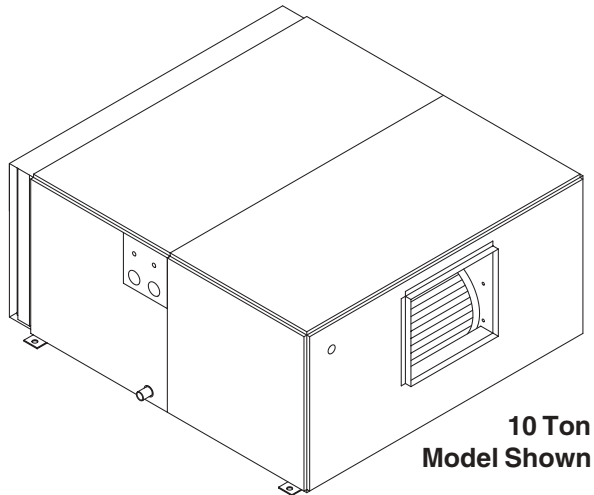


Light Commercial Air Handler

Installation Instructions

B3SM - 090/120 Series

7.5 and 10 Ton Light Commercial Systems



10 Ton
Model Shown

GENERAL

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

Before beginning the installation, read these instructions thoroughly and follow all warnings and cautions in the instructions and on the unit. When performing brazing operations have a fire extinguisher readily available and use a quenching cloth and brazing shield.

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

The manufacturer assumes no responsibility for equipment installed in violation of any code requirement.

These instructions give information relative to the installation of these air handlers only. For other related equipment refer to the proper instructions.

Material in this shipment has been inspected at the factory and released to the transportation agency in good condition. When received, a visual inspection of all cartons should be made immediately. Any evidence of rough

handling or apparent damage should be noted on the delivery receipt and the material inspected in the presence of the carrier's representative. If damage is found, a claim should be filed against the carrier immediately.

INSTALLATION

7-1/2 and 10 Ton air handler units are shipped ready for installation in a horizontal position with discharge air in a horizontal direction. Unit models need to be leveled in such a way that there is slope toward the condensate drain nipple.

Standard unit configuration is to the right, in the direction of airflow. Refrigerant line connections are located on the motor side of cabinet. Evaporator access panels are designed to allow refrigerant lines connections from the opposite side of the unit if required.

Units can be field converted to alternate positions by removing appropriate top and bottom exterior panels and repositioning the complete blower section assembly. Six easily accessible bolts, three each side, connect the evaporator and blower section halves together. See Figure 1.

Note: Some configurations will require the repositioning of the support rod mounting bracket using additional holes supplied in the evaporator assembly.

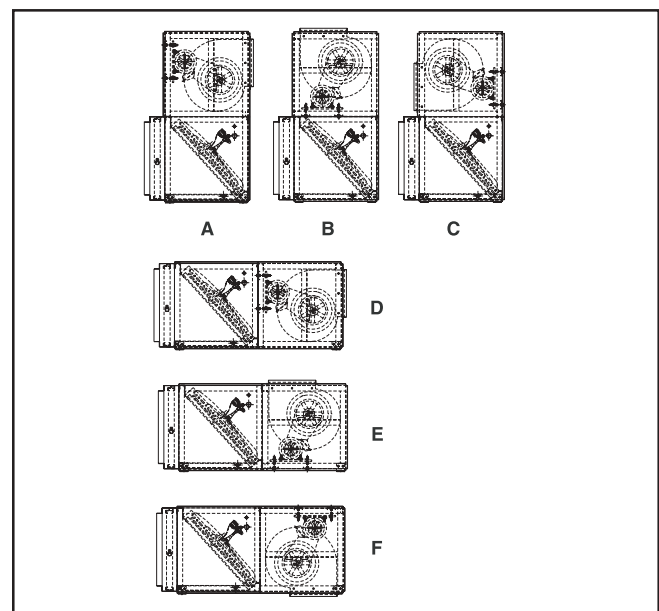


Figure 1. Unit Arrangement

Model No.	Unit Dimensions			Blower Outlet		Return Opening		Support Brackets	
	Length (L)	Width (W)	Height (H)	Height (A)	Width (B)	Height (C)	Width (D)	(E)	(F)
	in.(mm)	in.(mm)	in.(mm)	in.(mm)	in.(mm)	in.(mm)	in.(mm)	in.(mm)	in.(mm)
B3SM-090*	53.8 (1366)	50 (1270)	26 (653)	13.63 (344)	15.75 (398)	21 (533)	45.75 (1162)	45 (1143)	51 (1295)
B3SM-120*	59.5 (1512)	53 (1346)	28 (708)	16.06 (407)	18.75 (474)	23.75 (603)	48.5 (1232)	51 (1295)	54 (1372)

Table 1. Physical Dimensions

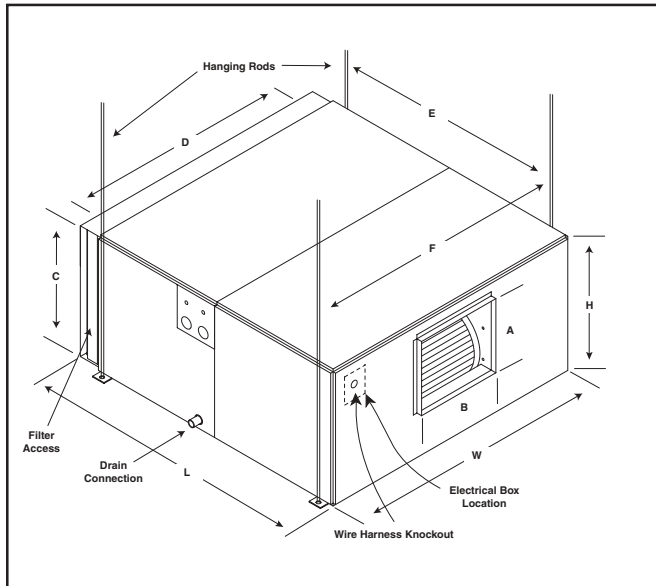


Figure 2.

MOUNTING

Sufficient clearance must be provided on the sides of the unit to allow access for servicing the blower, motor, coil assembly, and filters.

7-1/2 and 10 Ton air handlers are intended to be mounted with support rods. There are mounting brackets located at all four corners which accept field supplied hanging rods for securing the unit. See Figure 2.

AIR DISTRIBUTION DUCTS

All duct work must be installed in accordance with National Fire Protection Association Codes 90A and 90B. The return air duct must have the same free area as the opening provided on the blower coil unit.

PIPING

These air handlers are supplied with a direct expansion refrigerant coil and have thermostatic expansion valves standard. The 120 air handlers have dual circuit coils. Refer to the installation instructions supplied with the outdoor unit for more piping details.

Notice to Installer: Evaporator Coils are factory shipped with a high pressure nitrogen charge. Use caution when preparing coils for field connections.

The suction and liquid lines must be sized in accordance with the condensing unit manufacturer's recommendations and require sweat connections at the air handler unit.

Condensate drain lines must be installed with adequate slope away from the unit to assure positive drainage. Since the drain pan is located on the suction side of the blower, a negative pressure exists at the drain pan and a minimum trap of 2 inches must be provided in the drain line to assure proper drainage.

ELECTRICAL

General - Electrical power wiring must be made in accordance with all applicable local codes and ordinances, and with the current revision of the National Electrical Code (ANSI/NFPA 70). If any of the original wire as supplied with the unit must be replaced, it must be replaced with wire material having the same gauge and temperature rating.

Line Voltage – Before proceeding with the electrical connections, make certain that the voltage, frequency, and phase of the power source are the same as those specified on the rating plate.

Note: Electrical rating nameplate must be applied to the unit. Apply unit rating label to the front side of the blower outlet panel near the field supplied electrical box.

208-230/1/60 units are shipped from the factory for 230 Volt operation.

208-230/460/3/60 units are shipped from the factory for 460 Volt operation.

190-380/3/50 units are shipped from the factory for 380 Volt operation.

NOTE: For three phase units. If blower is turning opposite of arrow direction, shut off main power to unit and switch any two field wire leads at the disconnect.

See the unit wiring diagram label for proper high voltage wiring.

A disconnecting means must be located within sight of, and readily accessible to, the unit. Reference the NEC and Local Codes for Disconnect requirements.

For Maximum ampacity and overcurrent protection, see Table 2 or the unit rating plate.

Model	Voltage	Ph.	Hz	FLA	HP	MCA	MOP
B3SM-090J	208-230/460	3	60	5.2-5.2/2.6	1.5	6.5-6.5/3.3	15
B3SM-090K	208-230	1	60	7.0-7.0	1.5	8.8-8.8	15
B3SM-120J	208/-230/460	3	60	6.9-7.2/3.7	2.0	8.6-9.0/4.6	15
B3SM-120K	208-230	1	60	9.7-9.7	2.0	12.1-12.1	20
B3SM-090G	190/380	3	50	5.6/2.8	1.5	6.9/3.5	15
B3SM-120G	190/380	3	50	6.7/3.4	2.0	9.3/4.6	15

FLA = Full Load Amp; MCA = Min.Circuit Ampacity; MOP = Max. Overcurrent Protection

Table 2. Electrical Ratings

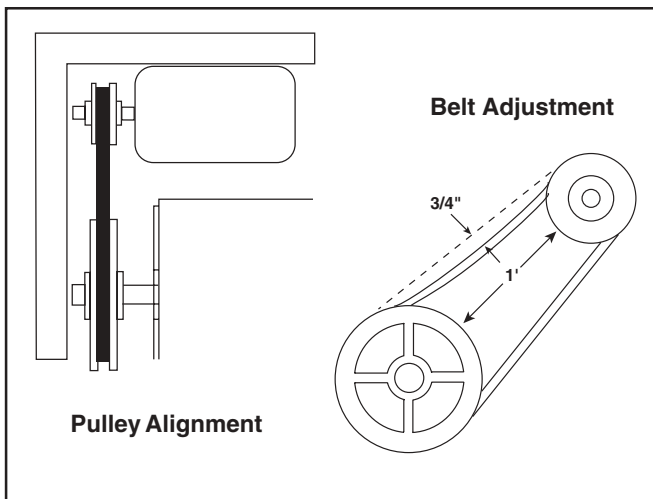


Figure 3. Belt and Pulley Adjustment

Motor Pulley - The motor pulley is a variable pitch style pulley which allows blower speed adjustments over a wide range of applications.

Pulley Alignment and Belt Tension - Pulleys and belts are factory set but should be checked for proper alignment. If realignment is necessary, loosen either the motor pulley or blower pulley and complete proper alignment. Belt tension is adjusted by means of the adjusting bolts. A deflection of about 3/4" to 1" per foot of span should be obtained by pressing on the belt firmly (See Figure 3). The motor mount bolts should be tightened securely after the adjustment is made.

Wire Harness Routing - The wiring harness should be routed away from the pulley/belt area. Run the harness over to the 4" x 4" electrical box (field provided) on the outside of the cabinet.

WARNING!

Disconnect electrical power and allow all rotating equipment to stop before servicing the unit. Failure to do so may result in personal injury or death from electrical shock or entanglement in moving parts.

BLOWER SPEED ADJUSTMENT

The blower speed is preset at the factory. For optimum system performance and comfort, it may be necessary to change the factory set speed. Adjustment of blower speed is made by loosening the motor sheave set screw in the outer (moveable) pulley face and turning this face half or full turns only so that the adjusting set screw will be positioned precisely over the flat on the pulley hub. Speed is reduced by adjusting the pulley faces so that they are further apart; speed is increased with faces closer together. Check all of the pulley setscrews for tightness.

START-UP

Prior to start-up, complete the following inspection:

- Check that the unit is mounted securely.
- Check that the unit is level and that proper condensate drainage will occur.
- Check all ductwork connections.
- Check coil connections for leaks and condensate line for proper slope and trap.
- Inspect all electrical connections. Ensure that all filters and unit panels are in place.

MAINTENANCE

The following is provided as a recommended maintenance schedule.

WARNING!

To avoid the risk of electric shock, personal injury or death, disconnect all electrical power to the unit before performing any maintenance or service.

MONTHLY CHECK LIST

Inspect the unit air filters. Clean or replace as required.

Inspect the drain pan to be sure it is clean to permit the flow of condensate through the drain lines.

Inspect the fan belt for wear and alignment. Replace or adjust as required.

YEARLY CHECK LIST

Inspect the blower coil unit casing for corrosion and loose fasteners. Inspect the blower wheel and housing.

Check the motor pulley and blower pulley for alignment and tighten their set screws. Adjust belt tension if necessary.

Inspect all coil connections for leaks. Inspect the coil fins for excessive dirt or damage. Clean or repair if required.

FILTERS

To clean permanent filters, remove the filter and wash in water to remove the old filter oil. Rinse in clean, hot water and allow to drain and dry thoroughly before reinstalling the filter.

DRAINPAN

The drainpan and the drain lines should be cleaned to allow condensate flow. Remove any accumulation of residue from the drainpan and inspect for rust and leaks.

PULLEY ALIGNMENT AND BELT TENSION

Belt tension and pulley alignment should be checked. Belt tension is adjusted by the position of the motor on the motor mount. A deflection of about 3/4" to 1' per foot of span should be obtained by pressing the belt firmly.

Alignment of pulley grooves is made by moving the pulley on the motor or blower shaft. For blower speed adjustment refer to that section.

MOTOR

Pre lubricated bearings. No further lubrication is required.

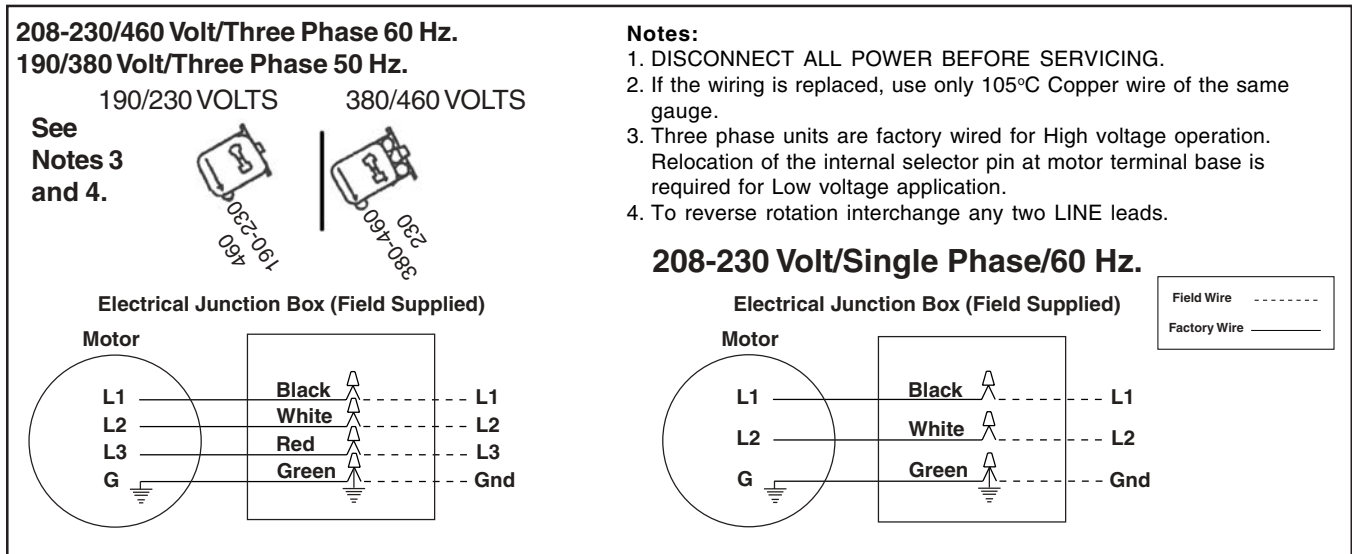
V-BELTS

V-belts tend to elongate with time after normal application and use. Ensure the belt always maintains adequate tension without over tightening which could cause motor and blower bearings to receive undue strain. As a result the unit could experience vibration and noise problems.

BLOWER

Plummer block type bearings are used and are grease packed. Inspect the bearings for wear. Inspect the thrust collars for end play and alignment of wheel. Replace if necessary. Periodic maintenance is recommended to the bearing with an injection of grease approximately every six months or when required.

Check the blower wheel blades for accumulations of dirt and clean as required. Check mounting brackets and blower mounting bolts.



Notes:

1. DISCONNECT ALL POWER BEFORE SERVICING.
2. If the wiring is replaced, use only 105°C Copper wire of the same gauge.
3. Three phase units are factory wired for High voltage operation. Relocation of the internal selector pin at motor terminal base is required for Low voltage application.
4. To reverse rotation interchange any two LINE leads.

Figure 4. 7.5 Ton and 10 Ton Air Handler Systems

INSTALLER: PLEASE LEAVE THESE INSTALLATION INSTRUCTIONS WITH THE OWNER

