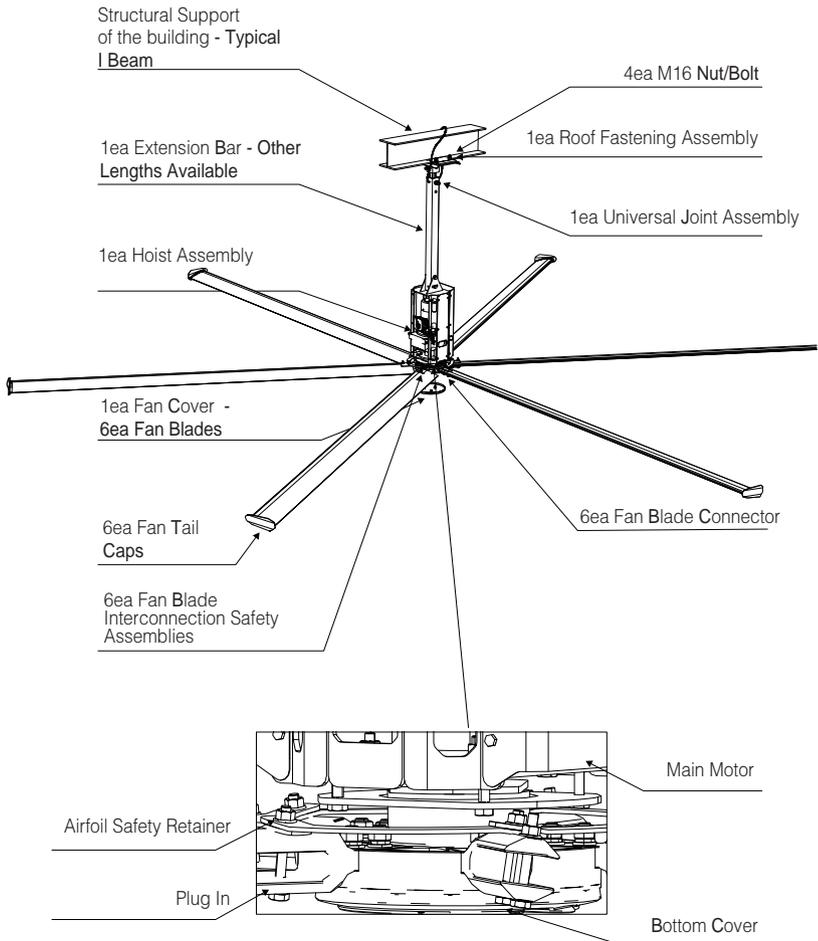




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BloBlades Large Fans Components





Introduction

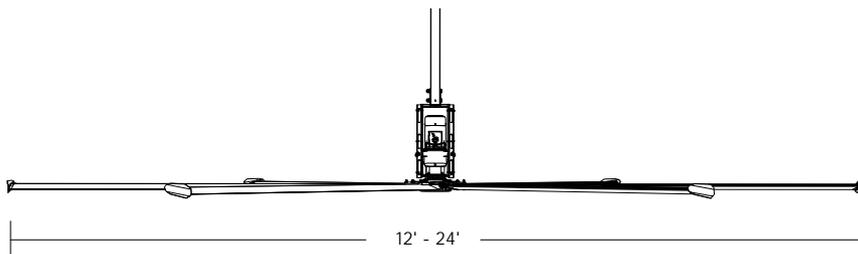
1.1. Thank you and congratulations on your BloBlades Fan purchase, You now have an efficient and cost effective way to stay cool in summer and warm in the winter. The sleek revolutionary design of our fans will look great in any commercial or industrial setting. More importantly, you can rest assured that you have a product that is backed by extensive research, thorough testing, and quality manufacturing.

If you have any questions or comments, contact us at 833-BLO-FANS or visit our web site at www.BloBlades.com

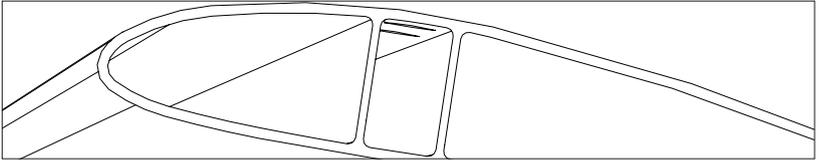
1.2 BloBlades represents the number one and leading manufacturer of HVLS Fans, for large industrial fans with large coverage and in all directions. For many decades, there has been focus on only one thing: HVLS Big Fans development and innovation, which are widely used in large warehouses & distribution centers, manufacturing facilities and commercial buildings with high ceilings to deliver maximum airflow. Our fans are not only the most reliable and efficient ever built, but have also been proven to be the professional's choice for ventilation needs in large space.

1.3 About this Fan

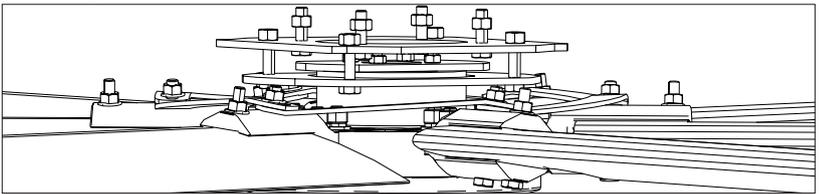
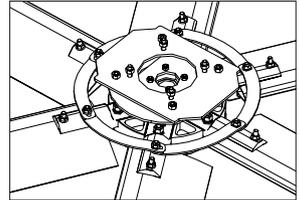
1.3.1 Fans Diameter: 12FT-24 FT/3.7-7.3 Meters



1.3.2 Each fan has six airfoil fan blades; Aluminum alloy, anodized treatment after the sand blasting and chemical polishing.

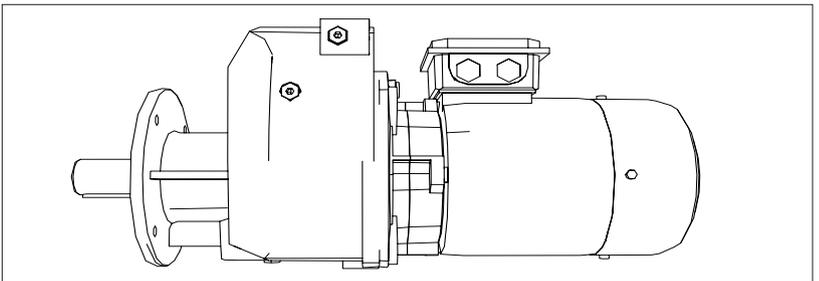


1.3.3 Fans Hub; American AA7075 extremely hard aluminum alloy, with high pressure precisionforging forming, dynamic balancing testafter CNC precision machining.



1.3.4 Reduction Gear

Germany – NORD SK32F–VL90L/4 coaxial helical gear reducer.



Output shaft uses the SKF VL taped roller bearing, Shell Omala VG680 synthetic gear oil has 20,000 hours of free maintenance; The output shaft uses Freudenberg Simrithigh temperature double lipped output oil seal; Gear Box automatic exhaust valve;New generation energy–efficient level 4 motor with NEMA IE2 Standards, 220V/480V/60HZ IP55/F,IM:M4/4/I; Power: 1.5kw;50/60 HZ;480/220V

1.3.5 Motor Control Panel

(MCP) Danfoss FC51 Built-in RF line filters and brake chopper, with radio functionality interference suppression and brake

- The functions of ground fault protection, higher temperature protection, short-circuit protection and etc.

- Stepless speed regulation, The peripheral speed and switch gear

- NEMA standards control box, PVDF paint surface treatment.



- IP65 protection class, CAKU cooling fan forced ventilation

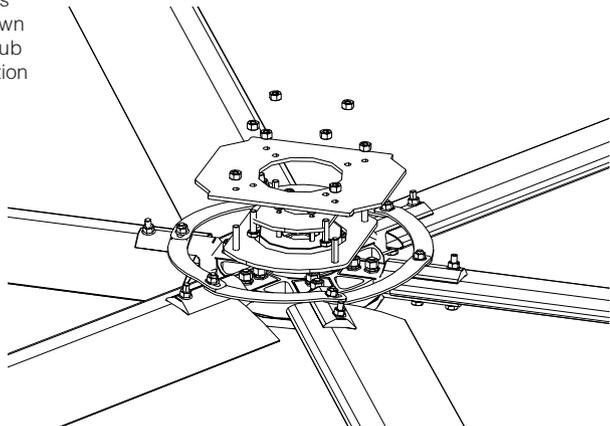
- The operation instructions and warning labels are printed in control box.

3Ph/480V/60Hz or 1Ph/220V/60hz are available for power supply.

1.3.6 Safety System Components

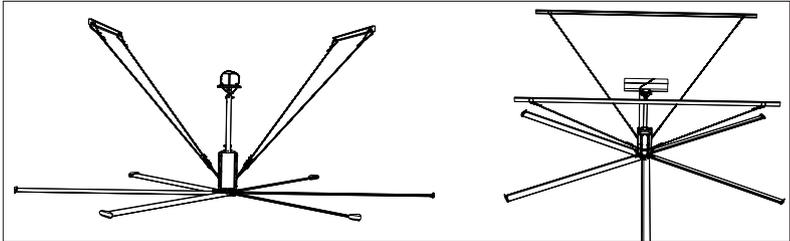
BloBlades "Open" fans are engineered with key safety features to prevent pieces of the fan from falling in the unlikely event of a catastrophic failure. Used together, these systems and devices provide comprehensive protection of people, equipment, and property. Follow the detailed instructions precisely when installing fans, including the following: You must install safety cable for warranty to be in effect.

It completely eliminates the risk of falling down due to failure of the hub or drive shaft connection of the six extension blades.



Safety links should be connected each blade and to the adjacent blades and reinforce the area between the mounting holes, this precautionary measure will help prevent a blade from falling should one break off at the hub for any reason.

The four guy wires will keep the fan stable in case of earthquake or in "outdoor" installations where high wind conditions may occur or indoor situations that may have drafts that affect the balance of the fan.



6mm (approx 1/4") safety cable will prevent the fan from falling in the unlikely event the mounting system should fail.

Hanging Weight (average) : 207lbs---276lbs

Safety issues

IMPORTANT SAFETY INSTRUCTIONS, READ AND SAVE THESE INSTRUCTIONS

WARNING—TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

2.1 Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards.

CAUTION: The installation of a BloBlades "Open" fan must be in accordance with the requirements specified in this User manual and with any additional requirements set forth by the national electric code. Code compliance is ultimately YOUR responsibility!

WARNING: The fan controllers contain high voltage capacitors which take time to discharge after removal of mains supply.

Before working on the fan controller, ensure isolation of main supply from line inputs at



the fan controller's disconnect (L1,L2/N, L3). Wait 3 minutes for capacitors to discharge to safe voltage levels (note: darkened display LEDs are not an indication of safe voltage levels). Failure to do so may result in personal injury or death.

CAUTION: Exercise caution and common sense when powering the fan. Do not connect the fan to a damaged or hazardous power source. Do not attempt to resolve electrical malfunctions or failures on your own. Contact BloBlades at 833-Blo-Fans if you have any questions regarding the electrical installation of this fan.

2.2 A scissor lift or movable scaffolds for lifting weight of the fan and at least two installation personnel will be required, please check and confirm its safety & reliability, and each person installing the fans on the site must use a helmet and safety harness at all times.

BloBlades Fans must be installed with the BloBlades supplied controllers which are suitable with this model. Other parts or controllers cannot be substituted.

CAUTION: When service or replacement of a component in the fan requires the removal or disconnection of a safety device, the safety device is to be reinstalled or remounted as previously installed.

2.3 WARNING—TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

- a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
- b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnect to prevent power from being switched on accidentally. When the service disconnect cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

CAUTION: Do not bend the blades when installing, adjusting, or cleaning the fan. Do not insert foreign objects in between rotating fan blades.

CAUTION: The Bloblades Fans product warranty will not cover equipment damage or failure that is caused by improper installation.



Pre-Installation

3.1 3.1 Check lists before installation

Installation Tools

Level; Pliers; Cable Cutters; M8–M10 (2 sets outer hexagonal wrench); Scissor Lift or Scaffold; Wrench 4 sets; Phillips Screwdriver; Electric Drill; M4.2 bit; Torque Wrench; M8–M30 Socket Wrench

Typical mounting methods

Each type of building structure requires a specific mounting bracket, BloBlades Fans can only be hung from standard mount with an I-beam or concrete beam. For buildings with glulam beams (laminated wood), an additional set of brackets is required and can be purchased separately. Consult a structural engineer for installation methods.

- 1) Verify with the contractor, building owner, or structural engineer to ensure the building structure is sound and adequate to support the load prior to fan installation.
- 2) Take measurements of the height of the bottom of I-beam and blade level.
- 3) Check if you have the correct power circuit for the fan.

3.2 General Mounting Considerations

CAUTION: Bloblades Fans product warranty will not cover equipment damage or failure that is caused by improper installation.

3.2.1 Weight

A standard six blade 24' fan which is the biggest fan is about 276lbs. In applications where the Motor is inverted to below upward (very unusual) there is an additional down force of 110lbs. Due to fan thrust. If there is any doubt of this, a professional structural engineer should perform a thorough evaluation of the building prior to purchasing fans BloBlades Fans can only be hung from an I-beam or concrete beam and angle irons on main structure of building. Do not mount the fan to single purlins, trusses, or bar joists. Consult a structural engineer for installation methods not covered in the manual.

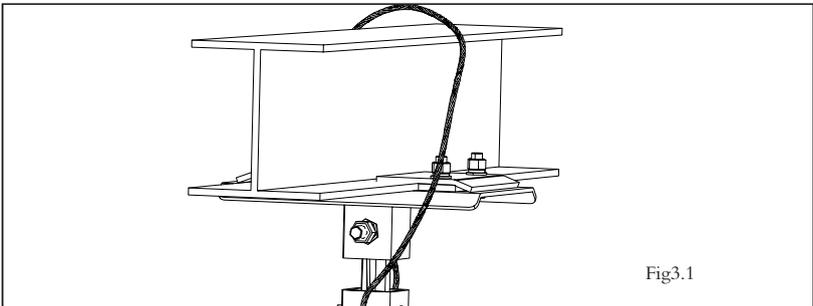
3.2.2 Torque

The maximum torque (twisting force) that must be handled by the mounting systems occurs at start up. For a 24' BloBlades Fan the starting torque is potentially 220 N.m. Maximum. We say "potentially" because with the standard electrical controls supplied, the maximum is never even approached because the controls employ soft start technology. This prevents full torque from being applied at startup. But there is always the possibility of failure of the soft start technology. It is important that the mount is adequate to withstand 220 N.m.

3.2.3 Safety Cable

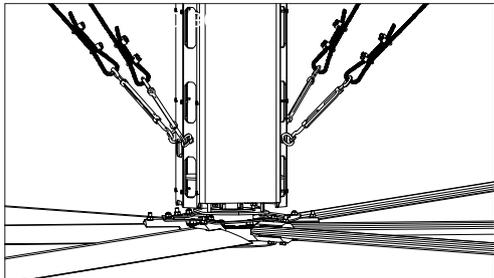
Because of the obvious risk of a falling fan, whatever mounting method is used to suspend the fan, it should always be backed up with a safety cable.

Safety cable, along with all required hardware, is supplied with every fan. An HVLS fan should never be run without a properly installed safety cable. Refer to fig. 3.1 for proper installation of safety cable.



3.2.4 Clearance and Guy Cables

In some cases space considerations dictate that blades swing close to beams, column, lights, etc. Anything less than 12" can be considered "close clearance" because these fans have the potential to move around quite a bit.



It is important to try to avoid close clearance. Where clearance turns out to be a real problem, bear in mind that both longer down extension rods and shorter blades are available for purchase. In any case, since the standard mounting is free swiveling, we strongly recommend that all fans be guy wired as shown in fig.3.2. if close clearance is involved, the fan must be guy wired. Where the fan frame is bolted directly to a rigid beam, it may not require guy wiring.

3.3. Positioning

It is important that an HVLS fan not be positioned where a person could actually come in contact with it. This means that a fan should never be mounted lower than 10' above the floor. Similarly, if there is a mezzanine section in the facility, it is important that a fan not be placed so close to the mezzanine, that a person on an upper tier could reach out and contact the fan.

Wherever there is a potential for a forklift to elevate something into the fan, or people working with long material inadvertently making contact with the fan, the floor directly below the fan should be painted in such a way (i.e. a large crosshatched circle) so as to alert workers to the fan above. In such cases, the fan may have to be guarded.

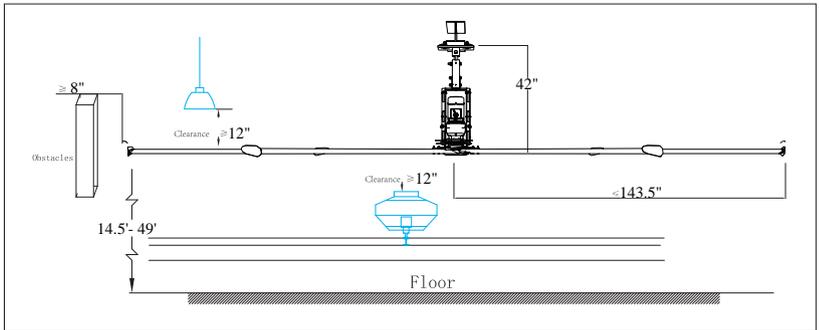


Fig3.2 Install methods of Guy Cables

3.3.1 Horizontal Positioning

The way these fans spread air flow over such a large area is that the down flowing



air column, upon reaching the floor, turns into a horizontal floor jet radiating out in all directions. Under ideal conditions a 24' diameter overhead fans can serve up to 19,375sq/ft of floor space. Ideal conditions are: a fairly symmetrical area equates to very few obstructions on the floor, and walls at the boundary of the area.

Obstructions on the floor, such as partitions or machinery tend to block the floor jet, reducing the reach of the fan. The ideal center to center spacing, therefore, will vary depending on the amount and size of these floor obstructions, as well as the nature of the operations being conducted in the affected area and the construction of the building (i.e. beams, etc.). In a manufacturing environment where there are many work stations each of which must get good air movement, a solution is fans with close centers, running slowly. For example, 24' long blade fans located on 60' centers, running at about 53rpm, might be appropriate.

Conversely, in a warehouse where workers are moving around a lot and a little windiness here and there is not a problem, 24' long blade fans on 110' centers might be suffice.

3.3.2 Vertical positioning

In many applications physical limitations—overhead cranes, low ceilings, etc.—dictate vertical positioning. Where there is some latitude, here are the primary points to consider: From a strictly performance point of view, 19.5' to 33' is the optimum height range for a 24' fan, but we have seen fans mounted as low as 9.75' and as high as 52.5' working well. (HVLS fans should never be lower than 9.75' above the floor)

A fan must not be so close to the ceiling that is starved of air; it should be no less than 15% of its diameter from the ceiling. If the ceiling is pitched, the blades can come closer on one side so long as there is ample open area on the other side.

If possible, fans should be high enough to be beyond the reach of forklifts and any long material that workers might be handling.

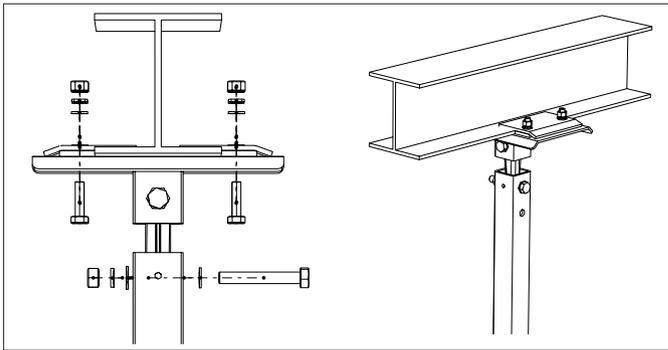
Conversely, where fans are used to cool people working in just one part of very large building with a very high ceiling, lower mounted fans may be in order. In such an extreme case high mounted fans would re-circulate cooler air, leveling the hot air undisturbed.

Installation Procedure & Sequence

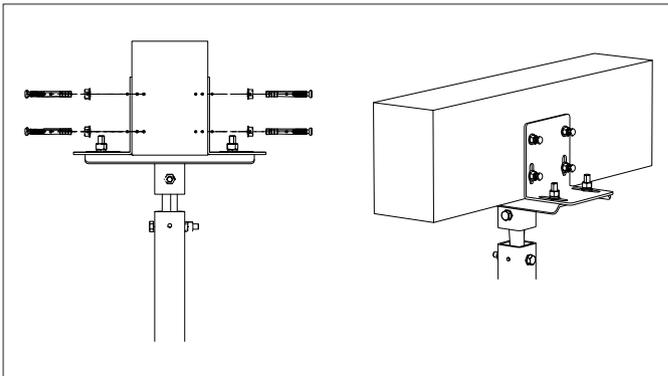
4.1 Equipment and Beam Connection

There are two standard installation methods that the fan is connected to the

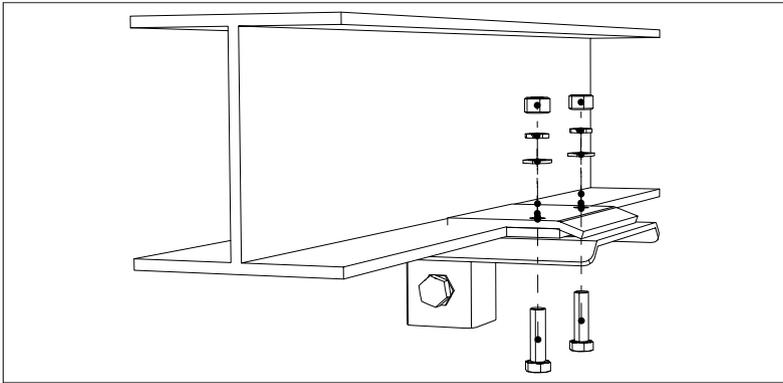
(1) Connection with Steel I-beam by adjustable standard clip device, the fan can be easily clip on any steel I-beam, without the need to change any steel beam (figure 4.1).



(2) Connection with concrete beam, the standard device is fixed by expansion bolts on the concrete beam, the device can be adjusted according to the width of the beam, meeting the demand of concrete beams with different dimensions .



(3) If your facility has another structure please call (833-BLO-Blades) for potential mounting options.



of I-Beam

4.2 Installation of the Universal Joint

The standard mounting hardware that comes with an BloBlade fan has a 300mm extension or drop, and clamp designed for use on a steel I beam without modification to the beam (fig.4.2). since beams are often sloped so the roof can shed water, and not all roofs slope the same, the mount is free- swiveling. This allows the fan to find its own level position no matter what the slope.

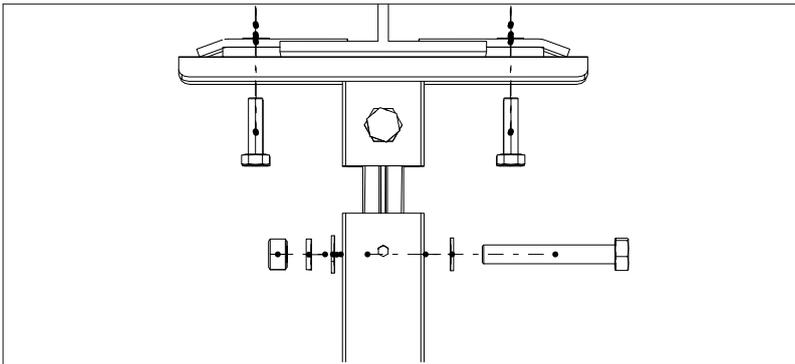


Fig4.2

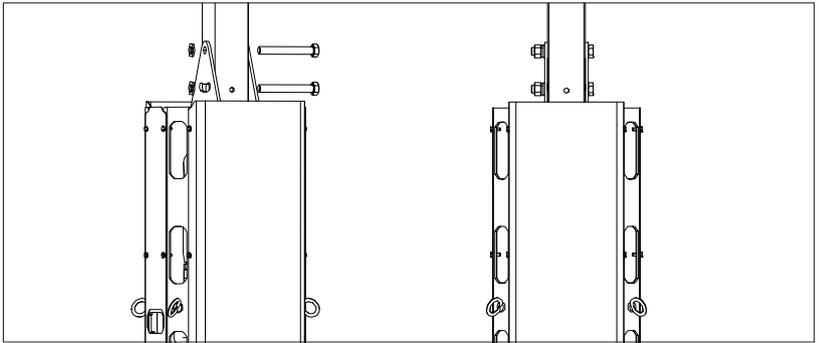
Univisal Joint

Note: If the beam is level, it is sometimes OK to bolt directly to the I-beam e.g.

if head room is a problem—as long as there is adequate “breathing room” above the fan. But, be advised that sometimes a fan would run with almost no sway when hung from our free swiveling mount, will sway radically when bolted directly to a lightweight beam of commonly found in steel building. This is because a slight imbalance can, at a certain rpm, excite the natural frequency of the beam in torsion, thereby amplifying the sway. Also, without the free swiveling mount, more noise is telegraphed back to the building structure.

4.3 Installation of the drive device

(1) The drive device has been installed into a unit before shipping out, only fix it to the extension rod by using bolts, as shown in figure 4.3.



(2) Due to the drive device weight, 2–3 people are needed to install. If there is a scissors lift, you can use the lift to assist in assembly, the hoisting weight of the lifting equipment shall not be less than 440lbs, the hoisting process must be slow, even, and at the same time it needs someone to hold the drive device, to prevent oscillation.

(3) Do not remove oil plug until fan is properly mounted. If the oil plug is removed before the fan is mounted, oil in the gear reducer may spill out.

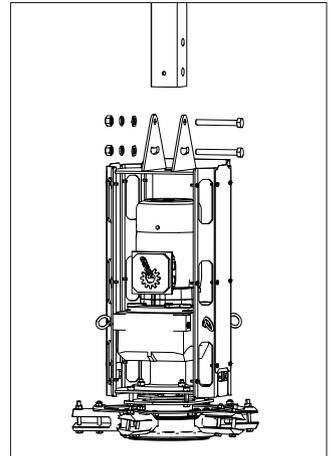


Fig4.3 Installation of the driving unit

4.4 Run the conduit and install wiring,

(1) along the facility structure, along the top of the beam layout, per code.

- (2) Run the wire conduit layout in as short of a run as possible.
- (3) Before wiring, be sure to have the power supply turned off and then wire the motor circuit, if the factory power supply is 480V, connect the motor according to the Y type connection wiring, if the factory power supply is 220 V, the motor according to the Δ connection wiring.
- (4) After the motor wire has been connected, then connect the electric wires to the electric cabinet.

4.5 Installation of the guy wires

Each BloBlade Fan has four circular uniform guy wires, try to ensure that the angle between each guy wire and the drive device is 45° , too big or too small will effect the guy wire. The function of the guy wire is mainly the following:

- (1) To reduce the fan shake when running.
- (2) The guy wires ensure that the level of the fan, improve the dynamic balance of the fan.
- (3) The safety protection devices to prevent falling the fan.

4.6 Installation of the outer shell

From both sides assemble the two outer shells to the drive device, then adjust and align with screw and fasten, lack of bolts or didn't lock is not allowed, the outer shell less shaking is also not allowed, as shown in figure 4.4

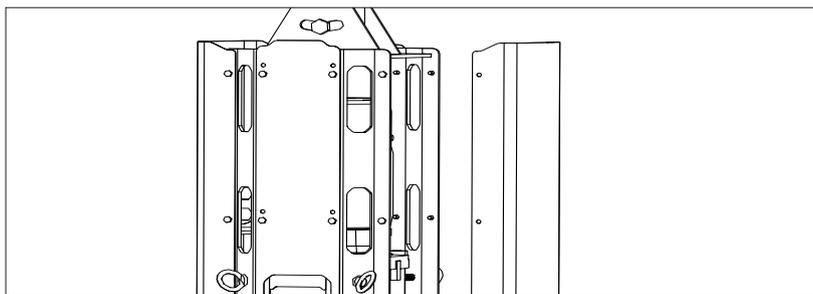
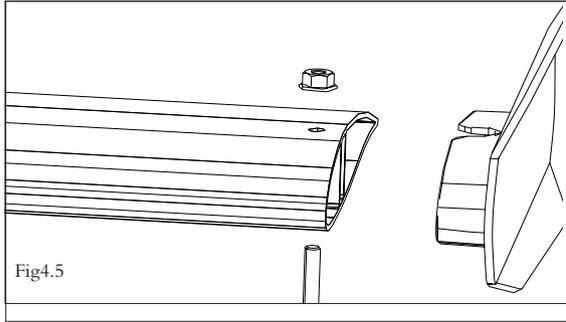


Fig4.4 Installation of the outer shell

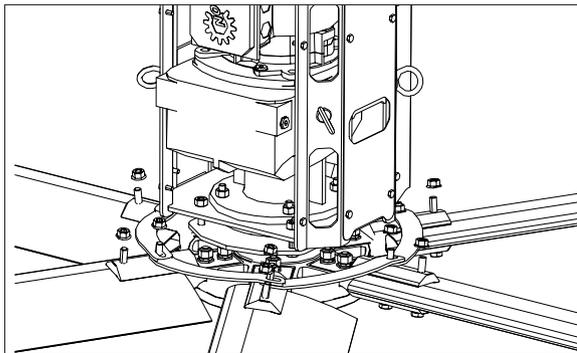
4.7 Attach Winglets to Air Foil Blades

Attach the winglets to the airfoil using the Winglet Hardware as shown in figure 4.5. You will need to use Philips screwdriver to properly secure the fasteners. Attach winglets to all six (6) airfoils before attaching the airfoils to the fan.



4.8 Attach Airfoils to Hub

- (1) **WARNING:** Disconnect power to the fan before installing the airfoils.
- (2) Slide the airfoils onto the tabs of the fan hub. This is usually done after the motor/hub assembly has been mounted and the guy cables have been installed. The blades should slide on easily, if not, a little finesse works better than force. Refer to fig.4.6 to make sure you are installing the blades facing the right way. An airfoil will only attach to the fan hub in one direction. Do not force an airfoil into place.
- (3) The bolt holes on the blade and the bolt holes on the Hub align.



(4) Attach the (6) airfoil retainers using the Airfoil Hardware. Moving clockwise around the fan hub, position the airfoil retainers end over end as shown in figure 4.7. Do not tighten the bolts until all the airfoil retainers have been attached.

First, tighten the bolts along the outside perimeter to 29 ft • lbf (39 N • m) using a Socket with torque wrench;

Second, tighten the bolts along the inside perimeter to 29 ft • lbf (39 N • m) using a Socket with torque wrench;

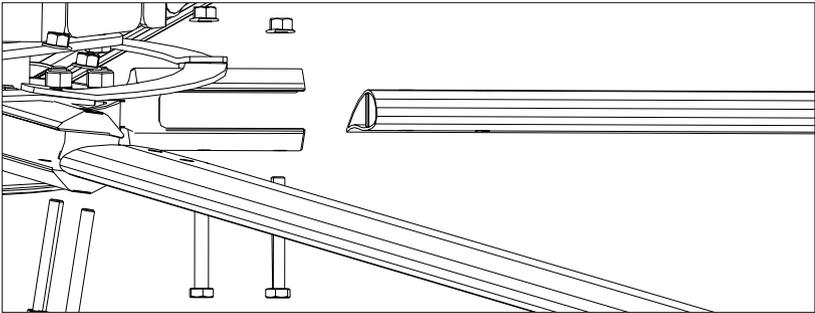


Fig4.7 Attach (6) safety ring to Airfoil

CAUTION: Do not bend the blades when installing, adjusting, or cleaning the fan. Do not insert foreign objects between rotating fan blades.

4.9 Installation of bottom cover with LOGO

Take the bottom cover close to the blade wheel, bolt holes alignment, bolts tightened, make sure no bolts are missing or loose, the bottom cover does not move after installation, as shown in figure 4.8

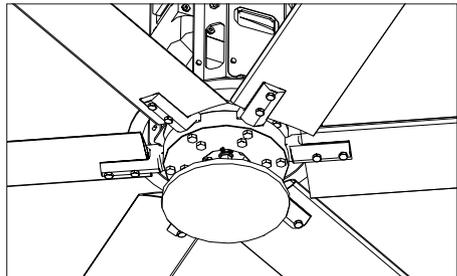


Fig4.8 Installation of bottom cover with LOGO

4.10 Checking Strength and Clearance

If there is any doubt in your mind as to the ability of building structure to which you are mounting to handle the weight of fan a structural engineer should be consulted.



After making sure safety cables are installed, an easy way to test the mounting's ability to handle the torque is to insert a 3–5' long 2x4 in the motor frame and try to twist it as shown in fig.4.10. If the fan is hanging from an extension you will have to use one hand on the 2x4 and the other on the motor frame so as to create a torque without exerting a big side load. The mount should withstand a 110lb force applied 3' from the center of fan. Lastly, if there is any potential for a clearance problem, before you start the fan for the first time, rotate it one time by hand to find the position and blade of least clearance. Grasp the blade and shake it vigorously both up and down and in and out, make sure there is no chance of it hitting the obstructions, whether it is due to blade deflection or movement of the fan as a whole.

4.11 Specification parameter table

Model	(m) ft	(kW) hp	(rpm)	m ³ /min	(A) 380V	(kg)	(dBA)
OM-KQ-7E	7.3(24')	1.5/2.0	20-53	13,200	3.23	128	45
OM-KQ-6E	6.1(20')	1.5/2.0	20-53	11,200	2.52	125	45
OM-KQ-5E	5.5(18')	1.5/2.0	20-64	9,200	2.32	116	45
OM-KQ-4E	4.9(16')	1.5/2.0	20-64	7,600	1.97	111	45

Electrical installation

5.1 Control Options

BloBlades series HVLS fans are driven by standard three phase, dual input voltage (220V/480V) motors. Standard single fan control panels available from BloBlades include, a variable frequency drive, a control switch, and an enclosure. They are available for single phase inputs of 220 volts, and for three phase inputs of 480v.

The VFDs in these control panels are preprogrammed for proper normal operation of the fan. The factory can assist you in configuring them to receive special inputs–i.e. If you want the fans to be controlled from a remote location, or want them go on and off at certain



times, change speed at certain temperatures, interface with a fire sprinkler system, etc. Instructions for mounting and wiring the control panel are supplied with the control panel.

5.2 Wiring

5.2.1 General considerations

VFDs can induce voltage spikes that can be harmful to motors. They can also create electrical noise and RF (radio frequency) that can interfere with low voltage control wiring machines, computers networking lines, radios, etc. there are a variety of filters, reactors, isolators, etc. that can deal with these type of problems. However most of these problems can be avoided by observing the following guide lines:

- (1) Never allow the conduit to run between the MCP and the fan or to exceed 30 meters on 480V, or 40 meters on 220V. Excessively long runs between the MCP and the fan can amplify the voltages spikes created by the VFD.
- (2) Never use larger wire than code requires. Excessively large wire can also amplify the voltages spikes.
- (3) Put the wires to each fan in separate grounded metallic conduit. Do not bundle them together with the power wires going into the control panel, or with wires going to other fans. Use a section of flex conduit between the building structure and the fan to accommodate fan movement.
- (4) Be sure to pull 4 wires; you need 3 for power, and 1 for ground.
- (5) Alternatively, you can use 4 conductor shielded cable. When using shielded cable, ground one only to avoid ground loops that can negate the ground effect.
- (6) Separate fan wires (cable or conduit) from other wires running parallel (especially low voltage control wires) by at least 6 inches.

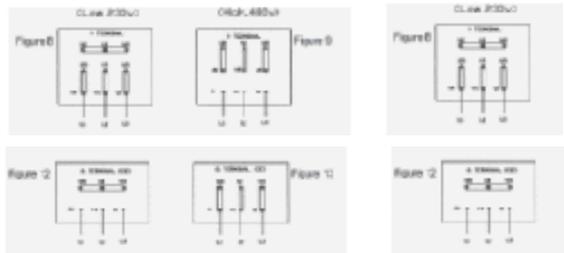
5.2.2 Grounding

Always run a separate ground wire from the fan motor. Do not rely on the motor being grounded through the fan mount or the conduit. The ground wire from the motor should be grounded at the same space as the ground from the VFD. That may be the control panel if it is mounted to a well grounded steel beam or column. If not, the ground wire from the motor and the VFD can be connected together, along with a wire grounding the control.

5.2.3 Motor wiring

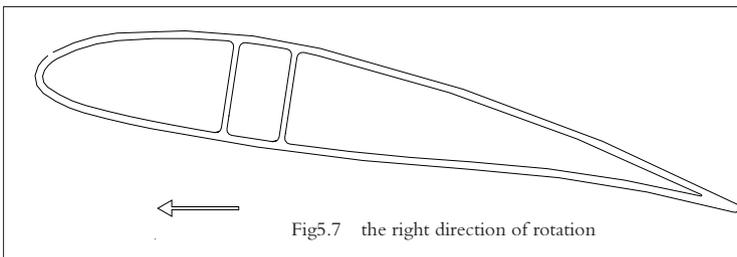
The wiring diagrams in fig.5.1, fig.5.2, fig.5.3, fig.5.4 are for motors supplied in German, for Nord rated motors. It is essential that you wire the motor correctly for voltage you are using. Please verify that the correct VFD has been supplied to match the voltage being supplied.

A Mistake Here Could Ruin The Motor, The VFD or Both!



As noted previously it is important to run a separate ground wire from the motor. It should be grounded to the same space as the ground wire from the VFD. If the control panel is attached to a steel beam or column, then grounding to the control panel is Ok. If the panel is attached to a non-conductor—i.e. wood or dry-wall, you will have to extend the ground wires back to the power panel.

The proper direction of rotation is indicated by Fig.5.7, if upon initial start up the fan is going the wrong way, shut it down . Simply switching any two of three power wires going to the fan motor will reverse the direction of rotation. This can be done at the motor, or at the control panel.





Guy Cabling BloBlades

Any fan that may be subjected to wind e.g. near a large open door must be guyed, because the wind can cause it to gyrate wildly. Any fan that has minimal clearance above, below, or beyond the blade tips must be guyed, because even a slight imbalance will cause the fan to move around.

Furthermore, even a perfectly balanced fan will move around as it reacts to its own air currents. We strongly recommend that all fans be guyed.

Please adhere to the following guide lines:

- a) Attach the guy cables before you install the blades.

- b) Use four cables per fan, with four clamps per cable (i.e. two clamps per end),

- c) Don't angle the guy-cables too steeply. Anything much steeper than a 45 degree is not desirable. Buy extra cable if you need it.

- d) Use eye bolts to attach the guy cables to the building structure, and use the open-end chain links (supplied with hardware) to attach the cables to the fan frame.
Note: it is important to avoid wrapping the cable around the sharp corners. Although the forces needed to stabilize the fan are very small, the continuous movement of the fan, albeit slight, could eventually fatigue the cables if they wrap around sharp edges.

- e) We recommend the following sequence to attach the cables:
 1. Attach the cables to the building structure first. Install two clamps per cable. Go ahead and tight them, so that part of the job is completed.

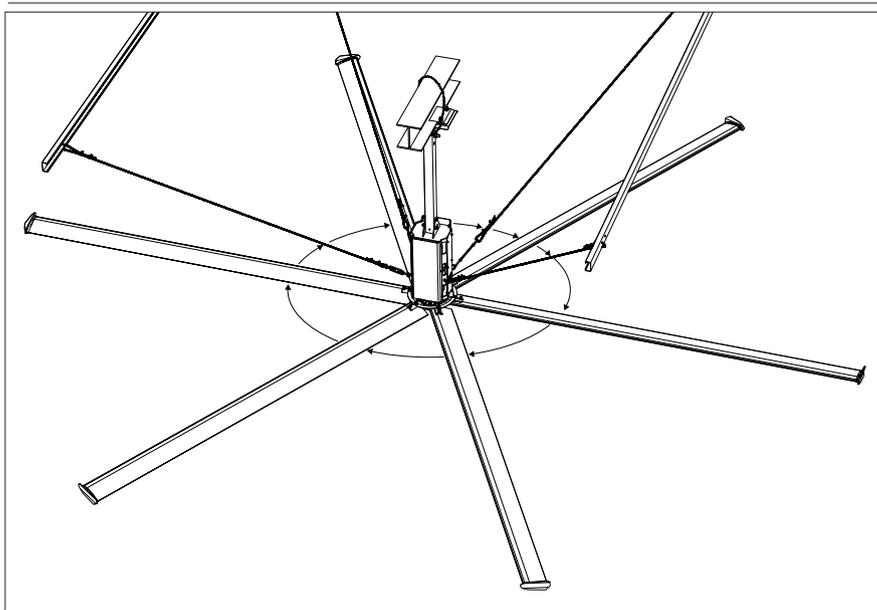


2. Attach the cables to the fan frame using the open end chain links. Install two cableclamps, pull up the slack in the cable, and tighten the clamp that is furthest from the fan.
3. Using the supplied tensioning tool it fits on your 3/8" drive ratchet, tension the cables and tighten the inner cable clamp (while holding tension with the tool). It's best to take a couple of turns around, tightening each cable a bit at a time. You may want to put a level on the hub to make sure you don't tip the fan.

Note: The key to insuring that cables stay tight is making sure they have fair amount of tension on them to begin with.
4. Loosen the outermost clamp, take up the slack, and retighten the clamp so that both clamps are holding the tension.

Start-up Procedure

- Turn switch to the ON position, when power is applied, the green 'On' indicator (located on the front of panel) will light.
- Adjust the speed control knob as needed.
- Turn the Fwd-Off-Rev (Forward/Off/Reverse) to the Fwd (Forward) position.
- After a 3 second delay, the fan will begin to accelerate slowly
- Verify proper rotation with switch in the Fwd position, the rotor should be turning in counter-clockwise direction when viewed from the floor.



Cleaning And User Maintenance

WARNING!

Before servicing the fan or the control panel, make sure all power is removed and safely locked out to avoid risk of injury.

Please take some time each year to perform the following preventive maintenance inspection to your fan to ensure its safe and efficient operation. If you have any questions, please contact customer service at 833-BLO-FANS.

8.1 Control Panel

Occasional cleaning may be advisable, especially when the panel is located in a dusty or dirty environment ; take out the air inlet and outlet filter, use compressed air gun to blow off any buildup of foreign material from the VFD or cooling fan, or simply wipe down the unit.

8.2 Driving Unit:

We used thread locking compound on critical nuts or bolts, BloBlades "Open" fans are driven through Nord Gear reducer, Nord is the best gear reducer for our particular application in terms of precision, durability, reliability and quiet operation, it is good idea to annually check that the nuts or bolts have not vibrated loose, Check gear reducer for oil leakage. If leakage is present, contact customer service at 833-BLO-BLADES.

Maintenance schedule

- Every 18 month: check the oil level
- Every 3 years replace oil with shell Omala VG680 or recommend equivalent as specified on gear reducer manual
- Inspect motor terminations inside junction box and tighten if necessary.

8.3 Blades:

- Dirt on the blades will reduce airfoil efficiency. Clean the blades whenever they are visibly dirty. Use a detergent if necessary.
- Ensure all bolts securing airfoils to fan are present and torque to 39N.m
- Ensure airfoils are secured to one another by airfoil retainers.
- Ensure bolts securing winglets to airfoil are securely tightened

8.4 Mounting hardware

- Checking mounting clamps yearly to make sure all mounting bolts have not loosened.
- Also check the safety cable and guy wires to be sure they are not loose or frayed, Check all nuts/bolts/clamps (missing/loose/damaged). retightening of clamps if required



General trouble shooting

9.1 Fan turning in wrong direction

The power phase sequence is not correct, replace the wiring again.

9.2 Popping noise is coming from the fan

Airfoil blade popping noise comes from blades that are not tightened to the specified torque, switch off power at VFD control box, tighten airfoil blade fastener to specified torque, if popping still occurs verify that airfoils are not contacting together; if airfoils are contacting together; please contact BloBlades at 833-BLO-FANS

9.3 Fan is Not Starting

- Make sure that all wires are securely connected.
- Make sure the 3 ways switch are in on position.
- Verify the supply power is adequate and functional, contact BloBlades 833-BLO-FANS

9.4 Motor makes noise when you speed up the fan

Audible high frequency noise is normal during fan operation, if this is less than desirable, or you feel that the noise maybe a result of mechanical failure, please contact us at 833-BLO-FANS.

9.5 For the trouble of VFD converter, please check the problem solving approach in the user manual of Danfoss according to the alarm message of converter.

9.6 For the trouble shooting of gearbox and motor, please follow the problem solving instruction of NORD manual.



Blo-Blades LLC

1310 E. Cornwallis Rd

Durham, NC 27713

PH: 833-Blo-Fans

Email: info@bloblades.com

Limitation of Warranty and Liability

- Bloblades LLC warrants that all Bloblade's fans, components and related equipment (the products) will, when properly installed and under normal use and service as specified by Bloblades, operate properly and be free of defects in materials and workmanship for the lifetime of the blades and hubs and a period of three years for all other components from the date of shipment to the original purchaser. The term 'operate properly' in this context applies to mechanical, electrical, and structure functions only. No guarantee, unless accepted by separate written agreement, is made regarding the dimensions of air movement generated or the effectiveness of this product for its' intended purpose.
- The exclusive remedy of purchaser, and the limit of liability for Bloblades, and for any and all losses in connection with the products, shall be the return of the products to Bloblades at 1310 E Cornwallis Rd, Durham, NC 27713.
- To obtain service under this warranty you must first obtain a return authorization from Bloblades and then return the products to Bloblades (no later than three years from the date of purchase for all components other than blades and hub) along with a copy of your purchase receipt or other satisfactory proof of date of original purchase and any request for replacement of other warranty claim forms as specified by Bloblades. The cost of removing, dismantling, reassembling or reinstalling, and shipment of the defective and replacement products, shall be borne by purchaser. Any other means of repair, such as performing the repairs at the purchaser's facility, may be entered into strictly at the sole discretion of Bloblades.
- Bloblades reserves the right to make the final determination, based on its' own examination of the products as to whether 1) the problem in question is the result of error, misuse, improper installation, or abuse on the part of the customer. 2) Whether the problem or defects is material and requires action under this warranty and 3) Which remedy - repair or replacement is appropriate.
- With regards to certain key components provided by Bloblades that comprise part of the products- including but not limited to motors, gearboxes and VFD- Bloblades relies on the determination of the original as to whether the failure of such component was the result of defects. If the manufacturer of such components determines there was no defect and therefore refuse to cover it under warranty, Bloblades likewise will not warrant such item unless Bloblades determines that the failure of the component was the result of improper application by Bloblades of such components, or a defect of design, workmanship, or material of some other part of products.
- With respect to replacement or repair rendered, Bloblades warrants that the parts, replaced or repaired will operate and be free of defects in materials and workmanship for a period of 90 days from the date of shipment to the customer, or for the remainder of the original warranty period, whichever is longer.
- The foregoing is in lieu of all other warranties or promotional claims. No other express or implied warranty is made.