

AHL Series Air Handlers  
Installation Instructions

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**AHL Series  
Furred Down Side Discharge Air Handler**

**Installation – Operation – Maintenance**

The AHL series is designed for horizontal recessed installations in a furred down area, above a suspended ceiling or recessed in the ceiling. AHL models are for electric heat, DX cooling, and for heat pump applications. The unit can be configured for return air flow through the integral access panel or at the end of the unit. Installation tabs are built into the cabinet to facilitate mounting the unit. Optional panels are available that allow a wide range of installation options. Electric resistance heaters are available along with optional air conditioning and heat pump indoor coils. Full service of all components is easily accomplished through the access panel

**Installation Instructions**

Installation of this unit shall be made in accordance with the National Electric Code, NFPA No. 90A and 90B, and any other local codes or utilities requirements.

**Warning:**

**Due to possible damage to equipment or personal injury, installation, service and maintenance should only be performed by a trained, qualified person. Consumer service is recommended only for filter replacement.**

**Warning:**

**Ensure all power is disconnected before installing or servicing this unit. More than one disconnect device may be required to de-energize the equipment. Hazardous voltage can cause severe personal injury. Make certain all panels are in place before operating this unit.**

**Unpacking**

Carefully unpack the unit and inspect the contents for damage. If any damage is found at the time of delivery, proper notification and claims should be made with the carrier who delivered the unit.

Check the rating plate to assure model number and voltage, plus any kits agree with what you ordered. The manufacturer should be notified within 5 days of any discrepancy or parts shortage.

**Location**

The blower coil unit should be centrally located and may be installed above a suspended ceiling with integral return panel, in a furred down area with remote or integral return, or recessed in the ceiling.

This unit is approved for "0" clearance from any side, front, rear or duct work. The unit must be installed in a level position to ensure proper condensation drainage. Make sure the unit is level in both directions within 1/8".

The unit incorporates installation tabs that mount to the framing and provide a 1/2 inch flange to trim to the

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finished edge of a sheetrock ceiling. The access panel mounts to the cabinet and trims the installation.

All service entrances and exits on the cabinet are recessed to allow for 2 x 4 framing of the opening the cabinet will be centrally located within. Any modifications to existing framing should be accomplished by the general contractor to ensure structural strength is maintained in the structure. The structural opening in the framing for the AHK series should be 51 ¼" long and 23 ¼" wide. The structural opening in the framing for the AHF series should be 47 ¼" long and 23 ¼" wide. The unit should be positioned where the bottom edge of the cabinet is ½" below the framing member.

### Duct Work

The duct work should be installed in accordance with the NFPA No. 90A "Installation of Air Conditioning and Ventilating systems" and No. 90B "Residential Type Warm Air Heating and Air Conditioning Installation."

The duct work should be insulated in accordance with the applicable requirements for the particular type installation as required by HUD, FHA, VA the applicable building code, local utility or other governing body.

### Condensate Drain

The unit is supplied with 3/4 inch primary and auxiliary condensate drains. Both drains must be trapped outside the unit and piped in accordance with applicable building codes. Do not reduce the drain line size less the connection size on the drain pan. Condensate should be piped to an open drain or to the outside. All drains must pitch downward away from the unit a minimum of 1/8" per foot of line to ensure proper drainage.

### Refrigerant Piping

Refrigerant pipe connections are located on the top of the unit. Refrigerant piping external to the unit shall be sized in accordance with the instructions of the manufacturer of the outdoor equipment. When units are recessed mounted in the wall, make certain that piping connections are pressure tested prior to the wall being closed.

### Metering Device

All units are shipped with a checkflow piston installed which is designed for air conditioning or heat pump operation. If your application requires a thermal

expansion valve or check expansion valve then it is necessary to remove the piston from the distributor assembly and install the proper metering device. Be sure to follow the instruction in the kit to ensure proper installation.

### Wiring

Consult all schematic and pictorial wiring diagrams of this unit and the outdoor equipment to determine compatibility of the wiring connections and to determine specific requirements.

All field wiring to the blower coil should be installed in accordance with the latest edition of the National Electric Code NFPA No. 70 and any local codes. Check rating plates on unit for rated volts, minimum circuit ampacity and maximum over current protection. Supply circuit power wiring must be 75 degree C. (167 degree F) minimum copper conductors only. Copper supply wires shall be sized to the National Electric Code or local code requirements, whichever is more stringent.

The unit is shipped wired for 230/240 Volt AC 60 HZ 1 Phase Operation. If the unit is to be operated at 208 VAC 60HZ, then follow the instruction on the indoor unit wiring diagram to change the low voltage transformer to 208 VAC operation.

Be sure the unit is properly grounded.

Class 2 low voltage control wiring 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. Low voltage control wiring should be 18 Awg, color coded (105 degree C minimum). For lengths longer than 100ft., 16 Awg wire should be used. Make certain that separation of control wiring and power wiring has been maintained.

### Thermostat

Select a thermostat that is commonly referred to as a single stage cooling with electric heat subbase. This stat will energize the fan on a demand for heat or cool.

Install the thermostat on an inside wall, away from drafts, lights or other heat sources in a location that has good air circulation from the other rooms being controlled by the thermostat. The thermostat should be mounted 4 to 5 feet above the floor.

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## Sequence of Operation

**Cooling (cooling only or heat pump with reversing valve energized in heat mode).** When the thermostat calls for cooling, the circuit between R and G is completed and the blower relay is energized. The N.O. contacts will close, after a time delay, the indoor blower will operate. The circuit between R and Y is completed: causing the contactor on the outdoor equipment to close and start the compressor and the outdoor fan motor.

**Cooling (heat pump with reversing valve energized in cooling mode).** When the thermostat calls for cooling, the circuit between R and G and R and O is completed. Circuit R and O energizes the reversing valve to the cooling position, Circuit R and G energizes blower relay. The N.O. contacts will close, after a time delay, the indoor blower will operate. The circuit between R and Y is completed: causing the contactor on the outdoor equipment to close and start the compressor and the outdoor fan motor.

**Heating (electric heat only).** When the thermostat calls for heat, the circuit between R and W is completed, the heat sequencer is energized. A time delay will occur: Then the heating element(s) and the indoor blower motor will come on.

**Heating (heat pump reversing valve energized in heat mode).** When the thermostat calls for heat, the circuits between R and B, R and Y and R and G are completed. Circuit R and B energize the reversing valve switching it to the heat position. Circuit R and Y energized the outdoor unit contactor starting the compressor and outdoor fan. Circuit R and G energizes the blower relay starting the blower motor.

If the indoor room temperature should continue to fall, circuit R and W2 is by the second-stage heat bulb on the thermostat. Circuit R-W2 energizes the heat sequencer. The completed circuit will energize the supplemental electric heat.

**Blower Time Delay.** This unit is equipped with timed on and a timed off relay. This relay delays the start and delays the stopping of the indoor fan motor to maximize the efficiency of the unit.

**Defrost.** Supplemental heat during defrost can be provided by connecting B on the blower coil to the defrost relay on the outdoor heat pump. This will complete the circuit between R and B (in the blower coil) through a set of contacts in the defrost relay in the outdoor unit when the unit starts the defrost cycle. This circuit, when it is connected, will help prevent cold

air from being discharged from the indoor unit during the defrost

## Blower

Units through three tons are supplied with a multi-speed (high, medium & low) motor with direct drive blower wheel which can obtain various air flows. One and one half ton units are factory wired on low speed, two ton units are factory wired on medium speed and two and one half ton units are factory wired on high speed. If a different motor speed is required, disconnect all power to the unit, remove the factory wired indoor fan motor lead from the fan relay and place an insulated cap on the removed motor lead. Remove the insulated cap from the desired indoor fan motor lead, place a spade connector on the lead and connect it to the fan relay where the original lead was connected. The black motor lead is high speed, the red motor lead is low speed, and the blue motor lead (if available) is medium speed. Be sure to check the air flow and the temperature drop across the evaporator coil to ensure that you have sufficient airflow.

## Start Up

Once all connections are completed, the unit should be started up and a check out of the completed system should be performed. Before performing any system test, make sure that all grilles, registers and dampers are open and set to the correct position. Also make certain that an air filter is installed in the return air prior to running the air handler.

A performance test should be completed in accordance with the outdoor equipment manufacturer's instructions. Airflow tests should be conducted in the heating and cooling modes to ensure satisfactory operation.

## Maintenance

The system air filter(s) should be inspected, cleaned or replaced at least monthly. If the filter is mounted internal to unit, make sure that electrical power is disconnected before removing the access panels. Make certain that the access panels are replaced and secured properly before placing the unit back in operation. This product is designed for dependable service; however, periodic maintenance should be scheduled to be conducted by trained professional service personnel. This service should be conducted at least annually, and should include testing and inspection of electrical and refrigerant components. The heat transfer surface should be cleaned. The blower motor is permanently lubricated for normal operating conditions.

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**Warnings**

**Do not store or use any corrosives or combustibles in the vicinity of this unit. All panels must be in place and properly secured before operating this equipment.**

**All electrical power servicing this unit must be disconnected prior to removal of any panels. Service of this unit must be accomplished by qualified trained professional personnel only**

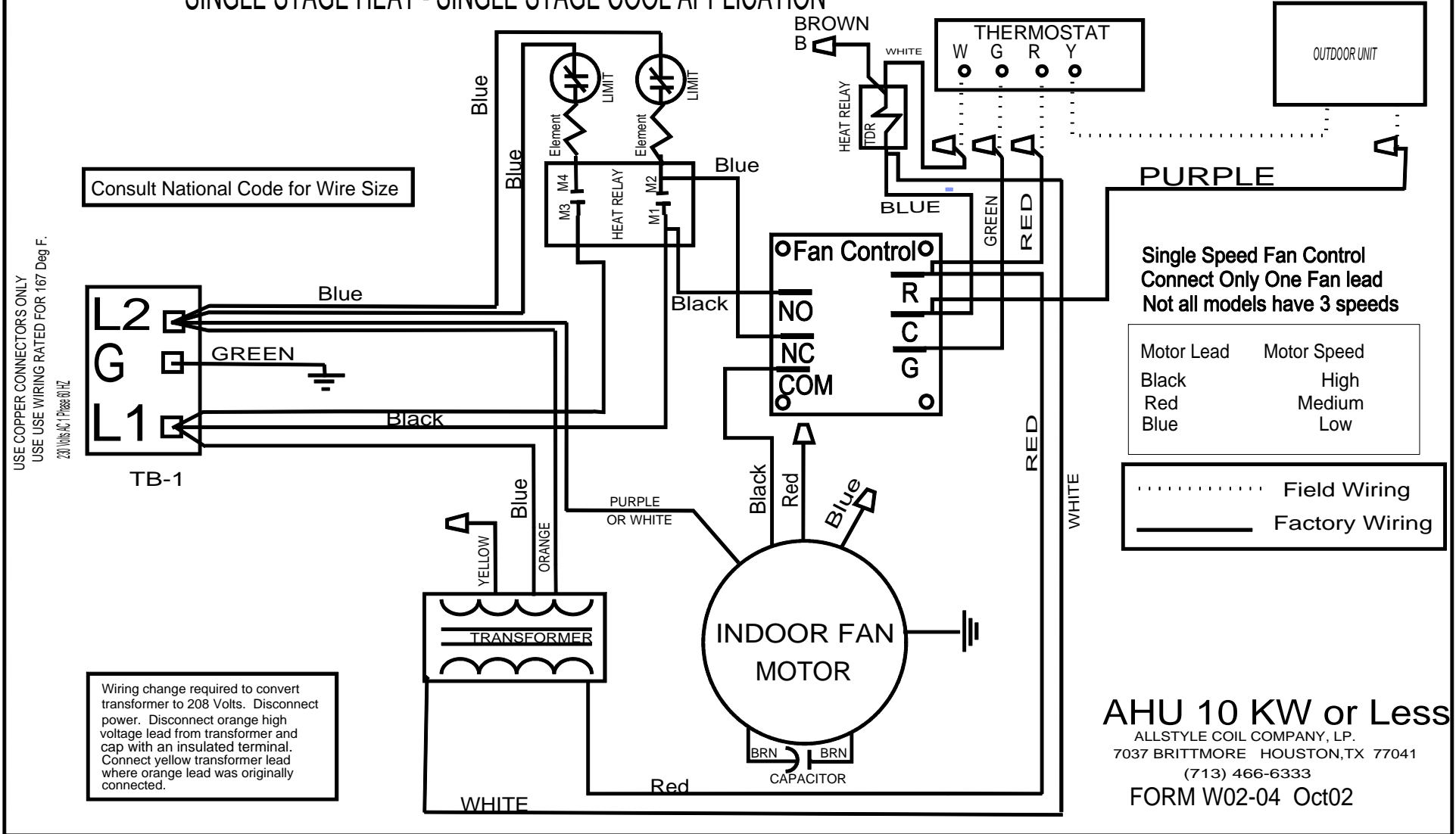
Conforms to UL STD 1995

THIS UNIT IS MANUFACTURED IN THE USA BY:

AllStyle Coil Co., LP  
7037 Brittmore  
Houston, TX 77041



# SINGLE STAGE HEAT - SINGLE STAGE COOL APPLICATION



## 230 VOLTS AC 60 HZ SINGLE PHASE