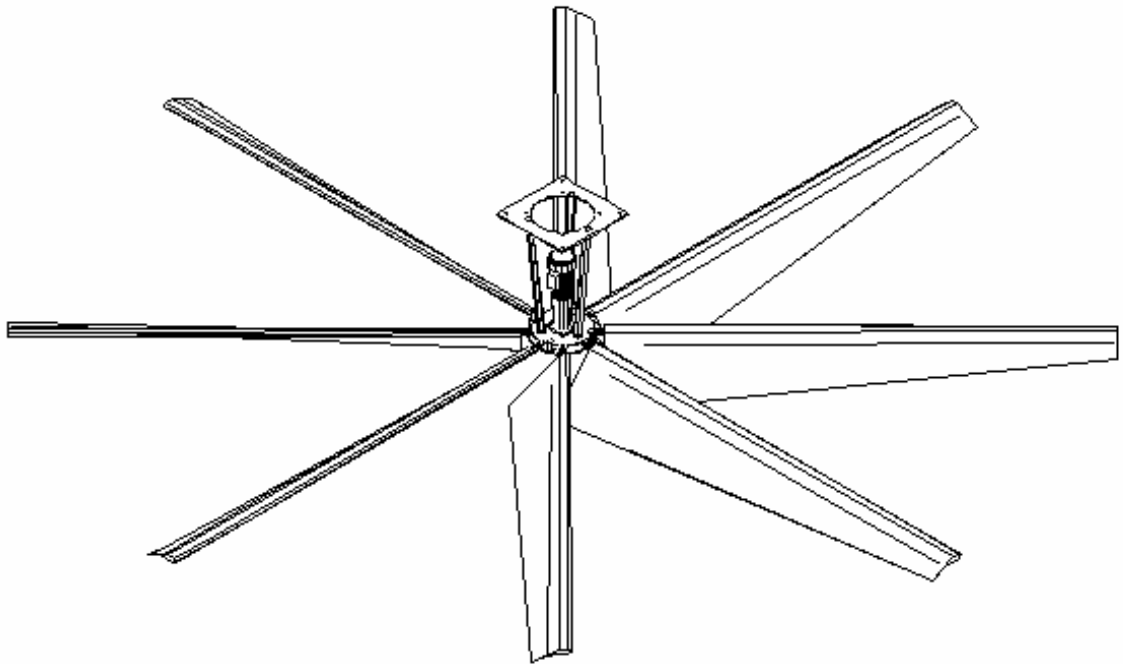




# Humongous Fan

## Installation Guide



Do not discard these instructions, save for further use



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## **SAFETY PRECAUTIONS**

**READ, FOLLOW AND SAVE THESE INSTRUCTIONS!**

1. ONLY USE THIS FAN IN A MANNER INTENDED BY THE MANUFACTURER, NAMELY AS VERTICAL, CEILING MOUNTED, AIR MOVING DEVICE. ANY ATTEMPT TO USE THIS FAN FOR ANY OTHER PURPOSE WITHOUT EXPRESSED, WRITTEN PERMISSION FROM THE HUMONGOUS FAN COMPANY WILL INVALIDATE YOUR WARRANTY AND PROBABLY GET SOMEONE HURT.
2. BEFORE SERVICING OR CLEANING THE FAN, ALL SOURCES OF ELECTRICAL POWER MUST BE DISCONNECTED. THE USER SHOULD TAKE MEANS TO ENSURE THAT THE DEVICE IS NOT ACCIDENTALLY ENERGIZED WHILE BEING SERVICED, SUCH AS ATTACHING A TAG TO THE POWER SUPPLY.
3. IF A SAFETY DEVICE IS REMOVED WHILE SERVICING THE FAN, IT MUST BE PROPERLY REINSTALLED BEFORE REENERGIZING THE FAN.
4. DO NOT REPLACE ANY PARTS TO THIS FAN WITH ANYTHING OTHER THAN AUTHENTIC HUMONGOUS FAN PARTS. THIS INCLUDES BOTH MECHANICAL AND ELECTRICAL COMPONENTS.
5. ALL ELECTRICAL WIRING MUST CONFORM TO THE NATIONAL ELECTRIC CODE AND ALL LOCAL CODES. CODE COMPLIANCE IS ULTIMATELY THE RESPONSIBILITY OF THE INSTALLER.
6. THE FAN MUST BE INSTALLED IN A MANNER SUCH THAT THERE IS NO CHANCE FOR THE FAN BLADES TO STRIKE A PERSON OR OBJECT WHILE IN OPERATION. IF THERE IS A CHANCE FOR THE FAN TO STRIKE A PERSON OR OBJECT, APPROPRIATE GUARDING MUST BE INSTALLED.
7. THE FAN MUST BE INSTALLED BY QUALIFIED PERSONNEL. THE HUMONGOUS FAN COMPANY WILL NOT BE RESPONSIBLE FOR PERSONAL INJURIES OR



DAMAGE TO EQUIPMENT CAUSED BY IMPROPER  
INSTALLATION.

## PARTS LIST

BEFORE ATTEMPTING TO INSTALL YOUR HUMONGOUS FAN,  
PLEASE VERIFY THAT YOU HAVE THE FOLLOWING:

1. Motor/Hub Assembly
2. Blade Mounting Hardware Kit, containing:
  - a. 16 ¼"-20X1" UNC Grade 5 Bolts
  - b. 16 ¼" Split Lock Washers.
3. Safety Cable Kit, containing:
  - a. 10' (3.1m) of ¼" Galvanized Steel Cable
  - b. 4 ¼" Cable Clamps
4. Fan Controller
5. Fan Blades (8 for most fans, 4 or 6 for low volume option)
6. Beam Mounting Kit (If Ordered) containing:
  - a. Upper Yoke Weldment
  - b. Lower Yoke Weldment
  - c. Safety Cable Kit (Same as above, a second unit to secure the mounting kit to the building)
  - d. 2 3/8"-16X4" UNC Grade 8 Bolts
  - e. 4 3/8"-16X1" UNC Grade 8 Bolts
  - f. 6 3/8"-16 UNC Nuts
  - g. 6 3/8" Split Lock Washers
  - h. 2 beam clamps
  - i. 4 3/8-16x2" UNC grade 8 Bolts with nuts and lock washers
  - j. Beam clamp shims, depending on the thickness of the beam flange.



If you are lacking any of the above items, please call us at 216-663-8830.

## MOUNTING SCENARIOS

The Humongous Fan is designed to be mounted either from a series of braces spanning two joists or, with the use of a mounting kit, directly from an I-beam. The mounting must be sufficiently secure to absorb up to 250 ft-lbs (340 N-M) of torque, plus an appropriate safety factor. All bolts must be torqued to the following values:

Table 1

Product	Torque (Ft-Lb)	Torque (N-M)
¼-20 UNC Grade 5 bolts	9	12
5/16-18 Cable Clamp Nuts	19	26
3/8-16 UNC Grade 8 bolts	47	64

### Joist Mounting Scenario

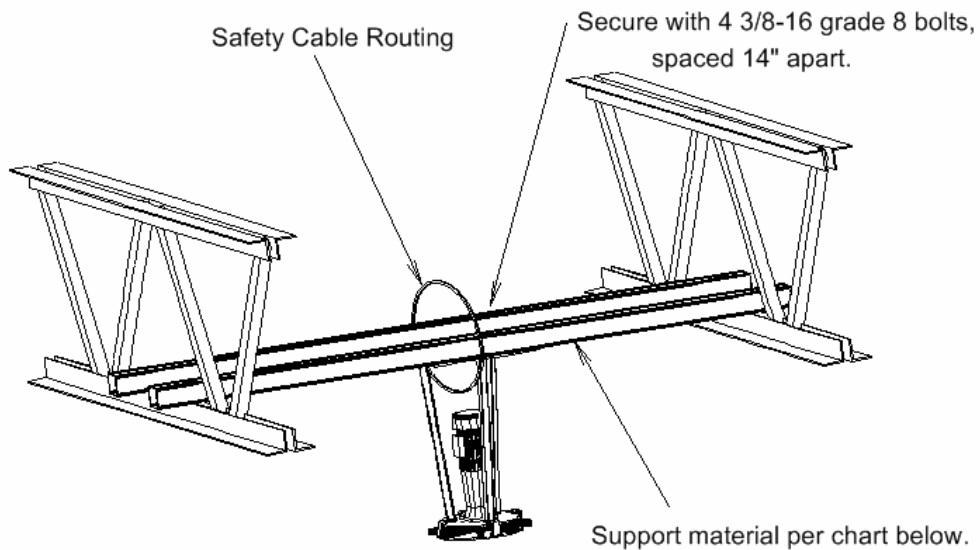
In general, mounting a Humongous Fan between joists is easier than clamping to a beam, especially if the joists are close together. Additionally, this type of mounting offers additional flexibility for fitting the fan between lights and avoiding the flickering caused by fan blades passing below a lighting fixture. If it is desired to mount the fan at a level lower than standard motor/hub assembly allows, it is possible to use a beam mounting kit as a spacer, bolting the upper yoke directly to the support materials described below.

Since the motor/hub assembly is the heaviest part of the fan (weighing as much as 75 lbs/33KG), it will take two people to mount.



Below is a typical installation mounting across joists.

Figure 1  
Typical Roof Joist Installation



As the span between joists is increased, heavier material must be used. The chart below indicates the minimum material cross sections for various spans.

Table 2

Joist Spans and Appropriate Support Materials

Span	Acceptable Materials
6' or less	2 1/2"x2 1/2"x1/4" Angle Iron PowerStrut PS 210 or Equivalent
8' or less	3"x3"x1/4" Angle Iron
10' or less	3 1/2"x3 1/2"x1/4" Angle Iron PowerStrut PS 200-2T3 or Equivalent
12' or less	3"x3"x1/4" Square Tube, 4"x4"x1/4" Angle Iron
Above 12'	Contact Factory



Support materials, including hardware to mount to support materials, are not normally provided with the fan. Use of PowerStrut (or equivalent) products is generally encouraged as it can speed installation time and limit the weight of steel to be installed overhead.

The safety cable must be routed between the legs of the gearmotor base and over the support material as shown. The safety cables must be secured with the four cable clamps provided.

Once the fan hub is installed, the user must install the breather valve on the gearbox as shown below. Once the breather valve is installed, you may not move the fan without replacing the plug.

Figure 2

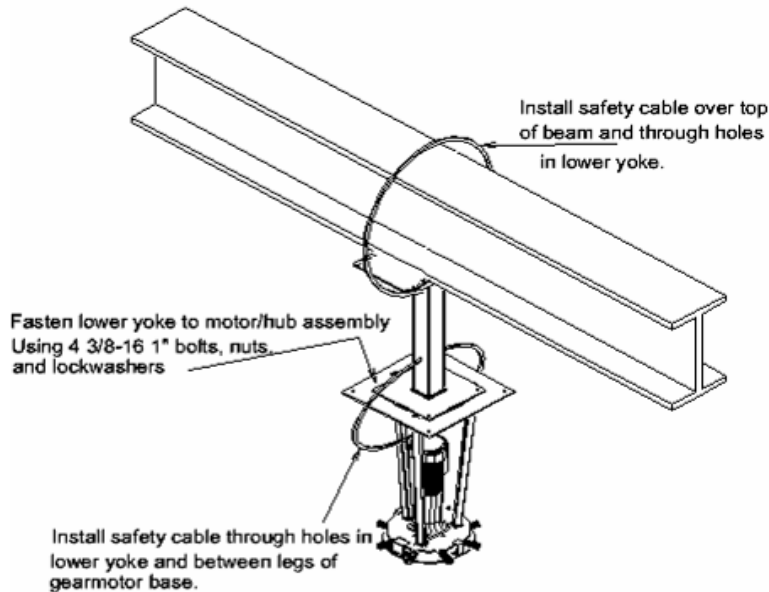
INSERT PICTURE OF BREATHER PLUG.

### **Beam Mounting Scenarios**

For beam mount scenarios, it is normally necessary to purchase a Beam Mounting Kit, which is offered separately. With the beam mounting kit, you will receive upper and lower yoke weldments which will allow you to install the fan on a beam which is at an angle to the floor. You will receive BeamClamp hardware which will allow you to clamp directly to a beam of between 7 and 15 inch flange width.



Figure 3-Typical Beam Mount Scenario

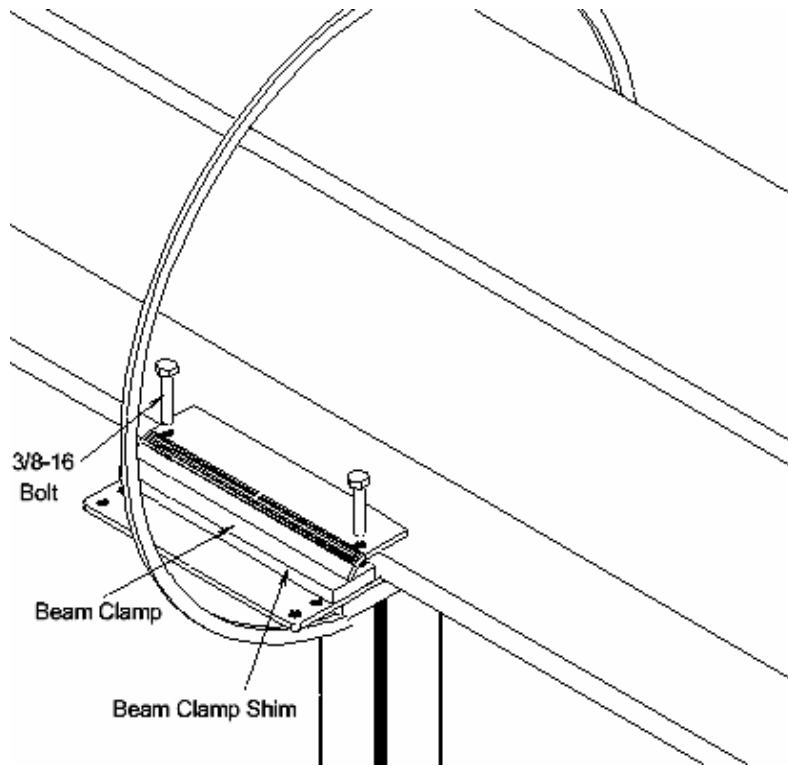


When beam mounting a Humongous Fan, the beam mounting kit should be mounted to the beam first, then the motor/hub assembly should be mounted to the bottom of the beam mounting kit. Only use the beam clamps and shims provided with the Beam Mounting Kit. Any attempt to use other fastening methods will invalidate your warranty and probably hurt someone.

The number of shims required varies with the thickness of the beam flange. Beam flanges up to  $\frac{1}{2}$ " thick (when measured 1" from edge of flange) do not require any shims. Beam flanges  $\frac{1}{2}$ - $\frac{3}{4}$ " thick require one shim. Beam flanges  $\frac{3}{4}$ -1" thick require two flanges, and so forth. If you do not have the correct number of beam clamp shims, contact the factory and we will ship some to you immediately. Do not attempt to fabricate shims on your own!

The beam mount upper detail is shown below.

Figure 4



It is important to ensure that the narrowest possible set of mounting holes is used on the upper yoke. This will allow the greatest possible engagement of the beam clamp to the beam. It is not necessary that the beam mount be exactly centered under the beam. If two sets of holes are visible outside of the beam clamp shim on one side and one set on the other that is acceptable. The bolts must installed with the lock washers provided and torqued to the value in table 1.

Additionally, it is important to ensure that the safety cable is installed with all four cable clamps. The cable clamps should be installed 2 each on the turnback of each end of the cable as shown below and torqued to the value listed in Table 1.

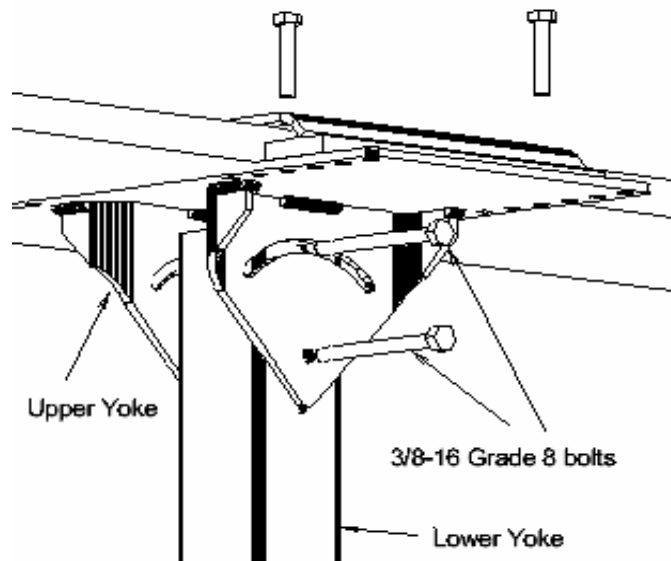
Figure 5 - Cable Clamp Installation

Cable Clamp Picture



Once the upper yoke is installed, the lower yoke can be bolted on and the angle set. The upper yoke has the capability of adjusting for a beam up to 45 degrees from horizontal. This capability must not be used to mount the fan in any shaft orientation other than vertical. Two adjusting bolts (3/8-16 Grade 8) connect the upper yoke to the lower yoke as shown below. The bolts must be torqued to the value listed earlier in this section. The safety cable has been omitted for clarity in the image below.

Figure 6 - Upper Yoke Mounting



Once the lower yoke is installed, the motor/hub assembly can be installed. The motor/hub assembly is the heaviest single part of the fan and will require two people to install it. The bolt pattern on the bottom of the lower yoke matches the pattern on the top of the



fan/hub assembly and is attached using 4 3/8-16 grade 8 bolts torqued to the value listed in Table 1.

As with the beam mounting kit, the safety cable must be mounted looping between the legs of the fan/hub assembly and through the 3/8" diameter hole near the bottom of the lower yoke as shown on the drawing on page 7. As before, the cable clamps must be torqued to the proper value as listed in Table 1.

Once the fan hub is installed, the user must install the breather valve on the gearbox as shown in Figure 2. Once the breather valve is installed, you may not move the fan without replacing the plug.

Once the fan motor/hub assembly is installed, electrical installation can proceed. Do not attempt to install fan blades until the electrical installation is complete and the system is tested.

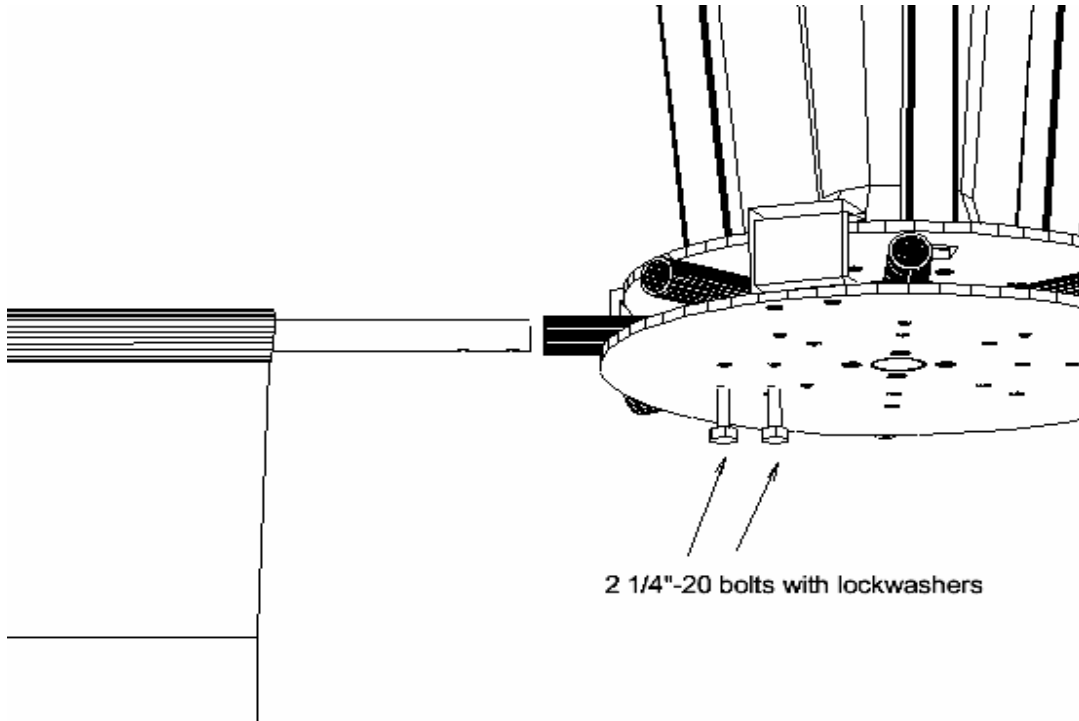
## **ELECTRICAL INSTALLATION**

For electrical installation, please refer to the manual provided with the control cabinet.

## **BLADE INSTALLATION**

Once the electrical installation is completed and tested, the blades can be installed. The blades have a solid spar which is tapped to accept two 1/4-20 bolts. The spars have a sliding fit into the spar tubes and may require some light lubrication to assemble. Do not hammer the blade into the spar tube as you could damage the blade or the gearmotor bearings. Gentle twisting should be sufficient to position the blades properly.

Figure 7 - Blade Installation



The blades must be installed such that the aluminum blade extensions are below the bottom of the fan hub as shown. Once the blades are positioned properly, they must be secured with the  $\frac{1}{4}$ -20 bolts and lock washers provided. The  $\frac{1}{4}$ -20 bolts must be torqued to the values in Table 1. The blades have tapped holes to accept the bolts.

Once the blades are installed, the fan should be checked for interference with nearby objects by rotating it slowly by hand. The fan should then be run at the lowest speed possible (generally around 20 Hertz) for a few minutes. The fan should be rotating in a counter-clockwise direction when viewed from below. If the fan is rotating in the wrong direction, refer to the control manual for instructions on how to reverse. The fan speed should then be increased to 60 Hz at 5 Hz intervals, running a minute or two at each speed. At each interval, the fan should be checked for interference and excessive



vibration or rocking. If the fan rocks significantly at any speed, additional bracing may be required. Call the factory for assistance.

## **FAN OPERATION**

While in operation, there are a few issues to consider:

1. Avoid blocking air flow to areas where people will benefit from it. This may involve moving obstructions or changing the orientation of obstructions to take maximum advantage of the airflow provided.
2. Try to avoid installing the fan below lights, if possible. The blades passing below the lights may cause a flickering which some people find annoying.
3. In winter, maximum benefits are usually obtained by running the fan at about half speed. In summer it is usually advantageous to run the fan at the highest speed which will not inconvenience occupants by blowing around papers, etc...

## **PERIODIC MAINTENANCE**

**WARNING;** Before attempting any maintenance, deenergize the fan and take steps (such as a lock out) to ensure that no one energizes the fan while maintenance is being performed.

Annual Maintenance:

1. Inspect blades for damage. Any noticeably bent blades must be replaced before reenergizing the fan. It is normal for the blades to droop slightly while installed (similar to an airplane wing). However, if one blade droops significantly more than the others, corrective action is required. Inspect for other damage, including glue failure of wing extensions. If you have any questions, contact the factory for assistance.



2. Check the torque of all mounting fasteners. Do not loosen and re-torque the fasteners. Instead, check the torque in the tightening direction only with a calibrated torque wrench.
3. Check the gear motor for oil leaks. If there are no noticeable leaks, no further action is required as the motor is lubricated for life.
4. Check the controller and motor electrical power leads for tightness. This activity should be completed by a qualified electrician.

## TROUBLESHOOTING

1. **Fan wobbles noticeably while in use.** This may be caused by a variety of problems, such as installing the fan in an open-sided structure, such as a barn, or installing the fan indoors near another air supply. In this case, it may be necessary to restrain the fan externally. Please call the factory for assistance.
2. **Fan rotates in the wrong direction.** The fan should rotate in a counterclockwise direction when viewed from below. If this is not the case, it will be necessary to switch two motor power leads in the controller. Refer to the electrical installation manual for instructions.
3. **Fan won't start.** Ensure that the disconnect (if provided) is in the ON position or that power is supplied to the variable frequency drive if a controller is not provided. If that does not solve the problem, have a qualified electrician troubleshoot the circuit.
4. **Excessive audible noise.** Some noise is normal as with any fan. If you think the noise is excessive, please contact your Humongous fan representative or the factory for assistance.
5. **Other problems such as excessive electrical noise are addressed in the Electrical Installation Manual provided with the drive/controller.**



## WARRANTY

The following warranty shall apply to the various components of the Humongous Fan:

Blades, Fan Hubs, Fan Base, Beam Mounting Kit .....	5 Years (Parts Only)
Gear Motor.....	3 Years (Parts Only)
Controller and VFD.....	3 years (Parts Only)
Labor.....	1 Year

The warranty period shall commence 14 days after date of shipment unless the customer can prove that the fan was installed at a later date. In those cases, the customer must inform the Humongous Fan Company in writing of the delay in warranty commencement prior to fan installation.

For the first year of the warranty period, the Humongous Fan Company will reimburse the customer reasonable expenses for an outside contractor to complete any necessary repairs for the fan to operate as designed.

The Humongous Fan Company warranty is limited to repair and replacement of failed components during the warranty period. The Humongous Fan Company will not pay liquidated damages for loss of production or productivity potentially associated with a Humongous Fan under warranty.

The Humongous Fan Company does not warrant that the fan will supply a certain amount of air since airflow is highly dependent on building and mounting geometry and the presence of obstacles at floor level.

Exclusions:



The following actions and conditions will cause the warranty to become void:

1. Failure to install the fan properly, including, but not limited to:
  - a. Failure to follow the appropriate national and local building and electrical codes.
  - b. Failure to follow the procedures in this installation manual.
  - c. Substitution of non approved mounting hardware. Any deviation in mounting must be approved in writing by the President of the Humongous Fan Company.
2. Any modification of the fan whatsoever, including mechanical and electrical components. Any changing of software settings associated with the power electronics provided by the Humongous fan company.
3. Incorrect voltage supply.
4. Any misuse or abuse, including the introduction of foreign objects
5. Acts of God or other accidents.
6. Running the fan at greater than 60 Hz.
7. Failure to perform maintenance as directed in this manual and any other documentation provided by the Humongous Fan Company
8. Any consequential damages sustained as a result of a failure to follow these warranty exclusions.

The Humongous Fan Company reserves the sole right to determine whether or not a component has failed as a result of a warrantable design, manufacturing, or material defect or as a result of a warranty exclusion. The Humongous Fan Company will determine the appropriateness of all remedies and repairs.

The Humongous Fan company warrants all warranty replacement parts until the end of the warranty period or 90 days, whichever occurs last.



In the case of some purchased components, particularly electrical components, The manufacturer of the component may determine the cause of failure. In those cases, the Humongous Fan Company will defer to the expertise of the component supplier. If the component manufacturer determines that there was no manufacturing defect or improper system design by Humongous Fan, the Humongous Fan Company will take the same position.

This is the only warranty associated with Humongous Fan Company products. This warranty supersedes any other warranty or statement by any person

### **Warranty Service**

For prompt and courteous warranty service please call the Humongous Fan Company at +1-216-663-8830. We will fax or email over the necessary forms.