0.6	3549	833	1.61
	0.8	3282	941	1.82		0.8	3470	869	1.68
	1.0	3195	976	1.89		1.0	3372	909	1.76
	1.2	3078	1007	1.95		1.2	3288	935	1.81
T9	0.2	3712	865	1.83	T9	0.2	3902	774	1.63
	0.4	3634	896	1.89		0.4	3813	815	1.72
	0.6	3571	930	1.96		0.6	3732	857	1.81
	0.8	3463	968	2.04		0.8	3655	893	1.88
	1.0	3384	1002	2.12		1.0	3569	932	1.97
	1.2	3284	1033	2.18		1.2	3458	958	2.02
T10	0.2	3869	893	2.04	T10	0.2	4056	799	1.83
	0.4	3795	921	2.11		0.4	3968	839	1.92
	0.6	3736	956	2.18		0.6	3899	879	2.01
	0.8	3628	994	2.27		0.8	3821	915	2.09
	1.0	3552	1029	2.35		1.0	3751	955	2.18
	1.2	3468	1058	2.42		1.2	3643	984	2.25
1.4	3405	1089	2.49	1.4	3582	1025	2.34		

# APPENDIX A BLOWER PERFORMANCE TABLES

7.5 Ton  
180 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG0903WM, DHG0904WM, DHG0907WM

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1954	552	0.40	T1	0.2	2030	500	0.36	T6	0.2	2792	701	0.91	T6	0.2	2957	628	0.82
	0.4	-	-	-		0.4	-	-	-		0.4	2699	745	0.97		0.4	2854	681	0.89
	0.6	-	-	-		0.6	-	-	-		0.6	2597	786	1.02		0.6	2743	730	0.95
	0.8	-	-	-		0.8	-	-	-		0.8	2478	831	1.08		0.8	2634	776	1.01
	1.0	-	-	-		1.0	-	-	-		1.0	2319	878	1.14		1.0	2523	823	1.07
	1.2	-	-	-		1.2	-	-	-		1.2	2112	912	1.18		1.2	2193	915	1.19
	1.4	-	-	-		1.4	-	-	-		1.4	1921	957	1.24		1.4	1969	950	1.23
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	-	-	-
T2	0.2	3316	796	1.37	T2	0.2	3316	796	1.23	T7	0.2	3464	822	1.53	T7	0.2	3652	734	1.37
	0.4	3230	831	1.43		0.4	3544	743	1.28		0.4	3380	855	1.59		0.4	3562	778	1.45
	0.6	3153	868	1.50		0.6	3415	786	1.36		0.6	3309	891	1.66		0.6	3467	822	1.53
	0.8	3042	907	1.57		0.8	3278	827	1.43		0.8	3200	929	1.73		0.8	3386	859	1.60
	1.0	2939	943	1.63		1.0	3147	870	1.50		1.0	3108	964	1.80		1.0	3284	899	1.67
	1.2	2800	976	1.68		1.2	2998	915	1.58		1.2	2984	996	1.85		1.2	3212	927	1.73
	1.4	2676	1017	1.76		1.4	2852	971	1.68		1.4	2881	1035	1.93		1.4	3090	977	1.82
	1.6	2500	1044	1.80		1.6	2666	1010	1.74		1.6	2717	1062	1.98		1.6	2966	1013	1.89
	1.8	2336	1113	1.92		1.8	2482	1060	1.83		1.8	2550	1130	2.10		1.8	2649	1112	2.07
	2.0	2209	1162	2.01		2.0	2323	1096	1.89		2.0	2357	1171	2.18		2.0	2521	1147	2.14
T3	0.2	3017	730	1.06	T3	0.2	3161	679	0.99	T8	0.2	3983	912	2.21	T8	0.2	4167	817	1.98
	0.4	2897	773	1.13		0.4	3068	713	1.04		0.4	3912	940	2.28		0.4	4077	857	2.08
	0.6	2760	818	1.19		0.6	2899	768	1.12		0.6	3855	974	2.36		0.6	4019	895	2.17
	0.8	2633	859	1.25		0.8	2776	809	1.18		0.8	3748	1014	2.46		0.8	3939	931	2.26
	1.0	2499	900	1.31		1.0	2647	851	1.24		1.0	3671	1051	2.55		1.0	3885	973	2.36
	1.2	2280	957	1.40		1.2	2405	922	1.35		1.2	3598	1079	2.62		1.2	3827	1008	2.44
	1.4	-	-	-		1.4	-	-	-		1.4	3538	1107	2.68		1.4	3723	1040	2.52
	1.6	-	-	-		1.6	-	-	-		1.6	3446	1136	2.75		1.6	3622	1070	2.59
	1.8	-	-	-		1.8	-	-	-		1.8	3326	1183	2.87		1.8	3569	1108	2.69
	2.0	-	-	-		2.0	-	-	-		2.0	3210	1213	2.94		2.0	3472	1139	2.76
T4	0.2	-	-	-	T4	0.2	-	-	-	T9	0.2	4119	935	2.44	T9	0.2	4296	839	2.19
	0.4	-	-	-		0.4	-	-	-		0.4	4054	962	2.51		0.4	4205	878	2.29
	0.6	3767	961	2.23		0.6	-	-	-		0.6	3998	997	2.60		0.6	4163	915	2.39
	0.8	3660	1000	2.32		0.8	-	-	-		0.8	3890	1039	2.71		0.8	4077	952	2.49
	1.0	3496	1042	2.42		1.0	3786	959	2.23		1.0	3806	1079	2.82		1.0	4047	996	2.60
	1.2	3398	1073	2.49		1.2	3674	995	2.31		1.2	3747	1106	2.89		1.2	3954	1041	2.72
	1.4	3293	1099	2.55		1.4	3566	1035	2.40		1.4	3686	1130	2.95		1.4	3894	1058	2.76
	1.6	3065	1137	2.64		1.6	3459	1067	2.48		1.6	3625	1160	3.03		1.6	3827	1088	2.84
	1.8	2958	1163	2.70		1.8	3361	1097	2.55		1.8	3541	1195	3.12		1.8	3735	1123	2.93
	2.0	2810	1208	2.80		2.0	3261	1134	2.63		2.0	3456	1222	3.19		2.0	3680	1154	3.01
T5	0.2	-	-	-	T5	0.2	-	-	-	T10	0.2	-	-	-	T10	0.2	-	-	-
	0.4	-	-	-		0.4	-	-	-		0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-		0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-		0.8	-	-	-		0.8	-	-	-
	1.0	3728	1062	2.66		1.0	-	-	-		1.0	4156	1104	3.08		1.0	-	-	-
	1.2	3662	1090	2.73		1.2	-	-	-		1.2	4032	1128	3.14		1.2	-	-	-
	1.4	3602	1116	2.79		1.4	3795	1047	2.62		1.4	3908	1151	3.21		1.4	4040	1074	2.99
	1.6	3523	1145	2.86		1.6	3706	1077	2.69		1.6	3784	1175	3.27		1.6	4023	1106	3.08
	1.8	3416	1188	2.97		1.8	3641	1114	2.79		1.8	3660	1198	3.34		1.8	3859	1138	3.17
	2.0	3317	1217	3.04		2.0	3565	1145	2.86		2.0	3536	1222	3.40		2.0	3812	1167	3.25

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**7.5 Ton**  
**225 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG0903DH, DHG0904DH, DHG0907DH**

**7.5 Ton**  
**225 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG0903LH, DHG0904LH, DHG0907LH**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1954	552	0.40	T1	0.2	2102	495	0.36
	0.4	-	-	-		0.4	1906	566	0.41
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2589	629	0.67	T2	0.2	2748	571	0.61
	0.4	2410	681	0.73		0.4	2554	627	0.67
	0.6	2216	734	0.79		0.6	2337	697	0.75
	0.8	2038	782	0.84		0.8	2148	750	0.80
T3	0.2	3194	716	1.05	T3	0.2	3336	657	0.96
	0.4	3010	760	1.11		0.4	3185	696	1.02
	0.6	2852	805	1.18		0.6	3029	750	1.10
	0.8	2705	847	1.24		0.8	2862	796	1.17
T4	0.2	3413	753	1.23	T4	0.2	3539	693	1.13
	0.4	3222	794	1.29		0.4	3419	726	1.18
	0.6	3070	836	1.36		0.6	3282	773	1.26
	0.8	2940	875	1.43		0.8	3132	816	1.33
T5	0.2	3622	793	1.43	T5	0.2	3724	732	1.32
	0.4	3422	830	1.50		0.4	3647	757	1.37
	0.6	3268	868	1.57		0.6	3525	797	1.44
	0.8	3160	904	1.64		0.8	3401	836	1.51
T6	0.2	2098	568	0.45	T6	0.2	2251	512	0.41
	0.4	1913	626	0.50		0.4	2052	579	0.46
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2625	633	0.69	T7	0.2	2784	576	0.63
	0.4	2446	685	0.75		0.4	2591	631	0.69
	0.6	2255	738	0.81		0.6	2379	699	0.76
	0.8	2079	786	0.86		0.8	2190	753	0.82
T8	0.2	3081	698	0.97	T8	0.2	3230	639	0.88
	0.4	2900	744	1.03		0.4	3066	682	0.94
	0.6	2737	791	1.09		0.6	2900	739	1.02
	0.8	2582	834	1.15		0.8	2726	787	1.09
T9	0.2	3263	728	1.10	T9	0.2	3401	668	1.01
	0.4	3078	771	1.17		0.4	3259	705	1.07
	0.6	2923	815	1.23		0.6	3109	757	1.15
	0.8	2780	856	1.30		0.8	2947	802	1.22
T10	0.2	3427	756	1.24	T10	0.2	3552	696	1.14
	0.4	3236	797	1.31		0.4	3435	728	1.20
	0.6	3084	838	1.38		0.6	3299	774	1.27
	0.8	2955	877	1.44		0.8	3151	817	1.34

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1954	552	0.40	T1	0.2	2102	495	0.36
	0.4	-	-	-		0.4	1906	566	0.41
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
	1.4	-	-	-		1.4	-	-	-
	T2	0.2	3059	695		0.95	T2	0.2	3208
0.4		2877	741	1.01	0.4	3043		680	0.93
0.6		2714	788	1.08	0.6	2874		737	1.01
0.8		2558	831	1.14	0.8	2699		785	1.07
1.0		2412	870	1.19	1.0	2519		829	1.13
1.2		2218	922	1.26	1.2	2312		884	1.21
1.4		2028	965	1.32	1.4	2103		948	1.30
T3		0.2	3194	716	1.05	T3		0.2	3336
	0.4	3010	760	1.11	0.4		3185	696	1.02
	0.6	2852	805	1.18	0.6		3029	750	1.10
	0.8	2705	847	1.24	0.8		2862	796	1.17
	1.0	2542	885	1.30	1.0		2699	840	1.23
	1.2	2360	934	1.37	1.2		2509	893	1.31
	1.4	-	-	-	1.4		2320	954	1.40
	T4	0.2	3622	874	1.77		T4	0.2	-
0.4		3458	907	1.83	0.4	-		-	-
0.6		3380	940	1.90	0.6	-		-	-
0.8		3380	940	1.90	0.8	3693		861	1.74
1.0		3265	975	1.97	1.0	3575		905	1.83
1.2		3138	1008	2.04	1.2	3461		941	1.90
1.4		2994	1043	2.11	1.4	3345		991	2.00
T5		0.2	3725	901	1.94	T5		0.2	-
	0.4	3549	931	2.00	0.4		-	-	-
	0.6	3492	961	2.07	0.6		-	-	-
	0.8	3423	996	2.15	0.8		-	-	-
	1.0	3307	1026	2.21	1.0		3737	920	1.98
	1.2	3180	1059	2.28	1.2		3633	952	2.05
	1.4	3180	1059	2.28	1.4		3524	999	2.15
	T6	0.2	2231	516	0.50		T6	0.2	2410
0.4		2028	649	0.63	0.4	2385		610	0.59
0.6		1835	696	0.68	0.6	2243		664	0.65
0.8		-	-	-	0.8	1983		748	0.73
1.0		-	-	-	1.0	-		-	-
1.2		-	-	-	1.2	-		-	-
1.4		-	-	-	1.4	-		-	-
T7		0.2	2987	684	0.90	T7		0.2	3139
	0.4	2806	731	0.96	0.4		2967	671	0.89
	0.6	2639	779	1.03	0.6		2791	730	0.96
	0.8	2479	823	1.09	0.8		2613	779	1.03
	1.0	2344	862	1.14	1.0		2424	823	1.09
	1.2	2144	915	1.21	1.2		2207	880	1.16
	1.4	1953	959	1.27	1.4		1987	944	1.25
	T8	0.2	3456	761	1.27		T8	0.2	3578
0.4		3264	801	1.34	0.4	3467		732	1.22
0.6		3112	842	1.40	0.6	3333		778	1.30
0.8		2986	881	1.47	0.8	3188		820	1.37
1.0		2812	918	1.53	1.0	3051		863	1.44
1.2		2652	961	1.60	1.2	2894		910	1.52
1.4		2476	1001	1.67	1.4	2739		967	1.61
T9		0.2	3569	838	1.66	T9		0.2	3868
	0.4	3500	874	1.73	0.4		3839	787	1.55
	0.6	3434	910	1.80	0.6		3727	820	1.62
	0.8	3325	947	1.87	0.8		3631	856	1.69
	1.0	3240	982	1.94	1.0		3513	900	1.78
	1.2	3128	1013	2.00	1.2		3394	937	1.85
	1.4	3040	1049	2.07	1.4		3274	987	1.95
	T10	0.2	3893	882	1.99		T10	0.2	4122
0.4		3766	916	2.07	0.4	4001		828	1.87
0.6		3687	945	2.14	0.6	3881		865	1.96
0.8		3584	977	2.21	0.8	3800		910	2.06
1.0		3501	1006	2.28	1.0	3594		930	2.10
1.2		3392	1042	2.36	1.2	3519		974	2.20
1.4		3289	1068	2.42	1.4	3391		1007	2.28

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place.
- Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.



# APPENDIX A BLOWER PERFORMANCE TABLES

7.5 Ton  
225 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG0903WH, DHG0904WH, DHG0907WH

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1954	552	0.40	T1	0.2	2102	495	0.36	T6	0.2	2569	626	0.66	T6	0.2	2728	568	0.60
	0.4	-	-	-		0.4	1906	566	0.41		0.4	2389	678	0.72		0.4	2533	625	0.66
	0.6	-	-	-		0.6	-	-	-		0.6	2194	732	0.78		0.6	2314	695	0.74
	0.8	-	-	-		0.8	-	-	-		0.8	2015	780	0.83		0.8	2125	749	0.79
	1.0	-	-	-		1.0	-	-	-		1.0	1974	821	0.87		1.0	1875	792	0.84
	1.2	-	-	-		1.2	-	-	-		1.2	-	-	-		1.2	-	-	-
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	-	-	-
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	-	-	-
T2	0.2	3527	774	1.34	T2	0.2	3642	714	1.23	T7	0.2	-	-	-	T7	0.2	-	-	-
	0.4	3332	814	1.40		0.4	3544	743	1.28		0.4	3048	766	1.14		0.4	-	-	-
	0.6	3180	853	1.47		0.6	3415	786	1.36		0.6	2892	811	1.21		0.6	3074	754	1.13
	0.8	3061	891	1.54		0.8	3278	827	1.43		0.8	2747	852	1.27		0.8	2910	800	1.19
	1.0	2889	927	1.60		1.0	3147	870	1.50		1.0	2581	890	1.33		1.0	2751	843	1.26
	1.2	2735	969	1.67		1.2	2998	915	1.58		1.2	2402	938	1.40		1.2	2566	895	1.34
	1.4	2563	1008	1.74		1.4	2852	971	1.68		1.4	2216	980	1.46		1.4	2382	956	1.43
	1.6	2392	1050	1.81		1.6	2666	1010	1.74		1.6	2043	1023	1.53		1.6	2200	998	1.49
	1.8	2237	1086	1.87		1.8	2482	1060	1.83		1.8	1893	1062	1.58		1.8	2005	1047	1.56
	2.0	2077	1119	1.93		2.0	2323	1096	1.89		2.0	-	-	-		2.0	1836	1083	1.62
T3	0.2	3194	716	1.05	T3	0.2	3336	657	0.96	T8	0.2	3744	819	1.58	T8	0.2	3828	758	1.46
	0.4	3010	760	1.11		0.4	3185	696	1.02		0.4	3536	854	1.64		0.4	3784	778	1.50
	0.6	2852	805	1.18		0.6	3029	750	1.10		0.6	3378	889	1.71		0.6	3669	813	1.57
	0.8	2705	847	1.24		0.8	2862	796	1.17		0.8	3286	924	1.78		0.8	3564	850	1.64
	1.0	2542	885	1.30		1.0	2699	840	1.23		1.0	3144	960	1.85		1.0	3444	894	1.72
	1.2	2360	934	1.37		1.2	2509	893	1.31		1.2	3009	995	1.92		1.2	3320	933	1.80
	1.4	-	-	-		1.4	2320	954	1.40		1.4	2855	1031	1.99		1.4	3197	984	1.89
	1.6	-	-	-		1.6	-	-	-		1.6	2687	1072	2.06		1.6	3023	1020	1.96
	1.8	-	-	-		1.8	-	-	-		1.8	2526	1107	2.13		1.8	2852	1071	2.06
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	2703	1107	2.13
T4	0.2	-	-	-	T4	0.2	-	-	-	T9	0.2	3998	907	2.14	T9	0.2	-	-	-
	0.4	-	-	-		0.4	-	-	-		0.4	3905	939	2.22		0.4	-	-	-
	0.6	3769	961	2.22		0.6	-	-	-		0.6	3812	972	2.29		0.6	4100	872	2.06
	0.8	3645	1000	2.32		0.8	-	-	-		0.8	3693	1005	2.37		0.8	4086	901	2.12
	1.0	3496	1042	2.42		1.0	-	-	-		1.0	3617	1041	2.46		1.0	3955	944	2.23
	1.2	3398	1073	2.49		1.2	3674	995	2.31		1.2	3539	1069	2.52		1.2	3864	970	2.29
	1.4	3293	1099	2.55		1.4	3566	1035	2.40		1.4	3478	1098	2.59		1.4	3758	1013	2.39
	1.6	3065	1137	2.64		1.6	3459	1067	2.48		1.6	3376	1127	2.66		1.6	3659	1042	2.46
	1.8	2958	1163	2.70		1.8	3361	1097	2.55		1.8	3271	1162	2.74		1.8	3525	1096	2.59
	2.0	2810	1208	2.80		2.0	3261	1134	2.63		2.0	3111	1208	2.85		2.0	3406	1132	2.67
T5	0.2	-	-	-	T5	0.2	-	-	-	T10	0.2	-	-	-	T10	0.2	-	-	-
	0.4	-	-	-		0.4	-	-	-		0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-		0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-		0.8	-	-	-		0.8	-	-	-
	1.0	3754	1063	2.66		1.0	-	-	-		1.0	4156	1104	3.08		1.0	-	-	-
	1.2	3662	1090	2.73		1.2	-	-	-		1.2	4032	1128	3.14		1.2	-	-	-
	1.4	3578	1115	2.80		1.4	3795	1047	2.62		1.4	3908	1151	3.21		1.4	4040	1074	2.99
	1.6	3519	1137	2.84		1.6	3706	1077	2.69		1.6	3784	1175	3.27		1.6	4023	1106	3.08
	1.8	3325	1166	2.91		1.8	3641	1114	2.79		1.8	3660	1198	3.34		1.8	3859	1138	3.17
	2.0	3161	1203	3.01		2.0	3565	1145	2.86		2.0	3536	1222	3.40		2.0	3812	1167	3.25

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**8.5 Ton**  
**130 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG1023DL, DHG1024DL, DHG1027DL**

**8.5 Ton**  
**130 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG1023LL, DHG1024LL, DHG1027LL**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1714	496	0.32	T1	0.2	1856	423	0.27
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2365	599	0.61	T2	0.2	2671	503	0.51
	0.4	2208	649	0.66		0.4	2492	568	0.57
	0.6	2048	695	0.70		0.6	2335	628	0.64
	0.8	-	-	-		0.8	2027	690	0.70
T3	0.2	2798	671	0.88	T3	0.2	3144	564	0.74
	0.4	2687	713	0.93		0.4	3005	607	0.79
	0.6	-	-	-		0.6	2824	671	0.88
	0.8	-	-	-		0.8	2661	722	0.95
T4	0.2	3522	795	1.51	T4	0.2	3921	655	1.25
	0.4	3389	828	1.58		0.4	3775	700	1.33
	0.6	3240	865	1.65		0.6	3630	745	1.42
	0.8	3083	898	1.71		0.8	3449	786	1.50
T5	0.2	3830	847	1.83	T5	0.2	4210	694	1.49
	0.4	3702	881	1.90		0.4	4071	737	1.59
	0.6	3563	915	1.97		0.6	3942	777	1.67
	0.8	3399	946	2.04		0.8	3746	819	1.76
T6	0.2	1889	528	0.38	T6	0.2	2056	443	0.32
	0.4	1827	589	0.43		0.4	1887	522	0.38
	0.6	1445	667	0.48		0.6	1702	591	0.43
	0.8	-	-	-		0.8	1327	707	0.51
T7	0.2	2193	571	0.53	T7	0.2	2445	487	0.45
	0.4	2090	635	0.59		0.4	2283	556	0.51
	0.6	1959	698	0.64		0.6	2098	617	0.57
	0.8	1704	763	0.70		0.8	1828	688	0.64
T8	0.2	2489	616	0.69	T8	0.2	2760	545	0.61
	0.4	2351	679	0.76		0.4	2630	587	0.66
	0.6	2235	729	0.82		0.6	2487	641	0.72
	0.8	2050	780	0.87		0.8	2264	701	0.79
T9	0.2	2860	679	0.94	T9	0.2	3234	581	0.80
	0.4	2699	735	1.02		0.4	3043	626	0.87
	0.6	2554	774	1.07		0.6	2866	675	0.93
	0.8	2446	817	1.13		0.8	2677	729	1.01
T10	0.2	3182	743	1.22	T10	0.2	3655	604	0.99
	0.4	3041	788	1.30		0.4	3427	663	1.09
	0.6	2953	821	1.35		0.6	3210	714	1.17
	0.8	2797	868	1.43		0.8	3066	759	1.25

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1714	496	0.32	T1	0.2	1856	423	0.27
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T2	0.2	3114	722	1.12	T2	0.2	3458	603	0.93
	0.4	2977	761	1.18		0.4	3292	658	1.02
	0.6	2825	800	1.24		0.6	3155	700	1.08
	0.8	2634	846	1.31		0.8	3007	747	1.16
	1.0	2474	878	1.36		1.0	2844	797	1.23
	1.2	2236	931	1.44		1.2	2681	836	1.29
T3	0.2	2798	671	0.88	T3	0.2	3144	564	0.74
	0.4	2687	713	0.93		0.4	3005	607	0.79
	0.6	-	-	-		0.6	2824	671	0.88
	0.8	-	-	-		0.8	2661	722	0.95
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T4	0.2	3997	874	1.99	T4	0.2	4200	754	1.71
	0.4	3869	909	2.07		0.4	4070	791	1.80
	0.6	3740	942	2.14		0.6	3879	838	1.91
	0.8	3578	975	2.22		0.8	3699	874	1.99
	1.0	3417	1009	2.29		1.0	3535	923	2.10
	1.2	3257	1039	2.36		1.2	3341	946	2.15
T5	0.2	-	-	-	T5	0.2	-	-	-
	0.4	4125	958	2.46		0.4	-	-	-
	0.6	3997	992	2.55		0.6	-	-	-
	0.8	3806	1021	2.63		0.8	4194	863	2.22
	1.0	3701	1056	2.72		1.0	4012	898	2.31
	1.2	3547	1081	2.78		1.2	3879	955	2.45
T6	0.2	1863	520	0.37	T6	0.2	2029	440	0.31
	0.4	1748	587	0.42		0.4	1855	519	0.37
	0.6	1403	671	0.48		0.6	1666	593	0.42
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T7	0.2	2398	602	0.64	T7	0.2	2645	528	0.56
	0.4	2270	665	0.70		0.4	2515	577	0.61
	0.6	2161	719	0.76		0.6	2360	634	0.67
	0.8	1948	774	0.82		0.8	2137	694	0.74
	1.0	1818	821	0.87		1.0	1801	757	0.80
	1.2	1520	901	0.95		1.2	1532	814	0.86
T8	0.2	2398	602	0.64	T8	0.2	2645	528	0.56
	0.4	2270	665	0.70		0.4	2515	577	0.61
	0.6	2161	719	0.76		0.6	2360	634	0.67
	0.8	1948	774	0.82		0.8	2137	694	0.74
	1.0	1818	821	0.87		1.0	1801	757	0.80
	1.2	-	-	-		1.2	-	-	-
T9	0.2	3203	753	1.25	T9	0.2	3664	603	1.01
	0.4	3097	795	1.32		0.4	3429	666	1.11
	0.6	2992	833	1.39		0.6	3240	718	1.20
	0.8	2871	874	1.46		0.8	3088	761	1.27
	1.0	2716	917	1.53		1.0	2883	808	1.35
	1.2	2580	951	1.59		1.2	2651	857	1.43
T10	0.2	3879	753	1.72	T10	0.2	-	-	-
	0.4	3777	802	1.83		0.4	-	-	-
	0.6	3658	823	1.88		0.6	-	-	-
	0.8	3532	848	1.93		0.8	-	-	-
	1.0	3416	872	1.99		1.0	3711	872	1.99
	1.2	3280	908	2.07		1.2	3501	907	2.07

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**8.5 Ton  
130 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG1023WL, DHG1024WL, DHG1027WL**

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1714	496	0.32	T1	0.2	1856	423	0.27	T6	0.2	2398	602	0.64	T6	0.2	2645	528	0.56
	0.4	-	-	-		0.4	-	-	-		0.4	2270	665	0.70		0.4	2515	577	0.61
	0.6	-	-	-		0.6	-	-	-		0.6	2161	719	0.76		0.6	2360	634	0.67
	0.8	-	-	-		0.8	-	-	-		0.8	1948	774	0.82		0.8	2137	694	0.74
	1.0	-	-	-		1.0	-	-	-		1.0	1818	821	0.87		1.0	1801	757	0.80
	1.2	-	-	-		1.2	-	-	-		1.2	1520	901	0.95		1.2	1532	814	0.86
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	-	-	-
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
2.0	-	-	-	2.0	-	-	-	2.0	-	-	-	2.0	-	-	-				
T2	0.2	3674	820	1.66	T2	0.2	4061	675	1.37	T7	0.2	-	-	-	T7	0.2	-	-	-
	0.4	3544	853	1.73		0.4	3919	720	1.46		0.4	2729	741	1.06		0.4	-	-	-
	0.6	3402	889	1.80		0.6	3792	761	1.54		0.6	2574	789	1.13		0.6	-	-	-
	0.8	3235	920	1.86		0.8	3610	802	1.62		0.8	2447	824	1.18		0.8	2767	734	1.05
	1.0	3055	956	1.94		1.0	3427	845	1.71		1.0	2310	847	1.21		1.0	2539	781	1.12
	1.2	2891	986	2.00		1.2	3261	894	1.81		1.2	2126	857	1.22		1.2	2280	837	1.20
	1.4	2708	1011	2.05		1.4	3042	919	1.86		1.4	1858	948	1.35		1.4	2083	892	1.27
	1.6	2499	1071	2.17		1.6	2865	962	1.95		1.6	1746	1021	1.46		1.6	1834	946	1.35
	1.8	2307	1103	2.23		1.8	2649	1020	2.06		1.8	1577	1075	1.54		1.8	1477	1014	1.45
2.0	2054	1146	2.32	2.0	2487	1041	2.11	2.0	1420	1111	1.59	2.0	-	-	-				
T3	0.2	2798	671	0.88	T3	0.2	3144	564	0.74	T8	0.2	2947	695	1.01	T8	0.2	3354	587	0.85
	0.4	2687	713	0.93		0.4	3005	607	0.79		0.4	2787	749	1.09		0.4	3145	635	0.92
	0.6	-	-	-		0.6	2824	671	0.88		0.6	2649	786	1.14		0.6	2952	685	0.99
	0.8	-	-	-		0.8	2661	722	0.95		0.8	2539	829	1.20		0.8	2776	736	1.07
	1.0	-	-	-		1.0	-	-	-		1.0	2287	872	1.26		1.0	2573	785	1.14
	1.2	-	-	-		1.2	-	-	-		1.2	2202	917	1.33		1.2	2318	840	1.22
	1.4	-	-	-		1.4	-	-	-		1.4	1896	972	1.41		1.4	2119	896	1.30
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	1875	950	1.38
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
2.0	-	-	-	2.0	-	-	-	2.0	-	-	-	2.0	-	-	-				
T4	0.2	4166	907	2.22	T4	0.2	-	-	-	T9	0.2	3704	751	1.59	T9	0.2	-	-	-
	0.4	4029	939	2.30		0.4	-	-	-		0.4	3606	786	1.67		0.4	-	-	-
	0.6	3906	969	2.37		0.6	4261	812	1.99		0.6	3491	903	1.92		0.6	-	-	-
	0.8	3717	1003	2.45		0.8	4051	849	2.08		0.8	3366	951	2.02		0.8	3761	817	1.73
	1.0	3544	1037	2.54		1.0	3857	885	2.17		1.0	3247	981	2.08		1.0	3588	854	1.81
	1.2	3394	1064	2.60		1.2	3718	922	2.25		1.2	3108	1015	2.15		1.2	3342	894	1.90
	1.4	3219	1092	2.67		1.4	3536	957	2.34		1.4	2970	1050	2.23		1.4	3145	938	1.99
	1.6	3060	1121	2.74		1.6	3369	993	2.43		1.6	2833	1082	2.30		1.6	2888	981	2.08
	1.8	2887	1148	2.81		1.8	3199	1028	2.52		1.8	2661	1117	2.37		1.8	2688	1022	2.17
2.0	2721	1176	2.88	2.0	3048	1064	2.60	2.0	2477	1179	2.50	2.0	2433	1065	2.26				
T5	0.2	-	-	-	T5	0.2	-	-	-	T10	0.2	-	-	-	T10	0.2	-	-	-
	0.4	-	-	-		0.4	-	-	-		0.4	-	-	-		0.4	-	-	-
	0.6	4221	1022	2.85		0.6	-	-	-		0.6	-	-	-		0.6	-	-	-
	0.8	4047	1052	2.93		0.8	-	-	-		0.8	-	-	-		0.8	-	-	-
	1.0	3889	1084	3.02		1.0	-	-	-		1.0	3867	1078	3.00		1.0	-	-	-
	1.2	3734	1109	3.09		1.2	4145	950	2.65		1.2	3743	1109	3.09		1.2	-	-	-
	1.4	3555	1133	3.16		1.4	3925	986	2.75		1.4	3606	1138	3.17		1.4	-	-	-
	1.6	3396	1162	3.24		1.6	3783	1018	2.84		1.6	3474	1165	3.25		1.6	3767	1022	2.85
	1.8	3210	1186	3.30		1.8	3606	1051	2.93		1.8	3340	1193	3.32		1.8	3581	1060	2.95
2.0	3041	1211	3.37	2.0	3415	1085	3.02	2.0	3204	1219	3.40	2.0	3370	1096	3.05				

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**8.5 Ton**  
**180 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG1023DM, DHG1024DM, DHG1027DM**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1902	520	0.37	T1	0.2	2029	440	0.31
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2365	599	0.61	T2	0.2	2671	503	0.51
	0.4	2208	649	0.66		0.4	2492	568	0.57
	0.6	2048	695	0.70		0.6	2335	628	0.64
	0.8	1892	736	0.74		0.8	2027	690	0.70
T3	0.2	3026	709	1.06	T3	0.2	3921	593	0.88
	0.4	2905	748	1.11		0.4	3245	641	0.95
	0.6	2735	788	1.17		0.6	3095	693	1.03
	0.8	2593	831	1.24		0.8	2948	739	1.10
T4	0.2	3522	795	1.51	T4	0.2	3921	655	1.25
	0.4	3389	828	1.58		0.4	3775	700	1.33
	0.6	3240	865	1.65		0.6	3630	745	1.42
	0.8	3083	898	1.71		0.8	3449	786	1.50
T5	0.2	3830	847	1.83	T5	0.2	4210	694	1.49
	0.4	3702	881	1.90		0.4	4071	737	1.59
	0.6	3563	915	1.97		0.6	3942	777	1.67
	0.8	3399	946	2.04		0.8	3746	819	1.76
T6	0.2	1539	469	0.27	T6	0.2	1650	405	0.23
	0.4	1317	556	0.31		0.4	1369	515	0.29
	0.6	994	634	0.36		0.6	1105	589	0.33
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2327	591	0.60	T7	0.2	2571	513	0.52
	0.4	2207	655	0.66		0.4	2433	570	0.58
	0.6	2098	712	0.72		0.6	2261	630	0.64
	0.8	1865	770	0.78		0.8	2042	690	0.70
T8	0.2	2266	588	0.56	T8	0.2	2491	493	0.47
	0.4	2126	638	0.61		0.4	2318	560	0.53
	0.6	1989	694	0.66		0.6	2125	625	0.60
	0.8	1747	765	0.73		0.8	1918	683	0.65
T9	0.2	2743	658	0.85	T9	0.2	3073	572	0.74
	0.4	2585	717	0.93		0.4	2909	613	0.80
	0.6	2443	759	0.99		0.6	2751	663	0.86
	0.8	-	-	-		0.8	2547	719	0.93
T10	0.2	3182	743	1.22	T10	0.2	3655	604	0.99
	0.4	3041	788	1.30		0.4	3427	663	1.09
	0.6	2953	821	1.35		0.6	3210	714	1.17
	0.8	2797	868	1.43		0.8	3066	759	1.25

**Note:**

- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
- Shaded area are not recommended for cooling or heating operation.
- Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

**8.5 Ton**  
**180 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG1023LM, DHG1024LM, DHG1027LM**

Down Flow					Horizontal Flow					
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	
T1	0.2	1863	520	0.37	T1	0.2	2029	440	0.31	
	0.4	-	-	-		0.4	1855	519	0.37	
	0.6	-	-	-		0.6	-	-	-	
	0.8	-	-	-		0.8	-	-	-	
	1.0	-	-	-		1.0	-	-	-	
T2	1.2	-	-	-	T2	1.2	-	-	-	
	1.4	-	-	-		1.4	-	-	-	
	0.2	3114	722	1.12		T2	0.2	3458	603	0.93
	0.4	2977	761	1.18			0.4	3292	658	1.02
	0.6	2825	800	1.24			0.6	3155	700	1.08
0.8	2634	846	1.31	0.8	3007		747	1.16		
1.0	2474	878	1.36	1.0	2844		797	1.23		
T3	1.2	2236	931	1.44	T3	1.2	2681	836	1.29	
	1.4	1990	986	1.53		1.4	2469	885	1.37	
	0.2	3026	709	1.06		T3	0.2	3391	593	0.88
	0.4	2905	748	1.11			0.4	3245	641	0.95
	0.6	2735	788	1.17			0.6	3095	693	1.03
0.8	2593	831	1.24	0.8	2948		739	1.10		
1.0	-	-	-	1.0	2789		789	1.17		
T4	1.2	-	-	-	T4	1.2	2614	847	1.26	
	1.4	-	-	-		1.4	-	-	-	
	0.2	3997	874	1.99		T4	0.2	-	-	-
	0.4	3869	909	2.07			0.4	4200	754	1.71
	0.6	3740	942	2.14			0.6	4070	791	1.80
0.8	3578	975	2.22	0.8	3879		838	1.91		
1.0	3417	1009	2.29	1.0	3699		874	1.99		
T5	1.2	3257	1039	2.36	T5	1.2	3535	923	2.10	
	1.4	3091	1069	2.43		1.4	3341	946	2.15	
	0.2	-	-	-		T5	0.2	-	-	-
	0.4	4125	958	2.46			0.4	-	-	-
	0.6	3997	992	2.55			0.6	-	-	-
0.8	3806	1021	2.63	0.8	4194		863	2.22		
1.0	3701	1056	2.72	1.0	4012		898	2.31		
T6	1.2	3547	1081	2.78	T6	1.2	3879	955	2.45	
	1.4	3374	1101	2.83		1.4	3683	967	2.49	
	0.2	2137	563	0.50		T6	0.2	2382	479	0.42
	0.4	2041	626	0.56			0.4	2229	549	0.49
	0.6	1888	692	0.61			0.6	2053	611	0.54
0.8	-	-	-	0.8	-		-	-		
1.0	-	-	-	1.0	-		-	-		
T7	1.2	-	-	-	T7	1.2	-	-	-	
	1.4	-	-	-		1.4	-	-	-	
	0.2	2948	681	0.97		T7	0.2	3346	591	0.84
	0.4	2729	741	1.06			0.4	3123	632	0.90
	0.6	2574	789	1.13			0.6	2931	681	0.97
0.8	2447	824	1.18	0.8	2767		734	1.05		
1.0	2310	847	1.21	1.0	2539		781	1.12		
T8	1.2	2126	857	1.22	T8	1.2	2280	837	1.20	
	1.4	1858	948	1.35		1.4	2083	892	1.27	
	0.2	3256	760	1.30		T8	0.2	3734	613	1.05
	0.4	3128	802	1.37			0.4	3520	673	1.15
	0.6	3059	834	1.42			0.6	3311	723	1.24
0.8	2885	884	1.51	0.8	3172		767	1.31		
1.0	2779	916	1.6	1.0	2951		811	1.39		
T9	1.2	2619	955	1.63	T9	1.2	2724	859	1.47	
	1.4	2449	1000	1.71		1.4	2547	909	1.55	
	0.2	3571	777	1.55		T9	0.2	3992	669	1.34
	0.4	3475	815	1.63			0.4	3881	710	1.42
	0.6	3364	887	1.77			0.6	3776	756	1.51
0.8	3239	920	1.84	0.8	3631		804	1.61		
1.0	3115	957	1.91	1.0	3474		841	1.68		
T10	1.2	2974	997	2.00	T10	1.2	3329	884	1.77	
	1.4	2825	1031	2.06		1.4	3125	928	1.86	
	0.2	3879	753	1.72		T10	0.2	4350	708	1.62
	0.4	3777	802	1.83			0.4	4212	747	1.71
	0.6	3658	823	1.91			0.6	4054	789	1.80
0.8	3532	880	2.06	0.8	3912		834	1.91		
1.0	3416	908	2.13	1.0	3711		872	1.99		
T10	1.2	3280	1038	2.37	T10	1.2	3501	907	2.07	
	1.4	3152	1071	2.45		1.4	2986	951	2.17	

# APPENDIX A BLOWER PERFORMANCE TABLES

8.5 Ton  
 180 MBH Gas Heat Exchanger  
 High Static Direct Drive  
 Models: DHG1023WM, DHG1024WM, DHG1027WM

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1863	520	0.37	T1	0.2	2029	440	0.31	T6	0.2	2464	612	0.68	T6	0.2	2719	539	0.60
	0.4	-	-	-		0.4	1855	519	0.37		0.4	2329	675	0.75		0.4	2590	584	0.64
	0.6	-	-	-		0.6	-	-	-		0.6	2215	727	0.80		0.6	2444	638	0.70
	0.8	-	-	-		0.8	-	-	-		0.8	2022	778	0.86		0.8	2221	699	0.77
	1.0	-	-	-		1.0	-	-	-		1.0	-	-	-		1.0	1930	759	0.84
	1.2	-	-	-		1.2	-	-	-		1.2	-	-	-		1.2	-	-	-
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	-	-	-
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
2.0	-	-	-	2.0	-	-	-	2.0	-	-	-	2.0	-	-	-				
T2	0.2	3674	820	1.66	T2	0.2	4061	675	1.37	T7	0.2	3302	768	1.35	T7	0.2	3734	626	1.10
	0.4	3544	853	1.73		0.4	3919	720	1.46		0.4	3209	847	1.49		0.4	3574	679	1.20
	0.6	3402	889	1.80		0.6	3792	761	1.54		0.6	3103	851	1.50		0.6	3431	729	1.28
	0.8	3235	920	1.86		0.8	3610	802	1.62		0.8	2979	886	1.56		0.8	3283	775	1.37
	1.0	3055	956	1.94		1.0	3427	845	1.71		1.0	2840	930	1.64		1.0	3115	817	1.44
	1.2	2891	986	2.00		1.2	3261	894	1.81		1.2	2696	964	1.70		1.2	2941	865	1.52
	1.4	2708	1011	2.05		1.4	3042	919	1.86		1.4	2513	1027	1.81		1.4	2747	908	1.60
	1.6	2499	1071	2.17		1.6	2865	962	1.95		1.6	2312	1039	1.83		1.6	2425	958	1.69
	1.8	2307	1103	2.23		1.8	2649	1020	2.06		1.8	2123	1102	1.94		1.8	2211	1011	1.78
2.0	2054	1146	2.32	2.0	2487	1041	2.11	2.0	1895	1155	2.03	2.0	1860	1086	1.91				
T3	0.2	3026	709	1.06	T3	0.2	3391	593	0.88	T8	0.2	3392	853	1.57	T8	0.2	3835	638	1.17
	0.4	2905	748	1.11		0.4	3245	641	0.95		0.4	3298	852	1.57		0.4	3695	691	1.27
	0.6	2735	788	1.17		0.6	3095	693	1.03		0.6	3191	864	1.59		0.6	3544	739	1.36
	0.8	2593	831	1.24		0.8	2948	739	1.10		0.8	3066	864	1.59		0.8	3402	784	1.44
	1.0	-	-	-		1.0	2789	789	1.17		1.0	2933	915	1.68		1.0	3228	826	1.52
	1.2	-	-	-		1.2	2614	847	1.26		1.2	2790	975	1.79		1.2	3034	870	1.60
	1.4	-	-	-		1.4	-	-	-		1.4	2620	1002	1.84		1.4	2840	920	1.69
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	2615	962	1.77
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
2.0	-	-	-	2.0	-	-	-	2.0	-	-	-	2.0	-	-	-				
T4	0.2	4166	907	2.22	T4	0.2	-	-	-	T9	0.2	3912	757	1.75	T9	0.2	4388	712	1.65
	0.4	4029	939	2.30		0.4	-	-	-		0.4	3808	816	1.89		0.4	4245	751	1.74
	0.6	3906	969	2.37		0.6	-	-	-		0.6	3689	927	2.15		0.6	4081	792	1.84
	0.8	3717	1003	2.45		0.8	4051	849	2.08		0.8	3562	984	2.28		0.8	3940	837	1.94
	1.0	3544	1037	2.54		1.0	3857	885	2.17		1.0	3447	1012	2.35		1.0	3734	875	2.03
	1.2	3394	1064	2.60		1.2	3718	922	2.25		1.2	3312	1042	2.41		1.2	3539	910	2.11
	1.4	3219	1092	2.67		1.4	3536	957	2.34		1.4	3185	1075	2.49		1.4	3317	953	2.21
	1.6	3060	1121	2.74		1.6	3369	993	2.43		1.6	3063	1106	2.56		1.6	3092	995	2.31
	1.8	2887	1148	2.81		1.8	3199	1028	2.52		1.8	2903	1126	2.61		1.8	2880	1030	2.39
2.0	2721	1176	2.88	2.0	3048	1064	2.60	2.0	2773	1181	2.74	2.0	2653	1068	2.48				
T5	0.2	-	-	-	T5	0.2	-	-	-	T10	0.2	4380	941	2.62	T10	0.2	4802	776	2.16
	0.4	-	-	-		0.4	-	-	-		0.4	4256	977	2.72		0.4	4695	811	2.26
	0.6	4221	1022	2.85		0.6	-	-	-		0.6	4126	1012	2.82		0.6	4585	847	2.36
	0.8	4047	1052	2.93		0.8	-	-	-		0.8	3991	1046	2.91		0.8	4462	883	2.46
	1.0	3889	1084	3.02		1.0	-	-	-		1.0	3867	1078	3.00		1.0	4315	922	2.57
	1.2	3734	1109	3.09		1.2	4145	950	2.65		1.2	3743	1109	3.09		1.2	4153	952	2.65
	1.4	3555	1133	3.16		1.4	3925	986	2.75		1.4	3606	1138	3.17		1.4	3975	989	2.76
	1.6	3396	1162	3.24		1.6	3783	1018	2.84		1.6	3474	1165	3.25		1.6	3767	1022	2.85
	1.8	3210	1186	3.30		1.8	3606	1051	2.93		1.8	3340	1193	3.32		1.8	3581	1060	2.95
2.0	3041	1211	3.37	2.0	3415	1085	3.02	2.0	3204	1219	3.40	2.0	3370	1096	3.05				

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.



# APPENDIX A BLOWER PERFORMANCE TABLES

**8.5 Ton**  
**225 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG1023DH, DHG1024DH, DHG1027DH**

**8.5 Ton**  
**225 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG1023LH, DHG1024LH, DHG1027LH**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1902	520	0.37	T1	0.2	2029	440	0.31
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2365	599	0.61	T2	0.2	2671	503	0.51
	0.4	2208	649	0.66		0.4	2492	568	0.57
	0.6	2048	695	0.70		0.6	2335	628	0.64
	0.8	1892	736	0.74		0.8	2027	690	0.70
T3	0.2	3026	709	1.06	T3	0.2	3391	593	0.88
	0.4	2905	748	1.11		0.4	3245	641	0.95
	0.6	2735	788	1.17		0.6	3095	693	1.03
	0.8	2593	831	1.24		0.8	2948	739	1.10
T4	0.2	3522	795	1.51	T4	0.2	3921	655	1.25
	0.4	3389	828	1.58		0.4	3775	700	1.33
	0.6	3240	865	1.65		0.6	3630	745	1.42
	0.8	3083	898	1.71		0.8	3449	786	1.50
T5	0.2	3830	847	1.83	T5	0.2	4210	694	1.49
	0.4	3702	881	1.90		0.4	4071	737	1.59
	0.6	3563	915	1.97		0.6	3942	777	1.67
	0.8	3399	946	2.04		0.8	3746	819	1.76
T6	0.2	2024	546	0.44	T6	0.2	2216	459	0.37
	0.4	1928	606	0.48		0.4	2066	533	0.43
	0.6	-	-	-		0.6	1894	599	0.48
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2398	602	0.64	T7	0.2	2645	528	0.56
	0.4	2270	665	0.70		0.4	2515	577	0.61
	0.6	2161	719	0.76		0.6	2360	634	0.67
	0.8	1948	774	0.82		0.8	2137	694	0.74
T8	0.2	2774	663	0.88	T8	0.2	3116	575	0.76
	0.4	2615	722	0.95		0.4	2944	616	0.81
	0.6	2471	763	1.01		0.6	2782	666	0.88
	0.8	-	-	-		0.8	2582	722	0.95
T9	0.2	2988	703	1.04	T9	0.2	3410	589	0.87
	0.4	2829	756	1.12		0.4	3193	640	0.95
	0.6	2697	792	1.17		0.6	2993	690	1.02
	0.8	2583	835	1.24		0.8	2823	740	1.10
T10	0.2	3182	743	1.22	T10	0.2	3655	604	0.99
	0.4	3041	788	1.30		0.4	3427	663	1.09
	0.6	2953	821	1.35		0.6	3210	714	1.17
	0.8	2797	868	1.43		0.8	3066	759	1.25

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1863	520	0.37	T1	0.2	2029	440	0.31
	0.4	-	-	-		0.4	1855	519	0.37
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T2	0.2	3114	722	1.12	T2	0.2	3458	603	0.93
	0.4	2977	761	1.18		0.4	3292	658	1.02
	0.6	2825	800	1.24		0.6	3155	700	1.08
	0.8	2634	846	1.31		0.8	3007	747	1.16
	1.0	2474	878	1.36		1.0	2844	797	1.23
	1.2	2236	931	1.44		1.2	2681	836	1.29
T3	0.2	3026	709	1.06	T3	0.2	3391	593	0.88
	0.4	2905	748	1.11		0.4	3245	641	0.95
	0.6	2735	788	1.17		0.6	3095	693	1.03
	0.8	2593	831	1.24		0.8	2948	739	1.10
	1.0	-	-	-		1.0	2789	789	1.17
	1.2	-	-	-		1.2	2614	847	1.26
T4	0.2	3997	874	1.99	T4	0.2	4200	754	1.71
	0.4	3869	909	2.07		0.4	4070	791	1.80
	0.6	3740	942	2.14		0.6	3879	838	1.91
	0.8	3578	975	2.22		0.8	3699	874	1.99
	1.0	3417	1009	2.29		1.0	3535	923	2.10
	1.2	3257	1039	2.36		1.2	3341	946	2.15
T5	0.2	4125	958	2.46	T5	0.2	4194	863	2.22
	0.4	3997	992	2.55		0.4	4012	898	2.31
	0.6	3806	1021	2.63		0.6	3879	955	2.45
	0.8	3701	1056	2.72		0.8	3683	967	2.49
	1.0	3547	1081	2.78		1.0	3455	1011	2.86
	1.2	3374	1101	2.83		1.2	3245	1058	3.00
T6	0.2	2202	572	0.53	T6	0.2	2455	488	0.45
	0.4	2098	636	0.59		0.4	2291	558	0.52
	0.6	1969	698	0.65		0.6	2105	618	0.57
	0.8	-	-	-		0.8	1842	688	0.64
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T7	0.2	2948	681	0.97	T7	0.2	3123	632	0.90
	0.4	2729	741	1.06		0.4	2931	681	0.97
	0.6	2574	789	1.13		0.6	2767	734	1.05
	0.8	2447	824	1.18		0.8	2539	781	1.12
	1.0	2310	847	1.21		1.0	2280	837	1.20
	1.2	2126	857	1.22		1.2	2083	892	1.27
T8	0.2	3256	760	1.30	T8	0.2	3734	613	1.05
	0.4	3128	802	1.37		0.4	3520	673	1.15
	0.6	3059	834	1.42		0.6	3311	723	1.24
	0.8	2885	884	1.51		0.8	3172	767	1.31
	1.0	2779	916	1.6		1.0	2951	811	1.39
	1.2	2619	955	1.63		1.2	2724	859	1.47
T9	0.2	3571	777	1.55	T9	0.2	3992	669	1.34
	0.4	3475	815	1.63		0.4	3881	710	1.42
	0.6	3364	887	1.77		0.6	3776	756	1.51
	0.8	3239	920	1.84		0.8	3631	804	1.61
	1.0	3115	957	1.91		1.0	3474	841	1.68
	1.2	2974	997	2.00		1.2	3329	884	1.77
T10	0.2	3879	753	1.72	T10	0.2	4054	789	1.80
	0.4	3777	802	1.83		0.4	3912	834	1.91
	0.6	3658	923	2.11		0.6	3711	872	1.99
	0.8	3532	980	2.24		0.8	3501	907	2.07
	1.0	3416	1008	2.30		1.0	3280	951	2.17
	1.2	3280	1038	2.37		1.2	2986	951	2.17

**Note:**

- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
- Shaded area are not recommended for cooling or heating operation.
- Airflow table includes resistance for base unit only with 2" clean air filters in place.  
Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

8.5 Ton  
225 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG1023WH, DHG1024WH, DHG1027WH

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	1863	520	0.37	T1	0.2	2029	440	0.31	T6	0.2	2522	621	0.71	T6	0.2	2787	548	0.63
	0.4	-	-	-		0.4	1855	519	0.37		0.4	2381	684	0.78		0.4	2656	590	0.67
	0.6	-	-	-		0.6	-	-	-		0.6	2261	733	0.84		0.6	2514	643	0.73
	0.8	-	-	-		0.8	-	-	-		0.8	2087	783	0.89		0.8	2292	703	0.80
	1.0	-	-	-		1.0	-	-	-		1.0	-	-	-		1.0	2032	762	0.87
	1.2	-	-	-		1.2	-	-	-		1.2	-	-	-		1.2	-	-	-
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	-	-	-
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	-	-	-
T2	0.2	3674	820	1.66	T2	0.2	4061	675	1.37	T7	0.2	-	-	-	T7	0.2	-	-	-
	0.4	3544	853	1.73		0.4	3919	720	1.46		0.4	-	-	-		0.4	-	-	-
	0.6	3402	889	1.80		0.6	3792	761	1.54		0.6	3103	851	1.50		0.6	-	-	-
	0.8	3235	920	1.86		0.8	3610	802	1.62		0.8	2979	886	1.56		0.8	-	-	-
	1.0	3055	956	1.94		1.0	3427	845	1.71		1.0	2840	930	1.64		1.0	3115	817	1.44
	1.2	2891	986	2.00		1.2	3261	894	1.81		1.2	2696	964	1.70		1.2	2941	865	1.52
	1.4	2708	1011	2.05		1.4	3042	919	1.86		1.4	2513	1027	1.81		1.4	2747	908	1.60
	1.6	2499	1071	2.17		1.6	2865	962	1.95		1.6	2312	1039	1.83		1.6	2425	958	1.69
	1.8	2307	1103	2.23		1.8	2649	1020	2.06		1.8	2123	1102	1.94		1.8	2211	1011	1.78
	2.0	2054	1146	2.32		2.0	2487	1041	2.11		2.0	1895	1155	2.03		2.0	1860	1086	1.91
T3	0.2	3026	709	1.06	T3	0.2	3391	593	0.88	T8	0.2	3531	789	1.55	T8	0.2	3949	663	1.30
	0.4	2905	748	1.11		0.4	3245	641	0.95		0.4	3436	825	1.62		0.4	3837	705	1.39
	0.6	2735	788	1.17		0.6	3095	693	1.03		0.6	3325	882	1.73		0.6	3733	752	1.48
	0.8	2593	831	1.24		0.8	2948	739	1.10		0.8	3201	910	1.79		0.8	3588	800	1.57
	1.0	-	-	-		1.0	2789	789	1.17		1.0	3075	948	1.86		1.0	3433	837	1.65
	1.2	-	-	-		1.2	2614	847	1.26		1.2	2934	992	1.95		1.2	3129	881	1.73
	1.4	-	-	-		1.4	-	-	-		1.4	2780	1025	2.01		1.4	3097	925	1.82
	1.6	-	-	-		1.6	-	-	-		1.6	2620	1063	2.09		1.6	2817	970	1.90
	1.8	-	-	-		1.8	-	-	-		1.8	2441	1111	2.18		1.8	2577	1016	2.00
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	-	-	-
T4	0.2	4166	907	2.22	T4	0.2	-	-	-	T9	0.2	3999	765	1.82	T9	0.2	-	-	-
	0.4	4029	939	2.30		0.4	-	-	-		0.4	3878	856	2.04		0.4	-	-	-
	0.6	3906	969	2.37		0.6	-	-	-		0.6	3755	928	2.21		0.6	4157	801	1.91
	0.8	3717	1003	2.45		0.8	4051	849	2.08		0.8	3630	990	2.36		0.8	4013	842	2.01
	1.0	3544	1037	2.54		1.0	3857	885	2.17		1.0	3505	1020	2.43		1.0	3816	885	2.11
	1.2	3394	1064	2.60		1.2	3718	922	2.25		1.2	3378	1051	2.50		1.2	3618	913	2.17
	1.4	3219	1092	2.67		1.4	3536	957	2.34		1.4	3246	1083	2.58		1.4	3417	958	2.28
	1.6	3060	1121	2.74		1.6	3369	993	2.43		1.6	3113	1114	2.65		1.6	3179	997	2.37
	1.8	2887	1148	2.81		1.8	3199	1028	2.52		1.8	2981	1138	2.71		1.8	2971	1036	2.47
	2.0	2721	1176	2.88		2.0	3048	1064	2.60		2.0	2846	1172	2.79		2.0	2740	1075	2.56
T5	0.2	-	-	-	T5	0.2	-	-	-	T10	0.2	-	-	-	T10	0.2	-	-	-
	0.4	-	-	-		0.4	-	-	-		0.4	-	-	-		0.4	-	-	-
	0.6	4221	1022	2.85		0.6	-	-	-		0.6	4126	1012	2.82		0.6	-	-	-
	0.8	4047	1052	2.93		0.8	-	-	-		0.8	3991	1046	2.91		0.8	-	-	-
	1.0	3889	1084	3.02		1.0	-	-	-		1.0	3867	1078	3.00		1.0	-	-	-
	1.2	3734	1109	3.09		1.2	4145	950	2.65		1.2	3743	1109	3.09		1.2	4153	952	2.65
	1.4	3555	1133	3.16		1.4	3925	986	2.75		1.4	3606	1138	3.17		1.4	3975	989	2.76
	1.6	3396	1162	3.24		1.6	3783	1018	2.84		1.6	3474	1165	3.25		1.6	3767	1022	2.85
	1.8	3210	1186	3.30		1.8	3606	1051	2.93		1.8	3340	1193	3.32		1.8	3581	1060	2.95
	2.0	3041	1211	3.37		2.0	3415	1085	3.02		2.0	3204	1219	3.40		2.0	3370	1096	3.05

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**10 Ton**  
**130 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG1203DL, DHG1204DL, DHG1207DL**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2255	553	0.42	T1	0.2	2267	492	0.37
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2910	654	0.78	T2	0.2	2942	562	0.67
	0.4	2702	687	0.82		0.4	2760	613	0.73
	0.6	2410	753	0.90		0.6	2431	706	0.84
	0.8	2250	827	0.98		0.8	2350	802	0.95
T3	0.2	3293	675	1.04	T3	0.2	3464	626	0.97
	0.4	3137	725	1.12		0.4	3294	683	1.06
	0.6	3010	766	1.19		0.6	3139	730	1.13
	0.8	-	-	-		0.8	-	-	-
T4	0.2	3940	774	1.62	T4	0.2	4159	707	1.48
	0.4	3827	812	1.70		0.4	4062	742	1.56
	0.6	3696	850	1.78		0.6	3880	794	1.66
	0.8	3571	892	1.87		0.8	3722	844	1.77
T5	0.2	4126	802	1.82	T5	0.2	4366	732	1.66
	0.4	4022	838	1.91		0.4	4177	786	1.79
	0.6	3889	877	1.99		0.6	4097	817	1.86
	0.8	3808	908	2.07		0.8	3973	854	1.94
T6	0.2	1756	460	0.24	T6	0.2	1853	430	0.24
	0.4	1547	535	0.29		0.4	1379	522	0.29
	0.6	1338	599	0.34		0.6	1363	845	0.47
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2111	508	0.38	T7	0.2	2222	470	0.36
	0.4	1917	575	0.43		0.4	1895	550	0.42
	0.6	1742	634	0.48		0.6	1755	611	0.46
	0.8	1585	688	0.52		0.8	1510	726	0.55
T8	0.2	2443	554	0.53	T8	0.2	2574	509	0.48
	0.4	2264	612	0.58		0.4	2344	577	0.55
	0.6	2109	669	0.64		0.6	2128	654	0.62
	0.8	-	-	-		0.8	1856	738	0.70
T9	0.2	3440	692	1.12	T9	0.2	3639	629	1.02
	0.4	3308	734	1.19		0.4	3491	672	1.09
	0.6	3158	782	1.27		0.6	3267	768	1.24
	0.8	3012	827	1.34		0.8	3045	789	1.28
T10	0.2	3575	710	1.23	T10	0.2	3794	646	1.12
	0.4	3469	749	1.29		0.4	3620	688	1.19
	0.6	3293	798	1.38		0.6	3421	745	1.29
	0.8	3170	840	1.45		0.8	3224	800	1.38

**Note:**

- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
- Shaded area are not recommended for cooling or heating operation.
- Airflow table includes resistance for base unit only with 2" clean air filters in place.  
Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

**10 Ton**  
**130 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG1203LL, DHG1204LL, DHG1207LL**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2255	553	0.42	T1	0.2	2267	492	0.37
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	3293	675	1.04	T2	0.2	3464	626	0.97
	0.4	3137	725	1.12		0.4	3294	683	1.06
	0.6	3010	766	1.19		0.6	3139	730	1.13
	0.8	2781	825	1.28		0.8	2859	807	1.25
T3	0.2	4126	802	1.82	T3	0.2	4366	732	1.66
	0.4	4022	838	1.91		0.4	4177	786	1.79
	0.6	3889	877	1.99		0.6	4097	817	1.86
	0.8	3808	908	2.07		0.8	3973	854	1.94
T4	0.2	4426	847	2.17	T4	0.2	4628	778	2.05
	0.4	4311	880	2.25		0.4	4516	912	2.54
	0.6	4180	916	2.34		0.6	4402	945	2.63
	0.8	4102	944	2.42		0.8	4295	978	2.72
T5	0.2	4628	878	2.45	T5	0.2	4896	802	2.23
	0.4	4516	912	2.54		0.4	4771	839	2.34
	0.6	4402	945	2.63		0.6	4646	878	2.45
	0.8	4295	978	2.72		0.8	4510	915	2.55
T6	0.2	1755	457	0.24	T6	0.2	1853	430	0.24
	0.4	1567	535	0.29		0.4	1379	522	0.29
	0.6	1338	599	0.34		0.6	1363	845	0.47
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2111	508	0.38	T7	0.2	2222	470	0.36
	0.4	1917	575	0.43		0.4	1895	550	0.42
	0.6	1742	634	0.48		0.6	1755	611	0.46
	0.8	1585	688	0.52		0.8	1510	726	0.55
T8	0.2	2443	554	0.53	T8	0.2	2574	509	0.48
	0.4	2264	612	0.58		0.4	2344	577	0.55
	0.6	2109	669	0.64		0.6	2128	654	0.62
	0.8	-	-	-		0.8	1856	738	0.70
T9	0.2	3440	692	1.12	T9	0.2	3639	629	1.02
	0.4	3308	734	1.19		0.4	3491	672	1.09
	0.6	3158	782	1.27		0.6	3267	768	1.24
	0.8	3012	827	1.34		0.8	3045	789	1.28
T10	0.2	3575	710	1.23	T10	0.2	3794	646	1.12
	0.4	3469	749	1.29		0.4	3620	688	1.19
	0.6	3293	798	1.38		0.6	3421	745	1.29
	0.8	3170	840	1.45		0.8	3224	800	1.38

# APPENDIX A BLOWER PERFORMANCE TABLES

10 Ton  
130 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG1203WL, DHG1204WL, DHG1207WL

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2248	535	0.44	T1	0.2	2312	493	0.40	T6	0.2	2306	543	0.46	T6	0.2	2376	500	0.42
	0.4	-	-	-		0.4	-	-	-		0.4	2069	595	0.50		0.4	2175	571	0.48
	0.6	-	-	-		0.6	-	-	-		0.6	1774	631	0.53		0.6	2024	657	0.56
	0.8	-	-	-		0.8	-	-	-		0.8	1416	649	0.55		0.8	1884	689	0.58
	1.0	-	-	-		1.0	-	-	-		1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-		1.2	-	-	-		1.2	-	-	-
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	-	-	-
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	-	-	-
T2	0.2	3814	761	1.35	T2	0.2	3815	680	1.21	T7	0.2	-	-	-	T7	0.2	-	-	-
	0.4	3709	802	1.42		0.4	3705	721	1.28		0.4	-	-	-		0.4	-	-	-
	0.6	3534	839	1.49		0.6	3514	777	1.38		0.6	2830	761	1.05		0.6	-	-	-
	0.8	3399	887	1.57		0.8	3367	823	1.46		0.8	2693	809	1.12		0.8	2759	766	1.06
	1.0	3265	919	1.63		1.0	3222	867	1.54		1.0	2457	864	1.19		1.0	2540	834	1.15
	1.2	3012	967	1.72		1.2	2937	938	1.66		1.2	2219	921	1.27		1.2	2250	898	1.24
	1.4	2779	1027	1.82		1.4	2670	1004	1.78		1.4	1937	970	1.34		1.4	1983	958	1.32
	1.6	2643	1042	1.85		1.6	2522	1040	1.84		1.6	1778	1006	1.39		1.6	1840	1013	1.40
	1.8	2509	1060	1.88		1.8	2375	1072	1.90		1.8	1574	1055	1.45		1.8	1627	1073	1.48
	2.0	2383	1120	1.99		2.0	2222	1107	1.96		2.0	1365	1149	1.58		2.0	1413	1132	1.56
T3	0.2	3814	761	1.35	T3	0.2	3815	680	1.21	T8	0.2	3229	678	0.97	T8	0.2	3335	613	0.87
	0.4	3709	802	1.42		0.4	3705	721	1.28		0.4	3107	723	1.03		0.4	3188	668	0.95
	0.6	3534	839	1.49		0.6	3514	777	1.38		0.6	2907	770	1.10		0.6	3021	720	1.03
	0.8	3399	887	1.57		0.8	3367	823	1.46		0.8	2778	816	1.17		0.8	2855	770	1.10
	1.0	3265	919	1.63		1.0	3222	867	1.54		1.0	2557	869	1.24		1.0	2641	836	1.19
	1.2	3012	967	1.72		1.2	-	-	-		1.2	2308	925	1.32		1.2	2345	902	1.29
	1.4	-	-	-		1.4	-	-	-		1.4	2032	976	1.39		1.4	2073	963	1.38
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	-	-	-
T4	0.2	4790	914	2.55	T4	0.2	4915	830	2.31	T9	0.2	3706	750	1.34	T9	0.2	3819	670	1.20
	0.4	4674	948	2.64		0.4	4789	872	2.43		0.4	3596	786	1.40		0.4	3711	712	1.27
	0.6	4565	982	2.74		0.6	4659	905	2.52		0.6	3413	835	1.49		0.6	3519	770	1.38
	0.8	4440	1013	2.82		0.8	4533	959	2.67		0.8	3273	874	1.56		0.8	3377	821	1.47
	1.0	4321	1046	2.91		1.0	4420	980	2.73		1.0	3132	913	1.63		1.0	3230	870	1.55
	1.2	4211	1076	3.00		1.2	4278	1050	2.93		1.2	2874	973	1.74		1.2	2945	944	1.69
	1.4	4094	1104	3.08		1.4	4139	1055	2.94		1.4	2641	1027	1.83		1.4	2687	1015	1.81
	1.6	3988	1135	3.16		1.6	4024	1145	3.19		1.6	2501	1063	1.90		1.6	2525	1055	1.88
	1.8	3884	1163	3.24		1.8	3892	1125	3.13		1.8	2366	1097	1.96		1.8	2361	1089	1.94
	2.0	3770	1192	3.32		2.0	3778	1150	3.20		2.0	2226	1129	2.02		2.0	2232	1128	2.01
T5	0.2	4976	948	2.83	T5	0.2	-	-	-	T10	0.2	-	-	-	T10	0.2	-	-	-
	0.4	4866	979	2.93		0.4	4972	891	2.66		0.4	3836	832	1.68		0.4	-	-	-
	0.6	4763	1010	3.02		0.6	4843	925	2.76		0.6	3714	873	1.77		0.6	3841	805	1.63
	0.8	4634	1040	3.11		0.8	4720	964	2.88		0.8	3576	905	1.83		0.8	3710	845	1.71
	1.0	4520	1071	3.20		1.0	4607	1002	2.99		1.0	3432	948	1.92		1.0	3546	895	1.81
	1.2	4408	1099	3.28		1.2	4471	1036	3.09		1.2	3323	986	2.00		1.2	3410	941	1.91
	1.4	4288	1128	3.37		1.4	4338	1070	3.20		1.4	3177	1020	2.06		1.4	3285	980	1.98
	1.6	4187	1157	3.46		1.6	4223	1105	3.30		1.6	2956	1075	2.18		1.6	3028	1045	2.12
	1.8	4078	1182	3.53		1.8	4095	1140	3.41		1.8	2690	1127	2.28		1.8	2732	1110	2.25
	2.0	3976	1214	3.63		2.0	3983	1170	3.50		2.0	2560	1156	2.34		2.0	2549	1152	2.33

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**10Ton**  
**180 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG1203DM, DHG1204DM, DHG1207DM**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2184	520	0.43	T1	0.2	2286	486	0.41
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2910	654	0.78	T2	0.2	2942	562	0.67
	0.4	2702	687	0.82		0.4	2760	613	0.73
	0.6	2410	753	0.90		0.6	2431	706	0.84
	0.8	2250	792	0.94		0.8	2350	802	0.95
T3	0.2	3669	734	1.36	T3	0.2	3874	673	1.25
	0.4	3556	775	1.44		0.4	3699	713	1.32
	0.6	3428	816	1.52		0.6	3560	769	1.43
	0.8	3274	859	1.60		0.8	3438	820	1.52
T4	0.2	3940	774	1.62	T4	0.2	4159	707	1.48
	0.4	3827	812	1.70		0.4	4062	742	1.56
	0.6	3696	850	1.78		0.6	3880	794	1.66
	0.8	3571	892	1.87		0.8	3722	844	1.77
T5	0.2	4126	802	1.82	T5	0.2	4366	732	1.66
	0.4	4022	838	1.91		0.4	4177	786	1.79
	0.6	3889	877	1.99		0.6	4097	817	1.86
	0.8	3808	908	2.07		0.8	3973	854	1.94
T6	0.2	1938	485	0.31	T6	0.2	2042	451	0.30
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2621	582	0.62	T7	0.2	2751	534	0.57
	0.4	2465	637	0.68		0.4	2525	595	0.64
	0.6	2300	690	0.74		0.6	2291	668	0.71
	0.8	2136	745	0.80		0.8	2074	731	0.78
T8	0.2	2731	593	0.67	T8	0.2	2876	543	0.61
	0.4	2564	646	0.73		0.4	2699	602	0.68
	0.6	-	-	-		0.6	2450	657	0.74
	0.8	-	-	-		0.8	-	-	-
T9	0.2	3555	708	1.21	T9	0.2	3765	643	1.10
	0.4	3428	749	1.28		0.4	3610	684	1.17
	0.6	3275	796	1.36		0.6	3402	681	1.16
	0.8	3145	838	1.43		0.8	3195	797	1.36
T10	0.2	4200	800	1.82	T10	0.2	4468	726	1.65
	0.4	4081	842	1.91		0.4	4258	766	1.74
	0.6	3956	882	2.01		0.6	4175	811	1.84
	0.8	3855	919	2.09		0.8	4056	851	1.93

**Note:**

- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
- Shaded area are not recommended for cooling or heating operation.
- Airflow table includes resistance for base unit only with 2" clean air filters in place.  
Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

**10 Ton**  
**180 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG1203LM, DHG1204LM, DHG1207LM**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2184	520	0.43	T1	0.2	2286	486	0.41
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T2	0.2	3293	675	1.04	T2	0.2	3464	626	0.97
	0.4	3137	725	1.12		0.4	3294	683	1.06
	0.6	3010	766	1.19		0.6	3139	730	1.13
	0.8	2781	825	1.28		0.8	2859	807	1.25
	1.0	2580	876	1.36		1.0	2544	884	1.37
	1.2	2426	913	1.41		1.2	2387	920	1.42
T3	0.2	3669	734	1.36	T3	0.2	3874	673	1.25
	0.4	3556	775	1.44		0.4	3699	713	1.32
	0.6	3428	816	1.52		0.6	3560	769	1.43
	0.8	3274	859	1.60		0.8	3438	820	1.52
	1.0	3171	892	1.66		1.0	3243	870	1.62
	1.2	-	-	-		1.2	-	-	-
T4	0.2	4426	847	2.17	T4	0.2	4671	773	1.98
	0.4	4311	880	2.25		0.4	4596	820	2.10
	0.6	4180	916	2.34		0.6	4420	854	2.19
	0.8	4102	944	2.42		0.8	4250	894	2.29
	1.0	3957	982	2.51		1.0	4119	928	2.38
	1.2	3858	1013	2.59		1.2	3987	960	2.46
T5	0.2	4628	878	2.45	T5	0.2	4896	802	2.23
	0.4	4516	912	2.54		0.4	4771	839	2.34
	0.6	4402	945	2.63		0.6	4646	878	2.45
	0.8	4295	978	2.72		0.8	4510	915	2.55
	1.0	4186	1011	2.82		1.0	4378	950	2.65
	1.2	4076	1042	2.90		1.2	4242	992	2.76
T6	0.2	2516	564	0.56	T6	0.2	2648	517	0.51
	0.4	2340	621	0.62		0.4	2434	583	0.58
	0.6	2188	677	0.67		0.6	2208	647	0.64
	0.8	-	-	-		0.8	1933	741	0.74
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T7	0.2	3329	682	1.08	T7	0.2	3582	622	0.98
	0.4	3186	728	1.15		0.4	3436	666	1.05
	0.6	3056	770	1.22		0.6	3206	712	1.12
	0.8	2852	823	1.30		0.8	2978	785	1.24
	1.0	2679	876	1.38		1.0	2769	842	1.33
	1.2	2500	911	1.44		1.2	2454	913	1.44
T8	0.2	4018	786	1.70	T8	0.2	4359	712	1.54
	0.4	3911	823	1.78		0.4	4170	749	1.62
	0.6	3776	862	1.87		0.6	4044	821	1.78
	0.8	3674	899	1.95		0.8	3910	842	1.82
	1.0	3529	973	2.1		1.0	3732	890	1.93
	1.2	3391	975	2.11		1.2	3574	945	2.0
T9	0.2	4343	835	2.07	T9	0.2	4707	754	1.87
	0.4	4237	869	2.16		0.4	4534	792	1.97
	0.6	4109	905	2.25		0.6	4425	828	2.05
	0.8	4022	938	2.33		0.8	4306	877	2.18
	1.0	3530	973	2.41		1.0	4102	919	2.28
	1.2	3771	1008	2.50		1.2	4026	954	2.37
T10	0.2	4628	878	2.45	T10	0.2	5018	794	2.21
	0.4	4516	912	2.54		0.4	4884	834	2.32
	0.6	4402	945	2.63		0.6	4750	875	2.44
	0.8	4295	978	2.72		0.8	4613	912	2.54
	1.0	4186	1011	2.82		1.0	4481	950	2.65
	1.2	4076	1042	2.90		1.2	4339	990	2.76



# APPENDIX A BLOWER PERFORMANCE TABLES

10 Ton  
180 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG1203WM, DHG1204WM, DHG1207WM

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2248	535	0.44	T1	0.2	2312	493	0.40	T6	0.2	3493	718	1.16	T6	0.2	3603	644	1.04
	0.4	-	-	-		0.4	-	-	-		0.4	3374	758	1.23		0.4	3478	693	1.12
	0.6	-	-	-		0.6	-	-	-		0.6	3189	805	1.30		0.6	3301	750	1.21
	0.8	-	-	-		0.8	-	-	-		0.8	3053	847	1.37		0.8	3171	791	1.28
	1.0	-	-	-		1.0	-	-	-		1.0	2899	890	1.44		1.0	2993	853	1.38
	1.2	-	-	-		1.2	-	-	-		1.2	2628	949	1.54		1.2	2691	919	1.49
	1.4	-	-	-		1.4	-	-	-		1.4	2393	1001	1.62		1.4	2418	988	1.60
	1.6	-	-	-		1.6	-	-	-		1.6	2242	1050	1.70		1.6	2278	1035	1.68
	1.8	-	-	-		1.8	-	-	-		1.8	2059	1094	1.77		1.8	2123	1070	1.73
	2.0	-	-	-		2.0	-	-	-		2.0	1897	1131	1.83		2.0	1933	1128	1.83
T2	0.2	3814	761	1.35	T2	0.2	3815	680	1.21	T7	0.2	4026	791	1.57	T7	0.2	-	-	-
	0.4	3709	802	1.42		0.4	3705	721	1.28		0.4	3913	831	1.65		0.4	3920	745	1.48
	0.6	3534	839	1.49		0.6	3514	777	1.38		0.6	3757	870	1.73		0.6	3770	792	1.57
	0.8	3399	887	1.57		0.8	3367	823	1.46		0.8	3628	912	1.81		0.8	3640	844	1.68
	1.0	3265	919	1.63		1.0	3222	867	1.54		1.0	3496	946	1.88		1.0	3485	889	1.77
	1.2	3012	967	1.72		1.2	2937	938	1.66		1.2	3294	988	1.96		1.2	3319	948	1.88
	1.4	2779	1027	1.82		1.4	2670	1004	1.78		1.4	3104	1037	2.06		1.4	3206	1000	1.99
	1.6	2643	1042	1.85		1.6	2522	1040	1.84		1.6	2975	1060	2.11		1.6	2907	1053	2.09
	1.8	2509	1060	1.88		1.8	2375	1072	1.90		1.8	2855	1083	2.15		1.8	2667	1104	2.19
	2.0	2383	1120	1.99		2.0	2222	1107	1.96		2.0	2725	1130	2.25		2.0	2502	1138	2.26
T3	0.2	3814	761	1.35	T3	0.2	3815	680	1.21	T8	0.2	4384	845	1.99	T8	0.2	4497	759	1.79
	0.4	3709	802	1.42		0.4	3705	721	1.28		0.4	4265	884	2.08		0.4	4356	804	1.89
	0.6	3534	839	1.49		0.6	3514	777	1.38		0.6	4134	922	2.17		0.6	4237	845	1.99
	0.8	3399	887	1.57		0.8	3367	823	1.46		0.8	4010	958	2.26		0.8	4115	889	2.09
	1.0	3265	919	1.63		1.0	3222	867	1.54		1.0	3884	992	2.34		1.0	3977	930	2.19
	1.2	3012	967	1.72		1.2	-	-	-		1.2	3744	1027	2.42		1.2	3878	975	2.30
	1.4	-	-	-		1.4	-	-	-		1.4	3604	1062	2.50		1.4	3717	1015	2.39
	1.6	-	-	-		1.6	-	-	-		1.6	3486	1092	2.57		1.6	3536	1071	2.52
	1.8	-	-	-		1.8	-	-	-		1.8	3381	1121	2.64		1.8	3290	1117	2.63
	2.0	-	-	-		2.0	-	-	-		2.0	3252	1154	2.72		2.0	3024	1165	2.74
T4	0.2	4790	914	2.55	T4	0.2	4915	830	2.31	T9	0.2	4973	947	3.02	T9	0.2	5130	839	2.60
	0.4	4674	948	2.64		0.4	4789	872	2.43		0.4	4862	978	3.12		0.4	5013	884	2.74
	0.6	4565	982	2.74		0.6	4659	905	2.52		0.6	4760	1010	3.22		0.6	4877	916	2.84
	0.8	4440	1013	2.82		0.8	4533	959	2.67		0.8	4629	1039	3.31		0.8	4774	956	2.96
	1.0	4321	1046	2.91		1.0	4420	980	2.73		1.0	4509	1067	3.40		1.0	4665	991	3.07
	1.2	4211	1076	3.00		1.2	4278	1050	2.93		1.2	4402	1098	3.50		1.2	4527	1030	3.19
	1.4	4094	1104	3.08		1.4	4139	1055	2.94		1.4	4287	1128	3.60		1.4	4462	1073	3.33
	1.6	3988	1135	3.16		1.6	4024	1145	3.19		1.6	4181	1156	3.69		1.6	4301	1108	3.43
	1.8	3884	1163	3.24		1.8	3892	1125	3.13		1.8	4069	1184	3.78		1.8	4187	1154	3.58
	2.0	3770	1192	3.32		2.0	3778	1150	3.20		2.0	3972	1214	3.87		2.0	4105	1128	3.50
T5	0.2	4976	948	2.83	T5	0.2	-	-	-	T10	0.2	-	-	-	T10	0.2	-	-	-
	0.4	4866	979	2.93		0.4	4972	891	2.66		0.4	5379	1069	4.11		0.4	-	-	-
	0.6	4763	1010	3.02		0.6	4843	925	2.76		0.6	5276	1093	4.20		0.6	-	-	-
	0.8	4634	1040	3.11		0.8	4720	964	2.88		0.8	5157	1107	4.26		0.8	5281	1019	3.92
	1.0	4520	1071	3.20		1.0	4607	1002	2.99		1.0	5049	1140	4.38		1.0	5155	1049	4.03
	1.2	4408	1099	3.28		1.2	4471	1036	3.09		1.2	4938	1164	4.47		1.2	5040	1083	4.16
	1.4	4288	1128	3.37		1.4	4338	1070	3.20		1.4	4824	1190	4.57		1.4	4940	1117	4.29
	1.6	4187	1157	3.46		1.6	4223	1105	3.30		1.6	4720	1219	4.68		1.6	4800	1148	4.41
	1.8	4078	1182	3.53		1.8	4095	1140	3.41		1.8	4609	1246	4.79		1.8	4678	1188	4.57
	2.0	3976	1214	3.63		2.0	3983	1170	3.50		2.0	4509	1273	4.89		2.0	4557	1209	4.65

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**10 Ton**  
**240 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG1203DH, DHG1204DH, DHG1207DH**

**10 Ton**  
**240 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG1203LH, DHG1204LH, DHG1207LH**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2184	520	0.43	T1	0.2	2286	486	0.41
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	2910	654	0.78	T2	0.2	2942	562	0.67
	0.4	2702	687	0.82		0.4	2760	613	0.73
	0.6	2410	753	0.90		0.6	2431	706	0.84
	0.8	2250	792	0.94		0.8	2317	733	0.87
T3	0.2	3669	734	1.36	T3	0.2	3874	673	1.25
	0.4	3556	775	1.44		0.4	3699	713	1.32
	0.6	3428	816	1.52		0.6	3560	769	1.43
	0.8	3274	859	1.60		0.8	3438	820	1.52
T4	0.2	3940	774	1.62	T4	0.2	4159	707	1.48
	0.4	3827	812	1.70		0.4	4062	742	1.56
	0.6	3696	850	1.78		0.6	3880	794	1.66
	0.8	3571	892	1.87		0.8	3722	844	1.77
T5	0.2	4126	802	1.82	T5	0.2	4366	732	1.66
	0.4	4022	838	1.91		0.4	4177	786	1.79
	0.6	3889	877	1.99		0.6	4097	817	1.86
	0.8	3808	908	2.07		0.8	3973	854	1.94
T6	0.2	2223	524	0.43	T6	0.2	2340	483	0.40
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T7	0.2	3023	634	0.84	T7	0.2	3187	577	0.76
	0.4	2870	681	0.90		0.4	3038	629	0.83
	0.6	2725	733	0.97		0.6	2783	664	0.88
	0.8	2486	795	1.05		0.8	2519	764	1.01
T8	0.2	3720	732	1.35	T8	0.2	3947	664	1.22
	0.4	3602	772	1.42		0.4	3781	703	1.29
	0.6	3446	817	1.50		0.6	3599	816	1.50
	0.8	3331	857	1.58		0.8	3416	1002	1.84
T9	0.2	3979	769	1.59	T9	0.2	4237	698	1.44
	0.4	3875	809	1.67		0.4	4053	734	1.52
	0.6	3717	850	1.76		0.6	3912	819	1.69
	0.8	3611	890	1.84		0.8	3765	831	1.72
T10	0.2	4200	800	1.82	T10	0.2	4468	726	1.65
	0.4	4081	842	1.91		0.4	4258	766	1.74
	0.6	3956	882	2.01		0.6	4175	811	1.84
	0.8	3855	919	2.09		0.8	4056	851	1.93

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2184	520	0.43	T1	0.2	2286	486	0.41
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	3293	675	1.04	T2	0.2	3464	626	0.97
	0.4	3137	725	1.12		0.4	3294	683	1.06
	0.6	3010	766	1.19		0.6	3139	730	1.13
	0.8	2781	825	1.28		0.8	2859	807	1.25
T3	0.2	3669	734	1.36	T3	0.2	3874	673	1.25
	0.4	3556	775	1.44		0.4	3699	713	1.32
	0.6	3428	816	1.52		0.6	3560	769	1.43
	0.8	3274	859	1.60		0.8	3438	820	1.52
T4	0.2	4426	847	2.17	T4	0.2	4671	773	1.98
	0.4	4311	880	2.25		0.4	4596	820	2.10
	0.6	4180	916	2.34		0.6	4420	854	2.19
	0.8	4102	944	2.42		0.8	4250	894	2.29
T5	0.2	4628	878	2.45	T5	0.2	4896	802	2.23
	0.4	4516	912	2.54		0.4	4771	839	2.34
	0.6	4402	945	2.63		0.6	4646	878	2.45
	0.8	4295	978	2.72		0.8	4510	915	2.55
T6	0.2	2827	607	0.73	T6	0.2	2978	554	0.66
	0.4	2665	658	0.79		0.4	2813	611	0.73
	0.6	2520	711	0.85		0.6	2559	849	1.01
	0.8	-	-	-		0.8	2285	754	0.90
T7	0.2	3558	709	1.21	T7	0.2	3768	643	1.10
	0.4	3431	750	1.28		0.4	3613	684	1.17
	0.6	3279	796	1.36		0.6	3406	701	1.20
	0.8	3149	839	1.43		0.8	3199	797	1.36
T8	0.2	4151	794	1.77	T8	0.2	4433	721	1.61
	0.4	4057	834	1.86		0.4	4243	757	1.69
	0.6	3904	874	1.95		0.6	4125	822	1.83
	0.8	3795	914	2.04		0.8	3997	849	1.89
T9	0.2	4726	877	2.44	T9	0.2	5018	794	2.21
	0.4	4606	914	2.55		0.4	4884	834	2.32
	0.6	4488	948	2.64		0.6	4750	875	2.44
	0.8	4382	980	2.73		0.8	4613	912	2.54
T10	0.2	4200	800	1.82	T10	0.2	4481	950	2.65
	0.4	4081	842	1.91		0.4	4481	950	2.65
	0.6	3956	882	2.01		0.6	4339	990	2.76
	0.8	3855	919	2.09		0.8	4339	990	2.76

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place.
- Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

10 Ton  
240 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG1203WH, DHG1204WH, DHG1207WH

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2248	535	0.44	T1	0.2	2312	493	0.40	T6	0.2	3158	668	0.92	T6	0.2	3265	605	0.83
	0.4	-	-	-		0.4	-	-	-		0.4	3033	713	0.98		0.4	3112	661	0.91
	0.6	-	-	-		0.6	-	-	-		0.6	2830	761	1.05		0.6	2944	713	0.98
	0.8	-	-	-		0.8	-	-	-		0.8	2693	809	1.12		0.8	2759	766	1.06
	1.0	-	-	-		1.0	-	-	-		1.0	2457	864	1.19		1.0	2540	834	1.15
	1.2	-	-	-		1.2	-	-	-		1.2	-	-	-		1.2	2250	898	1.24
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	-	-	-
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	-	-	-
T2	0.2	3814	761	1.35	T2	0.2	3815	680	1.21	T7	0.2	3926	777	1.46	T7	0.2	3932	685	1.29
	0.4	3709	802	1.42		0.4	3705	721	1.28		0.4	3816	817	1.54		0.4	3813	730	1.38
	0.6	3534	839	1.49		0.6	3514	777	1.38		0.6	3651	855	1.61		0.6	3645	782	1.47
	0.8	3399	887	1.57		0.8	3367	823	1.46		0.8	3520	900	1.70		0.8	3511	829	1.56
	1.0	3265	919	1.63		1.0	3222	867	1.54		1.0	3387	933	1.76		1.0	3357	879	1.66
	1.2	3012	967	1.72		1.2	2937	938	1.66		1.2	3162	978	1.84		1.2	3137	941	1.77
	1.4	2779	1027	1.82		1.4	2670	1004	1.78		1.4	2953	1032	1.95		1.4	2982	998	1.88
	1.6	2643	1042	1.85		1.6	2522	1040	1.84		1.6	2820	1051	1.98		1.6	2729	1048	1.98
	1.8	2509	1060	1.88		1.8	2375	1072	1.90		1.8	2694	1072	2.02		1.8	2521	1095	2.07
	2.0	2383	1120	1.99		2.0	2222	1107	1.96		2.0	2566	1125	2.12		2.0	2372	1127	2.13
T3	0.2	3814	761	1.35	T3	0.2	3815	680	1.21	T8	0.2	4420	851	2.04	T8	0.2	4542	765	1.83
	0.4	3709	802	1.42		0.4	3705	721	1.28		0.4	4301	890	2.13		0.4	4402	809	1.94
	0.6	3534	839	1.49		0.6	3514	777	1.38		0.6	4173	927	2.22		0.6	4283	851	2.04
	0.8	3399	887	1.57		0.8	3367	823	1.46		0.8	4049	963	2.30		0.8	4162	893	2.14
	1.0	3265	919	1.63		1.0	3222	867	1.54		1.0	3923	997	2.39		1.0	4027	934	2.24
	1.2	3012	967	1.72		1.2	-	-	-		1.2	3788	1032	2.47		1.2	3927	977	2.34
	1.4	-	-	-		1.4	-	-	-		1.4	3652	1066	2.55		1.4	3761	1017	2.43
	1.6	-	-	-		1.6	-	-	-		1.6	3535	1096	2.62		1.6	3596	1073	2.57
	1.8	-	-	-		1.8	-	-	-		1.8	3430	1125	2.69		1.8	3376	1110	2.66
	2.0	-	-	-		2.0	-	-	-		2.0	3302	1157	2.77		2.0	3089	1165	2.79
T4	0.2	4790	914	2.55	T4	0.2	4915	830	2.31	T9	0.2	4973	947	3.02	T9	0.2	5135	840	2.62
	0.4	4674	948	2.64		0.4	4789	872	2.43		0.4	4862	978	3.12		0.4	5018	884	2.76
	0.6	4565	982	2.74		0.6	4659	905	2.52		0.6	4760	1010	3.22		0.6	4882	916	2.86
	0.8	4440	1013	2.82		0.8	4533	959	2.67		0.8	4629	1039	3.31		0.8	4780	957	2.99
	1.0	4321	1046	2.91		1.0	4420	980	2.73		1.0	4509	1067	3.40		1.0	4670	992	3.09
	1.2	4211	1076	3.00		1.2	4278	1050	2.93		1.2	4402	1098	3.50		1.2	4535	1031	3.22
	1.4	4094	1104	3.08		1.4	4139	1055	2.94		1.4	4287	1128	3.60		1.4	4464	1075	3.35
	1.6	3988	1135	3.16		1.6	4024	1145	3.19		1.6	4181	1156	3.69		1.6	4305	1109	3.46
	1.8	3884	1163	3.24		1.8	3892	1125	3.13		1.8	4069	1184	3.78		1.8	4188	1154	3.60
	2.0	3770	1192	3.32		2.0	3778	1150	3.20		2.0	3972	1214	3.87		2.0	4102	1128	3.52
T5	0.2	4976	948	2.83	T5	0.2	-	-	-	T10	0.2	5486	1024	3.94	T10	0.2	5656	926	3.56
	0.4	4866	979	2.93		0.4	4972	891	2.66		0.4	5379	1069	4.11		0.4	5524	956	3.67
	0.6	4763	1010	3.02		0.6	4843	925	2.76		0.6	5276	1093	4.20		0.6	5386	985	3.78
	0.8	4634	1040	3.11		0.8	4720	964	2.88		0.8	5157	1107	4.26		0.8	5281	1019	3.92
	1.0	4520	1071	3.20		1.0	4607	1002	2.99		1.0	5049	1140	4.38		1.0	5155	1049	4.03
	1.2	4408	1099	3.28		1.2	4471	1036	3.09		1.2	4938	1164	4.47		1.2	5040	1083	4.16
	1.4	4288	1128	3.37		1.4	4338	1070	3.20		1.4	4824	1190	4.57		1.4	4940	1117	4.29
	1.6	4187	1157	3.46		1.6	4223	1105	3.30		1.6	4720	1219	4.68		1.6	4800	1148	4.41
	1.8	4078	1182	3.53		1.8	4095	1140	3.41		1.8	4609	1246	4.79		1.8	4678	1188	4.57
	2.0	3976	1214	3.63		2.0	3983	1170	3.50		2.0	4509	1273	4.89		2.0	4557	1209	4.65

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**12.5 Ton**  
**130 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG1503DL, DHG1504DL, DHG1507DL**

**12.5 Ton**  
**130 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG1503LL, DHG1504LL, DHG1507LL**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2377	559	0.52	T1	0.2	2478	525	0.49
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	3178	662	0.93	T2	0.2	3261	616	0.87
	0.4	3007	705	0.99		0.4	3134	667	0.94
	0.6	2856	751	1.05		0.6	3011	717	1.01
	0.8	2533	822	1.16		0.8	2786	779	1.09
T3	0.2	3944	784	1.59	T3	0.2	4019	720	1.46
	0.4	3783	823	1.67		0.4	3926	756	1.53
	0.6	-	-	-		0.6	3807	805	1.63
	0.8	-	-	-		0.8	-	-	-
T4	0.2	4435	842	2.08	T4	0.2	4484	786	1.95
	0.4	4287	886	2.19		0.4	4364	830	2.05
	0.6	4153	922	2.28		0.6	4287	863	2.14
	0.8	4025	952	2.36		0.8	4194	899	2.23
T5	0.2	4719	897	2.50	T5	0.2	4777	830	2.31
	0.4	4587	929	2.59		0.4	4680	865	2.41
	0.6	4458	962	2.68		0.6	4581	901	2.51
	0.8	4329	993	2.77		0.8	4485	934	2.60
T6	0.2	1828	480	0.30	T6	0.2	1946	462	0.29
	0.4	1418	565	0.35		0.4	1869	607	0.38
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2150	527	0.42	T7	0.2	2256	499	0.40
	0.4	1867	601	0.48		0.4	1980	532	0.43
	0.6	1628	666	0.53		0.6	1756	654	0.52
	0.8	1400	724	0.58		0.8	1432	725	0.58
T8	0.2	2454	570	0.56	T8	0.2	2552	534	0.52
	0.4	2253	635	0.62		0.4	2287	549	0.54
	0.6	2022	698	0.68		0.6	2199	672	0.65
	0.8	-	-	-		0.8	1853	746	0.73
T9	0.2	2634	596	0.64	T9	0.2	2728	556	0.60
	0.4	2464	655	0.71		0.4	2519	587	0.63
	0.6	2245	716	0.77		0.6	2428	683	0.74
	0.8	1963	785	0.85		0.8	2154	755	0.82
T10	0.2	2801	625	0.74	T10	0.2	2900	577	0.69
	0.4	2646	676	0.81		0.4	2744	638	0.76
	0.6	2488	730	0.87		0.6	2586	702	0.84
	0.8	2145	805	0.96		0.8	2435	756	0.90

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2377	559	0.52	T1	0.2	2478	525	0.49
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T2	0.2	3655	740	1.32	T2	0.2	3743	682	1.22
	0.4	3495	782	1.40		0.4	3661	715	1.28
	0.6	3361	820	1.46		0.6	3519	772	1.38
	0.8	3231	857	1.53		0.8	3457	814	1.45
	1.0	2967	915	1.63		1.0	3294	858	1.53
	1.2	2685	969	1.73		1.2	3051	924	1.65
T3	0.2	3944	784	1.59	T3	0.2	4019	720	1.46
	0.4	3783	823	1.67		0.4	3926	756	1.53
	0.6	-	-	-		0.6	3807	805	1.63
	0.8	-	-	-		0.8	-	-	-
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T4	0.2	4536	878	2.30	T4	0.2	4609	807	2.11
	0.4	4407	910	2.38		0.4	4517	843	2.21
	0.6	4304	939	2.46		0.6	4424	882	2.31
	0.8	4176	974	2.55		0.8	4323	915	2.40
	1.0	4066	1004	2.63		1.0	4216	951	2.49
	1.2	3946	1036	2.71		1.2	4115	989	2.59
T5	0.2	4719	897	2.50	T5	0.2	4777	830	2.31
	0.4	4587	929	2.59		0.4	4680	865	2.41
	0.6	4458	962	2.68		0.6	4581	901	2.51
	0.8	4329	993	2.77		0.8	4485	934	2.60
	1.0	4211	1025	2.86		1.0	4387	970	2.70
	1.2	4087	1057	2.94		1.2	4285	1005	2.80
T6	0.2	2072	515	0.39	T6	0.2	2181	490	0.37
	0.4	1763	592	0.45		0.4	1930	540	0.41
	0.6	1524	658	0.50		0.6	1632	649	0.49
	0.8	-	-	-		0.8	1355	719	0.54
	1.0	-	-	-		1.0	-	-	-
	1.2	-	-	-		1.2	-	-	-
T7	0.2	2712	607	0.69	T7	0.2	2806	565	0.64
	0.4	2553	665	0.75		0.4	2623	608	0.69
	0.6	2339	724	0.82		0.6	2520	688	0.78
	0.8	2056	793	0.90		0.8	2285	758	0.86
	1.0	1860	839	0.95		1.0	2051	818	0.93
	1.2	1712	895	1.01		1.2	1803	886	1.00
T8	0.2	2940	640	0.82	T8	0.2	3033	593	0.76
	0.4	2797	691	0.88		0.4	2898	651	0.83
	0.6	2603	746	0.95		0.6	2749	702	0.90
	0.8	2325	813	1.04		0.8	2619	766	0.98
	1.0	2109	864	1.1		1.0	2313	815	1.04
	1.2	1975	914	1.17		1.2	2042	873	1.1
T9	0.2	3281	688	1.04	T9	0.2	3379	636	0.96
	0.4	3136	733	1.11		0.4	3177	687	1.04
	0.6	2976	779	1.18		0.6	3045	725	1.10
	0.8	2731	838	1.27		0.8	2914	782	1.19
	1.0	2505	892	1.35		1.0	2687	819	1.24
	1.2	2356	933	1.41		1.2	2461	867	1.31
T10	0.2	3586	732	1.28	T10	0.2	3697	677	1.19
	0.4	3419	772	1.35		0.4	3487	722	1.27
	0.6	3288	811	1.42		0.6	3346	758	1.33
	0.8	3089	858	1.50		0.8	3288	812	1.42
	1.0	2878	909	1.59		1.0	3136	862	1.51
	1.2	2754	948	1.66		1.2	2969	911	1.60
1.4	2404	1009	1.77	1.4	2739	979	1.72		

**Note:**

- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
- Shaded area are not recommended for cooling or heating operation.
- Airflow table includes resistance for base unit only with 2" clean air filters in place.

Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

12.5 Ton  
130 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG1503WL, DHG1504WL, DHG1507WL

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2511	639	0.63	T1	0.2	2735	543	0.54	T6	0.2	2308	613	0.61	T6	0.2	2644	545	0.54
	0.4	-	-	-		0.4	2600	606	0.60		0.4	2028	682	0.68		0.4	2483	620	0.61
	0.6	-	-	-		0.6	-	-	-		0.6	1744	739	0.73		0.6	2299	683	0.68
	0.8	-	-	-		0.8	-	-	-		0.8	1619	784	0.78		0.8	1979	773	0.77
	1.0	-	-	-		1.0	-	-	-		1.0	-	-	-		1.0	1758	817	0.81
	1.2	-	-	-		1.2	-	-	-		1.2	-	-	-		1.2	1558	877	0.87
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	1448	920	0.91
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
2.0	-	-	-	2.0	-	-	-	2.0	-	-	-	2.0	-	-	-				
T2	0.2	3737	894	1.97	T2	0.2	4297	761	1.68	T7	0.2	-	-	-	T7	0.2	-	-	-
	0.4	3699	919	2.03		0.4	4168	801	1.76		0.4	2903	798	1.24		0.4	-	-	-
	0.6	3604	952	2.10		0.6	4081	844	1.86		0.6	2673	845	1.31		0.6	-	-	-
	0.8	3476	990	2.18		0.8	4030	856	1.89		0.8	2525	888	1.37		0.8	-	-	-
	1.0	3276	1035	2.28		1.0	3939	926	2.04		1.0	2282	933	1.44		1.0	-	-	-
	1.2	3052	1082	2.38		1.2	3789	966	2.13		1.2	1982	972	1.50		1.2	2716	928	1.44
	1.4	2890	1120	2.47		1.4	3553	1033	2.27		1.4	1803	1007	1.56		1.4	2495	989	1.53
	1.6	2738	1154	2.54		1.6	3290	1090	2.40		1.6	1671	1031	1.60		1.6	2298	1033	1.60
	1.8	2584	1186	2.61		1.8	3097	1158	2.55		1.8	1475	1065	1.65		1.8	2137	1076	1.66
2.0	2499	1207	2.66	2.0	2906	1192	2.63	2.0	1335	1097	1.70	2.0	2078	1101	1.70				
T3	0.2	3953	863	1.80	T3	0.2	4165	735	1.53	T8	0.2	3136	755	1.22	T8	0.2	3602	665	1.08
	0.4	3837	903	1.88		0.4	4089	772	1.61		0.4	3006	812	1.32		0.4	3491	707	1.15
	0.6	-	-	-		0.6	3985	824	1.72		0.6	2794	858	1.39		0.6	3379	759	1.23
	0.8	-	-	-		0.8	-	-	-		0.8	2632	901	1.46		0.8	3205	818	1.33
	1.0	-	-	-		1.0	-	-	-		1.0	2409	945	1.53		1.0	3052	874	1.42
	1.2	-	-	-		1.2	-	-	-		1.2	2114	984	1.59		1.2	2852	932	1.51
	1.4	-	-	-		1.4	-	-	-		1.4	1963	1025	1.66		1.4	2617	995	1.61
	1.6	-	-	-		1.6	-	-	-		1.6	1854	1046	1.70		1.6	2401	1045	1.69
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	2234	1092	1.77
2.0	-	-	-	2.0	-	-	-	2.0	-	-	-	2.0	2196	1112	1.80				
T4	0.2	4964	1024	3.47	T4	0.2	5300	888	3.01	T9	0.2	3308	785	1.39	T9	0.2	3793	691	1.22
	0.4	4909	1046	3.55		0.4	5215	918	3.12		0.4	3202	839	1.48		0.4	3667	731	1.29
	0.6	4808	1079	3.66		0.6	5121	951	3.23		0.6	3028	883	1.56		0.6	3566	780	1.38
	0.8	4764	1096	3.72		0.8	5044	979	3.32		0.8	2838	925	1.63		0.8	3441	827	1.46
	1.0	4626	1123	3.81		1.0	4957	1015	3.44		1.0	2655	967	1.71		1.0	3306	887	1.57
	1.2	4507	1167	3.96		1.2	4861	1040	3.53		1.2	2380	1007	1.78		1.2	3114	939	1.66
	1.4	4409	1207	4.10		1.4	4769	1082	3.67		1.4	2257	1056	1.86		1.4	2858	1006	1.78
	1.6	4137	1257	4.26		1.6	4665	1099	3.73		1.6	2164	1076	1.90		1.6	2608	1066	1.88
	1.8	3878	1311	4.45		1.8	4563	1150	3.90		1.8	1994	1113	1.97		1.8	2426	1123	1.98
2.0	3835	1332	4.52	2.0	4455	1181	4.01	2.0	1914	1139	2.01	2.0	2404	1132	2.00				
T5	0.2	5128	1078	3.88	T5	0.2	5478	900	3.05	T10	0.2	3472	814	1.56	T10	0.2	-	-	-
	0.4	5061	1102	3.96		0.4	5390	936	3.17		0.4	3384	865	1.65		0.4	3835	756	1.44
	0.6	4965	1131	4.07		0.6	5309	971	3.29		0.6	3244	907	1.73		0.6	3741	801	1.53
	0.8	4899	1154	4.15		0.8	5216	1003	3.40		0.8	3032	948	1.81		0.8	3656	835	1.60
	1.0	4779	1182	4.25		1.0	5127	1036	3.52		1.0	2886	989	1.89		1.0	3536	900	1.72
	1.2	4668	1214	4.37		1.2	5046	1067	3.62		1.2	2639	1029	1.97		1.2	3355	947	1.81
	1.4	4583	1242	4.47		1.4	4954	1096	3.72		1.4	2515	1083	2.07		1.4	3092	1015	1.94
	1.6	4367	1283	4.61		1.6	4872	1128	3.83		1.6	2411	1105	2.11		1.6	2821	1080	2.06
	1.8	4137	1330	4.78		1.8	4794	1156	3.92		1.8	2255	1141	2.18		1.8	2627	1152	2.20
2.0	4015	1356	4.88	2.0	4681	1188	4.03	2.0	2192	1165	2.22	2.0	2584	1152	2.20				

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.



# APPENDIX A BLOWER PERFORMANCE TABLES

**12.5 Ton**  
**180 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**

Models: DHG1503DM, DHG1504DM, DHG1507DM

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2377	559	0.52	T1	0.2	2478	525	0.49
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	3178	662	0.93	T2	0.2	3261	616	0.87
	0.4	3007	705	0.99		0.4	3134	667	0.94
	0.6	2856	751	1.05		0.6	3011	717	1.01
	0.8	2533	822	1.16		0.8	2786	779	1.09
T3	0.2	3944	784	1.59	T3	0.2	4019	720	1.46
	0.4	3783	823	1.67		0.4	3926	756	1.53
	0.6	-	-	-		0.6	3807	805	1.63
	0.8	-	-	-		0.8	-	-	-
T4	0.2	4435	842	2.08	T4	0.2	4484	786	1.95
	0.4	4287	886	2.19		0.4	4364	830	2.05
	0.6	4153	922	2.28		0.6	4287	863	2.14
	0.8	4025	952	2.36		0.8	4194	899	2.23
T5	0.2	4719	897	2.50	T5	0.2	4777	830	2.31
	0.4	4587	929	2.59		0.4	4680	865	2.41
	0.6	4458	962	2.68		0.6	4581	901	2.51
	0.8	4329	993	2.77		0.8	4485	934	2.60
T6	0.2	2072	515	0.39	T6	0.2	2181	490	0.37
	0.4	-	-	-		0.4	1930	540	0.41
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2634	596	0.64	T7	0.2	2728	556	0.60
	0.4	2464	655	0.71		0.4	2519	587	0.63
	0.6	2245	716	0.77		0.6	2428	683	0.74
	0.8	1963	785	0.85		0.8	2154	755	0.82
T8	0.2	3004	649	0.86	T8	0.2	3097	601	0.79
	0.4	2863	699	0.92		0.4	2961	712	0.94
	0.6	2675	752	0.99		0.6	2776	707	0.93
	0.8	-	-	-		0.8	2632	763	1.01
T9	0.2	3250	684	1.02	T9	0.2	3347	632	0.94
	0.4	3106	729	1.09		0.4	3147	684	1.02
	0.6	2943	776	1.16		0.6	3015	723	1.08
	0.8	2694	836	1.25		0.8	2882	780	1.16
T10	0.2	3474	714	1.19	T10	0.2	3605	663	1.10
	0.4	3314	759	1.27		0.4	3377	708	1.18
	0.6	3178	799	1.33		0.6	3240	746	1.24
	0.8	3035	841	1.40		0.8	3121	801	1.34

**12.5 Ton**  
**180 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**

Models: DHG1503LM, DHG1504LM, DHG1507LM

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2377	559	0.52	T1	0.2	2478	525	0.49
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	3655	740	1.32	T2	0.2	3743	682	1.22
	0.4	3495	782	1.40		0.4	3661	715	1.28
	0.6	3361	820	1.46		0.6	3519	772	1.38
	0.8	3231	857	1.53		0.8	3457	814	1.45
T3	0.2	2967	915	1.63	T3	0.2	3294	858	1.53
	0.4	2685	969	1.73		0.4	3051	924	1.65
	0.6	2550	1001	1.79		0.6	2667	995	1.78
	0.8	2394	1044	1.86		0.8	2409	1025	1.86
T4	0.2	4536	878	2.30	T4	0.2	4777	830	2.31
	0.4	4407	910	2.38		0.4	4680	865	2.41
	0.6	4304	939	2.46		0.6	4581	901	2.51
	0.8	4176	974	2.55		0.8	4485	934	2.60
T5	0.2	4719	897	2.50	T5	0.2	4777	830	2.31
	0.4	4587	929	2.59		0.4	4680	865	2.41
	0.6	4458	962	2.68		0.6	4581	901	2.51
	0.8	4329	993	2.77		0.8	4485	934	2.60
T6	0.2	2379	559	0.52	T6	0.2	2478	525	0.49
	0.4	2161	626	0.58		0.4	2198	683	0.64
	0.6	1927	690	0.64		0.6	2096	746	0.71
	0.8	-	-	-		0.8	-	-	-
T7	0.2	3161	672	0.96	T7	0.2	3256	621	0.89
	0.4	2995	722	1.03		0.4	3060	673	0.96
	0.6	2866	762	1.09		0.6	2927	713	1.02
	0.8	2551	840	1.20		0.8	2787	773	1.10
T8	0.2	3310	692	1.06	T8	0.2	3409	640	0.98
	0.4	3163	736	1.13		0.4	3206	690	1.06
	0.6	3006	782	1.20		0.6	3073	727	1.12
	0.8	2765	840	1.29		0.8	2943	785	1.21
T9	0.2	3586	732	1.28	T9	0.2	3697	677	1.19
	0.4	3419	772	1.35		0.4	3487	722	1.27
	0.6	3288	811	1.42		0.6	3346	758	1.33
	0.8	3089	858	1.50		0.8	3228	812	1.42
T10	0.2	3834	767	1.51	T10	0.2	3963	713	1.40
	0.4	3647	805	1.59		0.4	3752	752	1.48
	0.6	3528	839	1.65		0.6	3607	787	1.55
	0.8	3369	876	1.73		0.8	3497	839	1.65

**Note:**

- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place.
- Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**12.5 Ton  
180 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG1503WM, DHG1504WM, DHG1507WM**

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2511	639	0.63	T1	0.2	2735	543	0.54	T6	0.2	2642	670	0.83	T6	0.2	3038	593	0.73
	0.4	-	-	-		0.4	2600	606	0.60		0.4	2424	734	0.91		0.4	2944	646	0.80
	0.6	-	-	-		0.6	-	-	-		0.6	2138	787	0.97		0.6	2790	708	0.87
	0.8	-	-	-		0.8	-	-	-		0.8	2032	831	1.03		0.8	2484	795	0.98
	1.0	-	-	-		1.0	-	-	-		1.0	-	-	-		1.0	2287	839	1.03
	1.2	-	-	-		1.2	-	-	-		1.2	-	-	-		1.2	2082	906	1.12
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	1935	956	1.18
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
2.0	-	-	-	2.0	-	-	-	2.0	-	-	-	2.0	-	-	-				
T2	0.2	3737	894	1.97	T2	0.2	4297	761	1.68	T7	0.2	3338	800	1.43	T7	0.2	3805	695	1.24
	0.4	3699	919	2.03		0.4	4168	801	1.76		0.4	3257	846	1.51		0.4	3702	740	1.32
	0.6	3604	952	2.10		0.6	4081	844	1.86		0.6	3135	889	1.59		0.6	3604	785	1.40
	0.8	3476	990	2.18		0.8	4030	856	1.89		0.8	2997	928	1.66		0.8	3490	833	1.49
	1.0	3276	1035	2.28		1.0	3939	926	2.04		1.0	2772	977	1.75		1.0	3390	879	1.57
	1.2	3052	1082	2.38		1.2	3789	966	2.13		1.2	2524	1027	1.83		1.2	3220	935	1.67
	1.4	2890	1120	2.47		1.4	3553	1033	2.27		1.4	2381	1057	1.89		1.4	2939	1006	1.80
	1.6	2738	1154	2.54		1.6	3290	1090	2.40		1.6	2249	1086	1.94		1.6	2663	1072	1.91
	1.8	2584	1186	2.61		1.8	3097	1158	2.55		1.8	2096	1121	2.00		1.8	2474	1119	2.00
2.0	2499	1207	2.66	2.0	2906	1192	2.63	2.0	2026	1147	2.05	2.0	2431	1134	2.03				
T3	0.2	3953	863	1.80	T3	0.2	4165	735	1.53	T8	0.2	3731	860	1.85	T8	0.2	4243	753	1.62
	0.4	3837	903	1.88		0.4	4089	772	1.61		0.4	3658	907	1.95		0.4	4111	794	1.71
	0.6	-	-	-		0.6	3985	824	1.72		0.6	3568	945	2.03		0.6	4023	836	1.80
	0.8	-	-	-		0.8	-	-	-		0.8	3334	985	2.12		0.8	3970	852	1.83
	1.0	-	-	-		1.0	-	-	-		1.0	3233	1023	2.20		1.0	3875	921	1.98
	1.2	-	-	-		1.2	-	-	-		1.2	3041	1063	2.29		1.2	3719	962	2.07
	1.4	-	-	-		1.4	-	-	-		1.4	2883	1118	2.41		1.4	3475	1030	2.22
	1.6	-	-	-		1.6	-	-	-		1.6	2729	1147	2.47		1.6	3204	1090	2.35
	1.8	-	-	-		1.8	-	-	-		1.8	2587	1180	2.54		1.8	3009	1171	2.52
2.0	-	-	-	2.0	-	-	-	2.0	2525	1203	2.59	2.0	2852	1185	2.55				
T4	0.2	4964	1024	3.47	T4	0.2	5300	888	3.01	T9	0.2	3877	887	2.04	T9	0.2	4392	774	1.78
	0.4	4909	1046	3.55		0.4	5215	918	3.12		0.4	3804	930	2.14		0.4	4274	814	1.87
	0.6	4808	1079	3.66		0.6	5121	951	3.23		0.6	3734	966	2.22		0.6	4186	857	1.97
	0.8	4764	1096	3.72		0.8	5044	979	3.32		0.8	3502	1005	2.31		0.8	4133	864	1.98
	1.0	4626	1123	3.81		1.0	4957	1015	3.44		1.0	3416	1042	2.39		1.0	4050	934	2.15
	1.2	4507	1167	3.96		1.2	4861	1040	3.53		1.2	3255	1082	2.49		1.2	3912	974	2.24
	1.4	4409	1207	4.10		1.4	4769	1082	3.67		1.4	3070	1135	2.61		1.4	3695	1037	2.38
	1.6	4137	1257	4.26		1.6	4665	1099	3.73		1.6	2883	1168	2.68		1.6	3449	1089	2.50
	1.8	3878	1311	4.45		1.8	4563	1150	3.90		1.8	2743	1199	2.75		1.8	3265	1140	2.62
2.0	3835	1332	4.52	2.0	4455	1181	4.01	2.0	2669	1223	2.81	2.0	3008	1205	2.77				
T5	0.2	5128	1078	3.88	T5	0.2	5478	900	3.05	T10	0.2	4016	912	2.23	T10	0.2	4530	794	1.94
	0.4	5061	1102	3.96		0.4	5390	936	3.17		0.4	3936	952	2.33		0.4	4433	832	2.03
	0.6	4965	1131	4.07		0.6	5309	971	3.29		0.6	3878	987	2.41		0.6	4343	875	2.14
	0.8	4899	1154	4.15		0.8	5216	1003	3.40		0.8	3659	1025	2.50		0.8	4276	878	2.14
	1.0	4779	1182	4.25		1.0	5127	1036	3.52		1.0	3577	1060	2.59		1.0	4202	947	2.31
	1.2	4668	1214	4.37		1.2	5046	1067	3.62		1.2	3443	1100	2.69		1.2	4083	986	2.41
	1.4	4583	1242	4.47		1.4	4954	1096	3.72		1.4	3235	1150	2.81		1.4	3904	1045	2.55
	1.6	4367	1283	4.61		1.6	4872	1128	3.83		1.6	3020	1185	2.89		1.6	3697	1085	2.65
	1.8	4137	1330	4.78		1.8	4794	1156	3.92		1.8	2878	1215	2.97		1.8	3534	1128	2.75
2.0	4015	1356	4.88	2.0	4681	1188	4.03	2.0	2786	1242	3.03	2.0	3172	1224	2.99				

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE TABLES

**12.5 Ton**  
**240 MBH Gas Heat Exchanger**  
**Standard Static Direct Drive**  
**Models: DHG1503DH, DHG1504DH, DHG1507DH**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2377	559	0.52	T1	0.2	2478	525	0.49
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	3178	662	0.93	T2	0.2	3261	616	0.87
	0.4	3007	705	0.99		0.4	3134	667	0.94
	0.6	2856	751	1.05		0.6	3011	717	1.01
	0.8	2533	822	1.16		0.8	2786	779	1.09
T3	0.2	3944	784	1.59	T3	0.2	4019	720	1.46
	0.4	3783	823	1.67		0.4	3926	756	1.53
	0.6	-	-	-		0.6	3807	805	1.63
	0.8	-	-	-		0.8	-	-	-
T4	0.2	4435	842	2.08	T4	0.2	4484	786	1.95
	0.4	4287	886	2.19		0.4	4364	830	2.05
	0.6	4153	922	2.28		0.6	4287	863	2.14
	0.8	4025	952	2.36		0.8	4194	899	2.23
T5	0.2	4719	897	2.50	T5	0.2	4777	830	2.31
	0.4	4587	929	2.59		0.4	4680	865	2.41
	0.6	4458	962	2.68		0.6	4581	901	2.51
	0.8	4329	993	2.77		0.8	4485	934	2.60
T6	0.2	2227	538	0.45	T6	0.2	2330	508	0.43
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T7	0.2	2737	611	0.70	T7	0.2	2831	568	0.65
	0.4	2580	667	0.77		0.4	2655	616	0.71
	0.6	2368	726	0.83		0.6	2547	689	0.79
	0.8	2085	795	0.91		0.8	2325	759	0.87
T8	0.2	3190	675	0.98	T8	0.2	3286	625	0.91
	0.4	3049	722	1.05		0.4	3092	677	0.98
	0.6	2880	770	1.12		0.6	2952	716	1.04
	0.8	-	-	-		0.8	2818	775	1.12
T9	0.2	3714	750	1.40	T9	0.2	3833	695	1.29
	0.4	3536	788	1.47		0.4	3618	737	1.37
	0.6	3412	825	1.54		0.6	3479	771	1.44
	0.8	3235	867	1.61		0.8	3366	825	1.54
T10	0.2	4133	809	1.84	T10	0.2	4297	759	1.73
	0.4	3953	848	1.93		0.4	4107	793	1.80
	0.6	3812	881	2.00		0.6	3960	842	1.92
	0.8	3676	912	2.07		0.8	3859	876	1.99

**Note:**

- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
- Shaded area are not recommended for cooling or heating operation.
- Airflow table includes resistance for base unit only with 2" clean air filters in place.  
Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

**12.5 Ton**  
**240 MBH Gas Heat Exchanger**  
**Medium Static Direct Drive**  
**Models: DHG1503LH, DHG1504LH, DHG1507LH**

Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2377	559	0.52	T1	0.2	2478	525	0.49
	0.4	-	-	-		0.4	-	-	-
	0.6	-	-	-		0.6	-	-	-
	0.8	-	-	-		0.8	-	-	-
T2	0.2	3655	740	1.32	T2	0.2	3743	682	1.22
	0.4	3495	782	1.40		0.4	3661	715	1.28
	0.6	3361	820	1.46		0.6	3519	772	1.38
	0.8	3231	857	1.53		0.8	3457	814	1.45
T3	0.2	2967	915	1.63	T3	0.2	3294	858	1.53
	0.4	2685	969	1.73		0.4	3051	924	1.65
	0.6	2550	1001	1.79		0.6	2667	995	1.78
	0.8	2394	1044	1.86		0.8	2409	1025	1.93
T4	0.2	4536	878	2.30	T4	0.2	4609	807	2.11
	0.4	4407	910	2.38		0.4	4517	843	2.21
	0.6	4304	939	2.46		0.6	4424	882	2.31
	0.8	4176	974	2.55		0.8	4323	915	2.40
T5	0.2	4719	897	2.50	T5	0.2	4777	830	2.31
	0.4	4587	929	2.59		0.4	4680	865	2.41
	0.6	4458	962	2.68		0.6	4581	901	2.51
	0.8	4329	993	2.77		0.8	4485	934	2.60
T6	0.2	2669	601	0.66	T6	0.2	2763	560	0.62
	0.4	2504	659	0.73		0.4	2565	596	0.66
	0.6	2287	719	0.79		0.6	2469	685	0.76
	0.8	-	-	-		0.8	2212	756	0.83
T7	0.2	3310	692	1.06	T7	0.2	3409	640	0.98
	0.4	3163	736	1.13		0.4	3206	690	1.06
	0.6	3006	782	1.20		0.6	3073	727	1.12
	0.8	2765	840	1.29		0.8	2943	785	1.21
T8	0.2	3834	767	1.51	T8	0.2	3963	713	1.40
	0.4	3647	805	1.59		0.4	3752	752	1.48
	0.6	3528	839	1.65		0.6	3607	787	1.55
	0.8	3369	876	1.73		0.8	3497	839	1.65
T9	0.2	4218	823	1.96	T9	0.2	4404	775	1.84
	0.4	4046	860	2.05		0.4	4224	807	1.92
	0.6	3902	895	2.13		0.6	4087	852	2.03
	0.8	3774	927	2.21		0.8	3989	888	2.11
T10	0.2	4537	901	2.51	T10	0.2	4777	830	2.31
	0.4	4382	931	2.59		0.4	5442	854	2.38
	0.6	4251	961	2.68		0.6	4581	901	2.51
	0.8	4142	989	2.75		0.8	4322	934	2.60

# APPENDIX A BLOWER PERFORMANCE TABLES

**12.5 Ton  
240 MBH Gas Heat Exchanger  
High Static Direct Drive  
Models: DHG1503WH, DHG1504WH, DHG1507WH**

Down Flow					Horizontal Flow					Down Flow					Horizontal Flow				
Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP	Speed Tap	ESP	CFM	RPM	BHP
T1	0.2	2511	639	0.63	T1	0.2	2735	543	0.54	T6	0.2	2833	703	0.97	T6	0.2	3259	621	0.86
	0.4	-	-	-		0.4	2600	606	0.60		0.4	2651	764	1.05		0.4	3169	667	0.92
	0.6	-	-	-		0.6	-	-	-		0.6	2386	815	1.12		0.6	3032	726	1.00
	0.8	-	-	-		0.8	-	-	-		0.8	2266	858	1.18		0.8	2769	805	1.11
	1.0	-	-	-		1.0	-	-	-		1.0	-	-	-		1.0	2588	852	1.17
	1.2	-	-	-		1.2	-	-	-		1.2	-	-	-		1.2	2383	918	1.27
	1.4	-	-	-		1.4	-	-	-		1.4	-	-	-		1.4	2201	973	1.34
	1.6	-	-	-		1.6	-	-	-		1.6	-	-	-		1.6	-	-	-
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	-	-	-
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	-	-	-
T2	0.2	3737	894	1.97	T2	0.2	4297	761	1.68	T7	0.2	3533	825	1.62	T7	0.2	-	-	-
	0.4	3699	919	2.03		0.4	4168	801	1.76		0.4	3449	875	1.72		0.4	-	-	-
	0.6	3604	952	2.10		0.6	4081	844	1.86		0.6	3322	916	1.80		0.6	3807	809	1.59
	0.8	3476	990	2.18		0.8	4030	856	1.89		0.8	3103	957	1.88		0.8	3732	839	1.65
	1.0	3276	1035	2.28		1.0	3939	926	2.04		1.0	2969	997	1.96		1.0	3619	905	1.78
	1.2	3052	1082	2.38		1.2	3789	966	2.13		1.2	2734	1037	2.04		1.2	3443	950	1.87
	1.4	2890	1120	2.47		1.4	3553	1033	2.27		1.4	2605	1092	2.14		1.4	3180	1019	2.00
	1.6	2738	1154	2.54		1.6	3290	1090	2.40		1.6	2492	1115	2.19		1.6	2905	1084	2.13
	1.8	2584	1186	2.61		1.8	3097	1158	2.55		1.8	2340	1151	2.26		1.8	2709	1161	2.28
	2.0	2499	1207	2.66		2.0	2906	1192	2.63		2.0	2281	1174	2.31		2.0	2647	1160	2.28
T3	0.2	3953	863	1.80	T3	0.2	4165	735	1.53	T8	0.2	3830	878	1.97	T8	0.2	4345	768	1.73
	0.4	3837	903	1.88		0.4	4089	772	1.61		0.4	3757	922	2.07		0.4	4221	808	1.82
	0.6	-	-	-		0.6	3985	824	1.72		0.6	3682	959	2.16		0.6	4134	850	1.91
	0.8	-	-	-		0.8	-	-	-		0.8	3448	999	2.25		0.8	4082	860	1.93
	1.0	-	-	-		1.0	-	-	-		1.0	3358	1036	2.33		1.0	3995	930	2.09
	1.2	-	-	-		1.2	-	-	-		1.2	3188	1076	2.42		1.2	3851	970	2.18
	1.4	-	-	-		1.4	-	-	-		1.4	3011	1130	2.54		1.4	3624	1035	2.33
	1.6	-	-	-		1.6	-	-	-		1.6	2835	1162	2.61		1.6	3368	1090	2.45
	1.8	-	-	-		1.8	-	-	-		1.8	-	-	-		1.8	3179	1148	2.58
	2.0	-	-	-		2.0	-	-	-		2.0	-	-	-		2.0	2956	1199	2.70
T4	0.2	4964	1024	3.47	T4	0.2	5300	888	3.01	T9	0.2	4169	940	2.45	T9	0.2	4675	815	2.13
	0.4	4909	1046	3.55		0.4	5215	918	3.12		0.4	4075	977	2.55		0.4	4607	850	2.22
	0.6	4808	1079	3.66		0.6	5121	951	3.23		0.6	4019	1009	2.63		0.6	4514	895	2.34
	0.8	4764	1096	3.72		0.8	5044	979	3.32		0.8	3828	1046	2.73		0.8	4421	896	2.34
	1.0	4626	1123	3.81		1.0	4957	1015	3.44		1.0	3739	1080	2.82		1.0	4355	962	2.51
	1.2	4507	1167	3.96		1.2	4861	1040	3.53		1.2	3628	1119	2.92		1.2	4255	1001	2.61
	1.4	4409	1207	4.10		1.4	4769	1082	3.67		1.4	3405	1164	3.04		1.4	4126	1052	2.75
	1.6	4137	1257	4.26		1.6	4665	1099	3.73		1.6	3171	1200	3.13		1.6	3975	1077	2.81
	1.8	3878	1311	4.45		1.8	4563	1150	3.90		1.8	3021	1230	3.21		1.8	3843	1128	2.95
	2.0	3835	1332	4.52		2.0	4455	1181	4.01		2.0	2903	1262	3.30		2.0	3566	1206	3.15
T5	0.2	5128	1078	3.88	T5	0.2	5478	900	3.05	T10	0.2	4464	995	2.96	T10	0.2	4935	851	2.53
	0.4	5061	1102	3.96		0.4	5390	936	3.17		0.4	4325	1025	3.05		0.4	4889	876	2.61
	0.6	4965	1131	4.07		0.6	5309	971	3.29		0.6	4238	1053	3.13		0.6	4793	927	2.76
	0.8	4899	1154	4.15		0.8	5216	1003	3.40		0.8	4143	1088	3.23		0.8	4667	943	2.80
	1.0	4779	1182	4.25		1.0	5127	1036	3.52		1.0	4001	1118	3.32		1.0	4603	993	2.95
	1.2	4668	1214	4.37		1.2	5046	1067	3.62		1.2	3910	1155	3.43		1.2	4527	1028	3.06
	1.4	4583	1242	4.47		1.4	4954	1096	3.72		1.4	3708	1187	3.53		1.4	4465	1067	3.17
	1.6	4367	1283	4.61		1.6	4872	1128	3.83		1.6	3493	1213	3.60		1.6	4399	1067	3.17
	1.8	4137	1330	4.78		1.8	4794	1156	3.92		1.8	3312	1251	3.72		1.8	4327	1145	3.40
	2.0	4015	1356	4.88		2.0	4681	1188	4.03		2.0	3137	1299	3.86		2.0	4181	1168	3.47

- Note:**
- Taps T1 and T2 are for first stage of cooling only. Taps T6 and T7 are for first stage of heating only. Refer to page 11 for speed tap selection.
  - Shaded area are not recommended for cooling or heating operation.
  - Airflow table includes resistance for base unit only with 2" clean air filters in place. Any Additional air resistance caused by factory or field installed options or accessories must be added to the ESP in order to select the correct speed tap.

# APPENDIX A BLOWER PERFORMANCE DATA

THE FOLLOWING TABLES ARE PROVIDED FOR REFERENCE ONLY TO SHOW DDC CONTROL SETTINGS RELATIONSHIP TO UNIT CFM. BLOWER SPEED SETTINGS MUST BE SET TO MEET THE MINIMUM REQUIRED CFM OF THEIR STAGES.

## 7.5 TON

MODELS : DHG0903D, DHG0904D & DHG0907D WITH DDC CONTROLS

STANDARD STATIC TO 2.4 HP (0.2 ~ 0.8 ESP)

### DOWN FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800	519	22	0.39	584	24	0.50	643	26	0.55	717	27	0.73	-	-	-
2000	554	26	0.46	618	27	0.58	676	29	0.63	747	31	0.84	-	-	-
2200	589	29	0.53	653	31	0.69	709	33	0.72	777	35	0.97	-	-	-
2400	624	33	0.63	687	35	0.81	743	37	0.83	807	39	1.11	-	-	-
2600	659	36	0.74	721	38	0.95	776	40	0.96	838	42	1.28	-	-	-
2800	693	40	0.86	756	42	1.11	809	44	1.10	868	46	1.47	-	-	-
3000	728	43	1.01	790	46	1.30	842	48	1.26	898	50	1.69	-	-	-
3200	763	47	1.19	824	49	1.53	875	51	1.45	928	53	1.94	-	-	-
3400	798	50	1.40	859	53	1.79	908	55	1.67	959	57	2.24	-	-	-
3600	833	53	1.64	893	57	2.10	941	59	1.92				-	-	-

Shaded area indicates air flow below 2250 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

### HORIZONTAL FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800	456	21	0.31	541	22	0.38	610	23	0.50	684	25	0.57	-	-	-
2000	486	24	0.37	568	25	0.44	636	27	0.58	706	29	0.64	-	-	-
2200	516	27	0.43	595	29	0.50	661	30	0.66	729	32	0.72	-	-	-
2400	546	31	0.51	622	32	0.58	687	34	0.76	751	36	0.81	-	-	-
2600	576	34	0.59	649	36	0.67	712	38	0.88	774	39	0.91	-	-	-
2800	606	38	0.70	676	39	0.77	737	41	1.01	796	43	1.03	-	-	-
3000	636	41	0.82	703	43	0.88	763	45	1.16	818	47	1.16	-	-	-
3200	666	45	0.96	730	46	1.02	788	48	1.33	841	50	1.31	-	-	-
3400	696	48	1.13	757	50	1.17	814	52	1.53	863	54	1.48	-	-	-
3600	726	52	1.32	784	53	1.34	839	55	1.76	886	57	1.66	-	-	-
3800	756	55	1.55	811	57	1.55	865	59	2.03	908	61	1.88	-	-	-

Shaded area indicates air flow below 2250 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.



# APPENDIX A BLOWER PERFORMANCE DATA

7.5 TON

MODELS : DHG0903L, DHG0904L & DHG0907L WITH DDC CONTROLS

MEDIUM STATIC TO 2.4 HP (0.2 ~ 1.4 ESP)

DOWN FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1400	449	16	0.28	516	17	0.36	577	18	0.41	656	20	0.55	742	24	0.66
1600	484	19	0.33	550	20	0.42	610	22	0.47	686	24	0.63	767	27	0.73
1800	519	22	0.39	584	24	0.50	643	26	0.55	717	27	0.73	793	31	0.80
2000	554	26	0.46	618	27	0.58	676	29	0.63	747	31	0.84	818	34	0.89
2200	589	29	0.53	653	31	0.69	709	33	0.72	777	35	0.97	844	38	0.98
2400	624	33	0.63	687	35	0.81	743	37	0.83	807	39	1.11	869	41	1.08
2600	659	36	0.74	721	38	0.95	776	40	0.96	838	42	1.28	895	45	1.20
2800	693	40	0.86	756	42	1.11	809	44	1.10	868	46	1.47	920	48	1.32
3000	728	43	1.01	790	46	1.30	842	48	1.26	898	50	1.69	946	52	1.46
3200	763	47	1.19	824	49	1.53	875	51	1.45	928	53	1.94	971	55	1.62
3400	798	50	1.40	859	53	1.79	908	55	1.67	959	57	2.24	997	58	1.79
3600	833	53	1.64	893	57	2.10	941	59	1.92	989	61	2.57	1022	62	1.97
3800	868	57	1.92	927	60	2.47	975	62	2.21	1019	63	2.96			
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1400	853	27	0.87	853	29	0.96	-	-	-	-	-	-	-	-	-
1600	871	30	0.96	876	32	1.04	-	-	-	-	-	-	-	-	-
1800	890	34	1.06	899	36	1.12	-	-	-	-	-	-	-	-	-
2000	908	37	1.17	922	39	1.22	-	-	-	-	-	-	-	-	-
2200	926	40	1.30	945	42	1.32	-	-	-	-	-	-	-	-	-
2400	945	44	1.43	968	46	1.43	-	-	-	-	-	-	-	-	-
2600	963	47	1.58	991	49	1.55	-	-	-	-	-	-	-	-	-
2800	981	50	1.75	1015	53	1.68	-	-	-	-	-	-	-	-	-
3000	1000	54	1.94	1038	56	1.82	-	-	-	-	-	-	-	-	-
3200	1018	57	2.14	1061	59	1.97	-	-	-	-	-	-	-	-	-
3400	1036	61	2.36	1084	63	2.13	-	-	-	-	-	-	-	-	-
3600	1055	63	2.61				-	-	-	-	-	-	-	-	-
3800							-	-	-	-	-	-	-	-	-

Shaded area indicates air flow below 2250 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

HORIZONTAL FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1400	396	14	0.23	487	15	0.29	559	16	0.38	639	18	0.44	702	21	0.58
1600	426	17	0.27	514	18	0.33	585	20	0.44	661	22	0.50	724	25	0.64
1800	456	21	0.31	541	22	0.38	610	23	0.50	684	25	0.57	745	28	0.70
2000	486	24	0.37	568	25	0.44	636	27	0.58	706	29	0.64	766	31	0.78
2200	516	27	0.43	595	29	0.50	661	30	0.66	729	32	0.72	787	35	0.86
2400	546	31	0.51	622	32	0.58	687	34	0.76	751	36	0.81	809	38	0.95
2600	576	34	0.59	649	36	0.67	712	38	0.88	774	39	0.91	830	42	1.05
2800	606	38	0.70	676	39	0.77	737	41	1.01	796	43	1.03	851	45	1.16
3000	636	41	0.82	703	43	0.88	763	45	1.16	818	47	1.16	872	49	1.28
3200	666	45	0.96	730	46	1.02	788	48	1.33	841	50	1.31	894	52	1.41
3400	696	48	1.13	757	50	1.17	814	52	1.53	863	54	1.48	915	55	1.56
3600	726	52	1.32	784	53	1.34	839	55	1.76	886	57	1.66	936	59	1.73
3800	756	55	1.55	811	57	1.55	865	59	2.03	908	61	1.88	957	62	1.91
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1400	754	25	0.85	825	27	0.93	-	-	-	-	-	-	-	-	-
1600	774	28	0.93	843	30	1.01	-	-	-	-	-	-	-	-	-
1800	795	31	1.03	862	34	1.10	-	-	-	-	-	-	-	-	-
2000	816	34	1.14	880	37	1.19	-	-	-	-	-	-	-	-	-
2200	836	38	1.26	898	40	1.29	-	-	-	-	-	-	-	-	-
2400	857	41	1.39	917	43	1.39	-	-	-	-	-	-	-	-	-
2600	878	44	1.54	935	46	1.51	-	-	-	-	-	-	-	-	-
2800	899	48	1.70	954	50	1.64	-	-	-	-	-	-	-	-	-
3000	919	51	1.88	972	53	1.77	-	-	-	-	-	-	-	-	-
3200	940	54	2.08	990	56	1.92	-	-	-	-	-	-	-	-	-
3400	961	57	2.30	1009	59	2.08	-	-	-	-	-	-	-	-	-
3600	981	61	2.54	1027	62	2.25	-	-	-	-	-	-	-	-	-
3800	1002	63	2.81				-	-	-	-	-	-	-	-	-

Shaded area indicates air flow below 2250 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

# APPENDIX A BLOWER PERFORMANCE DATA

MODELS : DHG0903W,DHG0904W & DHG0907W WITH DDC CONTROLS

HIGH STATIC TO 3.5 HP (0.2 ~ 2.0 ESP)

DOWN FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800	519	22	0.39	584	24	0.50	643	26	0.55	717	27	0.73	793	31	0.80
2000	554	26	0.46	618	27	0.58	676	29	0.63	747	31	0.84	818	34	0.89
2200	589	29	0.53	653	31	0.69	709	33	0.72	777	35	0.97	844	38	0.98
2400	624	33	0.63	687	35	0.81	743	37	0.83	807	39	1.11	869	41	1.08
2600	659	36	0.74	721	38	0.95	776	40	0.96	838	42	1.28	895	45	1.20
2800	693	40	0.86	756	42	1.11	809	44	1.10	868	46	1.47	920	48	1.32
3000	728	43	1.01	790	46	1.30	842	48	1.26	898	50	1.69	946	52	1.46
3200	763	47	1.19	824	49	1.53	875	51	1.45	928	53	1.94	971	55	1.62
3400	798	50	1.40	859	53	1.79	908	55	1.67	959	57	2.24	997	58	1.79
3600	833	53	1.64	893	57	2.10	941	59	1.92	989	61	2.57	1022	62	1.97
3800	868	57	1.92	927	60	2.47	975	62	2.21	1019	64	2.96	1048	65	2.18
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800	890	34	1.06	899	36	1.12	1023	39	1.42	1077	41	1.64	1129	44	1.90
2000	908	37	1.17	922	39	1.22	1036	42	1.54	1088	44	1.78	1140	47	2.06
2200	926	40	1.30	945	42	1.32	1048	46	1.66	1099	48	1.93	1151	50	2.23
2400	945	44	1.43	968	46	1.43	1060	49	1.80	1110	51	2.09	1161	53	2.41
2600	963	47	1.58	991	49	1.55	1073	52	1.95	1122	54	2.26	1172	57	2.61
2800	981	50	1.75	1015	53	1.68	1085	55	2.12	1133	58	2.45	1183	60	2.83
3000	1000	54	1.94	1038	56	1.82	1097	58	2.29	1144	61	2.65	1194	63	3.07
3200	1018	57	2.14	1061	59	1.97	1110	62	2.48	1155	64	2.87	1204	67	3.32
3400	1036	61	2.36	1084	63	2.13	1122	65	2.69	1166	67	3.11	1215	70	3.60
3600	1055	64	2.61	1107	66	2.31	1134	68	2.91	1178	71	3.37	1226	73	3.90
3800	1073	67	2.89	1130	70	2.50	1147	71	3.16	1189	74	3.65			

Shaded area indicates air flow below 2250 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

HORIZONTAL FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800	456	21	0.31	541	22	0.38	610	23	0.50	684	25	0.57	745	28	0.70
2000	486	24	0.37	568	25	0.44	636	27	0.58	706	29	0.64	766	31	0.78
2200	516	27	0.43	595	29	0.50	661	30	0.66	729	32	0.72	787	35	0.86
2400	546	31	0.51	622	32	0.58	687	34	0.76	751	36	0.81	809	38	0.95
2600	576	34	0.59	649	36	0.67	712	38	0.88	774	39	0.91	830	42	1.05
2800	606	38	0.70	676	39	0.77	737	41	1.01	796	43	1.03	851	45	1.16
3000	636	41	0.82	703	43	0.88	763	45	1.16	818	47	1.16	872	49	1.28
3200	666	45	0.96	730	46	1.02	788	48	1.33	841	50	1.31	894	52	1.41
3400	696	48	1.13	757	50	1.17	814	52	1.53	863	54	1.48	915	55	1.56
3600	726	52	1.32	784	53	1.34	839	55	1.76	886	57	1.66	936	59	1.73
3800	756	55	1.55	811	57	1.55	865	59	2.03	908	61	1.88	957	62	1.91
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800	795	31	1.03	862	34	1.10	986	38	1.38	1040	41	1.33	1081	43	1.50
2000	816	34	1.14	880	37	1.19	992	41	1.50	1046	44	1.41	1088	46	1.59
2200	836	38	1.26	898	40	1.29	999	44	1.62	1053	47	1.50	1094	49	1.69
2400	857	41	1.39	917	43	1.39	1005	47	1.76	1059	49	1.59	1100	52	1.80
2600	878	44	1.54	935	46	1.51	1011	50	1.90	1066	52	1.69	1106	54	1.91
2800	899	48	1.70	954	50	1.64	1018	53	2.06	1072	55	1.80	1112	57	2.02
3000	919	51	1.88	972	53	1.77	1024	55	2.23	1079	58	1.91	1119	60	2.15
3200	940	54	2.08	990	56	1.92	1030	58	2.42	1085	60	2.02	1125	62	2.28
3400	961	57	2.30	1009	59	2.08	1037	61	2.62	1091	63	2.15	1131	65	2.42
3600	981	61	2.54	1027	62	2.25	1043	64	2.84	1098	66	2.28	1137	68	2.57
3800	1002	64	2.81	1046	66	2.44	1049	67	3.07	1104	69	2.42	1143	70	2.73

Shaded area indicates air flow below 2250 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

# APPENDIX A BLOWER PERFORMANCE DATA

**8.5 TON**

**MODELS : DHG1023D,DHG1024D & DHG1027D WITH DDC CONTROL**

**STANDARD STATIC TO 2.4 HP (0.2 ~ 0.8 ESP)**

**DOWN FLOW**

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600										678	21	0.55	-	-	-
1800				557	21	0.42	635	23	0.57	702	25	0.62	-	-	-
2000	509	23	0.41	586	25	0.48	661	27	0.66	727	29	0.70	-	-	-
2200	541	26	0.48	615	28	0.55	688	30	0.76	752	32	0.79	-	-	-
2400	572	30	0.56	645	32	0.64	714	34	0.87	776	36	0.89	-	-	-
2600	604	34	0.66	674	36	0.73	740	38	1.00	801	40	1.01	-	-	-
2800	635	37	0.77	703	39	0.84	767	42	1.15	826	44	1.14	-	-	-
3000	667	41	0.91	733	43	0.97	793	45	1.33	850	47	1.28	-	-	-
3200	698	44	1.06	762	47	1.11	820	49	1.52	875	51	1.44	-	-	-
3400	730	48	1.25	791	50	1.28	846	53	1.75	900	55	1.63	-	-	-
3600	761	52	1.47	820	54	1.48	872	57	2.02	924	59	1.83	-	-	-
3800	793	55	1.72	850	58	1.70	899	60	2.32	949	62	2.07	-	-	-

Shaded area indicates air flow below 2550 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

**HORIZONTAL FLOW**

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600										649	21	0.55	-	-	-
1800	436	20	0.33	521	21	0.41	597	23	0.46	670	25	0.62	-	-	-
2000	463	23	0.39	546	25	0.47	620	27	0.52	691	29	0.69	-	-	-
2200	491	27	0.46	571	28	0.54	642	30	0.59	711	32	0.78	-	-	-
2400	519	30	0.54	596	32	0.62	665	34	0.67	732	36	0.88	-	-	-
2600	547	34	0.63	621	35	0.72	688	37	0.75	753	39	1.00	-	-	-
2800	575	37	0.74	646	39	0.82	710	41	0.85	773	43	1.12	-	-	-
3000	602	40	0.87	671	42	0.95	733	44	0.96	794	46	1.26	-	-	-
3200	630	44	1.02	696	46	1.09	756	48	1.08	815	50	1.43	-	-	-
3400	658	47	1.20	721	49	1.25	778	51	1.21	836	54	1.61	-	-	-
3600	686	51	1.41	746	53	1.44	801	55	1.37	856	57	1.81	-	-	-
3800	714	54	1.65	771	56	1.66	823	58	1.54	877	61	2.04	-	-	-

Shaded area indicates air flow below 2550 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

# APPENDIX A BLOWER PERFORMANCE DATA

8.5 TON

MODELS : DHG1023L, DHG1024L & DHG1027L WITH DDC CONTROL

MEDIUM STATIC TO 3.5 HP (0.2 ~ 1.4 ESP)

DOWN FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600										678	21	0.55	757	23	0.73
1800				557	21	0.42	635	23	0.57	702	25	0.62	778	27	0.82
2000	509	23	0.41	586	25	0.48	661	27	0.66	727	29	0.70	799	31	0.93
2200	541	26	0.48	615	28	0.55	688	30	0.76	752	32	0.79	820	35	1.04
2400	572	30	0.56	645	32	0.64	714	34	0.87	776	36	0.89	841	38	1.18
2600	604	34	0.66	674	36	0.73	740	38	1.00	801	40	1.01	862	42	1.33
2800	635	37	0.77	703	39	0.84	767	42	1.15	826	44	1.14	883	46	1.50
3000	667	41	0.91	733	43	0.97	793	45	1.33	850	47	1.28	904	50	1.69
3200	698	44	1.06	762	47	1.11	820	49	1.52	875	51	1.44	925	54	1.90
3400	730	48	1.25	791	50	1.28	846	53	1.75	900	55	1.63	946	57	2.15
3600	761	52	1.47	820	54	1.48	872	57	2.02	924	59	1.83	967	61	2.42
3800	793	55	1.72	850	58	1.70	899	60	2.32	949	62	2.07	988	65	2.73
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600	834	25	0.79	799	28	1.04	-	-	-	-	-	-	-	-	-
1800	853	29	0.88	822	32	1.14	-	-	-	-	-	-	-	-	-
2000	873	33	0.97	845	35	1.27	-	-	-	-	-	-	-	-	-
2200	892	37	1.07	868	39	1.40	-	-	-	-	-	-	-	-	-
2400	912	41	1.18	891	42	1.55	-	-	-	-	-	-	-	-	-
2600	932	45	1.31	914	46	1.71	-	-	-	-	-	-	-	-	-
2800	951	49	1.45	937	50	1.89	-	-	-	-	-	-	-	-	-
3000	971	52	1.60	960	53	2.09	-	-	-	-	-	-	-	-	-
3200	991	56	1.77	983	57	2.31	-	-	-	-	-	-	-	-	-
3400	1010	60	1.95	1006	61	2.55	-	-	-	-	-	-	-	-	-
3600	1030	64	2.16	1029	64	2.82	-	-	-	-	-	-	-	-	-
3800	1049	68	2.39	1052	68	3.11	-	-	-	-	-	-	-	-	-

Shaded area indicates air flow below 2550 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

HORIZONTAL FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600										649	21	0.55	722	23	0.59
1800	436	20	0.33	521	21	0.41	597	23	0.46	670	25	0.62	740	27	0.65
2000	463	23	0.39	546	25	0.47	620	27	0.52	691	29	0.69	758	30	0.72
2200	491	27	0.46	571	28	0.54	642	30	0.59	711	32	0.78	777	34	0.80
2400	519	30	0.54	596	32	0.62	665	34	0.67	732	36	0.88	795	37	0.88
2600	547	34	0.63	621	35	0.72	688	37	0.75	753	39	1.00	814	41	0.97
2800	575	37	0.74	646	39	0.82	710	41	0.85	773	43	1.12	832	45	1.08
3000	602	40	0.87	671	42	0.95	733	44	0.96	794	46	1.26	851	48	1.19
3200	630	44	1.02	696	46	1.09	756	48	1.08	815	50	1.43	869	52	1.31
3400	658	47	1.20	721	49	1.25	778	51	1.21	836	54	1.61	888	56	1.45
3600	686	51	1.41	746	53	1.44	801	55	1.37	856	57	1.81	906	59	1.60
3800	714	54	1.65	771	56	1.66	823	58	1.54	877	61	2.04	925	63	1.77
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600	787	25	0.76	830	28	0.92	-	-	-	-	-	-	-	-	-
1800	804	28	0.84	847	32	1.00	-	-	-	-	-	-	-	-	-
2000	820	32	0.93	864	35	1.08	-	-	-	-	-	-	-	-	-
2200	837	36	1.02	881	39	1.17	-	-	-	-	-	-	-	-	-
2400	854	40	1.13	898	42	1.27	-	-	-	-	-	-	-	-	-
2600	870	43	1.25	915	46	1.37	-	-	-	-	-	-	-	-	-
2800	887	47	1.38	932	49	1.49	-	-	-	-	-	-	-	-	-
3000	904	51	1.53	949	53	1.61	-	-	-	-	-	-	-	-	-
3200	920	54	1.69	966	56	1.74	-	-	-	-	-	-	-	-	-
3400	937	58	1.87	983	60	1.89	-	-	-	-	-	-	-	-	-
3600	954	62	2.06	1000	63	2.05	-	-	-	-	-	-	-	-	-
3800	971	65	2.28	1017	67	2.22	-	-	-	-	-	-	-	-	-

Shaded area indicates air flow below 2550 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

# APPENDIX A BLOWER PERFORMANCE DATA

8.5 TON

MODELS : DHG1023W,DHG1024W & DHG1027W WITH DDC CONTROL

HIGH STATIC TO 3.5 HP (0.2 ~ 2.0 ESP)

DOWN FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600										678	21	0.55	757	23	0.73
1800				557	21	0.42	635	23	0.57	702	25	0.62	778	27	0.82
2000	509	23	0.41	586	25	0.48	661	27	0.66	727	29	0.70	799	31	0.93
2200	541	26	0.48	615	28	0.55	688	30	0.76	752	32	0.79	820	35	1.04
2400	572	30	0.56	645	32	0.64	714	34	0.87	776	36	0.89	841	38	1.18
2600	604	34	0.66	674	36	0.73	740	38	1.00	801	40	1.01	862	42	1.33
2800	635	37	0.77	703	39	0.84	767	42	1.15	826	44	1.14	883	46	1.50
3000	667	41	0.91	733	43	0.97	793	45	1.33	850	47	1.28	904	50	1.69
3200	698	44	1.06	762	47	1.11	820	49	1.52	875	51	1.44	925	54	1.90
3400	730	48	1.25	791	50	1.28	846	53	1.75	900	55	1.63	946	57	2.15
3600	761	52	1.47	820	54	1.48	872	57	2.02	924	59	1.83	967	61	2.42
3800	793	55	1.72	850	58	1.70	899	60	2.32	949	62	2.07	988	65	2.73
4000	824	59	2.02	879	61	1.95	925	64	2.67	974	66	2.33	1009	69	3.08
4200	856	62	2.37	908	65	2.25	951	68	3.07	998	70	2.63	1030	73	3.47
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600	834	25	0.79	799	28	1.04	872	30	1.08	945	33	1.29	1006	32	1.39
1800	853	29	0.88	822	32	1.14	894	34	1.17	965	37	1.40	1025	36	1.51
2000	873	33	0.97	845	35	1.27	916	38	1.26	986	40	1.52	1045	40	1.63
2200	892	37	1.07	868	39	1.40	938	41	1.37	1007	44	1.64	1064	44	1.77
2400	912	41	1.18	891	42	1.55	960	45	1.48	1028	47	1.78	1084	48	1.92
2600	932	45	1.31	914	46	1.71	982	49	1.61	1049	51	1.93	1103	52	2.08
2800	951	49	1.45	937	50	1.89	1004	52	1.74	1070	55	2.09	1122	57	2.25
3000	971	52	1.60	960	53	2.09	1026	56	1.88	1091	58	2.27	1142	61	2.44
3200	991	56	1.77	983	57	2.31	1048	60	2.04	1112	62	2.45	1161	65	2.64
3400	1010	60	1.95	1006	61	2.55	1070	63	2.21	1133	66	2.66	1180	69	2.86
3600	1030	64	2.16	1029	64	2.82	1092	67	2.39	1154	69	2.88	1200	73	3.10
3800	1049	68	2.39	1052	68	3.11	1114	70	2.59	1175	73	3.12			
4000	1069	72	2.64	1075	71	3.44	1136	74	2.81						
4200	1089	74	2.91	1098	74	3.80									

Shaded area indicates air flow below 2550 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

HORIZONTAL FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600										649	21	0.55	722	23	0.59
1800	436	20	0.33	521	21	0.41	597	23	0.46	670	25	0.62	740	27	0.65
2000	463	23	0.39	546	25	0.47	620	27	0.52	691	29	0.69	758	30	0.72
2200	491	27	0.46	571	28	0.54	642	30	0.59	711	32	0.78	777	34	0.80
2400	519	30	0.54	596	32	0.62	665	34	0.67	732	36	0.88	795	37	0.88
2600	547	34	0.63	621	35	0.72	688	37	0.75	753	39	1.00	814	41	0.97
2800	575	37	0.74	646	39	0.82	710	41	0.85	773	43	1.12	832	45	1.08
3000	602	40	0.87	671	42	0.95	733	44	0.96	794	46	1.26	851	48	1.19
3200	630	44	1.02	696	46	1.09	756	48	1.08	815	50	1.43	869	52	1.31
3400	658	47	1.20	721	49	1.25	778	51	1.21	836	54	1.61	888	56	1.45
3600	686	51	1.41	746	53	1.44	801	55	1.37	856	57	1.81	906	59	1.60
3800	714	54	1.65	771	56	1.66	823	58	1.54	877	61	2.04	925	63	1.77
4000	741	58	1.94	797	60	1.91	846	62	1.74	898	64	2.30	943	67	1.96
4200	769	61	2.27	822	63	2.19	869	65	1.96	918	68	2.60	962	70	2.17
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1600	787	25	0.76	830	28	0.92	908	31	1.24	950	33	1.27	978	36	1.59
1800	804	28	0.84	847	32	1.00	922	35	1.35	964	37	1.35	993	39	1.69
2000	820	32	0.93	864	35	1.08	936	38	1.46	978	40	1.43	1009	42	1.79
2200	837	36	1.02	881	39	1.17	950	42	1.58	992	44	1.52	1024	46	1.90
2400	854	40	1.13	898	42	1.27	964	45	1.71	1006	47	1.62	1039	49	2.02
2600	870	43	1.25	915	46	1.37	977	48	1.85	1020	51	1.72	1054	53	2.15
2800	887	47	1.38	932	49	1.49	991	52	2.01	1033	54	1.82	1069	56	2.28
3000	904	51	1.53	949	53	1.61	1005	55	2.17	1047	58	1.93	1084	60	2.42
3200	920	54	1.69	966	56	1.74	1019	59	2.36	1061	61	2.05	1099	63	2.57
3400	937	58	1.87	983	60	1.89	1033	62	2.55	1075	65	2.18	1115	67	2.73
3600	954	62	2.06	1000	63	2.05	1047	66	2.76	1089	68	2.32	1130	70	2.90
3800	971	65	2.28	1017	67	2.22	1060	69	2.99	1103	71	2.46	1145	74	3.08
4000	987	69	2.52	1034	70	2.40	1074	73	3.24	1116	74	2.61			
4200	1004	73	2.78	1051	74	2.60									

Shaded area indicates air flow below 2550 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.



# APPENDIX A BLOWER PERFORMANCE DATA

**10 TON**

**MODELS : DHG1203D, DHG1204D & DHG1207D WITH DDC CONTROL**

**STANDARD STATIC TO 2.4HP (0.2 ~ 0.8 ESP)**

**DOWN FLOW**

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
2000				582	20	0.55	644	20	0.65	712	21	0.81	-	-	-
2200	533	21	0.43	610	24	0.62	671	25	0.73	737	26	0.91	-	-	-
2400	563	25	0.49	638	28	0.70	699	29	0.82	763	30	1.03	-	-	-
2600	593	29	0.55	666	32	0.79	726	33	0.93	789	35	1.16	-	-	-
2800	622	32	0.62	694	36	0.89	754	37	1.05	814	39	1.31	-	-	-
3000	652	36	0.70	723	40	1.00	781	42	1.18	840	44	1.47	-	-	-
3200	681	40	0.79	751	44	1.13	809	46	1.33	866	48	1.66	-	-	-
3400	711	44	0.89	779	48	1.27	836	50	1.50	891	52	1.87	-	-	-
3600	740	48	1.00	807	52	1.43	864	54	1.69	917	57	2.11	-	-	-
3800	770	52	1.13	835	56	1.61	891	59	1.90	943	61	2.38	-	-	-
4000	800	56	1.27	863	60	1.82	919	63	2.15				-	-	-
4200	829	60	1.44	892	63	2.05							-	-	-

Shaded area indicates air flow below 3000 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

**HORIZONTAL FLOW**

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
2000							607	20	0.60	685	22	0.64	-	-	-
2200	473	19	0.42	552	21	0.48	628	24	0.68	704	26	0.71	-	-	-
2400	499	23	0.49	576	25	0.54	650	28	0.77	723	30	0.78	-	-	-
2600	525	27	0.56	600	29	0.61	671	32	0.86	742	34	0.87	-	-	-
2800	551	31	0.65	623	33	0.69	693	35	0.97	762	38	0.96	-	-	-
3000	578	35	0.74	647	37	0.77	714	39	1.10	781	42	1.06	-	-	-
3200	604	39	0.85	671	41	0.87	736	43	1.24	800	46	1.17	-	-	-
3400	630	43	0.98	695	45	0.98	757	47	1.40	819	50	1.29	-	-	-
3600	656	47	1.13	719	49	1.11	779	51	1.57	839	54	1.43	-	-	-
3800	682	51	1.30	743	53	1.25	800	55	1.78	858	58	1.58	-	-	-
4000	708	55	1.49	767	57	1.41	822	59	2.00	877	62	1.75	-	-	-
4200	734	59	1.72	791	61	1.59	843	63	2.26				-	-	-

Shaded area indicates air flow below 3000 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

# APPENDIX A BLOWER PERFORMANCE DATA

**10 TON**  
**MODELS : DHG1203L, DHG1204L & DHG1207L WITH DDC CONTROL**  
**MEDIUM STATIC TO 3.5HP (0.2 ~ 1.4 ESP)**  
**DOWN FLOW**

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800													765	21	0.87
2000	504	17	0.38	582	20	0.55	644	20	0.65	712	21	0.81	788	25	0.97
2200	533	21	0.43	610	24	0.62	671	25	0.73	737	26	0.91	810	30	1.07
2400	563	25	0.49	638	28	0.70	699	29	0.82	763	30	1.03	833	34	1.18
2600	593	29	0.55	666	32	0.79	726	33	0.93	789	35	1.16	856	38	1.30
2800	622	32	0.62	694	36	0.89	754	37	1.05	814	39	1.31	878	42	1.44
3000	652	36	0.70	723	40	1.00	781	42	1.18	840	44	1.47	901	47	1.59
3200	681	40	0.79	751	44	1.13	809	46	1.33	866	48	1.66	923	51	1.76
3400	711	44	0.89	779	48	1.27	836	50	1.50	891	52	1.87	946	55	1.95
3600	740	48	1.00	807	52	1.43	864	54	1.69	917	57	2.11	969	59	2.15
3800	770	52	1.13	835	56	1.61	891	59	1.90	943	61	2.38	991	64	2.38
4000	800	56	1.27	863	60	1.82	919	63	2.15	968	66	2.68	1014	68	2.63
4200	829	60	1.44	892	64	2.05	946	67	2.42	994	70	3.02	1037	72	2.90
4400	859	64	1.62	920	68	2.31	974	72	2.73	1020	74	3.41	1059	74	3.21
4600	888	68	1.82	948	72	2.61	1001	74	3.08						
4800	918	71	2.06	976	74	2.94									
5000	947	74	2.32												
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800	867	27	1.00	887	31	1.26	-	-	-	-	-	-	-	-	-
2000	885	31	1.09	906	35	1.37	-	-	-	-	-	-	-	-	-
2200	903	35	1.18	926	38	1.48	-	-	-	-	-	-	-	-	-
2400	921	39	1.28	945	42	1.61	-	-	-	-	-	-	-	-	-
2600	939	43	1.38	965	46	1.74	-	-	-	-	-	-	-	-	-
2800	956	47	1.50	985	50	1.89	-	-	-	-	-	-	-	-	-
3000	974	51	1.62	1004	54	2.04	-	-	-	-	-	-	-	-	-
3200	992	55	1.76	1024	58	2.21	-	-	-	-	-	-	-	-	-
3400	1010	59	1.90	1044	62	2.40	-	-	-	-	-	-	-	-	-
3600	1028	63	2.06	1063	66	2.60	-	-	-	-	-	-	-	-	-
3800	1046	67	2.23	1083	70	2.81	-	-	-	-	-	-	-	-	-
4000	1064	71	2.42	1103	73	3.05	-	-	-	-	-	-	-	-	-
4200	1082	74	2.62				-	-	-	-	-	-	-	-	-
4400							-	-	-	-	-	-	-	-	-
4600							-	-	-	-	-	-	-	-	-
4800							-	-	-	-	-	-	-	-	-
5000							-	-	-	-	-	-	-	-	-

Shaded area indicates air flow below 3000 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

**HORIZONTAL FLOW**

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800													740	21	0.85
2000	447	15	0.37	528	17	0.42	607	20	0.60	685	22	0.64	758	25	0.94
2200	473	19	0.42	552	21	0.48	628	24	0.68	704	26	0.71	775	29	1.04
2400	499	23	0.49	576	25	0.54	650	28	0.77	723	30	0.78	792	33	1.15
2600	525	27	0.56	600	29	0.61	671	32	0.86	742	34	0.87	809	37	1.27
2800	551	31	0.65	623	33	0.69	693	35	0.97	762	38	0.96	827	41	1.41
3000	578	35	0.74	647	37	0.77	714	39	1.10	781	42	1.06	844	45	1.56
3200	604	39	0.85	671	41	0.87	736	43	1.24	800	46	1.17	861	49	1.72
3400	630	43	0.98	695	45	0.98	757	47	1.40	819	50	1.29	879	53	1.90
3600	656	47	1.13	719	49	1.11	779	51	1.57	839	54	1.43	896	56	2.10
3800	682	51	1.30	743	53	1.25	801	55	1.78	858	58	1.58	913	60	2.32
4000	708	55	1.49	767	57	1.41	822	59	2.00	877	62	1.75	931	64	2.56
4200	734	59	1.72	791	61	1.59	844	63	2.26	896	66	1.93	948	68	2.83
4400	760	63	1.98	814	65	1.79	865	67	2.54	916	70	2.13	965	72	3.13
4600	786	67	2.28	838	69	2.02	887	71	2.87	935	74	2.36	982	74	3.46
4800	812	71	2.62	862	73	2.28	908	74	3.24						
5000	838	74	3.01												
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
1800	810	24	0.95	848	28	1.29	-	-	-	-	-	-	-	-	-
2000	825	28	1.02	863	32	1.40	-	-	-	-	-	-	-	-	-
2200	841	32	1.11	879	36	1.51	-	-	-	-	-	-	-	-	-
2400	856	36	1.20	895	40	1.64	-	-	-	-	-	-	-	-	-
2600	871	39	1.30	910	43	1.77	-	-	-	-	-	-	-	-	-
2800	886	43	1.41	926	47	1.92	-	-	-	-	-	-	-	-	-
3000	902	47	1.53	942	51	2.08	-	-	-	-	-	-	-	-	-
3200	917	51	1.66	957	55	2.26	-	-	-	-	-	-	-	-	-
3400	932	55	1.79	973	58	2.44	-	-	-	-	-	-	-	-	-
3600	948	59	1.94	989	62	2.65	-	-	-	-	-	-	-	-	-
3800	963	63	2.11	1004	66	2.87	-	-	-	-	-	-	-	-	-
4000	978	67	2.28	1020	70	3.11	-	-	-	-	-	-	-	-	-
4200	994	71	2.47	1036	74	3.37	-	-	-	-	-	-	-	-	-
4400	1009	74	2.68				-	-	-	-	-	-	-	-	-
4600							-	-	-	-	-	-	-	-	-
4800							-	-	-	-	-	-	-	-	-
5000							-	-	-	-	-	-	-	-	-

Shaded area indicates air flow below 3000 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.



# APPENDIX A BLOWER PERFORMANCE DATA

12.5 TON

MODELS : DHG1503D, DHG1504D & DHG1507D WITH DDC CONTROL

STANDARD STATIC TO 3.5HP (0.2 ~ 0.8 ESP)

DOWN FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
2000							601	20	0.62	677	22	0.67	-	-	-
2200	537	21	0.51	595	23	0.66	627	24	0.70	700	27	0.75	-	-	-
2400	561	25	0.58	620	27	0.75	653	28	0.79	724	31	0.85	-	-	-
2600	585	29	0.65	644	31	0.84	680	33	0.89	747	35	0.96	-	-	-
2800	610	33	0.74	668	35	0.95	706	37	1.00	770	39	1.08	-	-	-
3000	634	37	0.83	692	39	1.07	733	41	1.13	793	43	1.22	-	-	-
3200	658	41	0.93	717	43	1.21	759	45	1.28	817	47	1.37	-	-	-
3400	682	45	1.05	741	47	1.36	786	49	1.44	840	51	1.55	-	-	-
3600	707	49	1.19	765	52	1.54	812	54	1.62	863	56	1.74	-	-	-
3800	731	54	1.34	789	56	1.73	838	58	1.83	886	60	1.97	-	-	-
4000	755	58	1.51	814	60	1.96	865	62	2.06	909	64	2.22	-	-	-
4200	779	62	1.70	838	64	2.20	891	66	2.33	933	68	2.50	-	-	-
4400	804	66	1.92	862	68	2.49	918	70	2.62	956	72	2.82	-	-	-
4600	828	70	2.16	886	72	2.80	944	74	2.96	979	74	3.18	-	-	-

Shaded area indicates air flow below 3750 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

HORIZONTAL FLOW

CFM	0.2			0.4			0.6			0.8			1.0					
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP			
2000													-	-	-			
2200													691	22	0.70	-	-	-
2400	520	23	0.57	577	18	0.62	653	24	0.66	713	26	0.77	-	-	-			
2600	547	27	0.65	603	23	0.70	677	29	0.73	736	31	0.85	-	-	-			
2800	574	31	0.73	630	28	0.79	700	33	0.81	759	35	0.94	-	-	-			
3000	601	36	0.82	657	33	0.89	724	38	0.89	781	40	1.04	-	-	-			
3200	629	40	0.93	683	38	1.00	748	42	0.99	804	45	1.15	-	-	-			
3400	656	44	1.05	710	43	1.13	772	47	1.09	827	49	1.27	-	-	-			
3600	683	48	1.18	736	48	1.27	796	51	1.21	849	54	1.41	-	-	-			
3800	710	53	1.33	763	52	1.43	820	56	1.33	872	58	1.56	-	-	-			
4000	737	57	1.50	789	57	1.62	844	60	1.47	895	63	1.72	-	-	-			
4200	764	61	1.69	816	62	1.82	868	65	1.63	917	67	1.90	-	-	-			
4400	791	66	1.91	842	67	2.06	892	70	1.80	940	72	2.10	-	-	-			
4600	819	70	2.15	869	72	2.32	916	74	1.99	963	74	2.32	-	-	-			
4800	846	74	2.42	896	74	2.61							-	-	-			

Shaded area indicates air flow below 3750 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

# APPENDIX A BLOWER PERFORMANCE DATA

**12.5 TON**  
**MODELS : DHG1503L, DHG1504L & DHG1507L WITH DDC CONTROL**  
**MEDIUM STATIC TO 3.5HP (0.2 ~ 1.4 ESP)**  
**DOWN FLOW**

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
2200	537	21	0.51	595	23	0.66	627	24	0.70	700	27	0.76	764	29	0.87
2400	561	25	0.58	620	27	0.75	653	28	0.79	724	31	0.84	785	33	0.96
2600	585	29	0.65	644	31	0.84	680	33	0.89	747	35	0.93	806	37	1.06
2800	610	33	0.74	668	35	0.95	706	37	1.00	770	39	1.03	827	41	1.18
3000	634	37	0.83	692	39	1.07	733	41	1.13	793	43	1.14	848	45	1.30
3200	658	41	0.93	717	43	1.21	759	45	1.28	817	47	1.26	869	49	1.44
3400	682	45	1.05	741	47	1.36	786	49	1.44	840	51	1.39	890	53	1.59
3600	707	49	1.19	765	52	1.54	812	54	1.62	863	56	1.54	911	58	1.76
3800	731	54	1.34	789	56	1.73	838	58	1.83	886	60	1.70	932	62	1.94
4000	755	58	1.51	814	60	1.96	865	62	2.06	909	64	1.88	953	66	2.14
4200	779	62	1.70	838	64	2.20	891	66	2.33	933	68	2.08	974	70	2.37
4400	804	66	1.92	862	68	2.49	918	70	2.62	956	72	2.30	995	74	2.62
4600	828	70	2.16	886	72	2.80	944	74	2.96	979	74	2.54			
4800	852	74	2.44	911	74	3.16									
5000															
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
2200	825	31	1.09	938	42	0.93	-	-	-	-	-	-	-	-	-
2400	844	35	1.20	949	45	1.20	-	-	-	-	-	-	-	-	-
2600	863	39	1.33	961	48	1.33	-	-	-	-	-	-	-	-	-
2800	883	43	1.47	972	51	1.47	-	-	-	-	-	-	-	-	-
3000	902	48	1.62	984	54	1.62	-	-	-	-	-	-	-	-	-
3200	921	52	1.79	996	57	1.79	-	-	-	-	-	-	-	-	-
3400	940	56	1.98	1007	60	1.98	-	-	-	-	-	-	-	-	-
3600	959	60	2.19	1019	63	2.19	-	-	-	-	-	-	-	-	-
3800	978	64	2.42	1030	66	2.42	-	-	-	-	-	-	-	-	-
4000	997	68	2.67	1042	69	2.67	-	-	-	-	-	-	-	-	-
4200	1016	72	2.96	1054	72	2.96	-	-	-	-	-	-	-	-	-
4400	1036	74	3.27	1065	74	3.27	-	-	-	-	-	-	-	-	-
4600							-	-	-	-	-	-	-	-	-
4800							-	-	-	-	-	-	-	-	-
5000							-	-	-	-	-	-	-	-	-

Shaded area indicates air flow below 3750 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.

## HORIZONTAL FLOW

CFM	0.2			0.4			0.6			0.8			1.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
2200	493	18	0.51	550	13	0.55	629	19	0.60	691	22	0.70	750	23	0.83
2400	520	23	0.57	577	18	0.62	653	24	0.66	713	26	0.77	771	28	0.91
2600	547	27	0.65	603	23	0.70	677	29	0.73	736	31	0.85	793	32	1.01
2800	574	31	0.73	630	28	0.79	700	33	0.81	759	35	0.94	814	37	1.12
3000	601	36	0.82	657	33	0.89	724	38	0.89	781	40	1.04	835	42	1.23
3200	629	40	0.93	683	38	1.00	748	42	0.99	804	45	1.15	857	46	1.36
3400	656	44	1.05	710	43	1.13	772	47	1.09	827	49	1.27	878	51	1.51
3600	683	48	1.18	736	48	1.27	796	51	1.21	849	54	1.41	900	55	1.67
3800	710	53	1.33	763	52	1.43	820	56	1.33	872	58	1.56	921	60	1.84
4000	737	57	1.50	789	57	1.62	844	60	1.47	895	63	1.72	942	65	2.03
4200	764	61	1.69	816	62	1.82	868	65	1.63	917	67	1.90	964	69	2.25
4400	791	66	1.91	842	67	2.06	892	70	1.80	940	72	2.10	985	74	2.48
4600	819	70	2.15	869	72	2.32	916	74	1.99	963	74	2.32			
4800	846	74	2.42	896	74	2.61									
5000															
CFM	1.2			1.4			1.6			1.8			2.0		
	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP	RPM	DDC %	BHP
2200	804	28	1.06	862	27	1.24	-	-	-	-	-	-	-	-	-
2400	825	32	1.17	881	32	1.37	-	-	-	-	-	-	-	-	-
2600	845	36	1.29	900	37	1.52	-	-	-	-	-	-	-	-	-
2800	866	41	1.42	919	41	1.68	-	-	-	-	-	-	-	-	-
3000	887	45	1.57	938	46	1.85	-	-	-	-	-	-	-	-	-
3200	907	49	1.74	957	51	2.05	-	-	-	-	-	-	-	-	-
3400	928	54	1.92	976	55	2.26	-	-	-	-	-	-	-	-	-
3600	948	58	2.13	995	60	2.50	-	-	-	-	-	-	-	-	-
3800	969	62	2.35	1013	65	2.76	-	-	-	-	-	-	-	-	-
4000	989	66	2.60	1032	69	3.05	-	-	-	-	-	-	-	-	-
4200	1010	71	2.87	1051	74	3.38	-	-	-	-	-	-	-	-	-
4400	1030	74	3.17				-	-	-	-	-	-	-	-	-
4600							-	-	-	-	-	-	-	-	-
4800							-	-	-	-	-	-	-	-	-
5000							-	-	-	-	-	-	-	-	-

Shaded area indicates air flow below 3750 SCFM (300 SCFM/ton) that is not recommended for High Stage cooling or heating. Valid motor operating range for DDC% setting is 20 - 90.





# APPENDIX B ELECTRICAL DATA

## ELECTRICAL DATA

Model Number	Electrical Rating	Compressor			Outdoor Fan Motor			Indoor Fan Motor			Optional Powered Convenience Outlet	Optional Power Exhaust*	Power Supply	
		QTY	RLA	LRA	QTY	HP	FLA	QTY	HP	FLA	FLA	FLA	MCA	MOP
DHG0903D	208/230/3/60	2	12.2	120	2	0.33	2.0	1	2.4	8.0	-	-	39.4/39.4	50/50
											9.6/8.7	-	49.0/48.1	60/60
											-	3.3/3.0 (2.4)	42.7/42.4	50/50
											9.6/8.7	3.3/3.0 (2.4)	52.3/51.1	60/60
DHG0903L	208/230/3/60	2	12.2	120	2	0.33	2.0	1	2.4	8.0	-	-	39.4/39.4	50/50
											9.6/8.7	-	49.0/48.1	60/60
											-	3.3/3.0 (2.4)	42.7/42.4	50/50
											9.6/8.7	3.3/3.0 (2.4)	52.3/51.1	60/60
DHG0903W	208/230/3/60	2	12.2	120	2	0.33	2.0	1	3.5	10.9	-	-	42.3/42.3	50/50
											9.6/8.7	-	51.9/51.0	60/60
											-	3.3/3.0 (2.4)	45.6/45.3	50/50
											9.6/8.7	3.3/3.0 (2.4)	55.2/54.0	60/60
DHG0904D	460/3/60	2	5.8	55.1	2	0.33	0.85	1	2.4	5.4	-	-	20.1	25
											4.3	-	24.4	30
											-	1.2 (1.0)	21.3	25
											4.3	1.2 (1.0)	25.6	30
DHG0904L	460/3/60	2	5.8	55.1	2	0.33	0.85	1	2.4	5.4	-	-	20.1	25
											4.3	-	24.4	30
											-	1.2 (1.0)	21.3	25
											4.3	1.2 (1.0)	25.6	30
DHG0904W	460/3/60	2	5.8	55.1	2	0.33	0.85	1	3.5	7.2	-	-	21.9	25
											4.3	-	26.2	30
											-	1.2 (1.0)	23.1	30
											4.3	1.2 (1.0)	27.4	30
DHG0907D	575/3/60	2	5.8	41.0	2	0.33	0.67	1	2.4	4.0	-	-	18.3	20
											3.5	-	21.8	25
											-	1.3	19.6	25
											3.5	1.3	23.1	25
DHG0907L	575/3/60	2	5.8	41.0	2	0.33	0.67	1	2.4	4.0	-	-	18.3	20
											3.5	-	21.8	25
											-	1.3	19.6	25
											3.5	1.3	23.1	25
DHG0907W	575/3/60	2	5.8	41.0	2	0.33	0.67	1	3.5	5.0	-	-	19.3	25
											3.5	-	22.8	25
											-	1.3	20.6	25
											3.5	1.3	24.1	25
DHG1023D	208/230/3/60	2	14.1	120	2	0.33	2.0	1	2.4	8.0	-	-	43.7/43.7	50/50
											9.6/8.7	-	53.3/52.4	60/60
											-	3.3/3.0 (2.4)	47.0/46.7	60/60
											9.6/8.7	3.3/3.0 (2.4)	56.6/55.4	60/60
DHG1023L	208/230/3/60	2	14.1	120	2	0.33	2.0	1	3.5	10.9	-	-	46.6/46.6	60/60
											9.6/8.7	-	56.2/55.3	70/60
											-	3.3/3.0 (2.4)	49.9/49.6	60/60
											9.6/8.7	3.3/3.0 (2.4)	59.5/58.3	70/70
DHG1023W	208/230/3/60	2	14.1	120	2	0.33	2.0	1	3.5	10.9	-	-	46.6/46.6	60/60
											9.6/8.7	-	56.2/55.3	70/60
											-	3.3/3.0 (2.4)	49.9/49.6	60/60
											9.6/8.7	3.3/3.0 (2.4)	59.5/58.3	70/70
DHG1024D	460/3/60	2	6.4	55.1	2	0.33	0.85	1	2.4	5.4	-	-	21.5	25
											4.3	-	25.8	30
											-	1.2 (1.0)	22.7	25
											4.3	1.2 (1.0)	27.0	30
DHG1024L	460/3/60	2	6.4	55.1	2	0.33	0.85	1	3.5	7.2	-	-	23.3	30
											4.3	-	27.6	35
											-	1.2 (1.0)	24.5	30
											4.3	1.2 (1.0)	28.8	35
DHG1024W	460/3/60	2	6.4	55.1	2	0.33	0.85	1	3.5	7.2	-	-	23.3	30
											4.3	-	27.6	35
											-	1.2 (1.0)	24.5	30
											4.3	1.2 (1.0)	28.8	35
DHG1027D	575/3/60	2	5.1	41.0	2	0.33	0.67	1	2.4	4.0	-	-	16.9	20
											3.5	-	20.4	25
											-	1.3	18.2	20
											3.5	1.3	21.7	25
DHG1027L	575/3/60	2	5.1	41.0	2	0.33	0.67	1	3.5	5.0	-	-	17.9	20
											3.5	-	21.4	25
											-	1.3	19.2	20
											3.5	1.3	22.7	25
DHG1027W	575/3/60	2	5.1	41.0	2	0.33	0.67	1	3.5	5.0	-	-	17.9	20
											3.5	-	21.4	25
											-	1.3	19.2	20
											3.5	1.3	22.7	25

\*NOTE: Use higher value for calculation of MCA. Use lower value for calculation of MOP.

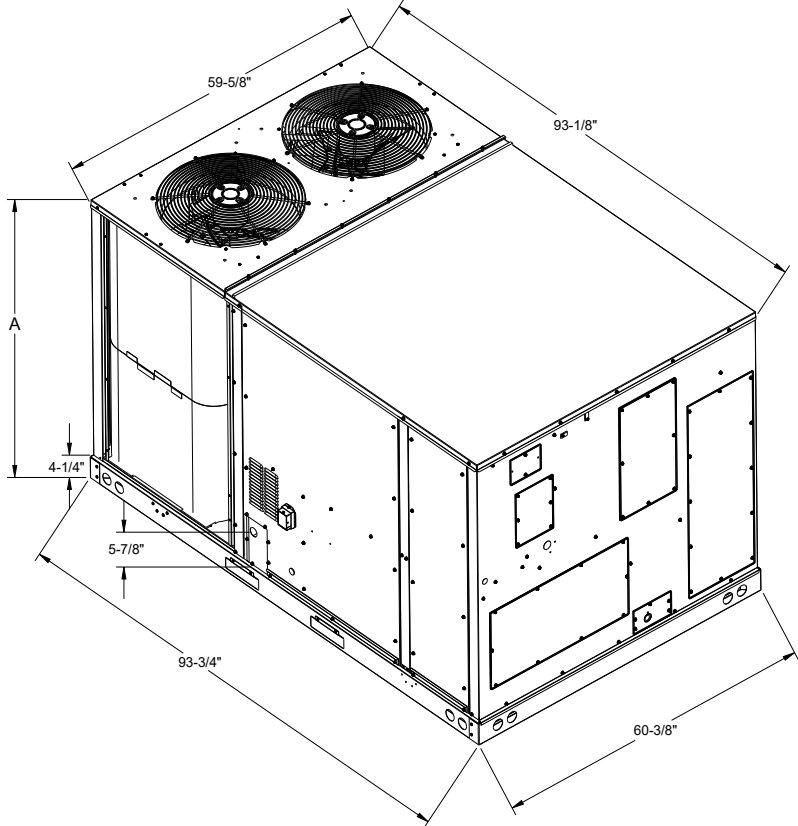
# APPENDIX B ELECTRICAL DATA

## ELECTRICAL DATA

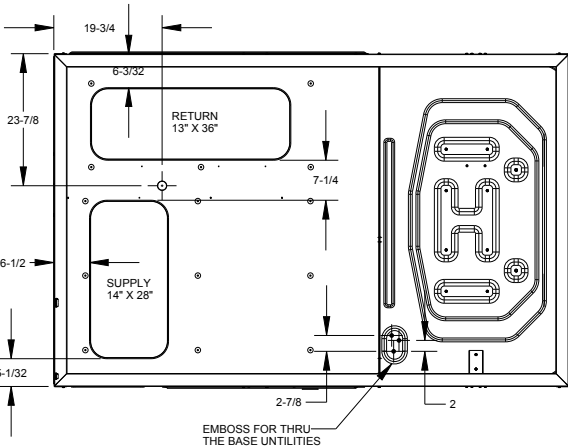
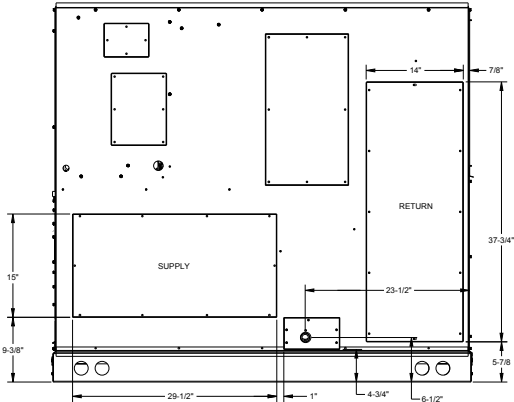
Model Number	Electrical Rating	Compressor			Outdoor Fan Motor			Indoor Fan Motor			Optional Powered Convenience Outlet	Optional Power Exhaust*	Power Supply	
		QTY	RLA	LRA	QTY	HP	FLA	QTY	HP	FLA	FLA	FLA	MCA	MOP
DHG1203D	208/230/3/60	2	15.4	156	2	0.33	2.0	1	2.4	8.0	-	-	46.6/46.6	60/60
											9.6/8.7	-	56.2/55.3	70/70
											-	3.3/3.0 (2.4)	49.9/49.6	60/60
											9.6/8.7	3.3/3.0 (2.4)	59.5/58.3	70/70
DHG1203L	208/230/3/60	2	15.4	156	2	0.33	2.0	1	3.5	10.9	-	-	49.5/49.5	60/60
											9.6/8.7	-	59.1/58.2	70/70
											-	3.3/3.0 (2.4)	52.8/52.5	60/60
											9.6/8.7	3.3/3.0 (2.4)	62.4/61.2	70/70
DHG1203W	208/230/3/60	2	15.4	156	2	0.33	2.0	1	5.0	14.5	-	-	53.1/53.1	60/60
											9.6/8.7	-	62.7/61.8	70/70
											-	3.3/3.0 (2.4)	56.4/56.1	70/70
											9.6/8.7	3.3/3.0 (2.4)	66.0/64.8	80/80
DHG1204D	460/3/60	2	7.7	69.0	2	0.33	0.85	1	2.4	5.4	-	-	24.4	30
											4.3	-	28.7	35
											-	1.2 (1.0)	25.6	30
											4.3	1.2 (1.0)	29.9	35
DHG1204L	460/3/60	2	7.7	69.0	2	0.33	0.85	1	3.5	7.2	-	-	26.2	30
											4.3	-	30.5	35
											-	1.2 (1.0)	27.4	35
											4.3	1.2 (1.0)	31.7	35
DHG1204W	460/3/60	2	7.7	69.0	2	0.33	0.85	1	5.0	10.6	-	-	29.6	40
											4.3	-	33.9	45
											-	1.2 (1.0)	30.8	40
											4.3	1.2 (1.0)	35.1	45
DHG1207D	575/3/60	2	6.4	47.8	2	0.33	0.67	1	2.4	4.0	-	-	19.7	25
											3.5	-	23.2	25
											-	1.3	21.0	25
											3.5	1.3	24.5	30
DHG1207L	575/3/60	2	6.4	47.8	2	0.33	0.67	1	3.5	5.0	-	-	20.7	25
											3.5	-	24.2	30
											-	1.3	22.0	25
											3.5	1.3	25.5	30
DHG1207W	575/3/60	2	6.4	47.8	2	0.33	0.67	1	5.0	7.2	-	-	22.9	30
											3.5	-	26.4	30
											-	1.3	24.2	30
											3.5	1.3	27.7	35
DHG1503D	208/230/3/60	2	19.2	157	2	0.33	3.5	1	3.5	10.9	-	-	61.1/61.1	80/80
											9.6/8.7	-	70.7/69.8	80/80
											-	3.3/3.0 (2.4)	64.4/64.1	80/80
											9.6/8.7	3.3/3.0 (2.4)	74.0/72.8	90/90
DHG1503L	208/230/3/60	2	19.2	157	2	0.33	3.5	1	3.5	10.9	-	-	61.1/61.1	80/80
											9.6/8.7	-	70.7/69.8	80/80
											-	3.3/3.0 (2.4)	64.4/64.1	80/80
											9.6/8.7	3.3/3.0 (2.4)	74.0/72.8	90/90
DHG1503W	208/230/3/60	2	19.2	157	2	0.33	3.5	1	5.0	14.5	-	-	64.7/64.7	80/80
											9.6/8.7	-	74.3/73.4	90/90
											-	3.3/3.0 (2.4)	68.0/67.7	80/80
											9.6/8.7	3.3/3.0 (2.4)	77.6/76.4	90/90
DHG1504D	460/3/60	2	9.0	74.8	2	0.33	1.6	1	3.5	7.2	-	-	30.6	35
											4.3	-	34.9	40
											-	1.2 (1.0)	31.8	40
											4.3	1.2 (1.0)	36.1	40
DHG1504L	460/3/60	2	9.0	74.8	2	0.33	1.6	1	3.5	7.2	-	-	30.6	35
											4.3	-	34.9	40
											-	1.2 (1.0)	31.8	40
											4.3	1.2 (1.0)	36.1	40
DHG1504W	460/3/60	2	9.0	74.8	2	0.33	1.6	1	5.0	10.6	-	-	34.0	40
											4.3	-	38.3	45
											-	1.2 (1.0)	35.2	45
											4.3	1.2 (1.0)	39.5	50
DHG1507D	575/3/60	2	7.0	53.9	2	0.33	1.54	1	3.5	5.0	-	-	23.9	30
											3.5	-	27.4	30
											-	1.3	25.2	30
											3.5	1.3	28.7	35
DHG1507L	575/3/60	2	7.0	53.9	2	0.33	1.54	1	3.5	5.0	-	-	23.9	30
											3.5	-	27.4	30
											-	1.3	25.2	30
											3.5	1.3	28.7	35
DHG1507W	575/3/60	2	7.0	53.9	2	0.33	1.54	1	5.0	7.2	-	-	26.1	30
											3.5	-	29.6	35
											-	1.3	27.4	30
											3.5	1.3	30.9	35

\*NOTE: Use higher value for calculation of MCA. Use lower value for calculation of MOP.

# APPENDIX C UNIT DIMENSIONS



MODEL	DIM "A"
DHG090	54.6"
DHG102	54.6"
DHG120	54.6"
DHG150	58.8"



NOTE: Refer to IOD-7082 included in the literature pack for installing horizontal duct covers.

## APPENDIX D MIN-MAX AIRFLOW

UNIT	Rated High Input (MBH)	Gas Heat	Minimum Heating Airflow (SCFM)	Maximum Heating Airflow (SCFM)
DHG090	130	High	1765	3882
		Low	1323	2912
	180	High	2443	5375
		Low	1832	4031
	225	High	2400	4199
		Low	1800	3149
DHG102	130	High	1765	3882
		Low	1323	2912
	180	High	2443	5375
		Low	1832	4031
	225	High	2400	4199
		Low	1800	3149
DHG120	130	High	1765	3882
		Low	1323	2912
	180	High	2443	5375
		Low	1832	4031
	240	High	2986	5972
		Low	2240	4479
DHG150	130	High	1765	3882
		Low	1323	2912
	180	High	2443	5375
		Low	1832	4031
	240	High	2756	5119
		Low	2067	3839



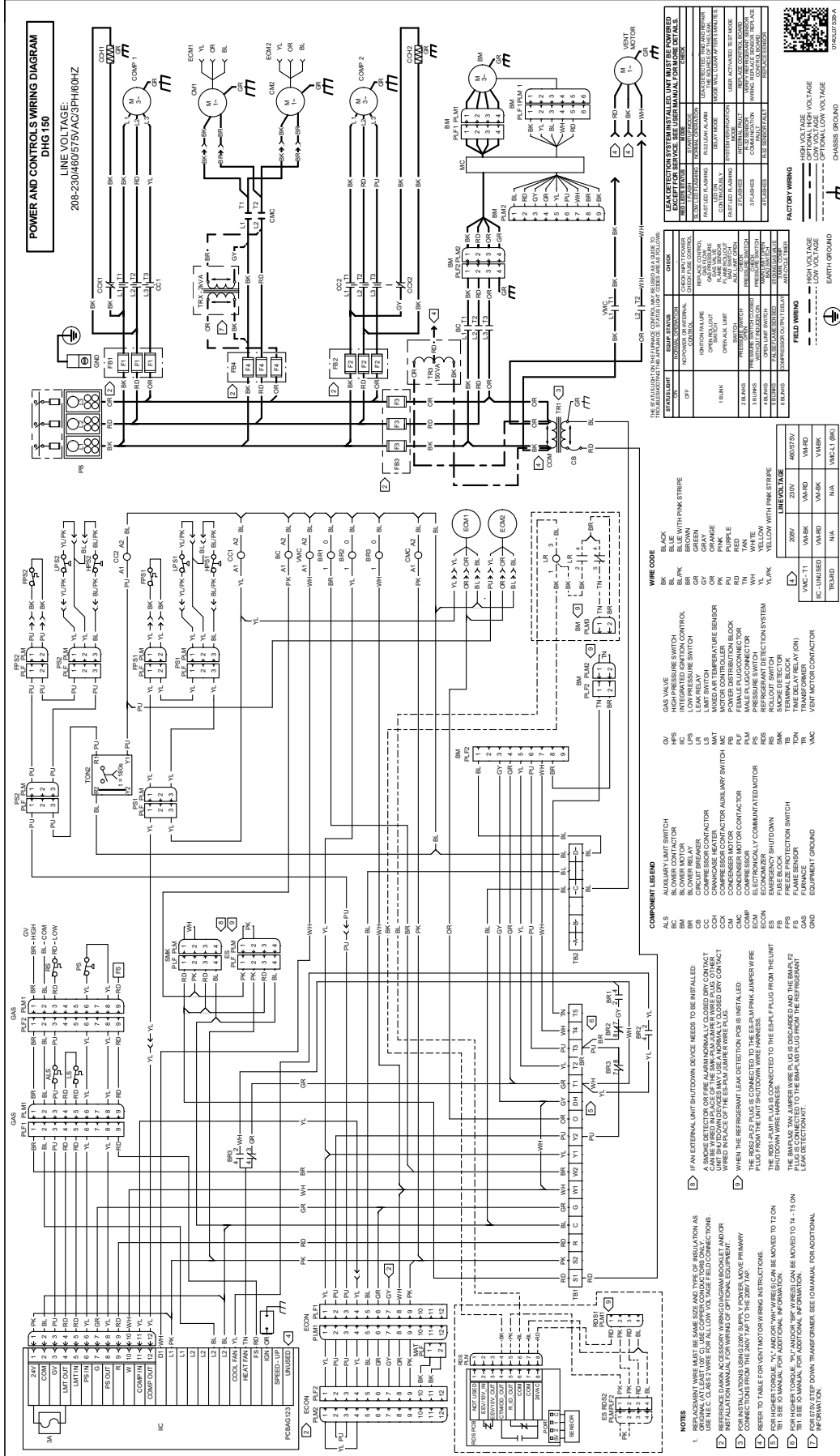


# APPENDIX E WIRING DIAGRAMS



**WARNING**

**HIGH VOLTAGE!**  
**DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**



**POWER AND CONTROLS WIRING DIAGRAM DHG 150**

LINE VOLTAGE:  
208-230/460/575VAC/3PH/60HZ

**WIRE CODE**

BLACK	BK
BROWN	BR
BLUE WITH PINK STRIPE	BL/PK
RED	RD
GRAY	GR
ORANGE	OR
GREEN	GRN
PURPLE	PU
YELLOW	YL
WHITE	WH
YELLOW WITH PINK STRIPE	YL/PK

**COMPONENT LED END**

ALS	AUXILIARY LIMIT SWITCH
BL	BLOWER CONTACTOR
BR	BLOWER RELAY
CD	CONDENSER CONTACTOR
CM	CONDENSER MOTOR
CMC	CONDENSER MOTOR CONTACTOR
ECA	ELECTRONICALLY COMMUTATED MOTOR
ES	EMERGENCY SHUTDOWN
FB	FIRE BLOCK
FS	FLAME SENSOR
GRD	EQUIPMENT GROUND

**FACTORY WIRING**

---	LOW VOLTAGE
---	HIGH VOLTAGE
---	OPTIONAL HIGH VOLTAGE
---	OPTIONAL LOW VOLTAGE
---	EARTH GROUND

**WIRING DIAGRAM**

THE FOLLOWING TABLE IS FOR INFORMATION ONLY. REFER TO THE WIRING DIAGRAM FOR THE ACTUAL WIRING CONNECTIONS.

WIRING DIAGRAM	DESCRIPTION	CHECK
OFF	NO POWER TO UNIT	NO POWER TO UNIT
ON	POWER TO UNIT	POWER TO UNIT
...	...	...

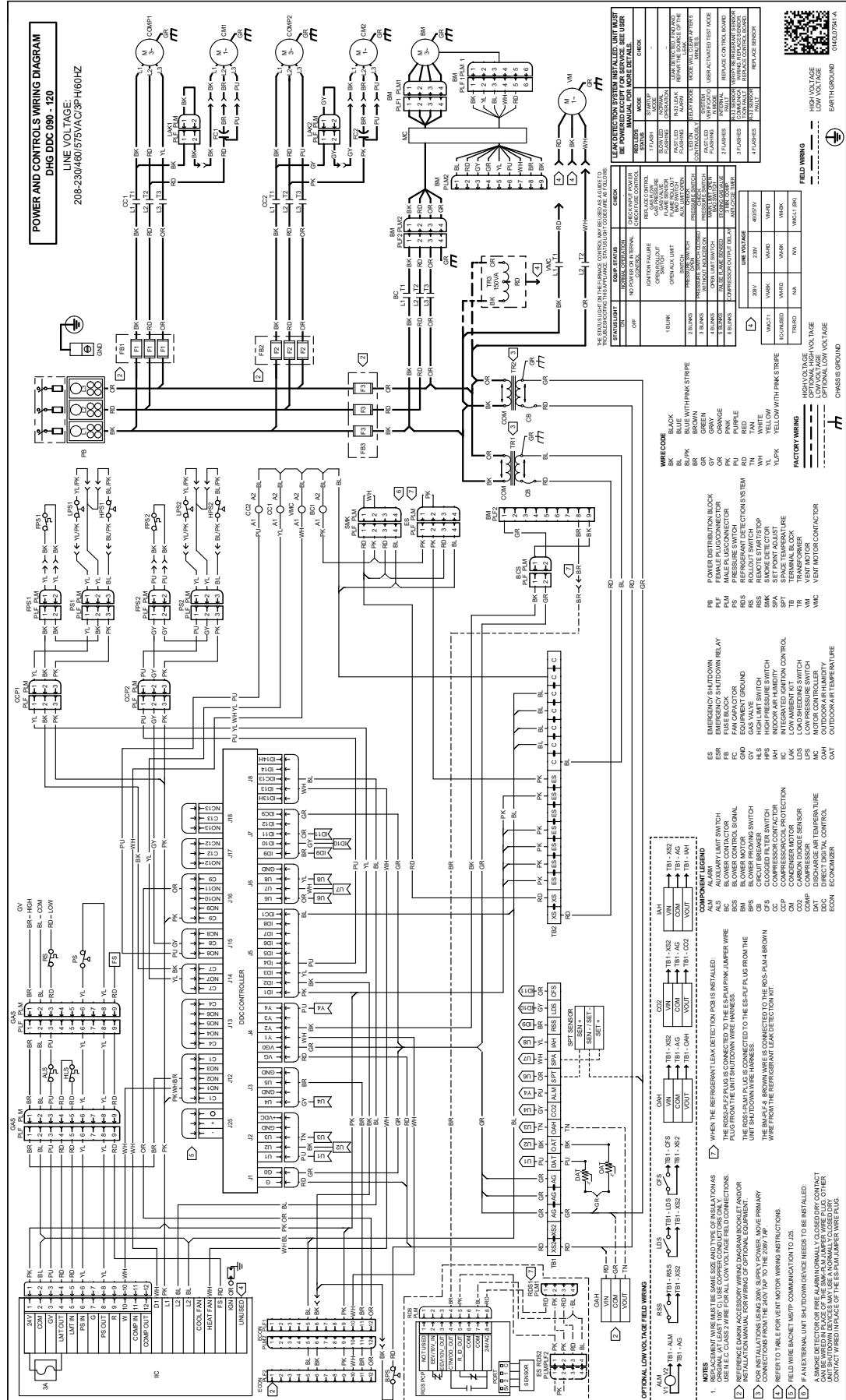
**NOTES**

1. ORIGINAL WIRE MUST BE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL AT LEAST 180°C UL TYPE COPPER CONDUCTOR CONNECTIONS.
2. REFER TO THE WIRING DIAGRAM FOR THE WIRING OF THE UNIT. WIRE MUST BE THE SAME TYPE AND SIZE AS THE ORIGINAL WIRING.
3. FOR INSTALLATIONS USING 208V SUPPLY, POWER MOVE PRIMARY WIRE FROM THE UNIT SHUTDOWN SWITCH TO THE PINK JUMPER WIRE.
4. WHEN THE REFRIGERANT LEAK DETECTION PDS IS INSTALLED, THE REFRIGERANT LEAK DETECTION PDS IS INSTALLED. THIS PDS MUST BE INSTALLED TO THE REFRIGERANT LEAK DETECTION PDS. THE REFRIGERANT LEAK DETECTION PDS IS INSTALLED TO THE REFRIGERANT LEAK DETECTION PDS.
5. FOR HIGHER TORQUE (TV) AND/OR (BV) WIRING, REFER TO THE WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
6. FOR STEP DOWN TRANSFORMER, SEE TO MANUAL FOR ADDITIONAL INFORMATION.

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# APPENDIX E WIRING DIAGRAMS

**WARNING**  
 HIGH VOLTAGE!  
 DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



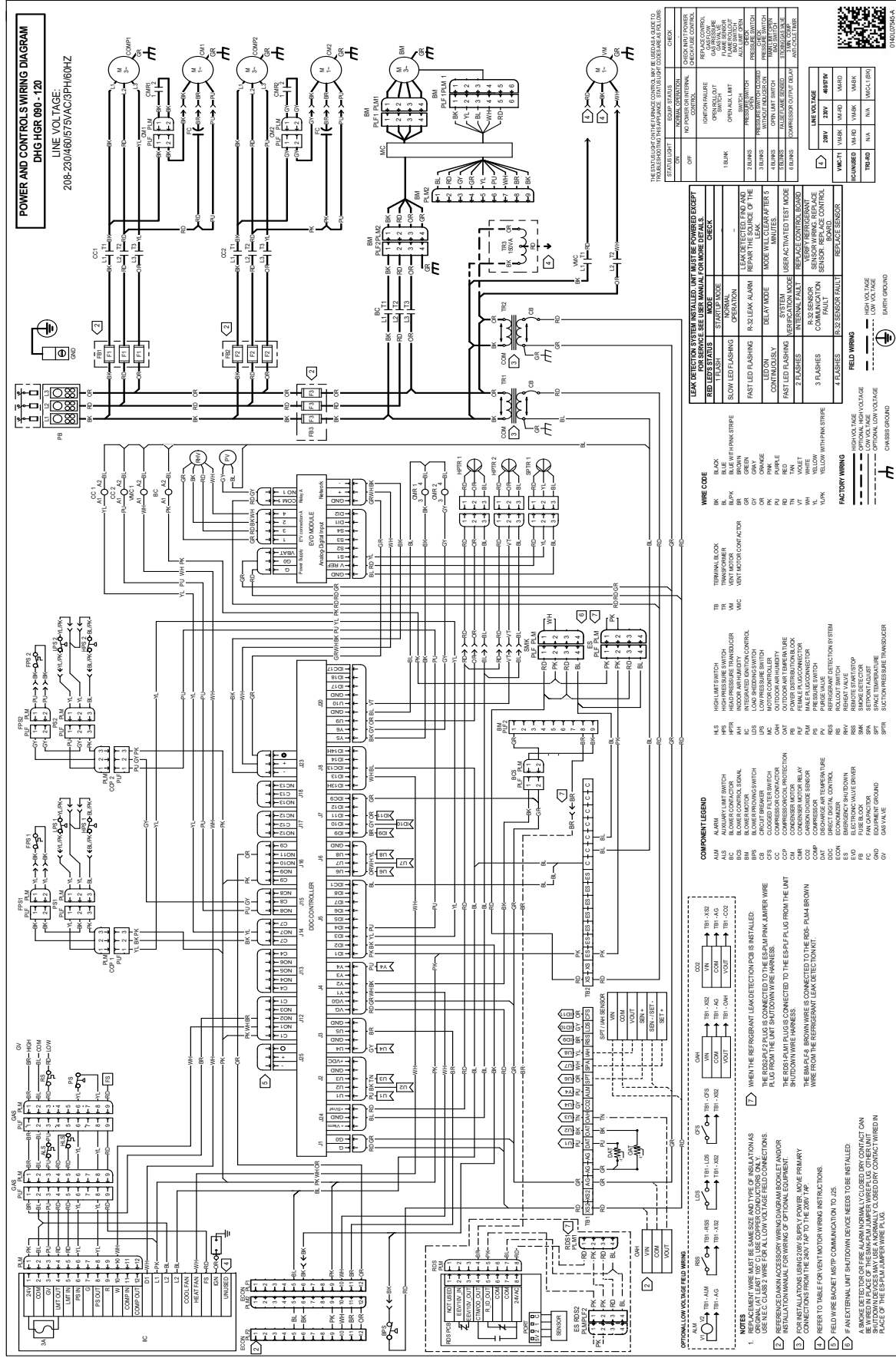
Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.



# APPENDIX E WIRING DIAGRAMS

## WARNING

HIGH VOLTAGE!  
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

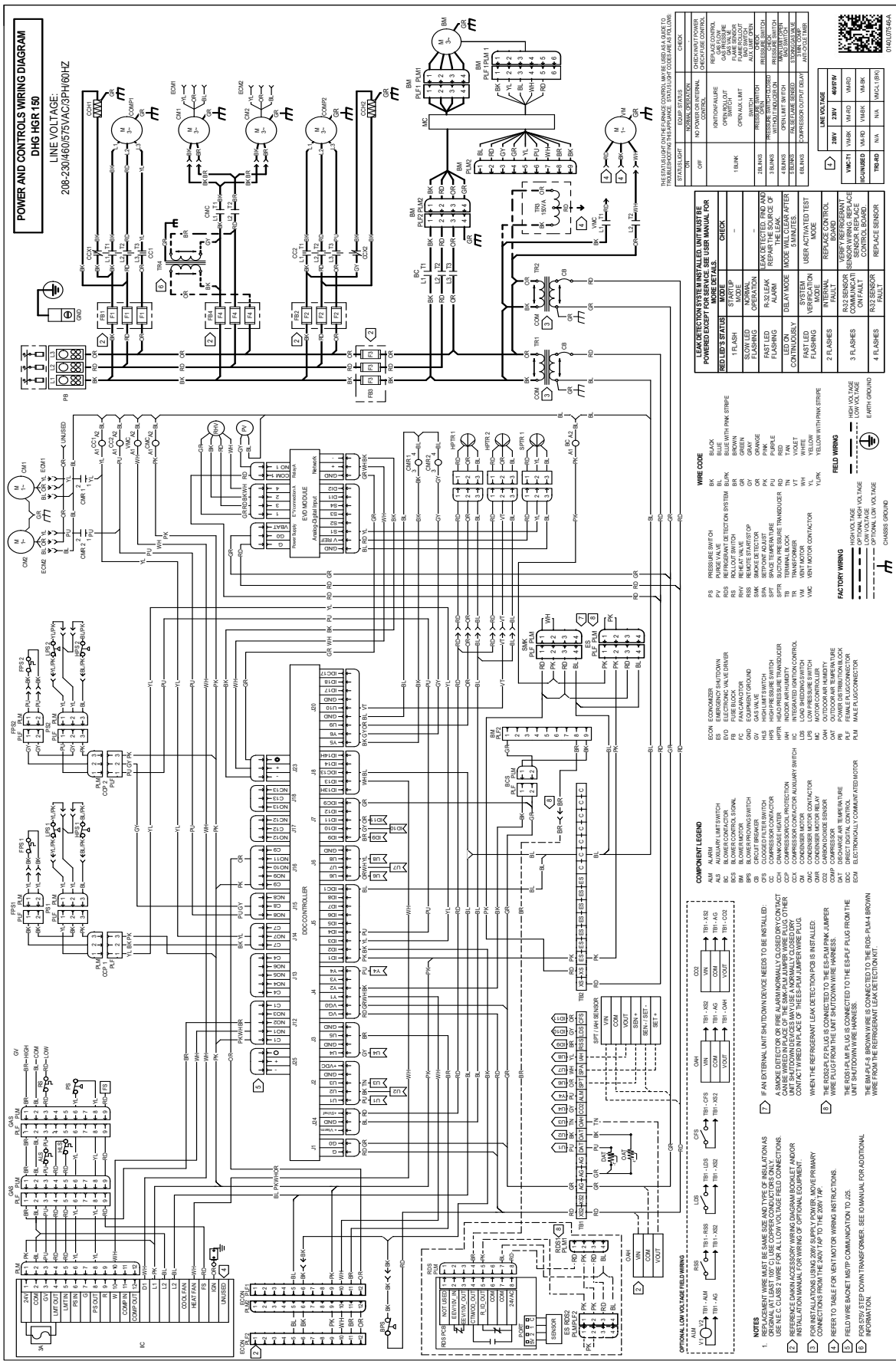


Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

# APPENDIX E WIRING DIAGRAMS

**WARNING**

**HIGH VOLTAGE!**  
**DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**







# Start-up Checklist

*\*Store in job file*

Date: \_\_\_\_\_ Location: \_\_\_\_\_  
Model Number: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
Technician: \_\_\_\_\_ Unit #: \_\_\_\_\_

## Pre Start-Up

*(Check each item as completed)*

- Verify all packaging material has been removed.
- Remove all shipping brackets per installation instructions.
- Verify the job site voltage agrees with the unit serial plate.
- Verify condensate connection is installed per installation instructions.
- Verify proper clearance around the unit for safety, service, maintenance and proper unit operation.
- Verify proper weatherproofing of all ductwork, roof curbs and electrical connections.
- Check that the flue screen is in place.
- Check gas piping for leaks.
- Verify gas pressure to the unit is within the range specified on the serial plate.
- Check to ensure that all fans, pulleys and wheels are secure.
- Check for proper belt tension and alignment per installation instructions.
- Check refrigerant piping for rubbing and leaks. *Repair if necessary.*
- Check unit wiring to ensure it is not in contact with refrigerant piping or sharp metal edges.
- Check all electrical connections and terminals. *Tighten as needed.*
- Verify that the crankcase heaters have been energized for 24 hours.
- Verify the scroll compressor(s) are rotating in the right direction.
- Verify all accessories are installed and operating correctly.
- Check filters and replace if necessary.
- Verify the installation of the thermostat.





# Start-up Checklist

**Start-Up**  
*(Insert the values as each item is completed.)*

## ELECTRICAL

Supply Voltage	L1 - L2	_____	L2 - L3	_____	L3 - L1	_____
Circuit 1 Compressor Amps	L1	_____	L2	_____	L3	_____
Circuit 2 Compressor Amps	L1	_____	L2	_____	L3	_____
Blower Amps	L1	_____	L2	_____	L3	_____
Condenser Fan Amps	Fan 1	_____	Fan 2	_____	Fan 3	_____

## BLOWER EXTERNAL STATIC PRESSURE

Return Air Static Pressure	_____	IN. W.C.
Supply Air Static Pressure	_____	IN. W.C.
Total External Static Pressure	_____	IN. W.C.
Blower Wheel RPM	_____	RPM

## TEMPERATURES

Outdoor Air Temperature	_____	DB	_____	WB
Return Air Temperature	_____	DB	_____	WB
Cooling Supply Air Temperature	_____	DB	_____	WB
Heating Supply Air Temperature	_____	DB	_____	

## PRESSURES

Gas Inlet Pressure	_____	IN. W.C.	
Gas Manifold Pressure	_____	IN. W.C. (Low Fire)	_____ IN. W.C. (High Fire)
Suction Circuit 1	_____	PSIG	_____ °F
Superheat (Orifice System)			_____ °F
Suction Circuit 2	_____	PSIG	_____ °F
Superheat (Orifice System)			_____ °F
Discharge Circuit 1	_____	PSIG	_____ °F
Subcooling (TXV System)			_____ °F
Discharge Circuit 2	_____	PSIG	_____ °F
Subcooling (TXV System)			_____ °F

## (HEAT PUMP ONLY)

Suction Circuit 1	_____	PSIG	_____ °F
Suction Circuit 2	_____	PSIG	_____ °F
Discharge Circuit 1	_____	PSIG	_____ °F
Discharge Circuit 2	_____	PSIG	_____ °F

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**CUSTOMER FEEDBACK**

Daikin is very interested in all product comments.

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You can also scan the QR code on the right to be directed to the feedback page.



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