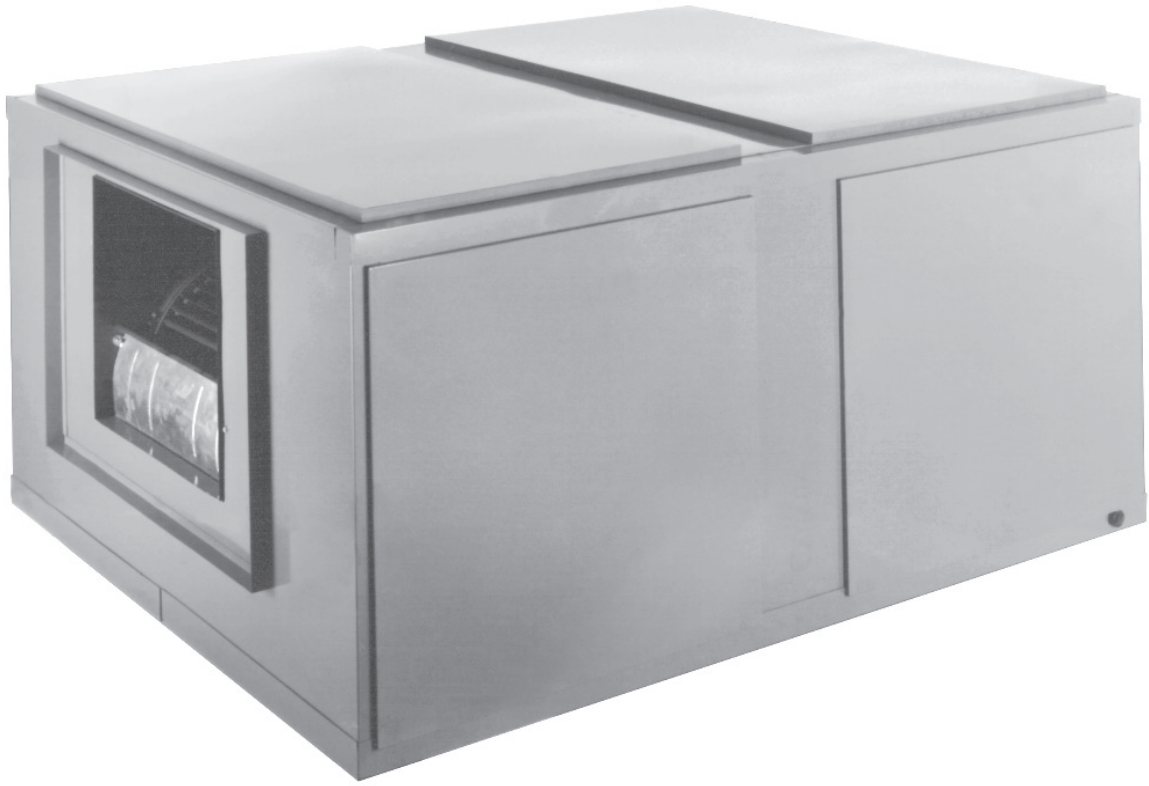
# INSTALLATION INSTRUCTIONS

## (-)HCL: COMMERCIAL AIR HANDLER WITH VARIABLE FREQUENCY DRIVE (VFD)
## R-410A REFRIGERANT
## 2-STAGE AIR-FLOW



c UL us LISTED

UL listing and CSA certification on some models is in process.
Contact your distributor for available models.

Accredited by the RvA

ABS Quality Evaluations, Inc. ★ Management System Certification ★

ANAB ACCREDITED

ISO 9001:2015

Certificate Number: 30164

⚠ Recognize this symbol as an indication of Important Safety Information!

**DO NOT DESTROY**

**PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.**

**⚠WARNING**

**THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT AND OPERATION OF THIS UNIT. READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION OR OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN IMPROPER INSTALLATION, ADJUSTMENT, SERVICE OR MAINTENANCE POSSIBLY RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**

92-106595-02-05

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## ⚠ WARNING

**Disconnect all power to unit before installing or servicing. More than one disconnect switch may be required to de-energize the equipment. Hazardous voltage can cause severe personal injury or death.**

## ⚠ WARNING

**If removal of the blower assembly is required, all disconnect switches supplying power to the equipment must be de-energized and locked (if not in sight of unit) so the field power wires can be safely removed from the blower assembly. Failure to do so can cause electrical shock resulting in personal injury or death.**

## ⚠ WARNING

**Because of possible damage to equipment or personal injury, installation, service, and maintenance should be performed by a trained, qualified service personnel. Never operate the unit with the access panels removed.**

## ⚠WARNING

**Carbon Monoxide (CO) Poisoning Can Cause Severe Injury or Death.**

**Carbon Monoxide from the exhaust of motor vehicles and other fuel burning devices can be drawn into the living space by the operation of the central heating and air conditioning system.**

Exhaust from motor vehicles, generators, garden tractors, mowers, portable heaters, charcoal and gas grills, gasoline powered tools, and outdoor camping equipment contains carbon monoxide, a poisonous gas that can kill you. You cannot see it, smell it, or taste it.

- **Do NOT operate an automobile or any engine in a garage for more than the few seconds it takes to enter or exit the garage.**
- **Do NOT operate any fuel-burning device in an enclosed or partly enclosed space, or near building windows, doors or air intakes.**

The U.S. Consumer Product Safety Commission (CPSC) and Health Canada recommend the installation of UL or CSA certified Carbon Monoxide Alarm(s) in every home.

# 1.0 SAFETY INFORMATION

## ⚠ WARNING

**Duct leaks can create an unbalanced system and draw pollutants such as dirt, dust, fumes and odors into the building causing property damage. Fumes and odors from toxic, volatile or flammable chemicals, as well as automobile exhaust and carbon monoxide (CO), can be drawn into the occupied space through leaking ducts and unbalanced duct systems causing personal injury or death (see Figure 1).**

- **If air-moving equipment or ductwork is located in garages or off-garage storage areas - all joints, seams, and openings in the equipment and duct must be sealed to limit the migration of toxic fumes and odors including carbon monoxide from migrating into the living space.**
- **If air-moving equipment or ductwork is located in spaces containing fuel burning appliances such as water heaters or boilers – all joints, seams, and openings in the equipment and duct must also be sealed to prevent depressurization of the space and possible migration of combustion byproducts including carbon monoxide into the occupied space.**

## ⚠ WARNING

**These instructions are intended as an aid to qualified, licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in fire, electrical shock, property damage, personal injury or death.**

## ⚠ WARNING (SEE SECTION 3.11.3: GROUNDING)

**The unit must be permanently grounded. Failure to do so can result in electrical shock causing personal injury or death.**

## ⚠ WARNING (SEE SECTION 3.5: DUCTWORK)

**Do not, under any circumstances, connect return ductwork to any other heat producing device such as fireplace insert, stove, etc. Unauthorized use of such devices may result in fire, carbon monoxide poisoning, explosion, personal injury or property damage.**

## ⚠ WARNING (SEE SECTION 3.6: AIR FILTER)

**Do not operate the system without filters. A portion of the dust entrained in the air may temporarily lodge in the duct runs and at the supply registers. Any circulated dust particles could be heated and charred by contact with the heating elements. This residue could soil ceilings, walls, drapes, carpets and other articles in the building.**

**Soot damage may occur even with filters in place when certain types of candles, oil lamps or standing pilots are burned.**

## ⚠ WARNING

**The first 36 inches of supply air plenum and ductwork must be constructed of sheet metal with no openings, registers or flexible air ducts located in it as required by NFPA 90B if an electric heater accessory is installed. If flexible supply air ducts are used they may be located only in the vertical walls of a rectangular plenum, a minimum of 6 inches from the solid bottom.**

## ⚠ CAUTION (SEE SECTION 3.3: AUXILIARY OVERFLOW PAN)

**In compliance with recognized codes, an auxiliary drain pan must be installed under all equipment containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.**

## ⚠ WARNING

**PROPOSITION 65: This appliance contains fiberglass insulation. Respirable particles of fiberglass are known to the State of California to cause cancer.**

**All manufacturer products meet current Federal OSHA Guidelines for safety. California Proposition 65 warnings are required for certain products, which are not covered by the OSHA standards.**

**California's Proposition 65 requires warnings for products sold in California that contain or produce any of over 600 listed chemicals known to the State of California to cause cancer or birth defects such as fiberglass insulation, lead in brass, and combustion products from natural gas.**

**All "new equipment" shipped for sale in California will have labels stating that the product contains and/or produces Proposition 65 chemicals. Although we have not changed our processes, having the same label on all our products facilitates manufacturing and shipping. We cannot always know "when, or if" products will be sold in the California market.**

**You may receive inquiries from customers about chemicals found in, or produced by, some of our heating and air-conditioning equipment, or found in natural gas used with some of our products. Listed below are those chemicals and substances commonly associated with similar equipment in our industry and other manufacturers.**

- **Glass Wool (Fiberglass) Insulation**
- **Carbon Monoxide (CO)**
- **Formaldehyde**
- **Benzene**

**More details are available at the websites for OSHA (Occupational Safety and Health Administration), at www.osha.gov and the State of California's OEHHA (Office of Environmental Health Hazard Assessment), at www.oehha.org. Consumer education is important since the chemicals and substances on the list are found in our daily lives. Most consumers are aware that products present safety and health risks, when improperly used, handled and maintained.**

## ⚠ NOTICE

**When used in cooling applications, excessive sweating may occur when unit is installed in an unconditioned space. This can result in property damage.**

## ⚠ NOTICE

**Improper installation, or installation not made in accordance with the Underwriters Laboratory (UL) certification or these instructions, can result in unsatisfactory operation and/or dangerous conditions and are not covered by the unit warranty.**

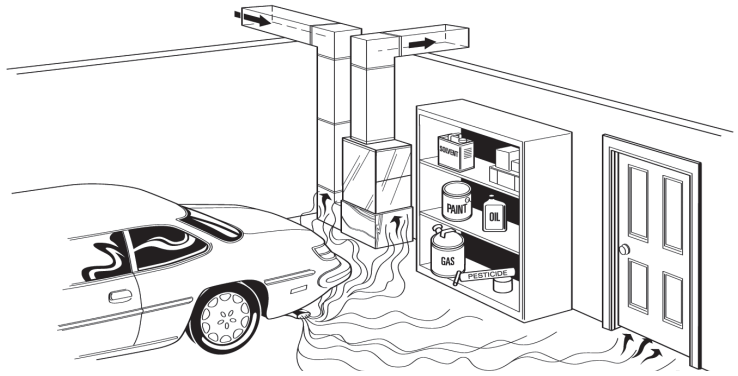
## ⚠ NOTICE

**Use of this air-handler during construction is not recommended. If operation during construction is absolutely required, the following temporary installation requirements must be followed:**

**Installation must comply with all Installation Instructions in this manual including the following items:**

- **Properly sized power supply and circuit breaker/fuse**
- **Air-handler operating under thermostatic control;**
- **Return air duct sealed to the air-handler;**
- **Air filters must be in place;**
- **Correct air-flow setting for application**
- **Clean air-handler, duct work, and components including coil upon completion of the construction process and verify proper air-handler operating conditions according as stated in this instruction manual.**
- **NOTE: Electric strip heater elements tend to emit a burning odor for a few days if dust has accumulated during construction. Heater elements are easily damaged. Take great care when cleaning them. Low pressure compressed air is recommended for cleaning elements.**

**FIGURE 1**
**MIGRATION OF DANGEROUS SUBSTANCES, FUMES, AND ODORS INTO LIVING SPACES**




Adapted from *Residential Duct Diagnostics and Repair*, with permission of Air Conditioning Contractors of America (ACCA).

## ⚠ WARNING

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- **If air-moving equipment or ductwork is located in garages or off-garage storage areas – all joints, seams, and openings in the equipment and duct must be sealed to limit the migration of toxic fumes and odors including carbon monoxide from migrating into the occupied space.**
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# 2.0 GENERAL INFORMATION

## 2.1 IMPORTANT INFORMATION ABOUT EFFICIENCY & INDOOR AIR QUALITY

Central cooling and heating equipment is only as efficient as the duct system that carries the cooled or heated air. To maintain efficiency, comfort and good indoor air quality, it is important to have the proper balance between the air being supplied to each room and the air returning to the cooling and heating equipment.

Proper balance and sealing of the duct system improves the efficiency of the heating and air conditioning system and improves the indoor air quality of the home by reducing the amount of airborne pollutants that enter homes from spaces where the ductwork and/or equipment is located. The manufacturer and the U.S. Environmental Protection Agency's Energy Star Program recommend that central duct systems be checked by a qualified contractor for proper balance and sealing.

## 2.2 CHECKING PRODUCT RECEIVED

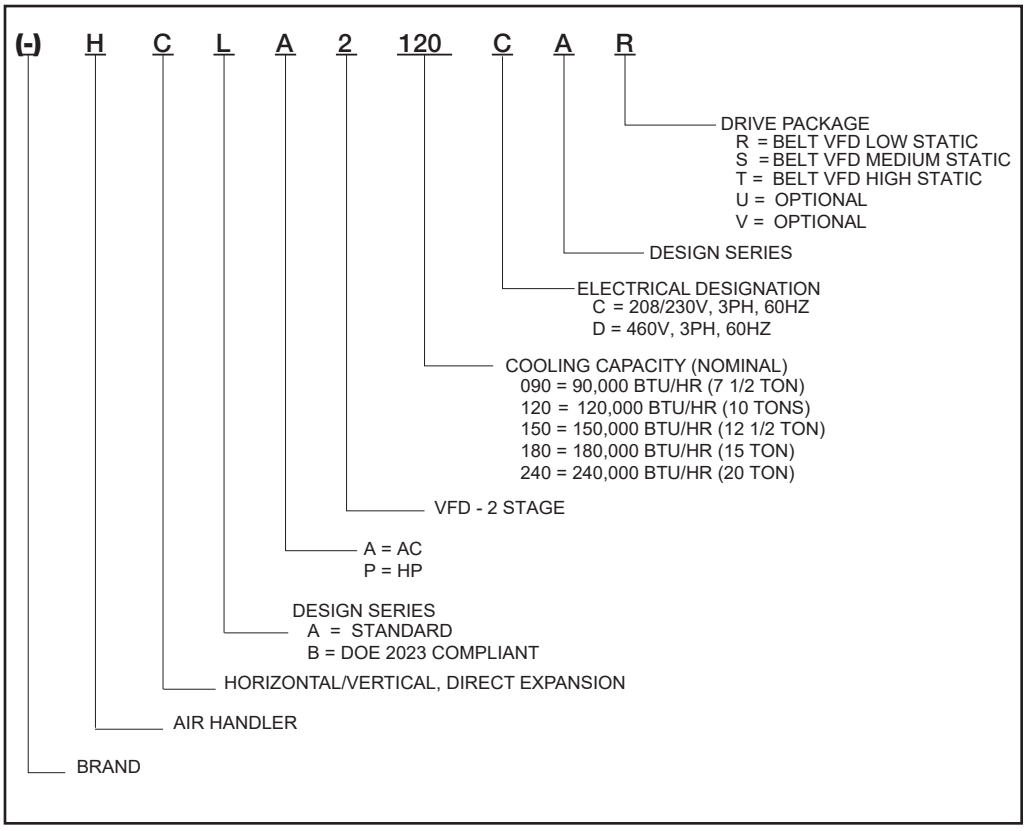
Immediately upon receipt, all cartons and contents should be inspected for transit damage. Units with damaged cartons should be opened immediately. If damage is found, it should be noted on the delivery documents and a damage claim filed with the delivering carrier.

After unit has been delivered to the job site, remove the unit from the packaging taking care not to damage the unit. Check the unit rating plate for unit model number, unit size, voltage, phase, etc. to assure the unit matches the job specifications.

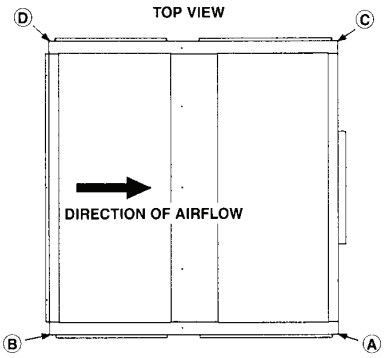
Reference the unit data plate for the following information:

- Model Number
- Serial Number
- Country of Origin
- Rated Voltage and Frequency

## 2.3 MODEL NUMBER NOMENCLATURE



# 2.5 PHYSICAL DIMENSIONS – INCHES [mm]

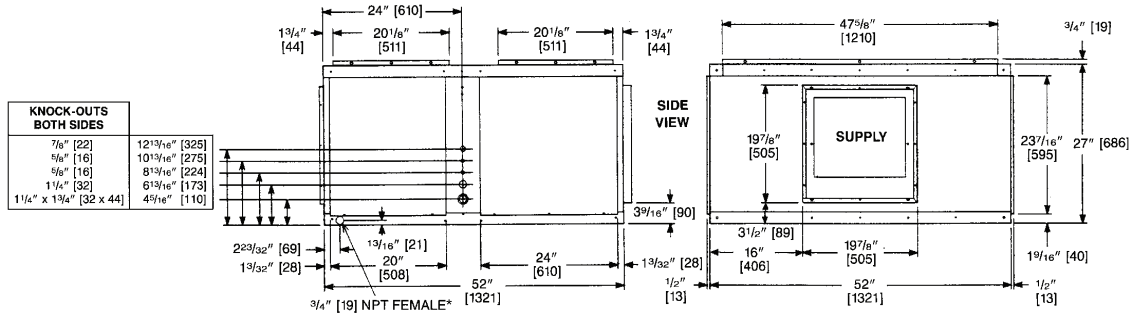



RETURN AIR OPENINGS = 47 3/8″ [1203] WIDTH x 19 7/8″ [505] HEIGHT

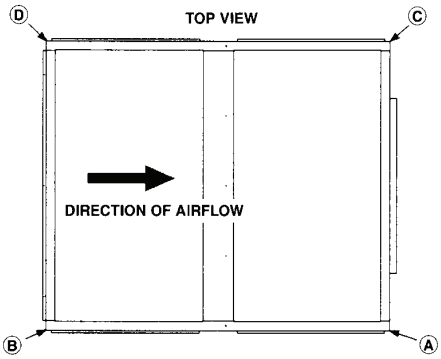
## (-)HCLA2
## 7 1/2 AND 10 NOMINAL TONS
## [26 AND 35 kW]

| MODEL | REFRIGERANT STUB SIZES, IN. [mm] | | | |
|---|---|---|---|---|
| | DUAL LIQ. | DUAL SUC. | SINGLE LIQ. | SINGLE SUC. |
| 090 | 1/2, 1/2 [13, 13] | 7/8, 7/8 [22, 22] | 1/2 [13] | 1 1/8 [29] |
| 120 | 1/2, 1/2 [13, 13] | 7/8, 7/8 [22, 22] | 5/8 [16] | 1 3/8 [35] |

| MODEL | REFRIGERANT STUB SIZES, IN. [mm] | | | | TOTAL WEIGHT | GROSS WEIGHT |
|---|---|---|---|---|---|---|
| | A | B | C | D | | |
| 090 | 127 [57] | 57 [25] | 50 [22] | 131 [59] | 365 [165] | 409 [185] |
| 120 | 127 [57] | 57 [25] | 50 [22] | 131 [59] | 365 [165] | 409 [185] |




*Drain connections are provided on both sides of the drain pan. The drain can be connected to either side of the drain pan, but not both. The drain must be trapped.

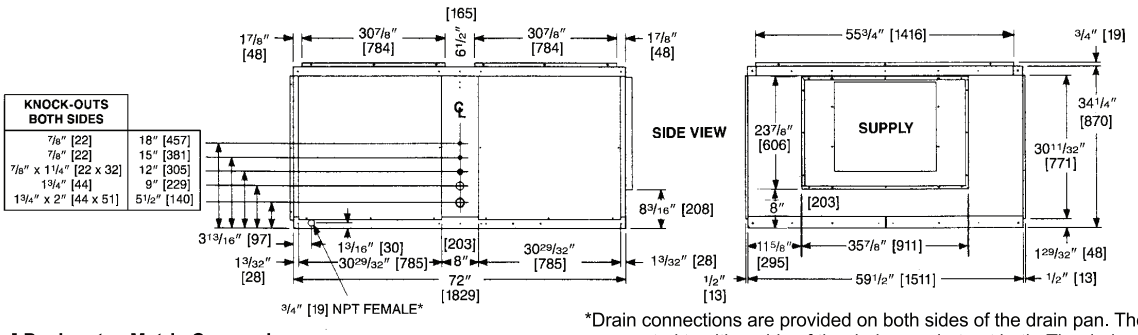



RETURN AIR OPENINGS = 55 1/2″ [1410] WIDTH x 30 9/16″ [776] HEIGHT

## (-)HCLA2
## 12.5, 15 AND 20 NOMINAL TONS
## [44, 53 & 70 kW]

| MODEL | REFRIGERANT STUB SIZES, IN. [mm] | | | |
|---|---|---|---|---|
| | DUAL LIQ. | DUAL SUC. | SINGLE LIQ. | SINGLE SUC. |
| 150 | 1/2, 1/2 [13, 13] | 1 1/8, 1 1/8 [29, 29] | 5/8 [16] | 1 5/8 [41] |
| 180 | 5/8, 5/8 [16, 16] | 1 3/8, 1 3/8 [35, 35] | 7/8 [22] | 1 5/8 [41] |
| 240 | 5/8, 5/8 [16, 16] | 1 3/8, 1 3/8 [35, 35] | 7/8 [22] | 1 5/8 [41] |

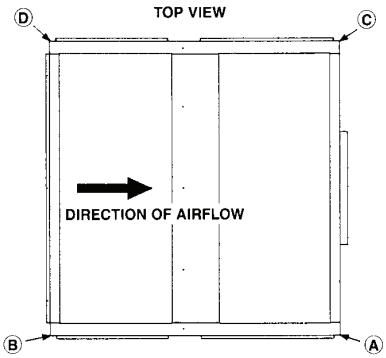
| MODEL | CORNER WEIGHTS, LBS. [kg] | | | | TOTAL WEIGHT |
|---|---|---|---|---|---|
| | A | B | C | D | |
| 150 | 144 [65] | 127 [58] | 117 [53] | 105 [48] | 495 [225] |
| 180 | 159 [72] | 142 [64] | 129 [59] | 115 [52] | 545 [247] |
| 240 | 159 [72] | 142 [64] | 129 [59] | 115 [52] | 545 [247] |




*Drain connections are provided on both sides of the drain pan. The drain can be connected to either side of the drain pan, but not both. The drain must be trapped.

**[ ] Designates Metric Conversions**

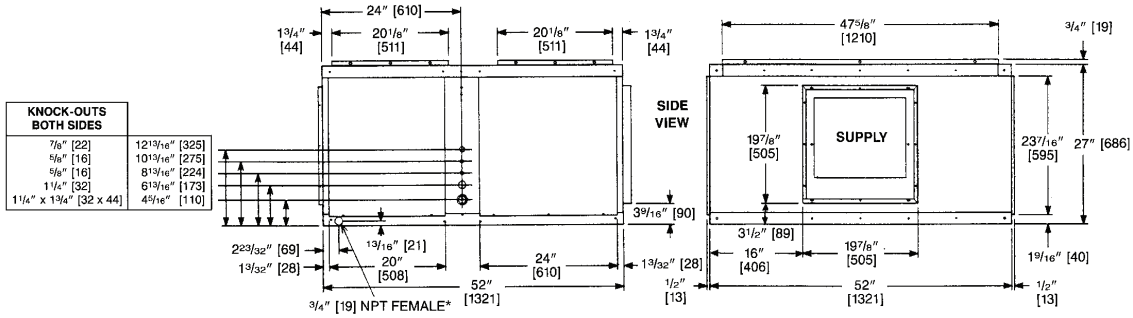
# (-)HCLP2
# 7 1/2 AND 10 NOMINAL TONS
# [26 AND 35 kW]




RETURN AIR OPENINGS = 47 3/8″ [1203] WIDTH x 19 7/8″ [505] HEIGHT

| MODEL | REFRIGERANT STUB SIZES, IN. [mm] | | | |
|---|---|---|---|---|
| | DUAL LIQ. | DUAL SUC. | SINGLE LIQ. | SINGLE SUC. |
| 090 | 1/2, 1/2 [13, 13] | 7/8, 7/8 [22, 22] | 1/2 [13] | 1 1/8 [29] |
| 120 | 1/2, 1/2 [13, 13] | 7/8, 7/8 [22, 22] | 5/8 [16] | 1 3/8 [35] |

| MODEL | REFRIGERANT STUB SIZES, IN. [mm] | | | | TOTAL WEIGHT | GROSS WEIGHT |
|---|---|---|---|---|---|---|
| | A | B | C | D | | |
| 090 | 127 [57] | 57 [25] | 50 [22] | 131 [59] | 365 [165] | 409 [185] |
| 120 | 70 [31] | 145 [65] | 123 [55] | 66 [29] | 403 [182] | 447 [202] |

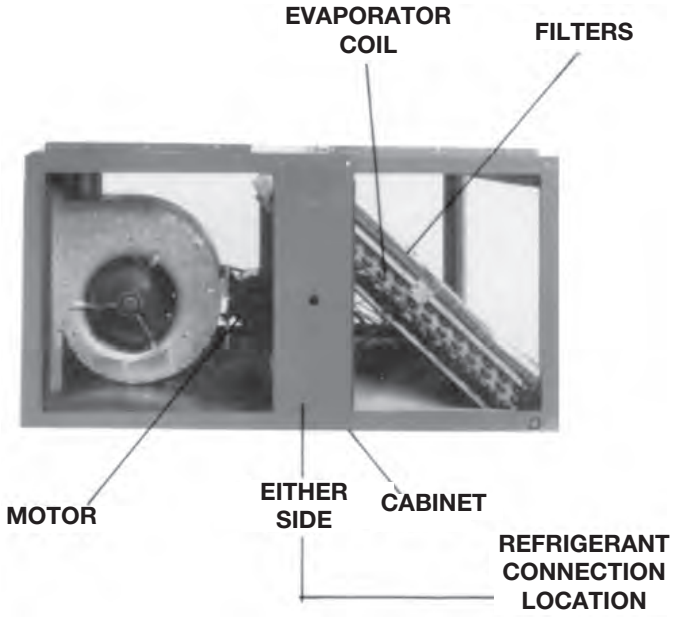



*Drain connections are provided on both sides of the drain pan. The drain can be connected to either side of the drain pan, but not both. The drain must be trapped.

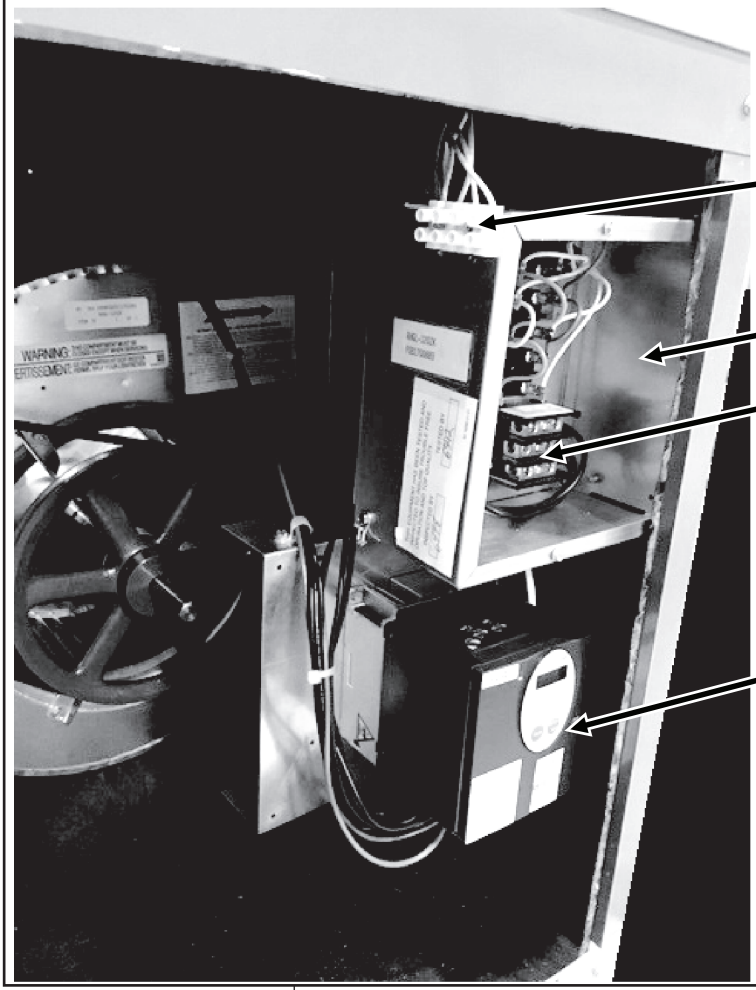
## 2.6 PHYSICAL DATA

| | | RHCLA2 | RHCLA2 | RHCLA2 | RHCLA2 | RHCLA2 | RHCLP2 | RHCLP2 |
|---|---|---|---|---|---|---|---|---|
| Cooling Size | | 090 | 120 | 150 | 180 | 240 | 090 | 120 |
| Nominal size tons (kW) | | 7-1/2 (26) | 10 (35) | 12-1/2(44) | 15 (53) | 20 (70) | 7-1/2 (26) | 10 (35) |
| Nominal CFM (L/s) @ Rated E.S.P. in. (kPa) (2nd Stage) | | 3000 @ .25" (1416 @ .062) | 4000 @ .30" (1888 @ .075) | 4785 @ .35" (2258 @ .087) | 6000 @ .35" (2832 @ .087) | 8000 @.40 (3776 @ .099) | 3000 @ .25" (1416 @ .062) | 4000 @ .30" (1888 @ .075) |
| # of Blower Speeds | | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1 st Stage Blower RPM % | | 66% | 66% | 66% | 66% | 66% | 66% | 66% |
| **MOTOR HORSE POWER** | Standard- | 2 HP (1491) | 2 HP (1491) | 2 HP (1491) | 2HP (1491) | 5HP (3729) | 2 HP (1491) | 2 HP (1491) |
| | 1750 RPM 3 phase | | | | | | | |
| | Optional- | 2 HP (1491), 3 HP (2237) | 2 HP (1491), 3 HP (2237) | 2 HP (1491), 3 HP (2237), 5 HP (3729) | 2 HP (1491), 3 HP (2237), 5 HP (3729) | 5HP (3729), 7.5 HP (5593) | 2 HP (1491), 3 HP (2237) | 2 HP (1491), 3 HP (2237) |
| | 1750 RPM 3 phase | | | | | | | |
| Blower Size - diameter x width, in. (mm) | | 12 X 12 (305 x 305) | 12 X 12 (305 x 305) | 18 x 15 (457 x 381) | 18 x 15 (457 x 381) | 18 x 18 (457 x 457) | 12 X 12 (305 x 305) | 12 X 12 (305 x 305) |
| Blower Shaft Diameter, in. (mm) | | 3/4 (19) | 3/4 (19) | 1 (25) | 1 (25) | 1 (25) | 3/4 (19) | 3/4 (19) |
| Motor Sheave size, in. (mm) | 1750 RPM 3 phase | 5/8 (16) | 7/8 (22) | 7/8 (22) | 7/8 (22) | 1-1/8 (29) | 5/8 (16) | 7/8 (22) |
| Belt Type | | A-50 | V-54 | B52 | B52 | B50 | A-50 | A-52 |
| Coil Face Area, sq. ft. (m^2) | | 10.2 (.95) | 10.2 (.95) | 16.2 (1.51) | 16.2 (1.51) | 16.2 (1.51) | 10.2 (.95) | 12.6 (1.17) |
| Coil Tube Diameter, in. (mm) | | 3/8 (10) | 3/8 (10) | 3/8 (10) | 3/8 (10) | 3/8 (10) | 3/8 (10) | 3/8 (10) |
| Coil, Rows Deep-Fins Per Inch (mm) | | 4/15 (.59) | 4/15 (.59) | 3/15 (.51) | 4/15 (.59) | 4/15 (.59) | 4/15 (.59) | 4/15 (.59) |
| T.X. Valve Refrigerant Control | | (2) BBIZE-5-GA | (2) BBIZE-5-GA | (2) BBIZE-6-GA | (2) BBIZE-6-GA | (2) BBIZE-8-GA | (2) CBBIZE-5-GA | (2) CBBIZE-6-GA |
| Filter Size, in. (Number Required) [mm] | | (4) 16 X 25 X 1 [406 x 365 x 25] | (4) 16 X 25 X 1 [406 x 365 x 25] | (6) 20 X 25 X 1 [508 x 365 x 25] | (6) 20 X 25 X 1 [508 x 365 x 25] | (6) 20 X 25 X 1 [508 x 365 x 25] | (4) 16 X 25 X 1 [406 x 365 x 25] | Field Installed |
| **CABINET:** | | | | | | | | |
| Finish | | Prepaint | Prepaint | Prepaint | Prepaint | Prepaint | Prepaint | Prepaint |
| Sheet Metal | | Galvanized | Galvanized | Galvanized | Galvanized | Galvanized | Galvanized | Galvanized |
| Gauge: Top | | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Sides | | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Bottom | | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Door and Covers | | 20 min. | 20 min. | 20 min. | 20 min. | 20 min. | 20 min. | 20 min. |
| **UNIT WEIGHTS:** | | | | | | | | |
| Operating | R - Drive | 330 (150) | 347 (157) | 446 (202) | 486 (220) | 545 (247) | 330 (150) | 447 (203) |
| | S - Drive | 330 (150) | 347 (157) | 452 (205) | 492 (223) | 595 (270) | 330 (150) | 458 (208) |
| | T - Drive | 341 (155) | 358 (162) | 490 (222) | 530 (240) | 645 (293) | 341 (155) | 458 (208) |
| Shipping | R - Drive | 396 (180) | 413 (187) | 481 (218) | 521 (236) | 580 (263) | 365 (166) | 513 (233) |
| | S - Drive | 396 (180) | 413 (187) | 487 (221) | 527 (239) | 630 (286) | 365 (166) | 535 (243) |
| | T - Drive | 407 (185) | 435 (197) | 525 (238) | 565 (256) | 680 (308) | 376 (171) | 535 (243) |
| **OPTIONAL ACCESORIES WEIGHTS:** | | | | | | | | |
| Hot Water Coils | | 200 (91) | 200 (91) | 200 (91) | 200 (91) | 200 (91) | 200 (91) | 200 (91) |
| Steam Heating Coils | | 200 (91) | 200 (91) | 200 (91) | 200 (91) | 200 (91) | 200 (91) | 200 (91) |

## 2.7 MAJOR COMPONENTS




**Unit shown with side panel removed for coil connections and air filter access.**




**Note:** Remove panel with unit data plate to access this compartment

## 2.8 IMPORTANCE OF PROPER INDOOR/OUTDOOR MATCH-UPS

To assure many years of reliable operation and optimum customer comfort and to assure the outdoor unit warranty remains valid, an air-handler model should be selected that is properly matched to the outdoor unit. This is especially critical for heat pump systems to assure proper refrigerant charge balance between the cooling and heating modes. The recommended approach is to select an air-handler model that has an AHRI match with the outdoor unit. Refer to the AHRI directory at www.ahridirectory.org to confirm the air-handler and outdoor unit are a certified combination in the AHRI Directory.

## 2.9 IMPORTANCE OF A QUALITY INSTALLATION

A quality installation is critical to assure safety, reliability, comfort, and customer satisfaction. Strict adherence to applicable codes, the information in this installation manual, the outdoor unit installation manual, and the thermostat installation manual are key to a quality installation. Read the entire instruction manuals before starting the installation.

IMPORTANT: This product has been designed and manufactured to meet certified AHRI capacity and efficiency ratings with the appropriate outdoor units. However, proper refrigerant charge, proper airflow, and refrigerant line sizing are critical to achieve optimum capacity and efficiency and to assure reliable operation. Installation of this product should follow the manufacturer's refrigerant charging and airflow instructions located in the outdoor unit installation instructions and the charging chart label affixed to the outdoor unit. Failure to confirm proper charge and airflow may reduce energy efficiency and shorten equipment life.

The equipment has been evaluated in accordance with the Code of Federal Regulations, Chapter XX, Part 3280.

Install the unit in accordance with applicable national, state, and local codes. Latest editions are available from: "National Fire Protection Association, Inc., Batterymarch Park, Quincy, MA 02269." These publications are:

- ANSI/NFPA No. 70-(Latest Edition) National Electrical Code.
- NFPA90A Installation of Air Conditioning and Ventilating Systems.
- NFPA90B Installation of Warm Air Heating and Air Conditioning Systems.

Install the unit in such a way as to allow necessary access to the coil/filter rack and blower/control compartment.

# 3.0 INSTALLATION

## 3.1 TOOLS & REFRIGERANT

### 3.1.1 TOOLS REQUIRED FOR INSTALLING AND SERVICING R-410A MODELS

Manifold Sets:

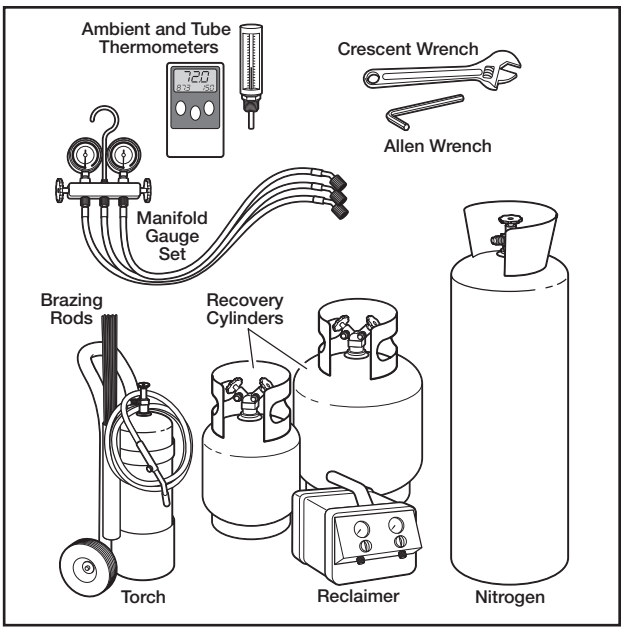
- Up to 800 PSIG High-Side
- Up to 250 PSIG Low-Side
- 550 PSIG Low-Side Retard

Manifold Hoses:

- Service Pressure Rating of 800 PSIG

Recovery Cylinders:

- 400 PSIG Pressure Rating
- Dept. of Transportation 4BA400 or BW400




**⚠ NOTICE**

**R-410A systems operate at higher pressures than R-22 systems. Do not use R-22 service equipment or components on R-410A equipment.**

### 3.1.2 SPECIFICATIONS OF R-410A

Application: R-410A is not a drop-in replacement for R-22. Equipment designs must accommodate its higher pressures. It cannot be retrofitted into R-22 heat pumps.

Physical Properties: R-410A has an atmospheric boiling point of -62.9°F [-52.7°C] and its saturation pressure at 77°F [25°C] is 224.5 psig.

Composition: R-410A is a near-azeotropic mixture of 50% by weight difluoromethane (HFC-32) and 50% by weight pentafluoroethane (HFC-125).

Pressure: The pressure of R-410A is approximately 60% (1.6 times) greater than R-22. Recovery and recycle equipment, pumps, hoses, and the like must have design pressure ratings appropriate for R-410A. Manifold sets need to range up to 800 psig high-side and 250 psig low-side with a 550 psig low-side retard. Hoses need to have a service pressure rating of 800 psig. Recovery cylinders need to have a 400 psig service pressure rating, DOT 4BA400 or DOT BW400.

Combustibility: At pressures above 1 atmosphere, a mixture of R-410A and air can become combustible. R-410A and air should never be mixed in tanks or supply lines or be allowed to accumulate in storage tanks. Leak checking should never be done with a mixture of R-410A and air. Leak-checking can be performed safely with nitrogen or a mixture of R-410A and nitrogen.

### 3.1.3 QUICK-REFERENCE GUIDE FOR R-410A

- R-410A refrigerant operates at approximately 60% higher pressure (1.6 times) than R-22. Ensure that servicing equipment is designed to operate with R-410A.
- R-410A refrigerant cylinders are light rose in color.
- R-410A, as with other HFCs, is only compatible with POE oils.
- Vacuum pumps will not remove moisture from POE oil used in R-410A systems.
- R-410A systems are to be charged with liquid refrigerants. Prior to March 1999, R-410A refrigerant cylinders had a dip tube. These cylinders should be kept upright for equipment charging. Post-March 1999 cylinders do not have a dip tube and should be inverted to ensure liquid charging of the equipment.
- Do not install a suction line filter drier in the liquid line.
- A factory-approved outdoor liquid line filter drier is shipped with every unit and must be installed in the liquid line at the time of installation. If only the air-handler is being replaced on an existing system, the existing filter drier must be replaced at the time of installation with a field supplied filter drier. IMPORTANT: A bi-flow filter drier must be used for heat pump applications. Filter driers must be rated for minimum working pressure of 600 psig. The filter drier will only have adequate moisture-holding capacity if the system is properly evacuated.
- Desiccant (drying agent) must be compatible for POE oils and R-410A refrigerant.

## 3.2 APPLICATIONS & ORIENTATION

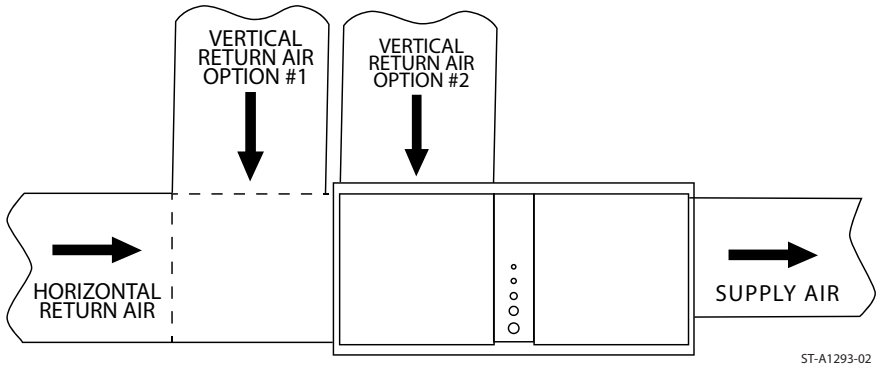
IMPORTANT: The air-handler is suitable for indoor applications only.

### 3.2.1 HORIZONTAL DISCHARGE

The air-handler may be installed in the horizontal discharge configuration with either a vertical or horizontal return duct as shown in Figure 2. For a vertical return duct, relocate the return air panel on top of the air-handler to cover the side return air opening.

Note: The (-)HCLP2120 can not be installed using vertical return air option #2

**FIGURE 2**
**HORIZONTAL DISCHARGE**

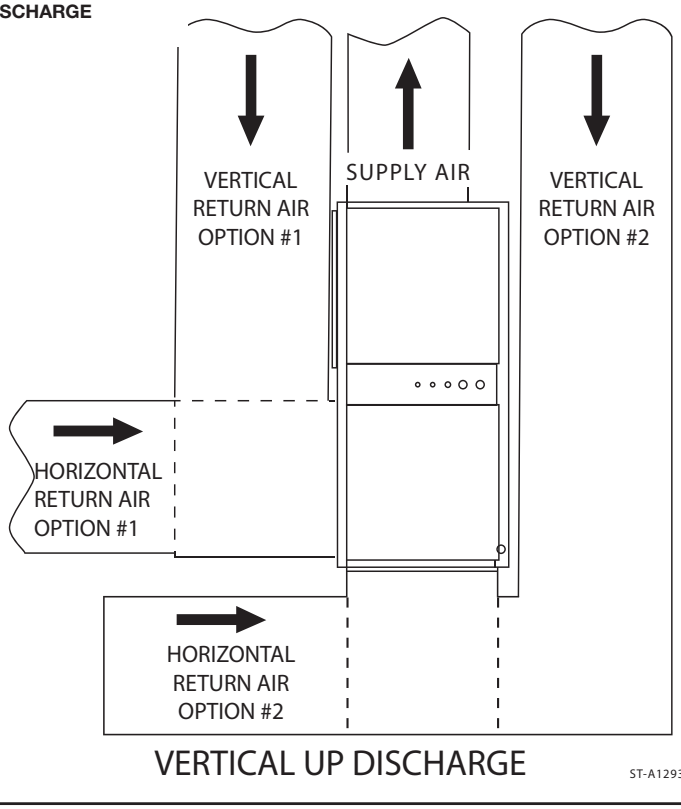



### 3.2.2 VERTICAL UP DISCHARGE

The air-handler may be installed in the vertical discharge configuration with a horizontal return duct as shown in Figure 3. Relocate the return air panel to cover the other return air opening to allow for the horizontal return duct.

Note: The (-)HCLP2120 cannot utilize the Horizonatal Return air and Vertial Return air option #1.

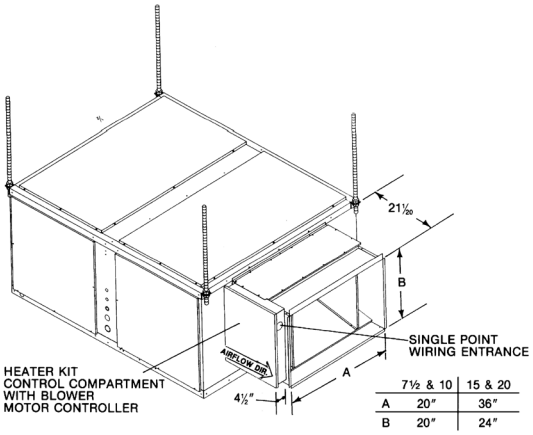
**FIGURE 3**
**VERTICAL UP DISCHARGE**



## 3.2.3 APPLICATIONS REQUIRING ELECTRIC HEAT

For applications that require resistance electric heat, field installed heater kits are available that attaches to the discharge side of the air-handler. See Figure 4. The heater kit is compatible for both horizontal and vertical discharge applications. The supply duct must be attached to the discharge end of the heater kit. The blower motor contactor and supply wiring is provided with the heater kit. See Section 6.1 for information concerning the available heater kits.

**FIGURE 4**
**APPLICATIONS REQUIRING ELECTRIC HEAT**




| | 7½ & 10 | 15 & 20 |
|---|---|---|
| A | 20" | 36" |
| B | 20" | 24" |

OPTIONAL ELECTRIC HEATER KIT SHOWN INSTALLED IN HORIZONTAL POSITION AND CONNECTED DIRECTLY TO THE AIR HANDLER. THE HEATER KIT MAY ALSO BE INSTALLED WITH THE AIR HANDLER SET IN THE VERTICAL POSITION. IN EITHER POSITION THE HEATER KIT CONTROL COMPARTMENT MUST BE ON THE LEFT SIDE FACING THE AIR DISCHARGE OPENING

NOTE: DISCHARGE PLENUM AND GRILLE CANNOT BE USED WITH ELECTRIC HEATER KIT

## 3.2.4 SUSPENDING UNIT

Four heavy gauge angles are furnished in the parts bag shipped with the air-handler for suspending the unit from all four corners as shown in Figure 4 above. ½" minimum support rods are recommended. If "All-Thread" rods are used, it is recommended that two nuts and two lock washers be tightened securely against the suspension angles.

When the air-handler is suspended as illustrated, hot water or steam coils, mixing boxes, and discharge air plenums cannot be mounted due to weight limitations. In these applications, an alternate suspension method such as field supplied angles or channels must be located underneath the air-handler.

## 3.2.5 INSTALLATION IN AN UNCONDITIONED SPACE

The exterior cabinet of an air handler has a greater risk of sweating when installed in an unconditioned space than when it is installed in the conditioned space. This is primarily due to the temperature of the conditioned air moving through the air handler and the air circulating around the unit where it is installed. For this reason, the following is recommended for all air handler applications, but special attention should be paid to those installed in unconditioned spaces:

- Duct sizing and airflow are critical and must be based on the equipment selected.
- Supply and return duct attachment: If other than the factory flanges are used, the attachment of ducting must be insulated and tight to prevent sweating.
- Apply caulking around all cabinet penetrations such as power wires, control wires, refrigerant tubing and condensate line where they enter the cabinet. Seal the power wires on the inside where they exit conduit opening. Sealing is required to prevent air leakage into the unit which can result in condensate forming inside the unit, control box, and on electrical controls. Take care not to damage, remove or compress insulation when applying the caulk.
- In some cases, the entire air handler can be wrapped with insulation. This can be done as long as the unit is completely enclosed in insulation, sealed and service access is provided to prevent accumulation of moisture inside the insulation wrap.
- An auxiliary overflow pan is recommended to protect the structure from excessive cabinet sweating or a restricted coil drain line. (See Section 3.3)

## 3.2.6 INSTALLATION IN CORROSIVE ENVIRONMENTS

The metal parts of this unit may be subject to rust or deterioration if exposed to a corrosive environment which can shorten its life. In addition to exposure to the exterior of the cabinet, chemical contaminants inside the building that can be drawn into the unit from the return air grille and attack structural metal parts, electrical components and the indoor coil, causing premature failure of the unit. If the unit is to be installed in an area where contaminants are likely to be a problem, special attention should be given to isolate the unit and return grille from contaminants.

## 3.3 AUXILIARY OVERFLOW PAN

In compliance with recognized codes, an auxiliary overflow pan must installed under all equipment containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.

## 3.4 CLEARANCES

A minimum of 24” is required on both sides of the air-handler for servicing the unit.

## 3.5 DUCTWORK

Field ductwork must comply with the National Fire Protection Association NFPA 90A, NFPA 90B and any applicable local ordinance.

### ⚠ WARNING

**Do not, under any circumstances, connect return ductwork to any other heat producing device such as fireplace insert, stove, etc. Unauthorized use of such devices may result in fire, carbon monoxide poisoning, explosion, personal injury or property damage.**

Sheet metal ductwork run in unconditioned spaces must be insulated and covered with a vapor barrier. Fibrous ductwork may be used if constructed and installed in accordance with SMACNA Construction Standard on Fibrous Glass Ducts. Ductwork must comply with National Fire Protection Association as tested by U/L Standard 181 for Class I Air Ducts. Check local codes for requirements on ductwork and insulation.

- Duct system must be designed within the range of external static pressure the unit is designed to operate against. It is important that the system airflow be adequate. Make sure supply and return ductwork, grills, filters, accessories, etc. are accounted for in total resistance. Refer to the airflow performance tables in this manual to determine the available external static pressure for the particular air-handler model being installed.
- Design the duct system in accordance with “ACCA” Manual “Q” – Low Pressure, Low Velocity Duct System Design. Latest editions are available from: “ACCA” Air Conditioning Contractors of America, 1513 16th Street, N.W., Washington, D.C. 20036. If duct system incorporates flexible air duct, be sure pressure drop information (straight length plus all turns) shown in “ACCA” Manual “D” is accounted for in system.
- Supply plenum is attached to the duct flanges supplied with the unit.
- IMPORTANT: If an elbow is included in the plenum close to the unit, it must not be smaller than the dimensions of the supply duct flange on the unit.
- IMPORTANT: The front flange on the return duct if connected to the blower casing must not be screwed into the area where the power wiring is located. Drills or sharp screw points can damage insulation on wires located inside unit.
- Secure the supply and return ductwork to the unit flanges, using proper fasteners for the type of duct used and tape or caulk the duct-to-unit joint as required to prevent air leaks.

## 3.6 RETURN AIR FILTERS

NOTE: (-)HCLP2120 does not have an internal filter rack. (DETAILS IN SECTION 5.3)

An internal filter rack is provided that can be accessed by removing one or both of the side service access panels (See Section 2.7). Remove the hitch pins to remove the filter retainer angles. 1” thick throw-away fiberglass filters are provided from the factory, but the filter rack can accept up to 2” thick filters.

Reduced air-flow can reduce system performance and shorten the life of the system components such as the compressor, indoor coil, heater elements, over-temperature limits, and relays. Therefore, it is important to change the filters on a regular basis to assure optimum performance and reliability of the system.

IMPORTANT: High efficiency pleated filters typically have significantly higher pressure drop than standard efficiency fiberglass filters, especially when they become dirty. The additional pressure drop of such filters must be added into the external static pressure of the duct system when adjusting the air-flow of the air-handler.

WARNING: Do not operate the air-handler without filters. A portion of the dust entrained in the air may temporarily lodge in the duct runs and at the supply registers. Any circulating dust particles could be heated and charred by contact with the electric heating elements. This residue could soil ceilings, wall, carpets, and other articles inside the building. Operating the system without a filter will also allow lint and dirt particles to accumulate on the indoor oil fins and restrict air-flow through the coil.

## 3.7 REFRIGERANT LINE CONNECTIONS & CHARGING

### 3.7.1 PREPARATION

The coil is shipped with a low pressure (5-10 psig) charge of dry nitrogen which will be released when the rubber plugs are removed. Leave the rubber plugs in the refrigerant connection stubs on the air-handler until the refrigerant lines are ready to be brazed to the refrigerant connection stubs to prevent contaminants from entering the coil. Clean the ends of the tubing and coil connection stubs (inside and outside) with an alcohol wipe before inserting the line set tubes into the coil connection stubs to assure a quality leak-free braze joint.

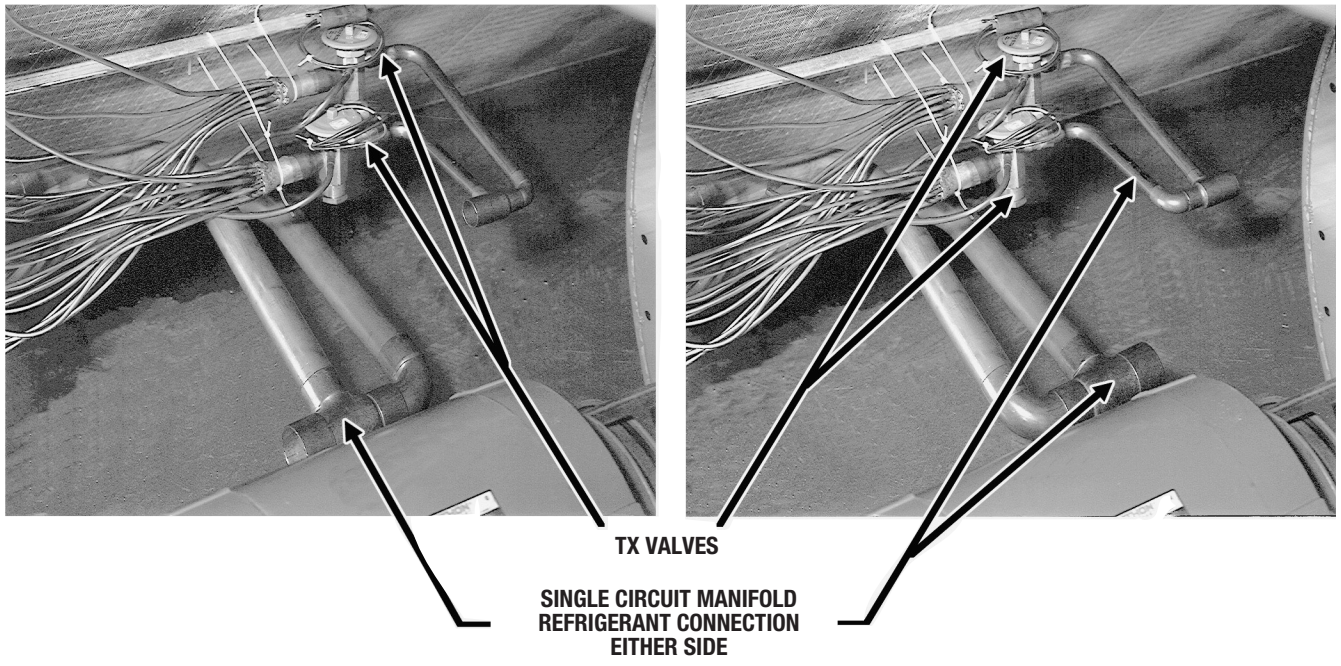
Refer to the outdoor unit installation instructions for details on refrigerant line sizing and installation.

Route the refrigerant tubing in a manner than does not block service access to the front of the air-handler.

### 3.7.2 CONFIGURING AIR-HANDLER FOR A SINGLE OR DUAL REFRIGERANT CIRCUITS

All models are provided with dual circuit coil manifolds that can be configured for dual condensing unit applications. The coil is circuited to provide full face coil operation for each system. Knock-outs are provided on both sides of the unit to allow the refrigerant tubing to enter from either side. Remove the rubber grommets from the parts bag and install them in the appropriate holes prior to running the line set tubing into the cabinet to seal around and protect the tubing. Copper fittings are provided in the parts bag to allow the two refrigerant circuits to be tied together for single condensing unit applications. The fittings may be installed to allow the tubing to enter the unit from either side as shown in Figure 5.

**FIGURE 5**



## 3.7.3 REFRIGERANT LINES

The following will be of help in accomplishing a successful installation.

1. Size liquid line for no more than 50 PSIG pressure drop.
2. Size suction lines for no more than 2°F loss which corresponds to approximately 5 PSIG pressure drop.
3. When evaporator is installed below condensing unit, do not exceed the recommended suction line O.D. This will insure adequate velocities for proper oil return.
4. Install strainer-drier and sight glass in liquid line.
5. Pitch all horizontal suction lines downward in the direction of flow.
6. When making up refrigerant piping, take every precaution to prevent dirt and moisture from entering the piping.
7. Locate the condensing unit and evaporator(s) as close together as possible to minimize piping runs.
8. A liquid line solenoid installed just ahead of the expansion valve is recommended.
9. See tables below for general refrigerant line sizing and equivalent length of valves and fittings.
10. Refer to the vapor and liquid line selection procedure and charts in the outdoor unit installation manual or literature for more specific refrigerant line sizing information. When dual outdoor units are matched with the air-handler using dual circuits, size the refrigerant lines for each system independently.

| EQUIV. LENGTH TO EVAP. (FT.) | LIQUID LINE O.D. | SUCTION LINE O.D. |
|---|---|---|
| | | 10 [35kW] |
| 0-50 [0-15m] | 5/8 [26mm] | 1 3/8 [35mm] |
| 51-100 [16-30m] | 5/8 [26mm] | 1 5/8 [41mm] |
| 101-150 [31-46m] | 5/8 [26mm] | 1 5/8 [41mm] |

| EQUIVALENT LENGTH, FT. [m] OF STRAIGHT TYPE "L" TUBING FOR NON-FERROUS VALVES AND FITTINGS (BRAZED) | | | | | | |
|---|---|---|---|---|---|---|
| TUBE SIZE INCHES [mm] O.D. | SOLE-NOID VALVE | ANGLE VALVE | SHORT RADIUS ELL | LONG RADIUS ELL | TEE LINE FLOW | TEE BRANCH FLOW |
| 1/2 [13] | 12 [3.7] | 8.3 [2.5] | 1.6 [0.5] | 1.0 [0.3] | 1.0 [0.3] | 3.1 [0.9] |
| 5/8 [16] | 15 [4.6] | 10.4 [3.2] | 1.9 [0.8] | 1.2 [0.4] | 1.2 [0.4] | 3.6 [1.1] |
| 3/4 [19] | 18 [5.5] | 12.5 [3.8] | 2.1 [0.7] | 1.4 [0.4] | 1.4 [0.4] | 4.2 [1.3] |
| 7/8 [22] | 21 [6.4] | 14.8 [4.4] | 2.4 [0.7] | 1.6 [0.5] | 1.6 [0.5] | 4.8 [1.5] |
| 1 1/8 [29] | 12 [3.7] | 18.8 [5.7] | 3.0 [0.9] | 2.0 [0.6] | 2.0 [0.6] | 6.0 [1.8] |
| 1 3/8 [35] | 15 [4.6] | 22.9 [7.0] | 3.6 [1.1] | 2.4 [0.7] | 2.4 [0.7] | 7.2 [2.2] |
| 1 5/8 [41] | 18 [5.5] | 27.1 [8.3] | 4.2 [1.3] | 2.8 [0.8] | 2.8 [0.8] | 8.4 [2.6] |
| 2 1/8 [54] | 21 [6.4] | 35.4 [10.8] | 5.3 [1.6] | 3.5 [1.1] | 3.5 [1.1] | 10.7 [3.3] |

## 3.7.4 LIQUID LINE FILTER DRIER

A new liquid filter drier must be installed every time any part of the system has been open to the atmosphere, even if it's for a short period of time. The filter drier should be installed close to the air-handler for a system started up in the cooling mode and near the outdoor unit for a heat pump system started up in the heating mode. This allows the filter drier to catch any contaminants in the liquid line before they can enter the indoor or outdoor TXV inlet screen. A filter drier must be installed in the liquid line of each circuit for dual circuit applications.

## 3.7.5 BRAZING

Air inside the tubing and coil should be displaced with dry nitrogen prior to the brazing process to prevent the formation of harmful copper oxide inside the tubing. It is very important not to pressurize the system with nitrogen while brazing or pin-hole leaks will form in the braze joint. This is accomplished by removing the gauge port valve core on one of the outdoor unit service valves to allow the pressure to be relieved as the heated nitrogen expands. Fill the system with dry nitrogen through the other service valve gauge port and then turn the nitrogen flow off just before brazing is begun.

Protect the TXV's and outdoor unit service valves from overheating using a wet rag or heat sink compound. Leave the wet rag or heat sink material in place until the joint and surrounding tubing cools down to a safe temperature. Double tip torches can help minimize brazing time and heat conduction to the heat sensitive components if the flame is turned down and held on the joint just long enough to make the braze joint. With both single and double tip torches, turning the flame up too much and keeping the flame on the joint too long will damage the heat sensitive components even when a wet rag or heat sink compound is used.

## 3.7.6 LEAK TESTING

After all braze joints are completed, replace the valve core removed when purging with nitrogen and then leak test the system by pressurizing to 150 psig with dry nitrogen and allow the system to sit for at least 15 minutes (longer if possible) to assure the pressure does not drop.

## 3.7.7 EVACUATION

If no leaks are detected, open the outdoor unit service valves for outdoor units shipped with a nitrogen holding charge and evacuate the system down to 500 microns or below before charging the system. Failure to reach 500 microns of vacuum is a sign of a leak or excessive moisture inside the system. For outdoor units shipped charged with R-410A, do not open the service valves until the evacuation process is complete.

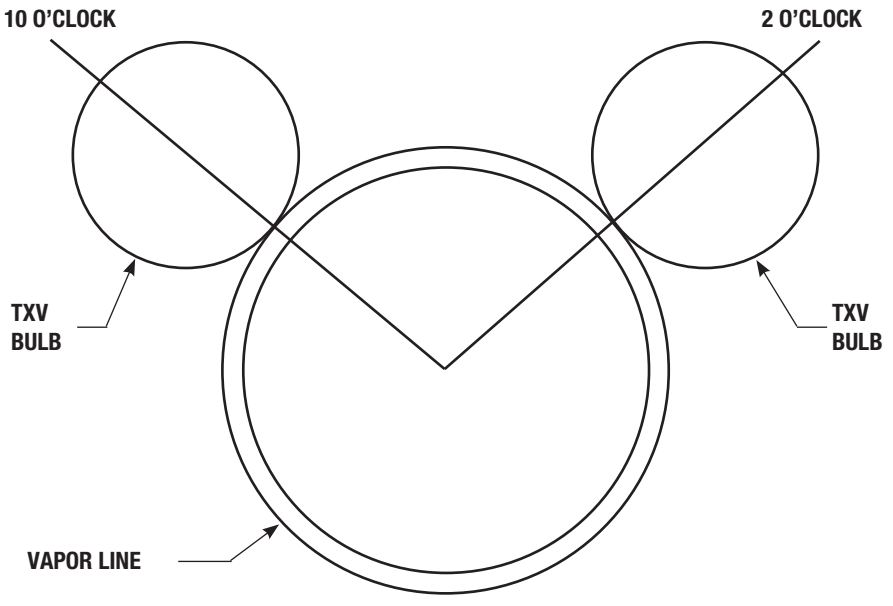
## 3.7.8 REFRIGERANT CHARGING

Once the evacuation process is completed, break the vacuum with the refrigerant from a refrigerant cylinder (or with refrigerant stored in the outdoor unit by opening the outdoor unit service valves if the outdoor unit is charged with R-410A). The charging process cannot be completed until the remaining steps in the installation process are completed and the indoor air-flow is adjusted to the proper level. See Section 4.4 for further details.

# 3.8 TXV SENSING BULB ATTACHMENT

IMPORTANT: DO NOT perform any brazing with the TXV bulb attached to the vapor line. After brazing operations have been completed and the tubing has cooled to the touch, clamp each TXV bulb securely on a horizontal section of its corresponding vapor line at the 10 to 2 o'clock position (see Figure 6) with the strap provided in the parts bag.

**FIGURE 6**
**BULB LOCATION – HORIZONTAL SECTION OF VAPOR LINE**



## 3.9 CONDENSATE DRAIN

Two drain connections are provided, one on each side of the unit. Plug the unused drain connection using the plug provided in the parts bag.

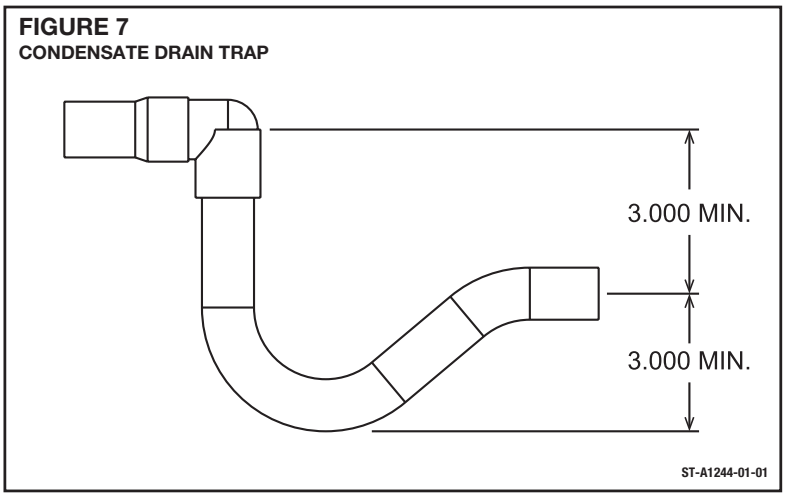
Consult local codes or ordinances for specific requirements.

IMPORTANT: When making drain fitting connections to the drain pan, use a thin layer of Teflon paste, silicone or Teflon tape and install hand tight.

IMPORTANT: When making drain fitting connections to drain pan, do not overtighten. Overtightening fittings can split pipe connections on the drain pan.

- Install drain lines so they do not block service access to front of the unit. Minimum clearance of 24 inches is required for filter, coil or blower removal and service access.
- It is recommended that the air-handler cabinet be pitched slightly downward toward the primary drain connection to assure the condensate drains completely from the drain pan. The downward pitch should be approximately 1/8" per foot and in both axes.
- Do not reduce drain line size less than connection size provided on condensate drain pan.
- All drain lines must be pitched downward away from the unit a minimum of 1/8" per foot of line to ensure proper drainage.
- Do not connect condensate drain line to a closed or open sewer pipe. Run condensate to an open drain or outdoors.
- The drain line should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the line.
- Make provisions for disconnecting and cleaning of the primary drain line should it become necessary. Install a 3 in. trap in the primary drain line as close to the unit as possible. Make sure that the top of the trap is below connection to the drain pan to allow complete drainage of pan (See Figure 7).
- Plug the unused drain connection with the plug provided in the parts bag, using a thin layer of teflon paste, silicone or teflon tape to form a water tight seal.
- Test the condensate drain pan and drain line after installation is complete. Pour water into drain pan, enough to fill drain trap and line. Check to make sure drain pan is draining completely, no leaks are found in drain line fittings, and water is draining from the open end of the primary drain line.

**FIGURE 7**
**CONDENSATE DRAIN TRAP**




## 3.10 THERMOSTAT

See instructions for the condensing unit or heat pump for recommended room thermostats.

- Choose an appropriate thermostat for the application.
- The thermostat should be mounted 4 to 5 feet above the floor on an inside wall of the conditioned space or a hallway that has good air circulation from the other rooms being controlled by the thermostat. It is essential that there be free air circulation at the location of the same average temperature as other rooms being controlled. Movement of air should not be obstructed by furniture, doors, draperies, etc. The thermostat should not be mounted where it will be affected by drafts, hot or cold water pipes or air ducts in walls, radiant heat from fireplace, lamps, the sun, T.V. or an outside wall. See instruction sheet packaged with thermostat for mounting and installation instructions.

## 3.11 ELECTRICAL WIRING

Field wiring must comply with the National Electric Code (C.E.C. in Canada) and any applicable local ordinance.

### 3.11.1 POWER WIRING

It is important that proper electrical power is available for connection to the unit model being installed. See the unit nameplate, wiring diagram and electrical data in the installation instructions.

- Install a circuit disconnect of adequate size, located within sight of, and readily accessible to the unit.
- IMPORTANT: Units with electric heater kits installed may be equipped with one or more branch circuit fuses. These fuses protect the internal wiring in the event of a short circuit.
- Supply circuit power wiring must be 75°C minimum copper conductors only. See Electrical Data in Sections 3.11.3 and 3.11.4 for ampacity, wire size and circuit protector requirement. Supply circuit protective devices may be either fuses or circuit breakers.

#### 3.11.1.1 NO-HEAT APPLICATIONS

If electric heat is not installed, connect the incoming line voltage wires to the line voltage terminal block (TB1) inside the air-handler control box.

#### 3.11.1.2 ELECTRIC HEAT APPLICATIONS

If an RXHE electric heater kit is installed, the blower motor contactor is provided in the heater kit with leads that must be routed to the air-handler control box and connected to the line voltage terminal block (TB1) inside the air-handler control box.

IMPORTANT: The variable speed Drive (VFD) must to powered continuously and controlled by the thermostat signals to prevent premature failure of the VFD.
Therefore, the blower motor power supply leads from the blower contactor located in the RXHE electric heat kit must be moved from the load side of the blower contactor (T1,T2,T3) to the line side of the blower connector (L1,L2,L3).

### 3.11.2 GROUNDING

**⚠ WARNING**

**The unit must be permanently grounded. Failure to do so can result in electrical shock causing personal injury or death.**

- This product must be sufficiently grounded in accordance with National Electrical Code (C.E.C. in Canada) and any applicable local ordinance.
- Grounding may be accomplished by grounding metal conduit when installed in accordance with electrical codes to the unit cabinet.
- Grounding may also be accomplished by attaching ground wire to ground lug provided in the air-handler control box.

| MODEL NUMBER | DRIVE PACKAGE | AIR HANDLER MOTOR | | | | | HEATER KIT | | | Amps | Heating Capacity | | MINIMUM CIRCUIT AMPACITY | RECOMMENDED MINMUM COPPER WIRE SIZE/MAX. RUN IN FEET | MAXIMUM OVERCURRENT PROTECTION AMP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | hp | VOLTS | PHASE | RATING PLATE AMPS | MOTOR LRA | Model | Voltage | KW | | KW | MBH | | | |
| AC | | | | | | | | | | | | | | | |
| (-)HCLA2090C | R , S | 2 | 208/230 | 3 | 6.2 | 47 | - | - | - | - | - | - | 8 | #14 / 165 | 15 |
| | | | | | | | RXHE-DE020CA | 208/240 | 20 | 43.1/48.9 | 15.6/20.2 | 53.2/68.9 | 62/69 | | 70 |
| | | | | | | | RXHE-DE030CA | 208/240 | 30 | 60.8/70.2 | 11.0/29.6 | 75.1/101 | 84/96 | | 100 |
| (-)HCLA2090D | R , S | 2 | 460 | 3 | 3 | 24 | - | - | - | - | - | - | 4 | #14 / 275 | 15 |
| | | | | | | | RXHE-DE020DA | 480 | 20 | 24.7 | 20.2 | 68.9 | 35 | | 40 |
| | | | | | | | RXHE-DE030DA | 480 | 30 | 35 | 29.7 | 101.3 | 48 | | 50 |
| (-)HCLA2090C | T | 3 | 208/230 | 3 | 9.2 | 74.5 | - | - | - | - | - | - | 12 | #14 / 135 | 15 |
| | | | | | | | RXHE-DE020CA | 208/240 | 20 | 43.1/48.9 | 15.6/20.2 | 53.2/68.9 | 66/73 | | 80 |
| | | | | | | | RXHE-DE030CA | 208/240 | 30 | 60.8/70.2 | 11.0/29.6 | 75.1/101 | 88/100 | | 100 |
| (-)HCLA2090D | T | 3 | 460 | 3 | 4.6 | 38.1 | - | - | - | - | - | - | 6 | #14 / 230 | 15 |
| | | | | | | | RXHE-DE020DA | 480 | 20 | 24.7 | 20.2 | 68.9 | 37 | | 40 |
| | | | | | | | RXHE-DE030DA | 480 | 30 | 35 | 29.7 | 101.3 | 50 | | 50 |
| (-)HCLA2120C | R , S | 2 | 208/230 | 3 | 6.2 | 47 | - | - | - | - | - | - | 8 | #14 / 165 | 15 |
| | | | | | | | RXHE-DE020CA | 208/240 | 20 | 43.1/48.9 | 15.6/20.2 | 53.2/68.9 | 62/69 | | 70 |
| | | | | | | | RXHE-DE030CA | 208/240 | 30 | 60.8/70.2 | 11.0/29.6 | 75.1/101 | 84/96 | | 100 |
| (-)HCLA2120D | R , S | 2 | 460 | 3 | 3 | 24 | - | - | - | - | - | - | 4 | #14 / 275 | 15 |
| | | | | | | | RXHE-DE020DA | 480 | 20 | 24.7 | 20.2 | 68.9 | 35 | | 40 |
| | | | | | | | RXHE-DE030DA | 480 | 30 | 35 | 29.7 | 101.3 | 48 | | 50 |
| (-)HCLA2120C | T | 3 | 208/230 | 3 | 9.2 | 74.5 | - | - | - | - | - | - | 12 | #14 / 135 | 30 |
| | | | | | | | RXHE-DE020CA | 208/240 | 20 | 43.1/48.9 | 15.6/20.2 | 53.2/68.9 | 66/73 | | 80 |
| | | | | | | | RXHE-DE030CA | 208/240 | 30 | 60.8/70.2 | 11.0/29.6 | 75.1/101 | 88/100 | | 100 |
| (-)HCLA2120D | T | 3 | 460 | 3 | 4.6 | 38.1 | - | - | - | - | - | - | 6 | #14 / 230 | 15 |
| | | | | | | | RXHE-DE020DA | 480 | 20 | 24.7 | 20.2 | 68.9 | 37 | | 40 |
| | | | | | | | RXHE-DE030DA | 480 | 30 | 35 | 29.7 | 101.3 | 50 | | 50 |
| (-)HCLA2150C | R | 2 | 208/230 | 3 | 6.2 | 47 | - | - | - | - | - | - | 7 | #14 / 165 | 15 |
| | | | | | | | RXHE-CE030CC | 208/240 | 30 | 60/70 | 21.6/28.8 | 73.7/98.3 | 83/95 | | 100 |
| | | | | | | | RXHE-CE040CC | 208/240 | 40 | 83/96 | 30/40 | 102.4/136.5 | 111/128 | | 150 |
| (-)HCLA2150D | R | 2 | 460 | 3 | 3 | 24 | - | - | - | - | - | - | 4 | #14 / 275 | 15 |
| | | | | | | | RXHE-CE030DC | 480 | 30 | 35 | 28.8 | 98.3 | 47 | | 50 |
| | | | | | | | RXHE-CE040DC | 480 | 40 | 48 | 40 | 136.5 | 64 | | 70 |
| (-)HCLA2150C | S | 3 | 208/230 | 3 | 8.7 | 56 | - | - | - | - | - | - | 11 | #14 / 135 | 20 |
| | | | | | | | RXHE-CE030CC | 208/240 | 30 | 60/70 | 21.6/28.8 | 73.7/98.3 | 86/99 | | 100 |
| | | | | | | | RXHE-CE040CC | 208/240 | 40 | 83/96 | 30/40 | 102.4/136.5 | 115/131 | | 150 |
| (-)HCLA2150D | S | 3 | 460 | 3 | 4.1 | 28.4 | - | - | - | - | - | - | 5 | #14 / 230 | 15 |
| | | | | | | | RXHE-CE030DC | 480 | 30 | 35 | 28.8 | 98.3 | 49 | | 50 |
| | | | | | | | RXHE-CE040DC | 480 | 40 | 48 | 40 | 136.5 | 65 | | 70 |
| (-)HCLA2150C | T | 5 | 208/230 | 3 | 13.6-12.6 | 86-95 | - | - | - | - | - | - | 17 | #10 / 240 / #12 / 150 | 40 |
| | | | | | | | RXHE-CE030CC | 208/240 | 30 | 60/70 | 21.6/28.8 | 73.7/98.3 | 92/105 | | 110 |
| | | | | | | | RXHE-CE040CC | 208/240 | 40 | 83/96 | 30/40 | 102.4/136.5 | 121/137 | | 150 |
| (-)HCLA2150D | T | 5 | 460 | 3 | 6.3 | 47.5 | - | - | - | - | - | - | 8 | #14 / 185 | 15 |
| | | | | | | | RXHE-CE030DC | 480 | 30 | 35 | 28.8 | 98.3 | 52 | | 60 |
| | | | | | | | RXHE-CE040DC | 480 | 40 | 48 | 40 | 136.5 | 68 | | 70 |
| (-)HCLA2180C | R | 2 | 208/230 | 3 | 6.2 | 47 | - | - | - | - | - | - | 7 | #14 / 165 | 15 |
| | | | | | | | RXHE-CE030CC | 208/240 | 30 | 60/70 | 21.6/28.8 | 73.7/98.3 | 83/95 | | 100 |
| | | | | | | | RXHE-CE040CC | 208/240 | 40 | 83/96 | 30/40 | 102.4/136.5 | 111/128 | | 150 |

| MODEL NUMBER | DRIVE PACKAGE | AIR HANDLER MOTOR | | | | | HEATER KIT | | | Amps | Heating Capacity | | MINIMUM CIRCUIT AMPACITY | RECOMMENDED MINMUM COPPER WIRE SIZE/MAX. RUN IN FEET | MAXIMUM OVERCURRENT PROTECTION AMP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | hp | VOLTS | PHASE | RATING PLATE AMPS | MOTOR LRA | Model | Voltage | KW | | KW | MBH | | | |
| AC | | | | | | | | | | | | | | | |
| (-)HCLA2180D | R | 2 | 460 | 3 | 3 | 24.0 | - | - | - | - | - | - | 4 | #14 / 275 | 15 |
| | | | | | | | RXHE-CE030DC | 480 | 30 | 35 | 28.8 | 98.3 | 47 | | 50 |
| | | | | | | | RXHE-CE040DC | 480 | 40 | 48 | 40 | 136.5 | 64 | | 70 |
| (-)HCLA2180C | S | 3 | 208/230 | 3 | 8.7 | 56 | - | - | - | - | - | - | 11 | #14 / 135 | 20 |
| | | | | | | | RXHE-CE030CC | 208/240 | 30 | 60/70 | 21.6/28.8 | 73.7/98.3 | 86/99 | | 100 |
| | | | | | | | RXHE-CE040CC | 208/240 | 40 | 83/96 | 30/40 | 102.4/136.5 | 115/131 | | 150 |
| (-)HCLA2180D | S | 3 | 460 | 3 | 4.1 | 28.4 | - | - | - | - | - | - | 5 | #14 / 230 | 15 |
| | | | | | | | RXHE-CE030DC | 480 | 30 | 35 | 28.8 | 98.3 | 49 | | 50 |
| | | | | | | | RXHE-CE040DC | 480 | 40 | 48 | 40 | 136.5 | 65 | | 70 |
| (-)HCLA2180C | T | 5 | 208/230 | 3 | 13.6-12.6 | 86-95 | - | - | - | - | - | - | 17 | #10 / 240 / #12 / 150 | 25 |
| | | | | | | | RXHE-CE030CC | 208/240 | 30 | 60/70 | 21.6/28.8 | 73.7/98.3 | 92/105 | | 110 |
| | | | | | | | RXHE-CE040CC | 208/240 | 40 | 83/96 | 30/40 | 102.4/136.5 | 121/137 | | 150 |
| (-)HCLA2180D | T | 5 | 460 | 3 | 6.3 | 47.5 | - | - | - | - | - | - | 8 | #14 / 185 | 15 |
| | | | | | | | RXHE-CE030DC | 480 | 30 | 35 | 28.8 | 98.3 | 52 | | 60 |
| | | | | | | | RXHE-CE040DC | 480 | 40 | 48 | 40 | 136.5 | 68 | | 70 |
| (-)HCLA2240C | R | 5 | 208/230 | 3 | 13.6-12.6 | 86-95 | | | | - | | | 17 | #10 / 240 / #12 / 150 | 25 |
| | | | | | | | RXHE-CE030CC | 208/240 | 30 | 60/70 | 21.6/28.8 | 73.7/98.3 | 92/105 | | 110 |
| | | | | | | | RXHE-CE040CC | 208/240 | 40 | 83/96 | 30/40 | 102.4/136.5 | 121/137 | | 150 |
| (-)HCLA2240D | R | 5 | 460 | 3 | 6.3 | 47.5 | - | - | - | - | - | - | 8 | #14 / 185 | 15 |
| | | | | | | | RXHE-CE030DC | 480 | 30 | 35 | 28.8 | 98.3 | 52 | | 60 |
| | | | | | | | RXHE-CE040DC | 480 | 40 | 48 | 40 | 136.5 | 68 | | 70 |
| (-)HCLA2240C | S , T | 7.5 | 208/230 | 3 | 21.0-19.2 | 115-127 | - | - | - | - | - | - | 26 | #10 / 150 | 50 |
| | | | | | | | RXHE-CE030CC | 208/240 | 30 | 60/70 | 21.6/28.8 | 73.7/98.3 | 102/114 | | 120 |
| | | | | | | | RXHE-CE040CC | 208/240 | 40 | 83/96 | 30/40 | 102.4/136.5 | 130/147 | | 150 |
| (-)HCLA2240D | S , T | 7.5 | 460 | 3 | 9.6 | 63.5 | - | - | - | - | - | - | 12 | #14 / 135 | 15 |
| | | | | | | | RXHE-CE030DC | 480 | 30 | 35 | 28.8 | 98.3 | 56 | | 60 |
| | | | | | | | RXHE-CE040DC | 480 | 40 | 48 | 40 | 136.5 | 72 | | 80 |
| HP | | | | | | | | | | | | | | | |
| (-)HCLP2090C | R , S | 2 | 208/230 | 3 | 6.2 | 47 | - | - | - | - | - | - | 8 | #14 / 165 | 15 |
| | | | | | | | RXHE-DE20CA | 208/240 | 20 | 43.1/48.9 | 15.6/20.2 | 53.2/68.9 | 62/69 | | 70 |
| | | | | | | | RXHE-DE30CA | 208/240 | 30 | 60.8/70.2 | 11.0/29.6 | 75.1/101 | 84/96 | | 100 |
| (-)HCLP2090D | R , S | 2 | 460 | 3 | 3 | 24 | - | - | - | | - | - | 4 | #14 / 275 | 15 |
| | | | | | | | RXHE-DE020DA | 480 | 20 | 24.7 | 20.2 | 68.9 | 35 | | 40 |
| | | | | | | | RXHE-DE030DA | 480 | 30 | 35 | 29.7 | 101.3 | 48 | | 50 |
| (-)HCLP2090C | T | 3 | 208/230 | 3 | 9.2 | 74.5 | - | - | - | | - | - | 12 | #14 / 135 | 15 |
| | | | | | | | RXHE-DE20CA | 208/240 | 20 | 43.1/48.9 | 15.6/20.2 | 53.2/68.9 | 66/73 | | 80 |
| | | | | | | | RXHE-DE30CA | 208/240 | 30 | 60.8/70.2 | 11.0/29.6 | 75.1/101 | 88/100 | | 100 |
| (-)HCLP2090D | T | 3 | 460 | 3 | 4.6 | 38.1 | - | - | - | | - | - | 6 | #14 / 230 | 15 |
| | | | | | | | RXHE-DE020DA | 480 | 20 | 24.7 | 20.2 | 68.9 | 37 | | 40 |
| | | | | | | | RXHE-DE030DA | 480 | 30 | 35 | 29.7 | 101.3 | 50 | | 50 |
| (-)HCLP2120C | R | 2 | 208/230 | 3 | 6.2 | 47 | - | - | - | | - | - | 8 | #14 / 165 | 15 |
| | | | | | | | RXHE-DE20CA | 208/240 | 20 | 43.1/48.9 | 15.6/20.2 | 53.2/68.9 | 62/69 | | 70 |
| | | | | | | | RXHE-DE30CA | 208/240 | 30 | 60.8/70.2 | 11.0/29.6 | 75.1/101 | 84/96 | | 100 |

## 3.11.3 ELECTRICAL DATA – WITH ELECTRIC HEAT

| MODEL NUMBER | DRIVE PACKAGE | AIR HANDLER MOTOR | | | | | HEATER KIT | | | Amps | Heating Capacity | | MINIMUM CIRCUIT AMPACITY | RECOMMENDED MINMUM COPPER WIRE SIZE/MAX. RUN IN FEET | MAXIMUM OVERCURRENT PROTECTION AMP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | hp | VOLTS | PHASE | RATING PLATE AMPS | MOTOR LRA | Model | Voltage | KW | | KW | MBH | | | |
| HP | | | | | | | | | | | | | | | |
| (-)HCLP2120D | R | 2 | 460 | 3 | 3 | 24 | - | - | - | | - | - | 4 | #14 / 275 | 15 |
| | | | | | | | RXHE-DE020DA | 480 | 20 | 24.7 | 20.2 | 68.9 | 35 | | 40 |
| | | | | | | | RXHE-DE030DA | 480 | 30 | 35 | 29.7 | 101.3 | 48 | | 50 |
| (-)HCLP2120C | S , T | 3 | 208/230 | 3 | 9.2 | 74.5 | - | - | - | | - | - | 12 | #14 / 135 | 15 |
| | | | | | | | RXHE-DE20CA | 208/240 | 20 | 43.1/48.9 | 15.6/20.2 | 53.2/68.9 | 66/73 | | 80 |
| | | | | | | | RXHE-DE30CA | 208/240 | 30 | 60.8/70.2 | 11.0/29.6 | 75.1/101 | 88/100 | | 100 |
| (-)HCLP2120D | S , T | 3 | 460 | 3 | 4.6 | 38.1 | - | - | - | | - | - | 6 | #14 / 230 | 15 |
| | | | | | | | RXHE-DE020DA | 480 | 20 | 24.7 | 20.2 | 68.9 | 37 | | 40 |
| | | | | | | | RXHE-DE030DA | 480 | 30 | 35 | 29.7 | 101.3 | 50 | | 50 |

## 3.11.4 COPPER WIRE SIZE - AWG. (3% VOLTAGE DROP)

| SUPPLY WIRE LENGTH FEET | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 200 [61] | 12 | 10 | 8 | 8 | 8 | 6 | 6 | 6 | 4 | 4 | 3 | 3 | 2 | 2 | 1 | 0 | 00 |
| | 150 [46] | 12 | 10 | 10 | 10 | 8 | 8 | 6 | 6 | 6 | 4 | 4 | 3 | 3 | 2 | 1 | 0 | 00 |
| | 100 [30] | 14 | 12 | 10 | 10 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | 3 | 3 | 2 | 1 | 0 | 00 |
| | 50 [15] | 14 | 12 | 10 | 10 | 8 | 8 | 8 | 6 | 6 | 4 | 4 | 3 | 3 | 2 | 1 | 0 | 00 |
| | | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | 175 |
| | SUPPLY CIRCUIT AMPACITY | | | | | | | | | | | | | | | | | |

NOTE: WIRE BASED ON COPPER CONDUCTORS 75°C MINIMUM RATING.
FOR MORE THAN 3 CONDUCTORS IN A RACEWAY OR CABLE, SEE
N.E.C. FOR DERATING THE AMPACITY OF EACH CONDUCTOR.

## 3.11.5 ELECTRIC HEATER KIT IDENTIFICATION LABEL

Mark the appropriate box on the Electric Heater Kit Identification Label (See Figure 8 below) located on the air-handler cabinet for the benefit and safety of future service technicians.

**FIGURE 8**

**SUITABLE FOR USE WITH HEATERS KITS**

INSTALLER TO INDICATE WHICH HEATER IF ANY HAS BEEN INSTALLED. REFERENCE HEATER KIT RATING PLATE FOR BRANCH CIRCUIT DATA IF OPTIONAL HEATER KIT IS INSTALLED.

NO SUPPLEMENTARY ELECTRIC HEAT INSTALLED ☐
RXHE-DE020CA ☐
RXHE-DE030CA ☐
RXHE-DE020DA ☐
RXHE-DE030DA ☐
RXHE-CE030CC ☐
RXHE-CE040CC ☐
RXHE-CE030DC ☐
RXHE-CE040DC ☐

## 3.11.6 CONTROL WIRING

IMPORTANT: Class 2 low voltage control wire should not be run in conduit with power wiring and must be separated from power wiring unless class 1 wire of proper voltage rating is used. After installation, confirm separation of control and power wiring has been maintained. Low voltage control wiring must be 18 awg and color coded. For lengths longer than 100 ft., refer to Table 1 below for the correct control wire sizing.

**TABLE 1**

**FIELD WIRE SIZE FOR 24 VOLT THERMOSTAT CIRCUITS**

| Thermostat Load - Amps | SOLID COPPER WIRE - AWG. | | | | | |
|---|---|---|---|---|---|---|
| 3.0 | 16 | 14 | 12 | 10 | 10 | 10 |
| 2.5 | 16 | 14 | 12 | 12 | 10 | 10 |
| 2.0 | 18 | 16 | 14 | 12 | 12 | 10 |
| | 50 | 100 | 150 | 200 | 250 | 300 |
| | Length of Run - Feet (1) | | | | | |

(1) Wire length equals twice the run distance.

NOTE: Do not use control wiring smaller than No. 18 AWG between thermostat and outdoor unit.

### 3.11.6.1 NO-HEAT APPLICATIONS

The appropriate thermostat control wires (C, G, Y2) must also be connected to the low voltage terminal block (TB2) located on the outside of the air-handler control box. Knockouts are provided on each side of the air-handler for connecting low voltage conduit or plastic bushing. Refer to the wiring connection diagrams in Section 3.11.8 for typical wiring connections for non-electric heat applications.

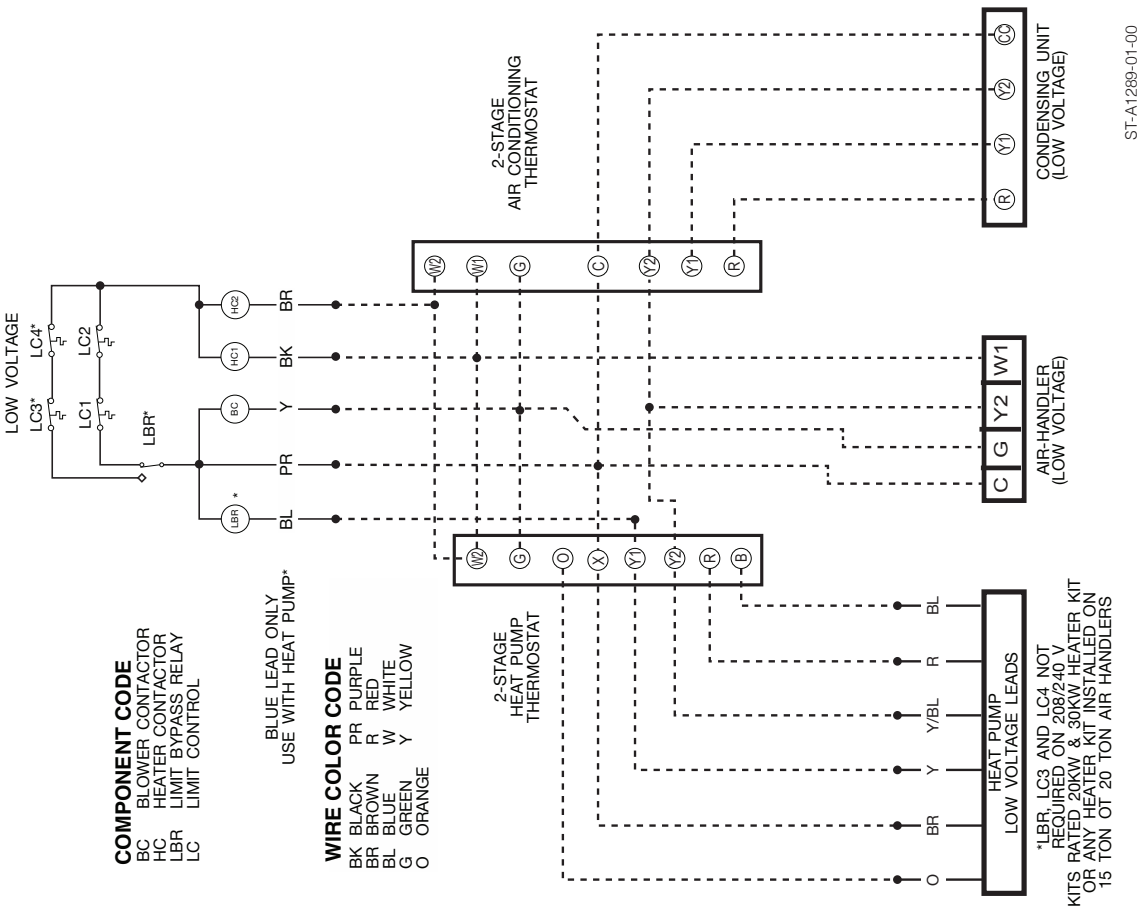
### 3.11.6.2 ELECTRIC HEAT APPLICATIONS

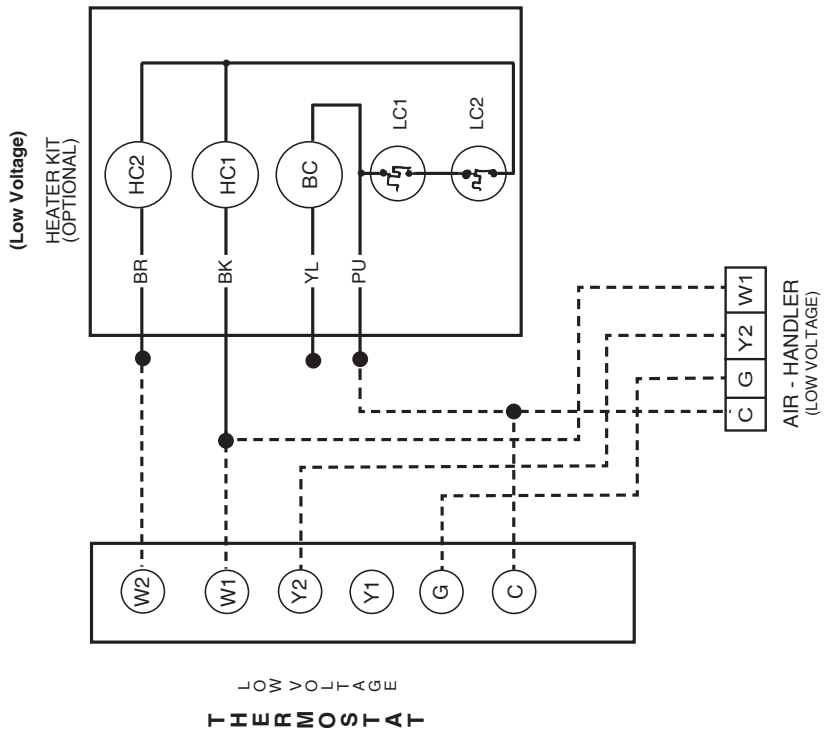
The appropriate thermostat control wires must be connected to the thermostat pigtails on the heater kit and to the C, G, Y2, and W1 terminals on the low voltage terminal block located on the outside of the air handler control box. Refer to the wiring connection diagrams in Section 3.11.8 for typical wiring connections for electric heat applications.

### 3.11.6.3 CONFIGURING OUTDOOR UNIT TRANSFORMER FOR 208V APPLICATIONS

For 208V applications, the control transformer in the outdoor unit will need to be re-configured to assure adequate secondary control voltage (24V). Refer to the outdoor unit installation manual, wiring diagram, and/or the transformer label for reconfiguring the transformer for 208V applications.

## 3.11.8 WIRING CONNECTION DIAGRAMS




** IMPORTANT NOTE ABOUT OPTIONAL HEATER KIT:
(SEE ATTACHED TEXT)

NOTE:
INDOOR BLOWER MOTOR OPERATES AT FULL SPEED FOR 2ND STAGE COOLING AND FOR BOTH STAGES OF ELECTRIC HEAT.

## 3.12 AIR-FLOW

The air-handler is equipped with a Variable Frequency Drive (VFD) that provides a reduction in air-flow in the continuous fan mode, 1st stage cooling mode, and 1st stage heat pump heating mode.

Full air-flow is delivered for the 2nd stage of cooling mode, 2nd stage of heat pump heating mode, and all stages of electric heat. The VFD output frequency and air-flow level is based on the 24VAC thermostat inputs. Energizing the G low voltage terminal located on the air-handler low voltage terminal block causes the VFD to operate at 37.5 Hz (63% of full air-flow). Energizing the Y2 or W1 terminals on the low voltage terminal block causes the VFD to operate at 60Hz (full air-flow). The VFD is programmed at the factory for optimum performance and therefore requires no adjustment when air-handler is installed.

The blower performance charts in Section 3.12.2 is based on a dry coil with the factory 1" fiberglass filters in place and the VFD operating at 60Hz (100%). A component resistance chart is provided in Section 3.12.3 to provide the pressure drop for the various accessories that will need to be added to the external static pressure of the duct system before selecting a drive package and motor sheave setting. Keep in mind that high efficiency pleated filters will likely have more pressure drop than the factory filters, so that additional pressure drop will also need to be taken into account. Refer to the filter manufacturer's pressure drop data for more information.

### 3.12.1 DRIVE PACKAGE DATA

**(-)HCLA2090 & (-)HCLP2090 Drive Package Data (2nd Stage Operation)**

| | Sheave Selection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive | Motor | | Blower | | Belt | Motor | Aproximate Blower Rpm @ Moter Sheave Turns Open | | | | | |
| | Part No. | Dia | Part No. | Dia | | HP/[KW] | 0 | 1 | 2 | 3 | 4 | 5 |
| R | 1VP50 | 4.75 | AK104 | 10.25 | A50 | 2 [1491.4] | 801 | 768 | 732 | 696 | 662 | 627 |
| S | 1VL-44 | 4.15 | AK71H | 6.95 | A44 | 2 [1491.4] | 998 | 955 | 911 | 865 | 819 | 773 |
| T | 1VL-44 | 4.15 | AK59 | 5.75 | A42 | 3 [2237.1] | 1220 | 1164 | 1109 | 1049 | 990 | 926 |
| U | 1VP-65 | 6.5 | AK79 | 7.75 | A48 | 3 [2237.1] | 1322 | 1280 | 1240 | 1197 | 1153 | 1109 |

**(-)HCLP2120 Drive Package Data (2nd Stage Operation)**

| | Sheave Selection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive | Motor | | Blower | | Belt | Motor | Aproximate Blower Rpm @ Moter Sheave Turns Open | | | | | |
| | Part No. | Dia | Part No. | Dia | | HP/[KW] | 0 | 1 | 2 | 3 | 4 | 5 |
| Q | IVP50 | 4.75 | AK104 | 10.25 | A50 | 2 [1491.4] | 796 | 764 | 731 | 698 | 664 | 630 |
| R | IVP56 | 5.35 | AK104 | 10.25 | A52 | 2 [1491.4] | 903 | 870 | 835 | 802 | 796 | 735 |
| S | IVP44 | 4.15 | AK71 | 6.95 | A44 | 3 [2237.1] | 1013 | 963 | 917 | 869 | 821 | 771 |
| T | IVP65 | 6.5 | AK84 | 8.25 | A49 | 3 [2237.1] | 1251 | 1211 | 1172 | 1129 | 1087 | 1044 |

**(-)HCLA2120 Drive Package Data (2nd Stage Operation)**

| | Sheave Selection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive | Motor | | Blower | | Belt | Motor | Aproximate Blower Rpm @ Moter Sheave Turns Open | | | | | |
| | Part No. | Dia | Part No. | Dia | | HP/[KW] | 0 | 1 | 2 | 3 | 4 | 5 |
| Q | IVP50 | 4.75 | AK104 | 10.25 | A50 | 2 [1491.4] | 801 | 768 | 732 | 696 | 662 | 627 |
| R | IVP50 | 4.75 | AK84 | 8.25 | A47 | 2 [1491.4] | 970 | 935 | 896 | 856 | 815 | 775 |
| S | IVP44 | 4.15 | AK59 | 5.75 | A42 | 3 [2237.1] | 1220 | 1164 | 1109 | 1049 | 990 | 926 |
| T | IVP65 | 6.5 | AK79 | 7.75 | A48 | 3 [2237.1] | 1322 | 1280 | 1240 | 1197 | 1153 | 1109 |

**(-)HCLA2150 Drive Package Data (2nd Stage Operation)**

| | Sheave Selection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive | Motor | | Blower | | Belt | Motor | Aproximate Blower Rpm @ Moter Sheave Turns Open | | | | | |
| | Part No. | Dia | Part No. | Dia | | HP/[KW] | 0 | 1 | 2 | 3 | 4 | 5 |
| R | 1VL44 7/8 | 4.15 | BK120SP 1.0" | 11.75 | B52 | 2 [1491.4] | 650 | 630 | 606 | 579 | 551 | 522 |
| S | IVL50 7/8 | 4.75 | BK120SP 1.0" | 11.75 | B52 | 3 [2237.1] | 746 | 723 | 699 | 670 | 644 | 617 |
| T | 1VP50 1 1/8 | 4.75 | BK100SP | 9.75 | B46 | 5 [2237.1] | 877 | 840 | 840 | 766 | 803 | 694 |

## 3.12.1 DRIVE PACKAGE DATA (Cont.)

### (-)HCLA2180 Drive Package Data (2nd Stage Operation)

| | Sheave Selection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive | Motor | | Blower | | Belt | Motor | Aproximate Blower Rpm @ Moter Sheave Turns Open | | | | | |
| | Part No. | Dia | Part No. | Dia | | HP/[KW] | 0 | 1 | 2 | 3 | 4 | 5 |
| R | 1VL44 7/8" | 4.15 | BK120SP 1.0" | 11.75 | B52 | 2 [1491.4] | 654 | 632 | 609 | 581 | 555 | 527 |
| S | IVL50 7/8" | 4.75 | BK120SP 1.0" | 11.75 | B52 | 3 [2237.1] | 751 | 729 | 705 | 678 | 650 | 622 |
| T | 1VP50 1-1/8" | 4.75 | BK100SP | 9.75 | A45 | 5 [2237.1] | 903 | 874 | 840 | 804 | 768 | 731 |

### (-)HCLA2240 Drive Package Data (2nd Stage Operation)

| | Sheave Selection | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drive | Motor | | Blower | | Belt | Motor | Aproximate Blower Rpm @ Moter Sheave Turns Open | | | | | |
| | Part No. | Dia | Part No. | Dia | | HP/[KW] | 0 | 1 | 2 | 3 | 4 | 5 |
| R | 1VP56 1-1/8" | 5.35 | BK120SP 1.0" | 11.75 | B50 | 5 [1491.4] | 832 | 805 | 776 | 745 | 715 | 684 |
| S | 2VL60 1-3/8 | 6 | 2BK110 2SS 1.0" | 10.75 | B48 | 7.5 [2237.1] | 970 | 939 | 906 | 874 | 840 | 809 |
| T | 2VL60 1-3/8 | 6 | 2BK100 2SS 1.0" | 10.75 | B46 | 7.5 [2237.1] | 1063 | 1032 | 997 | 963 | 927 | 892 |

# AIRFLOW PERFORMANCE — 7.5 TON [26.4kW] — 60 Hz — SIDEFLOW

| Air Flow CFM [L/s] | Model: (-)HCLA2090 & (-)HCLP2090 Voltage 208/230, 460 — 3 phase 60 Hz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | External Static Pressure — Inches of Water [kPa] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.1 [.02] | | 0.2 [.05] | | 0.3 [.07] | | 0.4 [.10] | | 0.5 [.12] | | 0.6 [.15] | | 0.7 [.17] | | 0.8 [.20] | | 0.9 [.22] | | 1.0 [.25] | | 1.1 [.27] | | 1.2 [.30] | | 1.3 [.32] | | 1.4 [.35] | | 1.5 [.37] | | 1.6 [.40] | | 1.7 [.42] | | 1.8 [.45] | | 1.9 [.47] | | 2.0 [.50] | |
| | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W |
| 2400 [1133] | — | — | 626 | 590 | 673 | 644 | 720 | 696 | 767 | 745 | 803 | 792 | 843 | 854 | 883 | 915 | 921 | 976 | 959 | 1036 | 995 | 1095 | 1004 | 1103 | 1035 | 1157 | 1066 | 1212 | 1096 | 1268 | 1126 | 1327 | 1156 | 1387 | 1185 | 1449 | 1214 | 1513 | 1237 | 1497 |
| 2500 [1180] | — | — | 641 | 634 | 688 | 688 | 734 | 741 | 780 | 790 | 815 | 835 | 855 | 898 | 893 | 961 | 931 | 1023 | 968 | 1084 | 1004 | 1145 | 1013 | 1162 | 1044 | 1219 | 1075 | 1277 | 1105 | 1337 | 1135 | 1399 | 1164 | 1463 | 1193 | 1528 | 1222 | 1595 | 1246 | 1582 |
| 2600 [1227] | — | — | 657 | 680 | 703 | 736 | 748 | 788 | 793 | 838 | 828 | 883 | 867 | 948 | 904 | 1012 | 941 | 1075 | 977 | 1138 | 1012 | 1200 | 1023 | 1226 | 1054 | 1286 | 1084 | 1347 | 1114 | 1411 | 1144 | 1476 | 1173 | 1542 | 1202 | 1611 | 1230 | 1681 | 1256 | 1672 |
| 2700 [1274] | 628 | 671 | 673 | 730 | 718 | 786 | 763 | 839 | 806 | 890 | 840 | 936 | 878 | 1003 | 915 | 1068 | 951 | 1133 | 987 | 1197 | 1001 | 1233 | 1033 | 1294 | 1063 | 1357 | 1094 | 1422 | 1124 | 1489 | 1153 | 1557 | 1182 | 1627 | 1210 | 1699 | 1242 | 1717 | 1266 | 1767 |
| 2800 [1321] | 645 | 724 | 690 | 783 | 734 | 839 | 778 | 893 | 815 | 926 | 853 | 995 | 890 | 1063 | 927 | 1130 | 962 | 1196 | 996 | 1261 | 1012 | 1302 | 1043 | 1367 | 1073 | 1433 | 1103 | 1501 | 1133 | 1571 | 1162 | 1643 | 1191 | 1716 | 1219 | 1791 | 1252 | 1814 | 1276 | 1867 |
| 2900 [1368] | 663 | 779 | 707 | 839 | 750 | 896 | 793 | 951 | 829 | 989 | 866 | 1059 | 903 | 1128 | 938 | 1196 | 973 | 1264 | 1006 | 1331 | 1022 | 1376 | 1053 | 1444 | 1083 | 1514 | 1113 | 1585 | 1142 | 1658 | 1172 | 1733 | 1200 | 1810 | 1228 | 1888 | 1262 | 1914 | 1286 | 1970 |
| 3000 [1416] | 682 | 838 | 725 | 898 | 767 | 956 | 806 | 985 | 843 | 1057 | 879 | 1128 | 915 | 1199 | 950 | 1269 | 983 | 1338 | 1016 | 1406 | 1032 | 1455 | 1063 | 1526 | 1093 | 1599 | 1123 | 1674 | 1152 | 1750 | 1181 | 1828 | 1209 | 1908 | 1248 | 1959 | 1272 | 2020 | 1296 | 2079 |
| 3100 [1463] | 701 | 900 | 743 | 961 | 784 | 1019 | 820 | 1056 | 857 | 1130 | 893 | 1203 | 928 | 1275 | 961 | 1346 | 994 | 1416 | 1012 | 1466 | 1043 | 1539 | 1074 | 1613 | 1104 | 1689 | 1133 | 1767 | 1162 | 1847 | 1191 | 1928 | 1219 | 2011 | 1258 | 2066 | 1282 | 2130 | 1306 | 2192 |
| 3200 [1510] | 720 | 965 | 761 | 1026 | 802 | 1085 | 836 | 1133 | 871 | 1208 | 906 | 1283 | 940 | 1356 | 973 | 1429 | 1005 | 1500 | 1023 | 1551 | 1054 | 1627 | 1084 | 1705 | 1114 | 1784 | 1143 | 1865 | 1172 | 1948 | 1201 | 2033 | 1229 | 2119 | 1268 | 2177 | 1293 | 2244 | 1316 | 2310 |
| 3300 [1557] | 740 | 1033 | 780 | 1095 | 815 | 1139 | 851 | 1216 | 886 | 1292 | 920 | 1368 | 953 | 1442 | 985 | 1516 | 1017 | 1590 | 1035 | 1640 | 1065 | 1720 | 1095 | 1801 | 1125 | 1883 | 1154 | 1968 | 1182 | 2054 | 1211 | 2142 | 1254 | 2222 | 1279 | 2293 | 1303 | 2363 | 1326 | 2432 |
| 3400 [1604] | 760 | 1104 | 799 | 1167 | 831 | 1225 | 866 | 1303 | 900 | 1381 | 934 | 1458 | 966 | 1534 | 998 | 1610 | 1015 | 1654 | 1046 | 1735 | 1076 | 1817 | 1106 | 1901 | 1135 | 1987 | 1164 | 2075 | 1193 | 2164 | 1221 | 2255 | 1265 | 2339 | 1290 | 2413 | 1314 | 2487 | — | — |
| 3500 [1652] | 781 | 1179 | 812 | 1236 | 847 | 1316 | 882 | 1396 | 915 | 1475 | 948 | 1554 | 979 | 1631 | 1010 | 1708 | 1027 | 1749 | 1057 | 1833 | 1088 | 1919 | 1117 | 2006 | 1146 | 2096 | 1175 | 2187 | 1203 | 2279 | 1250 | 2382 | 1276 | 2461 | 1300 | 2538 | 1324 | 2615 | — | — |
| 4000 [1888] | 868 | 1677 | 900 | 1766 | 931 | 1853 | 962 | 1940 | 991 | 2026 | 997 | 2006 | 1028 | 2101 | 1058 | 2198 | 1088 | 2296 | 1118 | 2397 | 1147 | 2499 | 1175 | 2602 | 1204 | 2708 | 1186 | 2303 | 1214 | 2399 | 1261 | 2505 | 1287 | 2587 | 1311 | 2668 | — | — | — | — |

| Airflow CFM [L/s] | AIRFLOW CORRECTION FACTORS * | | | COMPONENT AIRFLOW RESISTANCE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Wet Coil | Downflow | Downflow | Horizontal | Concentric Grill | Concentric Grill | Concentric Grill |
| | Total MBH | Sensible MBH | Power kW | Resistance — Inches of Water [kPa] | | | | | | |
| 2400 [1133] | 0.93 | 0.73 | 0.96 | 0.04 [.01] | 0.00 [.00] | 0.05 [.01] | 0.03 [.01] | — | — | — |
| 2500 [1180] | 0.93 | 0.74 | 0.96 | 0.05 [.01] | 0.00 [.00] | 0.06 [.01] | 0.03 [.01] | — | — | — |
| 2600 [1227] | 0.94 | 0.76 | 0.97 | 0.05 [.01] | 0.00 [.00] | 0.06 [.01] | 0.04 [.01] | 0.17 [.04] | — | — |
| 2700 [1274] | 0.94 | 0.78 | 0.97 | 0.05 [.01] | 0.00 [.00] | 0.07 [.02] | 0.04 [.01] | 0.19 [.05] | — | — |
| 2800 [1321] | 0.95 | 0.80 | 0.97 | 0.05 [.01] | 0.00 [.00] | 0.07 [.02] | 0.04 [.01] | 0.21 [.05] | — | — |
| 2900 [1368] | 0.95 | 0.81 | 0.97 | 0.06 [.01] | 0.00 [.00] | 0.08 [.02] | 0.04 [.01] | 0.23 [.06] | — | — |
| 3000 [1416] | 0.95 | 0.83 | 0.98 | 0.06 [.01] | 0.00 [.00] | 0.08 [.02] | 0.05 [.01] | 0.25 [.06] | — | — |
| 3100 [1463] | 0.96 | 0.85 | 0.98 | 0.06 [.01] | 0.00 [.00] | 0.09 [.02] | 0.05 [.01] | 0.28 [.07] | — | — |
| 3200 [1510] | 0.96 | 0.87 | 0.98 | 0.06 [.01] | 0.00 [.00] | 0.09 [.02] | 0.05 [.01] | 0.31 [.08] | — | — |
| 3300 [1557] | 0.97 | 0.88 | 0.99 | 0.07 [.02] | 0.00 [.00] | 0.10 [.02] | 0.05 [.01] | 0.34 [.08] | — | — |
| 3400 [1604] | 0.97 | 0.90 | 0.99 | 0.07 [.02] | 0.00 [.00] | 0.10 [.02] | 0.06 [.01] | 0.37 [.09] | — | — |
| 3500 [1652] | 0.98 | 0.92 | 0.99 | 0.07 [.02] | 0.00 [.00] | 0.11 [.03] | 0.06 [.01] | — | — | — |
| 3600 [1699] | 0.98 | 0.93 | 0.99 | 0.08 [.02] | 0.00 [.00] | 0.11 [.03] | 0.06 [.01] | — | 0.16 [.04] | — |
| 3700 [1746] | 0.99 | 0.95 | 1.00 | 0.08 [.02] | 0.00 [.00] | 0.12 [.03] | 0.06 [.01] | — | 0.18 [.04] | — |
| 3800 [1793] | 0.99 | 0.97 | 1.00 | 0.08 [.02] | 0.00 [.00] | 0.12 [.03] | 0.07 [.02] | — | 0.19 [.05] | — |
| 3900 [1840] | 1.00 | 0.99 | 1.00 | 0.08 [.02] | 0.00 [.00] | 0.13 [.03] | 0.07 [.02] | — | 0.20 [.05] | — |
| 4000 [1888] | 1.00 | 1.00 | 1.01 | 0.09 [.02] | 0.00 [.00] | 0.13 [.03] | 0.07 [.02] | — | 0.21 [.05] | — |

* Multiply correction factor times gross performance data — resulting sensible capacity cannot exceed total capacity.

[ ] Designates Metric Conversions

# AIRFLOW PERFORMANCE — 10 TON [35.1kW] — 60 Hz — SIDEFLOW

Model: (-)HCLP2120 Voltage 208/230, 460 — 3 phase 60 Hz

| Air Flow CFM [L/s] | External Static Pressure — Inches of Water [kPa] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 [.02] | | 0.2 [.05] | | 0.3 [.07] | | 0.4 [.10] | | 0.5 [.12] | | 0.6 [.15] | | 0.7 [.17] | | 0.8 [.20] | | 0.9 [.22] | | 1.0 [.25] | | 1.1 [.27] | | 1.2 [.30] | | 1.3 [.32] | | 1.4 [.35] | | 1.5 [.37] | | 1.6 [.40] | | 1.7 [.42] | | 1.8 [.45] | | 1.9 [.47] | | 2.0 [.50] | |
| | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W |
| 3200 [1510] | — | — | 670 | 794 | 712 | 853 | 753 | 919 | 791 | 993 | 824 | 998 | 860 | 1058 | 896 | 1122 | 935 | 1306 | 973 | 1392 | 1011 | 1485 | 1028 | 1437 | 1059 | 1502 | 1090 | 1568 | 1119 | 1633 | 1147 | 1697 | 1174 | 1761 | 1200 | 1824 | — | — | — | — |
| 3300 [1557] | 641 | 789 | 684 | 845 | 725 | 908 | 764 | 979 | 799 | 998 | 835 | 1058 | 871 | 1121 | 906 | 1189 | 945 | 1377 | 983 | 1468 | 1021 | 1565 | 1037 | 1510 | 1068 | 1577 | 1098 | 1645 | 1127 | 1712 | 1155 | 1778 | 1181 | 1844 | 1207 | 1910 | — | — | — | — |
| 3400 [1604] | 655 | 839 | 698 | 899 | 738 | 967 | 776 | 1041 | 810 | 1058 | 846 | 1121 | 882 | 1188 | 918 | 1365 | 955 | 1454 | 993 | 1548 | 1015 | 1516 | 1047 | 1587 | 1077 | 1657 | 1107 | 1726 | 1135 | 1795 | 1162 | 1864 | 1189 | 1932 | 1214 | 2000 | — | — | — | — |
| 3500 [1652] | 670 | 893 | 712 | 957 | 751 | 1029 | 789 | 1108 | 822 | 1121 | 858 | 1188 | 893 | 1258 | 929 | 1442 | 966 | 1535 | 1004 | 1634 | 1026 | 1595 | 1057 | 1668 | 1087 | 1740 | 1116 | 1812 | 1144 | 1883 | 1170 | 1954 | 1196 | 2024 | — | — | — | — | — | — |
| 3600 [1699] | 686 | 951 | 726 | 1019 | 764 | 1094 | 801 | 1177 | 834 | 1188 | 869 | 1258 | 904 | 1333 | 940 | 1524 | 977 | 1621 | 1015 | 1724 | 1036 | 1679 | 1067 | 1753 | 1096 | 1828 | 1125 | 1901 | 1152 | 1975 | 1178 | 2047 | 1204 | 2120 | — | — | — | — | — | — |
| 3700 [1746] | 701 | 1011 | 740 | 1084 | 777 | 1163 | 811 | 1190 | 846 | 1259 | 881 | 1333 | 916 | 1516 | 952 | 1610 | 989 | 1711 | 1016 | 1689 | 1047 | 1766 | 1077 | 1843 | 1106 | 1919 | 1134 | 1995 | 1161 | 2071 | 1187 | 2145 | 1211 | 2220 | — | — | — | — | — | — |
| 3800 [1793] | 716 | 1076 | 754 | 1152 | 791 | 1236 | 824 | 1261 | 859 | 1333 | 893 | 1410 | 928 | 1603 | 964 | 1702 | 1001 | 1807 | 1027 | 1779 | 1058 | 1858 | 1088 | 1937 | 1116 | 2015 | 1143 | 2093 | 1170 | 2171 | 1195 | 2248 | — | — | — | — | — | — | — | — |
| 3900 [1840] | 732 | 1143 | 769 | 1224 | 802 | 1263 | 837 | 1335 | 872 | 1412 | 906 | 1492 | 940 | 1695 | 977 | 1798 | 1013 | 1907 | 1039 | 1873 | 1069 | 1954 | 1098 | 2035 | 1126 | 2115 | 1153 | 2195 | 1179 | 2275 | 1203 | 2354 | — | — | — | — | — | — | — | — |
| 4000 [1888] | 747 | 1215 | 784 | 1299 | 816 | 1338 | 850 | 1414 | 885 | 1493 | 918 | 1691 | 953 | 1792 | 989 | 1899 | 1020 | 1887 | 1051 | 1970 | 1080 | 2054 | 1109 | 2137 | 1136 | 2219 | 1163 | 2302 | 1188 | 2383 | 1212 | 2464 | — | — | — | — | — | — | — | — |
| 4100 [1935] | 763 | 1289 | 799 | 1378 | 830 | 1417 | 864 | 1496 | 898 | 1579 | 931 | 1788 | 967 | 1894 | 1003 | 2005 | 1032 | 1986 | 1062 | 2072 | 1092 | 2158 | 1120 | 2243 | 1147 | 2328 | 1172 | 2412 | 1197 | 2496 | — | — | — | — | — | — | — | — | — | — |
| 4200 [1982] | 779 | 1367 | 810 | 1420 | 844 | 1499 | 878 | 1581 | 912 | 1668 | 945 | 1891 | 980 | 2000 | 1016 | 2116 | 1045 | 2091 | 1074 | 2179 | 1103 | 2266 | 1131 | 2354 | 1157 | 2440 | 1182 | 2527 | 1207 | 2612 | — | — | — | — | — | — | — | — | — | — |
| 4300 [2029] | 795 | 1449 | 825 | 1503 | 859 | 1584 | 892 | 1670 | 924 | 1891 | 959 | 1998 | 994 | 2111 | 1027 | 2108 | 1057 | 2199 | 1087 | 2289 | 1115 | 2379 | 1142 | 2468 | 1168 | 2557 | 1192 | 2645 | 1216 | 2733 | — | — | — | — | — | — | — | — | — | — |
| 4400 [2076] | 806 | 1508 | 840 | 1589 | 874 | 1674 | 907 | 1763 | 939 | 1999 | 974 | 2110 | 1009 | 2228 | 1040 | 2219 | 1070 | 2311 | 1099 | 2404 | 1126 | 2495 | 1153 | 2587 | 1178 | 2678 | 1203 | 2768 | — | — | — | — | — | — | — | — | — | — | — | — |
| 4500 [2123] | 821 | 1594 | 855 | 1678 | 889 | 1767 | 920 | 2002 | 954 | 2112 | 989 | 2227 | 1024 | 2349 | 1054 | 2333 | 1083 | 2428 | 1111 | 2522 | 1138 | 2616 | 1164 | 2710 | 1189 | 2803 | 1213 | 2895 | — | — | — | — | — | — | — | — | — | — | — | — |
| 4600 [2171] | 838 | 1683 | 871 | 1771 | 904 | 1864 | 936 | 2116 | 970 | 2229 | 1004 | 2349 | 1038 | 2354 | 1067 | 2452 | 1096 | 2549 | 1124 | 2645 | 1150 | 2741 | 1176 | 2837 | 1200 | 2932 | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 4700 [2218] | 854 | 1777 | 887 | 1868 | 918 | 2123 | 951 | 2234 | 985 | 2351 | 1020 | 2475 | 1052 | 2475 | 1081 | 2575 | 1109 | 2674 | 1137 | 2772 | 1163 | 2870 | 1188 | 2968 | 1212 | 3065 | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 4800 [2265] | 871 | 1874 | 904 | 1969 | 935 | 2242 | 968 | 2357 | 1001 | 2479 | 1036 | 2498 | 1066 | 2600 | 1095 | 2702 | 1123 | 2803 | 1150 | 2903 | 1175 | 3004 | 1200 | 3103 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

# AIRFLOW CORRECTION FACTORS *

| Airflow CFM [L/s] | Total MBH | Sensible MBH | Power kW |
|---|---|---|---|
| 3200 [1510] | 0.96 | 0.87 | 0.98 |
| 3300 [1557] | 0.97 | 0.88 | 0.99 |
| 3400 [1604] | 0.97 | 0.90 | 0.99 |
| 3500 [1652] | 0.98 | 0.92 | 0.99 |
| 3600 [1699] | 0.98 | 0.93 | 0.99 |
| 3700 [1746] | 0.99 | 0.95 | 1.00 |
| 3800 [1793] | 0.99 | 0.97 | 1.00 |
| 3900 [1840] | 1.00 | 0.99 | 1.00 |
| 4000 [1888] | 1.00 | 1.00 | 1.01 |
| 4100 [1935] | 1.00 | 1.02 | 1.01 |
| 4200 [1982] | 1.01 | 1.04 | 1.01 |
| 4300 [2029] | 1.01 | 1.06 | 1.01 |
| 4400 [2076] | 1.02 | 1.07 | 1.02 |
| 4500 [2123] | 1.02 | 1.09 | 1.02 |
| 4600 [2171] | 1.03 | 1.11 | 1.02 |
| 4700 [2218] | 1.03 | 1.12 | 1.03 |
| 4800 [2265] | 1.04 | 1.14 | 1.03 |

# COMPONENT AIRFLOW RESISTANCE

| Airflow CFM [L/s] | Wet Coil | Downflow | Downflow Economizer RA Damper Open | Horizontal Economizer RA Damper Open | Concentric Grill RXRN-FA65 or RXRN-FA75 & Transition RXMC-CD04 | Concentric Grill RXRN-AA61 or RXRN-AA71 & Transition RXMC-CE05 | Concentric Grill RXRN-AA66 or RXRN-AA76 & Transition RXMC-CF06 |
|---|---|---|---|---|---|---|---|
| | Resistance — Inches of Water [kPa] | | | | | | |
| 3200 [1510] | 0.06 [.01] | 0.00 [.00] | 0.09 [.02] | 0.05 [.01] | 0.31 [.08] | — | — |
| 3300 [1557] | 0.07 [.02] | 0.00 [.00] | 0.10 [.02] | 0.05 [.01] | 0.34 [.08] | — | — |
| 3400 [1604] | 0.07 [.02] | 0.00 [.00] | 0.10 [.02] | 0.06 [.01] | 0.37 [.09] | — | — |
| 3500 [1652] | 0.07 [.02] | 0.00 [.00] | 0.11 [.03] | 0.06 [.01] | — | — | — |
| 3600 [1699] | 0.08 [.02] | 0.00 [.00] | 0.11 [.03] | 0.06 [.01] | — | 0.16 [.04] | — |
| 3700 [1746] | 0.08 [.02] | 0.00 [.00] | 0.12 [.03] | 0.06 [.01] | — | 0.18 [.04] | — |
| 3800 [1793] | 0.08 [.02] | 0.00 [.00] | 0.12 [.03] | 0.07 [.02] | — | 0.19 [.05] | — |
| 3900 [1840] | 0.08 [.02] | 0.00 [.00] | 0.13 [.03] | 0.07 [.02] | — | 0.20 [.05] | — |
| 4000 [1888] | 0.09 [.02] | 0.00 [.00] | 0.13 [.03] | 0.07 [.02] | — | 0.21 [.05] | — |
| 4100 [1935] | 0.09 [.02] | 0.00 [.00] | 0.14 [.03] | 0.07 [.02] | — | 0.23 [.06] | — |
| 4200 [1982] | 0.09 [.02] | 0.00 [.00] | 0.14 [.03] | 0.08 [.02] | — | 0.24 [.06] | — |
| 4300 [2029] | 0.10 [.02] | 0.00 [.00] | 0.15 [.04] | 0.08 [.02] | — | 0.25 [.06] | — |
| 4400 [2076] | 0.10 [.02] | 0.00 [.00] | 0.15 [.04] | 0.08 [.02] | — | 0.27 [.07] | — |
| 4500 [2123] | 0.10 [.02] | 0.00 [.00] | 0.16 [.04] | 0.09 [.02] | — | — | — |
| 4600 [2171] | 0.10 [.02] | 0.00 [.00] | 0.16 [.04] | 0.09 [.02] | — | — | 0.30 [.07] |
| 4700 [2218] | 0.11 [.03] | 0.00 [.00] | 0.17 [.04] | 0.09 [.02] | — | — | 0.31 [.08] |
| 4800 [2265] | 0.11 [.03] | 0.00 [.00] | 0.17 [.04] | 0.10 [.02] | — | — | 0.32 [.08] |

* Multiply correction factor times gross performance data — resulting sensible capacity cannot exceed total capacity.

[ ] Designates Metric Conversions

# AIRFLOW PERFORMANCE — 10 TON [35.1kW] — 60 Hz — SIDEFLOW

**Model (-)HCLA2120 Voltage 208/230, 460— 3 phase 60 Hz**

| Air Flow CFM [L/s] | External Static Pressure — Inches of Water [kPa] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 [.02] | | 0.2 [.05] | | 0.3 [.07] | | 0.4 [.10] | | 0.5 [.12] | | 0.6 [.15] | | 0.7 [.17] | | 0.8 [.20] | | 0.9 [.22] | | 1.0 [.25] | | 1.1 [.27] | | 1.2 [.30] | | 1.3 [.32] | | 1.4 [.35] | | 1.5 [.37] | | 1.6 [.40] | | 1.7 [.42] | | 1.8 [.45] | | 1.9 [.47] | | 2.0 [.50] | |
| | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W |
| 2400 [1133] | 646 | 724 | 691 | 782 | 735 | 838 | 778 | 869 | 817 | 928 | 805 | 793 | 846 | 845 | 886 | 901 | 925 | 961 | 963 | 1025 | 972 | 1056 | 1005 | 1105 | 1037 | 1157 | 1069 | 1211 | 1100 | 1268 | 1131 | 1326 | 1162 | 1387 | 1192 | 1451 | 1221 | 1516 | 1238 | 1511 |
| 2500 [1180] | 664 | 778 | 708 | 836 | 751 | 895 | 792 | 925 | 776 | 782 | 817 | 834 | 857 | 890 | 897 | 950 | 935 | 1014 | 972 | 1082 | 982 | 1111 | 1014 | 1164 | 1046 | 1219 | 1077 | 1276 | 1109 | 1336 | 1139 | 1398 | 1170 | 1463 | 1199 | 1530 | 1229 | 1599 | 1248 | 1591 |
| 2600 [1227] | 683 | 834 | 726 | 895 | 768 | 955 | 807 | 988 | 790 | 825 | 830 | 881 | 869 | 940 | 908 | 1005 | 945 | 1073 | 982 | 1145 | 991 | 1170 | 1023 | 1226 | 1055 | 1285 | 1086 | 1346 | 1117 | 1410 | 1148 | 1475 | 1178 | 1543 | 1207 | 1614 | 1233 | 1633 | 1257 | 1678 |
| 2700 [1274] | 702 | 895 | 744 | 957 | 785 | 989 | 822 | 1057 | 803 | 874 | 843 | 933 | 881 | 997 | 919 | 1066 | 955 | 1138 | 969 | 1177 | 1001 | 1234 | 1033 | 1294 | 1064 | 1356 | 1095 | 1421 | 1126 | 1488 | 1156 | 1557 | 1186 | 1628 | 1215 | 1702 | 1242 | 1721 | 1266 | 1769 |
| 2800 [1321] | 721 | 958 | 762 | 1022 | 801 | 1060 | 778 | 869 | 817 | 928 | 855 | 992 | 893 | 1060 | 930 | 1133 | 966 | 1209 | 979 | 1242 | 1011 | 1303 | 1043 | 1366 | 1074 | 1432 | 1105 | 1500 | 1135 | 1570 | 1165 | 1643 | 1195 | 1718 | 1224 | 1795 | 1252 | 1814 | 1276 | 1866 |
| 2900 [1368] | 741 | 1025 | 780 | 1065 | 817 | 1137 | 792 | 925 | 831 | 989 | 869 | 1057 | 905 | 1129 | 941 | 1206 | 976 | 1286 | 990 | 1312 | 1021 | 1376 | 1053 | 1443 | 1084 | 1512 | 1114 | 1584 | 1144 | 1657 | 1174 | 1733 | 1203 | 1812 | 1237 | 1857 | 1262 | 1913 | 1286 | 1968 |
| 3000 [1416] | 761 | 1096 | 797 | 1144 | 833 | 1219 | 807 | 988 | 845 | 1056 | 882 | 1128 | 918 | 1204 | 953 | 1285 | 968 | 1321 | 1000 | 1386 | 1032 | 1454 | 1063 | 1525 | 1094 | 1597 | 1124 | 1672 | 1154 | 1749 | 1183 | 1829 | 1212 | 1911 | 1248 | 1958 | 1272 | 2017 | 1295 | 2075 |
| 3100 [1463] | 779 | 1153 | 815 | 1228 | 785 | 989 | 822 | 1057 | 859 | 1129 | 895 | 1205 | 930 | 1285 | 965 | 1370 | 980 | 1396 | 1011 | 1465 | 1042 | 1537 | 1073 | 1611 | 1104 | 1687 | 1134 | 1765 | 1163 | 1846 | 1193 | 1929 | 1221 | 2014 | 1258 | 2064 | 1282 | 2127 | 1306 | 2188 |
| 3200 [1510] | 797 | 1239 | 832 | 1319 | 801 | 1060 | 838 | 1132 | 874 | 1208 | 909 | 1288 | 943 | 1373 | 976 | 1461 | 991 | 1477 | 1022 | 1549 | 1053 | 1624 | 1084 | 1701 | 1114 | 1781 | 1144 | 1863 | 1173 | 1947 | 1202 | 2033 | 1243 | 2107 | 1268 | 2175 | 1292 | 2241 | 1316 | 2306 |
| 3300 [1557] | 816 | 1332 | 780 | 1065 | 817 | 1137 | 853 | 1213 | 888 | 1293 | 923 | 1377 | 956 | 1466 | 971 | 1488 | 1003 | 1562 | 1034 | 1638 | 1064 | 1716 | 1095 | 1797 | 1125 | 1880 | 1154 | 1965 | 1183 | 2053 | 1212 | 2143 | 1254 | 2221 | 1279 | 2292 | 1303 | 2361 | 1326 | 2430 |
| 3400 [1604] | 835 | 1431 | 797 | 1144 | 833 | 1219 | 869 | 1299 | 903 | 1384 | 937 | 1472 | 969 | 1565 | 983 | 1574 | 1014 | 1651 | 1045 | 1731 | 1076 | 1813 | 1106 | 1897 | 1136 | 1983 | 1165 | 2072 | 1194 | 2163 | 1222 | 2256 | 1265 | 2339 | 1290 | 2414 | 1314 | 2487 | — | — |
| 3500 [1652] | 779 | 1153 | 815 | 1228 | 850 | 1308 | 885 | 1392 | 918 | 1481 | 951 | 1573 | 983 | 1670 | 995 | 1665 | 1026 | 1746 | 1057 | 1829 | 1087 | 1914 | 1117 | 2001 | 1147 | 2091 | 1176 | 2184 | 1204 | 2278 | 1251 | 2384 | 1276 | 2463 | 1301 | 2541 | 1324 | 2618 | — | — |
| 3600 [1699] | 797 | 1239 | 832 | 1319 | 867 | 1403 | 901 | 1491 | 933 | 1584 | 965 | 1681 | 977 | 1679 | 1008 | 1760 | 1039 | 1845 | 1069 | 1931 | 1099 | 2020 | 1129 | 2111 | 1158 | 2204 | 1187 | 2300 | 1215 | 2398 | 1262 | 2510 | 1287 | 2593 | 1312 | 2674 | — | — | — | — |
| 3700 [1746] | 816 | 1332 | 850 | 1416 | 884 | 1504 | 917 | 1597 | 949 | 1693 | 980 | 1794 | 990 | 1775 | 1021 | 1860 | 1051 | 1948 | 1081 | 2038 | 1111 | 2130 | 1140 | 2225 | 1169 | 2322 | 1198 | 2421 | 1226 | 2522 | 1273 | 2641 | 1299 | 2727 | 1323 | 2812 | — | — | — | — |
| 3800 [1793] | 835 | 1431 | 868 | 1519 | 901 | 1611 | 933 | 1708 | 964 | 1808 | 972 | 1790 | 1003 | 1876 | 1033 | 1965 | 1064 | 2056 | 1094 | 2150 | 1123 | 2245 | 1152 | 2343 | 1181 | 2444 | 1209 | 2546 | 1259 | 2686 | 1285 | 2778 | 1310 | 2867 | — | — | — | — | — | — |
| 3900 [1840] | 854 | 1536 | 887 | 1628 | 919 | 1724 | 950 | 1825 | 980 | 1930 | 985 | 1892 | 1016 | 1982 | 1047 | 2075 | 1077 | 2169 | 1106 | 2266 | 1136 | 2365 | 1164 | 2467 | 1193 | 2570 | 1221 | 2676 | 1271 | 2825 | 1297 | 2920 | 1322 | 3012 | — | — | — | — | — | — |
| 4000 [1888] | 873 | 1647 | 905 | 1743 | 936 | 1843 | 966 | 1948 | 968 | 1908 | 999 | 2000 | 1030 | 2093 | 1060 | 2189 | 1090 | 2287 | 1119 | 2387 | 1148 | 2489 | 1177 | 2594 | 1205 | 2702 | 1257 | 2869 | 1283 | 2969 | 1309 | 3067 | — | — | — | — | — | — | — | — |

## AIRFLOW CORRECTION FACTORS *

| Airflow CFM [L/s] | Total MBH | Sensible MBH | Power kW |
|---|---|---|---|
| 2400 [1133] | 0.93 | 0.73 | 0.96 |
| 2500 [1180] | 0.93 | 0.74 | 0.96 |
| 2600 [1227] | 0.94 | 0.76 | 0.97 |
| 2700 [1274] | 0.94 | 0.78 | 0.97 |
| 2800 [1321] | 0.95 | 0.80 | 0.97 |
| 2900 [1368] | 0.95 | 0.81 | 0.97 |
| 3000 [1416] | 0.95 | 0.83 | 0.98 |
| 3100 [1463] | 0.96 | 0.85 | 0.98 |
| 3200 [1510] | 0.96 | 0.87 | 0.98 |
| 3300 [1557] | 0.97 | 0.88 | 0.99 |
| 3400 [1604] | 0.97 | 0.90 | 0.99 |
| 3500 [1652] | 0.98 | 0.92 | 0.99 |
| 3600 [1699] | 0.98 | 0.93 | 0.99 |
| 3700 [1746] | 0.99 | 0.95 | 1.00 |
| 3800 [1793] | 0.99 | 0.97 | 1.00 |
| 3900 [1840] | 1.00 | 0.99 | 1.00 |
| 4000 [1888] | 1.00 | 1.00 | 1.01 |

## COMPONENT AIRFLOW RESISTANCE

| Wet Coil | Downflow | Downflow | Horizontal | Concentric Grill | Concentric Grill | Concentric Grill |
|---|---|---|---|---|---|---|
| Resistance — Inches of Water [kPa] | | | | | | |
| 0.04 [.01] | 0.00 [.00] | 0.05 [.01] | 0.03 [.01] | — | — | — |
| 0.05 [.01] | 0.00 [.00] | 0.06 [.01] | 0.03 [.01] | — | — | — |
| 0.05 [.01] | 0.00 [.00] | 0.06 [.01] | 0.04 [.01] | 0.17 [.04] | — | — |
| 0.05 [.01] | 0.00 [.00] | 0.07 [.02] | 0.04 [.01] | 0.19 [.05] | — | — |
| 0.05 [.01] | 0.00 [.00] | 0.07 [.02] | 0.04 [.01] | 0.21 [.05] | — | — |
| 0.06 [.01] | 0.00 [.00] | 0.08 [.02] | 0.04 [.01] | 0.23 [.06] | — | — |
| 0.06 [.01] | 0.00 [.00] | 0.08 [.02] | 0.05 [.01] | 0.25 [.06] | — | — |
| 0.06 [.01] | 0.00 [.00] | 0.09 [.02] | 0.05 [.01] | 0.28 [.07] | — | — |
| 0.06 [.01] | 0.00 [.00] | 0.09 [.02] | 0.05 [.01] | 0.31 [.08] | — | — |
| 0.07 [.02] | 0.00 [.00] | 0.10 [.02] | 0.05 [.01] | 0.34 [.08] | — | — |
| 0.07 [.02] | 0.00 [.00] | 0.10 [.02] | 0.06 [.01] | 0.37 [.09] | — | — |
| 0.07 [.02] | 0.00 [.00] | 0.11 [.03] | 0.06 [.01] | — | — | — |
| 0.08 [.02] | 0.00 [.00] | 0.11 [.03] | 0.06 [.01] | — | 0.16 [.04] | — |
| 0.08 [.02] | 0.00 [.00] | 0.12 [.03] | 0.06 [.01] | — | 0.18 [.04] | — |
| 0.08 [.02] | 0.00 [.00] | 0.12 [.03] | 0.07 [.02] | — | 0.19 [.05] | — |
| 0.08 [.02] | 0.00 [.00] | 0.13 [.03] | 0.07 [.02] | — | 0.20 [.05] | — |
| 0.09 [.02] | 0.00 [.00] | 0.13 [.03] | 0.07 [.02] | — | 0.21 [.05] | — |

* Multiply correction factor times gross performance data — resulting sensible capacity cannot exceed total capacity.

[ ] Designates Metric Conversions

# AIRFLOW PERFORMANCE — 12.5 TON [43.9kW] — 60 Hz — SIDEFLOW

**Model: (-)HCLA2150 Voltage 208/230, 460 — 3 phase 60 Hz**

| Air Flow CFM [L/s] | External Static Pressure — Inches of Water [kPa] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 | [.02] | 0.2 | [.05] | 0.3 | [.07] | 0.4 | [.10] | 0.5 | [.12] | 0.6 | [.15] | 0.7 | [.17] | 0.8 | [.20] | 0.9 | [.22] | 1.0 | [.25] | 1.1 | [.27] | 1.2 | [.30] | 1.3 | [.32] | 1.4 | [.35] | 1.5 | [.37] | 1.6 | [.40] | 1.7 | [.42] | 1.8 | [.45] | 1.9 | [.47] | 2.0 | [.50] |
| | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W |
| 3500 [1652] | 387 | 884 | 413 | 870 | 440 | 868 | 468 | 880 | 496 | 904 | 526 | 941 | 556 | 991 | 587 | 1054 | 618 | 1130 | 651 | 1219 | 672 | 1385 | 699 | 1473 | 727 | 1565 | 748 | 1599 | 773 | 1704 | 799 | 1818 | 826 | 1939 | 853 | 2068 | 881 | 2205 | 856 | 2011 |
| 3700 [1746] | 398 | 903 | 423 | 895 | 450 | 900 | 477 | 918 | 505 | 948 | 533 | 992 | 563 | 1049 | 593 | 1119 | 624 | 1201 | 656 | 1297 | 675 | 1443 | 702 | 1533 | 730 | 1628 | 750 | 1643 | 775 | 1751 | 800 | 1868 | 827 | 1992 | 854 | 2124 | 882 | 2264 | 860 | 2024 |
| 3900 [1840] | 409 | 931 | 434 | 929 | 459 | 941 | 486 | 965 | 513 | 1003 | 541 | 1053 | 570 | 1116 | 600 | 1193 | 630 | 1282 | 653 | 1423 | 679 | 1510 | 706 | 1603 | 733 | 1701 | 752 | 1699 | 777 | 1810 | 802 | 1929 | 829 | 2056 | 856 | 2191 | 883 | 2334 | 865 | 2047 |
| 4100 [1935] | 420 | 969 | 445 | 974 | 470 | 992 | 496 | 1023 | 522 | 1067 | 550 | 1124 | 578 | 1194 | 607 | 1277 | 637 | 1372 | 658 | 1498 | 684 | 1588 | 710 | 1684 | 736 | 1784 | 755 | 1766 | 780 | 1880 | 805 | 2002 | 831 | 2132 | 857 | 2270 | 839 | 1955 | 869 | 2080 |
| 4300 [2029] | 432 | 1017 | 456 | 1029 | 480 | 1053 | 506 | 1091 | 532 | 1141 | 559 | 1205 | 586 | 1281 | 615 | 1371 | 644 | 1473 | 664 | 1584 | 689 | 1676 | 714 | 1774 | 740 | 1878 | 759 | 1844 | 783 | 1961 | 808 | 2086 | 834 | 2219 | 860 | 2360 | 844 | 1997 | 873 | 2124 |
| 4500 [2123] | 444 | 1075 | 468 | 1093 | 491 | 1124 | 516 | 1169 | 542 | 1226 | 568 | 1296 | 595 | 1379 | 623 | 1474 | 651 | 1583 | 670 | 1679 | 695 | 1775 | 719 | 1875 | 745 | 1981 | 763 | 1934 | 787 | 2054 | 811 | 2181 | 837 | 2317 | 863 | 2461 | 849 | 2049 | 877 | 2179 |
| 4700 [2218] | 457 | 1143 | 480 | 1168 | 503 | 1205 | 527 | 1256 | 552 | 1320 | 578 | 1396 | 604 | 1486 | 631 | 1588 | 653 | 1692 | 677 | 1785 | 701 | 1883 | 725 | 1986 | 750 | 2095 | 767 | 2035 | 791 | 2158 | 815 | 2288 | 840 | 2427 | 866 | 2573 | 854 | 2112 | 882 | 2244 |
| 4900 [2312] | 470 | 1221 | 492 | 1252 | 515 | 1296 | 538 | 1354 | 563 | 1424 | 588 | 1507 | 613 | 1603 | 640 | 1712 | 661 | 1805 | 684 | 1901 | 707 | 2001 | 731 | 2107 | 750 | 2030 | 772 | 2147 | 796 | 2273 | 820 | 2406 | 845 | 2548 | 870 | 2697 | 859 | 2185 | 886 | 2320 |
| 5100 [2407] | 484 | 1308 | 505 | 1346 | 527 | 1397 | 550 | 1461 | 574 | 1538 | 598 | 1627 | 623 | 1730 | 649 | 1846 | 669 | 1929 | 691 | 2026 | 714 | 2130 | 738 | 2238 | 756 | 2151 | 778 | 2271 | 801 | 2399 | 825 | 2536 | 849 | 2680 | 875 | 2832 | 864 | 2269 | 891 | 2406 |
| 5300 [2501] | 497 | 1406 | 518 | 1451 | 540 | 1508 | 562 | 1578 | 585 | 1662 | 609 | 1758 | 633 | 1867 | 659 | 1989 | 677 | 2062 | 699 | 2162 | 722 | 2268 | 745 | 2379 | 762 | 2283 | 784 | 2406 | 807 | 2537 | 830 | 2677 | 855 | 2824 | 880 | 2979 | 869 | 2363 | 896 | 2503 |
| 5500 [2595] | 512 | 1514 | 532 | 1565 | 553 | 1629 | 574 | 1706 | 597 | 1795 | 620 | 1898 | 644 | 2014 | 665 | 2108 | 686 | 2205 | 708 | 2308 | 730 | 2417 | 752 | 2530 | 769 | 2426 | 791 | 2553 | 813 | 2687 | 836 | 2829 | 860 | 2979 | 849 | 2332 | 875 | 2468 | 901 | 2610 |
| 5700 [2690] | 526 | 1631 | 546 | 1689 | 566 | 1759 | 587 | 1843 | 609 | 1939 | 631 | 2048 | 655 | 2171 | 676 | 2259 | 696 | 2359 | 717 | 2465 | 738 | 2575 | 756 | 2460 | 776 | 2581 | 798 | 2710 | 820 | 2847 | 843 | 2992 | 867 | 3145 | 855 | 2445 | 880 | 2583 | 905 | 2728 |
| 5900 [2784] | 541 | 1758 | 560 | 1823 | 580 | 1900 | 600 | 1990 | 621 | 2093 | 643 | 2209 | 667 | 2322 | 686 | 2420 | 706 | 2523 | 727 | 2631 | 747 | 2744 | 764 | 2624 | 784 | 2748 | 805 | 2880 | 827 | 3019 | 850 | 3167 | 873 | 3323 | 861 | 2568 | 886 | 2709 | 910 | 2857 |

| Airflow CFM [L/s] | AIRFLOW CORRECTION FACTORS * | | | COMPONENT AIRFLOW RESISTANCE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Wet Coil | Downflow | Downflow | Horizontal | Concentric Grill | Concentric Grill | Concentric Grill |
| | Total MBH | Sensible MBH | Power kW | Resistance — Inches of Water [kPa] | | | | | | |
| 3500 [1652] | 0.98 | 0.92 | 0.99 | 0.07 [.02] | 0.00 [.00] | 0.11 [.03] | 0.06 [.01] | — | — | — |
| 3600 [1699] | 0.98 | 0.93 | 0.99 | 0.08 [.02] | 0.00 [.00] | 0.11 [.03] | 0.06 [.01] | — | 0.16 [.04] | — |
| 3700 [1746] | 0.99 | 0.95 | 1.00 | 0.08 [.02] | 0.00 [.00] | 0.12 [.03] | 0.06 [.01] | — | 0.18 [.04] | — |
| 3800 [1793] | 0.99 | 0.97 | 1.00 | 0.08 [.02] | 0.00 [.00] | 0.12 [.03] | 0.07 [.02] | — | 0.19 [.05] | — |
| 3900 [1840] | 1.00 | 0.99 | 1.00 | 0.08 [.02] | 0.00 [.00] | 0.13 [.03] | 0.07 [.02] | — | 0.20 [.05] | — |
| 4000 [1888] | 1.00 | 1.00 | 1.01 | 0.09 [.02] | 0.00 [.00] | 0.13 [.03] | 0.07 [.02] | — | 0.21 [.05] | — |
| 4100 [1935] | 1.00 | 1.02 | 1.01 | 0.09 [.02] | 0.00 [.00] | 0.14 [.03] | 0.07 [.02] | — | 0.23 [.06] | — |
| 4200 [1982] | 1.01 | 1.04 | 1.01 | 0.09 [.02] | 0.00 [.00] | 0.14 [.03] | 0.08 [.02] | — | 0.24 [.06] | — |
| 4300 [2029] | 1.01 | 1.06 | 1.01 | 0.10 [.02] | 0.00 [.00] | 0.15 [.04] | 0.08 [.02] | — | 0.25 [.06] | — |
| 4400 [2076] | 1.02 | 1.07 | 1.02 | 0.10 [.02] | 0.00 [.00] | 0.15 [.04] | 0.08 [.02] | — | 0.27 [.07] | — |
| 4500 [2123] | 1.02 | 1.09 | 1.02 | 0.10 [.02] | 0.00 [.00] | 0.16 [.04] | 0.09 [.02] | — | — | — |
| 4600 [2171] | 1.03 | 1.11 | 1.02 | 0.10 [.02] | 0.00 [.00] | 0.16 [.04] | 0.09 [.02] | — | — | 0.30 [.07] |
| 4700 [2218] | 1.03 | 1.12 | 1.03 | 0.11 [.03] | 0.00 [.00] | 0.17 [.04] | 0.09 [.02] | — | — | 0.31 [.08] |
| 4800 [2265] | 1.04 | 1.14 | 1.03 | 0.11 [.03] | 0.00 [.00] | 0.17 [.04] | 0.10 [.02] | — | — | 0.32 [.08] |
| 4900 [2312] | 1.04 | 1.16 | 1.03 | 0.11 [.03] | 0.00 [.00] | 0.18 [.04] | 0.10 [.02] | — | — | 0.33 [.08] |
| 5000 [2359] | 1.05 | 1.18 | 1.03 | 0.12 [.03] | 0.00 [.00] | 0.18 [.04] | 0.10 [.02] | — | — | 0.34 [.08] |
| 5100 [2407] | 1.05 | 1.19 | 1.04 | 0.12 [.03] | 0.00 [.00] | 0.19 [.05] | 0.11 [.03] | — | — | 0.35 [.09] |

* Multiply correction factor times gross performance data — resulting sensible capacity cannot exceed total capacity.

[ ] Designates Metric Conversions

# AIRFLOW PERFORMANCE — 15 TON [52.7kW] — 60 Hz — SIDEFLOW

**Model (-)HCLA2180 Voltage 208/230, 460 — 3 phase 60 Hz**

| Air Flow CFM [L/s] | External Static Pressure — Inches of Water [kPa] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 [.02] | | 0.2 [.05] | | 0.3 [.07] | | 0.4 [.10] | | 0.5 [.12] | | 0.6 [.15] | | 0.7 [.17] | | 0.8 [.20] | | 0.9 [.22] | | 1.0 [.25] | | 1.1 [.27] | | 1.2 [.30] | | 1.3 [.32] | | 1.4 [.35] | | 1.5 [.37] | | 1.6 [.40] | | 1.7 [.42] | | 1.8 [.45] | | 1.9 [.47] | | 2.0 [.50] | |
| | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W |
| 4750 [2241] | — | — | — | — | — | — | 537 | 1312 | 561 | 1382 | 585 | 1465 | 610 | 1559 | 636 | 1665 | 662 | 1782 | 681 | 1823 | 703 | 1910 | 724 | 2003 | 744 | 2101 | 770 | 2148 | 791 | 2231 | 812 | 2316 | 833 | 2402 | 853 | 2488 | 872 | 2576 | 892 | 2664 |
| 4850 [2289] | — | — | — | — | — | — | 542 | 1362 | 566 | 1436 | 590 | 1522 | 615 | 1620 | 640 | 1730 | 663 | 1797 | 685 | 1883 | 706 | 1973 | 727 | 2069 | 747 | 2169 | 774 | 2207 | 795 | 2292 | 815 | 2379 | 835 | 2466 | 855 | 2554 | 874 | 2643 | 894 | 2734 |
| 4950 [2336] | — | — | — | — | 525 | 1348 | 548 | 1414 | 572 | 1492 | 596 | 1582 | 620 | 1683 | 645 | 1797 | 667 | 1857 | 688 | 1945 | 710 | 2038 | 730 | 2136 | 751 | 2239 | 777 | 2268 | 798 | 2356 | 818 | 2444 | 838 | 2533 | 858 | 2623 | 877 | 2714 | 896 | 2806 |
| 5050 [2383] | — | — | — | — | 531 | 1399 | 554 | 1469 | 577 | 1551 | 601 | 1644 | 625 | 1749 | 650 | 1866 | 671 | 1919 | 692 | 2010 | 713 | 2105 | 734 | 2205 | 754 | 2311 | 781 | 2333 | 801 | 2422 | 821 | 2512 | 841 | 2603 | 860 | 2694 | 879 | 2787 | 898 | 2881 |
| 5150 [2430] | — | — | — | — | 537 | 1452 | 559 | 1526 | 583 | 1611 | 606 | 1708 | 631 | 1817 | 655 | 1938 | 675 | 1983 | 696 | 2076 | 717 | 2174 | 738 | 2277 | 764 | 2310 | 784 | 2399 | 804 | 2490 | 824 | 2582 | 844 | 2675 | 863 | 2768 | 882 | 2863 | 900 | 2958 |
| 5250 [2477] | — | — | — | — | 543 | 1508 | 565 | 1585 | 588 | 1674 | 612 | 1775 | 636 | 1887 | 661 | 2011 | 679 | 2049 | 700 | 2145 | 721 | 2245 | 741 | 2351 | 767 | 2377 | 788 | 2469 | 808 | 2561 | 827 | 2655 | 847 | 2749 | 866 | 2845 | 884 | 2941 | 902 | 3038 |
| 5350 [2525] | — | — | 527 | 1497 | 549 | 1566 | 571 | 1647 | 594 | 1740 | 618 | 1844 | 642 | 1960 | 662 | 2024 | 684 | 2117 | 705 | 2215 | 725 | 2318 | 745 | 2426 | 771 | 2447 | 791 | 2541 | 811 | 2635 | 831 | 2730 | 850 | 2827 | 868 | 2924 | 887 | 3022 | 905 | 3121 |
| 5450 [2572] | — | — | 534 | 1553 | 555 | 1626 | 578 | 1711 | 600 | 1807 | 624 | 1915 | 647 | 2035 | 667 | 2091 | 688 | 2187 | 709 | 2288 | 729 | 2394 | 749 | 2504 | 775 | 2520 | 795 | 2615 | 815 | 2711 | 834 | 2809 | 853 | 2906 | 871 | 3005 | 889 | 3105 | 907 | 3206 |
| 5550 [2619] | — | — | 540 | 1612 | 562 | 1689 | 584 | 1777 | 607 | 1877 | 630 | 1988 | 653 | 2112 | 672 | 2161 | 693 | 2260 | 713 | 2363 | 733 | 2471 | 753 | 2584 | 779 | 2595 | 799 | 2692 | 818 | 2790 | 837 | 2889 | 856 | 2989 | 874 | 3089 | 892 | 3191 | — | — |
| 5650 [2666] | 526 | 1605 | 547 | 1673 | 569 | 1753 | 590 | 1845 | 613 | 1949 | 636 | 2064 | 659 | 2191 | 677 | 2233 | 697 | 2334 | 718 | 2440 | 737 | 2550 | 763 | 2576 | 783 | 2673 | 803 | 2772 | 822 | 2872 | 841 | 2972 | 859 | 3074 | 877 | 3176 | 895 | 3279 | — | — |
| 5750 [2713] | 533 | 1664 | 554 | 1736 | 575 | 1820 | 597 | 1916 | 619 | 2023 | 642 | 2142 | 661 | 2208 | 682 | 2307 | 702 | 2410 | 722 | 2519 | 742 | 2632 | 768 | 2654 | 787 | 2754 | 807 | 2854 | 825 | 2956 | 844 | 3058 | 862 | 3161 | 880 | 3266 | 898 | 3371 | — | — |
| 5850 [2760] | 541 | 1726 | 561 | 1802 | 582 | 1890 | 604 | 1989 | 626 | 2100 | 648 | 2222 | 666 | 2282 | 687 | 2383 | 707 | 2489 | 727 | 2600 | 746 | 2715 | 772 | 2736 | 791 | 2837 | 810 | 2939 | 829 | 3042 | 847 | 3147 | 865 | 3252 | 883 | 3357 | 901 | 3464 | — | — |
| 5950 [2808] | 548 | 1791 | 568 | 1870 | 589 | 1961 | 611 | 2064 | 633 | 2179 | 655 | 2305 | 671 | 2357 | 692 | 2461 | 712 | 2569 | 732 | 2683 | 751 | 2801 | 776 | 2819 | 796 | 2923 | 814 | 3027 | 833 | 3132 | 851 | 3237 | 869 | 3344 | 886 | 3452 | 903 | 3560 | — | — |
| 6050 [2855] | 556 | 1857 | 576 | 1940 | 596 | 2035 | 618 | 2142 | 639 | 2260 | 662 | 2390 | 677 | 2435 | 697 | 2541 | 717 | 2652 | 736 | 2768 | 755 | 2889 | 781 | 2906 | 800 | 3011 | 818 | 3117 | 837 | 3223 | 855 | 3331 | 872 | 3440 | 890 | 3549 | 906 | 3659 | — | — |
| 6150 [2902] | 563 | 1926 | 583 | 2013 | 604 | 2111 | 625 | 2221 | 646 | 2343 | 661 | 2411 | 682 | 2514 | 702 | 2623 | 722 | 2737 | 741 | 2855 | 766 | 2889 | 785 | 2995 | 804 | 3102 | 823 | 3209 | 841 | 3318 | 858 | 3427 | 876 | 3537 | 893 | 3649 | — | — | — | — |
| 6250 [2949] | 571 | 1997 | 591 | 2088 | 611 | 2190 | 632 | 2303 | 653 | 2429 | 667 | 2490 | 688 | 2596 | 708 | 2707 | 727 | 2823 | 746 | 2944 | 771 | 2979 | 790 | 3087 | 809 | 3195 | 827 | 3304 | 845 | 3415 | 862 | 3526 | 879 | 3638 | 896 | 3751 | — | — | — | — |
| 6350 [2996] | 579 | 2070 | 599 | 2165 | 619 | 2270 | 639 | 2388 | 661 | 2517 | 673 | 2571 | 693 | 2680 | 713 | 2794 | 732 | 2912 | 751 | 3036 | 776 | 3071 | 795 | 3181 | 813 | 3291 | 831 | 3402 | 849 | 3514 | 866 | 3627 | 883 | 3741 | 900 | 3856 | — | — | — | — |

| Airflow CFM [L/s] | AIRFLOW CORRECTION FACTORS * | | | COMPONENT AIRFLOW RESISTANCE | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Wet Coil | Downflow | Downflow | Horizontal | Concentric Grill | Concentric Grill | Concentric Grill |
| | Total MBH | Sensible MBH | Power kW | Resistance — Inches of Water [kPa] | | | | | | |
| 4750 [2241] | 1.03 | 1.13 | 1.03 | 0.11 [.03] | 0.00 [.00] | 0.17 [.04] | 0.09 [.02] | — | — | 0.32 [.08] |
| 4850 [2289] | 1.04 | 1.15 | 1.03 | 0.11 [.03] | 0.00 [.00] | 0.17 [.04] | 0.10 [.02] | — | — | 0.33 [.08] |
| 4950 [2336] | 1.04 | 1.17 | 1.03 | 0.11 [.03] | 0.00 [.00] | 0.18 [.04] | 0.10 [.02] | — | — | 0.34 [.08] |
| 5050 [2383] | 1.05 | 1.19 | 1.03 | 0.12 [.03] | 0.00 [.00] | 0.18 [.04] | 0.10 [.02] | — | — | 0.35 [.09] |
| 5150 [2430] | 1.05 | 1.20 | 1.04 | 0.12 [.03] | 0.00 [.00] | 0.19 [.05] | 0.11 [.03] | — | — | 0.36 [.09] |
| 5250 [2477] | 1.06 | 1.22 | 1.04 | 0.12 [.03] | 0.00 [.00] | 0.19 [.05] | 0.11 [.03] | — | — | 0.37 [.09] |
| 5350 [2525] | 1.06 | 1.24 | 1.04 | 0.13 [.03] | 0.00 [.00] | 0.20 [.05] | 0.11 [.03] | — | — | 0.38 [.09] |
| 5450 [2572] | 1.07 | 1.25 | 1.05 | 0.13 [.03] | 0.00 [.00] | 0.20 [.05] | 0.12 [.03] | — | — | — |
| 5550 [2619] | 1.07 | 1.27 | 1.05 | 0.13 [.03] | 0.00 [.00] | 0.21 [.05] | 0.12 [.03] | — | — | — |
| 5650 [2666] | 1.08 | 1.29 | 1.05 | 0.13 [.03] | 0.00 [.00] | 0.21 [.05] | 0.12 [.03] | — | — | — |
| 5750 [2713] | 1.08 | 1.31 | 1.05 | 0.14 [.03] | 0.00 [.00] | 0.22 [.05] | 0.13 [.03] | — | — | — |
| 5850 [2760] | 1.08 | 1.32 | 1.06 | 0.14 [.03] | 0.00 [.00] | 0.22 [.05] | 0.13 [.03] | — | — | — |
| 5950 [2808] | 1.09 | 1.34 | 1.06 | 0.14 [.03] | 0.00 [.00] | 0.23 [.06] | 0.13 [.03] | — | — | — |
| 6050 [2855] | 1.09 | 1.36 | 1.06 | 0.15 [.04] | 0.00 [.00] | 0.23 [.06] | 0.14 [.03] | — | — | — |
| 6150 [2902] | 1.10 | 1.38 | 1.07 | 0.15 [.04] | 0.00 [.00] | 0.24 [.06] | 0.14 [.03] | — | — | — |
| 6250 [2949] | 1.10 | 1.39 | 1.07 | 0.15 [.04] | 0.00 [.00] | 0.24 [.06] | 0.14 [.03] | — | — | — |
| 6350 [2996] | 1.11 | 1.41 | 1.07 | 0.15 [.04] | 0.00 [.00] | 0.25 [.06] | 0.15 [.04] | — | — | — |

* Multiply correction factor times gross performance data — resulting sensible capacity cannot exceed total capacity.

[ ] Designates Metric Conversions

# AIRFLOW PERFORMANCE — 20 TON [70.3kW] — 60 Hz — SIDEFLOW

**Model (-)HCLA2240 Voltage 208/230, 460 — 3 phase 60 Hz**

| Air Flow CFM [L/s] | External Static Pressure — Inches of Water [kPa] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 [.02] | | 0.2 [.05] | | 0.3 [.07] | | 0.4 [.10] | | 0.5 [.12] | | 0.6 [.15] | | 0.7 [.17] | | 0.8 [.20] | | 0.9 [.22] | | 1.0 [.25] | | 1.1 [.27] | | 1.2 [.30] | | 1.3 [.32] | | 1.4 [.35] | | 1.5 [.37] | | 1.6 [.40] | | 1.7 [.42] | | 1.8 [.45] | | 1.9 [.47] | | 2.0 [.50] | |
| | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W | RPM | W |
| 6200 [2926] | — | — | — | — | — | — | — | — | — | — | — | — | 698 | 2594 | 716 | 2694 | 734 | 2789 | 753 | 2878 | 772 | 2963 | 792 | 3042 | 812 | 3116 | 832 | 3184 | 843 | 3353 | 862 | 3465 | 882 | 3590 | 903 | 3727 | 925 | 3876 | 947 | 4037 |
| 6400 [3020] | — | — | — | — | — | — | — | — | — | — | 691 | 2680 | 709 | 2783 | 726 | 2881 | 745 | 2973 | 763 | 3060 | 782 | 3141 | 801 | 3218 | 821 | 3289 | 834 | 3434 | 852 | 3544 | 872 | 3667 | 892 | 3802 | 913 | 3949 | 935 | 4108 | 958 | 4280 |
| 6600 [3114] | — | — | — | — | — | — | — | — | 687 | 2774 | 703 | 2880 | 720 | 2980 | 738 | 3074 | 755 | 3164 | 773 | 3248 | 792 | 3327 | 811 | 3401 | 830 | 3470 | 843 | 3629 | 862 | 3750 | 881 | 3883 | 902 | 4028 | 923 | 4186 | 945 | 4355 | 968 | 4537 |
| 6800 [3209] | — | — | — | — | — | — | 684 | 2876 | 699 | 2984 | 715 | 3086 | 732 | 3184 | 749 | 3276 | 766 | 3363 | 784 | 3444 | 802 | 3521 | 821 | 3592 | 835 | 3719 | 853 | 3838 | 872 | 3970 | 892 | 4113 | 913 | 4269 | 934 | 4437 | 957 | 4617 | 979 | 4992 |
| 7000 [3303] | — | — | — | — | — | — | 697 | 3095 | 712 | 3200 | 728 | 3300 | 744 | 3395 | 761 | 3484 | 778 | 3569 | 795 | 3648 | 813 | 3721 | 831 | 3790 | 845 | 3933 | 864 | 4062 | 883 | 4204 | 903 | 4358 | 924 | 4524 | 946 | 4702 | 968 | 4892 | 987 | 5230 |
| 7200 [3398] | — | — | — | — | 696 | 3214 | 710 | 3322 | 725 | 3425 | 741 | 3522 | 757 | 3614 | 773 | 3701 | 789 | 3782 | 806 | 3858 | 824 | 3929 | 838 | 4033 | 856 | 4160 | 875 | 4300 | 894 | 4452 | 914 | 4616 | 936 | 4793 | 958 | 4981 | 977 | 5339 | 995 | 5484 |
| 7400 [3492] | — | — | 696 | 3341 | 710 | 3451 | 724 | 3556 | 739 | 3656 | 754 | 3751 | 770 | 3840 | 785 | 3924 | 802 | 4003 | 818 | 4076 | 835 | 4145 | 849 | 4264 | 867 | 4402 | 886 | 4553 | 906 | 4715 | 927 | 4889 | 948 | 5076 | 970 | 5275 | 986 | 5607 | 1003 | 5754 |
| 7600 [3586] | 698 | 3474 | 711 | 3587 | 725 | 3695 | 739 | 3798 | 753 | 3895 | 768 | 3987 | 783 | 4073 | 798 | 4155 | 814 | 4231 | 830 | 4302 | 844 | 4374 | 861 | 4510 | 879 | 4659 | 899 | 4819 | 919 | 4992 | 939 | 5177 | 961 | 5374 | 978 | 5738 | 995 | 5890 | 1012 | 6040 |
| 7800 [3681] | 714 | 3731 | 727 | 3842 | 740 | 3947 | 753 | 4046 | 767 | 4141 | 782 | 4230 | 796 | 4314 | 811 | 4393 | 827 | 4466 | 839 | 4489 | 856 | 4624 | 873 | 4770 | 892 | 4929 | 911 | 5100 | 932 | 5283 | 953 | 5478 | 971 | 5878 | 988 | 6035 | 1004 | 6190 | 1020 | 6341 |
| 8000 [3775] | 730 | 3995 | 742 | 4103 | 755 | 4205 | 768 | 4302 | 782 | 4394 | 796 | 4481 | 810 | 4562 | 825 | 4638 | 835 | 4610 | 851 | 4743 | 868 | 4888 | 886 | 5045 | 905 | 5214 | 925 | 5395 | 945 | 5588 | 966 | 5794 | 982 | 6189 | 998 | 6348 | 1014 | 6505 | 1030 | 6657 |
| 8200 [3869] | 747 | 4267 | 759 | 4372 | 771 | 4472 | 784 | 4566 | 797 | 4655 | 810 | 4739 | 824 | 4818 | 832 | 4737 | 848 | 4868 | 864 | 5011 | 882 | 5166 | 900 | 5333 | 919 | 5513 | 939 | 5704 | 959 | 5908 | 977 | 6351 | 993 | 6516 | 1009 | 6677 | 1024 | 6835 | 1039 | 6990 |
| 8400 [3964] | 763 | 4546 | 775 | 4648 | 787 | 4745 | 799 | 4837 | 812 | 4923 | 825 | 5005 | 831 | 4869 | 845 | 4999 | 861 | 5140 | 878 | 5293 | 895 | 5459 | 914 | 5636 | 933 | 5826 | 953 | 6028 | 972 | 6522 | 988 | 6692 | 1004 | 6858 | 1019 | 7021 | 1034 | 7181 | 1049 | 7338 |
| 8600 [4058] | 780 | 4832 | 792 | 4932 | 803 | 5026 | 815 | 5115 | 828 | 5199 | 830 | 5008 | 844 | 5135 | 859 | 5274 | 875 | 5426 | 892 | 5590 | 910 | 5766 | 928 | 5953 | 948 | 6154 | 968 | 6366 | 985 | 6877 | 1000 | 7048 | 1015 | 7216 | 1030 | 7381 | 1045 | 7543 | 1059 | 7702 |
| 8800 [4153] | 798 | 5126 | 809 | 5223 | 820 | 5314 | 832 | 5401 | 830 | 5151 | 843 | 5277 | 858 | 5415 | 873 | 5564 | 890 | 5726 | 907 | 5900 | 925 | 6087 | 944 | 6285 | 963 | 6495 | 982 | 7070 | 997 | 7247 | 1012 | 7420 | 1027 | 7590 | 1042 | 7757 | 1056 | 7921 | — | — |
| 9000 [4247] | 816 | 5427 | 826 | 5521 | 837 | 5610 | 830 | 5301 | 844 | 5425 | 857 | 5561 | 872 | 5709 | 888 | 5869 | 904 | 6041 | 922 | 6225 | 940 | 6422 | 959 | 6631 | 980 | 7272 | 995 | 7454 | 1010 | 7632 | 1025 | 7808 | 1039 | 7980 | 1054 | 8148 | — | — | — | — |
| 9200 [4341] | 834 | 5735 | 821 | 5347 | 832 | 5456 | 845 | 5578 | 858 | 5712 | 872 | 5859 | 887 | 6017 | 903 | 6187 | 920 | 6370 | 938 | 6565 | 956 | 6772 | 979 | 7483 | 994 | 7670 | 1009 | 7853 | 1024 | 8034 | 1038 | 8211 | 1052 | 8385 | — | — | — | — | — | — |
| 9400 [4436] | 824 | 5509 | 835 | 5617 | 847 | 5738 | 860 | 5870 | 873 | 6014 | 888 | 6171 | 903 | 6339 | 919 | 6520 | 936 | 6713 | 954 | 6918 | 978 | 7703 | 994 | 7894 | 1008 | 8083 | 1023 | 8268 | 1037 | 8451 | 1051 | 8630 | — | — | — | — | — | — | — | — |

## AIRFLOW CORRECTION FACTORS *

| Airflow CFM [L/s] | Total MBH | Sensible MBH | Power kW |
|---|---|---|---|
| 6200 [2926] | 1.10 | 1.38 | 1.07 |
| 6300 [2973] | 1.11 | 1.40 | 1.07 |
| 6400 [3020] | 1.11 | 1.42 | 1.07 |
| 6500 [3067] | 1.11 | 1.44 | 1.08 |
| 6600 [3114] | 1.12 | 1.45 | 1.08 |
| 6700 [3162] | 1.12 | 1.47 | 1.08 |
| 6800 [3209] | 1.13 | 1.49 | 1.08 |
| 6900 [3256] | 1.13 | 1.51 | 1.09 |
| 7000 [3303] | 1.14 | 1.52 | 1.09 |
| 7100 [3350] | 1.14 | 1.54 | 1.09 |
| 7200 [3398] | 1.15 | 1.56 | 1.10 |
| 7300 [3445] | 1.15 | 1.57 | 1.10 |
| 7400 [3492] | 1.16 | 1.59 | 1.10 |
| 7500 [3539] | 1.16 | 1.61 | 1.10 |
| 7600 [3586] | 1.16 | 1.63 | 1.11 |
| 7700 [3633] | 1.17 | 1.64 | 1.11 |
| 7800 [3681] | 1.17 | 1.66 | 1.11 |

## COMPONENT AIRFLOW RESISTANCE

| Wet Coil | Downflow | Downflow | Horizontal | Concentric Grill | Concentric Grill | Concentric Grill |
|---|---|---|---|---|---|---|
| Resistance — Inches of Water [kPa] | | | | | | |
| 0.15 [.04] | 0.00 [.00] | 0.24 [.06] | 0.14 [.03] | — | — | — |
| 0.15 [.04] | 0.00 [.00] | 0.25 [.06] | 0.15 [.04] | — | — | — |
| 0.16 [.04] | 0.00 [.00] | 0.25 [.06] | 0.15 [.04] | — | — | — |
| 0.16 [.04] | 0.00 [.00] | 0.26 [.06] | 0.15 [.04] | — | — | — |
| 0.16 [.04] | 0.00 [.00] | 0.26 [.06] | 0.16 [.04] | — | — | — |
| 0.16 [.04] | 0.00 [.00] | 0.27 [.07] | 0.16 [.04] | — | — | — |
| 0.17 [.04] | 0.00 [.00] | 0.27 [.07] | 0.17 [.04] | — | — | — |
| 0.17 [.04] | 0.00 [.00] | 0.28 [.07] | 0.17 [.04] | — | — | — |
| 0.17 [.04] | 0.00 [.00] | 0.28 [.07] | 0.17 [.04] | — | — | — |
| 0.18 [.04] | 0.00 [.00] | 0.29 [.07] | 0.18 [.04] | — | — | — |
| 0.18 [.04] | 0.00 [.00] | 0.29 [.07] | 0.18 [.04] | — | — | — |
| 0.18 [.04] | 0.00 [.00] | 0.30 [.07] | 0.19 [.05] | — | — | — |
| 0.18 [.04] | 0.00 [.00] | 0.30 [.07] | 0.19 [.05] | — | — | — |
| 0.19 [.05] | 0.00 [.00] | 0.31 [.08] | 0.19 [.05] | — | — | — |
| 0.19 [.05] | 0.00 [.00] | 0.31 [.08] | 0.20 [.05] | — | — | — |
| 0.19 [.05] | 0.00 [.00] | 0.32 [.08] | 0.20 [.05] | — | — | — |
| 0.19 [.05] | 0.00 [.00] | 0.32 [.08] | 0.21 [.05] | — | — | — |

* Multiply correction factor times gross performance data — resulting sensible capacity cannot exceed total capacity.

[ ] Designates Metric Conversions

## 3.12.3 COMPONENT AIR-RESISTANCE DATA

| CFM [L/s] | 1800 [850] | 2200 [1038] | 2600 [1227] | 3000 [1416] | 3400 [1605] | 3800 [1793] | 4200 [1982] | 4600 [2171] | 5000 [2360] |
|---|---|---|---|---|---|---|---|---|---|
| Electric Heater 20KW, 30KW | .060 [.015] | .100 [.025] | .140 [.034] | .160 [.040] | .230 [.057] | .320 [.080] | .410 [.102] | .500 [.124] | .600 [.150] |
| Mixing Box (R/A Damper Open) | .006 [.001] | .008 [.002] | .012 [.003] | .024 [.006] | .038 [.009] | .053 [.013] | .068 [.017] | .080 [.020] | .095 [.024] |
| Discharge Grille (Set Max. Open) | .008 [.002] | .011 [.003] | .015 [.004] | .020 [.005] | .025 [.006] | .031 [.008] | .039 [.010] | .046 [.012] | .055 [.014] |
| Inlet Grille | .008 [.002] | .010 [.002] | .014 [.003] | .020 [.005] | .026 [.006] | .032 [.008] | .039 [.010] | .049 [.012] | .058 [.014] |
| Discharge Plenum | .02 [.005] | .04 [.010] | .05 [.012] | .065 [.016] | .085 [.021] | .100 [.025] | .120 [.030] | .150 [.037] | .180 [.045] |

## 3.12.4 SELECTING THE PROPER BLOWER DRIVE & MOTOR SHEAVE SETTING

To select the proper blower drive, the following information is required.

- Target air-flow in CFM or L/s
- Total static pressure of the duct system in inches of water or kPa
- Component Resistance (See Section 3.12.3)

Add the total static pressure of the duct system to the component resistance to determine the External Static Pressure (E.S.P.) that the air-handler must work against. Locate the target CFM [L/s] row on the air-flow performance table and move to the right along that row to the correct E.S.P. column. If the target CFM and E.S.P. are between the values shown on the table, it will be necessary to interpolate between rows and lines.

There are heavy lines dividing blower drives from left to right with the “R” drive being everything left of the first heavy line, “S” drive being for everything between the 1st and 2nd heavy lines, “T” drive being for everything between the 2nd and 3rd heavy lines, and so forth.

Once the correct blower drive is determined, confirm the air-handler being installed has the correct drive package or can be converted to the correct drive with field supplied sheaves and belt(s). In some cases, a motor change is also required for field supplied blower drives. See Section 3.12.5 for more details on field supplied blower drives.

Determine the correct blower RPM from the air-flow performance chart at the intersection of the target air-flow and E.S.P. Then refer to the Blower Package Data table to determine the correct setting in turns open for the variable pitch motor sheave. The variable pitch motor sheave can be adjusted in half turns to provide finer adjustments of the blower RPM if needed. Adjust the variable pitch motor sheave to the correct setting using the instructions found in Section 3.12.6.

## 3.12.5 FIELD SUPPLIED BLOWER DRIVES

For applications where the blower drive packages available from the factory cannot provide enough External Static Pressure (E.S.P.), the motor sheave and/or blower sheave and the belt(s) can be changed to a factory authorized optional field supplied blower drive that will extend the E.S.P. range of the air-handler. Please note that In some cases, a higher horsepower motor may have to be substituted for the factory motor per the specifications in the Blower Package Data table. Factory authorized field supplied blower drive specifications are provided in the Blower Package Data table and the air-flow performance tables include data for the factory authorized field supplied blower drives.

IMPORTANT: Do not deviate from the specifications for the factory authorized field supplied blower drive packages to assure the motor is not overloaded and to assure that a known air-flow level can be achieved.

## 3.12.6 ADJUSTING THE VARIABLE PITCH MOTOR SHEAVE

The adjustable pitch sheave which is mounted on the motor shaft controls the fan speed. To adjust the fan speed refer to figure at right, proceed as follows:

a. Loosen the set screw, item 1.

b. Rotate the adjustable sheave, item 2, to the desired position.

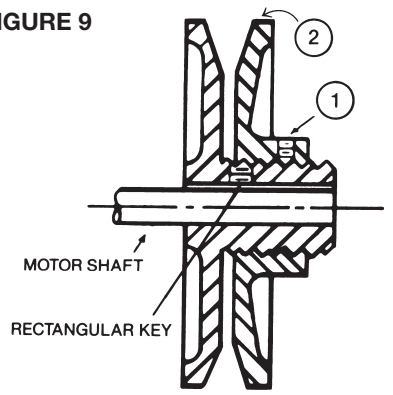
c. Lock the adjustable sheave in place by tightening the set screw, item 1.

NOTE: The adjustable sheave is not to be used to adjust belt tension.

### ⚠ WARNING

**BEFORE MAKING FAN ADJUSTMENTS, BE SURE THE MAIN ELECTRICAL DISCONNECT SWITCH IS IN THE “OFF” POSITION TO PREVENT POSSIBLE INJURY DUE TO ACCIDENTAL OPERATION OF THE MOTOR.**

FIGURE 9




### 3.12.7 DRIVE BELT ALIGNMENT & ADJUSTMENT

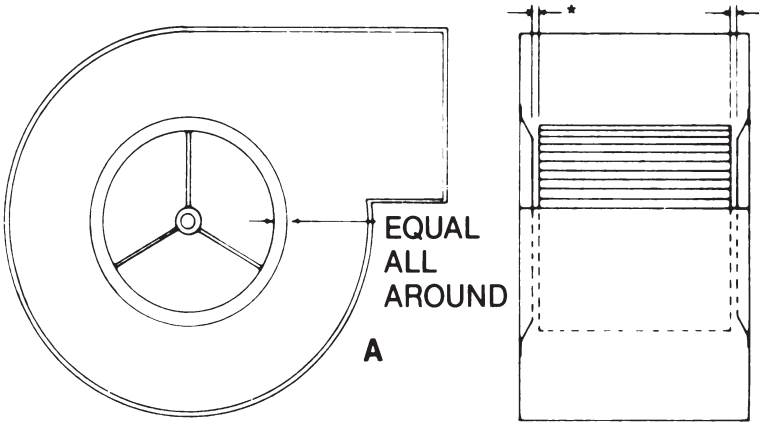
Place belt on the groove of the blower sheave and motor sheave to obtain the approximate alignment and belt tension. Remove the belt and align the blower sheave and motor sheave using a straight edge. When both sheaves are properly aligned, re-install belt. Do not force or pry the belt onto the sheaves. With the belt in place, adjust so that all the slack is on one side of the drive. The belt should have from 3/4" to 1" [19 to 25 mm] of slack at 3 lbs. [21 kPa] pressure. Adjust the belt to this tension, by raising or lowering the swing base via the adjusting rods and nuts.

# 4.0 START-UP

## 4.1 PRE-START CHECKLIST

1. Leak test entire system.
2. Check motor mounting to make sure all nuts are tight.
3. Check motor and blower sheaves to make sure they are in proper alignment and set screws are tight.
4. Check belt tension—belts should be fairly tight for the initial "start-up".
5. Check bearing—collar set screws on blower shaft to make sure they are tight.
6. Ball type bearings are factory lubricated and do not require additional grease before starting.
7. Rotate blower shaft by hand to be sure it is free.
8. Ensure VFD voltage matches upply voltage. For more information, see section 4.1.1. VFD Voltage Adjustment.
9. Check all screws, bolts, set screws and piping connections for tightness.
10. Check drain.
11. Insure that filters are in place.
12. Insure all outdoor unit service valves are open.
13. Be sure that electrical controls and motors are properly wired and fused in accordance with applicable codes.
14. Check wheel position in blower housing. See Figures 10A and 10B.

FIGURE 10




## 4.1.1. VFD VOLTAGE ADJUSTMENT

VFD Voltage Adjustment must be made for 208Volt units.

1. End all calls to IFC.
2. Press "MODE"
3. Press "UP" arrow to "uLu"
4. Press "ENT" to adjsut.
5. Use the "UP" arrow to increase and "DOWN" to decrease the voltage setting.
6. Press the "ENT" button to confirm the setting.
7. Press "MODE" twice to exit.
8. Power down for 3 minutes.

## 4.2 SYSTEM START-UP & OPERATIONAL CHECK-OUT

- Once everything on the Pre-Start Check-List has been confirmed, turn the electrical power disconnect on and adjust the thermostat to call for continuous fan operation. Confirm the blower has the correct rotation and is circulating air in the duct system.
- On any models with a Variable Frequency Drive, VFD, the motor will always rotate in the correct directtion.
- Confirm the blower is turning the correct RPM using a strobe light or other device capable of measuring RPM.
- Confirm the full load motor amps listed on the unit data plate are not being exceeded by more than the 15% service factor rating of the motor.
- If the blower is unusually noisy, disconnect power to the unit and check for improper alignment of the blower wheel or belt or for something loose.
- If field installed accessories have been installed, confirm proper functioning of those accessories.
- When all items running properly, tape all access panel to ensure unit is sealed off completely.

## 4.3 CHECKING INDOOR AIR-FLOW RATE

### 4.3.1 ESTIMATING AIR-FLOW RATE USING EXTERNAL STATIC PRESSURE

A common method of checking indoor is to measure the external static pressure that the air-handler is working against and then referring to the air-flow data in Section 3.12. Measuring external static pressure to a high degree of precision in the field is challenging, so keep in mind that the air-flow rate determined by this method is an estimate, but is accurate enough for all practical purposes.

To determine external static pressure, the static pressure should be measured in inches of water column across the air-handler using an incline manometer, digital static pressure meter, or a Magnahelic. The static pressure inside the return plenum should be measured as close to the air-handler as possible and must be measured between any external filter rack and the unit so the pressure drop across the filter is accounted for. The static pressure inside the supply plenum should be measured at a point about halfway between the air-handler and the first elbow or the end of the plenum. Total external static pressure is the sum of the return and supply plenum static pressures. Even though the return plenum static pressure is a negative pressure, it must be added to the supply plenum static pressure, ignoring the negative sign. The supply and return plenum static pressure tubing can also be connected to both pressure ports of the pressure measuring device which will automatically add the two pressures together.

### 4.3.2 ESTIMATING AIR-FLOW RATE USING ELECTRIC HEAT TEMPERATURE RISE

If the air-handler is equipped with an electric heater, the air-flow can be estimated using the air temperature rise across the air-handler with the heater and blower both energized once the unit has run long enough for the temperatures to stabilize. As with determining air-flow rate using external static pressure, the air-flow rate determined by this method is an estimate, but is accurate enough for all practical purposes. Measure the return air temperature as close to the unit as possible and the supply air temperature about half way from the air-handler to the first elbow or end of the supply plenum. Use the following formula to calculate air-flow rate once the temperature rise is determined.

CFM = Heating BTUH / (Elevation Factor × Temp Rise °F)

L/s = (895 × Heating kW) / (Elevation Factor × Temp Rise °C)

Note: Refer to Sections 4.3.3 and 4.3.4 to determine Heating Capacity and the following chart for Elevation Factor.

| Elevation -ft [m] | Elevation Factor |
|---|---|
| Sea Level | 1.08 |
| 500 [152] | 0.98 |
| 1000 [305] | 0.96 |
| 1500 [451] | 0.95 |
| 2000 [610] | 0.93 |
| 2500 [762] | 0.91 |
| 3000 [914] | 0.90 |
| 3500 [1067] | 0.88 |
| 4000 [1219] | 0.86 |
| 5000 [1524] | 0.83 |
| 6000 [1829] | 0.83 |
| 7000 [2134] | 0.77 |
| 8000 [2438] | 0.74 |
| 9000 [2743] | 0.72 |
| 10000 [3048] | 0.69 |

## 4.3.3 CORRECTING ELECTRIC HEAT kW FOR VOLTAGE

The actual electric heat kW varies with the supply voltage. Use the following formula to correct the heater rated kW at voltages other than rated voltage.

Actual kW = Rated kW × (Actual Voltage$^2$ / Rated Voltage$^2$).

## 4.3.4 CALCULATING ELECTRIC HEAT CAPACITY IN BTUH

Use the following formula to convert heater kW to heating capacity in BTUH.

BTUH Capacity = kW × 3412
(Where 3412 = BTUH per kW)

## 4.4 CHECKING REFRIGERANT CHARGE

System refrigerant charging should only be performed after the indoor air-flow is confirmed to be correct for the application. Once the air-flow is confirmed, refer to the manufacturer's outdoor unit charging chart and installation manual for the proper charging procedure for the system.

## 4.5 SEQUENCE OF OPERATION

## 4.5.1 COOLING & HEAT PUMP HEATING MODES

When the 2-stage thermostat calls for 1st stage of cooling or heat pump heating and the thermostat fan setting is set to the AUTO position, the G signal from the thermostat causes the Variabe Frequency Drive (VFD) to ramp the motor to the low speed air-flow level (37.5 Hz) which is 63% of full air-flow. If the thermostat fan setting is set on the ON position (continuos fan), the motor will already be operating at the low speed air-flow level when there is a call for 1st stage cooling or heat pump heating.

If the 2-stage thermostat calls for 2nd stage of cooling or heat pump heating, the Y signal from the thermostat will cause the VFD to ramp the motor to the high speed air-flow level (60 Hz). As the thermostat cycles between stages, the VFD and motor will cycle between the low and high speed air-flow levels.

When the call cooling or heat pump heating at the thermostat is satisfied or the thermostat is turned to the OFF position, the VFD will ramp down to 0 Hz and the motor will stop if the thermostat fan settings is set to AUTO position. If the thermostat fan setting is set to the ON position (continuos fan), the VFD will continue to drive the motor at the low speed level (37.5 Hz).

## 4.5.2 ELECTRIC HEAT MODE

When the thermostat calls for the 1st stage of heat, the 1st stage heater contactor (HC1) in the electric heater kit closes which energizes the 1st stage heater elements. If the thermostat fan setting is set to the AUTO position, the G signal from the thermostat causes the VFD to ramp the motor up to the high speed air-flow level (60Hz). If the thermostat fan setting is set to the ON (continuous fan) position, then the VFD will ramp the motor from low speed air-flow (37.5 Hz) to high speed air-flow (60Hz).

If the thermostat calls for the 2nd stage of heat, the 2nd stage heater contactor (HC2) in the electric heater kit closes which energizes the 2nd stage heater elements. The heater will then cycle between the 1st and 2nd stages of heat at the direction of the thermostat.

When the call for heat at the thermostat is satisfied or the thermostat is turned to the OFF position, the heater contactor(s) open and de-energize the electric heater elements. If the thermostat fan setting is set to the AUTO position, the VFD will ramp down to 0 Hz and the motor will stop. If the thermostat fan setting is set to the ON (continuous fan) position, the VFD will ramp down to the low speed air-flow level (37.5 Hz) until the next call for electric heat.

## 4.5.3 SUPPLEMENTAL HEATING DURING THE HEAT PUMP HEATING & DEFROST MODES

Should the room temperature continue to fall when the system is operating in the heat pump heating mode, the thermostat will energize supplemental electric heat as required if an electric heater kit has been installed.

If the purple pigtail connected to the "D" terminal on the outdoor unit defrost control is connected to the W1 input (black pigtail) on the electric heater kit, the 1st stage of electric heat will be energized during the defrost cycle. This prevents cold air from being discharged from the supply registers during the defrost cycle. For the most economical operation when discharge air temperature during defrost is not an issue, do not make this connection.

## 4.5.4 EMERGENCY HEAT (HEAT PUMP)

If heat pump thermostat is set to the "Emergency Heat" mode, the outdoor unit will be prevented from operating and heat will be provided solely by the electric heater. The electric heater elements and indoor blower motor will be energized any time there is a call for heat with no compressor and outdoor fan operation. A jumper should be

installed between the W1 and E terminals on the thermostat sub-base so a call for emergency heat will be transferred to the 1st stage of heat of the thermostat. The indoor blower will cycle on and off with the electric heater elements when the thermostat fan setting is set to the "auto" mode.

### 4.5.5 THERMOSTAT FAN SETTING

If the thermostat "FAN" setting is adjusted to the "AUTO" position, the indoor blower motor will only operate when there is a call for cooling or heating. If the setting is adjusted to the "ON" position, the indoor blower motor will operate continuously at the low speed air-flow level.

**RXHM MIXING BOX**

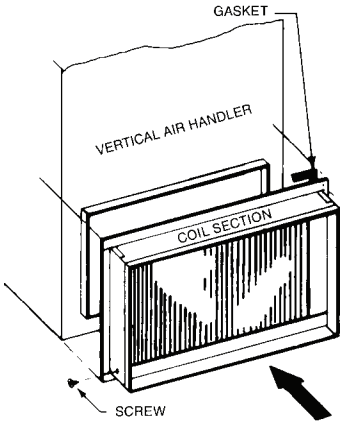
**RXHE ELECTRIC HEATER KIT**

# 5.0 FIELD INSTALLED ACCESSORIES & KITS

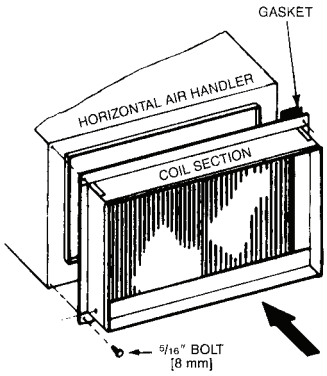
| ACCESSORY DESCRIPTION | MODEL NUMBER | SIZE USED ON | NET WEIGHT (LBS) [kg] |
|---|---|---|---|
| Hot Water Coil | RXHC-C74W | 090,120 | 200 [91] |
| | RXHC-C76W | 150,180,240 | 200 [91] |
| Steam Coil | RXHC-C74S | 090,120 | 200 [91] |
| | RXHC-C76S | 150,180,240 | 200 [91] |
| Auxiliary Heater Kit | RXHE-DE020*A | 090,120 | 75 [34] |
| | RXHE-DE030*A | 090,120 | 75 [34] |
| | RXHE-CE030*C | 150,180,240 | 90 [41] |
| | RXHE-CE040*C | 150,180,240 | 98 [44] |
| External Filter Rack | RXHF-F1 | 120 | 20 [9] |

**NOTE: *Designates "C", "D" or "Y" Voltage**
**[ ] Designates Metric Conversions**

## HOT WATER OR STEAM COILS




**(090, 120) RXHC-C74W RXHC-C74S**
**or**
**(150, 180, 240) RXHC-C76W RXHC-C76S**



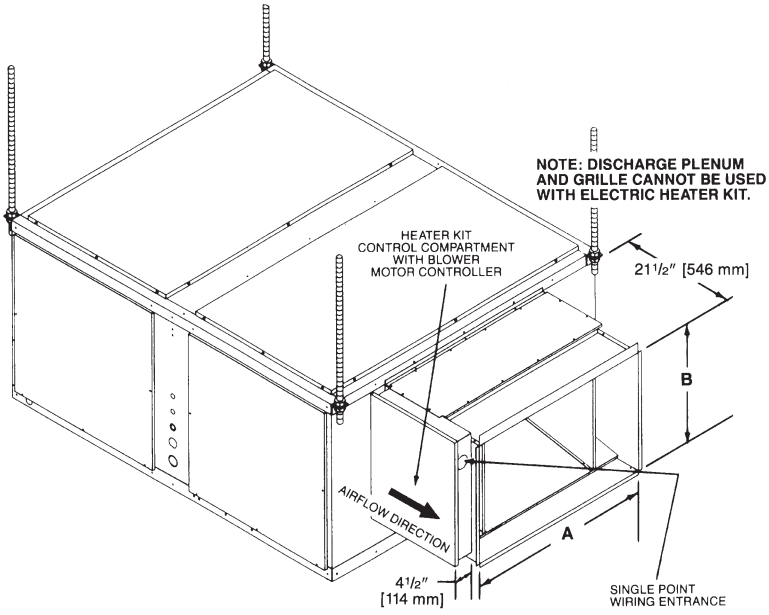

**(090, 120) RXHC-C74W RXHC-C74S**
**or**
**(150, 180, 240) RXHC-C76W RXHC-C76S**

## 5.1 ELECTRIC RESISTANCE HEATER KITS

**OPTIONAL ELECTRICAL HEATER KIT SHOWN INSTALLED IN HORIZONTAL POSITION AND CONNECTED DIRECTLY TO THE AIR HANDLER. THE HEATER KIT MAY ALSO BE INSTALLED WITH THE AIR HANDLER SET IN THE VERTICAL POSITION. IN EITHER POSITION THE HEATER KIT CONTROL COMPARTMENT MUST BE ON THE LEFT SIDE FACING THE AIR DISCHARGE OPENING.**

### AUXILIARY HEATER KIT

| MODEL NO. | IN. [ mm] | |
|---|---|---|
| | A | B |
| RXHE-DE****A | 20 [508] | 20 [508] |




**[ ] Designates Metric Conversions**

## 5.1 ELECTRIC RESISTANCE HEATER KITS (CONT.)

### TYPICAL APPLICATION
### 7.5, 10, 15 AND 20 NOMINAL TONS [26, 35, 53 AND 70 kW]

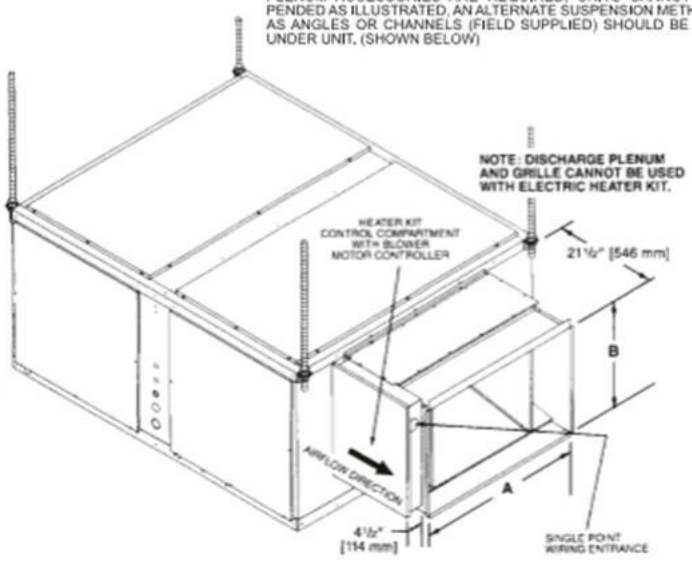
OPTIONAL ELECTRICAL HEATER KIT SHOWN INSTALLED IN HORIZONTAL POSITION AND CONNECTED DIRECTLY TO THE AIR HANDLER. THE HEATER KIT MAY ALSO BE INSTALLED WITH THE AIR HANDLER SET IN THE VERTICAL POSITION. IN EITHER POSITION THE HEATER KIT CONTROL COMPARTMENT MUST BE ON THE LEFT SIDE FACING THE AIR DISCHARGE OPENING.

| MODEL NO. | AIR HANDLERS SIZES USED ON | IN. [mm] | |
|---|---|---|---|
| | | A | B |
| RXHE-DE••••A | 090, 120 | 20 [508] | 20 [508] |
| RXHE-CE••••C | 150,180,240 | 36 [914] | 24 [610] |

THE BOTTOM OF THE AIR HANDLER SHOULD BE SLOPED IN TWO PLANES THAT PITCH THE CONDENSATE TO THE DRAIN CONNECTION. THE DRAIN PAN SHOULD NOT LEAVE PUDDLES LARGER THAN 2 INCHES IN DIAMETER AND 1/8 INCH DEEP FOR MORE THAN 3 MINUTES.

FOUR HEAVY GAUGE ANGLES ARE FURNISHED (SHIPPED LOOSE) FOR SUSPENDING UNITS FROM ALL FOUR CORNERS. MINIMUM OF ½" [13] SUPPORT RODS ARE RECOMMENDED. IF ALL-THREAD IS USED, IT IS ALSO RECOMMENDED THAT TWO NUTS AND TWO LOCKWASHERS BE TIGHTENED SECURELY AGAINST THE SUSPENSION ANGLES.

WHEN HOT WATER OR STEAM COIL, MIXING BOX OR DISCHARGE AIR PLENUM ACCESSORIES ARE REQUIRED, UNITS CANNOT BE SUSPENDED AS ILLUSTRATED. AN ALTERNATE SUSPENSION METHOD SUCH AS ANGLES OR CHANNELS (FIELD SUPPLIED) SHOULD BE LOCATED UNDER UNIT. (SHOWN BELOW)



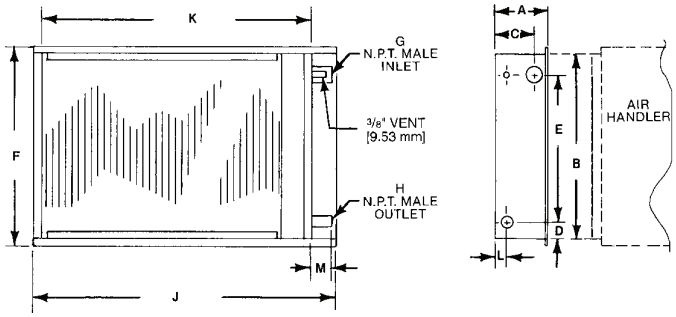

[ ] Designates Metric Conversions

## 5.2 HOT WATER & STEAM COILS

### PHYSICAL SPECIFICATIONS

| NOMINAL TONS [kW] | FINNED HEIGHT– IN. [mm] | FINNED LENGTH– IN. [mm] | FACE AREA FT² [m²] | CIRCUITS & TUBES HIGH |
|---|---|---|---|---|
| 7½ [26.38]-10 [35.17] | 18 [457] | 40 [1016] | 5.0 [.46] | 12 |
| 15 [52.75]-20 [70.34] | 27 [686] | 48 [1219] | 9.0 [.84] | 18 |

**STEAM COIL**




[ ] Designates Metric Conversions

### GROSS COIL PERFORMANCE

| NOMINAL TONS [kW] | NOMINAL BTUH | | NOMINAL CFM [ L/s] | VELOCITY FPM |
|---|---|---|---|---|
| | STEAM | WATER | | |
| 7½ [26.38] | 242,500 | 185,000 | 3,000 [1416] | 600 |
| 10 [35.17] | 285,000 | 240,000 | 4,000 [1888] | 800 |
| 15 [52.75] | 465,000 | 375,000 | 6,000 [2832] | 667 |
| 20 [70.34] | 540,000 | 464,000 | 8,000 [3776] | 888 |

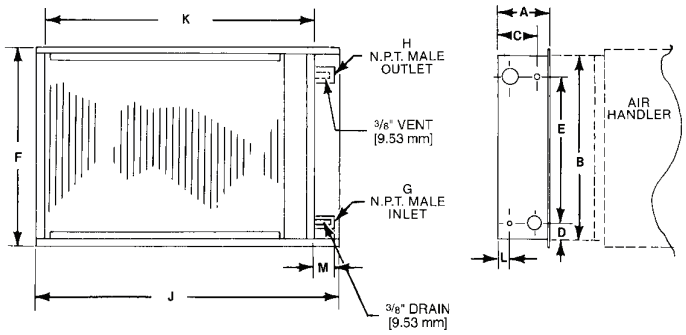
1. Entering air temperature @ 60°F
2. Entering steam @ 5 PSIG
3. Entering water @ 200°F
4. Face velocity = $\frac{\text{CFM}}{\text{Face Area}}$

## 5.2 HOT WATER & STEAM COILS

### STEAM COIL COIL DIMENSIONS—INCHES [mm]

| MODEL | NOMINAL TONS [kW] | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RXHC-C74 | 7 1/2 [26.38]-10 [35.17] | 9 1/16 [230] | 21 3/8 [543] | 5 3/8 [137] | 3 3/16 [81] | 15 [381] | 24 [610] | 1 1/2 [38] | 1 1/4 [32] | 51 1/2 [1308] | 47 5/8 [1210] | 2 13/16 [71] | 3 1/4 [83] |
| RXHC-C76S | 15 [52.75]-20 [70.34] | 9 1/16 [230] | 30 7/8 [784] | 5 3/8 [137] | 3 3/16 [81] | 24 [610] | 35 [889] | 2 [51] | 1 1/2 [38] | 59 1/2 [1511] | 55 5/8 [1413] | 2 13/16 [71] | 3 1/2 [89] |

**HOT WATER COIL**




### HOT WATER COIL DIMENSIONS—INCHES [mm]

| MODEL | NOMINAL TONS [kW] | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RXHC-C74W | 7 1/2 [26.38]-10 [35.17] | 9 1/16 [230] | 21 3/8 [543] | 5 3/8 [137] | 3 3/16 [81] | 15 [381] | 24 [610] | 1 1/4 [32] | 1 1/4 [32] | 51 1/2 [1308] | 47 5/8 [1210] | 2 13/16 [71] | 3 [76] |
| RXHC-C76W | 15 [52.75]-20 [70.34] | 9 1/16 [230] | 30 7/8 [784] | 5 3/8 [137] | 3 3/16 [81] | 24 [610] | 35 [889] | 1 1/2 [38] | 1 1/2 [38] | 59 1/2 [1511] | 55 5/8 [1413] | 2 13/16 [71] | 3 1/4 [83] |

**[ ] Designates Metric Conversions**

## 5.3 (-)HCLP2120 FILTER RACK ASSEMBLY

# 6.0 MAINTENANCE

For continuing high performance, and to minimize possible equipment failures, it is essential that periodic maintenance be performance on this equipment. This section provides general guidelines on what items require periodic maintenance and the recommended frequency for maintenance.

## 6.1 AIR-FILTERS

Check the system filter every 30-90 days or as often as found to be necessary depending on the application. Clean or replace filters if found to be obstructed. New filters are available from a local distributor or industrial supply store.

A qualified installer, service agency or HVAC professional should change the filters or instruct the building owner's maintenance personnel on how to access and change/clean the filters and how often this maintenance must should be performed.

IMPORTANT: Do not operate the system without a filter in place as this will result in lint and contaminants accumulating on the coil resulting in reduced performance and possible icing of the coil.

## 6.2 COIL, DRAIN PAN, DRAIN LINE

Inspect the indoor coil, drain pan, and drain line once each year for cleanliness and clean as necessary. Remove the filters and check the return side of the coil for lint and contaminants and flashlight.

IMPORTANT: Do not use caustic household drain cleaners with bleach in the condensate pan or near the indoor coil. Drain cleaners will quickly damage the indoor coil and condensate pan.

## 6.3 BLOWER LUBRICATION & CLEANING

The ball bearing motor is pre-lubricated and does not require the addition of grease at time of installation. However, periodic cleaning out and renewing the grease in ball bearings may be necessary. Please note that extreme care must be exercised to prevent foreign matter from entering the bearing.

Over time, dust and contaminants may collect on the motor, especially if the air-filters have not been replaced or cleaned on a regular basis. The motor should be inspected annually and the exterior surface should be cleaned as needed and the air vents vacuumed out to remove any obstruction.

## 6.4 BLOWER SHAFT BEARINGS, BEARING COLLAR SET SCREWS, BLOWER WHEEL, SHEAVES, & BLOWER DRIVE BELT(S)

Inspection of the blower shaft bearings, bearing collar set screws, blower wheel, and the blower drive belt(s) is recommended every 6 months. Check bearing-collar set screws on the blower shaft to make sure they are still tight. Check the blower shaft bearings for smooth operation and lubricate or replace bearings if necessary. Inspect the blower wheel for accumulation of lint and contaminants or damage. Remove blower wheel and clean or replace if necessary. Inspect the motor and blower sheaves for excessive wear or damage and check set-screws or D bushing bolts for tightness. Replace sheaves and tighten screws and bolts as necessary. Check alignment of sheaves and adjust if necessary. Inspect the blower drive belt(s) for wear and proper tension. Replace the belt(s) and re-adjust the tension if necessary.

## 6.5 MOTOR REPLACEMENT

Only replace the blower motor with one with the equivalent voltage, horsepower rating, amp rating, and NEMA frame size to maintain factory performance and reliability.

## 6.6 REPLACEMENT PARTS

Any replacement part used to replace parts originally supplied on equipment must be the same as or an approved alternate to the original part supplied. The manufacturer will not be responsible for replacement parts not designed to physically fit or operate within the design parameters the original parts were selected for.

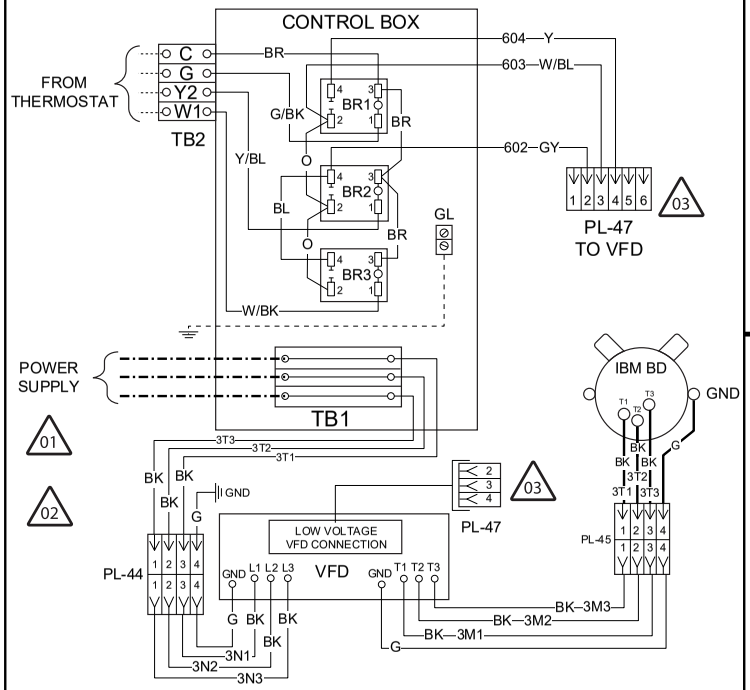
These parts include but are not limited to: Heater controls, heater limit controls, heater elements, motor, motor capacitor, blower contactor, blower wheel, indoor coil, sheaves, blower shaft, bearings, and sheet metal parts.

When ordering replacement parts, it is necessary to order by part number and include with the order the complete model number and serial number from the unit data plate. (See Parts List for unit component part numbers).

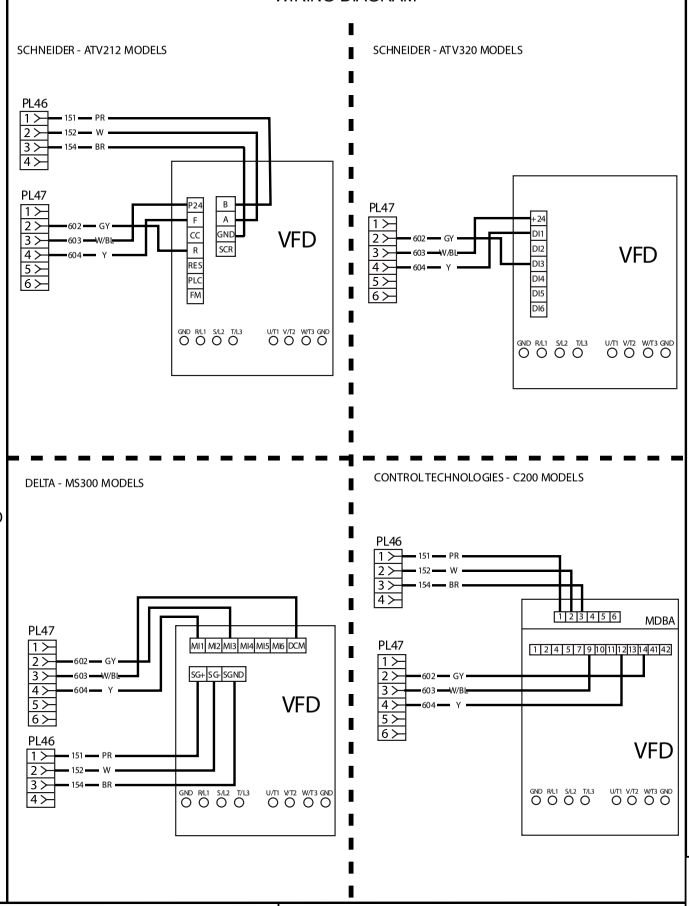
# 7.0 DIAGNOSTICS

| Problem | Possible Cause (Suggested Fix) |
|---|---|
| Blower motor will not operate or no air-flow | • Failed motor (replace)<br>• Loose wiring connection or broken wire (check connections & wiring)<br>• Failed transformer on outdoor unit (replace)<br>• Circuit breaker or fuse is turned off or has tripped due to overcurrent or shorted circuit (check for shorts, reset breaker)<br>• Belt loose, broken, or off (adjust or replace belt)<br>• Corrupted VFD program (see VFD Installation and Operation Instructions)<br>• Failed VFD (replace) |
| Excessive vibration | • Blower wheel out of balance (replace or clean blower wheel) |
| Water overflowing drainpan | • Plugged drain (clear drain)<br>• Unit not level (level unit) |
| Electric heater not heating properly or not heating at all, but blower motor is operating | • Over temperature limit has tripped (check for low air-flow)<br>• Over temperature limit has failed (replace)<br>• Contactor has failed (replace)<br>• One or more heating elements have burned out (replace) |
| Coil is frozen up | • System low on refrigerant charge (check for leaks and adjust charge)<br>• Dirty return air filter (replace filter)<br>• Inadequate air-flow due to incorrect blower sheave adjustment (adjust sheave to achieve proper air-flow) or excessively restrictive duct system (correct duct system)<br>• Belt loose, broken, or off (adjust or replace belt) |
| Excessive air-flow | • Incorrect blower sheave adjustment (adjust sheave to achieve proper air-flow) |
| Water blow-off from coil | • Excessive air-flow (adjust sheave to achieve proper air-flow)<br>• Contaminants on coil fans (clean coil)<br>• Damaged coil fins (comb out fins or replace coil) |
| TXV not controlling properly | • TXV bulb not positioned correctly or clamp not tight (Check position of TXV sensing bulb and tightness of clamp)<br>• Failed TXV (replace)<br>• Plugged TXV inlet screen (clean or replace screen or replace TXV) |

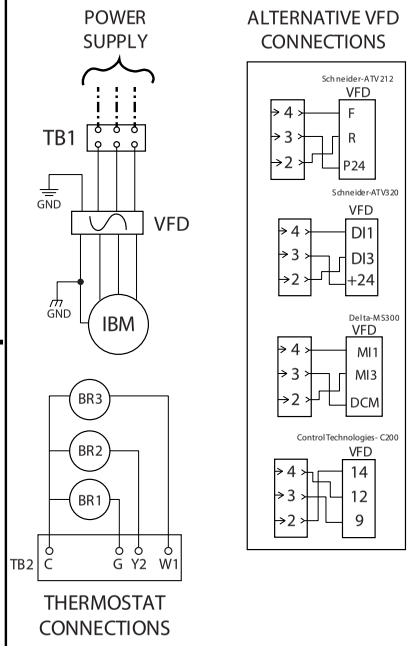
WIRING DIAGRAM




WIRING DIAGRAM




WIRING SCHEMATIC




## WIRE COLOR CODE

| | | |
|---|---|---|
| BK.....BLACK | G.....GREEN | PR.....PURPLE |
| BR.....BROWN | GY.....GRAY | R.....RED |
| BL.....BLUE | O.....ORANGE | W.....WHITE |
| | | Y.....YELLOW |

## WIRING INFORMATION

LINE VOLTAGE
-FACTORY STANDARD
-FACTORY OPTION
-FIELD INSTALLED

LOW VOLTAGE
-FACTORY STANDARD
-FACTORY OPTION
-FIELD INSTALLED

REPLACEMENT WIRE
-MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105C. MIN.)

WARNING
-CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., NATIONAL WIRING REGULATIONS, AND LOCAL CODE AS APPLICABLE.

## NOTES

1. SUPPLY WIRE MUST BE RATED AT 75°C MIN. SEE INSTRUCTIONS FOR SIZE.
2. POWER SUPPLY MUST MATCH VOLTAGE, PHASE AND HERTZ SHOWN ON RATING PLATE.
3. FOR LOW VOLTAGE VFD CONECTIONS. SEE THE DIAGRAM IN THE MIDDLE FOR THE DIFFERENT DRIVES ALTERNATIVES.
4. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
5. PL46 IS ONLY NECESSARY ON DDC UNITS.
6. MDBA IS ONLY NECESARY ON DDC UNITS.

## COMPONENT CODES

| | |
|---|---|
| BR | BLOWER RELAY |
| GL | GROUND LUG |
| G | GROUND |
| IBM | INDOOR BLOWER MOTOR |
| PL | PLUG |
| TB | TERMINAL BLOCK |
| VFD | VARIABLE FREQUENCY DRIVE |

## ELECTRICAL WIRING DIAGRAM

COMMERCIAL
VFD AIR-HANDLER

| | | |
|---|---|---|
| APPROVED: | CHECKED: | ORIGINAL RELEASE NO.: 112575 |
| MODELED BY: MAB | DATE: 7/25/2023 | |
| PART NO.: 90-106710-02 | | REV: 00 |