

Light Commercial

INSTALLATION INSTRUCTIONS

High Static Blower Drive Kits 6 - 15 Ton Light Commercial Package System

GENERAL

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of heating and/or air conditioning appliances. Some local codes require licensed installation/service personnel for this type equipment and their accessories. All installations must be in accordance with these instructions and with all applicable national and local codes and standards. Please read all instructions thoroughly before installing the kit.

WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury or property damage.

Improper installation or servicing could result in dangerous operation, serious injury, death or property damage.

- Before servicing, disconnect all electrical power to the unit.
- When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.
- Verify proper operation after servicing.

WARNING:

Improper installation, service, adjustment, or maintenance can cause fire, electrical shock, or other conditions which may result in personal injury or property damage. Unless otherwise noted in these instructions, only factory authorized kits, parts or accessories may be used when modifying this equipment.

Proper blower drive kits are listed in Table 1 are applicable only to manufacturer equipped motors. The use of these kits with non-manufacturer motors may not produce the same values shown in the airflow tables or other data provided.

KIT #	918799	918800	920394	920395	920396	920558	920559	920606
Motor	X		X	X	X	X	X	X
Ext. Motor Overload	X							
Overload Adapter	X							
Motor Sheave	X	X		X	X	X	X	X
Blower Pulley	X	X	X	X	X	X	X	X
Drive Belt	X	X	X	X	X	X	X	X
Overload Wires	X		X	X	X	X	X	X
Parts Kit	X	X	X	X	X	X	X	X

KIT #	920607	920608	920609	920613	920618	920560	920637
Motor	X	X	X	X	X	X	X
Ext. Motor Overload			X	X	X	X	X
Overload Adapter			X	X	X	X	X
Motor Sheave	X		X	X	X	X	X
Blower Pulley	X	X	X	X	X	X	X
Drive Belt	X	X	X	X	X	X	X
Overload Wires	X	X	X	X	X	X	X
Parts Kit	X	X	X	X	X	X	X

Table 1. Blower Drive Kit Contents & Part Numbers

IMPORTANT SAFETY INFORMATION

INSTALLER: Please read all instructions before servicing this equipment. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored. **WARNING** indicates a potentially hazardous situation that if not avoided, could result in personal injury or death. **CAUTION** indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury or property damage.

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KIT APPLICATIONS

Prior to installing a high static drive kit (HSDK), always review these installation instructions to ensure the proper application of the kit for the appropriate equipment to be upgraded and verify that the kit will operate at the desired airflow requirements.

For retrofit/replacement installations, it is recommended that the current systems airflow and external static pressure be attained through on-site test measurements and/or the applicable manufacturer's airflow data be reviewed prior to ordering. Knowing the existing unit performance can greatly increase the reliability of initial system setup calculations in accounting for other airflow losses due to additional accessories and the current duct system performance.

R6GN & GR4GM SERIES UNITS

UNIT MODEL #	RANGE (IN-WG)	BLOWER CHART	HSD KIT
-150C-180C	1.1 - 1.9	PAGE 27	918799
-150C-270C			
-150D-180C			920637
-150D-270C			
-180C-270C	1.1 - 1.9	PAGE 28	918800
-180C-315C			
-180D-270C			
-180D-315C			

R6GP SERIES UNITS

UNIT MODEL #	E.S.P. RANGE (IN-WG)	DOWNFLOW BLOWER CHART	DOWNFLOW KIT	HORIZONTAL BLOWER CHART	HORIZONTAL KIT
-072C-100C	0.8 - 1.6	PAGE 15	920609	PAGE 16	920609
-072C-166C		PAGE 17	920609	PAGE 18	920613
-072D-100C		PAGE 15	920560	PAGE 16	920560
-072D-166C		PAGE 17	920560	PAGE 18	920618
-090C-200C	0.8 - 1.6	PAGE 19	920607	PAGE 20	920607
	1.2 - 2.0	PAGE 29	920559	PAGE 29	920559
-090D-200C	0.8 - 1.6	PAGE 19	920606	PAGE 20	920606
	1.2 - 2.0	PAGE 29	920558	PAGE 29	920558
-120C-235C	1.1 - 2.0	PAGE 31	920395	PAGE 32	920395
-120D-235C		PAGE 31	920396	PAGE 32	920396

P6SP SERIES UNITS

UNIT MODEL #	E.S.P. RANGE (IN-WG)	DOWNFLOW BLOWER CHART	DOWNFLOW KIT	HORIZONTAL BLOWER CHART	HORIZONTAL KIT
-072C	0.8 - 1.6	PAGE 11	920609	PAGE 12	920609
-072D		PAGE 11	920560	PAGE 12	920560
-090C	0.8 - 1.6	PAGE 13	920607	PAGE 14	920607
	1.2 - 2.0	PAGE 21	920559	PAGE 22	920559
-090D	0.8 - 1.6	PAGE 13	920606	PAGE 14	920606
	1.2 - 2.0	PAGE 21	920558	PAGE 22	920558
-120C	0.9 - 2.0	PAGE 23	920395	PAGE 24	920395
-120D		PAGE 23	920396	PAGE 24	920396

Q6SP & Q5SN SERIES UNITS

UNIT MODEL #	E.S.P. RANGE (IN-WG)	DOWNFLOW BLOWER CHART	DOWNFLOW KIT	HORIZONTAL BLOWER CHART	HORIZONTAL KIT
-090C	1.1 - 2.0	PAGE 25	920394	PAGE 26	920394
-090D		PAGE 25	920608	PAGE 26	920608
-120C	0.9 - 2.0	PAGE 23	920395	PAGE 24	920395
-120D		PAGE 23	920396	PAGE 24	920396

Table 2. Kit Applications

PRE-INSTALLATION INFORMATION & INSTALLATION METHOD

Before You Begin

It is recommended that prior to a kit selection for a retrofit installation, the existing duct system be inspected for security and possible improvements. The removal of flexible duct sections or replacement of under sized ducts can significantly improve a buildings air distribution system for increased unit efficiency, correction of room stratification issues for personal comfort and reduction of equipment noise levels transferred through the ducts.

Some local codes require testing a buildings duct system for external air infiltration and correcting any deficient structures. Commercial duct systems should be designed for compliance with the guidelines given in the ASHRAE Handbooks, ACCA Manual Q, SMACNA manuals or as specified by any applicable NFPA and local codes or ordinances that may apply. Improving an existing duct system could be more cost effective then increasing the units airflow when weighed against the increased energy cost for the designed life of the equipment.

Always make sure all equipment installation instructions are on-hand and reviewed prior to the commencement of any work for the unit and all field installed accessories. This accessory kit should be installed prior to the installation of any economizers, air-dampers, or other kits that require the blower operation for final setup. On roof top installations, these kits could be partially installed at ground level prior to the final unit placement in order to reduce the number of crane operations required.

Pre-Installation Checklist

- Verify the HSDK matches the unit application and building voltage requirements in Table 2 (page 3).
- Inspect the kit and verify the contents to Table 1 (page 1).
- Inspect the duct system for security, air leakage or infiltration, and that it is properly constructed for the airflow/pressure requirements of the HSDK.
- Review all equipment and accessory installation instructions prior to beginning the installation.
- Verify that the unit supply wiring, unit disconnect & over-current protection is sized properly for the addition of the HSDK and any other accessory kits that will utilize the same electrical circuit. See Figure 9 (page 10) for recommended procedure on how to determine the proper 3 phase wire size.

HSDK Installation Method

1. Set the thermostat and unit disconnect(s) to the **OFF** position. Verify that the unit has been isolated from all electrical power sources. For HSDK's that do not require a motor replacement, go to step 6.
2. Open/remove the access panels for the units control panel, blower compartment and field wiring compartments. **NOTE:** Never lift or hoist a unit without the access panels installed or closed and securely attached with all of the screws supplied from the factory. Refer to the unit installation instructions for additional details if necessary.
3. Locate the blower motor and trace the motor wires back to the blower motor contactor or external motor relay. Carefully cut any zip-ties to free the motor wires from the unit or wiring harness.
4. Disconnect the motor wires from the overload relay or contactor T1, T2 & T3 terminals or box lugs.
5. Remove the factory motor & lead assembly from the motor mounting plate and install the HSDK motor & lead assembly in the unit. See Figure 1 (page 5) for overload relay mounting locations.
6. Install the motor overload relay (if required) as described on page 5. Re-route the blower motor wires to the overload or blower contactor and secure with the supplied zip-ties.
 - Refer to Table 1 to determine the HSDK motor part number and then Table 3 to determine the service factor amps (SFA) for the HSDK motor at the correct unit supply voltage. Set the external overload relay to the motor SFA for that voltage. **NOTE:** Replacement overload relay part numbers can be found using the data in Tables 3 & 4.
7. Verify the proper operation of the motor sheave. Refer to the blower chart called out for the application in Table 1 and set the sheave to the proper set-point. Install the HSDK blower pulley and belt and reference the instructions on pages 6 - 8. Tighten the belt and secure the assembly.
8. Verify that all electrical connections have been made and wiring properly secured. Complete the instructions on verifying the electrical phase balance and blower rotation direction (pages 8 - 9).
9. After the completion of any other unit or accessory installation requirements, close or re-install the blower compartment access panel and restore the electrical power to the unit. Verify that the unit is delivering the proper airflow as described on pages 8 - 9.
10. Replace all other access panels and refer to the unit installation instructions to complete the installation and place the unit into normal service.

MOTOR PART NUMBER	RATED HP	POLES	VOLTAGE	HZ	Ø	RATED RPM	NEMA NOM. EFF.	NEMA FRAME SIZE	MOTOR AMPERAGE			REQUIRED EXTERNAL PROTECTOR
									FLA	SF	SFA	
621819	3	4	200-230	60	3	1725	81% †	145T	9.10 - 8.90	1.15	10.2 - 9.70	- N/A -
621820	3	4	460	60	3	1725	81% †	145T	4.4	1.15	4.8	- N/A -
622006	5	4	208-230/460	60	3	1760	87.5%	184T	14.0 - 13.4 / 6.7	1.15	15.0 - 15.0 / 7.5	YES
			190 / 380	50	3	1445	84%		15.9 / 7.9	1.00	15.9 / 7.9	
622026	2	4	208-230/460	60	3	1755	85.5%	145T	5.8 - 5.5 / 2.8	1.15	6.6 - 6.1 / 3.1	YES
622074	3	4	208-230/460	60	3	1765	86.5%	182T	8.8 - 8.6 / 4.4	1.15	10.1 - 9.9 / 5.0	YES
			190 / 380	50	3	1455	84%		9.8 / 4.9	1.00	9.8 / 4.9	
622254	2	4	208-230/460	60	3	1725	84% †	145T	6.2 - 5.8 / 2.9	1.15	7.0 - 6.6 / 3.3	- N/A -
622305	1.5	4	208-230/460	60	3	1755	86.5%	145T	4.4 - 4.2 / 2.1	1.15	5.0 - 4.6 / 2.3	YES

NOTES: FLA = Full Load Amps
 SF = Service Factor
 † Approximate Efficiency

SFA = Service Factor Amps
 Nom. Eff. = Nominal Efficiency

Table 3. High Static Drive Motor Data

RANGE OF PROTECTION (AMPS)	RELAY PART NUMBER	REQUIRED MOUNTING PLATE
1.4 - 2.0	624728	622032
1.8 - 2.5	624729	622032
2.8 - 4.0	622034	622032
3.5 - 5.0	622075	622032
5.5 - 8.0	622031	622032
7.0 - 10.0	622077	622032
11.0 - 16.0	622082	622083

Table 4. Overload Relay Data (3Ø Motor External Protectors)

EXTERNAL MOTOR OVERLOADS

Application

Siemens 3RU11 overload relays provide overload protection for three-phase inductive motors with rated currents of up to 100A (75HP, AC-3, 480V). Most motors do not require an external motor protector. Refer to Table 3 (page 4) to determine which kits require protectors.

Auxiliary Contacts

The overload relays are equipped with a NC contact for de-energizing the contactor and a NO contact for signalling an overload trip. The breaking capacity of the switching contacts is very high so that the contactor coils can be switched directly.

Trip Class

The 3RU11 overload relays are designed in accordance with trip class 10 (e.g. The protector will trip in less than 10 seconds at 6 times the trip current setting (FLA)).

Phase Failure Sensitivity

A phase failure sensitivity function is integrated in to the relay in order to provide increased protection in the event of a phase failure, i.e. faster tripping in the event of a single-phase condition.

Setting the Overload Relay

The current setting dial can be accessed once the transparent, sealable cover has been opened. The overload relay must be set at the rated Service Factor Amps (SFA) of the motor for the proper unit voltage. See Figure 2.

STOP Function

Pressing the red STOP button on the overload relay momentarily opens the NC trip contact. No other contacts and/or functions are affected by this STOP button.

Manual/Automatic Reset

The RESET button/mechanism features trip-free operation. This means that the overload relay will trip on an overload condition regardless of whether the reset button is pushed in or not. Manual or automatic reset can be selected with the blue button. The appropriate setting is selected by pressing and turning the button. This setting can then be locked by the sliding transparent cover.

TEST Function & Switch Position Indicator

The switch position indicator also incorporates a test function which, when activated, simulates a tripped overload relay. Both auxiliary contacts are actuated and the switch position is indicated.

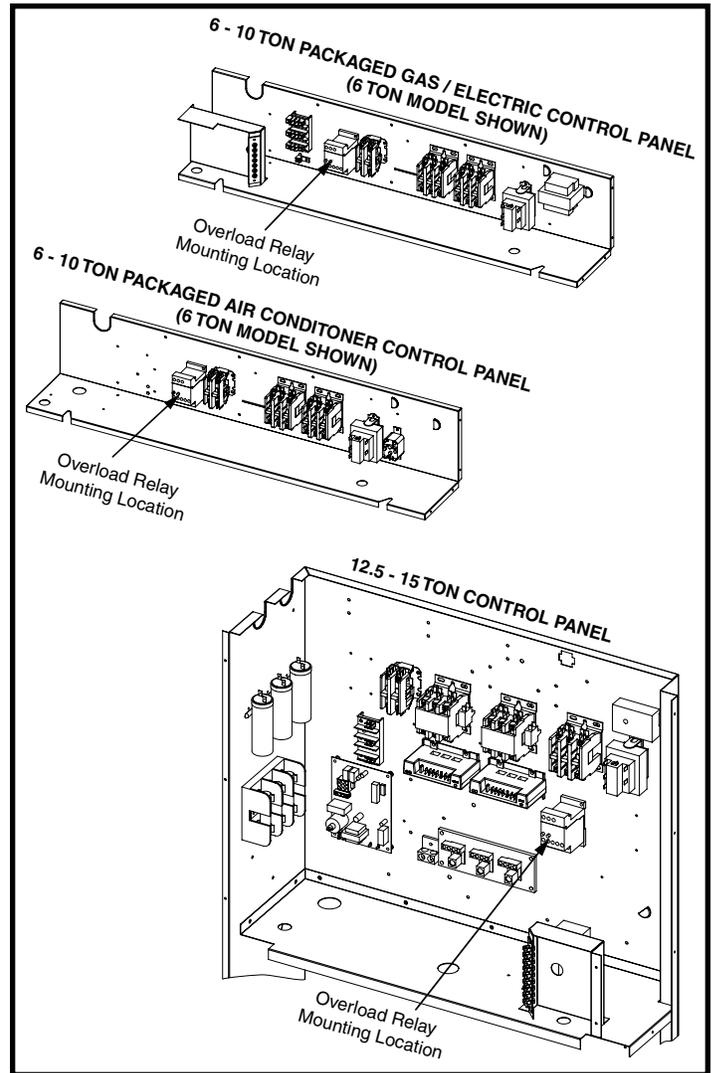


Figure 1. Overload Relay Mounting Locations

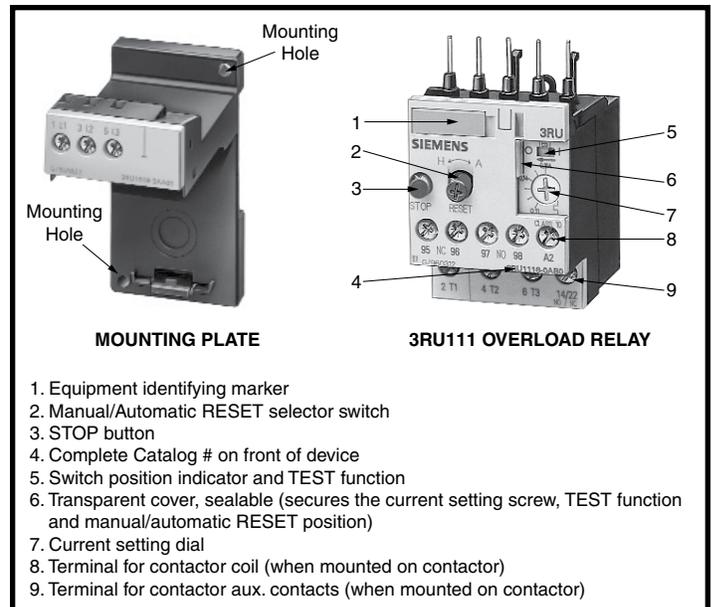


Figure 2. Overload Relay & Mounting Plate

MOTOR SHEAVE / PULLEYS / BELT INSTALLATION & ADJUSTMENT

WARNING:

Never perform maintenance on energized or rotating equipment. Always disconnect electrical power and allow all rotating equipment to stop before servicing the unit. Failure to do so may result in personal injury, loss of limb, or death from electrical shock or entanglement in moving parts.

Motor Pulley

The motor pulley or sheave is a variable pitch style pulley which allows blower speed adjustments over a wide range of applications. While the terms pulley and sheave can be interchanged, in this document, the adjustable motor pulley is referred to as a sheave or adjustable sheave, and the blower sheave is referred to as the pulley or blower pulley. Refer to the installation instructions supplied with the unit or refer to Tables 7 - 32 (pages 11 - 32) in this manual for proper airflow settings for each individual unit & kit. Do not adjust a motor pulley to a setting that is not shown on the table for that unit's application for that specific kit. Refer to Table 2 (page 3) to determine the proper blower chart for each application.

On 6-10T Packaged Models: The blower pulley in the kit is a simple AK or BK style pulley, sized for the application and the unit's blower shaft size. To remove or install, simply loosen the set screw and slide the pulley from the blower shaft. Make sure the shaft key is retained for installation of the new pulley.

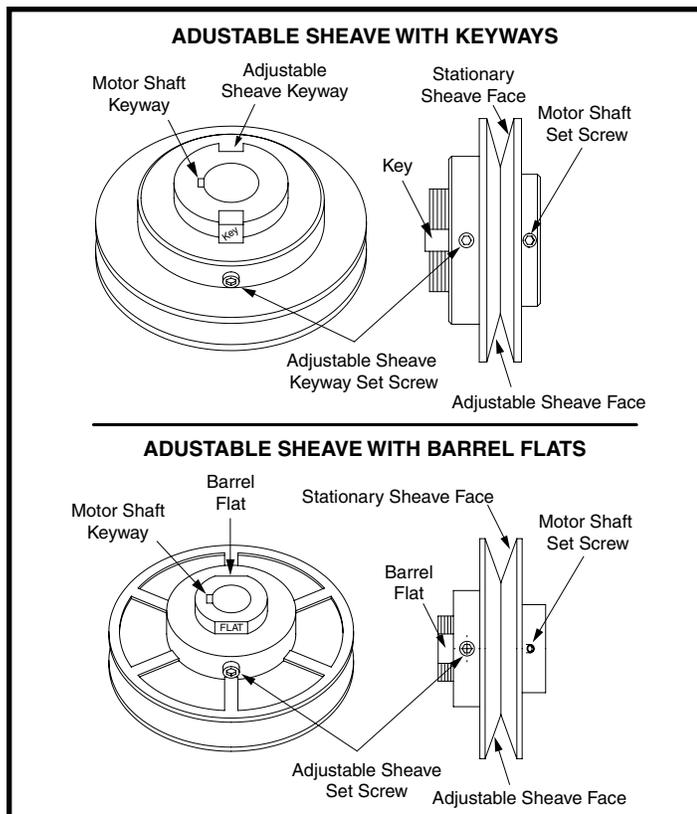


Figure 3. Adjustable Sheaves with Keyways or Barrel Flats

During installation, set the variable sheave position first, then adjust the blower pulley on the blower shaft to align the centers of the pulley and sheave. The set screw should always be above the pulley shaft key. Do not tighten the set screw directly onto the blower shaft.

On 12.5-15T Models: The blower pulleys are referred to as the split-taper style. This style of pulley positively locks the blower pulley to the shaft for higher horsepower applications. Refer to page 7 for instructions on how to install and remove these pulleys.

Single Groove Adjustable Motor Sheaves with Keyways or Barrel Flats

IMPORTANT NOTES:

- **Do not force belts over grooves! A belt tension checker should be used to set tension.**
- **Future adjustments should be made by loosening the belt tension and increasing or decreasing the pitch diameter of the sheave by half or full turns as required. Readjust belt tension before starting drive.**
- **Make sure the key is in place and that all set screws are torqued properly before starting drive. Check set screws and belt tension after 24 hours service.**
- **Sheaves can only be adjusted in 1/2 turn increments. Never attempt to tighten a set screw on to the threaded portion of the sheave barrel.**

1. Make sure the shaft, sheave bore and keyway are free of burrs, paint, etc.
2. Mount all sheaves on the motor or driving shaft with the end containing the motor shaft set screw toward the motor. **NOTE:** For single groove sheaves with keyways (Figure 3), always make sure the motor sheave is fully installed onto the motor shaft.
3. Fit shaft key between sheave & shaft and lock set screw in place. Wrench torque to 110 in-lb min. - 130 in-lb max. **NOTE:** Make sure both driving and driven sheaves are in alignment and that shafts are parallel. Total axial and parallel misalignment must not exceed 1/4°. See page 8 for information about V-belt alignment and tensioning.
4. Sheaves with Keyways: Loosen keyway set screw in adjustable sheave and pull out the external key. **NOTE:** The end of the key projects a small amount to provide a gripping surface for removing. See Figure 3. Sheaves with Barrel Flats: Loosen sheave set screw in adjustable sheave until adjustable flange rotates freely.
5. Adjust sheave pitch diameter for desired speed by opening rotating parts by half or full turn increments from closed position. **IMPORTANT:** Do not set the motor sheave to points not shown on the blower table for your application.
6. Sheaves with Barrel Flats: Tighten sheave set screw to 110 to 130 in-lb. with set screw located over the center of the barrel flat. **DO NOT TIGHTEN THE SET SCREW ON THE THREADED PART OF THE SHEAVE.** Sheaves with Keyways: Replace key and tighten the set screw to 110 to 130 in-lb.
7. Install blower pulley and align the pulleys.
8. Install belts on the sheaves and adjust belt tension.

Mounting Split Taper Bushings in Split Taper Bushed Pulleys

Pre- Installation

- Make sure the shaft, bushing barrel & bore, split taper pulley bore, keys and keyways are free of burrs, paint, etc.
- The bushing may first be loosely installed into the split taper bored pulley, and then the assembly slid onto the shaft. For heavier pulley's, it may be easier to either first slide the bushing onto the shaft and then slide the pulley onto the bushing; however, if the bushing barrel has collapsed, it must be wedged open. See Figure 4.

CAUTION:

Excessive wedging forces in bushing saw slot may damage or break bushing.

- It may be necessary to slightly wedge open the saw slot (Figure 5) on some bushings in order to start the bore and position the bushing onto the shaft. A narrow edged regular screw driver may be used.

Pulley Installation

1. Align the keyway in the bushing bore with the shaft keyway and install the key. Make sure the key runs the entire length of the bushing bore. See Figure 5.
2. Position the pulley so the keyway in the bore is aligned with the external (barrel) key in the bushing. **NOTE:** Bushings do not have an external key. The threaded holes in the pulley must be aligned with the non-threaded holes in the bushing flange. Insert the cap screws through the non-threaded holes in the bushing flange and thread them by hand into the pulley three or four turns.
3. Position the bushing & pulley assembly axially on the shaft such that it is aligned with its running mate. **NOTE:** Check for adequate clearance between the assembly and other nearby components (if applicable). Various shaft sizes are listed in Table 5.
4. Install cap screws and tighten by hand first. **NOTE:** If cap screws were provided with the pulley, use them instead of the ones provided with the bushing. Since tightening the cap screws may affect the axial position of the pulley, confirm

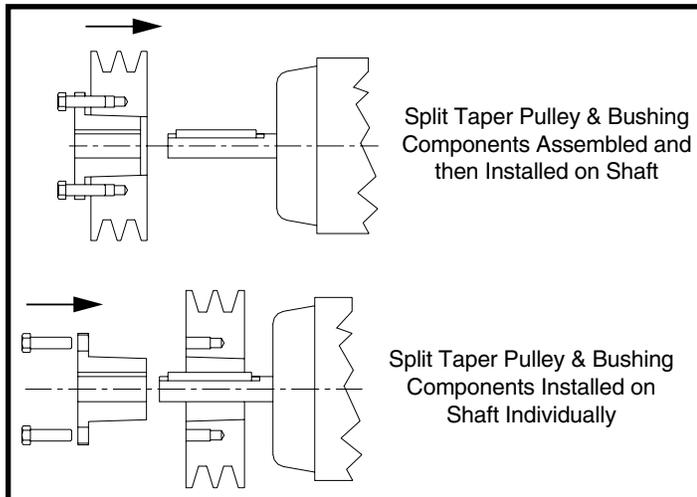


Figure 4. Split Taper Bushing & Pulley Assembly Options

that the pulley is properly aligned with its running mate. If not, determine how much the assembly must be moved into proper alignment. Split taper tightening torques are listed in Table 6.

5. If axial adjustment is required, first attempt to move the motor sheave to properly align the drive belt.
6. Check installation gap. **NOTE:** There must be a gap between the bushing flange and the pulley face. If there is no gap between them, disassemble the parts and determine the reason(s) for the faulty assembly.

Pulley Removal

1. Remove all cap screws in sequence. If the bushing has a keyway set screw, loosen it.
2. Insert cap screws in all threaded bushing flange holes. Tighten the cap screws against the (hub) face of the pulley until the screw force releases the pulley from the bushing.
3. Remove the bushing and pulley from the shaft.

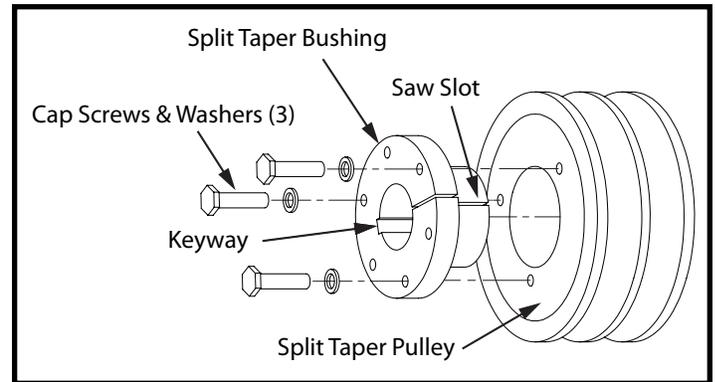


Figure 5. Split Taper Bushing & Pulley Assembly

SHAFT SIZE RANGE (IN)		LOWER SHAFT SIZE LIMIT (IN)	SHAFT SIZE RANGE (IN)		LOWER SHAFT SIZE LIMIT (MM)
Above	Through		Above	Through	
-	1 1/2	-0.003	—	38.1	-0.076
1 1/2	2 1/2	-0.004	38.1	63.5	-0.102
2 1/2	4	-0.005	63.5	101.6	-0.127
4	6	-0.006	101.6	152.4	-0.152
6	8	-0.007	152.4	203.2	-0.178
8	9	-0.008	203.2	228.6	-0.203
9	—	-0.009	228.6	—	-0.229

Table 5. Shaft Size Limits for Split Taper Bushings

Bushing	SAE Grade 5 Cap Screw		Cap Screw Torque			Set Screw Size	Set Screw Torque		
	No.	Size	(In-Lbs)	(Ft-Lbs)	(N-M)		(In-Lbs)	(Ft-Lbs)	(N-M)
G;H	2	1/4-20NC	95	8	10.7	-	-	-	-
P;B	3	5/16-18NC	192	16	21.7	-	-	-	-
Q	3	3/8-16NC	348	29	39.3	5/16-18NC	165*	13.8*	18.6*
R	3	3/8-16NC	348	29	39.3	5/16-18NC	165	13.8	18.6
S	3	3/8-16NC	840	140	189.8	3/8-16NC	290	24.2	32.8
U	3	5/8-11NC	1680	140	189.8	3/8-16NC	290	24.2	32.8
W	4	3/4-10NC	3000	250	339.0	1/2-13NC*	620*	51.7*	70.1*
YO	4	1-8NC	7200	600	813.5	1/2-13NC*	620*	51.7*	70.1*

Table 6. Split Taper Tightening Torques

V-Belt Alignment & Tensioning

IMPORTANT NOTE: Belt alignment is extremely critical for proper operation and life expectancy of belts and motor bearings. If not equipped with proper alignment tools, prior to removal of blower and motor pulley, measure center of each pulley to a reference point for replacement of new pulleys.

After installing the blower pulley onto the blower shaft, use an in-groove belt alignment tool to verify the parallel offset of the sheave and pulley. If a laser alignment tool is unavailable, place a straight edge, piano wire, or string in the center of the adjustable sheave and pulley V-notch to adjust parallel offset alignments.

NOTE: The straight edge, piano wire or string should be close to the center of the groove and contact each sheave in two places. The objective is to have the center lines of the two sheaves in line. Belt drives should be aligned as perfect as possible to maximize drive life. See Figure 6.

Calculate or measure the belt span length as shown in Figures 7 & 8. Calculate the required deflection by multiplying this number by 1/64. For example, if the belt span is 32 inches, $32 \times 1/64 = 1/2$ inch deflection. **NOTE:** Excessively high or low tensions will affect belt life. Check belt tensions again after 24 hours of operation. Keep extra belts stored in a cool, dark, dry place.

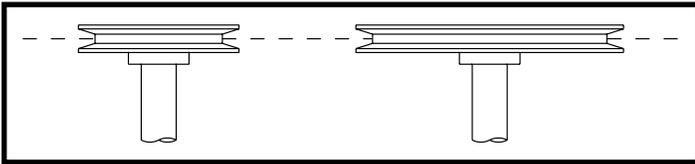


Figure 6. V-Belt Alignment

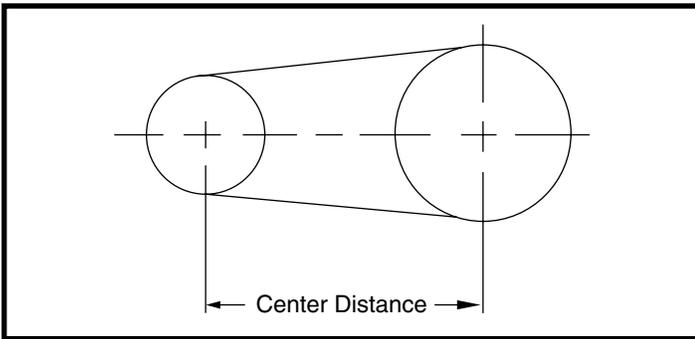


Figure 7. Pulley Alignment

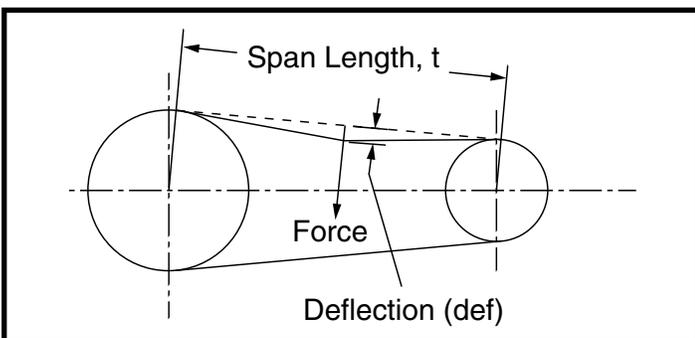


Figure 8. Tensioning V-Belts

On 12.5-15T Models: The belt tension is controlled utilizing the adjustable motor mounting plate. To release the belt tension, first loosen the 4 motor mounting nuts that attach the motor to the mounting plate approximately 1/2-1 turn and then use the adjusting bolt to release the belt tension. To tighten, complete the steps in the reverse order.

On 6-10T Packaged Models: The belt tension is controlled utilizing the belt-tensioning bars on the top and bottom of the motor mounting plate. To release the belts tension, first loosen the bolts in the adjustable slot of each tensioning bar first, followed by the second bolt in each tensioning bar. Swing the motor & motor plate assembly towards the blower. To tighten, use a pry-bar to apply pressure to the top of the motor plate and tighten the top belt tensioning bar. Verify the motor is plumb and that the shaft is vertically aligned by adjusting the bottom of the motor plate, then tighten the bottom tensioning bar bolts. When complete, always verify the belt tension and alignment, do not over-tighten.

VERIFYING THE INSTALLATION

Line Voltage

Maximum circuit ampacity and maximum overcurrent protection ratings may vary. See the unit rating plate for proper electrical ratings. **NOTE:** Older equipment may not include a rating plate that shows the HSDK maximum overcurrent protection and other electrical data for the kit. Always verify this information with the installation instructions included with the unit. If these are not available then refer to Table 3 (page 4).

- Verify that the power supply for the unit is in accordance with the units wiring diagram and rating plate. Use only copper wire for the line voltage supply to this unit. Use proper code agency listed conduit and connector for connecting the supply wires.
- Verify all electrical connections are in accordance with all applicable codes and ordinances. Any other wiring methods must be acceptable to authority having jurisdiction. See Figure 9 (page 10) for recommended wire size.
- Verify overcurrent protection is provided at the branch circuit distribution panel and sized as shown on the unit rating label and according to the National Electric Code and applicable local codes.

Grounding

WARNING:

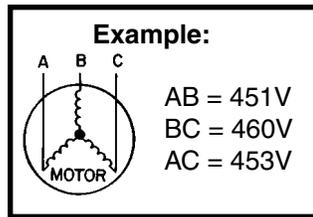
The unit cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. Do not use gas piping as an electrical ground!

This unit must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code (ANSI/NFPA 70) or the CSA C22.1 Electrical Code.

Unbalanced 3-Phase Supply Voltage

Voltage unbalance occurs when the voltages of all phases of a 3-phase power supply are no longer equal. This unbalance reduces motor efficiency and performance. Some underlying causes of voltage unbalance may include: Lack of symmetry in transmission lines, large single-phase loads, and unbalanced or overloaded transformers. A motor should never be operated with a phase imbalance (in supply) that is greater than 2%. Perform the following steps to determine the percentage of voltage imbalance:

1. Measure the line voltages of your 3-phase power supply where it enters the building and at a location that will only be dedicated to the unit installation. (at the units circuit protection or disconnect).



2. Determine the average voltage in the power supply.

In this example, the measured line voltages were 451, 460, and 453. The average would be 454 volts ($451 + 460 + 453 = 1,364 / 3 = 454$).

3. Determine the maximum deviation:

Example:

From the values given in step 1, the BC voltage (460V) is the greatest difference in value from the average:

$$460 - 454 = \boxed{6} \leftarrow \text{Highest Value}$$

$$454 - 451 = 3$$

$$454 - 453 = 1$$

4. Determine percent of voltage imbalance by using the results from steps 2 & 3 in the following equation.

Example:

$$100 \times \frac{6}{454} = 1.32\%$$

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

The amount of phase imbalance (1.32%) is satisfactory since the amount is lower than the maximum allowable 2%. Please contact your local electric utility company if your voltage imbalance is more than 2%.

Blower Speed

The blower speed for these accessory kits is not set at the factory and must be verified for each installation. For optimum system performance and comfort, refer to blower performance data (Tables 7 - 28, pages 11 - 32) for proper operating range. Always verify drive belt are secure and tensioned properly. Also inspect variable pitch sheaves for proper tightness of the set screws.

Measuring the Blower Speed

For units equipped with either an electric heat kit or gas heat exchanger, the best method to determine the delivered CFM is through a temperature rise measurement. Using quality instruments, insert a temperature probe into the units supply and return ducts. Provide the unit a call for the maximum heat capability and either calculate the airflow for the measured temperature rise or reference Tables 29 or 30 (page 33) to estimate the CFM.

NOTE: For high static situations, never operate the blower with the access panels removed for any length of time as the blower motor may over-amp and trip the internal/external protection. If it is desired to verify the blower RPM, always use a remote indicator with the access panels closed.

To verify the blower rotation, the contactor can be manually actuated for a brief period to “bump” the motor or the **G** terminal can be briefly energized from **R**.

If necessary adjust the motor sheave to optimize the air delivery. Always verify the motor amp draw at the contactor to ensure it is less than the SFA for the unit/motor voltages at the selected sheave setting

CAUTION:

To avoid personal injury or property damage, make certain that the motor leads do not make contact with any uninsulated metal components of the unit.

Changing the blower speed:

1. Disconnect all electrical power to the unit and remove the blower access panel.
2. Loosen the motor tension bars to allow removal of the blower belt from the motor sheave.
3. Loosen top set screw on motor sheave and turn clockwise to close (increases blower speed), or counterclockwise to open (decreases blower speed). **NOTE:** Make sure the center of the sheave and pulley are properly aligned. Adjust the sheave and pulley’s position on the motor or blower shaft if necessary.
4. Replace belt on pulleys and position motor mounting plate to correct position for proper belt tension.
5. Tighten tension bar bolts or adjustable motor base.

External Motor Overload

If installed, Verify that the overload is properly set for the motor SFA and that it will trip when manually tested.

RECOMMENDED SIZING OF 3 PHASE SUPPLY WIRES

EXCERPTS FROM NEC 2005 HANDBOOK - BASED ON NFPA 70

Partial Table 310.16 Allowable Ampacities of Insulated Conductors (0-2000 Volts)

- Not more than 3 current carrying conductors in cable or raceway
- Based on Ambient Temp of 30°C

Copper Wire Only

Size	Temperature Rating of Conductor			Size
	60°C	75°C	90°C	
AWG or kcmil				AWG or kcmil
14	20	20	25	14
12	25	25	30	12
10	30	35	40	10
8	40	50	55	8
6	55	65	75	6
4	70	85	95	4
3	85	100	110	3
2	95	115	130	2
1	110	130	150	1
1/0	125	150	170	1/0
2/0	145	175	195	2/0
3/0	165	200	225	3/0

How to Estimate Unit Supply Wire Requirements:

- 1.) Determine Nominal Input Voltage
- 2) Estimate Length of Wire from Breaker to Unit Disconnect
- 3) Find Unit MCA for desired configuration
- 4) Using the minimum wire size based on the unit MCA, calculate the % Voltage Drop to determine the initial wire gauge. The %VD should be 3% or less at the unit
- 5) Verify Unit Voltage is within the Appliances min/max limits
- 6) Verify that the Wire ampacity (corrected for temperature & number of conductors) is above the Appliances MCA
- 7) Based on final wire gauge selection, determine conduit size. Refer to NEC for details and allowable fill rate
- 8) Based on Appliance MOP and final wire selection, make selection of Appliance branch circuit protection

Amb. Temperature Correction Factors

Amb. Temp (°C)	Temperature Rating of Conductor			Amb. Temp (°F)
	60°C	75°C	90°C	
21-25	1.08	1.05	1.04	70-77
26-30	1.00	1.00	1.00	78-86
31-35	0.91	0.94	0.96	87-95
36-40	0.82	0.88	0.91	96-104
41-45	0.71	0.82	0.87	105-113
46-50	0.58	0.75	0.82	114-122
51-55	0.41	0.67	0.76	123-131

# of Current-Carrying Conductors	Amount to adjust values in Table 310.16 after correction for Ambient Temperature (if necessary)
4 to 6	80%
7 to 9	70%

Partial Table 9 Effective Impedance for 600V Cables, 3Ø, 60 Hz, 75°C - 3 single current-carrying conductors in conduit

Uncoated Copper Wire Only

Effective Impedance (Z) at 0.85 PF Ω to Neutral / 1000 ft			
AWG or kcmil	PVC Conduit	Aluminum Conduit	Steel Conduit
14	2.7	2.7	2.7
12	1.7	1.7	1.7
10	1.1	1.1	1.1
8	0.69	0.69	0.70
6	0.44	0.45	0.45
4	0.29	0.29	0.30
3	0.23	0.24	0.24
2	0.19	0.19	0.20
1	0.16	0.16	0.16
1/0	0.13	0.13	0.13
2/0	0.11	0.11	0.11
3/0	0.088	0.092	0.094

$$VoltageDrop_{Line-to-Neutral} = Table9Value \times \frac{CircuitLength}{1000ft} \times UnitMCA$$

$$VoltageDrop_{Line-to-Line} = VoltageDrop_{Line-to-Neutral} \times \sqrt{3}$$

$$\%VoltageDrop = \frac{VoltageDrop_{Line-to-Line}}{NomLineVoltage} \times 100$$

The above tables and recommended procedures are provided for reference only. For complete details refer to the current version of the National Electric Code, the applicable local codes & ordinances, or consult a qualified professional.

Figure 9. Excerpts from NEC 2005 Handbook

AIRFLOW DATA FOR MEDIUM STATIC DRIVES

P6SP-072*

MSD kits:
920609 (208-230V, 3Ø, 60 Hz)
920560 (460V, 3Ø, 60 Hz)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.8	CFM													
	RPM													
	kW													
0.9	CFM							2598	2437	2275	2097	1919		
	RPM							1039	1014	988	960	931		
	kW							1.23	1.10	0.97	0.87	0.77		
1.0	CFM						2595	2405	2232	2059				
	RPM						1066	1040	1016	991				
	kW						1.29	1.13	1.01	0.89				
1.1	CFM				2770	2558	2392	2225						
	RPM				1123	1098	1071	1044						
	kW				1.55	1.36	1.20	1.04						
1.2	CFM				2563	2401	2222	2043						
	RPM				1127	1102	1076	1049						
	kW				1.41	1.25	1.13	1.00						
1.3	CFM			2557	2402	2246								
	RPM			1155	1129	1103								
	kW			1.47	1.33	1.19								
1.4	CFM			2357	2182	2006								
	RPM			1157	1131	1105								
	kW			1.40	1.25	1.09								
1.5	CFM		2455	2267										
	RPM		1185	1160										
	kW		1.45	1.35										
1.6	CFM		2241											
	RPM		1189											
	kW		1.40											

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
† These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 7. Blower Performance for P6SP-072* Units
(6 Ton Downflow Models Only)**

P6SP-072*

MSD kits:
 920609 (208-230V, 3Ø, 60 Hz)
 920560 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.8	CFM													
	RPM													
	kW													
0.9	CFM									2716	2500	2284		
	RPM									985	956	926		
	kW									1.17	1.05	0.93		
1.0	CFM									2677	2491	2250		
	RPM									1012	987	959		
	kW									1.23	1.09	0.94		
1.1	CFM								2682	2469	2255			
	RPM								1039	1015	990			
	kW								1.29	1.13	0.98			
1.2	CFM							2663	2452					
	RPM							1067	1041					
	kW							1.35	1.18					
1.3	CFM						2710	2465	2219					
	RPM						1096	1071	1046					
	kW						1.45	1.26	1.07					
1.4	CFM					2675	2492							
	RPM					1126	1100							
	kW					1.47	1.33							
1.5	CFM					2487	2195							
	RPM					1133	1109							
	kW					1.37	1.17							
1.6	CFM				2558	2208								
	RPM				1159	1137								
	kW				1.48	1.20								

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
 Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 8. Blower Performance for P6SP-072* Units
 (6 Ton Horizontal Models Only)**

P6SP-090*

MSD kits:
 920607 (208-230V, 3Ø, 60 Hz)
 920606 (460V, 3Ø, 60 Hz)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.8	CFM								3415	3252	3042	2831		
	RPM								1119	1088	1059	1030		
	kW								1.92	1.73	1.62	1.50		
0.9	CFM							3442	3247	3052	2834	2615		
	RPM							1150	1121	1092	1063	1033		
	kW							2.03	1.82	1.62	1.53	1.43		
1.0	CFM						3447	3256	3072	2887	2658	2428		
	RPM						1181	1153	1124	1095	1065	1035		
	kW						2.11	1.85	1.66	1.47	1.39	1.31		
1.1	CFM						3286	3077	2849	2621				
	RPM						1185	1157	1127	1097				
	kW						2.00	1.75	1.57	1.39				
1.2	CFM					3326	3074	2822	2598					
	RPM					1215	1189	1162	1133					
	kW					2.20	1.92	1.64	1.42					
1.3	CFM				3320	3064	2856	2647						
	RPM				1248	1221	1192	1163						
	kW				2.22	1.92	1.72	1.51						
1.4	CFM			3365	3126	2887	2643							
	RPM			1277	1251	1224	1197							
	kW			2.32	2.09	1.86	1.57							
1.5	CFM			3127	2911	2695								
	RPM			1283	1255	1227								
	kW			2.15	1.94	1.73								
1.6	CFM	3323	3151	2978	2751									
	RPM	1340	1313	1286	1259									
	kW	2.54	2.30	2.05	1.80									

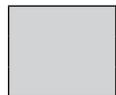
Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
 Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation[†]
[†] These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 9. Blower Performance for P6SP-090* Units (7.5 Ton Downflow Models Only)

P6SP-090*

MSD kits:
 920607 (208-230V, 3Ø, 60 Hz)
 920606 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
0.8	CFM								3411	3228	3136	3043			
	RPM								1053	1025	1013	1000			
	kW								1.98	1.78	1.68	1.58			
0.9	CFM								3309	3131	3005	2878			
	RPM								1065	1039	1022	1005			
	kW								1.94	1.75	1.59	1.43			
1.0	CFM							3410	3221	3031	2851	2670			
	RPM							1110	1083	1055	1032	1009			
	kW							2.07	1.89	1.70	1.54	1.38			
1.1	CFM								3321	3114	2906	2681	2455		
	RPM								1122	1096	1070	1043	1015		
	kW								2.03	1.84	1.64	1.46	1.27		
1.2	CFM							3423	3198	2964	2729	2492			
	RPM							1162	1132	1103	1074	1046			
	kW							2.17	1.91	1.56	1.20	1.20			
1.3	CFM								3268	3033	2783	2533			
	RPM								1169	1140	1110	1080			
	kW								2.12	1.84	1.63	1.41			
1.4	CFM								3347	3106	2864	2590	2315		
	RPM								1203	1174	1145	1115	1085		
	kW								2.26	2.01	1.75	1.56	1.36		
1.5	CFM								3399	3174	2924	2673			
	RPM								1231	1206	1178	1149			
	kW								2.37	2.08	1.86	1.63			
1.6	CFM								3235	2993					
	RPM								1236	1210					
	kW								2.23	1.98					

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
 Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation[†]
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 10. Blower Performance for P6SP-090* Units (7.5 Ton Horizontal Models Only)

R6GP-072*-100C

MSD kits:
 920609 (208-230V, 3Ø, 60 Hz)
 920560 (460V, 3Ø, 60 Hz)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
0.8	CFM														
	RPM														
	kW														
0.9	CFM										2619	2336	2096		
	RPM										979	951	924		
	kW										1.14	0.96	0.86		
1.0	CFM										2607	2312	2043		
	RPM										1008	984	956		
	kW										1.23	1.06	0.88		
1.1	CFM								2535	2332	<i>2010</i>				
	RPM								1035	1012	<i>988</i>				
	kW								1.23	1.11	<i>0.88</i>				
1.2	CFM					<i>2743</i>	2529	2225	<i>2004</i>						
	RPM					<i>1089</i>	1065	1039	<i>1016</i>						
	kW					<i>1.48</i>	1.27	1.06	<i>0.97</i>						
1.3	CFM					2475	2231	2042							
	RPM					1094	1069	1043							
	kW					1.28	1.13	1.01							
1.4	CFM					2512	2176	2046							
	RPM					1125	1099	1074							
	kW					1.38	1.16	1.08							
1.5	CFM					2450	2266								
	RPM					1154	1129								
	kW					4.38	1.23								
1.6	CFM					2292									
	RPM					1159									
	kW					1.34									

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 11. Blower Performance for R6GP-072* Units (6 Ton Downflow Models Only)

R6GP-072*-100C

MSD kits:
 920609 (208-230V, 3Ø, 60 Hz)
 920560 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.8	CFM													
	RPM													
	kW													
0.9	CFM										2618	2403	2188	
	RPM										975	948	920	
	kW										1.12	0.98	0.84	
1.0	CFM										2577	2367	2073	<i>1865</i>
	RPM										1006	980	952	<i>924</i>
	kW										1.17	0.99	0.88	<i>0.70</i>
1.1	CFM								2562	2361	2085			
	RPM								1037	1006	983			
	kW								1.21	1.07	0.93			
1.2	CFM							2575	2328	2085				
	RPM							1062	1041	1011				
	kW							1.31	1.10	0.95				
1.3	CFM					2601	2356	2048						
	RPM					1094	1066	1045						
	kW					1.36	1.18	0.98						
1.4	CFM				2580	2357	2126							
	RPM				1122	1099	1071							
	kW				1.46	1.25	1.12							
1.5	CFM			2569	2323	2129								
	RPM			1149	1125	1104								
	kW			1.51	1.33	1.16								
1.6	CFM			2307										
	RPM			1154										
	kW			1.37										

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 12. Blower Performance for R6GP-072* Units (6 Ton Horizontal Models Only)

R6GP-072*-166C

MSD kits:
 920609 (208-230V, 3Ø, 60 Hz)
 920560 (460V, 3Ø, 60 Hz)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
0.8	CFM														
	RPM														
	kW														
0.9	CFM									2736	2468	2200			
	RPM									981	953	925			
	kW									1.22	1.04	0.85			
1.0	CFM									2684	2443	2151			
	RPM									1009	985	956			
	kW									1.22	1.01	0.88			
1.1	CFM								2632	2351	2070				
	RPM								1037	1013	988				
	kW								1.25	1.07	0.89				
1.2	CFM							2589	2281	2143					
	RPM							1066	1041	1019					
	kW							1.32	1.12	0.98					
1.3	CFM					2546	2321	2095							
	RPM					1098	1072	1046							
	kW					1.35	1.21	1.07							
1.4	CFM				2591	2280	2157								
	RPM				1124	1102	1078								
	kW				1.41	1.25	1.10								
1.5	CFM			2443	2365	2164									
	RPM			1157	1128	1108									
	kW			1.42	1.39	1.18									
1.6	CFM		2502	2344											
	RPM		1186	1161											
	kW		1.52	1.35											

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 13. Blower Performance for R6GP-072*-166C Units
 (6 Ton Downflow Models Only)**

R6GP-072*-166C

MSD kits:
 920613 (208-230V, 3Ø, 60 Hz)
 920618 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
0.8	CFM														
	RPM														
	kW														
0.9	CFM									2755	2510	2265			
	RPM									981	956	930			
	kW									1.18	1.04	0.90			
1.0	CFM									2732	2511	2240	1968		
	RPM									1013	987	960	933		
	kW									1.28	1.09	0.95	0.81		
1.1	CFM								2714	2470	2225				
	RPM								1042	1017	991				
	kW								1.31	1.14	0.98				
1.2	CFM							2708	2456	2214					
	RPM							1073	1047	1021					
	kW							1.41	1.21	1.02					
1.3	CFM					2722	2446	2170							
	RPM					1103	1077	1051							
	kW					1.44	1.26	1.08							
1.4	CFM				2696	2454	2204								
	RPM				1131	1105	1082								
	kW				1.54	1.31	1.11								
1.5	CFM			2706	2473	2351									
	RPM			1159	1137	1107									
	kW			1.54	1.36	1.23									
1.6	CFM		2713	2426	2232										
	RPM		1187	1166	1143										
	kW		1.66	1.43	1.27										

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 14. Blower Performance for R6GP-072*-166C Units
 (6 Ton Horizontal Models Only)**

R6GP-090*-200C

MSD kits:
 920607 (208-230V, 3Ø, 60 Hz)
 920606 (460V, 3Ø, 60 Hz)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open ‡	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
0.8	CFM										3198	3056	2914		
	RPM										1078	1056	1033		
	kW										1.86	1.70	1.54		
0.9	CFM										3259	3013	2877	2741	
	RPM										1110	1080	1058	1036	
	kW										1.94	1.77	1.62	1.47	
1.0	CFM									3240	3047	2853	2708	2563	
	RPM									1144	1113	1082	1060	1038	
	kW									1.92	1.81	1.69	1.51	1.33	
1.1	CFM					3431	3244	3056	2862	2667	2491				
	RPM					1205	1176	1146	1116	1085	1063				
	kW					2.32	2.07	1.82	1.67	1.51	1.38				
1.2	CFM						3294	3096	2898	2677	2456				
	RPM						1207	1178	1148	1117	1086				
	kW						2.16	1.98	1.79	1.62	1.45				
1.3	CFM						3298	3113	2917	2721					
	RPM						1239	1210	1181	1151					
	kW						2.24	2.05	1.89	1.72					
1.4	CFM							3348	3147	2946	2742				
	RPM							1271	1242	1213	1184				
	kW							2.39	2.14	1.88	1.71				
1.5	CFM								3182	2966	2750				
	RPM								1274	1245	1215				
	kW								2.32	2.06	1.80				
1.6	CFM	3433	3230	3026	2804										
	RPM	1330	1304	1277	1249										
	kW	2.57	2.36	2.15	1.96										

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 15. Blower Performance for R6GP-090*-200C Units (7.5 Ton Downflow Models Only)

R6GP-090*-200C

MSD kits:
 920607 (208-230V, 3Ø, 60 Hz)
 920606 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open ‡	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.8	CFM													
	RPM													
	kW													
0.9	CFM													
	RPM													
	kW													
1.0	CFM													
	RPM													
	kW													
1.1	CFM													
	RPM													
	kW													
1.2	CFM													
	RPM													
	kW													
1.3	CFM													
	RPM													
	kW													
1.4	CFM													
	RPM													
	kW													
1.5	CFM													
	RPM													
	kW													
1.6	CFM													
	RPM													
	kW													

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 16. Blower Performance for R6GP-090*-200C Units
 (7.5 Ton Horizontal Models Only)**

AIRFLOW DATA FOR HIGH STATIC DRIVES

P6SP-090*

HSD kits:
920559 (208-230V, 3Ø, 60 Hz)
920558 (460V, 3Ø, 60 Hz)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open ‡	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
1.2	CFM									3451	3232	3012		
	RPM									1235	1207	1178		
	kW									2.28	2.04	1.81		
1.3	CFM									3292	3043	2794		
	RPM									1238	1210	1182		
	kW									2.11	1.87	1.63		
1.4	CFM									3291	3073	2828	2583	
	RPM									1269	1243	1214	1184	
	kW									2.29	1.99	1.76	1.54	
1.5	CFM							3459	3218	3024	2829	2624		
	RPM							1324	1300	1274	1247	1219		
	kW							2.68	2.36	2.11	1.85	1.63		
1.6	CFM							3267	3044	2853	2662			
	RPM							1328	1303	1276	1249			
	kW							2.50	2.22	1.96	1.71			
1.7	CFM							3278	3081	2884	2685			
	RPM							1360	1333	1306	1279			
	kW							2.60	2.36	2.11	1.84			
1.8	CFM					3343	3140	2916						
	RPM					1388	1363	1339						
	kW					2.78	2.49	2.20						
1.9	CFM				3356	3163	2970	2764						
	RPM				1417	1392	1367	1343						
	kW				2.84	2.58	2.32	2.06						
2.0	CFM				3201									
	RPM				1422									
	kW				2.77									

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation[†]
† These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 17. Blower Performance for P6SP-090* Units
(7.5 Ton Downflow Models Only)**

P6SP-090*

HSD kits:
 920559 (208-230V, 3Ø, 60 Hz)
 920558 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open ‡	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
1.2	CFM													
	RPM													
	kW													
1.3	CFM									3397	3341	3284		
	RPM									1178	1171	1163		
	kW									2.34	2.20	2.06		
1.4	CFM									3303	3210	3117		
	RPM									1192	1181	1169		
	kW									2.24	2.10	1.96		
1.5	CFM								3434	3214	3065	2916		
	RPM								1233	1205	1189	1173		
	kW								2.44	2.15	2.00	1.85		
1.6	CFM									3296	3098	2911	2723	
	RPM									1241	1217	1197	1177	
	kW									2.33	2.11	1.90	1.68	
1.7	CFM							3406		3168	2929	2717	2505	
	RPM							1278		1252	1226	1204	1181	
	kW							2.52		2.27	2.01	1.79	1.57	
1.8	CFM								3240	3000	2759			
	RPM								1285	1258	1231			
	kW								2.41	2.14	1.87			
1.9	CFM								3334	3088	2869			
	RPM								1316	1289	1266			
	kW								2.56	2.25	2.00			
2.0	CFM					3435			3178	2921				
	RPM					1347			1321	1294				
	kW					2.73			2.44	2.15				

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
 Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 18. Blower Performance for P6SP-090* Units (7.5 Ton Horizontal Models Only)

P6SP-120* & Q6SP-120* & Q5SN-120*

HSD kits:
 920396 (460V, 3Ø, 60 Hz)
 920395 (208-230V, 3Ø, 60 Hz)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting														
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open ‡	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open		
0.9	CFM									4903	4734	4565	4370	4174		
	RPM									1020	1001	982	962	942		
	kW									3.01	2.82	2.62	2.42	2.23		
1.0	CFM									4724	4561	4397	4185	3973		
	RPM									1023	1005	986	965	944		
	kW									2.90	2.72	2.54	2.34	2.14		
1.1	CFM									4583	4385	4186	3970	3754		
	RPM									1026	1007	988	967	946		
	kW									2.80	2.60	2.40	2.21	2.03		
1.2	CFM										4562	4368	4169	3969	3724	3479
	RPM										1047	1029	1010	990	969	949
	kW										2.92	2.69	2.49	2.29	2.08	1.87
1.3	CFM								4571	4366	4161	3942	3723	3477		
	RPM								1068	1050	1032	1012	993	972		
	kW								3.01	2.78	2.56	2.35	2.14	1.93		
1.4	CFM									4387	4171	3954	3715	3476		
	RPM									1071	1053	1035	1015	995		
	kW									2.87	2.64	2.42	2.20	1.99		
1.5	CFM									4354	4164	3960	3757	3493		
	RPM									1092	1075	1056	1037	1017		
	kW									3.00	2.74	2.52	2.30	2.07		
1.6	CFM									4144	3941	3750	3559			
	RPM									1096	1078	1059	1039			
	kW									2.86	2.61	2.40	2.18			
1.7	CFM									4119	3934	3749	3555			
	RPM									1117	1099	1081	1061			
	kW									2.96	2.72	2.49	2.28			
1.8	CFM										4102	3891	3724	3556		
	RPM										1136	1121	1103	1084		
	kW										3.00	2.80	2.59	2.37		
1.9	CFM										3886	3766	3565			
	RPM										1140	1123	1105			
	kW										2.89	2.74	2.50			
2.0	CFM										3862	3762	3534			
	RPM										1159	1142	1126			
	kW										3.03	2.82	2.58			

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
 Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.

--

Indicates a setting that is not permitted for unit operation

Table 19. Blower Performance for P6SP-120*, Q6SP-120*, & Q5SN-120* Units (10 Ton Downflow Models Only)

P6SP-120* & Q6SP-120* & Q5SN-120*

HSD kits:
 920395 (208-230V, 3Ø, 60 Hz)
 920396 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open ‡	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
0.9	CFM												4904	4685	
	RPM												956.5	937	
	kW												2.81	2.58	
1.0	CFM											4914	4717	4520	
	RPM											980	959	938	
	kW											2.94	2.7	2.46	
1.1	CFM											4738	4527	4317	
	RPM											982	961	940	
	kW											2.8	2.57	2.34	
1.2	CFM										4784	4561	4317	4073	
	RPM										1002.5	984	964	944	
	kW										2.94	2.66	2.43	2.19	
1.3	CFM										4568	4378	4125	3871	
	RPM										1005.5	987	967	946	
	kW										2.79	2.53	2.29	2.04	
1.4	CFM										4558	4352	4147	3897	3647
	RPM										1027	1009	990	970	949
	kW										2.90	2.65	2.40	2.16	1.93
1.5	CFM										4358	4137	3915	3595	
	RPM										1030	1012	993	973	
	kW										2.74	2.50	2.26	2.02	
1.6	CFM										4326	4135	3749	3363	
	RPM										1052	1033	1016	999	
	kW										2.87	2.60	2.35	2.10	
1.7	CFM										4327	4120	3912	3361	
	RPM										1072	1054	1036	1020	
	kW										2.96	2.71	2.46	2.20	
1.8	CFM										4137	3889	3640		
	RPM										1074	1057	1040		
	kW										2.78	2.54	2.29		
1.9	CFM										4068	3824	3313		
	RPM										1096	1077	1063		
	kW										2.87	2.60	2.26		
2.0	CFM										4083	3797	3511		
	RPM										1118	1099	1080		
	kW										2.93	2.68	2.42		

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
 Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 20. Blower Performance for P6SP-120*, Q6SP-120*, & Q5SN-120* Units (10 Ton Horizontal Models Only)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
0.9	CFM														
	RPM														
	kW														
1.0	CFM														
	RPM														
	kW														
1.1	CFM									3725	3273	2820			
	RPM									937	906	875			
	kW									2.03	1.80	1.56			
1.2	CFM									3490					
	RPM									938					
	kW									2.18					
1.3	CFM							3720	3370	3020					
	RPM							986	965	943					
	kW							2.42	2.22	2.01					
1.4	CFM							3480	3010	2540					
	RPM							988	968	947					
	kW							2.24	2.04	1.84					
1.5	CFM					3775	3393	3010							
	RPM					1032	1012	992							
	kW					2.36	2.21	2.05							
1.6	CFM					3525	3033	2540							
	RPM					1035	1016	996							
	kW					2.23	2.06	1.89							
1.7	CFM			3750	3400	3050									
	RPM			1074	1057	1040									
	kW			2.48	2.27	2.05									
1.8	CFM	3900	3713	3525	3050	2575									
	RPM	1105	1092	1079	1062	1044									
	kW	2.95	2.69	2.43	2.16	1.88									
1.9	CFM	3700	3375	3050											
	RPM	1109	1097	1084											
	kW	2.74	2.47	2.20											
2.0	CFM	3100													
	RPM	1117													
	kW	2.33													

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
 Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 21. Blower Performance for Q6SP-090* & Q5SN-090* Units (7.5 Ton Downflow Models Only)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open ‡	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.9	CFM													
	RPM													
	kW													
1.0	CFM													
	RPM													
	kW													
1.1	CFM											3890		
	RPM											891		
	kW											1.93		
1.2	CFM									4140	3883	3625		
	RPM									937	915	893		
	kW									2.28	2.05	1.82		
1.3	CFM									3910	3585	3260		
	RPM									939	918	897		
	kW									2.15	1.91	1.66		
1.4	CFM							4150	3895	3640				
	RPM							983	963	942				
	kW							2.45	2.23	2.00				
1.5	CFM							3940	3595	3250				
	RPM							985	965	945				
	kW							2.33	2.08	1.82				
1.6	CFM							3630						
	RPM							988						
	kW							2.15						
1.7	CFM					3960	3355	2750						
	RPM					1031	1014	996						
	kW					2.52	2.13	1.74						
1.8	CFM					3690								
	RPM					1035								
	kW					2.35								
1.9	CFM			3975	3388	2800								
	RPM			1073	1059	1044								
	kW			2.73	2.33	1.92								
2.0	CFM			3059										
	RPM			1083										
	kW			2.22										

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values includes losses for: Unit Casing, 2" Disposable Filters & Dry Evaporator Coil
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.
 Deduct 250 Cfm for electric heater kits

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 22. Blower Performance for Q6SP-090* & Q5SN-090* Units
 (7.5 Ton Horizontal Models Only)**

R4GM & R6GN-150* Series

HSD kits:
 918799 (208-230V, 3Ø, 60 Hz)
 920637 (460V, 3Ø, 60 Hz)

Blower Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open ‡	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
0.9	CFM														
	RPM														
	kW														
1.0	CFM														
	RPM														
	kW														
1.1	CFM									5350	5100	4850			
	RPM									1188	1168	1148			
	kW									3.20	2.98	2.75			
1.2	CFM									5225	5000	4700	4400		
	RPM									1210	1189	1169	1148		
	kW									3.23	3.00	2.75	2.50		
1.3	CFM								5100	4850	4600	4250	3900		
	RPM								1231	1211	1190	1170	1149		
	kW								3.25	3.00	2.75	2.53	2.30		
1.4	CFM					5300	5050	4800	4500	4200					
	RPM					1271	1252	1232	1212	1191					
	kW					3.55	3.33	3.10	2.85	2.60					
1.5	CFM			5400	5150	4900	4650	4400	4050	3700					
	RPM			1313	1293	1273	1253	1233	1213	1192					
	kW			3.80	3.55	3.30	3.09	2.87	2.59	2.30					
1.6	CFM		5375	5000	4725	4450	4175	3900	3600						
	RPM		1334	1314	1295	1275	1255	1235	1214						
	kW		3.90	3.60	3.35	3.10	2.86	2.62	2.35						
1.7	CFM	5350	4925	4500	4250	4000									
	RPM	1355	1336	1316	1296	1276									
	kW	4.00	3.70	3.40	3.15	2.90									
1.8	CFM	4850	4475	4100	3725										
	RPM	1357	1338	1318	1297										
	kW	3.75	3.48	3.20	2.95										
1.9	CFM	4400	4000	3600											
	RPM	1359	1340	1320											
	kW	3.50	3.23	2.95											
2.0	CFM														
	RPM														
	kW														

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 23. Blower Performance for R4GM & R6GN-150* Units (15 Ton Models Only)

R4GM & R6GN-180* Series

HSD kits:
918800 (208-230/460V, 3Ø, 60 Hz)

Blower Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open	3.5 Turns Open	4.0 Turns Open ‡	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.9	CFM													
	RPM													
	kW													
1.0	CFM													
	RPM													
	kW													
1.1	CFM							5800	5575	5350	5100	4850		
	RPM							1228	1208	1188	1168	1148		
	kW							3.65	3.43	3.20	2.98	2.75		
1.2	CFM					6200		5850	5500	5250	5000	4700	4400	
	RPM					1270		1250	1230	1210	1189	1169	1148	
	kW					4.1		3.80	3.50	3.25	3.00	2.75	2.50	
1.3	CFM			6100		5850	5600	5350	5100	4850	4600			
	RPM			1309		1290	1271	1251	1231	1211	1190			
	kW			4.25		4.03	3.80	3.55	3.30	3.03	2.75			
1.4	CFM					5800	5550	5300	5050	4800	4500	4200		
	RPM					1310	1291	1272	1252	1232	1211.5	1191		
	kW					4.00	3.78	3.55	3.33	3.10	2.85	2.60		
1.5	CFM	6000	5700	5400	5150	4900	4650	4400						
	RPM	1353	1333	1312	1293	1273	1253	1233						
	kW	4.45	4.13	3.80	3.55	3.30	3.09	2.87						
1.6	CFM	5650	5325	5000	4725	4450								
	RPM	1354	1334	1314	1295	1275								
	kW	4.25	3.93	3.60	3.35	3.10								
1.7	CFM	5350	4925	4500										
	RPM	1355	1336	1316										
	kW	4.00	3.70	3.40										
1.8	CFM	4850	4475	4100										
	RPM	1357	1338	1318										
	kW	3.75	3.48	3.20										
1.9	CFM	4400												
	RPM	1359												
	kW	3.50												
2.0	CFM													
	RPM													
	kW													

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
† These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.

--

Indicates a setting that is not permitted for unit operation

Table 24. Blower Performance for R4GM & R6GN-180* Units (15 Ton Models Only)

R6GP-090*-200C

HSD kits:
 920559 (208-230V, 3Ø, 60 Hz)
 920558 (460V, 3Ø, 60 Hz)

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open ‡	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
1.2	CFM									3417	3226	3035		
	RPM									1232	1203	1173		
	kW									2.32	2.10	1.88		
1.3	CFM									3258	3055	2852		
	RPM									1235	1205	1175		
	kW									2.15	1.96	1.78		
1.4	CFM							3448	3267	3085	2856	2626		
	RPM							1292	1265	1237	1208	1178		
	kW							2.47	2.24	2.01	1.82	1.64		
1.5	CFM							3300	3099	2898	2677			
	RPM							1295	1268	1240	1211			
	kW							2.33	2.10	1.86	1.66			
1.6	CFM							3164	2932	2705				
	RPM							1299	1271	1243				
	kW							2.24	1.96	1.69				
1.7	CFM					3392	3178	2963	2756					
	RPM					1356	1329	1302	1274					
	kW					2.63	2.34	2.06	1.80					
1.8	CFM				3422	3214	2997							
	RPM				1384	1358	1332							
	kW				2.75	2.53	2.26							
1.9	CFM			3437	3251	3016								
	RPM			1414	1389	1364								
	kW			2.88	2.58	2.42								
2.0	CFM			3306	3033									
	RPM			1419	1394									
	kW			2.76	2.45									

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 25. Blower Performance for R6GP-090*-200C Units
 (7.5 Ton Downflow Models Only)**

R6GP-090*-200C

HSD kits:
 920559 (208-230V, 3Ø, 60 Hz)
 920558 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting													
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open ‡	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open	
1.2	CFM														
	RPM														
	kW														
1.3	CFM														
	RPM														
	kW														
1.4	CFM														
	RPM														
	kW														
1.5	CFM														
	RPM														
	kW														
1.6	CFM														
	RPM														
	kW														
1.7	CFM														
	RPM														
	kW														
1.8	CFM														
	RPM														
	kW														
1.9	CFM														
	RPM														
	kW														
2.0	CFM														
	RPM														
	kW														

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

**Table 26. Blower Performance for R6GP-090*-200C Units
 (7.5 Ton Horizontal Models Only)**

Downflow Performance Chart

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open ‡	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.9	CFM													
	RPM													
	kW													
1.0	CFM													
	RPM													
	kW													
1.1	CFM												4672	
	RPM												975	
	kW												2.65	
1.2	CFM										4673	4466		
	RPM										998	979		
	kW										2.75	2.50		
1.3	CFM									4630	4429	4227		
	RPM									1018	1000	982		
	kW									2.90	2.65	2.40		
1.4	CFM								4611	4394	4191	3988		
	RPM								1039	1020	1003	985		
	kW								2.95	2.70	2.50	2.30		
1.5	CFM							4613	4391	4168	3714	3260		
	RPM							1058	1041	1023	1006	989		
	kW							3.10	2.85	2.60	2.38	2.15		
1.6	CFM							4379	4181	3982	3257			
	RPM							1061	1046	1031	1012			
	kW							2.90	2.70	2.50	2.25			
1.7	CFM							4480	4233	3976	3718			
	RPM							1087	1070	1053	1036			
	kW							3.10	2.80	2.55	2.30			
1.8	CFM							4244	3996	3683	3370			
	RPM							1089	1072	1056	1039			
	kW							2.90	2.60	2.40	2.20			
1.9	CFM							4278	4011	3744				
	RPM							1111	1093	1075				
	kW							3.10	2.80	2.50				
2.0	CFM					4252	4016	3455						
	RPM					1130	1115	1097						
	kW					3.10	2.90	2.50						

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation†
 † These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.

--

Indicates a setting that is not permitted for unit operation

**Table 27. Blower Performance for R6GP-120*-235C Units
 (10 Ton Downflow Models Only)**

R6GP-120*-235C

HSD kits:
 920395 (208-230V, 3Ø, 60 Hz)
 920396 (460V, 3Ø, 60 Hz)

Horizontal Flow Performance Chart*

‡ Indicates Factory Sheave Setting for Pre-configured Units

External Unit Static (in-Wg)	Operating @ 230 or 460 Volts	Adjustable Motor Sheave Setting												
		Fully Closed	1/2 Turn Open	1 Turn Open	1.5 Turns Open	2.0 Turns Open	2.5 Turns Open	3.0 Turns Open ‡	3.5 Turns Open	4.0 Turns Open	4.5 Turns Open	5.0 Turns Open	5.5 Turns Open	6.0 Turns Open
0.9	CFM													
	RPM													
	kW													
1.0	CFM													
	RPM													
	kW													
1.1	CFM											4692		
	RPM											969		
	kW											2.75		
1.2	CFM											4492		
	RPM											973		
	kW											2.61		
1.3	CFM											4535	4305	
	RPM											998	976	
	kW											2.79	2.52	
1.4	CFM										4569	4318	4066	
	RPM										1022	1001	980	
	kW										2.92	2.66	2.39	
1.5	CFM										4308	4054	3799	
	RPM										1027	1006	984	
	kW										2.76	2.49	2.22	
1.6	CFM										4368	4084	3797	3510
	RPM										1050	1030	1009	988
	kW										2.89	2.61	2.34	2.07
1.7	CFM										4422	4120	3817	3493
	RPM										1071	1053	1034	1014
	kW										3.03	2.74	2.44	2.17
1.8	CFM										4177	3875	3573	
	RPM										1075	1056	1037	
	kW										2.89	2.58	2.27	
1.9	CFM										4127	3908	3296	
	RPM										1098	1079	1063	
	kW										2.96	2.72	2.31	
2.0	CFM										4115	3866	3616	
	RPM										1118	1101	1083	
	kW										3.01	2.76	2.51	

*Requires horizontal conversion kit. Please refer to unit TSL for kit number.

Values include losses for: Unit Casing, 2" Disposable Filters, Dry Evaporator Coil & Installed Heat Exchanger
 Values shown reflect operation at 230V or 460V. For operation at 208V, deduct 0.025 from unit static.

3862
1159
3.03

Indicates a recommended unit operational point

3493
1017
2.07

Indicates an allowable setting that is not recommended for unit operation[†]

[†] These operational points should be carefully examined by the installer for proper unit setup and heater operation if used.



Indicates a setting that is not permitted for unit operation

Table 28. Blower Performance for R6GP-120*-235C Units (10 Ton Horizontal Models Only)

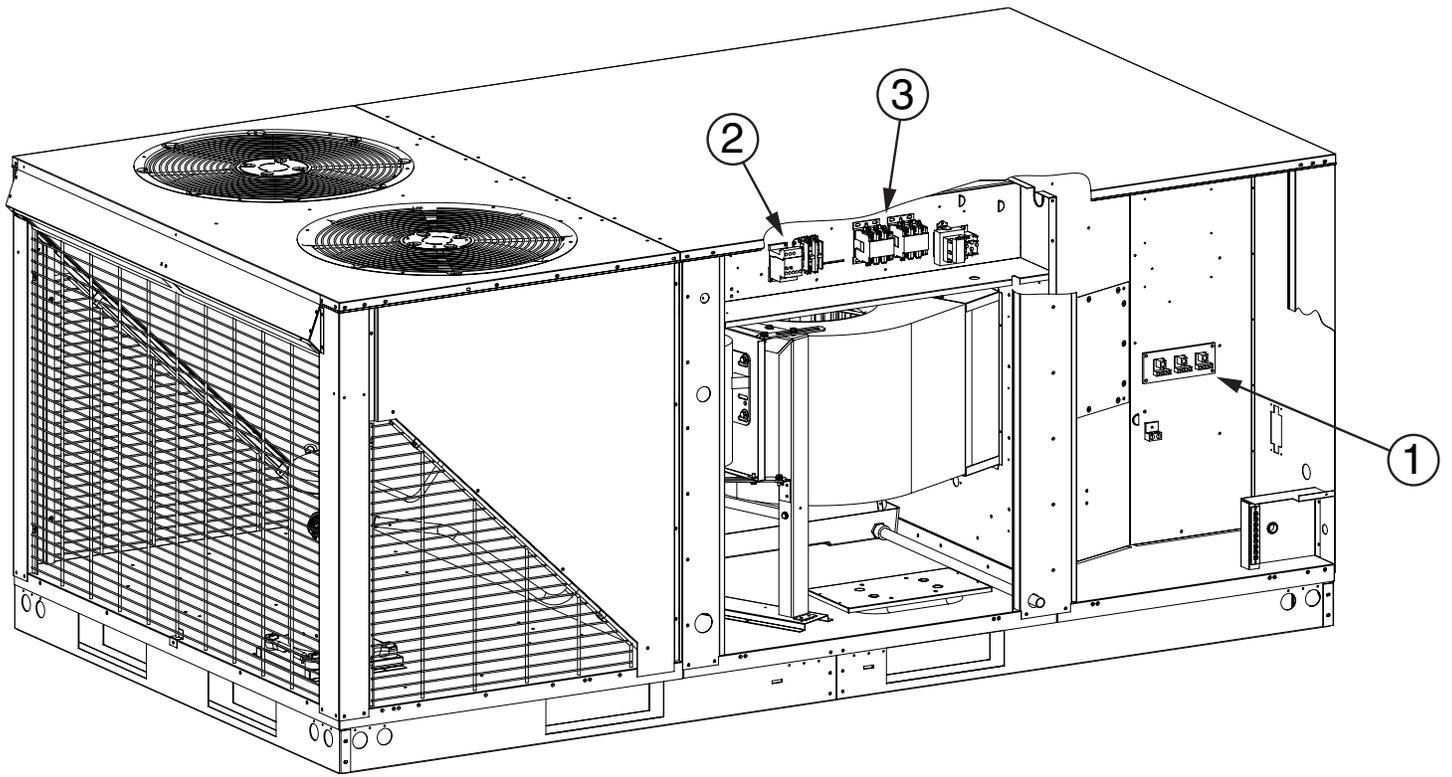
UNIT MODEL	GAS TYPE	HEATING INPUT	HEATING OUTPUT	HEATING RISE RANGE	CFM RANGE						
					SCFM	1950	2100	2250	2400	2550	2700
R6GP-072*-100C	Natural Gas	100,000	80,000	15 - 45	Rise (° F)†	38	35	33	31	29	27
	Propane (LP)	85,000	68,000		32	30	28	26	25	23	
R6GP-072*-166C	Natural Gas	166,000	133,000	35 - 65	Rise (° F)†	63	59	55	51	48	46
	Propane (LP)	141,000	112,800		54	50	46	44	41	39	
R6GP-090*-200C	Natural Gas	200,000	157,000	30 - 60	Rise (° F)†	60	55	52	48	46	43
	Propane (LP)	175,000	137,000		52	48	45	42	40	38	
R6GP-120*-235C	Natural Gas	235,000	188,000	25 - 55	Rise (° F)†	54	50	46	44	41	39
	Propane (LP)	205,000	164,000		47	43	40	38	36	34	
R6GN-150*-180C	Natural Gas	180,000	144,000	20 - 50	Rise (° F)†	33	30	28	27	25	24
	Propane (LP)	153,000	122,000		28	26	24	23	21	20	
R6GN-150*-270C	Natural Gas	270,000	216,000	30 - 60	Rise (° F)†	49	46	43	40	38	36
	Propane (LP)	230,000	184,000		42	39	36	34	32	30	
R6GN-180*-270C	Natural Gas	270,000	216,000	30 - 60	Rise (° F)†	41	38	36	33	31	30
	Propane (LP)	230,000	184,000		35	32	30	28	27	25	
R6GN-180*-315C	Natural Gas	315,000	252,000	30 - 60	Rise (° F)†	48	44	41	39	37	35
	Propane (LP)	268,000	214,000		41	38	35	33	31	29	

† At Elevations of 2,000 Ft or less

Table 29. Gas Heat Exchanger Temperature Rise Data

H5HK MODEL	VOLTAGE	KW	BTUH	CFM RANGE						
				SCFM	2100	2500	2900	3300	3700	4500
009Q	208	6.8	23,202	Rise (° F)	10	9	7	7	6	5
	240	9.0	30,708		14	11	10	9	8	6
009S	480	9.9	33,779		15	13	11	9	8	7
018Q	208	13.1	44,697	Rise (° F)	20	17	14	13	11	9
	240	17.4	59,369		26	22	19	17	15	12
018S	480	18.0	61,416		27	23	20	17	15	13
030Q	208	21.6	73,699	Rise (° F)	32	27	24	21	18	15
	240	28.8	98,266		43	36	31	28	25	20
030S	480	28.8	98,266		43	36	31	28	25	20
035Q	208	26.2	89,394	Rise (° F)	39	33	29	25	22	18
	240	34.8	118,738		52	44	38	33	30	24
035S	480	34.8	118,738		52	44	38	33	30	24

Table 30. Electric Heater Kit Temperature Rise Data



INSTALLATION / PERFORMANCE CHECK LIST

INSTALLATION ADDRESS:	
CITY _____	STATE _____
UNIT MODEL # _____	
UNIT SERIAL # _____	
HSDK PART # _____	

INSTALLER NAME:	
CITY _____	STATE _____

BLOWER SYSTEM:
Blower Motor HP: _____
Sheave Setting: _____ turns open
System Static: _____ E.S.P. (in -Wg)

ELECTRIC HEAT / GAS HEAT EXCHANGER:		
Heater Kit Installed?	YES	NO
Heater Kit Model #: _____		
Furnace Input: _____ (Btuh)		
Return Air Temp: _____ °F		
Supply Air Temp: _____ °F		
Temperature Rise: _____ °F		

INSTALLER:
PLEASE LEAVE THESE INSTALLATION INSTRUCTIONS WITH THE OWNER

We Encourage
Professionalism



Through Technician
Certification by NATE

