

Cool Boss™ HVLS Industrial Ceiling Fan

Installation and Operation Manual

Manual 5900279 — Revision A2 — May 2023

Models:

- CB-11HVLS
- CB-16HVLS
- CB-20HVLS
- CB-24HVLS



*CB-16HVLS Pictured above.
Actual product color may vary.*

Designed and engineered by BendPak Inc. in Southern California, USA. Made in China.

 **DANGER**

Read the entire contents of this manual **before** using this product. Failure to follow the instructions and safety precautions in this manual can result in severe injury or death. Make sure all other operators also read this manual. Keep the manual near the product for future reference. **By proceeding with setup and operation, you agree that you fully understand the contents of this manual and assume full responsibility for product use.**

Manual. Cool Boss™ HVLS Industrial Ceiling Fan Series, *Installation and Operation Manual*, P/N 5900279, Manual Revision A2, May 2023.

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Limitations. Every effort has been made to ensure complete and accurate instructions are included in this manual. However, product updates, revisions, and/or changes may have occurred since this manual was published. BendPak reserves the right to change any information in this manual without incurring any obligation for equipment previously or subsequently sold. BendPak is not responsible for typographical errors in this manual.

Warranty. The Cool Boss warranty is more than a commitment to you: it is also a commitment to the value of your new product. Visit coolboss.com/warranty for complete warranty information.

Safety. Your new product was designed and manufactured with safety in mind. Your safety also depends on proper training and thoughtful operation. Do not set up, operate, maintain, or repair your Cool Boss without reading and understanding this manual and the labels on the unit.

Owner Responsibility. In order to ensure operator safety and maintain your product properly, it is the responsibility of the product owner to read and follow these instructions:

- Follow all setup, operation, and maintenance instructions.
- Verify product setup and use conforms to all applicable local, state, and federal codes, rules, and regulations, such as state and federal OSHA regulations and electrical codes.
- Read and follow all safety instructions. Keep them readily available for operators.
- Make sure all operators are properly trained, know how to safely operate the unit, and are properly supervised.
- Do not operate the product until you are certain all components are in place and operating correctly.
- Carefully inspect the product on a regular basis and perform all maintenance as specified.
- Service and maintain the unit only with approved replacement parts.
- Keep all instructions permanently with the product and make sure all labels are clean and visible. BendPak makes no promises, guarantees or assurances that our products meet any state, county, federal or international mandated permit, license, code, standard, certification, or any other mandate other than what is listed or shown on Cool Boss, BendPak website(s), or any BendPak, Cool Boss or Ranger online or published catalog. Buyer assumes full responsibility for any state, county, federal or international mandated permit, license, code, standard, certification, or any other mandate required related to the installation and/or operation of any BendPak, Cool Boss or Ranger product. BENDPAK will not be responsible for any charges, fines, liens, or other levies imposed on the Buyer related to any special or regional fire, structural, seismic or any other building code and/or codes such as the Uniform Building Code (UBC), International Building Code (IBC), or any other state, county, federal or international mandated permit, license, code, standard, certification, or other mandate, law, rule, regulation or directive by any other agency, government, administrations, or corporations whether state, county, federal, or international mandated.

- **Only use this HVLS Fan if it can be used safely**

Unit Information. Enter the Model Number, Serial Number, and Date of Manufacture from the label on your unit. This information is required for part or warranty issues.

Model: _____
Serial: _____
Date of Manufacture: _____

COOL BOSS™		Theodore, AL USA www.coolboss.com
MODEL NO.	SKU NO.	
DESCRIPTION	DIMENSIONS	
VOLTAGE	POWER / RATED CURRENT	
BLADE QTY / SPEED	SERIAL NUMBER	
AIR VOLUME	DATE CODE	
DANGER! Disconnect Power Before Servicing		UPC
CE	UL	EAC
Intertek 5023408	UL 5023408	PN 5906200
MADE IN CHINA	Conforms to UL STD. 507 Certified to CSA STD. C22.2 NO. 60335-2-80	

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Introduction

The Cool Boss High Volume Low Speed (HVLS) Industrial Ceiling Fan keeps your shop or workplace cool and comfortable on even the hottest summer days. The Cool Boss HVLS Fans are an economical year-round ventilation solution. Cool Boss Models CB-20HVLS and CB-24HVLS described here also feature a negative air ionizer. All Cool Boss HVLS Fans utilize highly reliable permanent magnet (synchronous) motors to drive the Fan Blades directly without reduction gearing. The Fan controller utilizes a Variable Frequency Drive (VFD) to control Fan speed and torque. The Fan Blades are constructed of high strength, fatigue resistant aluminum alloy, powder coated to ease cleaning and ensure long life. All models require 220 VAC, 50/60 Hz. electrical power. This manual applies to all four Cool Boss HVLS Fans. There are minor mechanical and electrical differences between the Fan models. These differences will be clearly identified in the manual and labelled by model number.


CB-11HVLS has a nominal diameter of 11.5 ft. / 3.5 m.

CB-16HVLS has a nominal diameter of 16.5 ft. / 5 m.

CB-20HVLS has a nominal diameter of 20 ft. / 6 m includes an ion generator.

CB-24HVLS has a nominal diameter of 24 ft. / 7.3 m includes an ion generator.

This manual is mandatory reading for all users of the Cool Boss HVLS Fans, including anyone who installs, operates, maintains, or repairs them. Always keep this manual on or near the equipment.

 **DANGER** Be very careful when setting up, operating, maintaining, or repairing this equipment; failure to do so correctly could result in property damage, product damage, injury, or (in rare cases) death. Make sure only authorized personnel operate this equipment. All repairs must be performed by an authorized technician. Do not make modifications to the unit; this voids the warranty and increases the chances of injury or property damage. Make sure to read and follow the instructions on the labels on the unit.

Keep this manual on or near the equipment so that anyone who uses or services the unit can read it. Assistance with your Cool Boss is available from your dealer, by calling Cool Boss at **(855) 2BE-COOL**, or by emailing support@coolboss.com. You may also contact Cool Boss for parts replacement (please have the serial number and model number of your unit available).

Scan this QR Code for up-to-date information and videos on Cool Boss Fans.



Shipping Information

Your equipment was carefully checked before shipping. Nevertheless, you should thoroughly inspect the shipment **before** you sign to acknowledge that you received it.

When you sign the bill of lading, it tells the carrier the items on the invoice were received in good condition. **Do not sign the bill of lading until after you have inspected the shipment.** If any of the items listed on the bill of lading are missing or are damaged, do not accept the shipment until the carrier makes a notation on the bill of lading that lists the missing and/or damaged goods.

If you discover missing or damaged goods **after** you receive the shipment and have signed the bill of lading, notify the carrier at once and request the carrier to make an inspection. If the carrier will not make an inspection, prepare a signed statement to the effect that you have notified the carrier (on a specific date) and that the carrier has failed to comply with your request.

It is difficult to collect for loss or damage after you have given the carrier a signed bill of lading. If this happens to you, file a claim with the carrier promptly. Support your claim with copies of the bill of lading, freight bill, invoice, and photographs, if available. Our willingness to assist in helping you process your claim does not make us responsible for collection of claims or replacement of lost or damaged materials.

Safety Considerations

Read this manual carefully before using your new product. Do not set up or operate the product until you are familiar with all operating instructions and warnings. Do not allow anyone else to operate the product until they are also familiar with all operating instructions and warnings.

⚠ WARNING California Proposition 65. This product can expose you to chemicals including styrene and vinyl chloride which are on a list of over nine hundred chemicals identified by the State of California to cause birth defects or reproductive harm. ALWAYS use this product in accordance with BendPak and Cool Boss' instructions. For more information go to www.P65Warnings.ca.gov.





Safety Information

- The product is an air-moving device. Use it only for its intended purpose.
- The product should only be operated by authorized personnel. Children should **not** be allowed operate the Cool Boss HVLS Fan. Make sure all operators read and understand the Warning labels and this *Installation and Operation Manual*. Keep the manual near the Fan at all times.
- **Never** operate any Cool Boss equipment with damaged wiring.
- When the product is in use, keep all body parts away from it. No personnel should be closer than ten-feet (3-meters) from this device while it is operating.
- **Outdoor installation is prohibited.** Only use this product indoors in a well-ventilated area. Ensure a window or door is open to allow adequate air flow.
- **Always** use appropriate tools and lifting equipment.

- **Save these instructions! Always** stay clear of moving parts.
- Do not make any modifications to the product. Modifications void the warranty and increases the chances of severe injury or property damage.
- **Extension cord use is prohibited.**
- Do not spray any part of the Fan or its controller with water. Moisture can harm the motor and other parts of the electrical system.
- Only connect the Motor Controller to a GFCI protected circuit.
- Make a visual inspection of the product before using it. Check for damaged or missing parts. **Do not use the product if you find problems with the unit.** Instead, remove it from service, then contact your dealer, call Cool Boss at **(805) 933-9970**, or email Cool Boss at support@coolboss.com.
- Do **not** operate the Cool Boss if the Fan has cracked, damaged or worn components.
- Do **not** operate the Cool Boss within 35-feet (10.6 m) of an open flame or spark.
- Do **not** operate the Cool Boss in an environment with flammable or corrosive gasses.
- Do **not** operate the Cool Boss in an environment where powdered metal, oil, water, or other foreign matter can enter the Motor or its Controller.
- **Always** remove and lockout electrical power before performing inspection, maintenance, or repairs on this Fan.
- BendPak recommends making a thorough inspection of the product at least once a year. Replace any damaged or severely worn parts, decals, or warning labels.
- **Even if the main Fan Motor is stopped and the switch is in the off position, hazardous voltage may be present on the circuit terminals.** Only licensed Electricians should be allowed to open and service the Cool Boss HVLS Fan Control Panel or Fan Motor.

Symbols

Following are the symbols used in this manual:

-  **DANGER** Calls attention to an immediate hazard that **will** result in death or severe injury.
-  **WARNING** Calls attention to a hazard or unsafe practice that **could** result in death or severe personal injury.
-  **CAUTION** Calls attention to a hazard or unsafe practice that could result in minor personal injury, product, or property damage.
-  **Tip** Calls attention to information that can help you use your product better.

Liability Information

BendPak Inc. assumes **no** liability for damages resulting from:

- Use of the equipment for purposes other than those described in this manual.
- Modifications to the equipment without prior, written permission from BendPak Inc.
- Injury or death caused by modifying, disabling, overriding, or removing safety features.
- Damage to the equipment from external influences.
- Incorrect operation of the equipment.

Frequently Asked Questions

Question: What is an HVLS Fan?

Answer: A High Volume, Low Speed Fan. This type of Fan relies on its size to move large quantities of air while the actual rotation speed remains low. The Fan directs air toward the floor where it is dispersed, creating a cool breeze over the area. This effect can lower the perceived air temperature by as much as $\approx 10^{\circ}\text{F} / 6^{\circ}\text{C}$.

Q: How much air does the Cool Boss HVLS Fan move?

A: Each Fan can move approximately:

Model	Air Volume
CB-11HVLS	148,321 cfm / 4,200 cmm
CB-16HVLS	360,210 cfm / 10,200 cmm
CB-20HVLS	448,496 cfm / 12,700 cmm
CB-24HVLS	524,422 cfm / 14,850 cmm

Q: What is the recommended spacing for multiple Cool Boss HVLS Fans?

A: The spacing varies with the Fan size. Refer to **figure 5** in the **Find a Location** section.

Q: How close can I mount the Cool Boss Fan to Stock Racks and or walkways and mezzanines?

A: Air flow from the Fan will be deflected by solid objects. This disruption may cause turbulence which can affect the Fan's performance. Keep the Fan Blade ends at least two Fan diameters away from walls and see **Find a Location** for distance to obstructions.

Q: What are the requirements for Fan distance to fire sprinklers?

A: Consult local Fire regulations regarding the placement of the Fan around fire protection equipment.

Q: Is it difficult to control the Cool Boss?

A: Not at all. There are three controls. A **Control Switch** (Rev. – Off – On), a **Variable Speed Adjustment**, and an **Ionizer Switch** (On-Off). The Variable Frequency Drive does all the hard work for you.

Q: How much maintenance does the HVLS Fan require?

A: Very little. Maintenance consists of annual inspections for mechanical wear on the Fan Blades, and the mounting hardware. Verify all mounting hardware is secured and inspect for wear on the Guy Wires and attachments. Refer to the **Maintenance Section** for more specific information.

Q: Is the HVLS Fan suitable for wet dirty environments?

A: No! Installation is not permitted in wet or dirty environments.

Q: Can I swap to larger or smaller Fan Blades?

A: No! Fan Blades are specifically designed for this Motor and Controller. Replacing components with larger or smaller components will cause an imbalance and damage or destroy the Fan. This could also lead to injury of nearby personnel.

Q: Can I swap to a different Motor Controller?

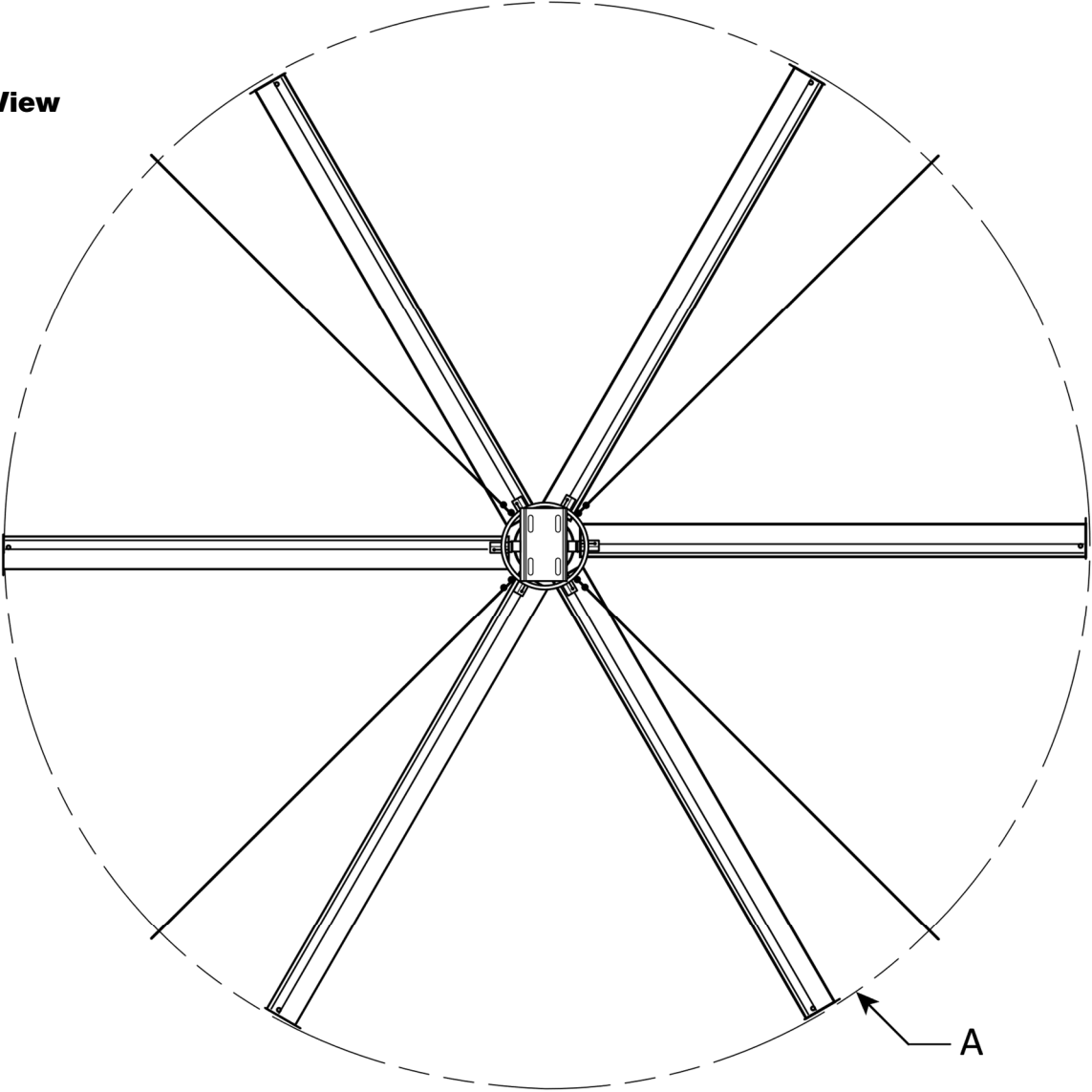
A: No! The Synchronous Motor Controller is specifically programmed for the specific motor and blade size to develop the correct torque and speed. Do not substitute components!

Q: What is an Air Ionizer?

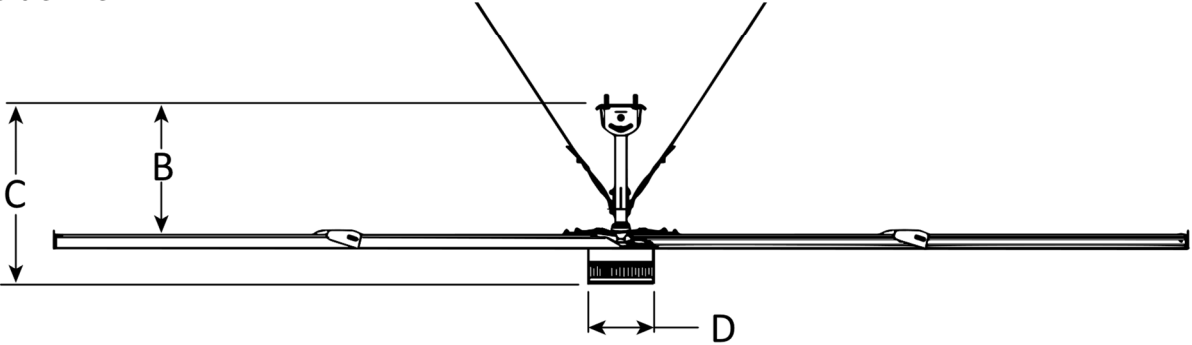
A: The Cool Boss Ion Generator utilizes high voltage to electrically charge the air moving through the Fan. This electrical charge generates negative ions (Anions) in the air. Anions are highly effective at removing particulates from the air.

Specifications

Top View



Side View



All specifications subject to change without notice.

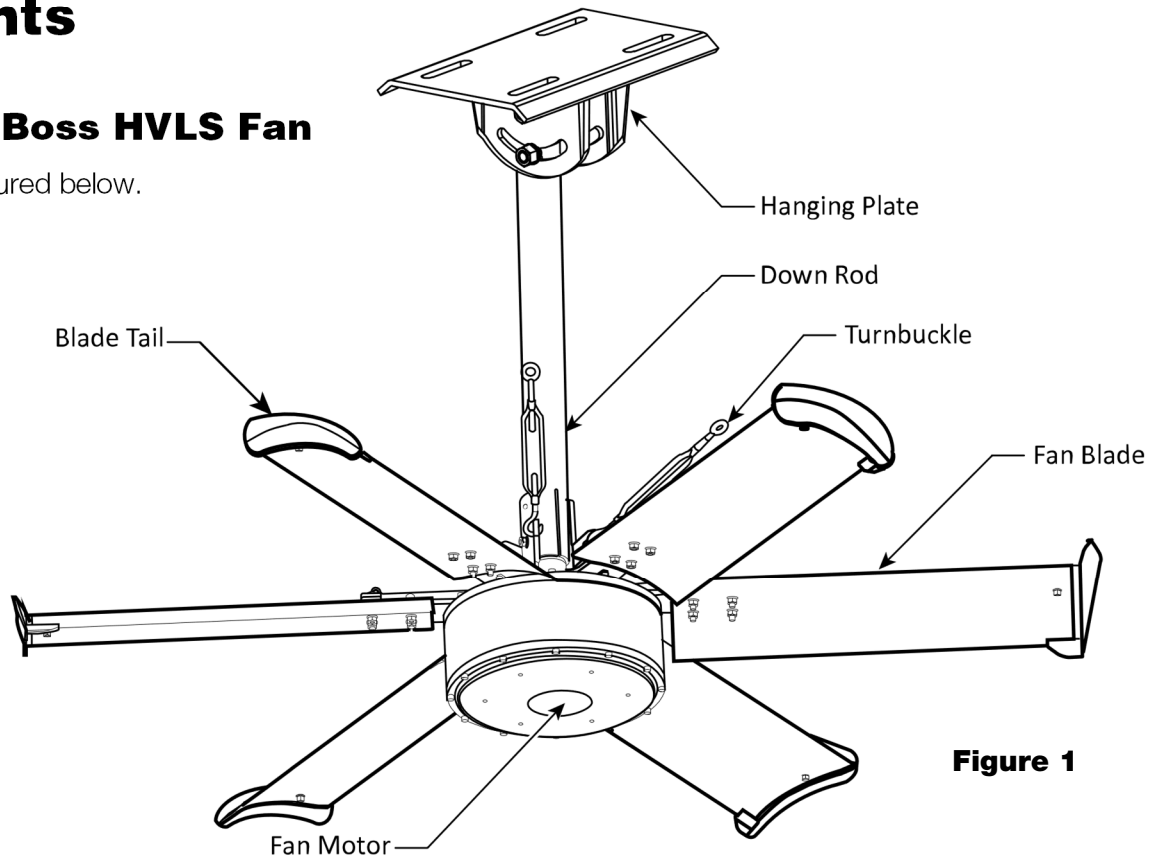
Model	CB-11HVLS	CB-16HVLS	CB-20HVLS	CB-24HVLS
A – Fan Diameter	11.5 ft. / 3.5 m	16.5 ft. / 5 m	20 ft. / 6.1 m	24 ft. / 7.3 m
B – Mount to Blades	42.5 in. / 1,080 mm	41.3 in. / 1,049 mm	43.3 in. / 1,100 mm	43.3 in. / 1,100 mm
C – Mount to Motor overall length	49.2 in. / 1,250mm	51.5 in. / 1,310 mm	54.3 in. / 1,379 mm	54.3 in. / 1,379 mm
D – Motor Diameter	13.4 in. / 340 mm	13.4 in. / 340 mm	17.3 in. / 439 mm	17.3 in. / 439 mm
Down Rod Length*	40 in. / 1016 mm			
Optimum Ceiling Height	17 ft. / 5.2 m	25 ft. / 7.5 m	30 ft. / 9.1 m	36 ft. / 10.9 m
Fan Speed - Variable	90 RPM Max.	78 RPM Max.	60 RPM Max.	55 RPM Max.
Number of Blades	6	6	5	5
Air Volume	148,321 cfm / 4,200 cmm	360,210 cfm / 10,200 cmm	448,496 cfm / 12,700 cmm	524,422 cfm / 14,850 cmm
Fan Hanging Weight	152 lbs. / 69 kg	209.5 lbs. / 95 kg	282 lbs. / 128 kg	295.5 lb. / 134 kg
Voltage/Current	208-230 VAC, 5 Amps	208-230 VAC, 5 Amps	208-230 VAC, 7 Amps	208-230 VAC, 7 Amps
Frequency/Phase	50/60 Hz., Single Phase	50/60 Hz., Single Phase	50/60 Hz., Single Phase	50/60 Hz., Single Phase
Motor	High Efficiency Variable Speed Direct Drive Permanent Magnet Synchronous Motor (PMSM)			
Motor Control	Compact Variable Frequency Drive (VFD)			
Control Cable Length	≈80 ft. / 25 m			
Ion Generator	No	No	Yes	Yes
Overcurrent Protection	Standard			
Over Temperature Protection	Standard			
Motor Overload Protection	Standard			
Sound Level	≤40 db			
Certifications	UL Standard 507, UL 1004-1, CSA C22.2			
Intertek ETL Listed	Yes			
Operating Temperature	-13° to +140° F / -10.5° to +60° C			
Operating Humidity	<95% Non-Condensing			

***Custom Down Rod lengths available.**

Components

The Cool Boss HVLS Fan

CB-11 pictured below.



The Cool Boss Fan Control Panel

Control Functions

The Control Panel houses the Variable Frequency Drive and the user controls.

Control Switch

Right - ON for CW rotation

Center - OFF

Left - REV. - for CCW rotation

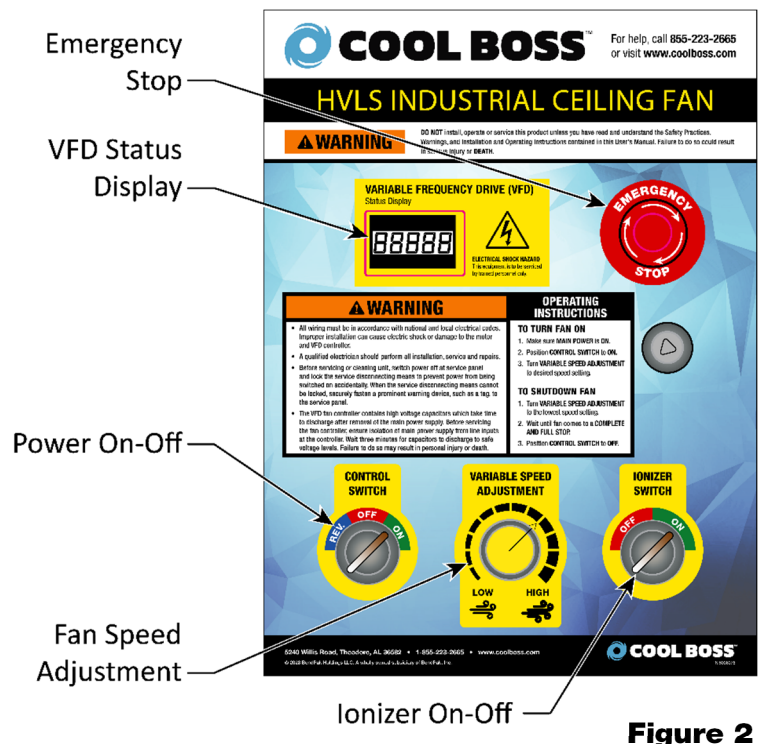
Fan Speed Adjustment – Adjusts the Fan rotation speed.

VFD Status Display – Displays Variable Frequency Drive function and error codes.

Emergency-Stop – Immediately removes power from the Fan and Control. Press to activate, rotate to release.

Ionizer On-Off – Rotate right to apply power to the Ionizer.

***Available on CB-20HVLS and CB-24HVLS only.**



Installation Checklist

There are eight basic steps in the Cool Boss HVLS Fan set up.

1. Find a location.
2. Unbox the Fan.
3. Mounting the Fan Brackets
4. Attach the Blade Connector (CB-11 Only)
5. Install the Fan on its Down Rod
6. Installing the Fan on its Hanging Plate
7. Installing the Guy Wires and Leveling the Fan
8. Installing the Fan Blades CB-11
9. Installing the Fan Blades CB-16, CB-20 and CB-24HVLS
10. Installing the Arc Plate Sections CB-16, CB-20 and CB-24HVLS
11. Installing the Cover
12. Installing the Control and Connect to Power (Electrician required.)
13. Operational Test for function.
14. Leave the Manual with the Fan Owner/Operator.

Installation

The installation process includes multiple steps. Perform them in the order listed.

⚠ WARNING Use only the factory-supplied parts shipped with your Lift. If you use attachments, accessories, or configuration modifying components that are in the path and/or affect the operation of the equipment, affect the equipment's electrical listing, or affect the intended accommodation, and if they are not certified for use with this Fan, then you void the warranty of the Fan as well as compromising the safety of everyone who sets up or uses the Fan. If you are missing parts, visit CoolBoss.com/Support, email support@Coolboss.com or contact Cool Boss Technical Support at **(805) 933-9970** (please have the serial number and model number of your unit available).

⚠ WARNING The Cool Boss HVLS Fan is heavy and awkward to work with. Installation should be accomplished by competent personnel ensuring the Fan is properly rigged and balanced for lifting. Installation personnel should have knowledge, training, and experience in lifting, rigging, and securing heavy objects overhead.

⚠ WARNING Only properly trained and equipped personnel should be working with the Fan on elevated work platforms or aerial lifts.

⚠ WARNING Block off the area under the installation site. Do not allow personnel to walk near or under the area while work aloft is underway.

⚠ WARNING You must wear the proper protective equipment at all times during setup and assembly of the HVLS Fan: eye protection, head protection, leather gloves, steel-toed boots, back belts, including a proper harness and tie-in equipment for fall protection while working overhead.

Tools required for Assembly:

- Drill or Hammer Drill
- Tape measure
- Phillips and Flat Head Screwdrivers
- Metric Open/Closed End Wrench Set
- Metric Allen Wrench Set
- Hammer
- Metric Socket and Ratchet Set
- Level
- Wire Rope Cutters
- Personnel Lift or equal
- Lifting and rigging equipment
- Pry Bar

You will need an assistant. This is not a one-man installation!

Find a location for the Cool Boss HVLS Fan

Find a suitable location for the Cool Boss. Consider the following when selecting a location for the Cool Boss HVLS Fan.

1. The Cool Boss should be mounted indoors near an appropriate power source

2. In a ventilated area with vertical space to allow the lowest part of the Fan to remain more than ten feet (3 m) off the floor.
3. ≈80-Feet (25 m) of Control Cable is provided with the HVLS fan. The Fan Control must be attached to a wall or column close enough to allow connection using this cable.
4. Before installing your Fan, review all fire and building codes applying to fire suppressing sprinkler systems. The Fan should not be allowed to interfere with installed fire sprinkler systems. It is the owner's responsibility to verify compliance with all national, state, and local fire and building codes.
5. Fan position shall be roughly centered between any four adjacent fire sprinklers.
6. Operating temperature must remain between +5° to +131° F / -15° to +55° C.
7. Vertical clearances for the **CB-11** and **CB-16**, refer to **figure 3**.
8. Vertical clearances for the **CB-20** and **CB-24** refer to **figure 4**.
9. If installing multiple Fans, see **figure 5** for spacing required between Fans.

⚠ WARNING This equipment has internal arcing or sparking parts that should not be exposed to flammable vapors. **Always** maintain a minimum distance of 50-feet / 15-meters from any open flame or sparks.

⚠ WARNING Verify the structural framing will support the weight of the HVLS Fan; is well constructed, and stable enough to prevent the Fan from falling.

Figure 3 – Vertical Clearances CB-11HVLS and CB-16HVLS

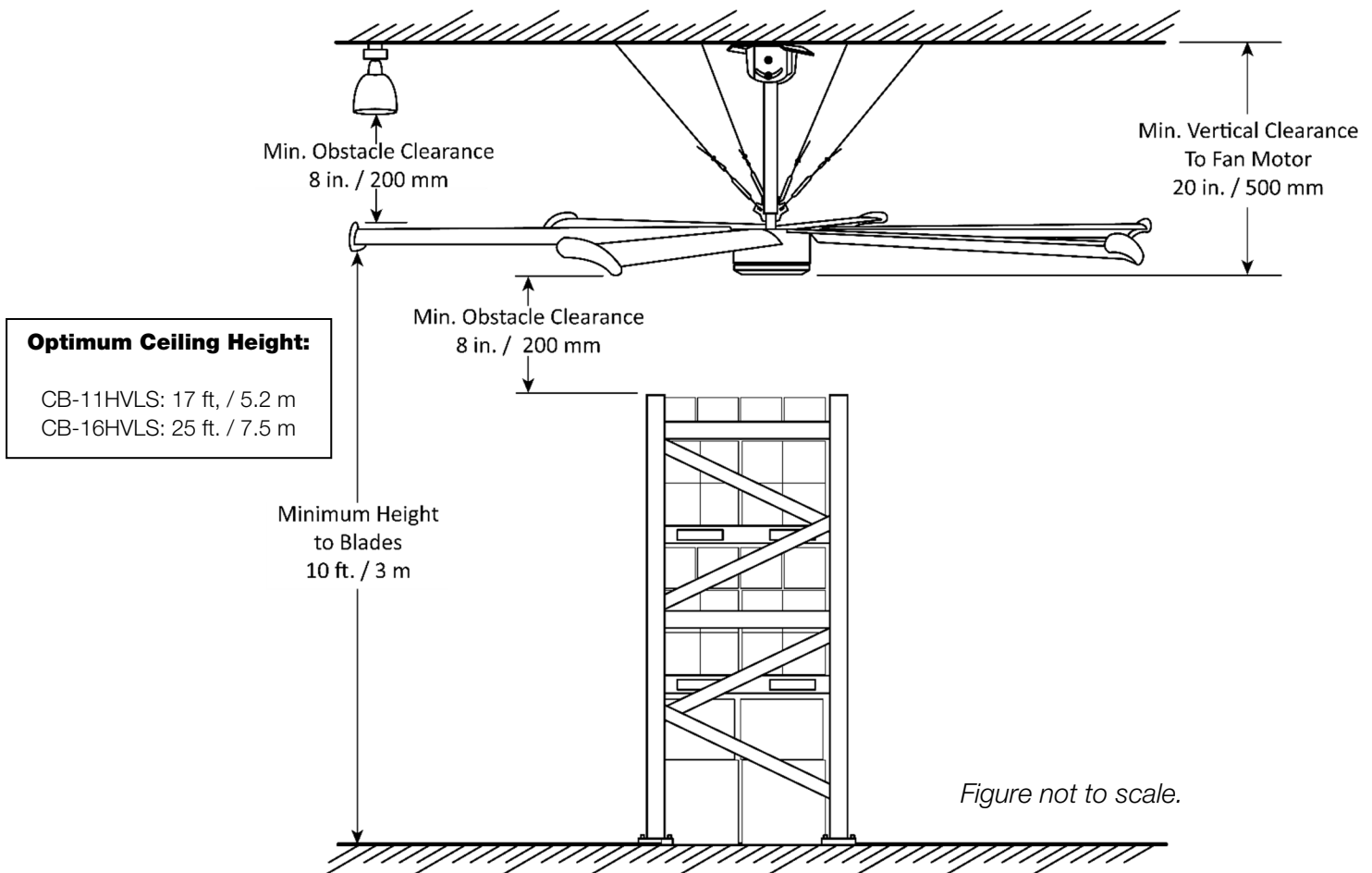
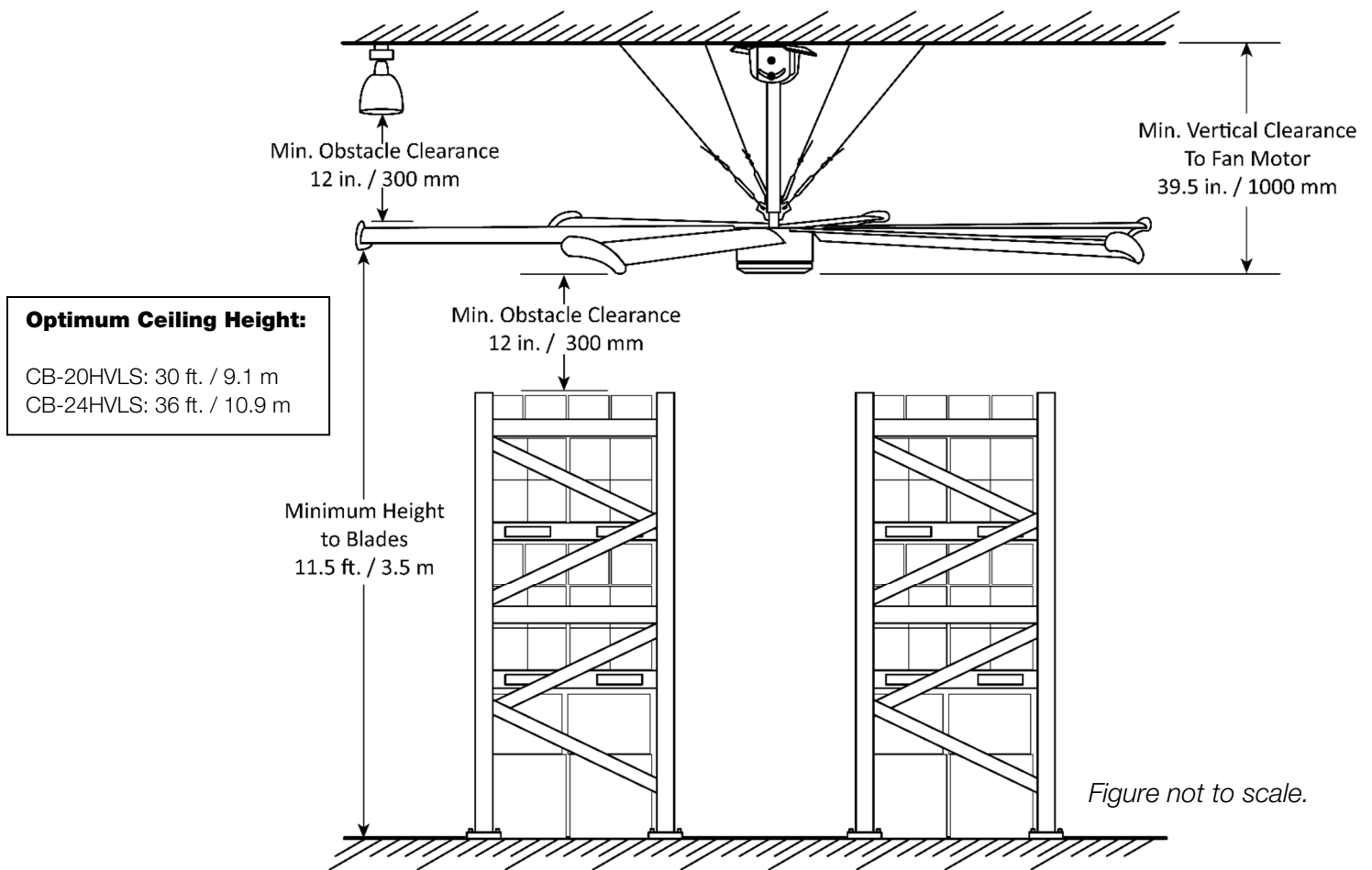


Figure 4 – Vertical Clearances CB-20HVLS and CB-24HVLS



10. The Fan must be mounted directly to the building structure. That structure must be capable of supporting at least twice the hanging load of the Cool Boss HVLS Fan. Refer to the table below:

CB HVLS Model	Hanging Load	Structure must support
CB-11HVLS	152 lbs. / 69 kg	304 lbs. / 138 kg Minimum
CB-16HVLS	209.5 lbs. / 95kg	419 lbs. / 190 kg Minimum
CB-20HVLS	282 lbs. / 128kg	564 lbs. / 256 kg Minimum
CB-24HVLS	295.5 lbs. / 134kg	591 lbs. / 268 kg Minimum

11. If you are uncertain as to the load bearing capability of the building structure consult a professional structural engineer.
12. After installation, the vertical clearance of the Fan Blades and motor should conform to either **figure 3** or **4** based on your Fan model.
13. The Fan must be mounted so that a person cannot contact the rotating Fan Blades.
14. Avoid mounting the Fan directly under Skylights or Lighting Fixtures to prevent the creation of a strobe effect.
15. Air conditioning or air cooler discharge vents should be located away from the Fan by at least two-times the diameter of the Fan.

16. Do **not** place the Fan in an area that can be exposed to wind. Doing so may cause personal injury, death, or equipment damage.
17. Do not mount the Fan in an area that may come into contact with water.
18. When installing multiple HVLS Fans the minimum center to center distance is as detailed in the table below.

HVLS Model	CB-11HVLS	CB-16HVLS	CB-20HVLS	CB-24HVLS
A-Fan Diameter	11.5 ft. / 3.5 m	16.5 ft. / 5 m	20 ft. / 6.1 m	24 ft. / 7.3 m
B- Min. Distance between HVLS Fans	33 ft. / 10 m	49.25 ft. / 15 m	69 ft. / 21 m	69 ft. / 21 m

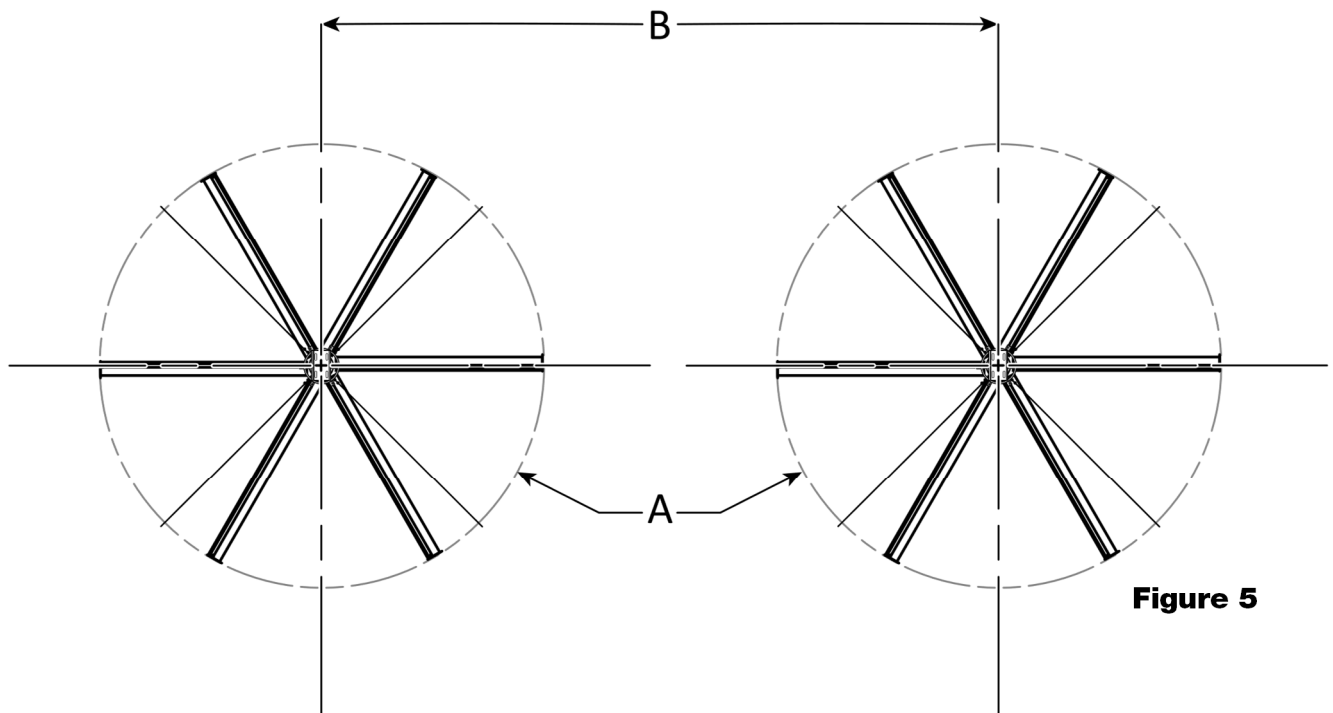


Figure 5

CAUTION To ensure efficient operation, the Cool Boss HVLS requires adequate air flow.

Unbox the Cool Boss HVLS Fan

The Cool Boss HVLS Fan is carefully packaged to prevent damage. Exercise care in removing the Fan from its packaging.

⚠ WARNING Be careful not to injure yourself on the container's sharp edges or fasteners.

⚠ WARNING You must wear the proper protective equipment at all times during setup and assembly of this Fan: leather gloves, steel-toed boots, and back belts.

⚠ WARNING Only properly trained and equipped personnel should be working with the Fan on elevated work platforms or aerial lifts.

To unbox the Cool Boss HVLS Fan:

1. Clear the area directly under the Fan mounting location.
2. Move the personnel lifting equipment into position.
3. Move the crates containing the Cool Boss Fan near the Fan mounting location. Make sure the containers will not interfere with the Personnel Lift or rigging equipment.
4. Use a hammer and pry bar to **carefully** remove the shipping container from around the Cool Boss components.
5. Verify all components are undamaged. Do not install damaged Fan Blades or mating components.

⚠ WARNING Damaged components, when rotating under load, can break unpredictably and cause damage to the Fan and personal injury to those nearby.

Mount the Fan Brackets

The Cool Boss HVLS Fan is typically mounted on structural members, typically Steel Reinforced Concrete Beams or Structural Steel I-Beams. There are two basic mounting methods, a Side Hanging Mount and a Straight Hanging mount are available using the brackets provided.

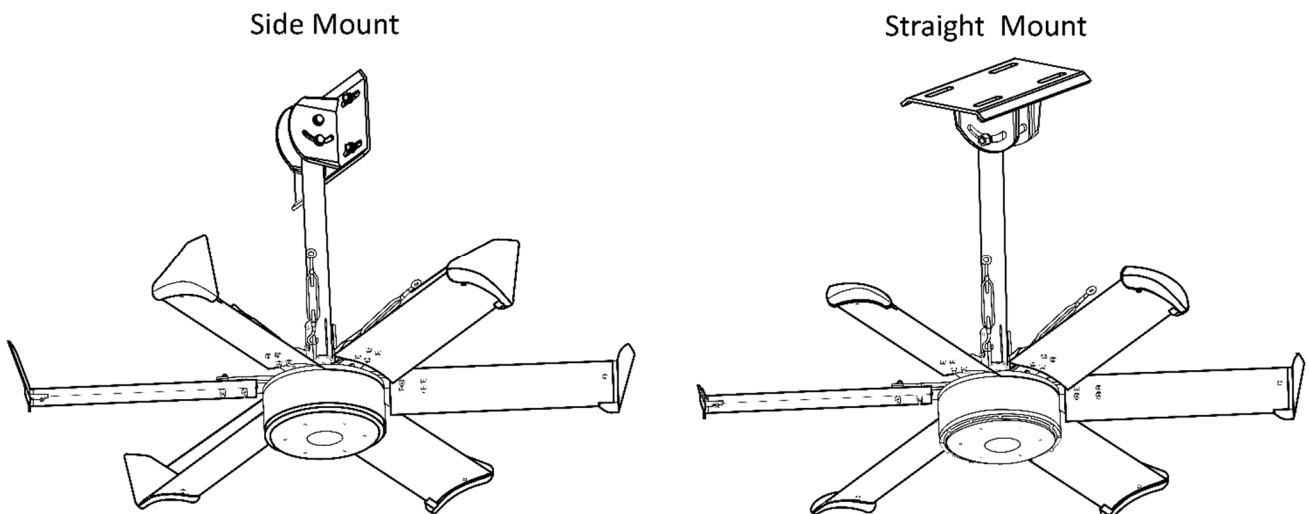


Figure 6

⚠ WARNING The Cool Boss HVLS Fan is heavy and awkward to work with. Installation should be accomplished by competent personnel ensuring the Fan is properly rigged and balanced for lifting. Installation personnel should have knowledge, training, and experience in lifting, rigging, and securing heavy objects overhead.

⚠ WARNING Block off the area under the installation site. Do not allow personnel to walk near or under the area while work aloft is underway.

⚠ WARNING You must wear the proper protective equipment at all times during setup and assembly of the HVLS Fan: eye protection, head protection, leather gloves, steel-toed boots, back belts, including a proper harness and tie-in equipment for fall protection while working overhead.

To mount the HVLS Fan on a Reinforced Concrete Beam (Hanging Side Mount):

1. Verify the mounting location satisfies the location and clearance criteria called out in the previous section, **Find a location for your Cool Boss HVLS Fan**.

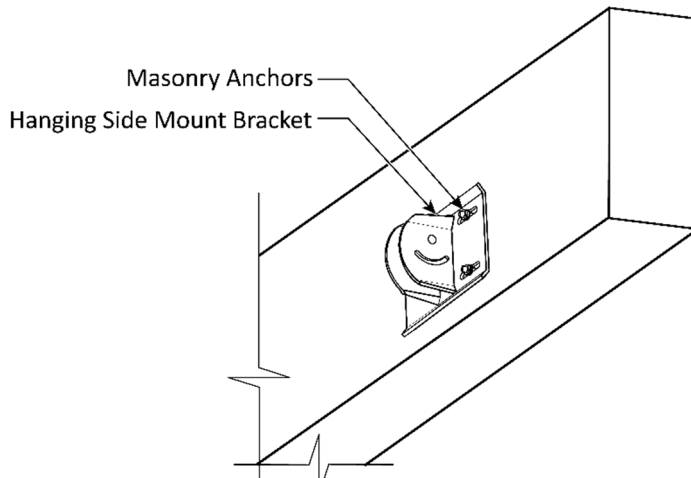


Figure 7

2. Verify the Structural Beam can support the weight of the Cool Boss Fan.
3. Retrieve the Hanging Side Mount Bracket and 12 mm or 16 mm Masonry Anchors.
4. Using the Bracket as a template, mark the hole locations on the Beam, then drill holes for the Expansion Anchors using an appropriate Drill Bit. Drill the holes straight and perpendicular to the beam.
5. Use a vacuum or compressed air to thoroughly clear the debris from the hole. Do not make the holes any larger than necessary. Refer to **figure 9**.
6. Cover the Anchor end threads with a Hex Nut and **carefully** tap the Anchors into the holes.

To mount the Cool Boss HVLS Fan on a Reinforced Concrete Beam (Straight Mount):

1. Verify the mounting location satisfies the location and clearance criteria called out in the previous section, **Find a location for your Cool Boss HVLS Fan**.
2. Verify the Structural Beam is capable of supporting the weight of the Cool Boss Fan.
3. Retrieve the two L-Adapters and 12 mm x 100 mm Expansion Anchors with Lock Washers, Flat Washers, and Hex Nuts.
4. Place the L-Adapters against the Beam and adjust their position until a 1.125 in. / 30 mm clearance is achieved between the Bracket and the Beam. Refer to **figure 8**.

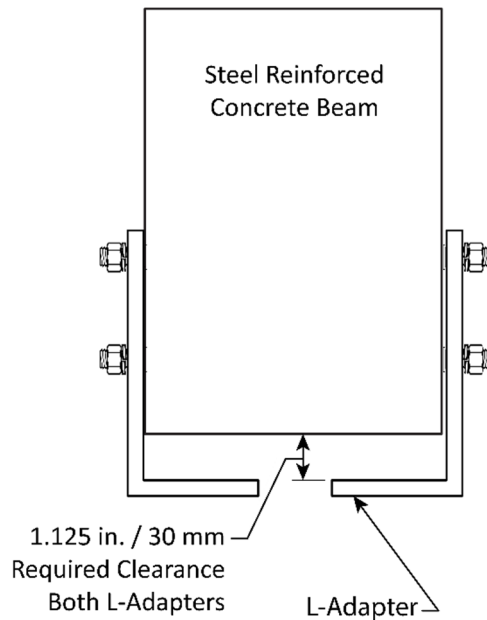


Figure 8

5. Using the L-Shaped Adapter as a template, mark the hole locations on the Beam, then drill $\text{\O}12$ mm holes for the Expansion Anchors using a Masonry Drill Bit. Drill the holes straight and perpendicular to the beam.
6. Use a vacuum or compressed air to thoroughly clear the debris from the hole. Do not make the holes any larger than necessary Refer to **figure 9**.
7. Cover the Anchor end threads with a Hex Nut and **carefully** tap the Anchors into the holes.

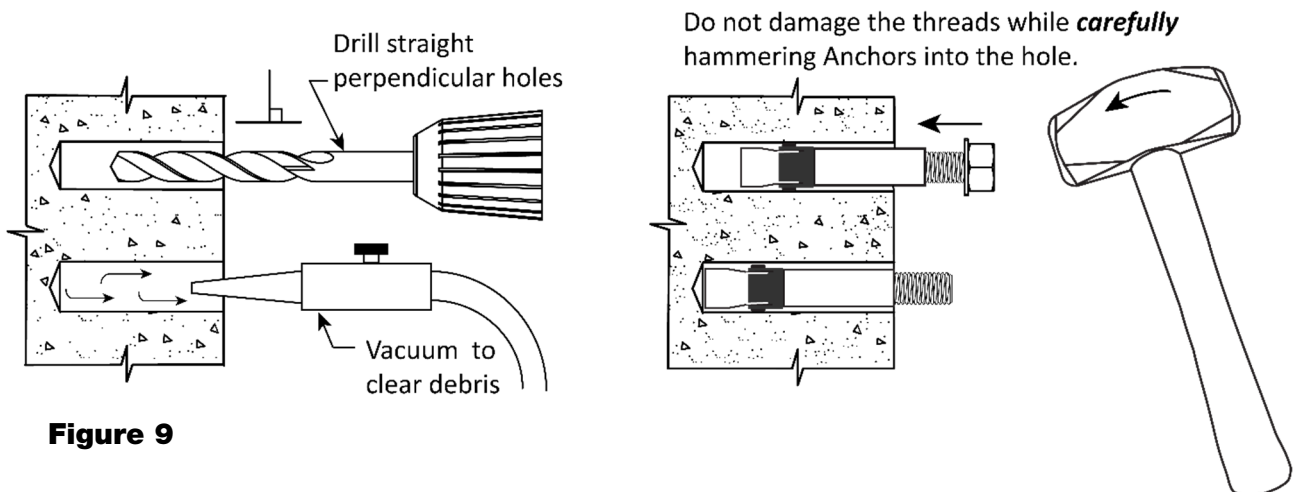


Figure 9

8. Install each L-Adapter with four Flat Washers, Lock Washers, and Hex Nuts. Refer to **figure 10**.
9. Install the Hanging Plate using four M16 x 60 Bolts, Flat Washers, Split Ring Lock Washers, and Hex Nuts. Refer to **figure 10**.

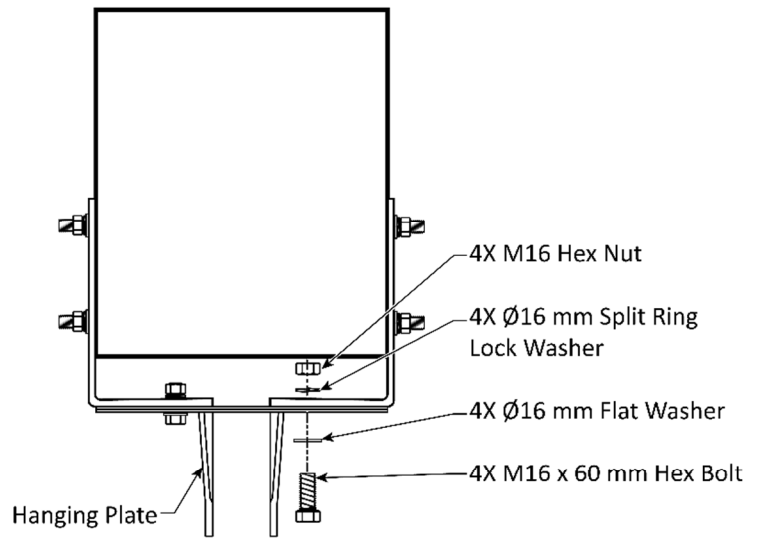
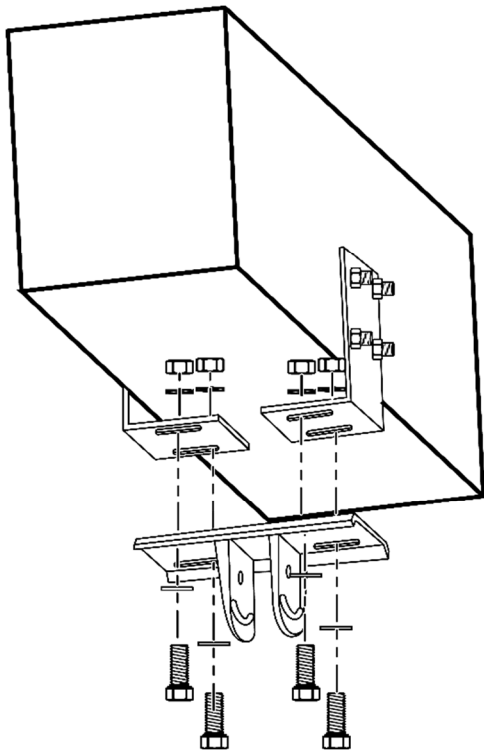


Figure 10

To mount the Cool Boss HVLS Fans to a Steel I-Beam:

1. Verify the mounting location satisfies the location and clearance criteria called out in the previous section, [Find a location for your Cool Boss HVLS Fan](#).
2. Verify the Structural Beam is capable of supporting the weight of the Cool Boss Fan.
3. Retrieve the Clamping Plate, the Spacer Plate, and the Hanging Plate.
4. Retrieve the fasteners detailed in the table below based upon your Cool Boss Fan Model. Refer to **figure 11** and the table below:

CB-11HVLS CB-16HVLS	CB-20HVLS CB-24HVLS
4 ea. M12 Hex Nuts	4 ea. M16 Hex Nuts
4 ea. Ø12 Split Ring Lock Washer	4 ea. Ø16 Split Ring Lock Washer
8 ea. Ø12 mm Flat Washer	8 ea. Ø16 mm Flat Washer
4 ea. M12 x 60 mm Hex Head Bolt	4 ea. M16 x 60 mm Hex Head Bolt

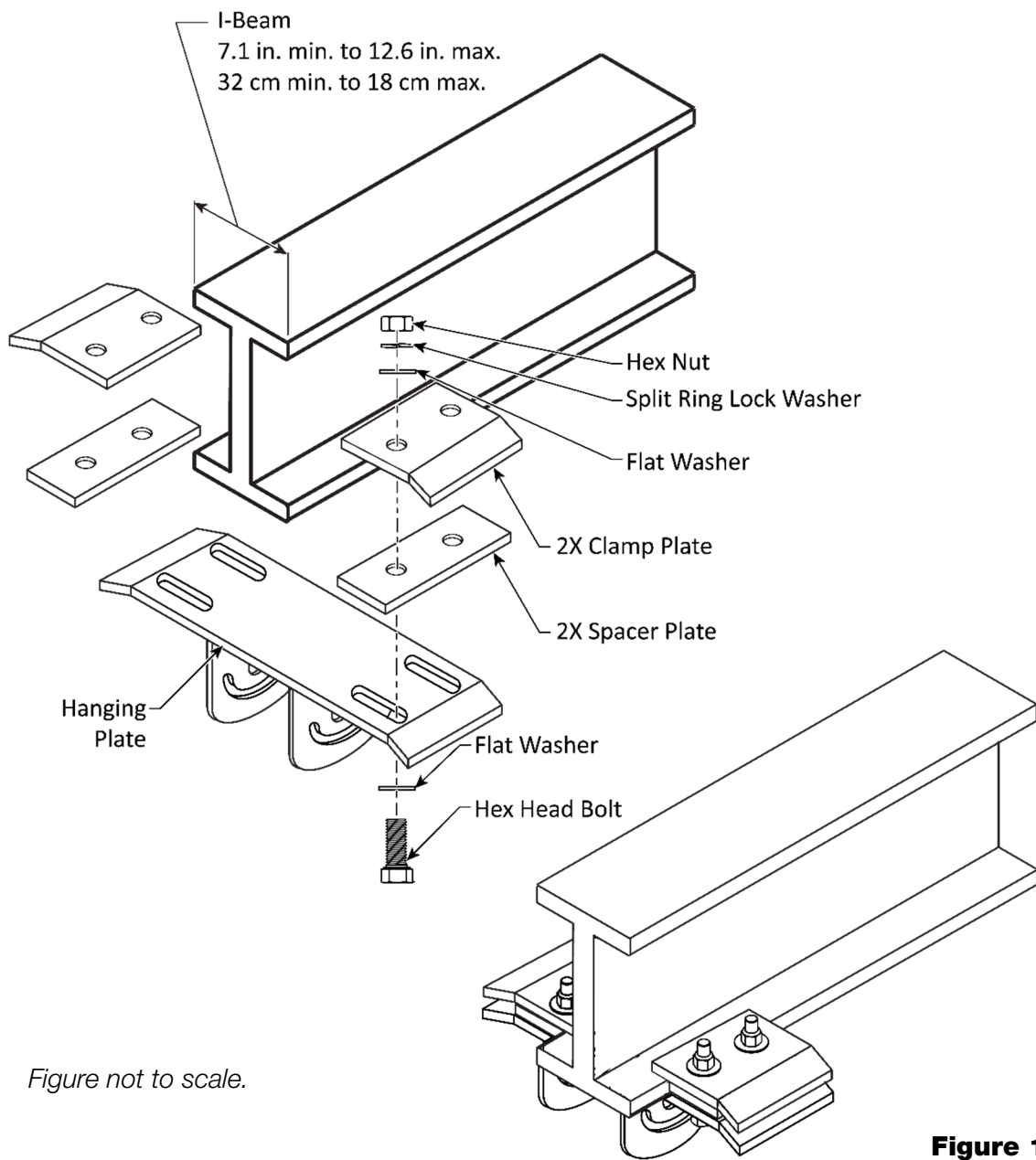


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Figure 11

Attach the Blade Connector to the Motor (CB-11 Only)

The **CB-11HVLS** Fans utilize a Blade Connector that must be attached to the Fan Motor. Skip to the next section if you are installing a **CB-16HVLS**, **CB-20HVLS** or **CB-24HVLS**.

To install the Blade Connector on the CB-11HVLS Fan Motor:

1. Refer to **figure 12**, and retrieve the following:
 - a. The Fan Motor
 - b. The Blade Connector
 - c. 6 ea. M8 x 25 mm Socket Head Cap Screws
 - d. 6 ea. Ø8 Flat Washers
2. Place the Blade Connector on the Fan Motor and secure using the Flat Washers and Socket Head Cap Screws. Tighten securely. Refer to **figure 12** below.

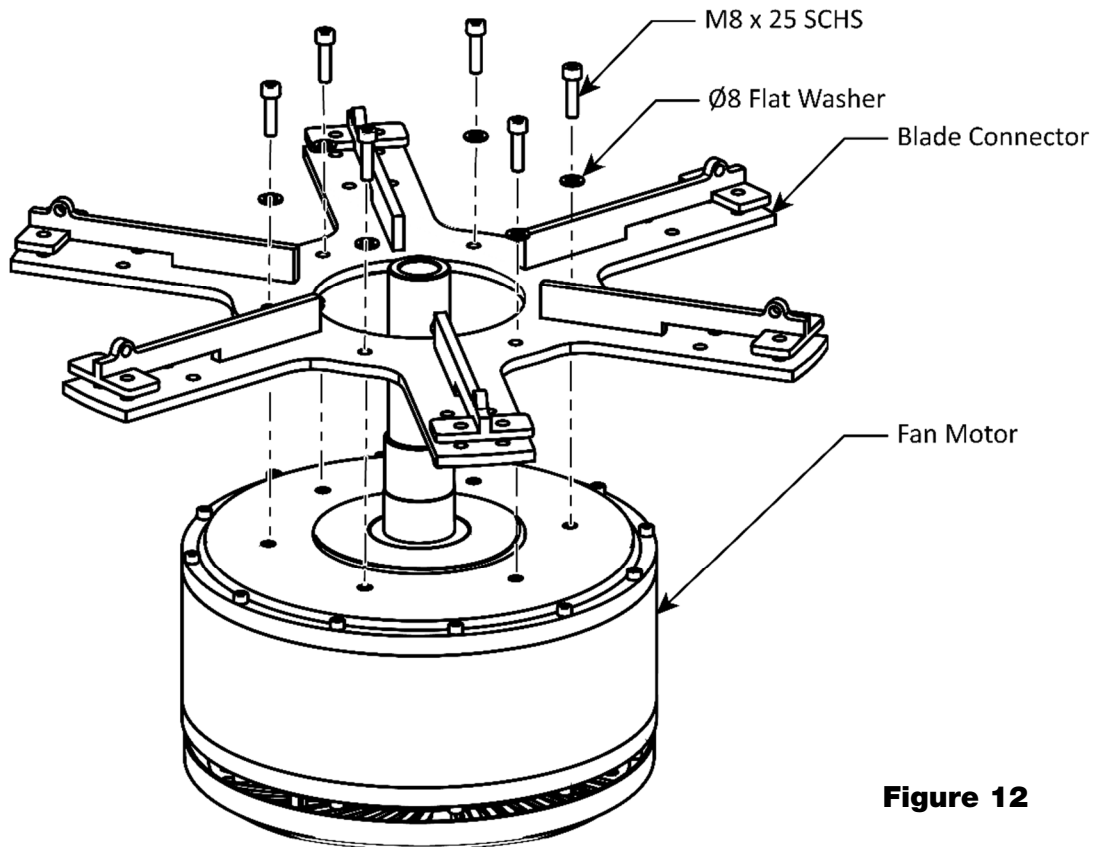


Figure 12

Figure not to scale.

Install the Fan on its Down Rod

The Fan Motor must be connected to its Down Rod and the Guy Wire Brackets which provide Guy Wire attachment points.

To install the Fan Motor on its Down Rod:

1. Retrieve the following:
 - a. Down Rod
 - b. 2 ea. Guy Wire Brackets
 - c. 3 ea. M12 x 90 mm Hex Head Bolts
 - d. 3 ea. M12 x 90 mm Hex Head Bolts
 - e. 6 ea. Ø12 Flat Washer
 - f. 3 ea. Split Ring Lock Washer
 - g. 3 ea. M12 Hex Nut
2. Feed the Control Cable through the Down Rod then carefully slide the Down Rod over the Fan's Center Shaft. Refer to **figure 13**.
3. Attach the Guy Wire Mounting Brackets to the Main Shaft as detailed in **figure 14**.

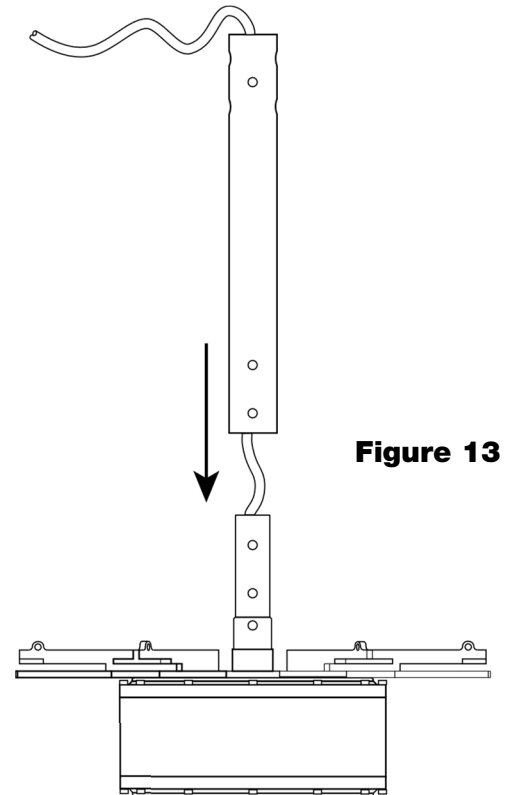


Figure 13

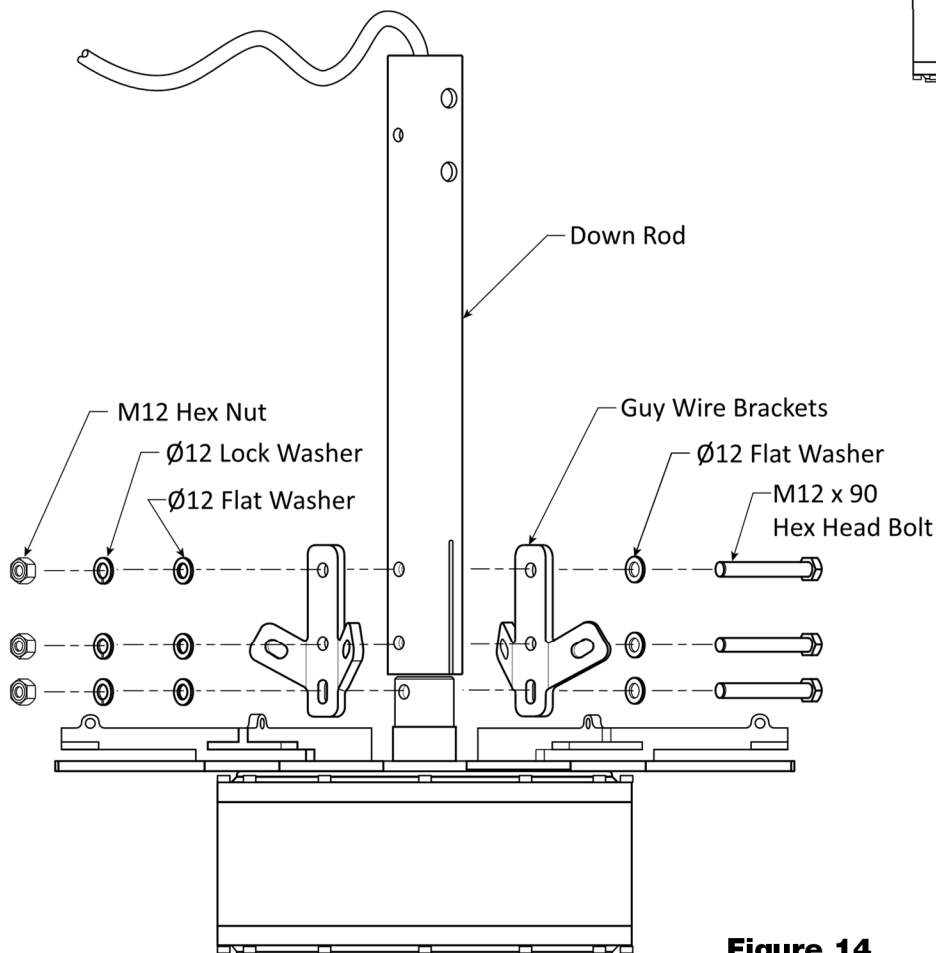


Figure 14

Install the Fan on its Hanging Plate

The Fan Motor must be connected to its Down Rod and the Guy Wire Brackets which provide Guy Wire attachment points.

⚠ WARNING The Cool Boss HVLS Fan is heavy and awkward to work with. Installation should be accomplished by competent personnel ensuring the Fan is properly rigged and balanced for lifting. Installation personnel should have knowledge, training, and experience in lifting, rigging, and securing heavy objects overhead.

⚠ WARNING Block off the area under the installation site. Do not allow personnel to walk near or under the area while work aloft is underway.

⚠ WARNING You must wear the proper protective equipment at all times during setup and assembly of the HVLS Fan: eye protection, head protection, leather gloves, steel-toed boots, back belts, including a proper harness and tie-in equipment for fall protection while working overhead.

To connect the Fan Down Rod to the Hanging Bracket:

1. Retrieve the fasteners detailed in the table below based upon your Cool Boss Fan Model:

Fasteners	
CB-11HVLS CB-16HVLS	CB-20HVLS CB-24HVLS
2 ea. M12 Hex Nuts	2 ea. M16 Hex Nuts
2 ea. Ø12 Split Ring Lock Washer	2 ea. Ø16 Split Ring Lock Washer
4 ea. Ø12 mm Flat Washer	4 ea. Ø16 mm Flat Washer
2 ea. M12 x 90 mm Hex Head Bolt	2 ea. M16 x 90 mm Hex Head Bolt

2. Verify the Fan's Control Cable will not be damaged as the Fan is hoisted into position.
3. Safely hoist the Fan Motor with its Down Rod up to the Hanging Bracket.
4. Secure the Fasteners finger tight as indicated in **figure 15**.
5. Place a Spirit Level on top of the Fan Motor and adjust the Motor to hang level to the ground. Tighten the Hex Head Bolts to secure the Fan Motor.

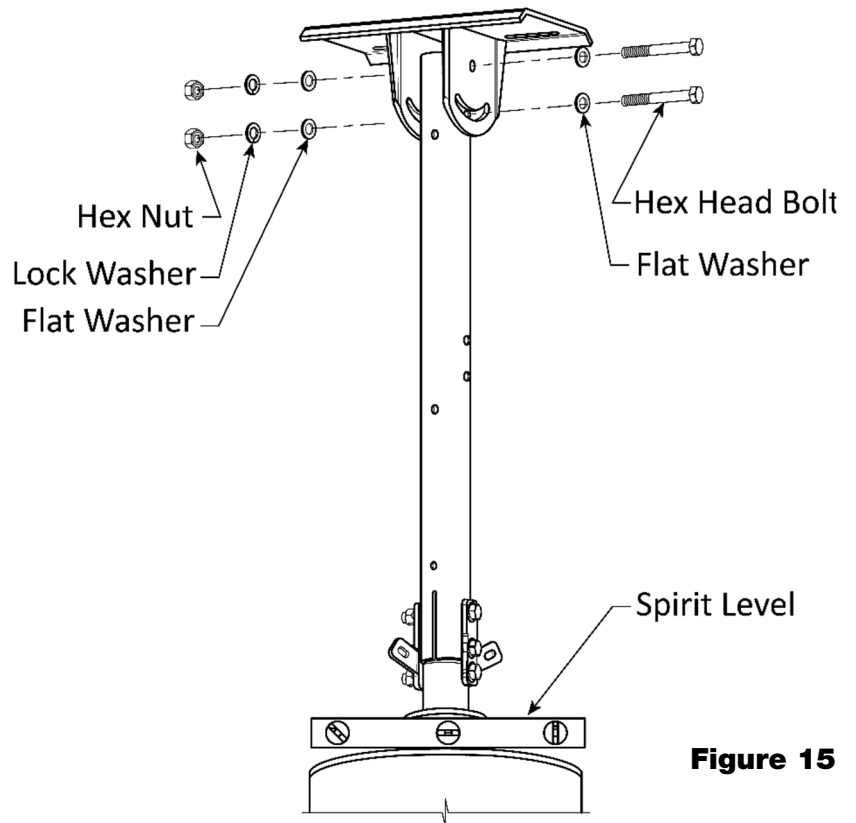


Figure 15

Install the Guy Wires and Leveling the Fan

The Guy Wires are wire rope cables used to steady and support the Fan structure during the torque created at start-up and any small oscillations encountered during normal operation. Four Guy Wires are attached between Brackets on the Fan Down Rod and fixed points on the building structure. Turnbuckles are used to adjust the tension on the Guy Wires and will also affect the level of the Fan motor.

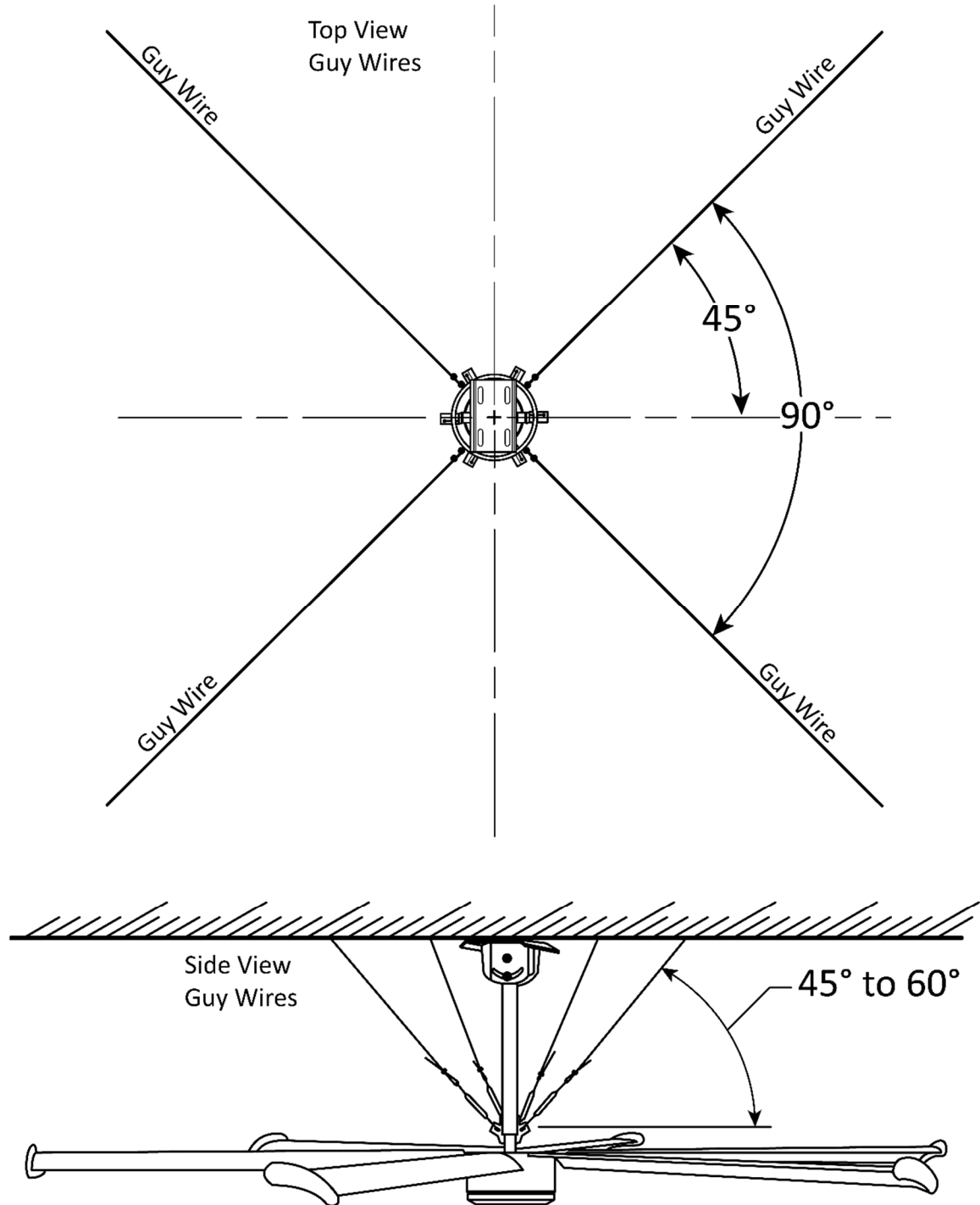


Figure 16

To Install the Guy Wires and Level the Fan Motor:

Locate and prepare the four fixed points that will be used to anchor the Guy Wires. The ideal angle between Guy Wires is 90°. Refer to **figure 16**.

1. Use an Eyebolt or similar as the Fixed-Point Anchor. Verify the structure is capable of supporting the Guy Wire load without damaging the structure or pulling free of the structure.
2. Attach the Turnbuckle to the Guy Wire Bracket.
3. Loop one end of the Guy Wire through the Turnbuckle's Eyebolt and secure with the U-Bolt, Clamp, Washer, Lock Washer, and Hex Nut.
4. Loop the other end of the Guy Wire through the Fixed Point remove any slack and secure as in step 4 above. Repeat this process to install the three remaining supporting Guy Wires. Refer to **figure 17**.
5. After installing all Guy Wires, place a level on the top of the Fan Motor and use the Turnbuckles to adjust the tension on each Wire. The goal is to have the Fan Motor Level with a moderate amount of tension on each wire to ensure it is balanced and will compensate for any oscillation upon start-up or during speed changes in normal operation.

⚠ WARNING Do not operate this Fan if it is unlevel or out of balance. Rebalance and level or contact Cool Boss at **(805) 933-9970**, email at support@coolboss.com.

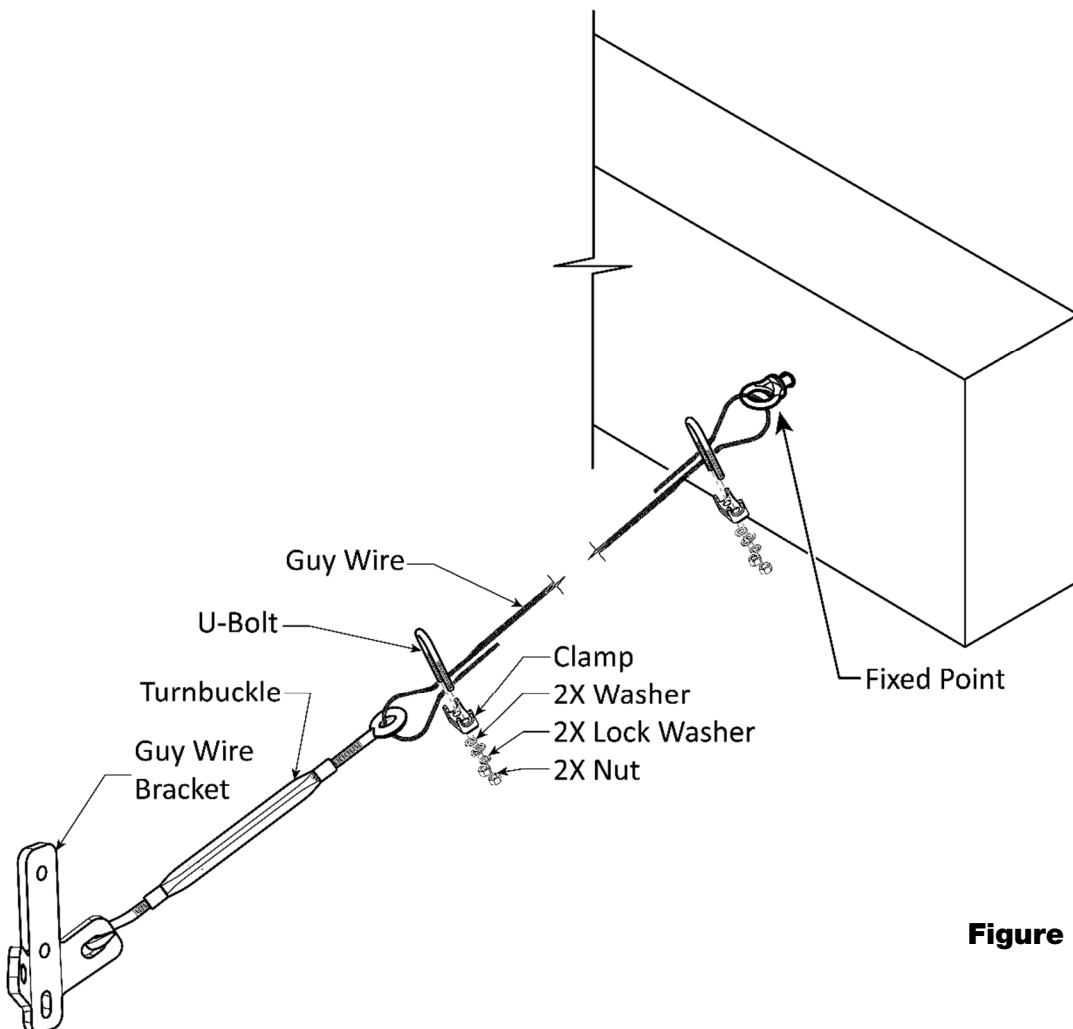


Figure 17

Install the Fan Blades (CB-11HVLS Only)

The Fan Blades are a critical component. If the Blades are bent or damaged, do not install. There are minor differences in the attachment of the Blades based on the model of the specific Fan. Use the procedure that applies to your Model of the Cool Boss HVLS Fan.

⚠ WARNING Do not operate this Fan if the Blades are bent or damaged.

1. Retrieve the following components:

Qty.	Description
6	Fan Blade
6	Blade Tail
24	M8 x 40 Bolt
48	Ø8 Flat Washer
24	Ø8 Split Ring Lock Washer
24	M8 Hex Nut
6	M5 x 40 Bolt
6	M5 Hex Nut

2. Attach the six Fan Blades to the Blade Connector using the fasteners as detailed in **figure 18** below. Take care not to damage the Blades during the installation.

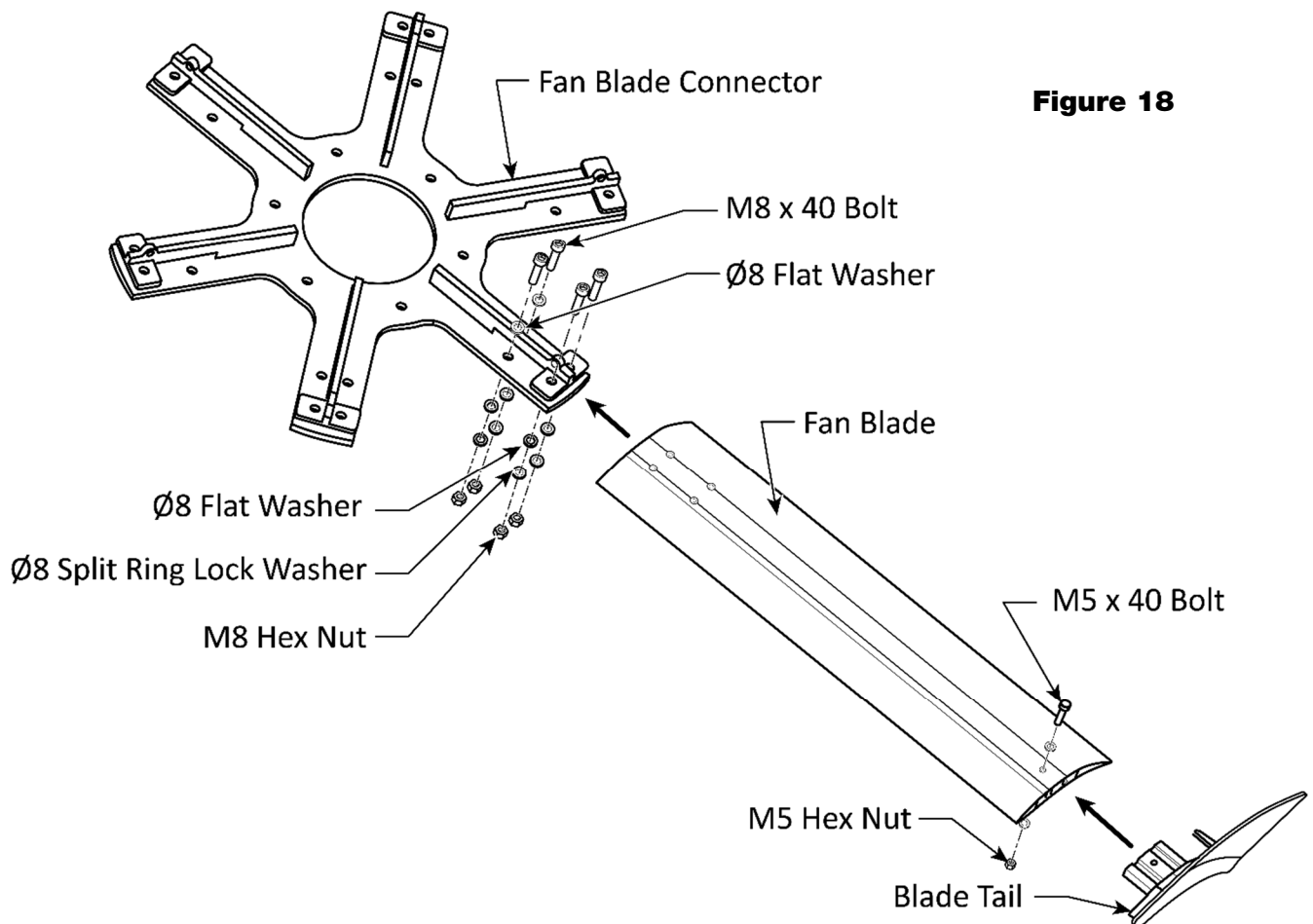


Figure 18

Install the Fan Blades CB-16HVLS, CB-20HVLS and CB-24HVLS

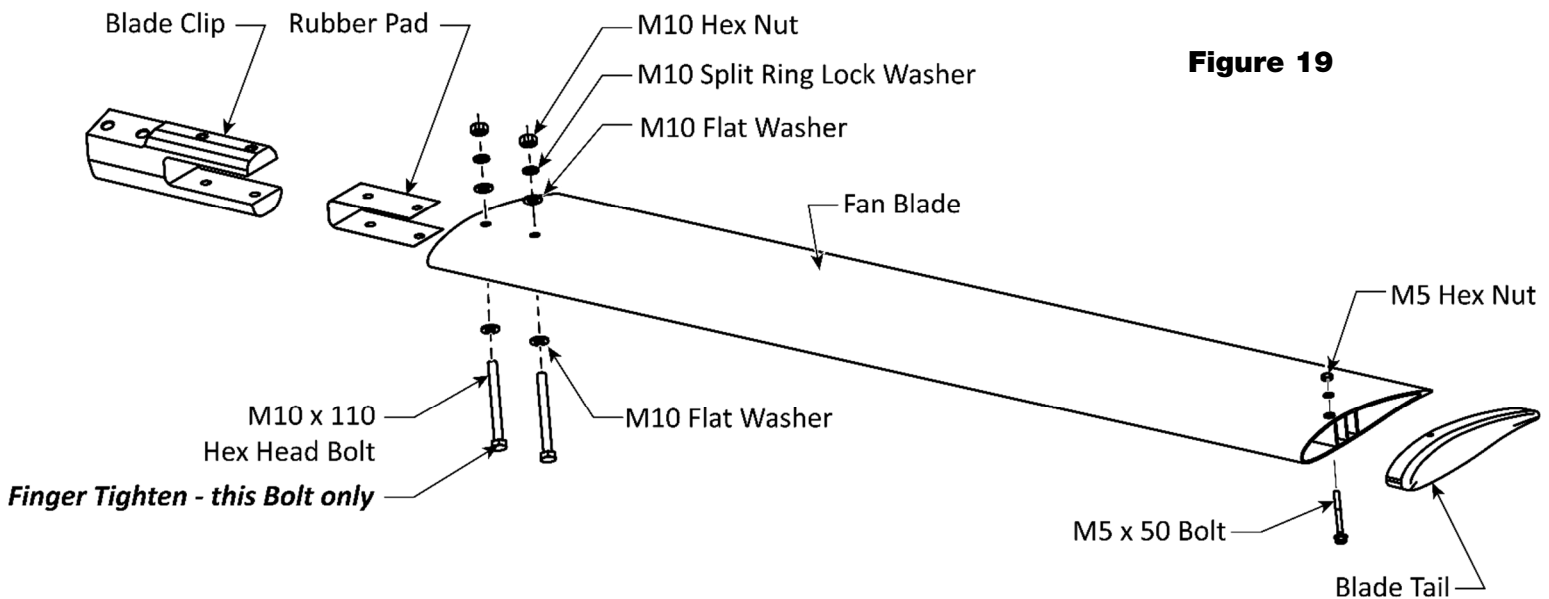
To Install the Fan Blades:

1. Retrieve the following components:

CB-16HVLS Qty.	Description	CB-20HVLS and CB-24HVLS Qty.	Description
6	Fan Blades	5	Fan Blades
6	Blade Tails	5	Blade Tails
12	M10 x 110 Bolt	10	M10 x 110 Bolt
24	M10 Flat Washer	20	M10 Flat Washer
12	M10 Split Ring Lock Washer	10	M10 Split Ring Lock Washer
12	M10 Hex Nut	10	M10 Hex Nut
6	M5 x 40 Bolt	5	M5 x 40 Bolt
6	M5 Hex Nut	5	M5 Hex Nut

2. Assemble each of the Fan Blades to a Blade Clip with a Rubber Pad using the fasteners as detailed in **figure 19**. Leave the innermost M10 x 110 mm Bolt finger tight on all Blade assemblies. This Bolt will be tightened after adding the Arc Plate Supports.
3. Attach the Blade Tail as detailed below.

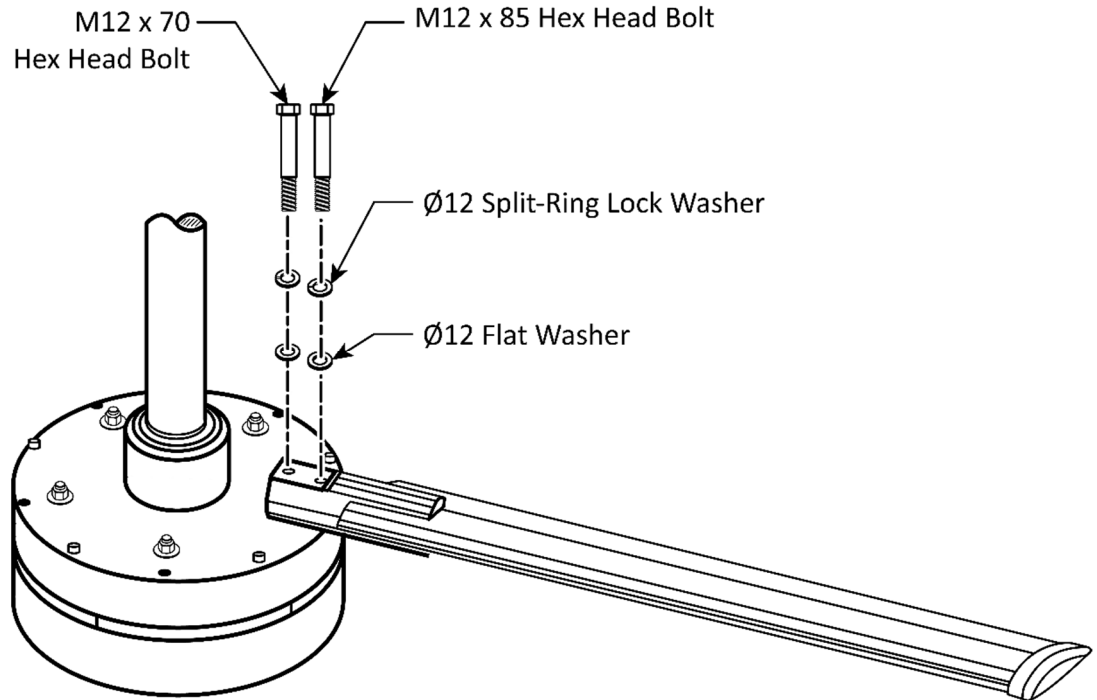
IMPORTANT! *Leave the innermost M12 Hex Head Bolt finger tight on all assemblies.*



Components removed for clarity. Figure not to scale.

4. Attach the Blade Assembly to the Fan Motor at the Blade Clip as detailed in **figure 20**. Assembly will require:

Qty.	CB-16HVLS Description	Qty.	CB-20HVLS and CB-24HVLS Description
6	M12 x 85 mm Hex Head Bolt	5	M12 x 85 mm Hex Head Bolt
6	M12 x 70 mm Hex Head Bolt	5	M12 x 70 mm Hex Head Bolt
12	Ø12 Split-Ring Lock Washer	10	Ø12 Split-Ring Lock Washer
12	Ø12 Flat Washer	10	Ø12 Flat Washer



Components removed for clarity. Figure not to scale.

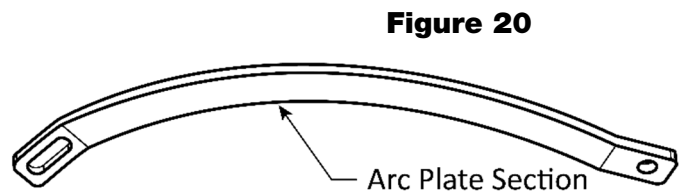
Install the Arc Plate Sections CB-16HVLS, CB-20HVLS and CB-24HVLS

The Arc Plates serve to connect and solidify the Fan Blade structure.

To Install the Arc Plate Sections:

1. Retrieve the Arc Plate Sections for your Fan Model. Refer to **figure 20**.

Fan Model	Number of Arc Plate Sections required
CB-20HVLS	5
CB-24HVLS	5



2. Install the Arc Plate Sections onto the Fan and secure fasteners as detailed in **figure 21**.

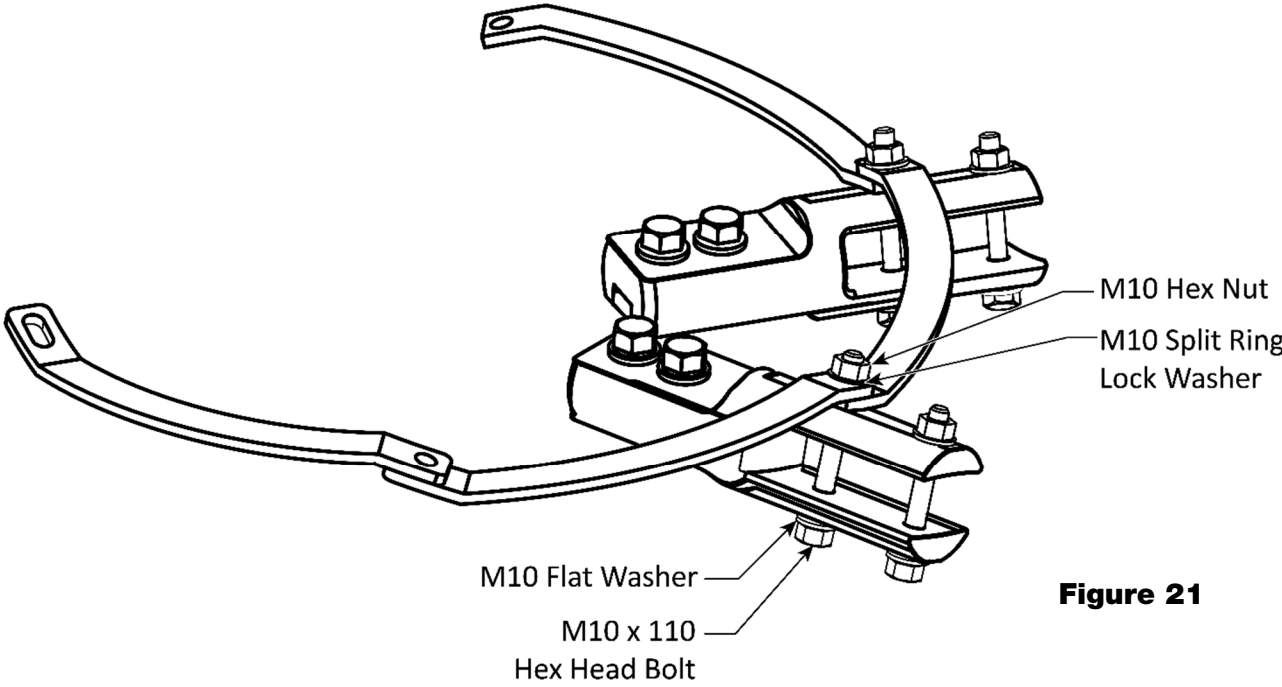


Figure 21

Components removed for clarity. Figure not to scale.

Install the Cover

Install the cover as detailed in **figure 22**.

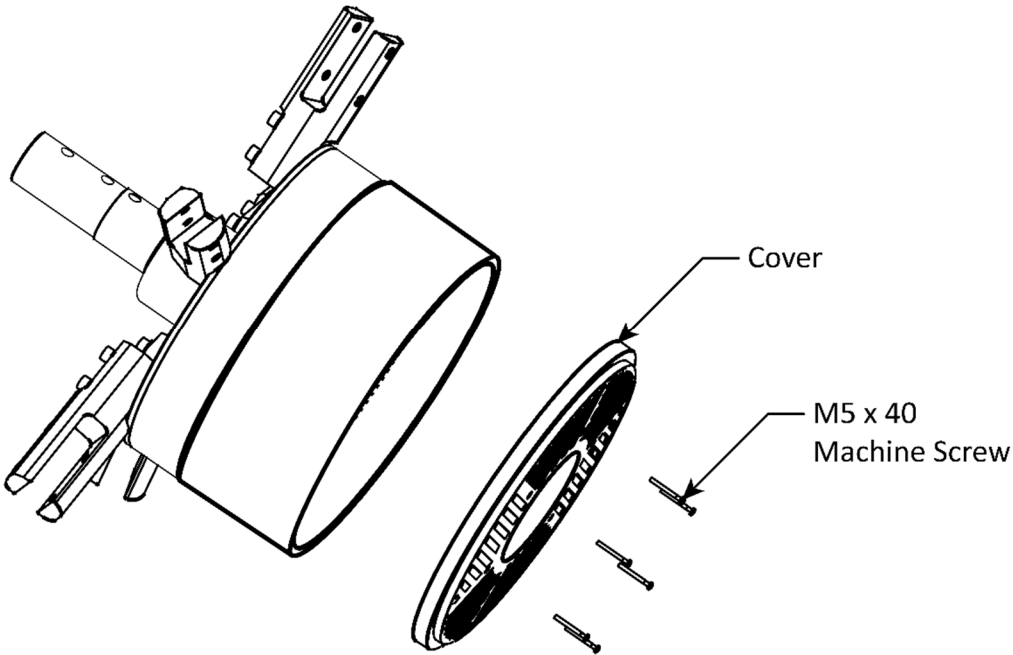





Figure 22

Components removed for clarity. Figure not to scale.

Install the Control and Connect to Power

 **DANGER** *All* electrical work must be accomplished by a **licensed Electrician**, in accordance with national, state, and local electrical codes. If you do not use a licensed Electrician, you void your warranty and put everyone who uses the Fan in danger of injury or, in rare cases, death.

 **WARNING** Do not change any of the operating parameters of the Variable Frequency Drive (VFD). This HVLS Fan is configured at the factory and changing VFD parameters may cause damage that is not covered under warranty.

 **WARNING** Do not install the HVLS Fan control in an area subjected to high temperatures, direct sunlight and or inflammables.

To connect the Cool Boss HVLS Fan to Power:

1. Before connecting the Fan Control to a power source, Lock-Out the power at the Electrical Service Panel to ensure it cannot be re-energized while work is being conducted.
2. Verify the required 220VAC, Single Phase, 50/60 Hz., electrical power at the following current is available for the following Fan models:

CB-11HVLS	CB-16HVLS	CB-20HVLS	CB-24HVLS
208-230VAC, 5 Amps, 50/60 Hz., 1 Ph.	208-230VAC, 5 Amps, 50/60 Hz., 1 Ph.	208-230VAC, 7 Amps, 50/60 Hz., 1 Ph.	208-230VAC, 7 Amps, 50/60 Hz., 1 Ph.


3. Attach the Fan Control to a wall or column where it will be protected from direct sunlight, excessive heat, traffic, or collisions with equipment.
4. Refer to the Schematic and Wiring Diagram in this manual and on the inside cover of the Control.
5. Models CB-11 and CB-16 include approximately 80-feet / 25 m of 4-conductor cable with the Fan. Route, protect and secure the 4-Conductor Cable from the Fan Motor to the Control Box. All wiring is to conform to national, state, and local electrical codes.

Models CB-20 and CB-24 include approximately 80-feet / 25 m of 6-conductor cable. Route, protect and secure as above.

6. Connect the Control Cable wiring to the Fan Motor Barrier Strip as indicated in the **Wiring Diagram** for your Fan model.
7. Route, protect and secure 220VAC Electrical Power from the facility's electrical service protected by an appropriately rated circuit breaker to the Control as indicated by the **Wiring Diagram**.

Additional electrical information:

Damage caused by improper electrical installation (such as not grounding the unit) voids the warranty.

 **DANGER** After removing power from the Fan, **even if the main Fan Motor is disconnected, hazardous voltage may be present on the circuit terminals**. Verify terminals are safe with a Voltmeter before beginning work. For your safety, do not begin work on the wiring until the voltage drops to a safe level.



Repairing or installing wiring when residual voltage is present may cause sparking, severe injury, or death.

⚠ DANGER

All units must be grounded to a common ground terminal to prevent damage from lightning, electrical shock, and to reduce EMF noise interference.

⚠ WARNING

Disconnect power **before** performing **any** troubleshooting or maintenance. Make sure the unit cannot be re-energized until you have completed maintenance or troubleshooting.

⚠ WARNING

For generator users and or areas with frequent brownout conditions.

Motor failure due to excessive high or low voltage is **not** covered under warranty. If you plan to use the Cool Boss HVLS Fan with a Generator or operate in an area with frequent brownouts, verify that the power source can provide the required current and voltage. While voltage variations are common ($\pm 5\%$) both high and low voltage episodes in excess of 15% to 20% can cause Electric Motor overheating and premature Motor failure.

Low voltage will cause the Motor to draw more electrical current to deliver the same amount of force to the Fan Blades. Excessive current overheats the Motor Windings, eventually burning through the insulation and resulting in complete Motor failure.

High voltage episodes can cause premature failure of electrical and electronic components due to overheating.

Final Installation Checklist

1. Installation location satisfies the requirements listed in this manual as well as any national, state, and local building codes.
2. Mount Fan Brackets.
3. Mount Fan Blade Connector Bracket (CB-11 Only).
4. Mount Fan Motor on its Down Rod.
5. Mount Fan Motor on its Hanging Plate.
6. Install Guy Wires and level the Fan Motor.
7. Install Fan Blades on the connector bracket, CB-11 only.
8. Install the Fan Blades on the Clips and the Fan Motor (CB-16, CB-20 and CB-24HVLS).
9. Install the Arc Plate Sections CB-16, CB-20, and CB-24HVLS only.
10. Install the Control.
11. Route, protect and secure the control cable between the Control and the Fan Motor (Electrician required).
12. Make all connections on the motor and control terminal strips (Electrician required).
13. Install the Cover on the Fan Motor.
14. Connect the Control to facility Electrical Power (Electrician required).
15. Complete Operational Test for function.
16. Leave the Installation and Operation Manual with the Fan Owner/Operator.



















Operational Test

1. Before starting the Cool Boss, verify that the Fan is undamaged, and no obstructions will interfere or create a hazard with its operation.
2. Rotate the **Variable Speed Adjustment** control counterclockwise to its lowest speed position.
3. Rotate the **Control Switch** to the **On** position.
4. Verify there are no error codes displayed on the Fan VFD Control. *If error codes are present, Rotate the **Control Switch** to the **Off** position and refer to the Troubleshooting section.*
5. Rotate the **Variable Speed Adjustment** slowly clockwise until the Fan is moving at a slow speed.
6. Observe the Fan to verify it is turning in a clockwise direction when viewed from the ground.
7. Observe the Fan operation to verify that there is no excessive shaking or wobbling and the Fan is operating safely in all respects. *If the Fan is swaying or rocking excessively, press the **Emergency Stop** button to immediately remove power and allow the Fan Blades to stop. **Lockout power to the Fan** and inspect for out of level conditions, loose fasteners or guy wire tension and supports that would affect the Fan performance. Refer to the Troubleshooting section. Correct the conditions and test again.*
8. If the Fan is operating normally, slowly rotate the **Speed Adjustment** to the maximum setting.
9. Observe the Fan to verify there is no excessive rocking or swaying present. *If the Fan is swaying or rocking excessively, press the **Emergency Stop** button to remove power and allow the Fan Blades to stop. Lockout power to the Fan and inspect for loose fasteners or guy wire tension and supports that would affect the Fan performance. Refer to the Troubleshooting section. Correct the conditions and test again. Refer to the Troubleshooting section.*
10. Rotate the **Variable Speed Adjustment** to the low setting.
11. Rotate the **Control Switch** to the **Off** position and **wait for the Fan to come to a complete stop.**
12. Rotate the **Control Switch** to the **REV.** position.
13. Slowly rotate the Variable Speed adjustment control clockwise until the Fan is moving at a low speed.
14. Observe the Fan operation to verify that there is no excessive shaking or wobbling and the Fan is operating safely in all respects. *If the Fan is swaying or rocking excessively, press the **Emergency Stop** button to immediately remove power and allow the Fan Blades to stop. **Lockout power to the Fan** and inspect for out of level conditions, loose fasteners or guy wire tension and supports that would affect the Fan performance. Refer to the Troubleshooting section. Correct the conditions and test again.*
15. If the Fan is operating normally, slowly rotate the **Speed Adjustment** to the maximum setting.
16. Rotate the **Variable Speed Adjustment** to the low setting and wait for the Fan to come to a stop.
17. Rotate the **Control Switch** to the **Off** position.
18. Testing is complete.

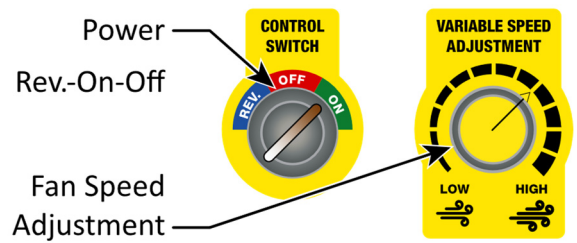
Operation

This section describes how to operate your Cool Boss HVLS Fan. Review the following dangers and warnings.

-  **DANGER** Never open the control panel. Hazardous voltages may be present on the Fan's internal terminals even when power has been removed! Refer all service to qualified, licensed Electricians!
-  **WARNING** Do not change any of the operating parameters on the Variable Frequency Drive (VFD). This HVLS Fan is configured at the factory and unauthorized changes to the VFD parameters may cause damage that is not covered under warranty.
-  **WARNING** The Cool Boss should only be operated by authorized, trained personnel. That training includes reviewing and understanding this Installation and Operation Manual and Safety Labels on the Cool Boss. Do **not** allow children or impaired persons to operate the Cool Boss.
-  **WARNING** Never operate the Cool Boss in wet conditions.
-  **WARNING** Use only in a well-ventilated open environment with a fresh air supply.
-  **WARNING** The Cool Boss area must be free from airborne pollutants, flammable gases and contaminates.
-  **WARNING** Operating temperature must remain between +5° to +131° F / -15° to +55° C.
-  **WARNING** Never spray the Fan with water as moisture may harm the motor or other electrical system components.
-  **WARNING** Do **not** operate the Fan near open containers of flammable liquids or gases.
-  **WARNING** **Always** maintain a minimum distance of 50-feet / 15-meters from any open flame or sparks.
-  **WARNING** The Cool Boss HVLS Fans are not designed to be used by children or persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge unless they have been given supervision or instruction concerning use by a person responsible for their safety.
-  **WARNING** **Never** operate the Cool Boss if it has been damaged or begins to oscillate unusually.
-  **WARNING** **Never** modify the Cool Boss Fan structure or the Fan VFD Control Parameters.
-  **WARNING** **Never** open the Cool Boss Fan control while under power – risk of electrical shock.
-  **WARNING** **Never** insert objects between the rotating Fan Blades.
-  **WARNING** **Always** allow the HVLS Fan to come to a complete stop before attempting to reverse the Fan's direction of rotation.

To operate the Cool Boss HVLS Fan:

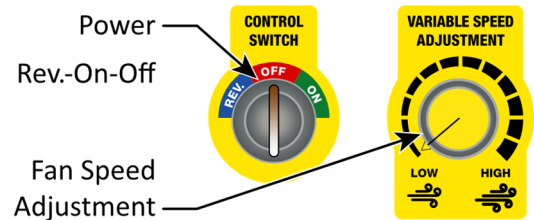
1. Before starting the Cool Boss, verify that the Fan is undamaged, and no obstructions will interfere or create a hazard with its operation.
2. Rotate the **Speed Adjustment Knob** to its low position.
3. Rotate the **Control Switch** to the **On** position.
4. Rotate the **Speed Adjustment** until the Fan is providing the amount of air circulation desired.
5. Observe the Fan operation to verify that there is no excessive shaking or wobbling and the Fan is operating safely in all respects.



⚠ WARNING Rotating Fan Blades! Keep all objects, hands, fingers, and loose clothing away from the Fan when it is operating.

To shut down the Cool Boss HVLS Fan:

1. Rotate the **Speed Adjustment** knob to the lowest setting and wait for the Fan to stop rotating.
2. Rotate the **Control Switch** to the off position.



To put the Cool Boss HVLS Fan into reverse:

⚠ WARNING **Always** allow the HVLS Fan to come to a complete stop before attempting to reverse the Fan's direction of rotation. It is **not good practice** to reverse direction on **any** electric motor without first stopping the rotation. The VFD will likely go into an error condition and may be damaged. In addition, the motor will draw much more electrical current to reverse the direction of rotation creating heat in the motor's windings leading to a breakdown in the winding insulation. This will shorten the Fan's useful life.

1. Allow the Fan rotation to stop before proceeding.
2. Rotate the **Speed Adjustment Knob** to its lowest setting.
3. Rotate the Control Switch to the **REV.** position.
4. Rotate the Speed adjustment knob until the Fan is providing the amount of air circulation desired.
5. Shutting down the fan is identical to the shut down instructions already described above.

To use the Emergency Stop:

Pushing the **Emergency Stop** button will immediately remove power from the Controller and the Fan Motor. All Fan functions are locked out until the Emergency Stop button is released. Pushing the Emergency Stop will **not immediately** stop the fan blade motion. The blades will slow gradually as energy is lost to drag and friction.

To release the Emergency stop:

1. Rotate the **Control Switch** to the off position and the **Speed Adjustment** to the lowest-speed position.



-
2. Rotate the **Emergency Stop** button clockwise in the direction of the arrows printed on the button. The button will pop out and the Fan may be operated normally.

Negative Ion Air Purifier Operation

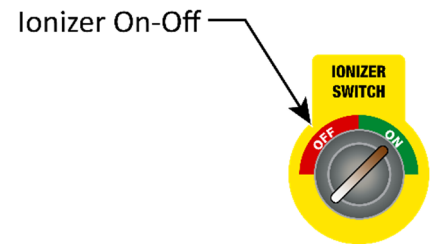
The Cool Boss CB-20HVLS and CB-24HVLS Ionizer utilizes a high-voltage electrode to ionize the surrounding air. The HVLS Fan forces air to move around an electrode generating negative ions (anions). Anions are effective in removing particulates from the air.

To use the ionizer function:


1. Rotate the **Fan Control Switch** to the on position and adjust to the desired speed.
2. Rotate the **Ionizer Switch** on the Control Panel to the **On** position.


To shut down the ionizer function:

1. Rotate the Ionizer Switch to the **Off** position to shut down the Ion generator.




Maintenance

 **DANGER** Before servicing, cleaning, or maintenance, disconnect the unit at the service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.


 **DANGER** After removing power from the Fan, ***even if the main Fan Motor is disconnected, hazardous voltage may be present on the circuit terminals***. Verify terminals are safe with a Voltmeter before beginning work. For your safety, do not begin work on the wiring until the voltage drops to a safe level. Repairing or installing wiring when residual voltage is present may cause personal injury, sparking or a short circuit.



 **DANGER** Any electrical work must be accomplished by a licensed electrician in accordance with all national, state, and local electrical codes.


 **WARNING** Do not change any of the operating parameters on the Variable Frequency Drive (VFD). This HVLS Fan is configured at the factory and unauthorized changes to the VFD parameters may cause damage that is not covered under warranty.


 **WARNING** Do not use this Fan with damaged or missing components!

 **WARNING** Rotating Fan Blades can cause severe injury! Keep hands and loose clothing clear!

To maintain the Cool Boss HVLS:

- **Daily Operation.** Visually confirm the Fan is rotating clockwise when viewed from the ground.
- **Daily Operation.** Visually confirm the running condition of the Fan. No excessive rocking or swaying should be present. If the Fan is swaying, immediately stop the Fan and inspect for loose fasteners or guy wire supports.
- **Daily Operation.** No excessive noise should be created by the Fan. Immediately stop the Fan if excessive or unusual noises are heard. Inspect the Fan and tag as inoperative until maintenance personnel can determine the problem.
- **Annually.** Inspect and verify fasteners are tight and in good condition.
- **Annually.** Inspect the Fan Blades and Tails for cracks or other damage and tighten to secure, if loose.
- **Annually.** Inspect the Guy Wires and their mountings for wear. Repair/replace as required.
- **Annually.** Inspect labels. Replace any worn or illegible labels.

 **WARNING** Do not spray the HVLS Fan with water. The electronics are not sealed. Water can damage the motor and/or other parts of the electrical system.

 **WARNING** Do not operate your HVLS Fan if you find maintenance issues; instead, remove it from service. Assistance with your HVLS Fan is available from your dealer, by calling Cool Boss at **(805) 933-9970**, or by emailing support@coolboss.com. You may also contact Cool Boss for parts replacement (please have the serial number and model number of your unit available).

To store the Cool Boss HVLS Fan:

If the Cool Boss Fan motor drive/controller is stored in a no-charge condition for more than 3 months, the ambient storage temperature should be no higher than 30°C. *Storage longer than one year is not recommended, it could result in the degradation of the internal electrolytic capacitors.*

Assistance with your Cool Boss is available from your dealer, by calling Cool Boss at **(805) 933-9970**, or by emailing support@coolboss.com. You may also contact Cool Boss for parts replacement (please have the serial number and model number of your unit available).

Troubleshooting

⚠ DANGER



After removing power from the Fan, **even if the main Fan Motor is disconnected, hazardous voltage may be present on the circuit terminals**. Verify terminals are safe with a Voltmeter before beginning work. For your safety, do not begin work on the wiring until the voltage drops to a safe level. Repairing or installing wiring when residual voltage is present may cause sparking, severe injury, or death.

⚠ DANGER

Any electrical work must be accomplished by a licensed electrician in accordance with all national, state, and local electrical codes.

⚠ WARNING

Only qualified persons are allowed to service the Fan Motor or its controller.

Issue	Probable Cause	Action to Take
Control Panel inoperative.	No power. Circuit Breaker open. Panel component failure.	– Check the power supply. – Reset the circuit breaker. – Replace the Control.
Fan not working or moving slowly.	Fan is blocked by debris. Brown-out or low voltage.	– Check for mechanical blockage and remove. – Correct voltage supply issue.
Fan is swaying excessively.	Loose fasteners or Guy Wires and/or their mounts. Bent or damaged Blades. Obstructions too close to the Fan Blades. Fan may be out of level.	Inspect for loose or damaged fasteners and tighten or replace as required – Verify the Fan is still Level before operating. Inspect Blades for impact damage or bends. If Blades are damaged or bent, replace as required. Do not attempt to bend the Blades back into shape. Obstructions too close to the Fan will cause disruption in air flow and may cause the Fan to sway and may eventually cause damage, if allowed to continue.
Fan makes unusual sounds.	Worn or broken components and fasteners. Damaged Blades.	Inspect for worn components and contact Cool Boss for parts or service. (805) 933-9970

⚠ WARNING

For areas with frequent brownout conditions. Premature electrical component and Motor failure due to excessive high or low voltage is **not** covered under warranty. Verify that the facility can provide the required current and voltage for the HVLS Fan. While voltage variations are common ($\pm 5\%$) both high and low voltage episodes in excess of 15% to 20% can cause Electric Motor overheating and premature Motor failure.

Low voltage will cause the Motor to draw more electrical current to deliver the same amount of force to the Spindle. Excessive current overheats the Motor Windings, eventually burning through the insulation and resulting in complete Motor failure.

High voltage episodes can cause premature failure of electrical and electronic components due to overheating.

Variable Frequency Drive (VFD) Errors Codes

⚠ WARNING

Do not change any of the operating parameters on the Variable Frequency Drive (VFD). This HVLS Fan is configured at the factory and unauthorized changes to the VFD parameters may cause damage that is not covered under warranty.

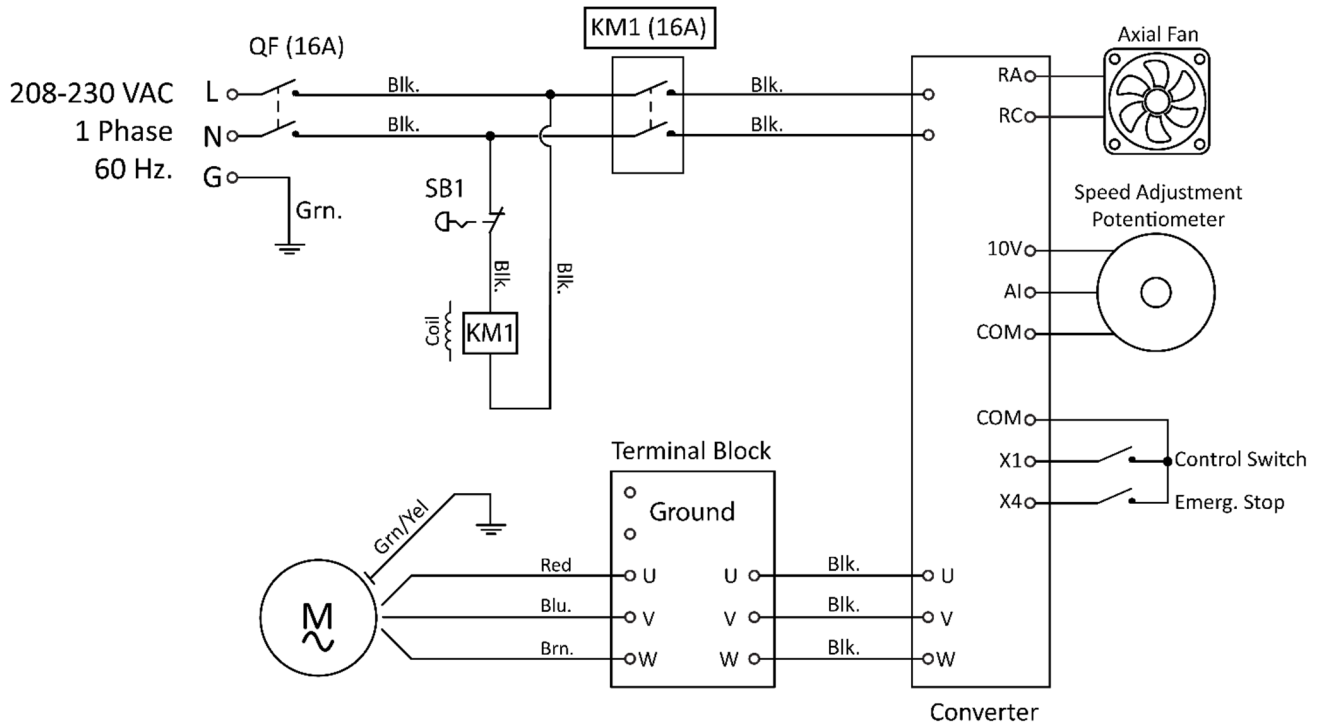
The Cool Boss HVLS Fan's Variable Frequency Drive includes a self-test capability and will display fault codes if a problem is detected.

Error Code	Description
SFO	Safe-Torque off Engage emergency off button and then cycle power back on. Contact Cool Boss if fault persists.
SFL1	Channel 1 (S1 - DCM) Safety Loop Error detected. Engage emergency off button and then cycle power back on. Contact Cool Boss if fault persists.
SFL2	Channel 2 (S2 - DCM) Safety Loop Error Engage emergency off button and then cycle power back on. Contact Cool Boss if fault persists.
SFL3	S1 - DCM and S2 - DCM internal Loop error detected. Verify Power wiring is correct. Engage emergency off button and then cycle power back on. Contact Cool Boss if fault persists.

Assistance with your Cool Boss is available from your dealer, by calling Cool Boss at **(805) 933-9970**, or by emailing support@coolboss.com. You may also contact Cool Boss for parts replacement (please have the serial number and model number of your unit available).

Wiring Diagram

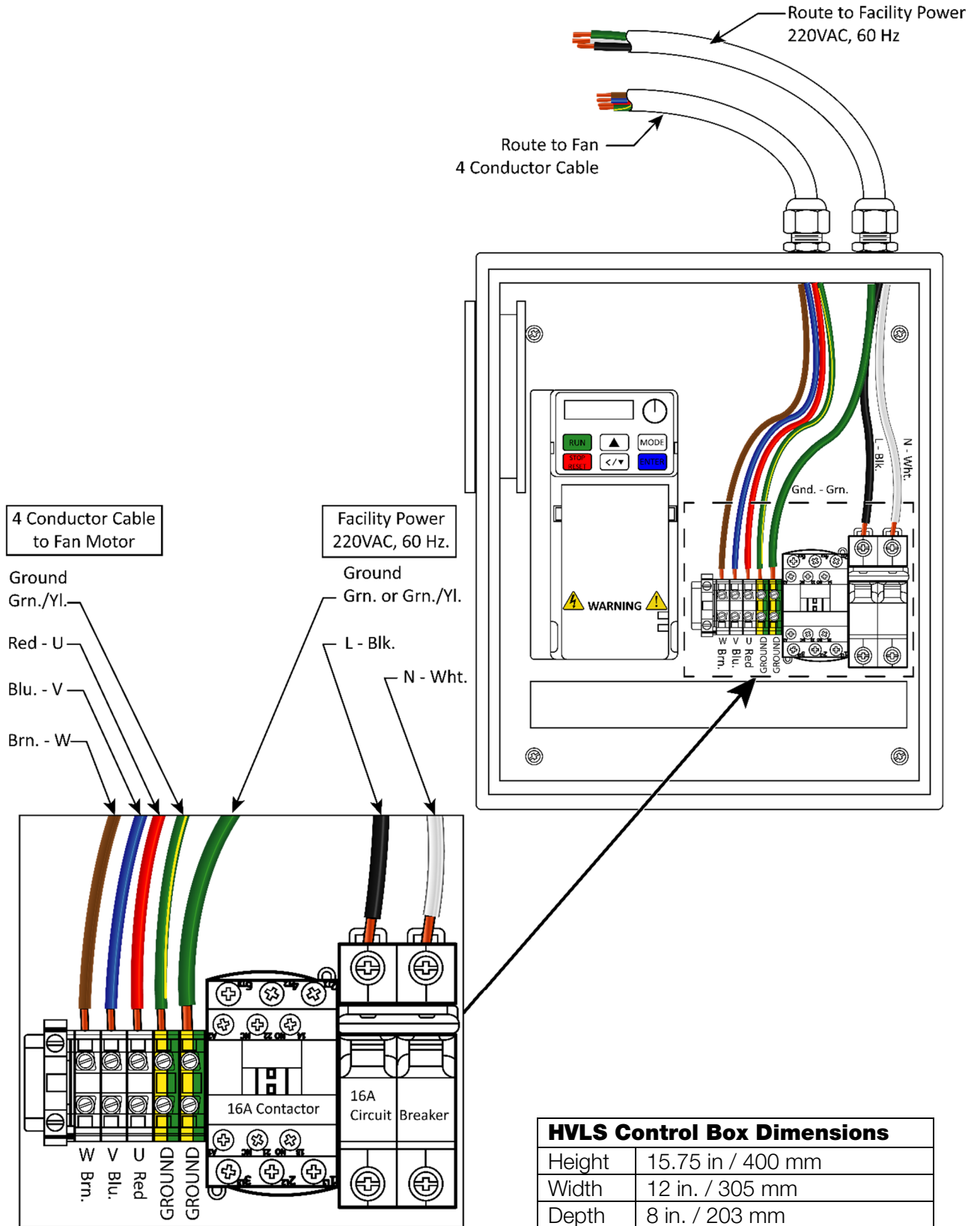
Schematic CB-11HVLS and CB-16HVLS



CB11HVLS	3-ph, 220VAC, 0.75kW
CB16HVLS	3-ph, 220VAC, 1.1kW
CB20HVLS	3-ph, 220VAC, 1.8kW
CB24HVLS	3-ph, 220VAC, 1.8kW

QF	Circuit Breaker 16 Amp
KM1	Contactor 16 Amp
SB1	Emergency Stop

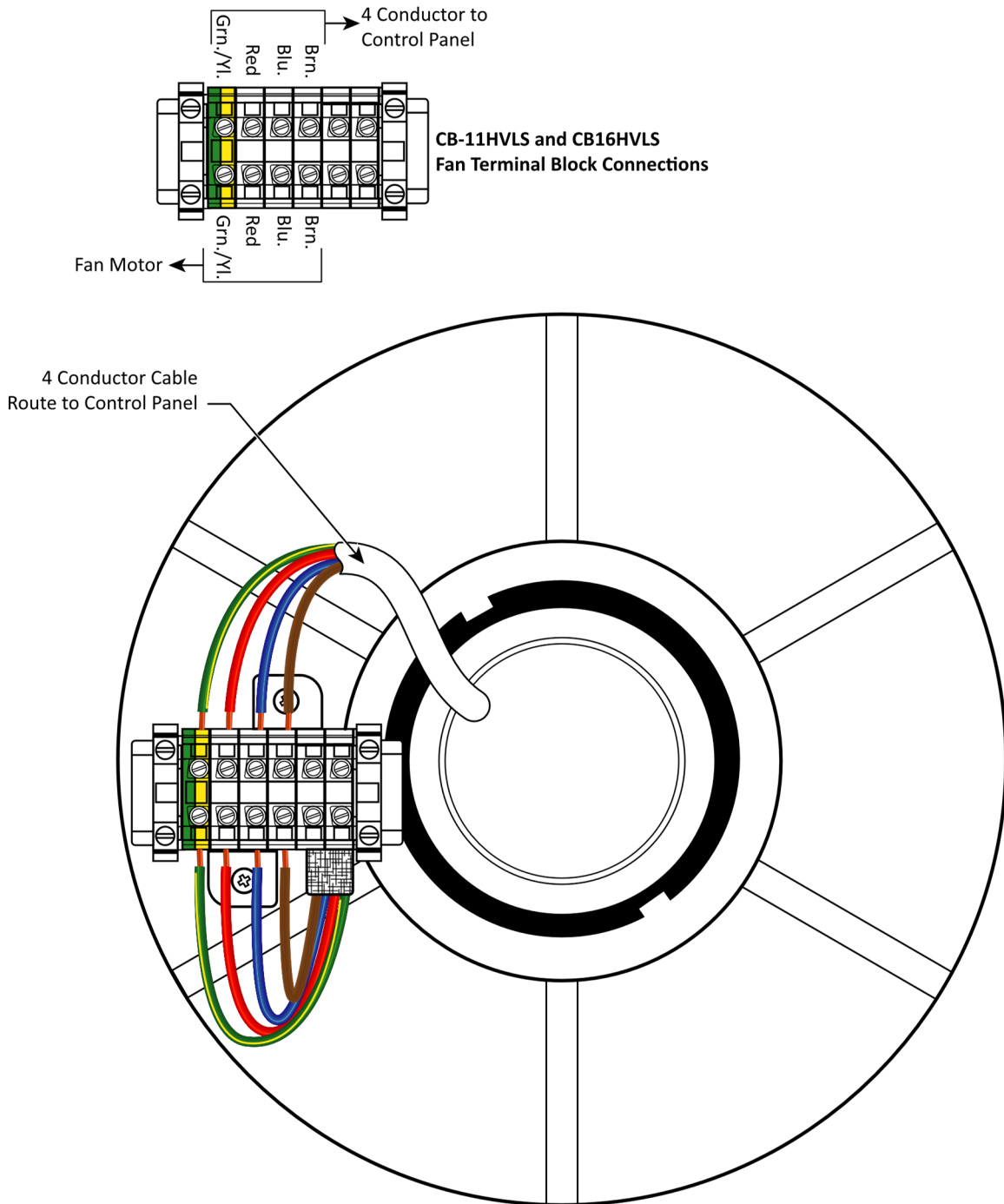
Illustrated Control Box Wiring Diagram CB-11HVLS and CB-16HVLS



Not drawn to scale. Components removed for clarity.

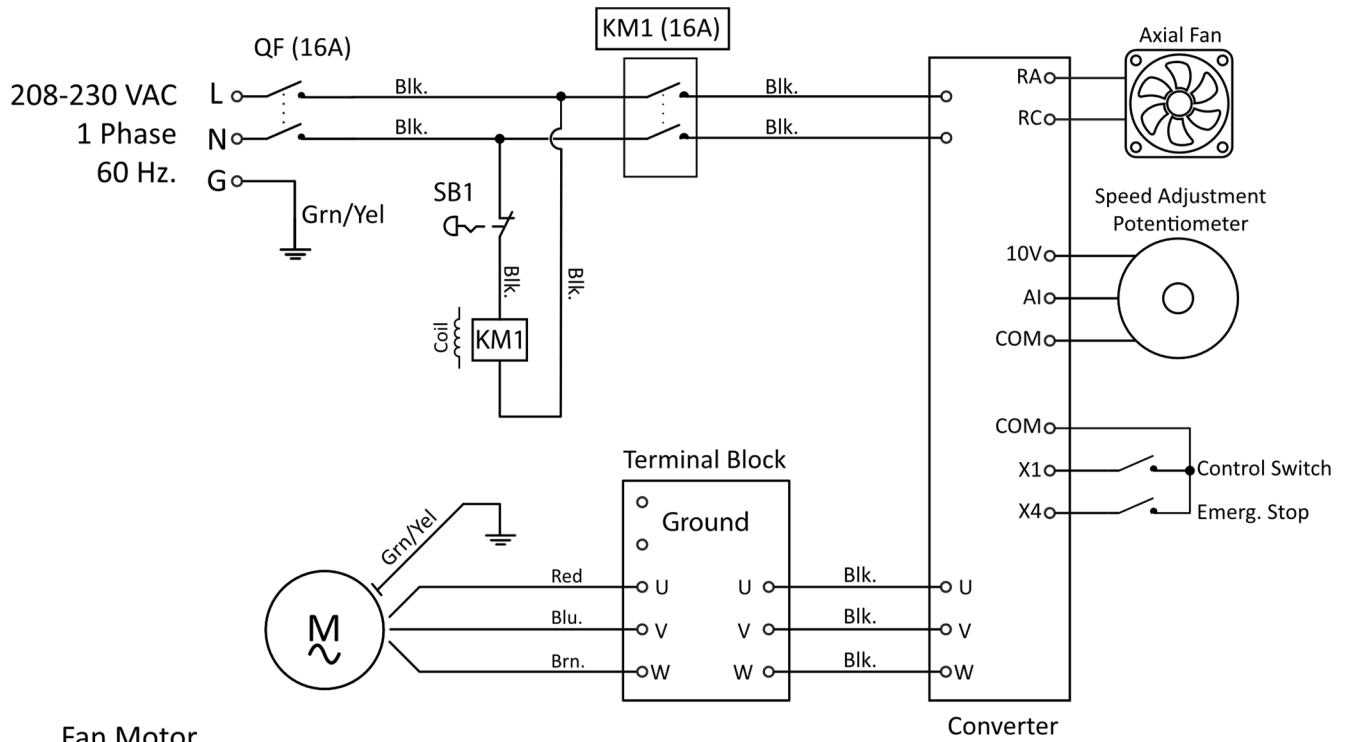
Illustrated Fan Motor Wiring Diagram CB-11HVLS and CB-16HVLS

Fan Motor Bottom View



Not drawn to scale. Components removed for clarity.

Schematic CB-20HVLS and CB-24HVLS

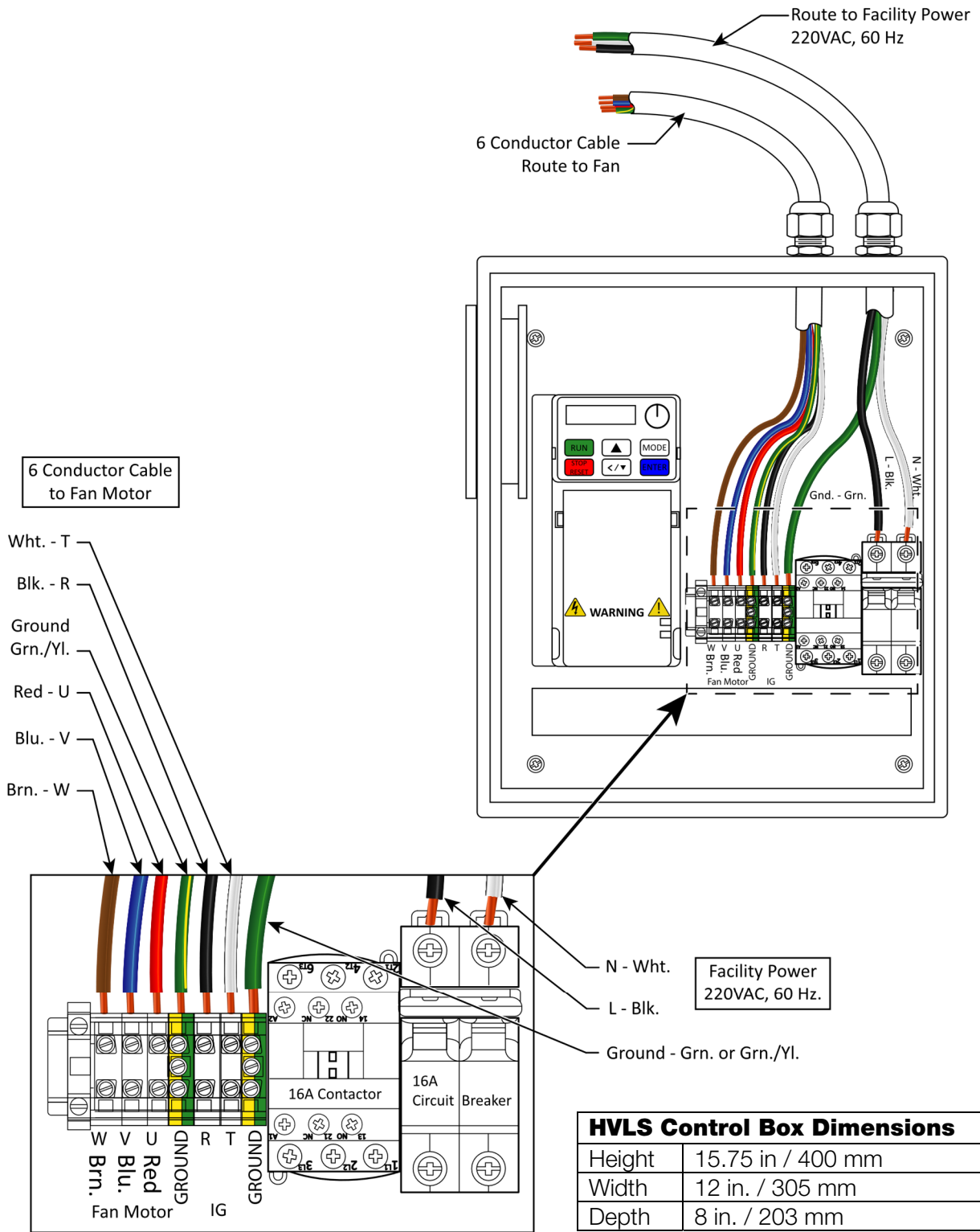


Fan Motor

CB11HVLS	3-ph, 220VAC, 0.75kW
CB16HVLS	3-ph, 220VAC, 1.1kW

QF	Circuit Breaker 16 Amp
KM1	Contactor 16 Amp
SB1	Emergency Stop

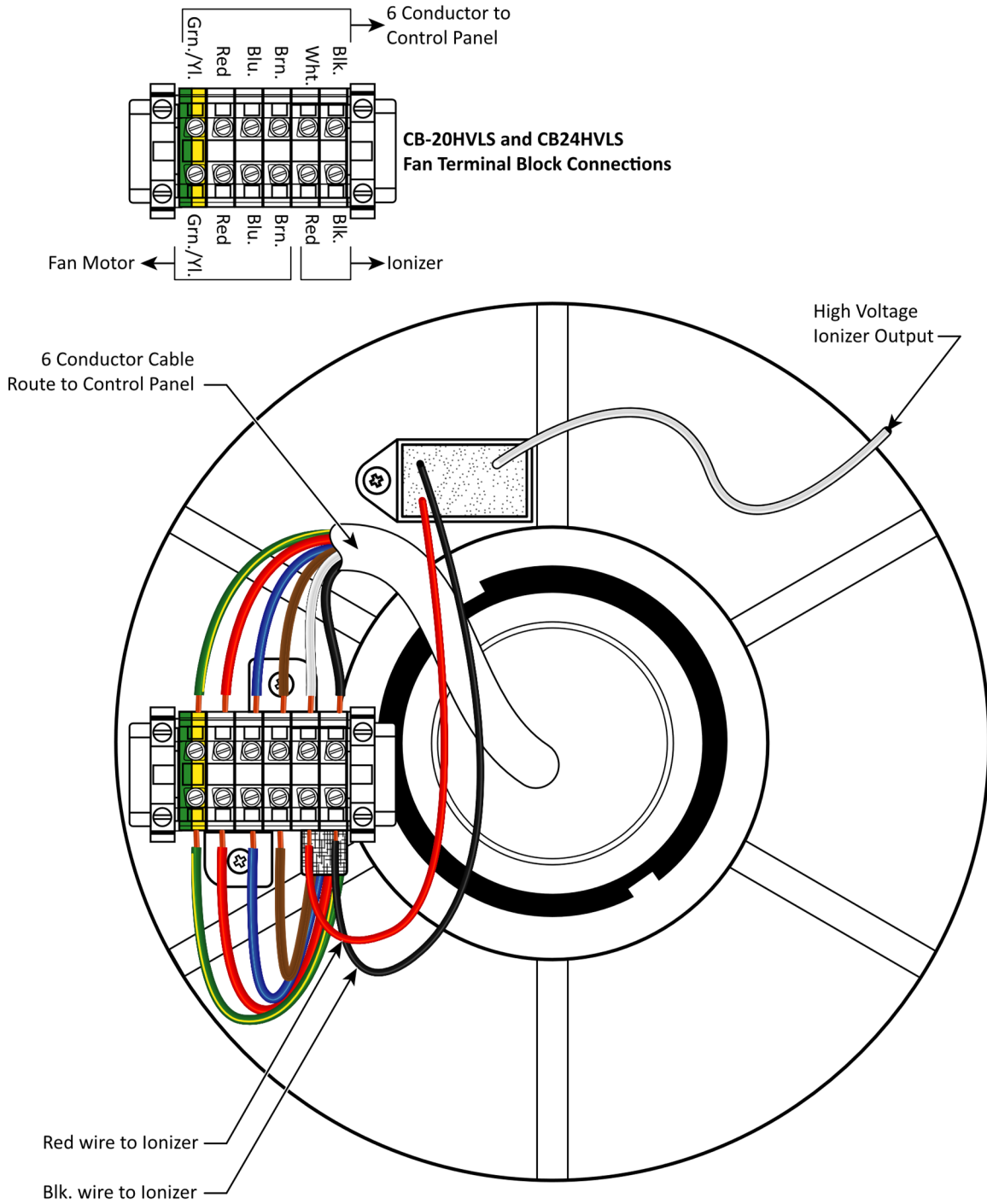
Illustrated Control Box Wiring Diagram CB-20HVLS and CB-24HVLS



Not drawn to scale. Components removed for clarity.

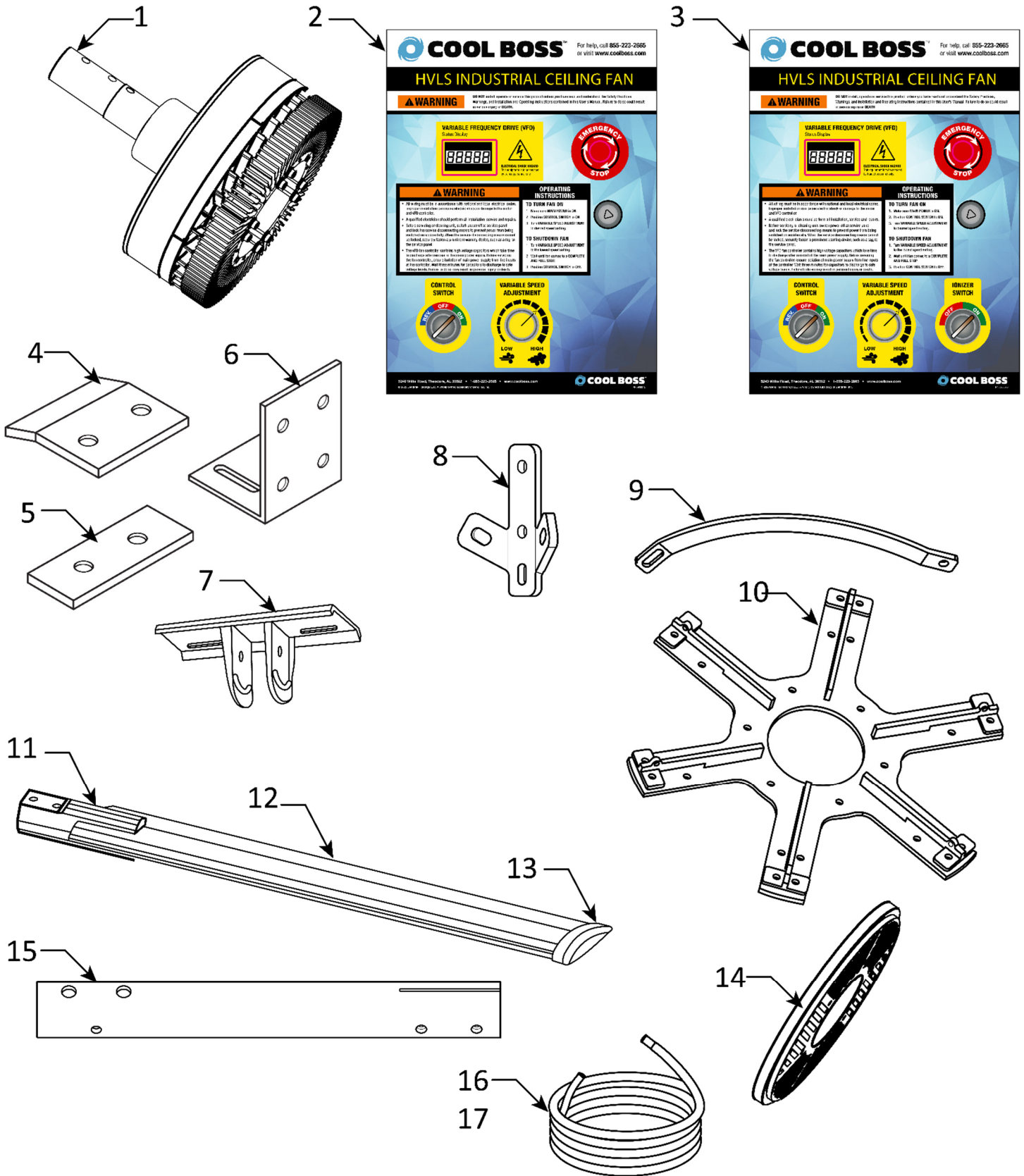
Illustrated Fan Motor Wiring Diagram CB-20HVLS and CB-24HVLS

Fan Motor Bottom View



Not drawn to scale. Components removed for clarity.

Parts Diagram



Specify Model and Serial Number when ordering spare/replacement parts.

Item	Qty.	Description
1	1	Fan Motor
2	1	Fan Control CB11HVLS & CB-16HVLS Only
3	1	Fan Control CB20HVLS & CB24HVLS Only
4	2	Clamp
5	2	Spacer
6	2	L Bracket
7	1	Hanging Plate
8	2	Protection Ring
9	5/6	Arc Plate
10	1	Blade Connector Bracket
11	5/6	Blade Clip
12	5/6	Blade
13	5/6	Blade Tail
14	1	Cover
15	1	Down Rod
16	80 ft. / 25m	4-Conductor Control Cable CB11HVLS & CB16HVLS Only
17	80 ft. / 25m	6-Conductor Control Cable CB20HVLS & CB24HVLS Only
18	Set	Fasteners (Not pictured above)
19	5/6	Rubber Pad (Not pictured above)
20	As Req.	Guy Wire (Not pictured above)

Labels

A



B



C

COOL BOSS Theodore, AL USA www.coolboss.com	
MODEL NO.	SKU NO.
DESCRIPTION	DIMENSIONS
VOLTAGE	POWER / RATED CURRENT
BLADE QTY / SPEED	SERIAL NUMBER
AIR VOLUME	DATE CODE
UPC	
DANGER! Disconnect Power Before Servicing	
CE	UL ENE
Intertek 5223408	PI 5906200 Conforms to UL STD. 507 Certified to CSA STD. C22.2 NO. 00335-2-80

PN 5906200

D

CALIFORNIA PROPOSITION 65

⚠ WARNING ⚠

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

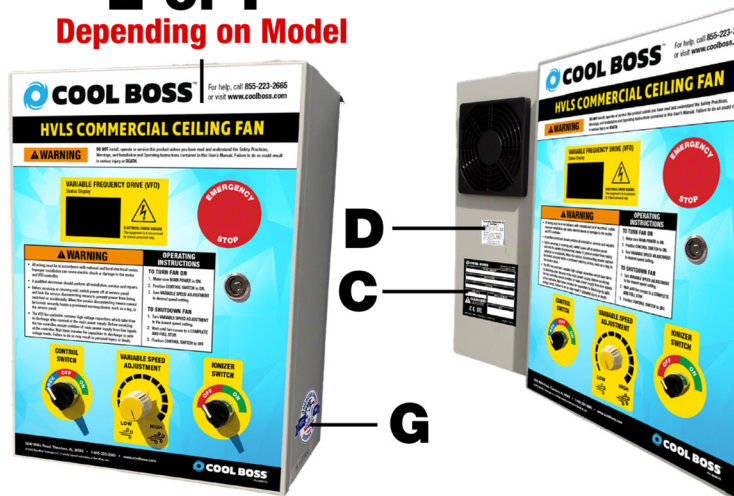
ADVERTENCIA: Este producto contiene sustancias químicas reconocidas por el estado de California como causantes de cáncer y defectos de nacimiento u otros daños reproductivos.

For more information visit:
www.P65Warnings.ca.gov

PN 5905775

PN 5905775

E or F
Depending on Model



E

USE ON CB11 AND CB16

COOL BOSS For help, call 855-223-2665 or visit www.coolboss.com

HVLS INDUSTRIAL CEILING FAN

⚠ WARNING DO NOT install, operate or service this product unless you have read and understood the Safety Practices, Warnings, and Installation and Operating Instructions contained in the User's Manual. Failure to do so could result in serious injury or death.

VARIABLE FREQUENCY DRIVE (VFD)
Status Display

⚠ WARNING Electrical Shock Hazard
Electrical shock hazard. Disconnect power before servicing.

EMERGENCY STOP

⚠ WARNING All wiring must be in accordance with national and local electrical codes. Improper installation can cause electric shock or damage to the motor and VFD controller.

OPERATING INSTRUCTIONS

TO TURN FAN ON

1. Make sure MAIN POWER is ON.
2. Push **CONTROL SWITCH** to ON.
3. Use **VARIABLE SPEED ADJUSTMENT** to desired speed setting.

TO SHUTDOWN FAN

1. Use **VARIABLE SPEED ADJUSTMENT** to the lowest speed setting.
2. Shut and fan comes to a COMPLETE AND FULL STOP.
3. Push **CONTROL SWITCH** to OFF.

CONTROL SWITCH

VARIABLE SPEED ADJUSTMENT

LOW HIGH

5440 Wills Road, Theodore, AL 36688 • 1-855-223-2665 • www.coolboss.com

PN 5906088

F

USE ON CB20 AND CB24

COOL BOSS For help, call 855-223-2665 or visit www.coolboss.com

HVLS INDUSTRIAL CEILING FAN

⚠ WARNING DO NOT install, operate or service this product unless you have read and understood the Safety Practices, Warnings, and Installation and Operating Instructions contained in the User's Manual. Failure to do so could result in serious injury or death.

VARIABLE FREQUENCY DRIVE (VFD)
Status Display

⚠ WARNING Electrical Shock Hazard
Electrical shock hazard. Disconnect power before servicing.

EMERGENCY STOP

⚠ WARNING All wiring must be in accordance with national and local electrical codes. Improper installation can cause electric shock or damage to the motor and VFD controller.

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CONTROL SWITCH

VARIABLE SPEED ADJUSTMENT

LOW HIGH

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PN 5906075

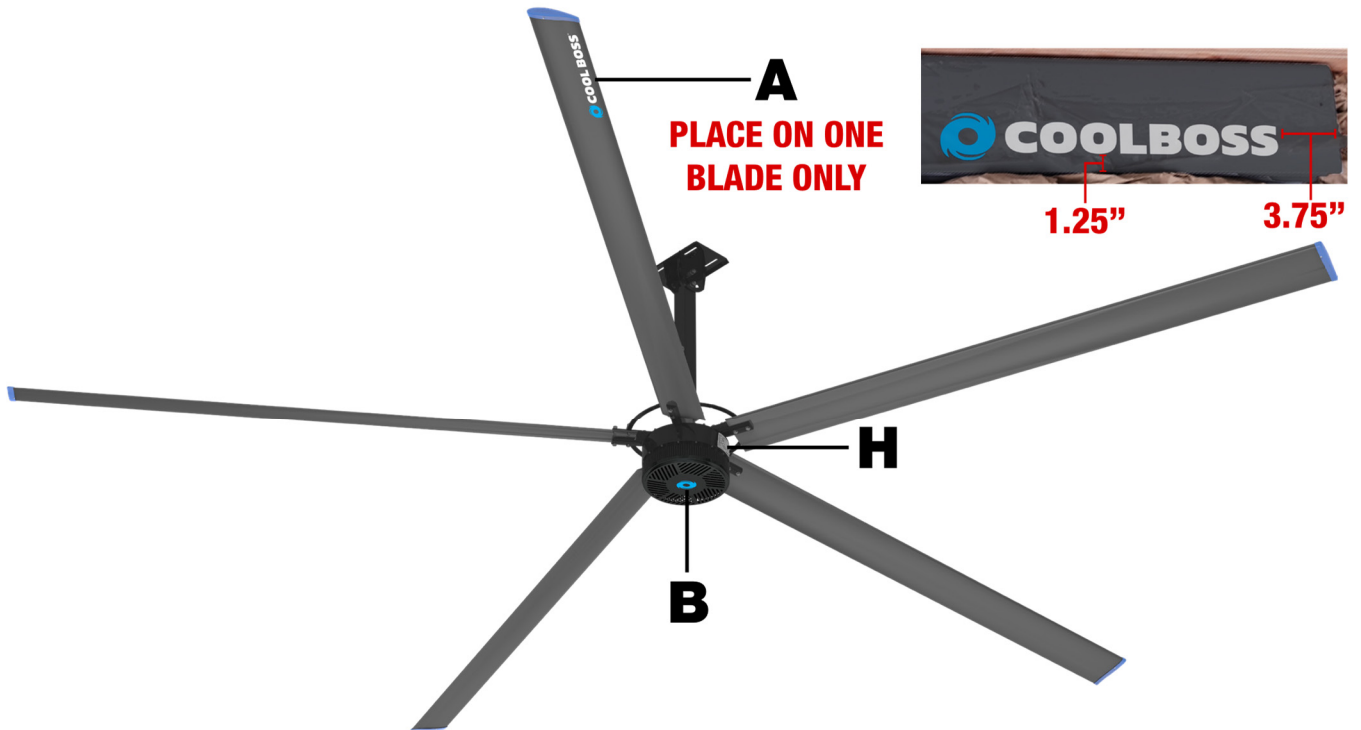
G



PN 5906044

H

SKU NO:	MODEL NO:	VOLT:	VOLT:
HP:	I.D. NO:	FLA:	FLA:
Hz:	RPM:	KVA:	MAX. AMB. °C:
PH:	DATE:	EFF%:	<small>WARNING: GROUNDINGS - Failure to connect the motor frame to equipment grounding conductor by using the grounding cord, green screw, or green wire provided, may result in serious electric shock.</small>
		CODE:	
www.coolboss.com		COOL BOSS	
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		<small>5023408</small>	<small>CONFORMS TO UL STD. 507 CERTIFIED TO CSA STD. C22.2 NO. 60335-2-80</small>





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