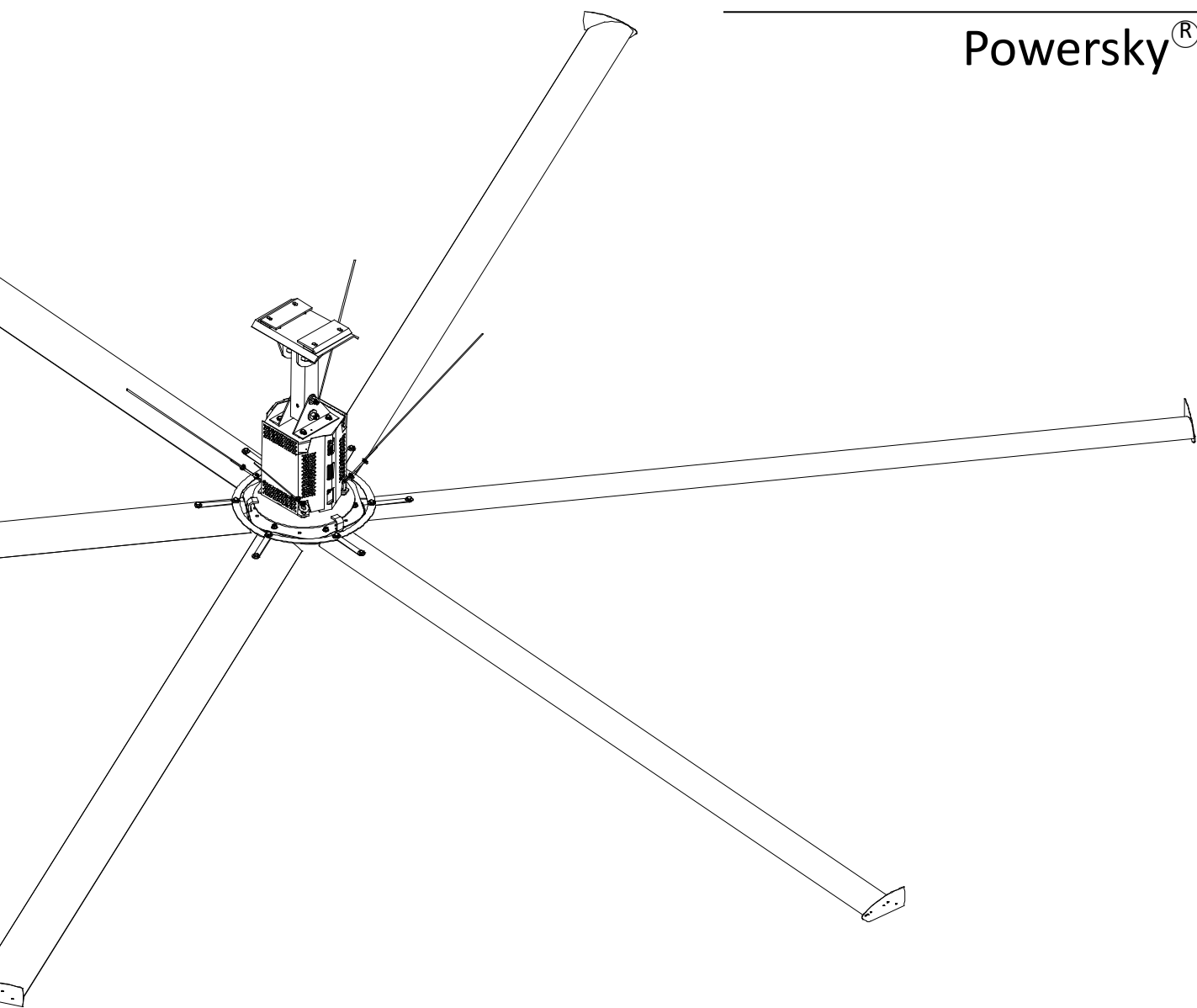


INSTALLATION GUIDE

Powersky[®] X6



HARDWARE

The fan hardware that suspends the fan and the wing is located on the hardware kit. Before installing, ensure you have the following hardware.

Installation Hardware Kit 1

Upper Yoke Hardware	Extension Tube Hardware	Lower Yoke Hardware	Main Fan Unit Hardware
• (4) M12 x 50 MM Bolt • (8) M12 Flat Washer • (4) M12 Nylock Nut • Shackle	• (2) M16 x 120 MM Bolt • (4) M16 Flat Washer • (2) M16 Nylock Nut	• (2) M16 x 120 MM Bolt • (4) M16 Flat Washer • (2) M16 Nylock Nut	• (4) M12 x 25 MM Bolt • (8) M12 Flat Washer • (4) M12 Nylock Nut

Airfoil And Winglet Hardware Kit

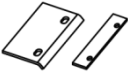
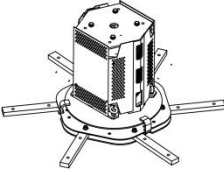
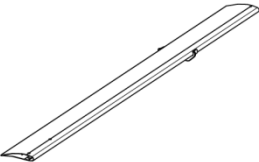
Airfoil Hardware	Winglet Hardware	Guy Wire 2	
• (12) M10 x 50 MM Bolt • (24) M10 Flat Washer • (12) M10 Nylock Nut	• (6) M8 x 25 MM Bolt • (6) M8 Spring Washer • (6) M8 Long Nut	• (4) Locking Carabiner • (4) 8 MM Beam Clamp • (4) M10 X 35MM Bolt	• (4) M10 Eyenut • (4) Gripples • (4) Guy Wire • (4) Wire Rope Clip

1. Square washers are included and are only used when the fan is mounted to the angle iron. The number of square washers required depends on the number of angle irons used.

2. The guy wire is only supplied when it is necessary to limit the fan shake. If the extension tube is 4 ft (1.2 meters) or longer, the fan is susceptible to strong winds or the like or the fan is close to the building structure. Aero Power Solutions recommends the use of guy wire.

Parts

Check that you have all the necessary parts before installation. If you order multiple fans, be sure to classify the components of each fan separately. Each fan has different grades and is not interchangeable.

 (2) Beam Clips (2) Spacers ¹	 Upper Yoke ²	 Lower Yoke	 Hub Cover	 Main Fan Unit
 Airfoil	 Winglet	 Airfoil Retainer	 Extension Tube ³	 Driver (with switch)

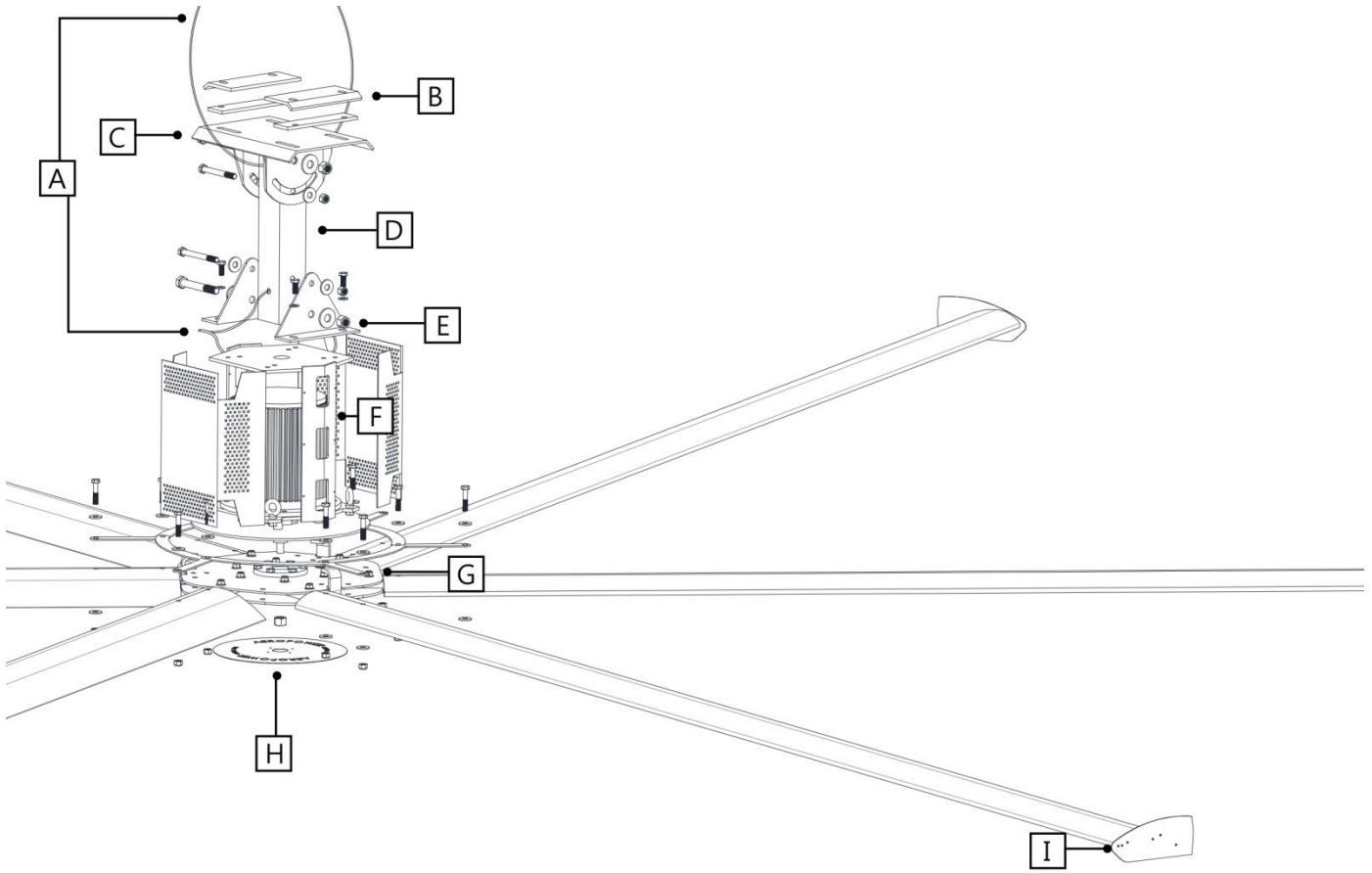
1. Spacers are only used if the beam flange exceeds 3/8" (10 mm).

2. Ensure you have the correct upper yoke for your mounting method. The upper yoke may differ from the illustration.

3. Safety cable is attached to extension tube.

DECOMPOSITION

If you lose any parts or hardware required for installation, please contact customer service.



A Safety Cable

B Beam Clips¹
Spacers¹

C Upper Yoke

D Extension Tube

E Lower Yoke

F Main Fan Unit

G Hub

H Hub Cover

I Winglets

1. Used only if mounting fan to an I-beam. Spacers are used only when the I-beam flange exceeds 3/8" (10 mm).

INSTALLATION LOCATION

Before installation, confirm the following requirements to check that the building structure and fan location are in compliance with Aero Power Solutions' safety guidelines.

- ☐ If the fan's extension boom is 4 inches (1.2 meters) or longer or the installation structure requires, the cable must be used to limit fan shake. If the fan is close to any building equipment, Aero Power Solutions recommends fixing the fan with a cable to ensure safety.
- ☐ When installing the fan, the fan must be perpendicular to the ground.
- ☐ The distance between all fan parts and obstacles is ≥ 2 ft (61 cm). No obstacles such as lights, cables, sprinklers or other structural components are allowed in the fan installation area. °

Net space distance guide

If fan usage does not meet these requirements, please contact customer service to discuss other fan installations or select other fans.

General spacing

- ☐ The distance between the center of the fan must not be less than 2.5x the diameter of the fan.
- ☐ When installing the fan, the fan must be at least 10 ft (3 meters) above the floor.

Ceiling pitch

Depending on the fan size, the fan must be installed at the following distances. The distance between the fan and the ceiling is the distance between the top of the winglet and the ceiling.

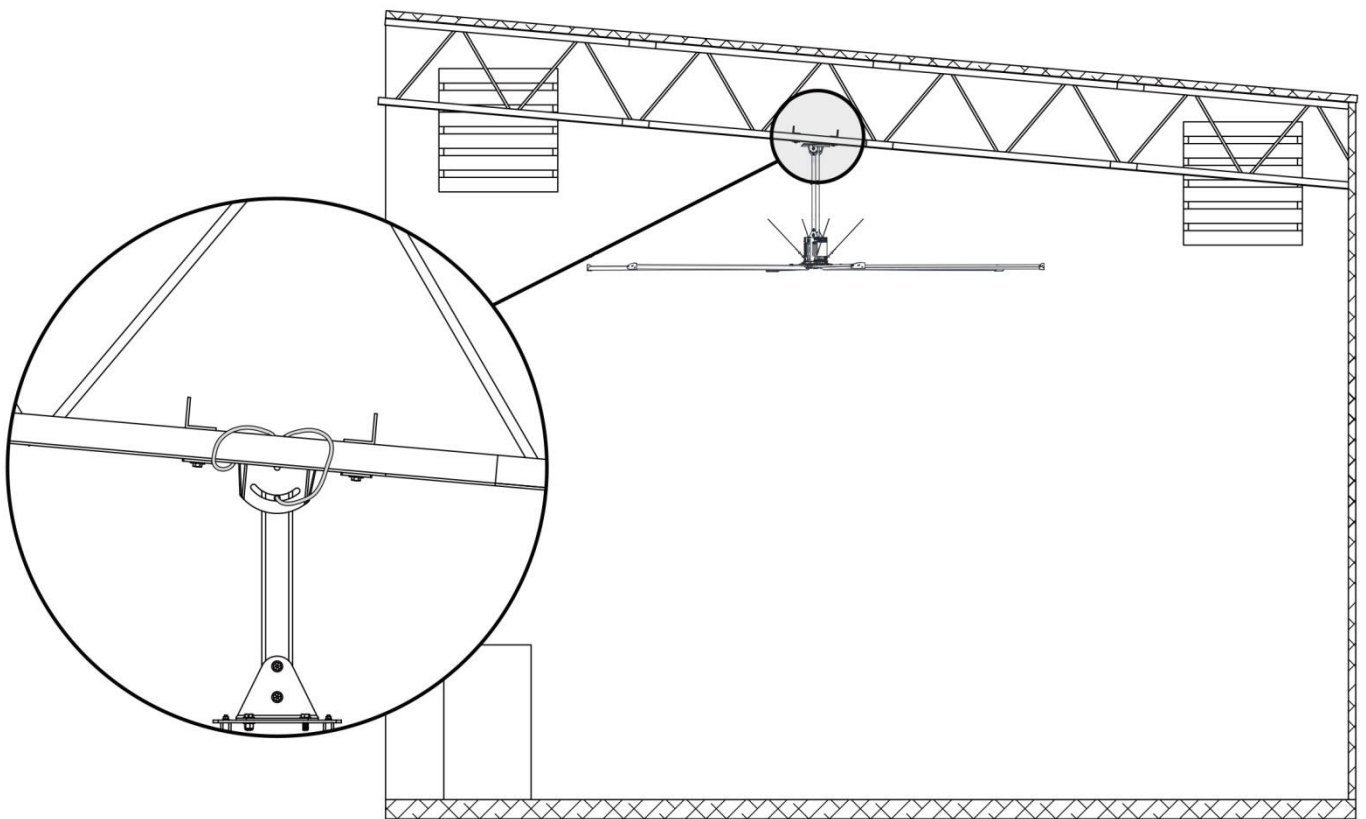
Powersky[®] X6

Fan diameter	Distance from the ceiling
10 ft (3.0 meters)	4 ft (1.2 meters)
13 ft (4.0 meters)	5 ft (1.5 meters)
16 ft (4.9 meters)	6 ft (1.8 meters)

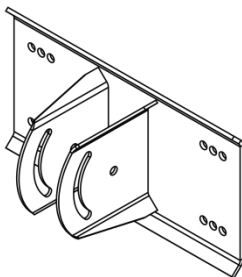
Understanding roof pitch

To ensure the fan is properly mounted, the fan must always hang plumb to the ground and the yoke must be installed using the bolt holes at the widest locations possible. To accommodate building structures on which the standard upper yoke does not allow the fan to properly orient itself, the 90-Degree Offset mount should be purchased.

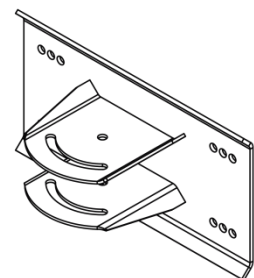
The example below shows one situation in which the 90-Degree Offset mount must be used so that the fan hangs plumb to the ground and the widest stance for the upper yoke is ensured. If you are uncertain of your roof pitch or do not have the correct mount to properly hang your fan, consult a structural engineer or contact Aero Power Fans Customer Service.



Standard Upper Yoke



90-Degree Offset Mount



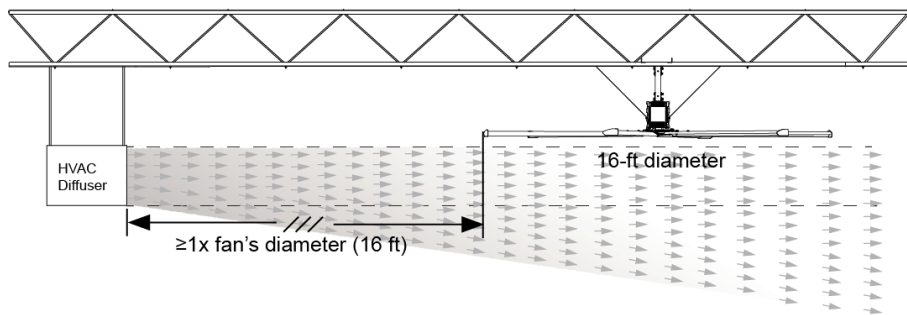
Pre-Installation

Mechanical installation

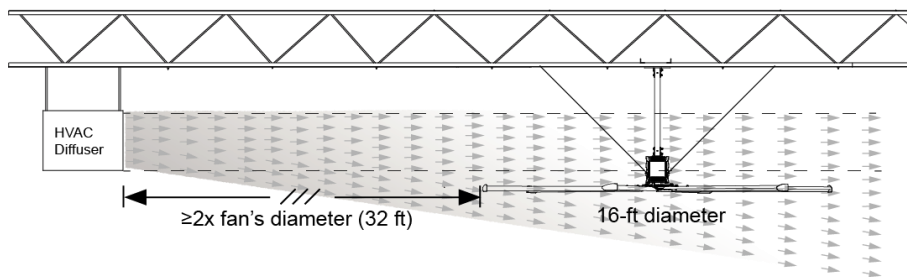
- A 16-ft (4.9-m) Powersky®X6 fan weighs, at maximum, 275 lbs (125 kg). A suitable means for lifting the weight of the fan, such as a scissor lift, and at least two (2) installation personnel will be required.
 - Aero Power Fan can only be mounted to an I-beam or angle irons. If mounting to an I-beam, the I-beam must be part of the existing building structure. Do not mount the fan to a single purlin, truss, or bar joist.
- Consult a structural engineer for installation methods not covered in the guide.

- The mounting structure must be able to withstand the torque forces generated by the fan.
- Fans mounted on fabricated I-beams, which are common in steel buildings, could cause the beam to flex and the fan to move significantly during operation. If this flexing causes a clearance problem, we suggest installing the I-Beam Stabilizer kit.
- If the fan’s extension tube is 4 ft (1.2 m) or longer or if the mounting structure requires it, the fan’s lateral movement must be secured using guy wires. If the fan is close to any building fixtures it is recommended to secure the fan with guy wires as a safety measure.
- Adhere to the safety requirements in the table below when selecting where to mount the fan.

Safety requirement	Minimum distances
Clearance	≥2 ft from all fan parts. The fan installation area must be free of obstructions such as lights, cables, sprinklers, or other building structure. See the tables on pp. 2–3 for recommended minimum ceiling clearances.
Airfoil height	≥10 ft above the floor
HVAC equipment	≥1x fan diameter if above diffuser. ≥2x fan diameter if below diffuser. Refer to the illustration below.
Fan spacing	2.5x fan diameter, center-to-center
Radiant/IR heaters	See the manufacturer’s requirements for the minimum clearance to combustibles.



The fan is located at or above the HVAC discharge or intake.



The fan is located below the HVAC discharge or intake.

INSTALLATION

⚠ WARNING : The fan cannot be installed unless the structure of the installed fan is strong, undamaged, and can support the load and installation method of the fan. Structural engineers should verify that the structure is appropriate before installing the fan. The customer and/or end user is solely responsible for confirming the stability of the installation structure.

Aero Power Solutions hereby expressly disclaims any liability, or do not use Aero Power Solutions to provide or install any of the materials or hardware described in the instructions.

⚠ NOTICE : Before installation, make sure you have a upper yoke that fits the slope of the roof.

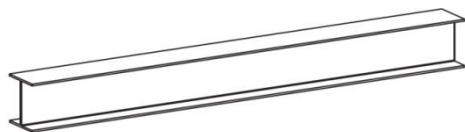
⚠ WARNING : Make sure there are no people under the fan during installation!

Overview

PowerSky X6 can only be hung from I-beams or bar joists. For structural installation methods not covered in this manual, please consult a structural engineer.

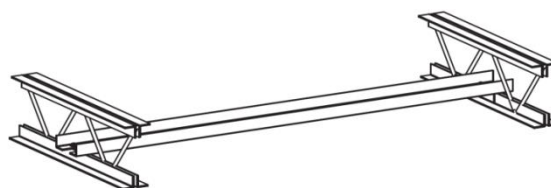
I-Beam

- It is not recommended to install the fan on the prefabricated I-beam.
- Do not install the fan directly on the I-beam.
- The I-beam must be part of the existing building structure.



Angle Iron

- Do not install a fan from a single purlin, truss or bar joists.
- The unsupported angle iron span should not exceed 3.7 meters.
- The angle iron must be fixed to the roof structure at each end.



1a. Prepare The I-beam

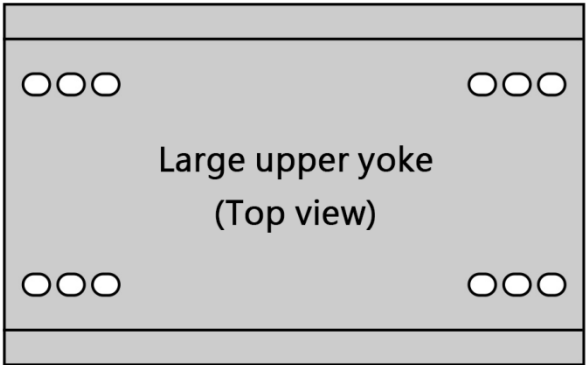
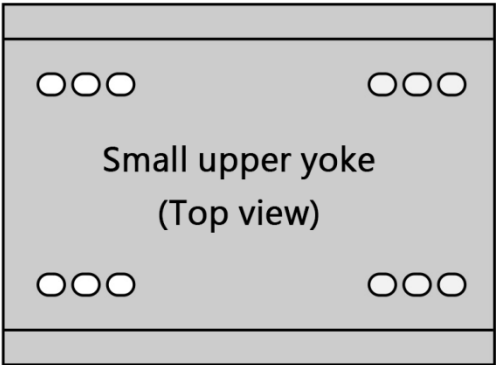
NOTICE

If you install the fan on the angle iron, continue reading the next page.

Measure the width of the beam edge of the suspended fan. Select the mounting hole that matches the width of the I-beam as shown in the figure below.

Continue with step 2.

Small upper yoke 13-3/4 inches x10 inches (349 mm x 258 mm)	I-beam width 5 inches to 9-7/8 inches (127 至 250 mm)
Large upper yoke 18-1/2 inches x10 inches (470 mm x 258 mm)	I-beam width 9-7/8 inches to 14-5/8 inches (250 至 371 mm)



1b.Prepare Angle Irons

- ⚠ **WARNING** : Do not install a fan from a single purlin, truss or bar joists.
- ⚠ **WARNING** : The unsupported angle iron span should not exceed 12 ft (3.7 meters).
- ⚠ **WARNING** : Angle iron must be fixed to the roof structure at each end.

For mounting the fan on the I-beam, see the previous page. For structural installation methods not covered in this manual, please consult the structural engineer.

A. Select proper angle irons

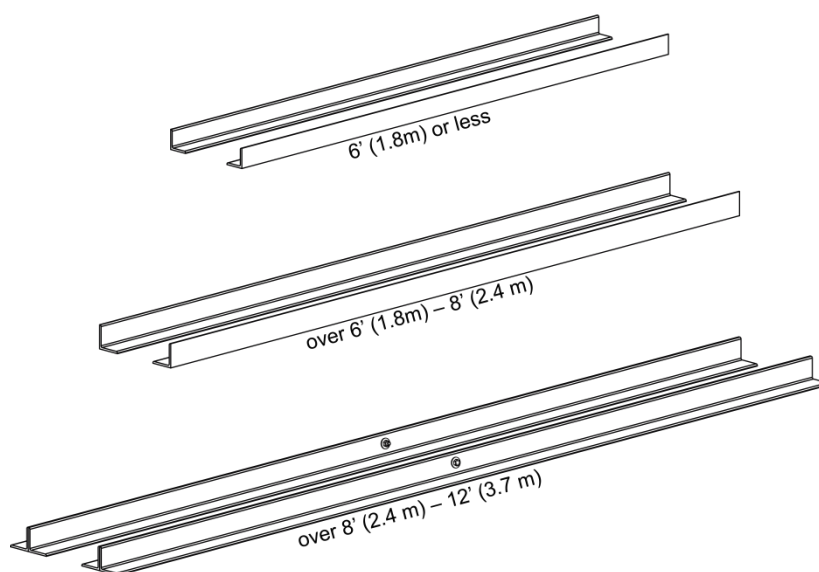
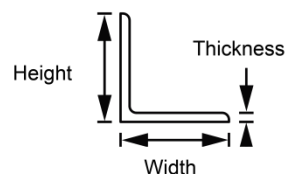
Using the table and diagrams below, select the proper angle irons for fan installation.

Note: Angle irons and angle iron hardware are not included with the fan.

Angle iron span (Between installation points)	Minimum angle iron size (Width X Height X Thickness)	Number of angle irons required
6 ft (1.8 m) or less	2.5"x2.5"x0.25" (6.4 cmx 6.4 cm x 0.6 cm)	2
6 ft to 8 ft (1.8 m to 2.4 m)	3"x3"x0.25" (7.6 cm x 7.6 cm x 0.6 cm)	2
8 ft to12 ft (2.4 m to 3.7 m)	3"x3"x0.25" (7.6 cm x 7.6 cm x 0.6 cm)	4*

* Two pairs of angle irons. Pairs should be placed back to back and fastened in center

Angle Iron Side View
(see table for dimensions)



B. Fasten angle irons to roof structure mounting points

Fasten the angle irons to the roof structure mounting points at each end with Grade 8 hardware. Do not fully tighten the hardware.

Single Angle Iron

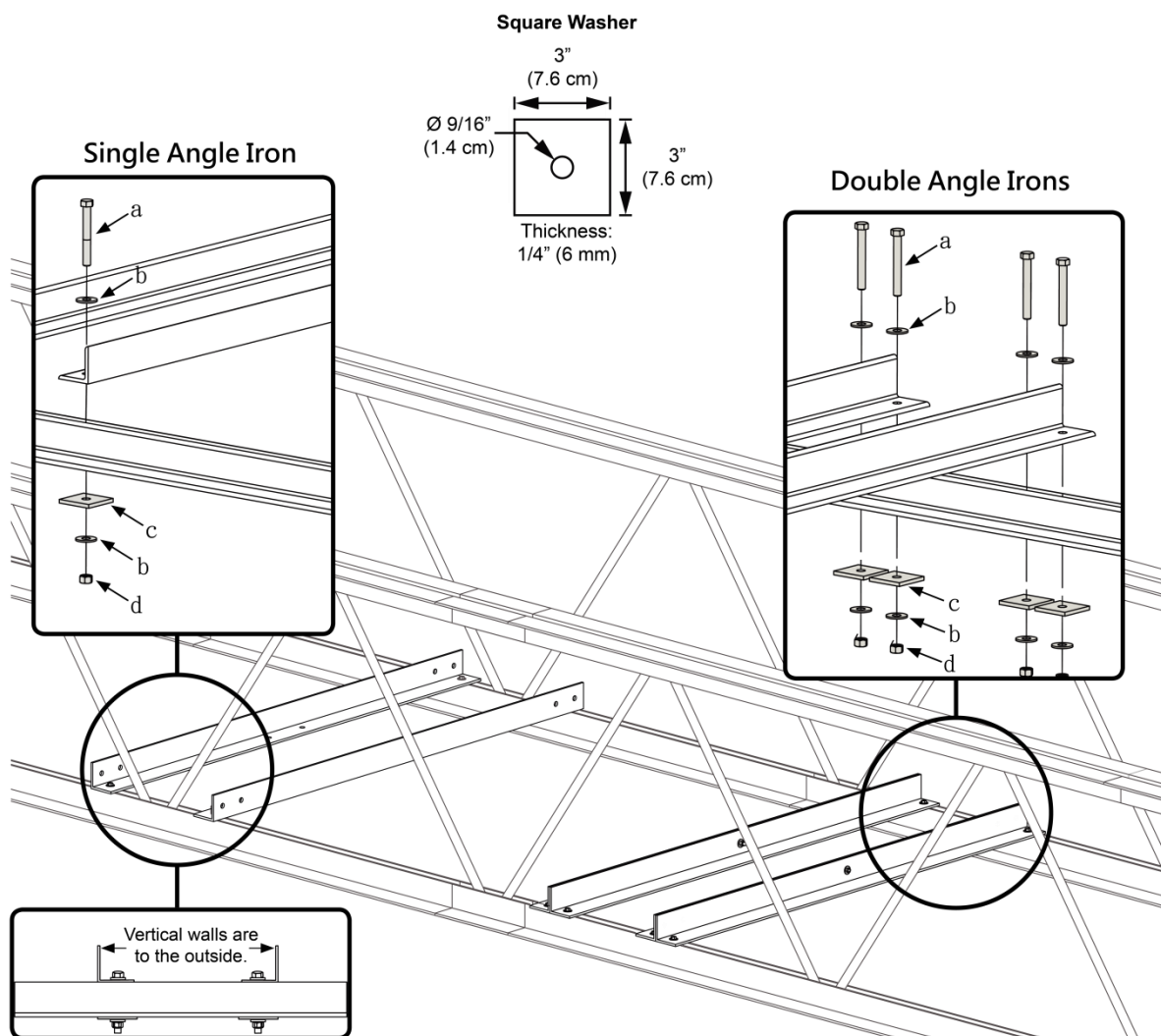
Position the angle irons so that the horizontal legs face each other (vertical legs are on the outside).

Double Angle Irons

Position the angle irons with fan mounting holes on the inside, facing each other.

Grade 8 Angle Iron Hardware (Installer-Supplied):

- a. (4 or 8) M12 GR 8 Bolt
- b. (8 or 16) M12 GR 8 Washer
- c. (4 or 8) 2" x 3" (51 x 76 mm) Rectangular Washer (APF-supplied; see diagram)
- d. (4 or 8) M12 GR 8 Nylock Nut



Note: Ensure the angle irons are oriented as shown.

2. Install The Main Fan Unit On The Angle Iron

NOTICE

If using the extension tube to install the fan, skip to step 3a (I-beam) or 3b (angle iron).

⚠ CAUTION: The main fan unit is heavy. Use caution when raising it.

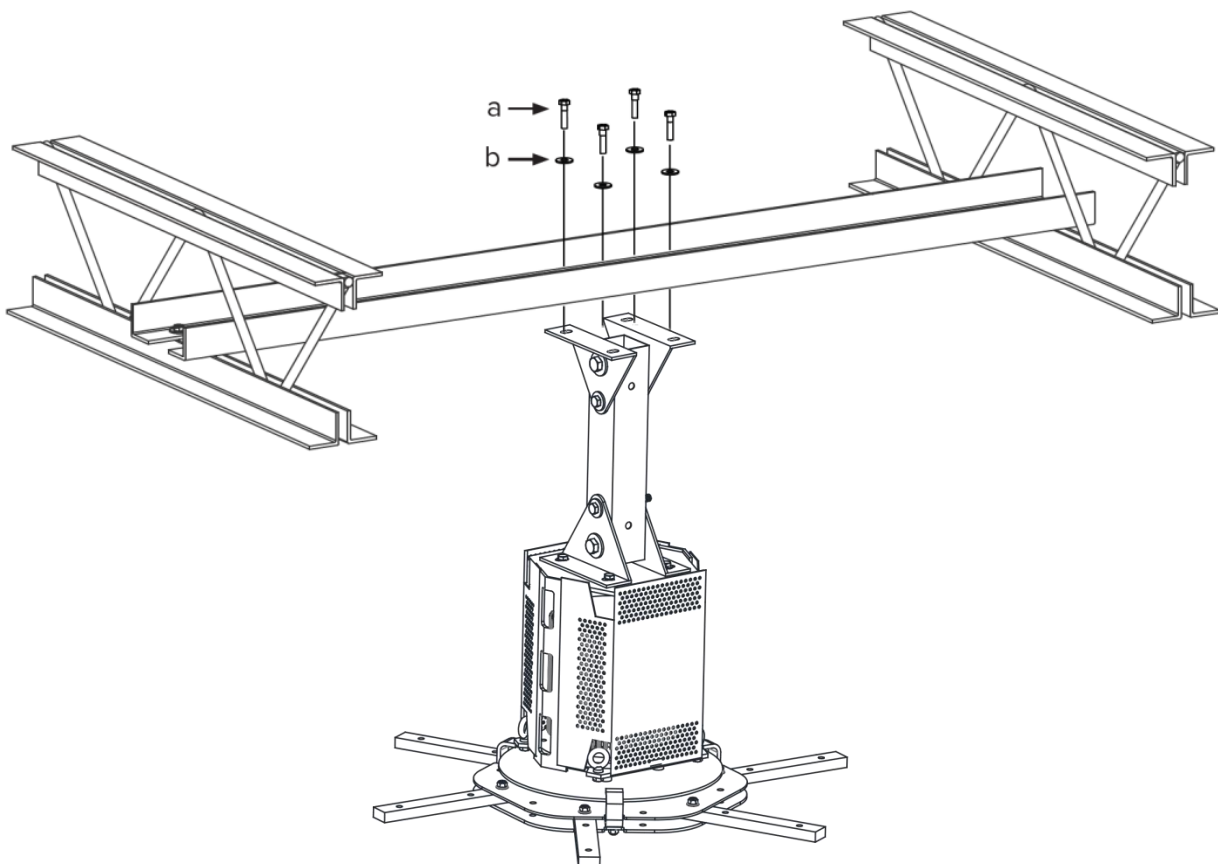
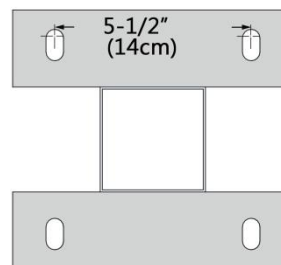
Use the fan main assembly kit to secure the fan main unit directly to the angle iron. The distance between the angle irons is shown in the figure below.

After fixing the main fan part to the angle iron, fix the angle iron to the roof structure.

Proceed to 5. Secure Upper Safety Cable

Main Fan Unit Hardware(APF-Supplied) :

- a. (4) M12 GR 8 Bolt
- b. (8) M12 GR 8 Washer
- c. (4) M12 GR 8 Nylock Nut



3a.Install Upper Yoke Fixing On The I-beam

NOTICE

If you are installing the fan on the angle iron, skip step 3b on the next page.

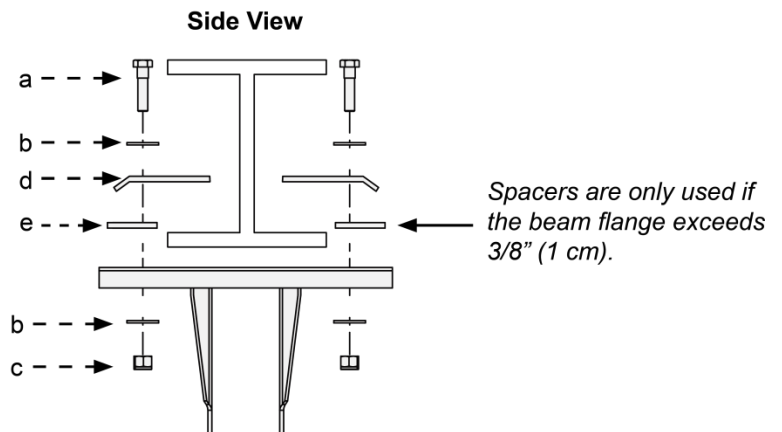
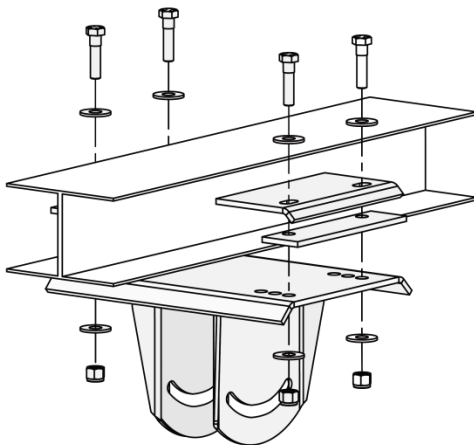
Measure the flange width of the I-beam from which the fan will be hung. Select the upper yoke mounting holes that match the flange width of the I-beam.

Secure the upper yoke to the I-beam using the upper yoke hardware kit.

Proceed to 4.Installation Extension Tube

Upper Yoke Hardware(APF-Supplied) :

- a. (4) M12 X 55 MM GR 12 Bolt
- b. (8) M12 Flat Washer
- c. (4) M12 Nylock Nut
- d. (2) Beam Clip
- e. (2) Spacer



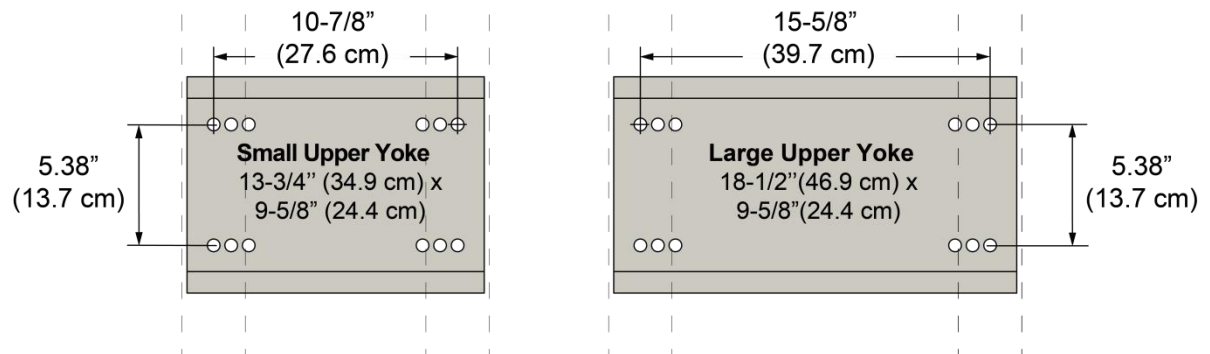
Note: Ensure the spacers are oriented as shown above.

3b. Attach Upper Yoke (To Angle Irons)

Secure the upper yoke directly to the angle irons with the Upper Yoke Hardware as shown.

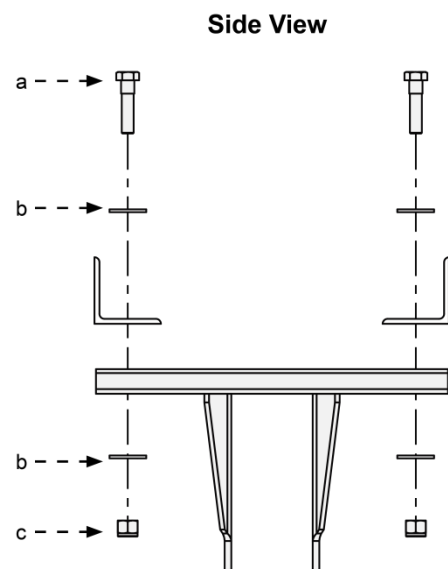
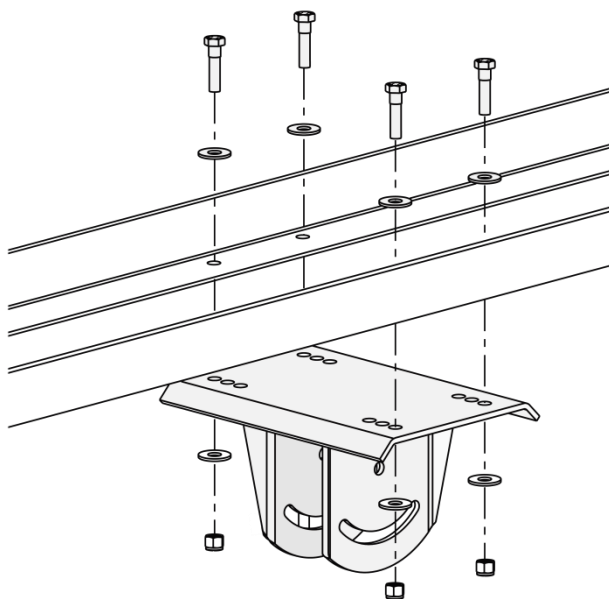
Upper Yoke Hardware (APF-Supplied) :

- a. (4) M12 X 50 MM GR 8 Bolt
- b. (8) M12 Flat Washer
- c. (4) M12 Nylock Nut



Note: Dashed lines represent angle irons in the above illustrations.

The angle irons should be aligned with the outermost holes on the upper yoke. Do not use beam clips on angle irons!

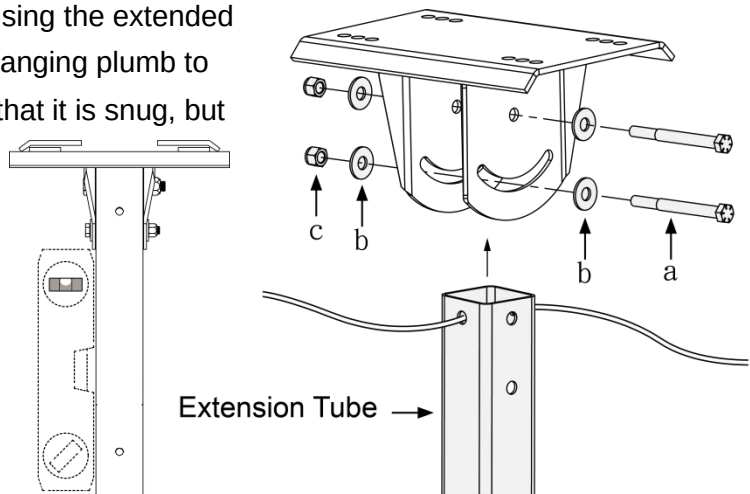


4. Attach Extension Tube (To Upper Yoke)

Secure the extension tube to the upper yoke using the extended tube hardware. Ensure the extension tube is hanging plumb to the ground, and then tighten the hardware so that it is snug, but not fully tightened.

Extension Tube Hardware (APF-Supplied):

- a. (2) M16 x 120 MM GR 8 Bolt
- b. (4) M16 Flat Washer
- c. (2) M16 Nylock Nut



5. Secure Upper Safety Cable

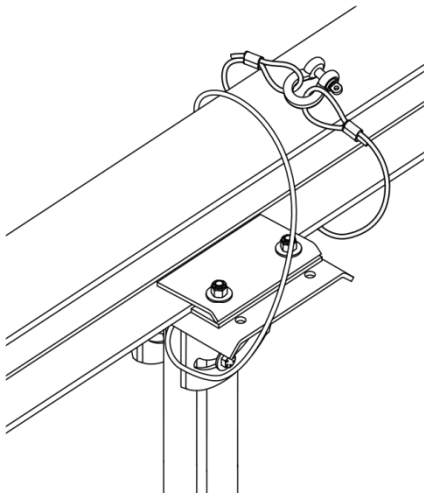
NOTICE

The safety cable is a crucial part of the fan and must be installed correctly. If you have questions or require assistance, call Customer Service for assistance.

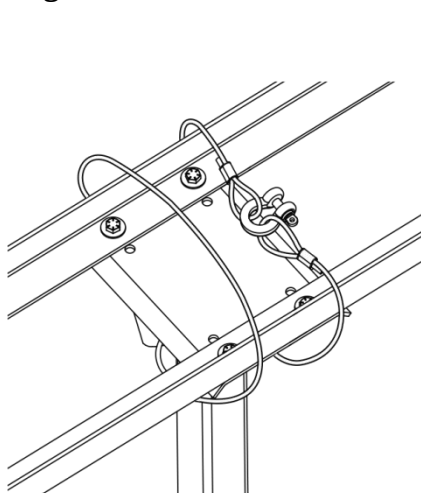
Note: If the fan installation contains an extension tube, the safety cable is pre-connected to the extension tube. If the fan without an extension tube is installed, the safety cable is individually packaged.

Wrap the safety cable around the mounting structure and secure the looped ends with the shackle as shown. The cable must be drawn tightly around the I-beam or angle iron, leaving as little slack as possible. The shackle should be on the topside of the I-beam or angle iron if possible. Securely tighten the shackle.

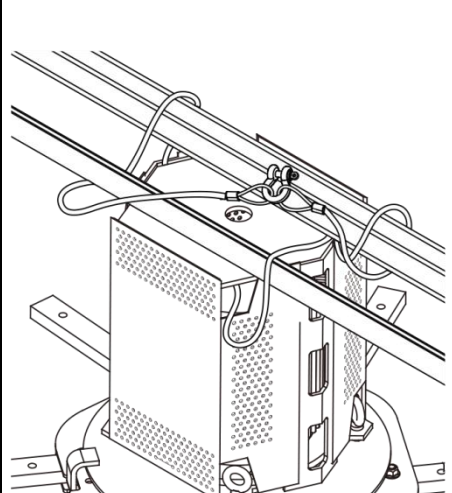
I-Beam Mount



Angle Iron Mount



Direct Mount



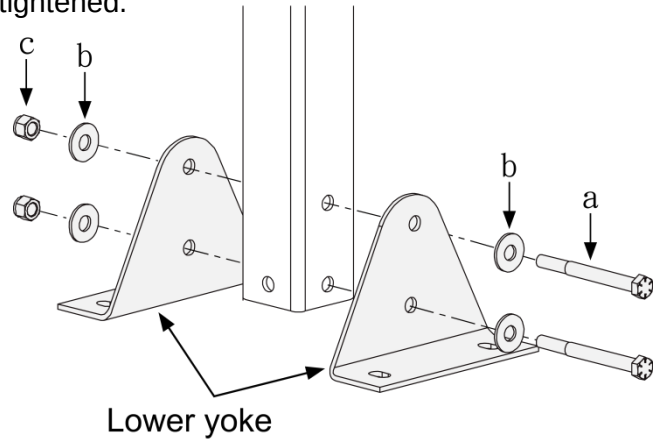
6. Attach Lower Yoke (To Extension Tube)

Attach the lower yoke to the bottom of the extension tube with the Lower Yoke Hardware as shown.

Tighten the hardware so that it is snug, but not fully tightened.

Lower Yoke Hardware (APF-Supplied):

- a. (2) M16 x 120 MM GR 8 Bolt
- b. (4) M16 Flat Washer
- c. (2) M16 Nylock Nut



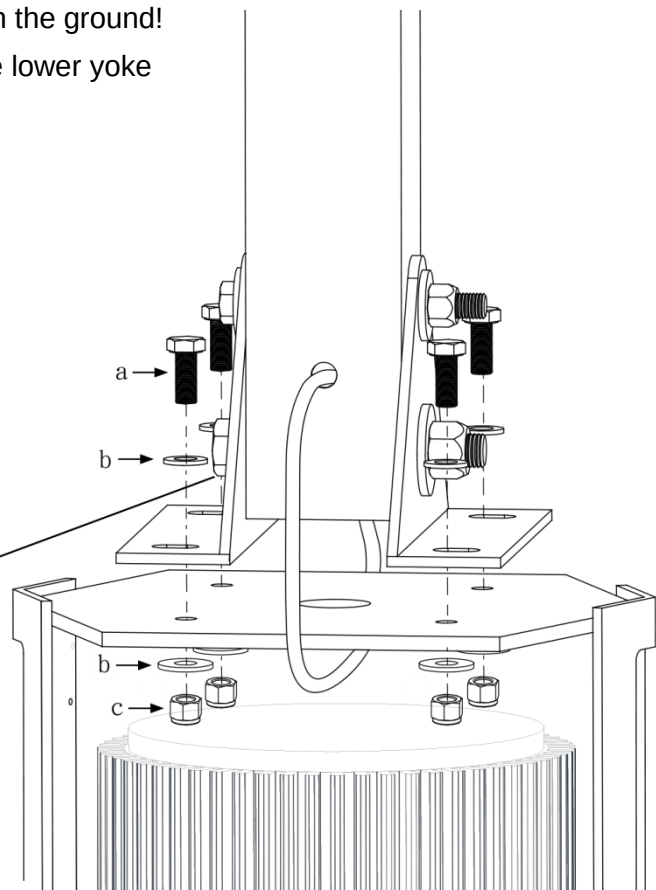
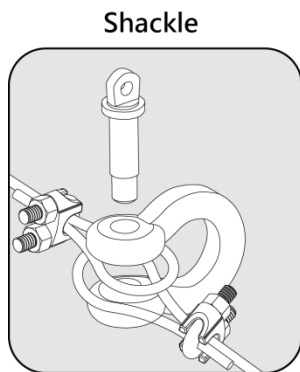
7. Attach Main Fan Unit (To Lower Yoke)

⚠ CAUTION: The main fan unit is heavy. Use caution when raising it.

Attach the main fan unit to the lower yoke with the Main Fan Unit Hardware as shown. Do not rest the main fan unit on the ground! Make sure the lower cable is positioned between the lower yoke brackets as shown on the right.

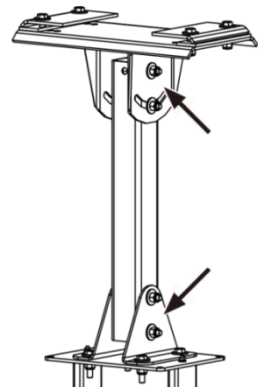
Main Fan Unit Hardware (APF-Supplied):

- a. (4) M12 x 30 MM GR 8 Bolt
- b. (8) M12 Flat Washer
- c. (4) M12 Nylock Nut



8. Confirm Orientation

After securing the main fan unit to the lower yoke, allow the fan to hang so that the extension tube is plumb to the ground. When it is properly positioned, fully tighten the mounting hardware (Lower Yoke Hardware and Extension Tube Hardware).



9. Installing Guy Wires

NOTICE

Guy wires may not be included in your fan order. They are intended to constrain the fan's lateral movement and are only included with fans that have extension tubes 4 ft (1.2 m) or greater in length. Depending on the conditions at the installation site, guy wires may be needed for fans with shorter tubes to prevent any lateral movement. If guy wires are needed and were not included with your fan order, contact Aero Power Customer Service.

⚠ WARNING : Ensure power is disconnected from the fan before installing the guy wires.

A. Attach beam clamp

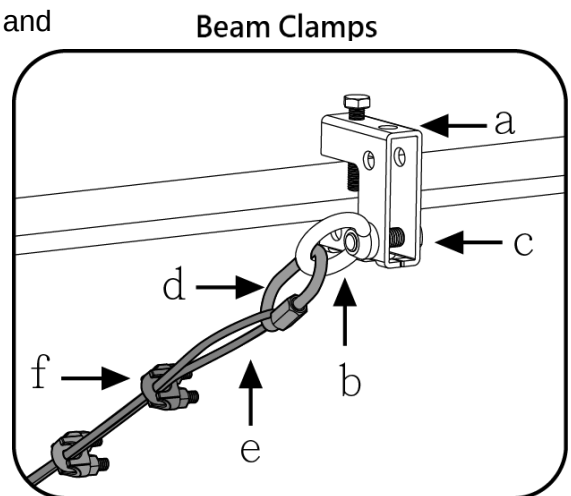
Attach the beam clamp to the mounting structure. The guy wire should be approximately 45° from the horizontal plane. Place the beam clamp accordingly. Refer to the illustrations on the following page. Fully tighten the set screw to secure the clamp.

Fasten the small eyebolt and nut onto the beam clamp. The nut will be on the outside of the beam clamp.

Loop the crimped end of the guy wire into the locking carabiner and secure to the eyebolt as shown. Securely tighten the carabiner.

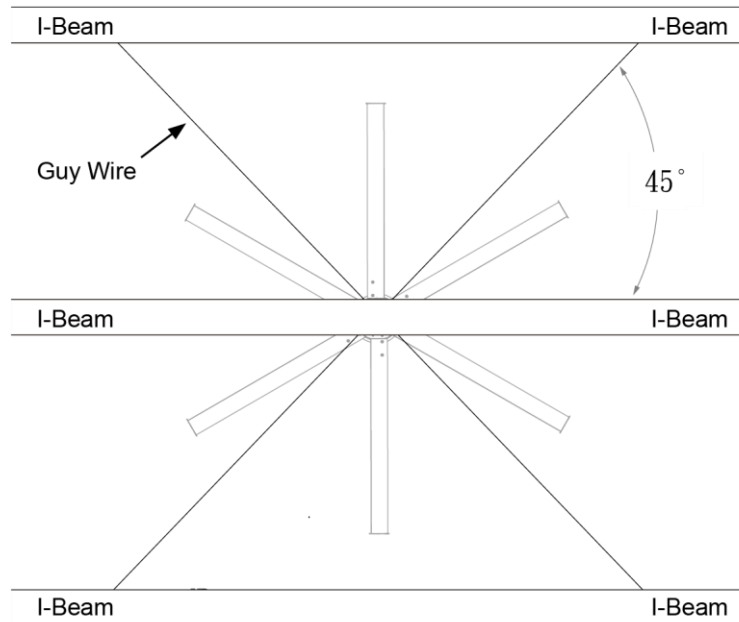
Guy Wire Hardware (APF-Supplied):

- a. (4) 8MM Beam Clamp
- b. (4) M10 X 15 MM Eyebolt
- c. (4) M10 x 35 MM Bolt
- d. (4) Locking Carabiner
- e. (4) Guy Wire
- f. (4) Wire Rope Clip



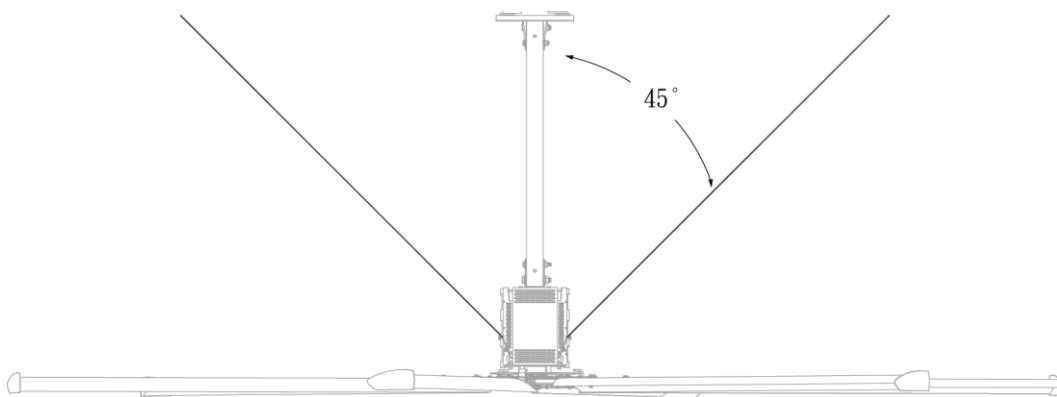
For best results, the guy wires should be installed at 45° in the X-Y, Y-Z, and X-Z planes as shown below. If the angle deviates by more than 15°, contact Customer Service for assistance.

Top View(X-Z)



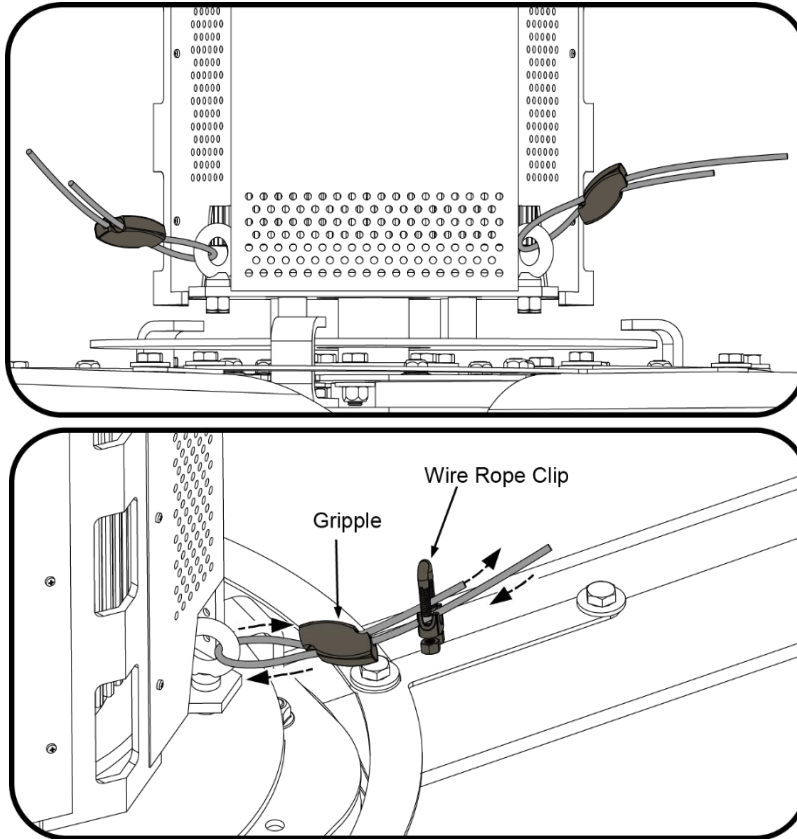
Installation structure may differ from illustration

Side View(X-Y)



B. Route guy wires through Gripples

Route each guy wire through a Gripple and an eyebolt on the fan, and then back through the Gripple. Do not tighten the Gripples until all guy wires have been installed.



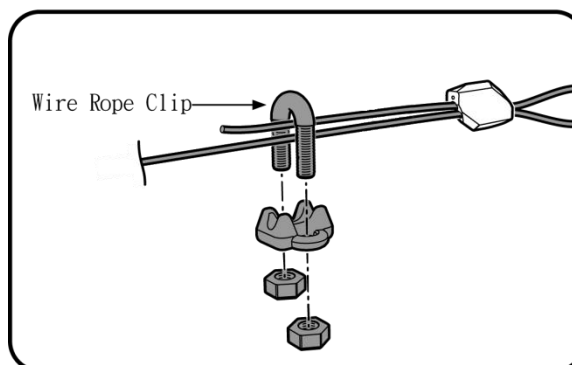
C. Secure guy wires

⚠ WARNING : Over-tightening the guy wires could throw the fan off balance.

Repeat step B to install the remaining three guy wires.

Evenly cinch all four guy wires into place using the Gripples. The guy wires should be taut, evenly spaced around the fan, and away from the path of the airfoils. Maintain a distance of 6" to 8" (152 to 203 mm) between the Gripples and the carabiners.

Once all of the guy wires are taut and correctly positioned, secure their loose ends with the wire rope clips and tighten. Ensure all electrical cords/cables are unobstructed by the guy wire system.



10. Install Airfoils

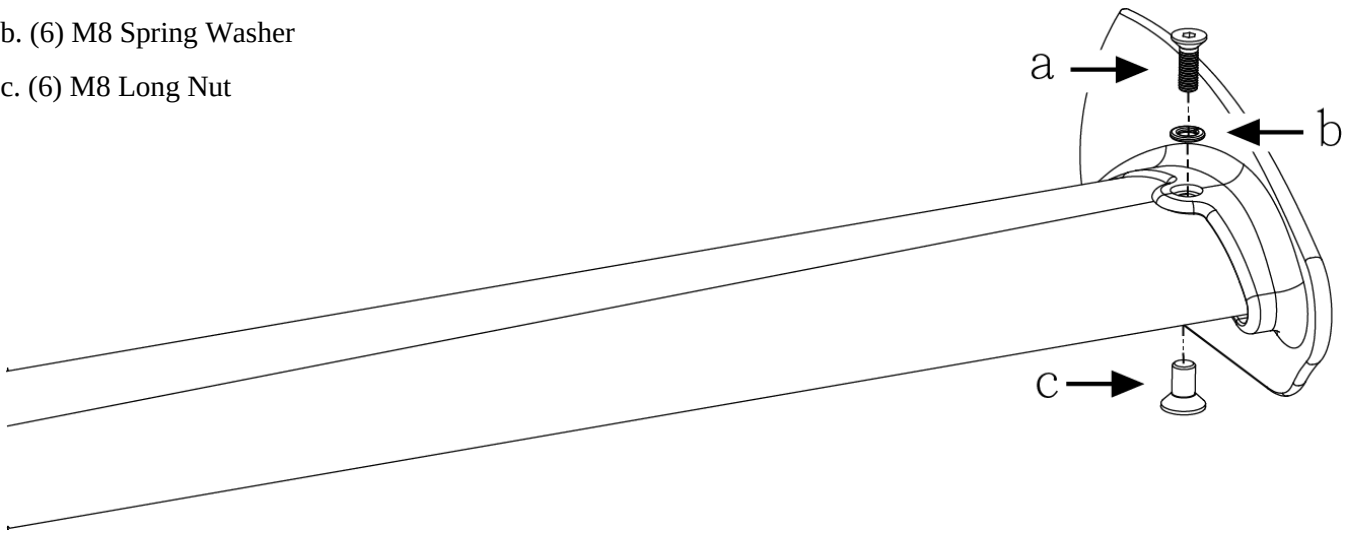
A. Attach winglets to airfoils

NOTE : Examine each airfoil to ensure the winglets is still securely attached before proceeding.

Attach a winglet to each airfoil with the Winglet Hardware. Secure winglets to all airfoils before attaching the airfoils to the fan.

Winglet Hardware(APF-Supplied) :

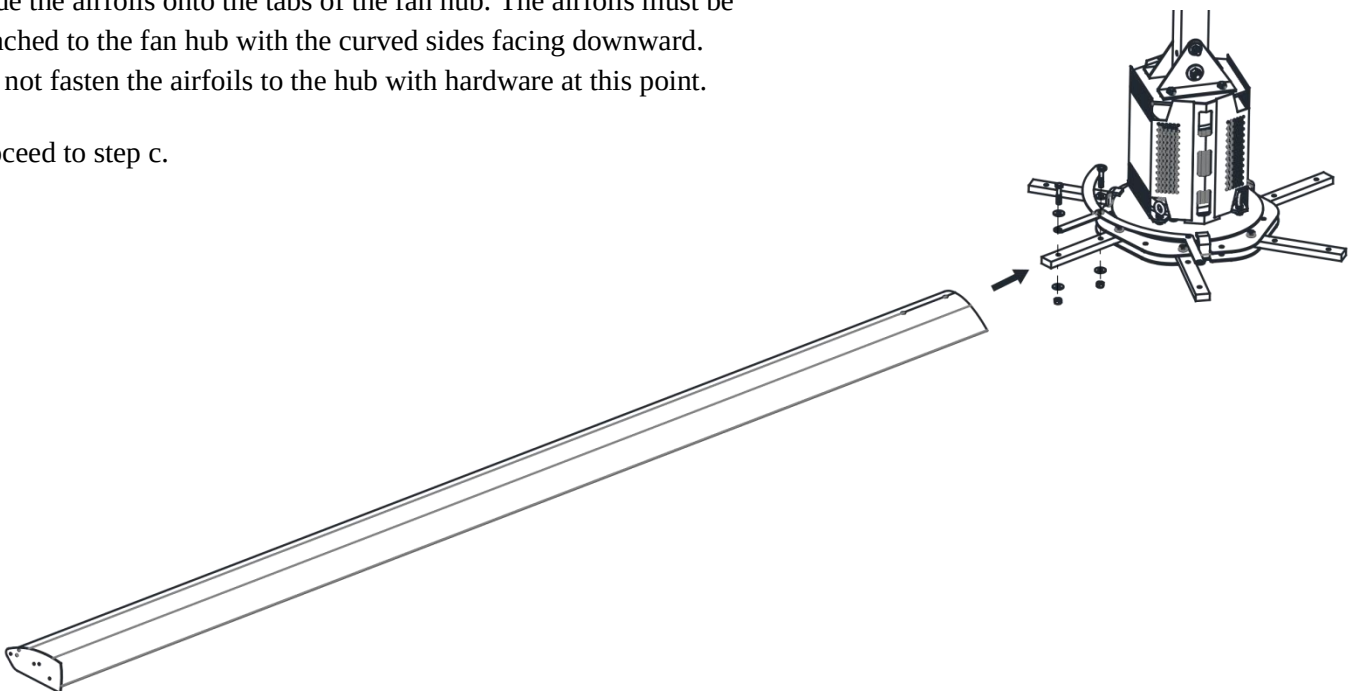
- a. (6) M8 X 25MM Bolt
- b. (6) M8 Spring Washer
- c. (6) M8 Long Nut



B. Secure airfoils to hub

Slide the airfoils onto the tabs of the fan hub. The airfoils must be attached to the fan hub with the curved sides facing downward. Do not fasten the airfoils to the hub with hardware at this point.

Proceed to step c.



C. Attach airfoils to hub

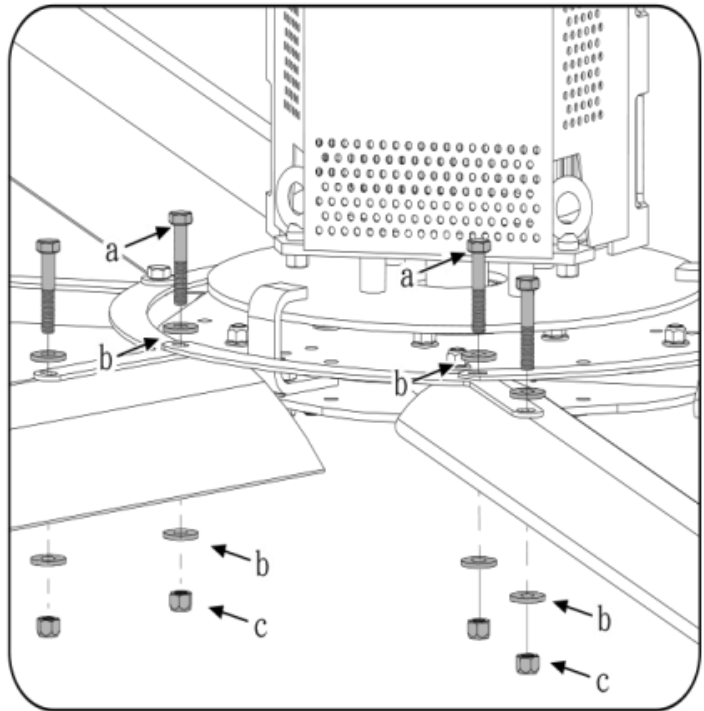
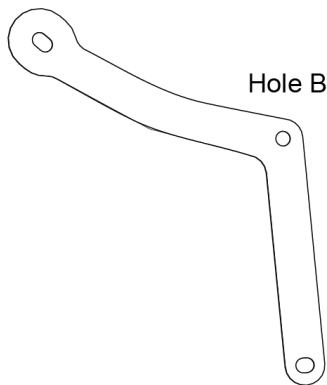
Attach the 6 airfoil retainers with the Airfoil Hardware. Moving clockwise around the fan hub, position the airfoil retainers end over end as shown. Hole A of the retainer should be positioned over top of Hole B. Do not tighten the bolts until all the airfoil retainers have been attached!

Airfoil Hardware (APF-Supplied):

- a. (12) M10 x 50 MM GR 8 Bolt
- b. (48) M10 Flat Washer
- c. (12) M10 Nylock Nut

Airfoil Retainer

Hole A

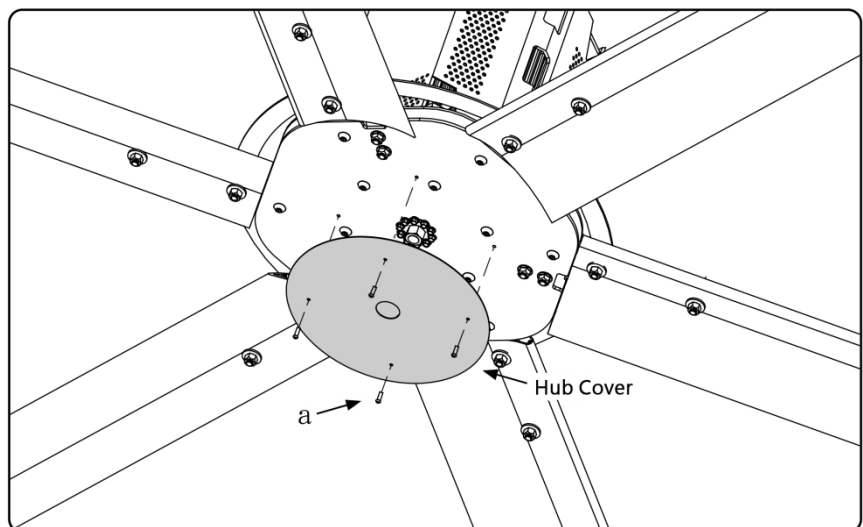


11. Install Hub Cover

Secure the hub cover to the fan hub with the Hub Cover Hardware.

Hub Cover Hardware(APF-Supplied):

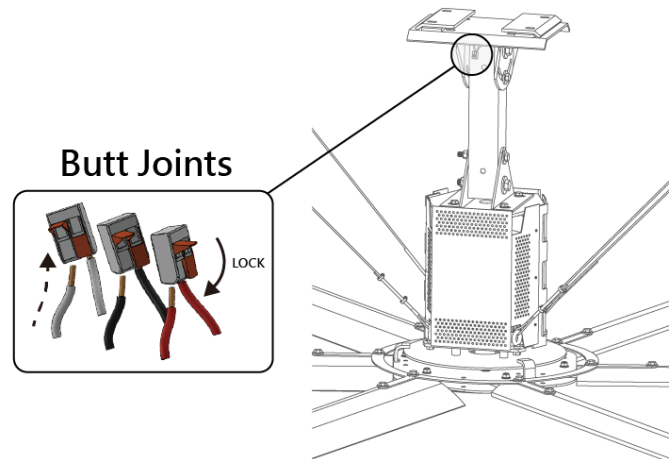
- a. (4) M4 Bolt



10. Installing The Wall-Mount Controller

A. Connect the butt joints

Connect the butt joints at the upper yoke and lock the Wire.



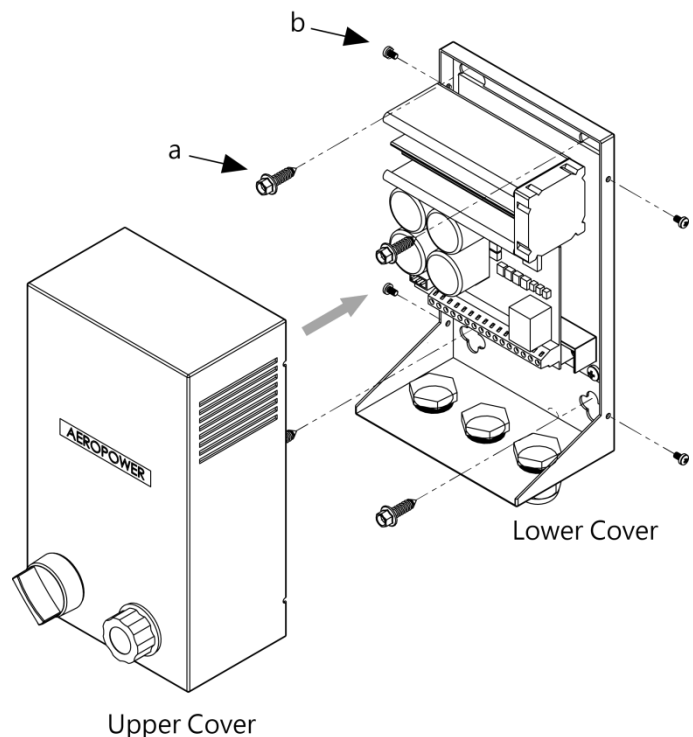
B. Choose installation location

The following guidelines should be followed when selecting a wall-mounted controller location:

- Install a wall-mounted controller in an accessible, swing-free location that is adequately spaced from foreign objects or mobile devices.
- Do not install a wall-mounted controller near or above the heat source.
- Ambient temperature must be 14°F to 122°F (-10°C to 50°C) with relative humidity ranging from 0% to 95% (Non-condensing).
- Do not expose the wall-mounted controller to corrosive air or direct sunlight.
- When installing a wall-mounted controller, the fan should be in the line of sight of the wall-mounted remote control.
- The distance between the controllers should be at least 6 ft (15.2 cm).

C. Fixed wall mount controller

1. Opening the upper cover.
2. Secure the mounting plate to the wall using the M5 X 20MM screw (a) shown below.
3. Secure the upper cover to the lower cover using the four (4) M3 X 5MM screws (b) shown below.



11. Electrical Installation

⚠ WARNING : To reduce the risk of electric shock, wiring should be performed by a qualified electrician! Incorrect assembly can cause electric shock or damage the motor and the controller!

Minimum power supply circuit requirements

Refer to the figure below to ensure that the minimum power supply circuit requirements are appropriate for your fan drive.

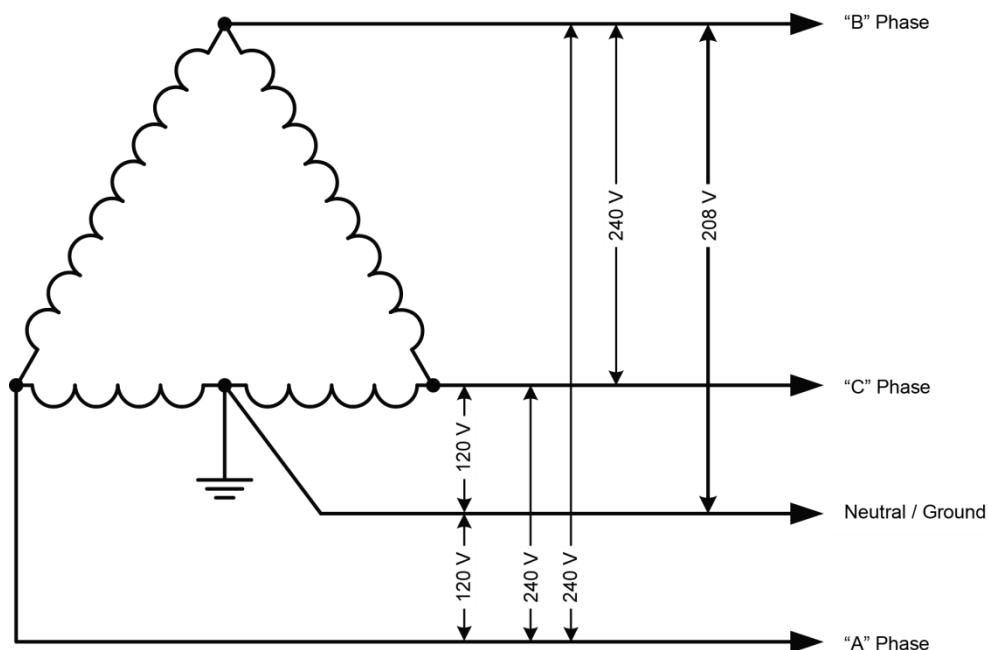
Fan diameter	Minimum power supply circuit specification
10英尺 (3.0米)	6 A @ 200 – 240 V, 3 Φ 4 A @ 360 – 400 V, 3 Φ
16英尺 (4.9米)	10 A @ 200 – 240 V, 3 Φ 6 A @ 360 – 400 V, 3 Φ

Delta secondary

⚠ CAUTION : Care must be taken when connecting to a three-phase 240/120V secondary as shown below. All fan controller models rely on internal references made between each incoming phase and ground. To prevent nuisance tripping such as Overvoltage and Undervoltage faults, 200–250V, three phase fan controllers should be connected so that the High leg, or “phase B,” terminates on “S” of the fan controller’s input power terminals.

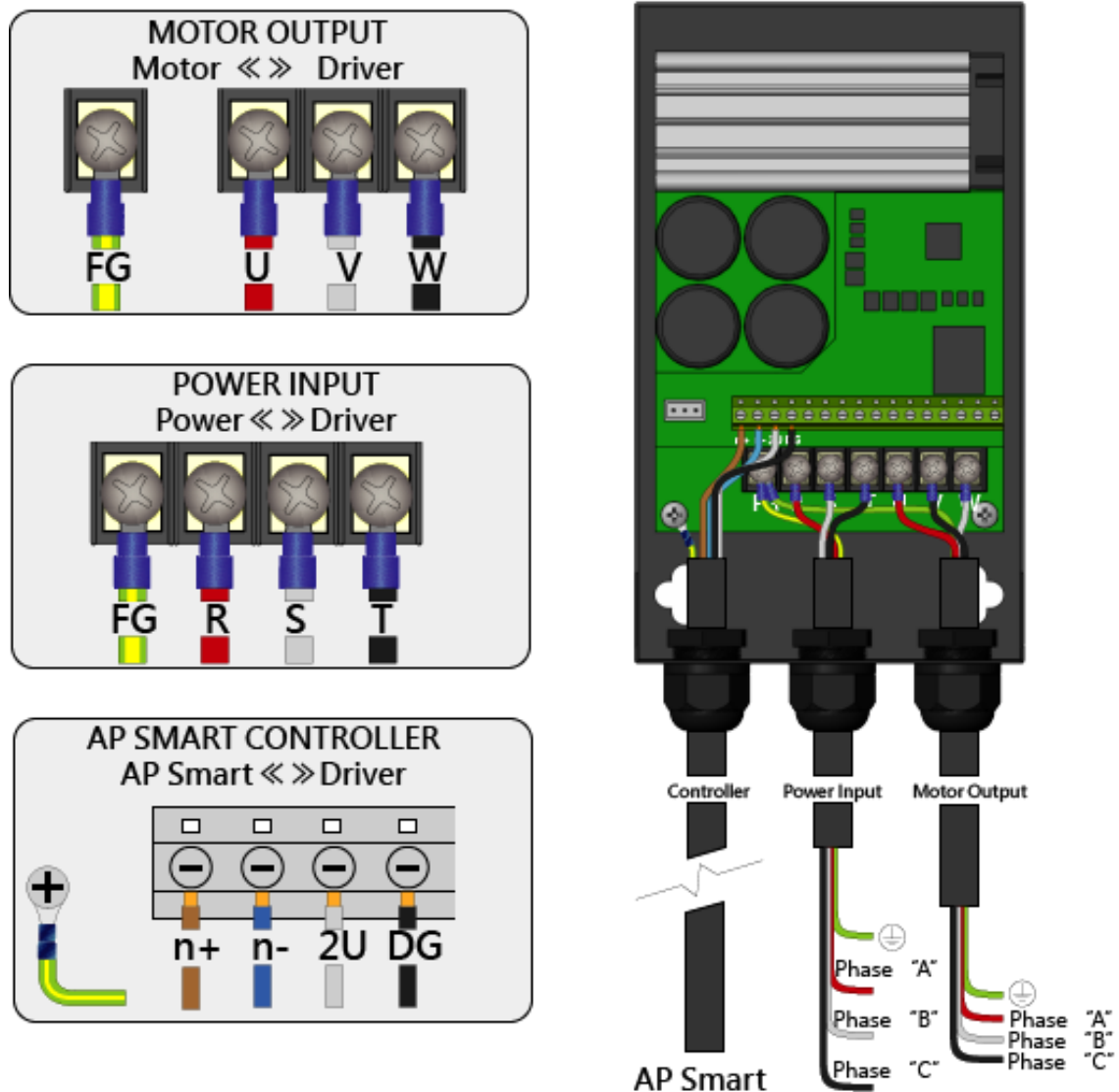
There are many different arrangements available for industrial and commercial power distribution in Taiwan. The most common are the following:

- **240V/120V Three-Phase (Delta Secondary).** Provides 240V between phases for three-phase loads, 120V from phase “A” and “C” to Neutral/Ground, and 208V from phase “B” to Neutral/Ground as shown below. In this transformer arrangement, phase “B” is commonly referred to as a “Wild Leg” or “High Leg”.

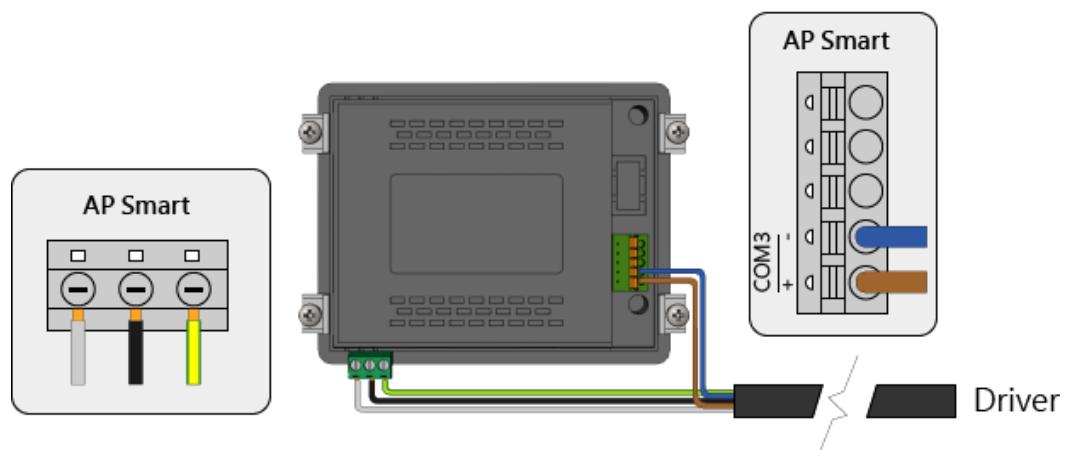


12. AP Smart Controller (Optional)

Wire specification : 2.0mm² * 4C 600V VVR 60.C ROHS CE 12 AWG



Wire specification : 0.5mm² * 5C 600V VVR 60.C ROHS CE 24 AWG



WARRANTY

NOTICE

PowerSky®X6 is designed for internal circulation ventilation of the plant. It is not suitable for installation in places with high corrosivity or places with excessive dust, which will affect product life.

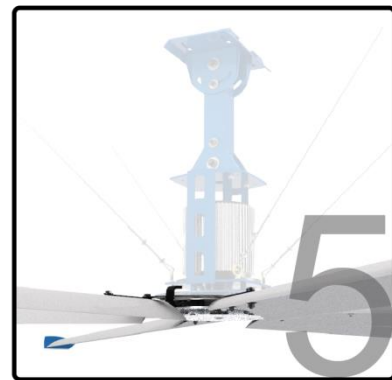
⚠ WARNING: The fan should not be installed unless the structure on which the fan is to be mounted is of sound construction, undamaged, and capable of supporting the loads of the fan and its method of mounting. Verifying the stability of the mounting structure is the sole responsibility of the customer and/or end user, and Aero Power Solutions hereby expressly disclaims any liability arising therefrom, or arising from the use of any materials or hardware other than those supplied by Aero Power Solutions or otherwise specified in the installation instructions.



FIVE YEARS
HANGING STRUCTURE



TWO YEARS
BLDC MOTOR



FIVE YEARS
FAN BLADES



TWO YEARS
AP SMART CONTROLLER



TWO YEARS
ELECTRIC DRIVER

1. The warranty scope is natural damage under non-human factors.
2. Warranty damage free parts, not include labor costs and other expenses.
3. AP Smart controller and electric driver are high-precision electronic products, please do not install it in corrosive places.
4. When returning the product to Aeropower for recycling as described under the Waste Electrical and Electronic Equipment Directive, you are responsible for providing shipping and shipping costs.

CONTACT US

Talk to the Aeropower experts. Call one of the phone numbers below or visit www.aeropower-fan.com.tw

Customer Service

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