

# Installation Guide

**Model: IC15-MF**  
**Model: IC15-MFSilent**  
**Model: IC30-MF**  
**Model: IC30-MFSilent**



## IMPORTANT SAFETY INFORMATION

### READ AND SAVE THESE INSTRUCTIONS

**WARNING – TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS:** 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 ZOO Fan must be in accordance with the requirements specified in this installation manual and with any additional requirements set forth by the national electric code (NEC), ANSI/NFPA 70-1999, and all local codes. If you are unfamiliar with wiring, use a qualified electrician.

**WARNING:** To reduce the risk of fire, electric shock, or personal injury, mount directly to a structural framing member.

**WARNING:** To prevent electrical shock and/or injury disconnect fan from power source before you move or service the fan.

Suitable for use with solid-state speed controls.

**WARNING:** To reduce the risk of fire, electric shock, and injury to persons, ZOO Fans must be installed only with controllers supplied by ZOO Fans. Other parts 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.

**WARNING:** Risk of fire, electric shock, or injury to persons during cleaning and user maintenance. Disconnect the fan from the power supply before servicing.

**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 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.

**WARNING:** Fatal electric shock from metal cable glands in the plastic terminal box is possible if incorrectly connected – do not use metal cable glands in plastic terminal boxes.

**WARNING: DO NOT INSTALL IN A COOKING AREA.**

**WARNING:** Do not operate the fan in spaces with hazardous or Explosive Material and Vapors.

**DANGER: Rotating equipment.** Death, severe injury and property damage may result. ZOO Fans are intended to be hung out-of-reach of people. Mount with the lowest moving parts at least 2.4M (8 Feet) above the floor or grade level.

**WARNING:** Stay alert and use common sense when installing fans. Do not install fans if tired or under the influence of drugs, alcohol, or medication.

**CAUTION:** Only operate the fan within the ranges specified on the motor's type plate.

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

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

## Table of Contents

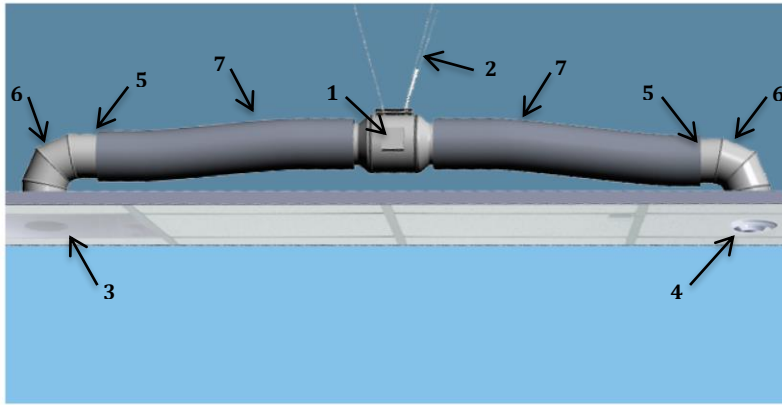
<b>PRE-INSTALLATION .....</b>	<b>1</b>
<b>PARTS ENCLOSED.....</b>	<b>2</b>
<b>ZOO FANS SPECIFICATIONS.....</b>	<b>3</b>
<b>LAYOUT.....</b>	<b>3</b>
<b>TOOLS REQUIRED .....</b>	<b>3</b>
<b>INSTALLATION.....</b>	<b>4</b>
<i>STEP 1: Install Jet Ball Diffuser and Diffuser Support Bracket.....</i>	<i>4</i>
<i>STEP 2: Install Flexible Duct.....</i>	<i>7</i>
INSTALL FAN .....	8
<i>STEP 1: Install Joins, Reducers and Eye Hooks.....</i>	<i>8</i>
<i>STEP 2: Secure the Gripples .....</i>	<i>10</i>
<i>STEP 3: Hang the fan .....</i>	<i>11</i>
<i>STEP 5: Connect fan to flexible duct—exhaust side.....</i>	<i>12</i>
INSTALL RETURN AIR DIFFUSER .....	12
<i>STEP 1: Install Return Air Diffuser .....</i>	<i>12</i>
<i>STEP 2: Connect fan to flexible duct (intake side).....</i>	<i>13</i>
WIRING THE FAN.....	14

## **PRE-INSTALLATION**

The safe installation and operation of equipment supplied by ZOO Fans is the responsibility of the system designer, installer, maintainer, and operator (collectively, the “User”). The need for protective safety accessories to meet company standards, applicable codes, and the requirements of the Occupational Safety and Health Act (“OSHA”) must be determined by the User since safety requirements may vary depending on the location and application of the equipment.

The elements of a successful installation consist of:

1. Good layout of fans, wiring, and controls
2. Hanging the fans where they’ll be most effective and convenient to control
3. Completing the electrical hook-up
4. Start-up and commissioning
5. Conducting all work in a safe manner consistent with all relevant codes and regulations



## **PARTS ENCLOSED**

If you ordered more than one fan, be sure to keep the components of each fan together. Each ZOO Fan model IC15-MF will include the following:

### Motor Box (Box 1 of 2)

- Mixed-flow fan (**#1 on diagram above**)

### In-Ceiling Kit (Box 2 of 2)

#### Clear Plastic Bag— Installation Hardware

- For installing the fan motor:
  - Grippler cable kits (**#2 on diagram above**)
    - Metal Structures: 2 - Grippler cables, 10' long with a Y connector and two mini snap-hooks
    - Wood Structures: 4 - Grippler cables, 10' long with one mini snap hook
  - 4 - #10 eye hooks
  - 8 - #10 nuts
  - 8 - #10 flat washers
  - 4 - #10 lock washers
- For installing the jet ball diffuser:
  - 4 - #10 pan head screw for jet ball diffuser
- For installing the flex duct:
  - 4 - zip ties
- 1 - Perforated return diffuser, 24" x 24" (**#3 on diagram above**)
- 1 - Diffuser support bracket for installing the jet ball diffuser
- Accessories Box:
  - 1 - Exhaust jet ball diffuser (**#4 on diagram above**)
  - 2 - 8"-to-6" reducers (for IC15 models only) (**#5 on diagram above**)
  - 2 - 6" joins (for IC15 models only)
  - 2 - Flex 90 support brackets for installing flex duct (**#6 on diagram above**)
- Flex duct box:
  - 2 sections - MF03-08 3' acoustic flex duct (**#7 on diagram above**)

## **ZOO FANS SPECIFICATIONS**

Model	Motor Dimensions	Motor Weight	Full Load Current	Max RPM	Max CFM
IC15-MF	23.25" x 10"	4.4lbs (2 kg)	.54A @ 120V	2289	227
IC15-MFS	19.06" x 10.8"	13.2lbs (6kg)	.54A @ 120V	2700	271
IC30-MF	22.6" x 9.9"	8.8lbs (4 kg)	1A @ 120V	2781	418
IC30-MFS	22.4" x 10.8"	19.2lbs (8.7kg)	1.5A @ 120V	2200	443

## **LAYOUT**

This phase should have been completed prior to placing your order. If you don't have a plan or wish to review it again, please consult with your professional engineer, designer and/or installer. You may also contact your ZOO Fans' representative or ZOO Fans directly if you require assistance.

Remember, the number of ZOO Fans required for the job, as well as where they are hung, will depend on a number of variables, some of which are:

- Ceiling height, as well as the overall **volume** of air the fans need to move in order to achieve the targeted level for turnover of air in the facility every hour (a good target for destratification is 100% turnover every hour)
- The availability of a sturdy and secure anchor point for attaching the fan
- Obstructions above the ceiling such as sprinklers, lighting, and hanging cables
- Obstructions, such as merchandise/inventory racks, lighting, overhead equipment, and other mechanical systems
- The location of existing HVAC diffusers and returns
- A straight line between the intake and outtake to ensure the ducting is straight to maximize airflow
- A desire to create air movement at a specific work station, machine or other locale

Ask the electrician who will be installing the fans to review the following section to be sure your layout is a good one when evaluated against existing wiring and electrical equipment. Ask the contractor who will be hanging your fans to review your layout for ease and safety of installation, as well as compatibility with existing mechanical systems and all applicable codes. If the installer(s) have any questions about where to locate your fan(s) or how to install them, please contact either your ZOO Fans' representative or ZOO Fans. A copy of this installation guide can also be found at [www.zoofans.com](http://www.zoofans.com).

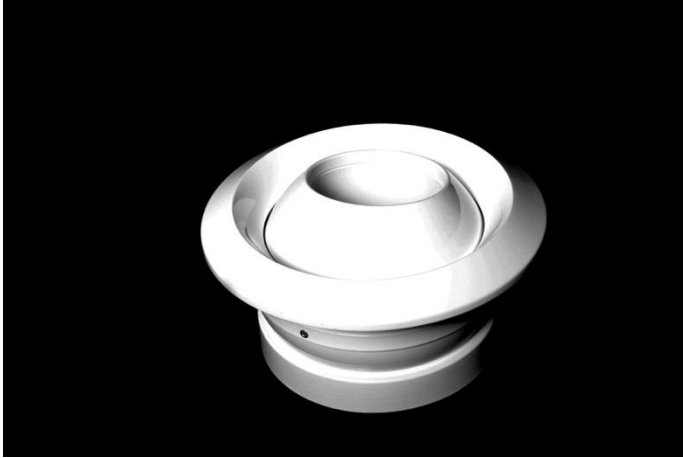
## **TOOLS REQUIRED**

- Adjustable hole saw
- #2 Phillips-head screwdriver
- Duct tape
- Duct hangers (minimum 1.5" wide), or support straps

## **INSTALLATION**

### **Install Jet Ball Diffuser**

#### **STEP 1: Install Jet Ball Diffuser and Diffuser Support Bracket**

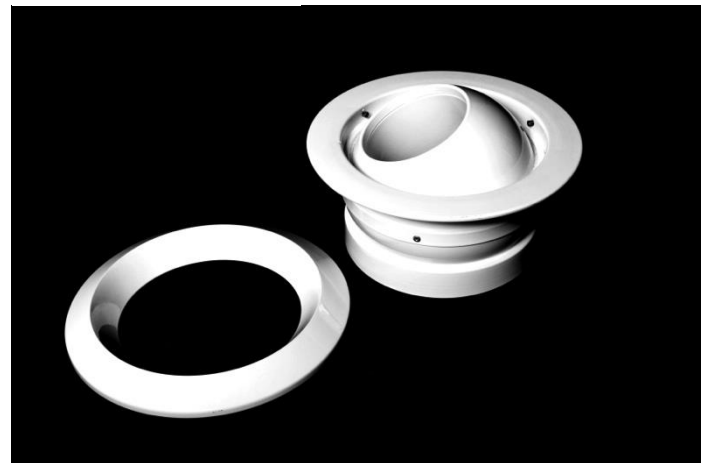


**Figure 1A**

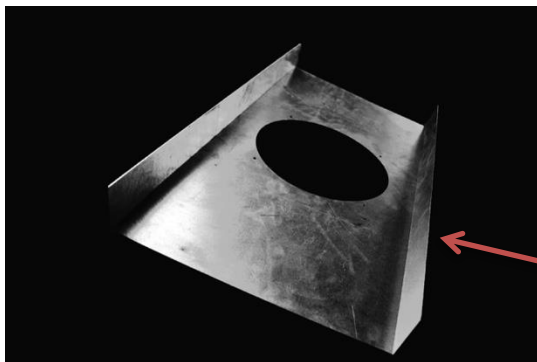


**Figure 1B**

1. Remove the beauty ring on jet ball diffuser by turning counter-clock wise (see Figure 1B and Figure 2).
2. The diffuser support bracket (see Figure 3) is designed to prevent sagging of a ceiling tile by attaching to the back of the tile and running to the edge of the T-Bar frame.



**Figure 2**



**Figure 3**

Jet ball diffuser support bracket is installed on the back of the ceiling tile.

Center the diffuser support bracket (DSB) on a 2' x 2' ceiling tile (see Figures 4 & 5, below)—or center on half of a 2' x 4' tile—and mark the hole on the tile.



Figure 4

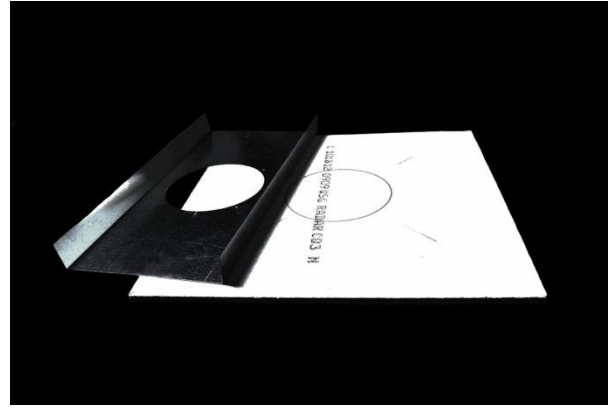


Figure 5

3. Use hole saw to cut the hole (see Figure 6). **WARNING: Follow ceiling tile manufacturer's instructions to avoid creating dust which may be hazardous to your health.**

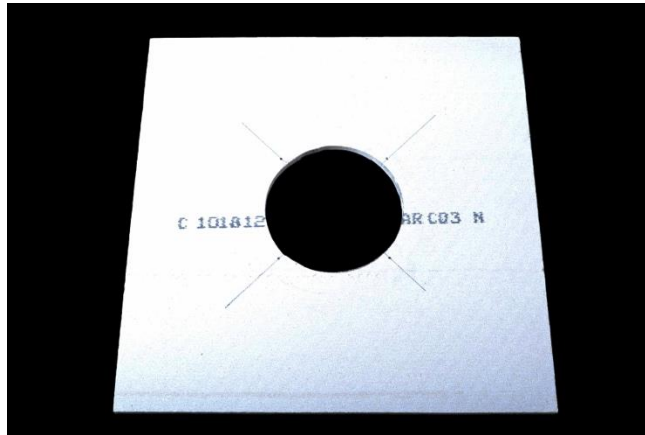


Figure 6

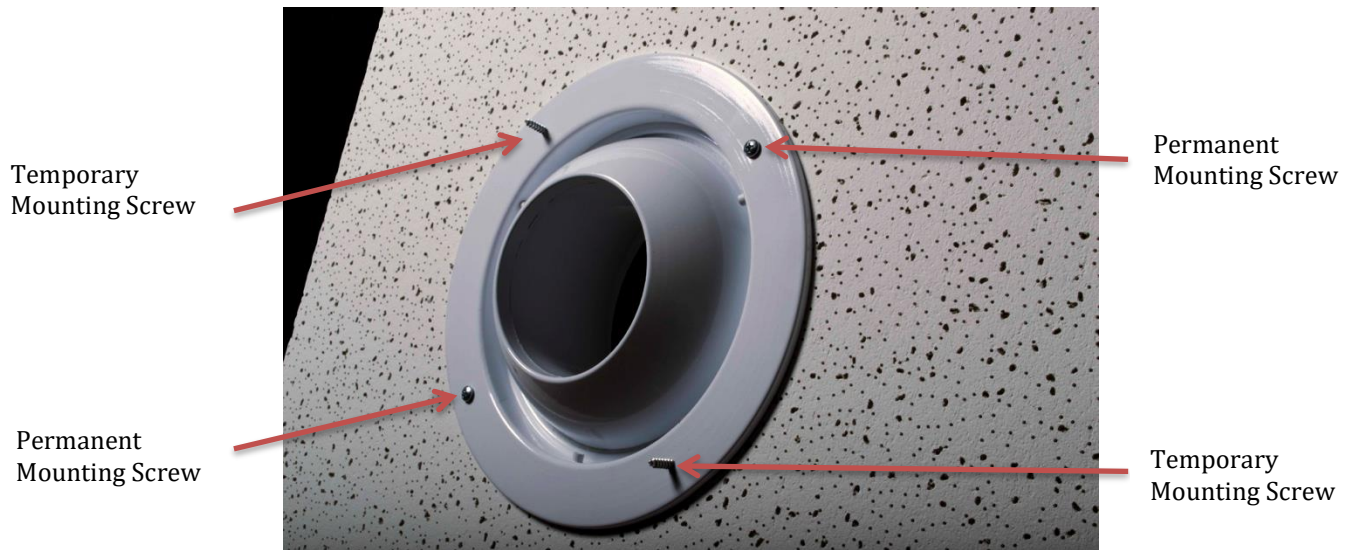
4. Place diffuser support bracket on the backside of the ceiling tile.
5. TEMPORARILY install jet ball diffuser screw through a pre-drilled hole on the diffuser support bracket (DSB) into jet ball diffuser. Place one screw through a pre-drilled hole on the DSB, through the ceiling tile, and into the back of one of the holes in the jet ball diffuser ring to temporarily secure the bracket to the tile and assist in aligning the holes (see Figure 7).



Figure 7

6. Repeat the process in #5 to install a second temporary screw in the hole opposite the first one (see Figure 8, below). The screw holes are now properly aligned.





**Figure 8**

7. SWITCH TO THE DIFFUSER SIDE—install and tighten two permanent mounting screws through the diffuser and the ceiling tile into the corresponding holes in the DSB (see Figure 8, above).
8. Remove the first temporary screw from the DSB and install a permanent mounting screw through the diffuser and the ceiling tile into the hole in the DSB (see Figure 9).
9. Repeat the process in #8 to install the final permanent mounting screw (see Figure 9).



**Figure 9**

10. Replace beauty ring removed in Step 1 by placing it over the diffuser and rotating slightly clockwise.

**The jet ball diffuser and diffuser support bracket are now properly attached (see Figure 10, below).**

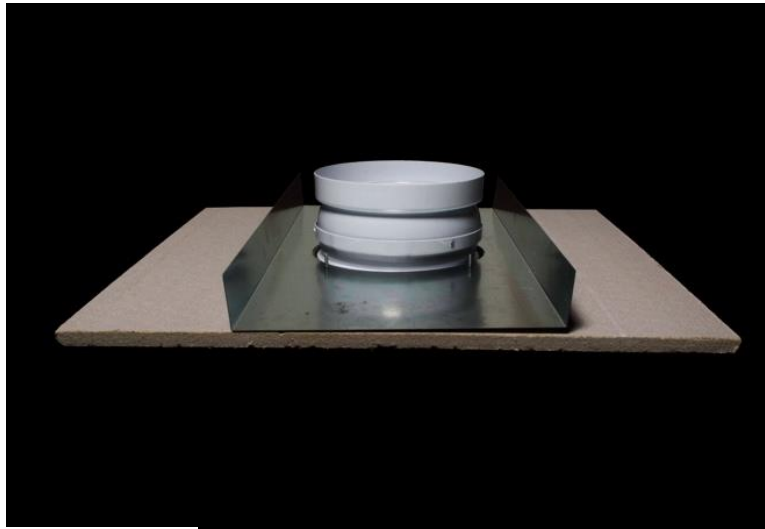


Figure 10

11. Place this assembled unit in the specified location for the exhaust diffuser in the ceiling grid.

## STEP 2: Install Flexible Duct

To ensure proper airflow, the ZOO Fans IC15-MF comes with two (2) plastic 90° bends (Flex 90 Elbow) designed to create a smooth, even bend where the flexible duct is attached to the intake diffuser and to the exhaust (jet ball) diffuser. **It is important to use these when installing the flexible duct so as not to constrict the ducting when forming the 90° bend.**

**WARNING: Do not install duct where the outer jacket will contact any surface exceeding 200°F.**

**NOTE:** Tapes shall be listed and labeled in accordance with UL 181B and marked "UL 181B-FX."

1. Open the box of MF03-08 and remove one section of 3-foot acoustic duct.
2. Slide factory fitting over the end of the back of the jet ball diffuser in the tile just installed (see Figure 11).
3. Tape fitting to the diffuser (see Figure 12).

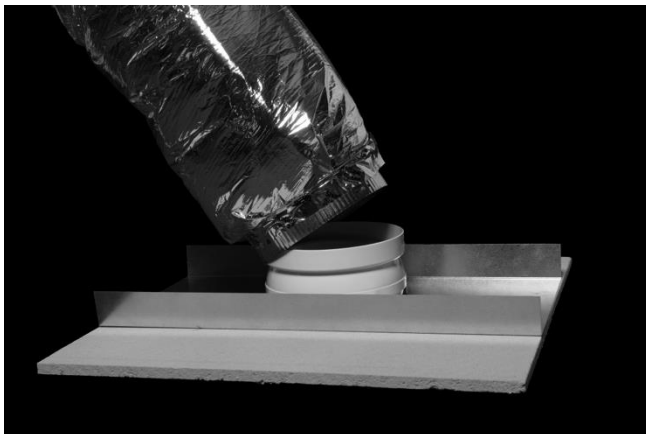


Figure 11



Figure 12

4. Place Flex 90 Elbow with one side against acoustic duct fitting. Using the included zip ties, fasten the Flex 90 to the duct and flex duct mounting ring (see Figure 13).



**Figure 13**

5. Using a second zip tie, fasten the other end (top) of the Flex 90 Elbow to the flex duct. This will create a smooth 90° bend (See Figure 13).



**Figure 14**

6. To prevent sagging in the ceiling tile, secure the Flex 90 Elbow to the ceiling using a support strap (not included) that has a minimum width of 1.5”.

## **INSTALL FAN**

### **STEP 1: Install Joins, Reducers and Eye Hooks**



**Figure 15**

## Install Joins

**IC15-MF Models Only (see Figure 15, above) For IC30-MF IC30MFSilent models, skip to the “Install Eye Hooks” section.**

1. Slide the 6” joins onto the fan.
2. Use duct tape to secure the join to the fan (see Figure 16).



Figure 16

## Install Reducers

1. Using the 8”-to-6” reducer, slide the 6” side of the reducer into the 6” join (see Figure 17).



Figure 17

2. Repeat #1 to attach second reducer to the other side of fan.

## Install Eye Hooks

**Install four (4) eye hooks onto the support bracket for the fan. NOTE: If desired, motor may be released from support bracket to improve access. (see IC15-MF**

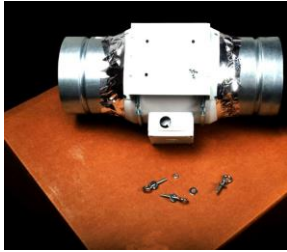
**IC15-MFSilent & IC25MFSilent**

**IC30-MF**

**Figure 8)**

1. Screw #10 nut to the eye bolt
2. Place #10 flat washer on thread
3. Insert #10 eye bolt through hole in fan support bracket
4. Place #10 flat washer, #10 lock washer and #10 nut on thread sticking through support bracket
5. Securely tighten #10 nut

6. Repeat for additional 3 eye bolts



IC15-MF  
Figure 18



IC30-MF



IC15-MFSilent & IC25MFSilent

## STEP 2: Secure the Gripples

**For METAL Structures:** For metal structures, the fans will come with two (2) 10' Gripple cables. Each cable will have **two** mini-snap hooks (see Figure 19).



Figure 19

**For WOOD Structures:** For wood structures, the fans will come with four (4) 10' Gripple cables. Each cable will have **one** mini-snap hooks and will attach one-to-one to the eye hooks on the motor.

### Secure the Gripple to the Truss, I-Beam or Unistrut

1. To ensure proper hanging, install the first Gripple on a line **32"** from the center of the jet ball diffuser
2. Insert wire through Gripple (see Figure 20).

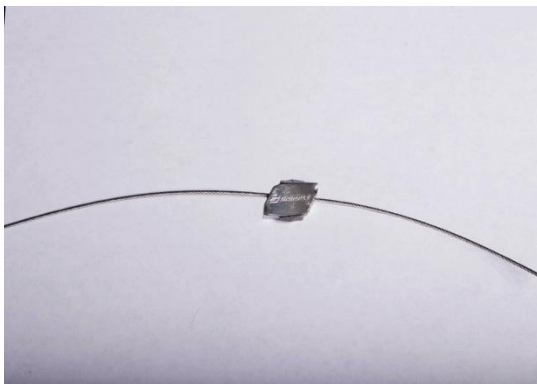


Figure 20

1. Loop wire over Unistrut, Truss, I-Beam, or support beam and insert end of wire into Gripple (see Figure 21).
2. Adjust to desired height.



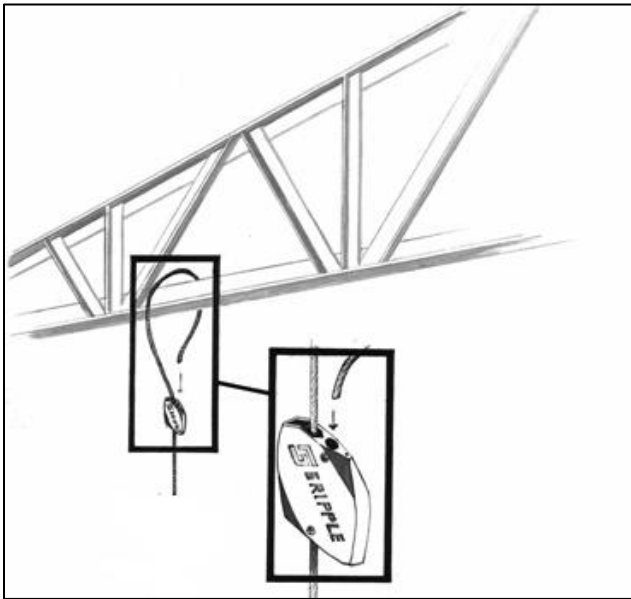


Figure 21

Arrow indicates the direction of airflow

### STEP 3: Hang the fan



IC15-MF  
Figure 22



IC30-MF



IC15-MFSilent &  
IC30-MFSilent

1. Check the airflow direction of the fan to ensure the air is flowing in the direction of the jet ball diffuser just installed (see Figure 22).
2. With the fan pointed in the correct direction, clip a Gripple to an eye hook. Clip the remaining 3 Gripples to their corresponding eye hooks. For METAL structures, see **Error! Reference source not found.**23. For WOOD structures, see Figure 24.
3. Adjust hanging height of the fan so it is level and the top of the duct attachment point matches the height at the top of the flexible duct after the 90° bend.



Figure 23 – Metal Structure





**Figure 24 – Wood Structure**

#### **STEP 5: Connect fan to flexible duct—exhaust side**

1. Slide factory fitting of duct over the triple-lipped sealed gasket on the 8" side of the reducer.
2. Use duct tape or tap screws to secure duct to reducer

### **INSTALL RETURN AIR DIFFUSER**

#### **STEP 1: Install Return Air Diffuser**



**Figure 25**

1. When using 2' x 2' tiles, skip two (2) tiles from the tile in which the Jet Ball diffuser is installed, replace the third tile with the return air diffuser. (see Figure 25)
2. Using remaining piece of duct from the AMF-03, connect the return air diffuser to the duct:
  - a. Slide factory fitting over the collar (see Figure 26)



Figure 26



Figure 27

- b. Tape fitting to the collar (see Figure 27)
- c. Place Flex 90 Elbow against collar. Using the included zip ties, fasten the Flex 90 Elbow to the duct and collar (see Figure 28, below).
- d. Using a second zip tie, fasten the second Flex 90 Elbow to the flex duct to create a smooth 90° bend (see Figure 29, below).
- e. To prevent sagging in the ceiling tile, secure the Flex 90 Elbow to the ceiling using a support strap (not included) that is a minimum of 1.5" wide.



Figure 28



Figure 29

## STEP 2: Connect fan to flexible duct (intake side)

1. Connect the flexible duct to the 8" side of the reducer by sliding the factory fitting over the triple-lipped sealed gasket.
2. Use duct tape or tap screws to secure duct to reducer.



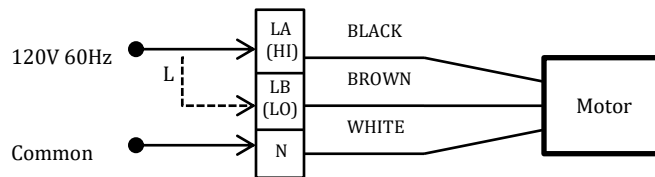
## WIRING THE FAN

NOTE: The fans are double-insulated and is not provided with external ground wire.

The fan included has two available speeds:

1. Black wire (line)
  - a. For High Speed, connect the black wire(L) to terminal LA
  - b. For Low Speed, connect the black wire (L) to LB
2. White wire (common)
  - a. Connect to N

### WIRING DIAGRAM



**IMPORTANT: Product incorporates two speed (120V 60Hz) motors.  
The live supply must ONLY be made to terminal HI or LO connection  
- NOT together -**



**1650 38<sup>th</sup> St. Suite 201W**  
**Boulder, CO 80301**  
**303.557.1852**  
**zoofans.com**