



OWNER'S MANUAL

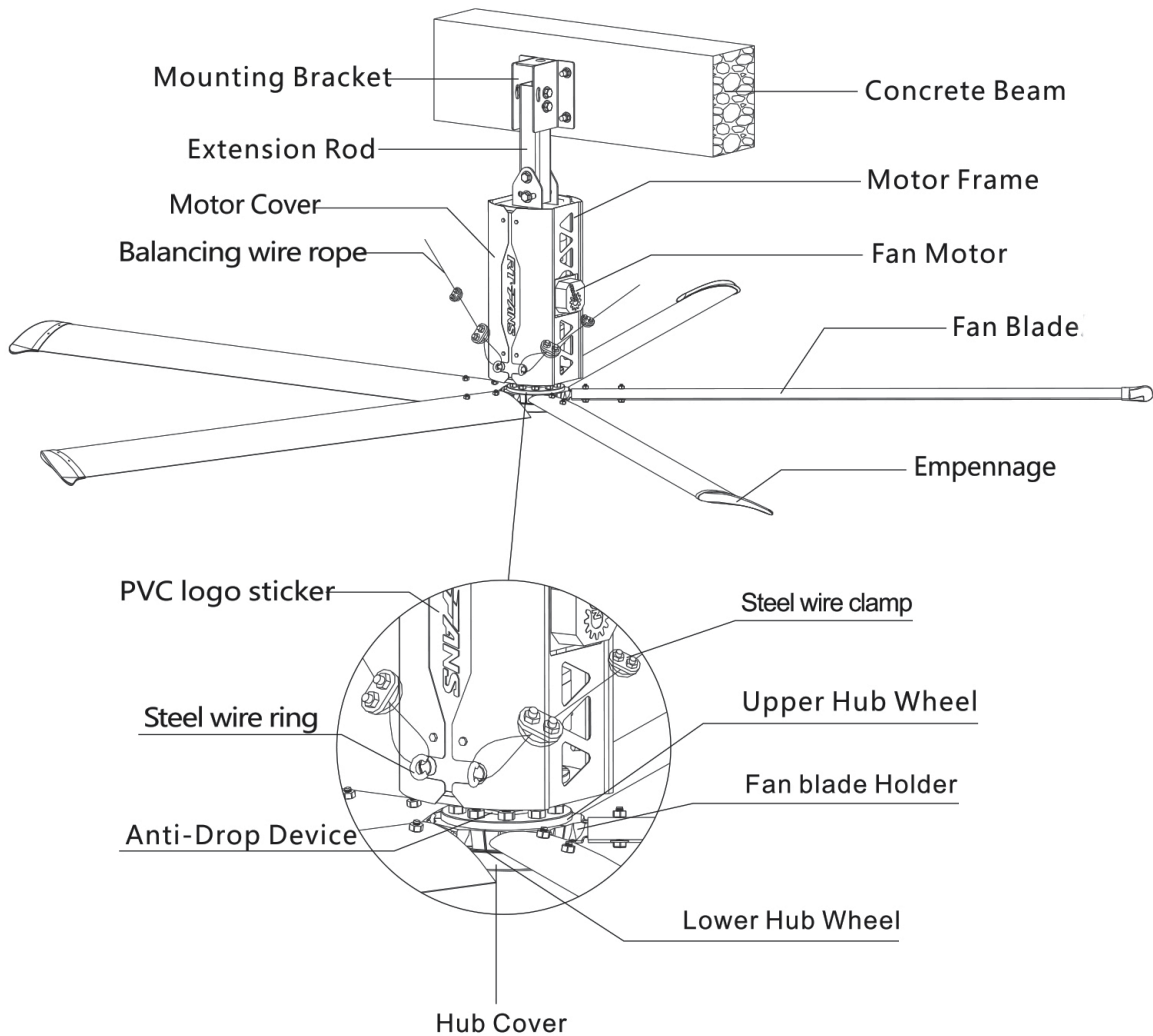
Commercial HVLS Fan

AAP-SF-4E

September 2023



Commercial HVLS Fan Assembly



| | | | | | |
|---|---|---|--|---|--|
| NSW/ACT TEL: (02) 9677 1555 FAX: (02) 9675 1155 | QLD/PNG TEL: (07) 3491 2600 FAX: (07) 3491 2699 | VIC/TAS TEL: (03) 8787 8288 FAX: (03) 8787 8266 | WA TEL: (08) 9302 4199 FAX: (08) 9303 2095 | SA/NT TEL: (08) 8241 7111 FAX: (08) 8241 7011 | NZ TEL: (09) 447 1007 FAX: (09) 447 1008 |
|---|---|---|--|---|--|



OWNER'S MANUAL

Commercial HVLS Fan

AAP-SF-4E

GENERAL SAFETY INFORMATION

GENERAL WARNING

Commercial fan AAP-SF Series are usually installed on steel structures or concrete beams, with a self-weight of about 50kg. The user shall ensure that the structure of the building can withstand the weight of the fan and the torque of about 50Nm due to the rotation of the fan. In order to ensure the safety of operators under and around the fan, if it is observed that the fasteners of the fan are loosening, falling off, or the abnormal sound is heard while the fan is in operation, and the main body of the fan, especially the blade, is found to be defective, etc. Please slow down and switch off the fan immediately, then inform Alemlube.

INSTALLATION WARNING

Any installation personnel must pass installation and safety training from Alemlube or authorized dealer before installation/operation. It is a Must to follow up with national or local safety regulations, to put on necessary safety protection wears or equipment during installation work; and ensure the climbing device is stable and reliable; set up a striking mark within the scope of the operation during installation to avoid the entry of unrelated personnel enter the area; Before installing the electronic control box and other electrical equipment, the power must be cut off and clearly marked at the power source under construction.

MAINTENANCE WARNING

The power supply must be cut off before the maintenance operation and the maintenance operation should be clearly marked; the appropriate safety protection equipment must be worn when the climbing operation is required to ensure that the climbing facilities are stable and reliable; Be sure to protect the safety of passers-by below the fan installation area, and set up warning signs or pull safety warning bands if necessary.

PRODUCT INTRODUCTION

PRINCIPLE

An AAP-SF HVLS (high-volume, low speed) fan is a super large ceiling fan with a diameter range from 7.3m(24ft) to 3.0m(10ft). The airfoil blade are streamlined which was developed with the technologies and advantage of aerodynamic. Just with a power 0.55kw~1.5kw or less to move a mass of air and produce a larger scale of natural wind to all directions. The air passes over human skin thereby bring a lower temperature sensation, while air exchange with outside fresh air rapidly through the window or roof ventilator, reducing the turbid air and providing people a comfortable environment.

APPLICATION

AAP-SF Commercial HVLS fan is widely used for any large space applications which is higher than 4 meters such as logistics center, factory, shopping center, terminal station, cattle farm as well as agriculture applications,etc.

SPECIFICATION

| Model | Fan Diameter (M/FT) | Motor Power (Kw/HP) | RPM | Air Flow (m ³ /min) | Weight (kg) | Noise |
|-----------|---------------------|---------------------|--------|--------------------------------|-------------|-------|
| AAP-SF-4E | 4.0/13 | 0.55 | 40-102 | 8,000 | 50 | 40 |

NSW/ACT

TEL: (02) 9677 1555
FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600
FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288
FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199
FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111
FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007
FAX: (09) 447 1008

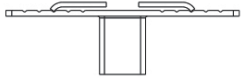


OWNER'S MANUAL

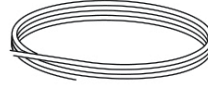
AAP-SF-4E

Commercial HVLS Fan

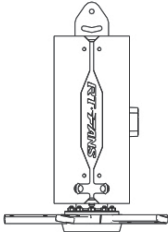
PACKING LIST



Mounting Bracket
1 set (as required)



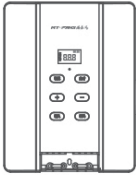
Safety Cable 15m



Drive Device 1pc



Extension Rod 1pc



VFD Controller 1pc



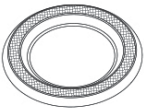
Fan blade 5pcs



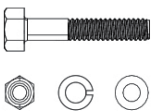
Power Cable 33m



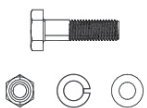
Empennage 5pcs



Hub Cover 1pc



M12 x 90mm 4pcs Hex Head Cap Screw
M12 Nylock Nut 4pcs
M12 Spring Washer 4pcs
M12 Flat Washer 8pcs



M8 x 40mm 10pcs Hex Head Cap Screw
M8 Nylock Nut 10pcs
M8 Spring Washer 10pcs
M8 Flat Washer 20pcs



M6 14pcs Steel Wire Clamp

NSW/ACT

TEL: (02) 9677 1555
FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600
FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288
FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199
FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111
FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007
FAX: (09) 447 1008



OWNER'S MANUAL

AAP-SF-4E

Commercial HVLS Fan

PACKING LIST continued



Tapping screw 5 16mm 10pcs



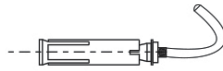
M10 x 80mm 10pcs Expansion Screw
(For Concrete Beam)



Flat head tapping screw 3.5
35mm 4pcs



Plastic wall plug 4pcs



M8mm x 100mm 4pcs Expansion Screw
(For Concrete Beam)

H Beam

M12 x 50mm 4pcs Hex Head Cap Screw
M12 Nylock Nut 4pcs
M12 Spring Washer 4pcs
M12 Flat Washer 8pcs

Rigid Frame Beam

M12 Nylock Nut 8pcs
M12 Spring Washer 4pcs
M12 Flat Washer 8pcs
M12 Threaded Rod 1Meter

PRE-INSTALLATION

INSTALLATION PRECAUTIONS

The maximum weight of the fan is about 50kg and the maximum torque is about 50N m. The clearance from the fan to the roof (no matter what the roof structure) is the distance between the location of the lowest part of the fan (nearest to the ground) and the installation of the upper connecting frame of the fan. For the inclined roof, the required distance should be moved to the tip of the blade, otherwise, it may cause the blade tip to collide with the roof or affect the smooth flow of airflow because the distance between the roof and the blade is too short. Overall, it is necessary to maintain reasonable fan blade and roof space to ensure wide air flow.

POSITIONING

With the increase of fan speed, the fan blade will move upward along the diameter of a certain angle, increasing the fan coverage area. Therefore, all obstacles that may be encountered within the radius of the fan and between the horizontal height of the fan's static position and the ceiling should be measured before installation, ensuring that the fan has an appropriate clearance in all directions when running. It had better to ensure that the fan and the existing facilities of the building (horizontal and vertically) with gaps above 300mm.

MOUNTING & INSTALLATION

Each type of building structure requires a specific mounting bracket, the commercial series HVLS fan can only be hung from standard mounted with an H-Beam, Rigid frame beam or Concrete beam. For buildings with a different installation structure, an additional set of brackets can be customized from factory, please consult Alemlube.

WARNING

- Verify with the contractor, building owner or structure engineer to ensure the building structure is sound and adequate to support the load before installation.
- Taking measurement of the height of the booth of structure beam and blade level.
- Ensure the power supply on site is correct.

NSW/ACT

TEL: (02) 9677 1555
FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600
FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288
FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199
FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111
FAX: (08) 8241 7011

NZ

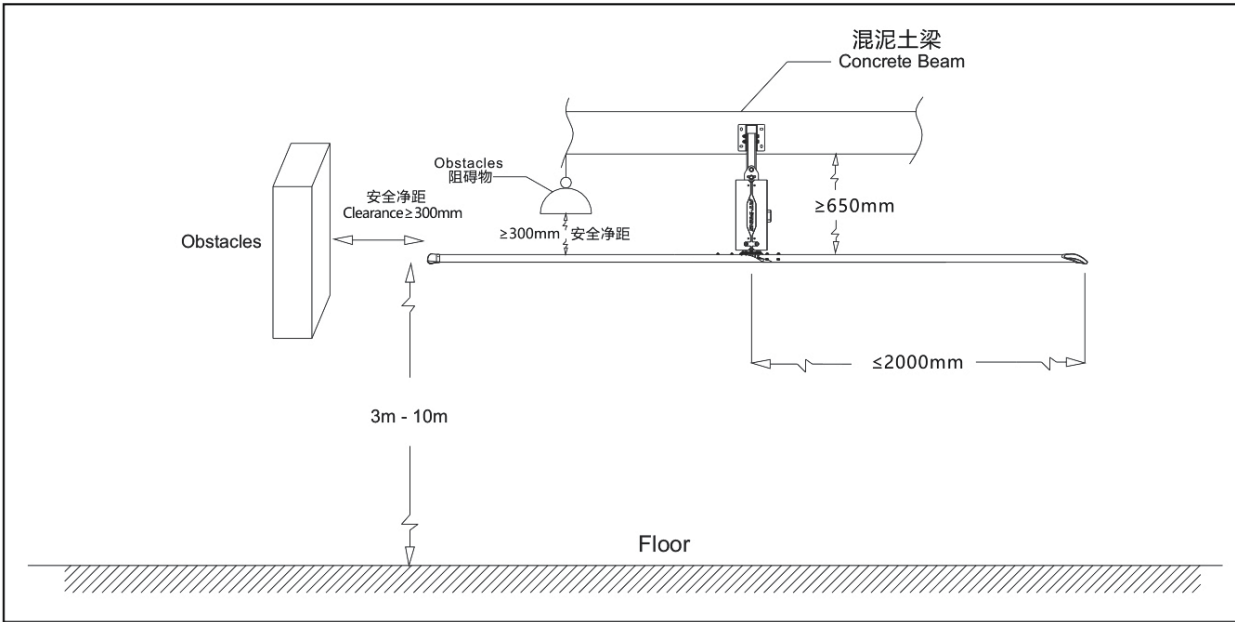
TEL: (09) 447 1007
FAX: (09) 447 1008



OWNER'S MANUAL

Commercial HVLS Fan

AAP-SF-4E



INSTALLATION TOOLS

Levelling instrument, cutting plier, wire stripper, lifting device, plier, 4 sets of tightener (or turnbuckle screw), cross screwdriver, straight screwdriver, tapeline, marking pen, hand electric drill with M4.2 bit.

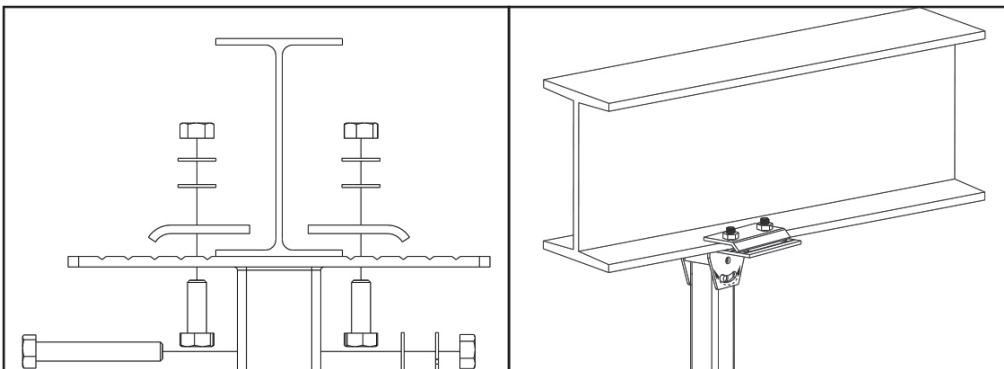
Out hexagonal wrench: 8mm/10mm/14mm/16mm/17mm/24mm

Note: A hand electric drill with 12mm drill bit will also be required when connect to the concrete beam.

INSTALLATION STEPS

CONNECT TO BUILDING - H-BEAM

Connect with Steel H-Beam by adjustable standard clip device, the fan can be easily clip on any steel H-beam, without changing any steel structure. The device can be adjusted according the width of the beam (80mm-220mm).



| | | | | | |
|---|---|---|--|---|--|
| NSW/ACT TEL: (02) 9677 1555 FAX: (02) 9675 1155 | QLD/PNG TEL: (07) 3491 2600 FAX: (07) 3491 2699 | VIC/TAS TEL: (03) 8787 8288 FAX: (03) 8787 8266 | WA TEL: (08) 9302 4199 FAX: (08) 9303 2095 | SA/NT TEL: (08) 8241 7111 FAX: (08) 8241 7011 | NZ TEL: (09) 447 1007 FAX: (09) 447 1008 |
|---|---|---|--|---|--|



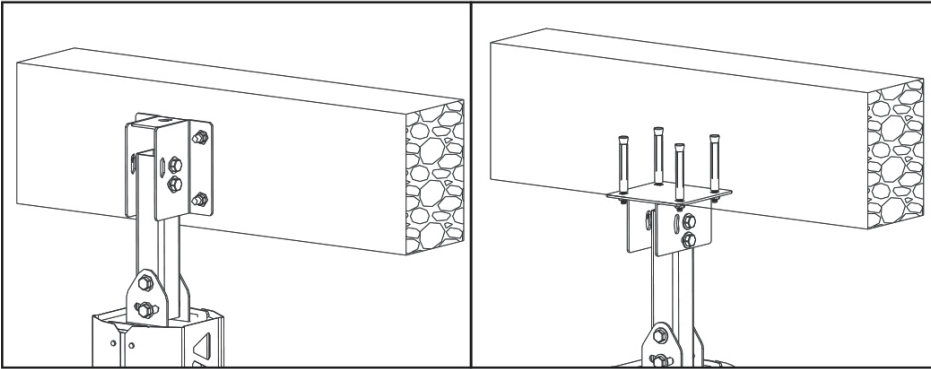
OWNER'S MANUAL

AAP-SF-4E

Commercial HVLS Fan

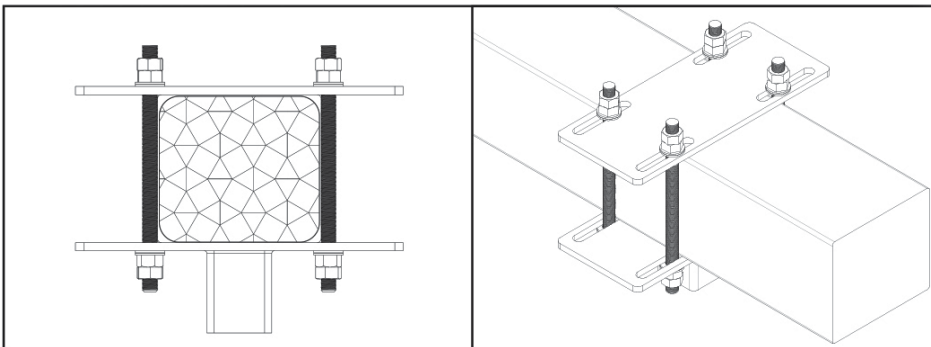
CONCRETE BEAM

Connect with concrete beam, the standard device is fixed by expansion bolts on the side and bottom of concrete beam, the device can be adjusted according the width and height of the beam.



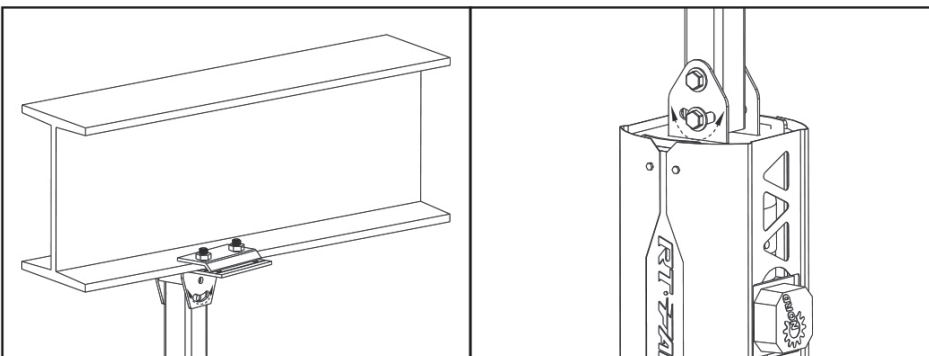
RIGID FRAME BEAM

Connect with Rigid Frame Beam, the standard device is fixed by threaded rod on the rigid frame beam. Cut the threaded rod into 4PCS base on the height of the rigid frame beam. The device can be adjusted according the width of the beam (80mm-240mm).



EXTENSION ROD INSTALLATION

The length of extension rod is customized according to the actual situation of building, it is used to adjust the installation height of fan. Connect the ends of extension rod with Cardan Joint and drive device by bolts.



NSW/ACT

TEL: (02) 9677 1555

FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600

FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288

FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199

FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111

FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007

FAX: (09) 447 1008



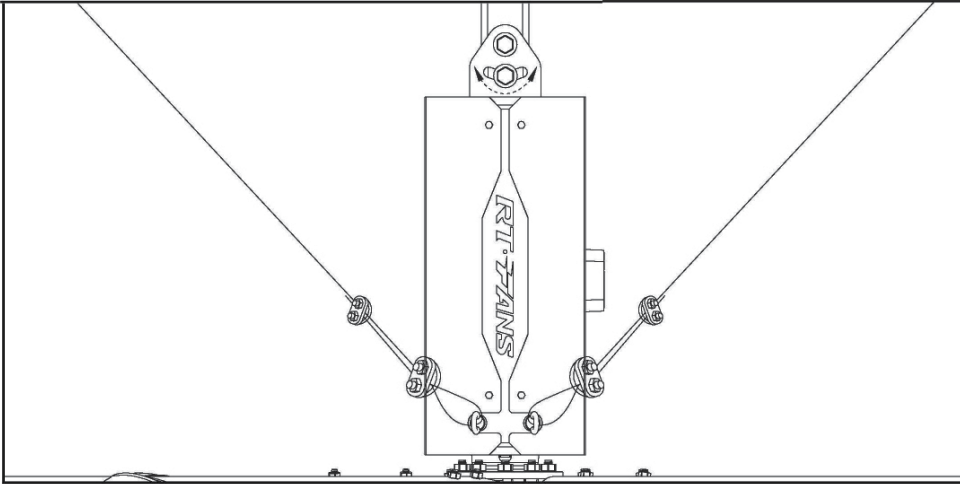
OWNER'S MANUAL

AAP-SF-4E

Commercial HVLS Fan

DRIVE DEVICE INSTALLATION

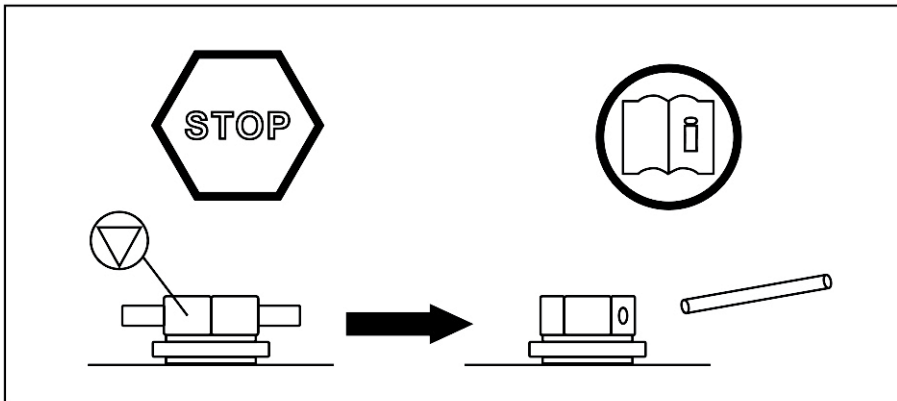
The drive device has been assembled to be one unit before delivery, fix it to the extension rod by using bolts, and use the adjustable arc-shaped groove to make sure the drive device at a vertical level position



The drive device is heavy, needing up to 3 people to install.

WARNING

- 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 box reducer may spill out.



CONNECTING TO POWER SUPPLY & WIRING

The wire sleeves are arranged along the building pillars and the top along the building structural beams. The wire conduit layout should be done as short and simple as possible.

Before wiring, ensure the power is off, then connect to the power supply.

If the factory power supply is 415V, motor is wired according to the y-type wiring method; If the power is 240V, motor is wired according to y-type. Connect motor wire first then connect the electric wires to the control box.

WARNING

- Do not connect the power supply directly to the motor.

NSW/ACT

TEL: (02) 9677 1555

FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600

FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288

FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199

FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111

FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007

FAX: (09) 447 1008

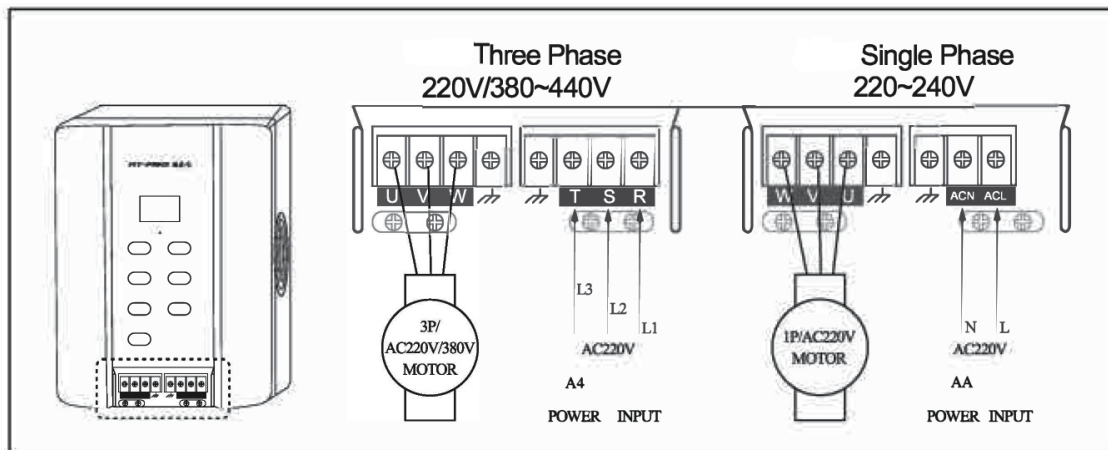


OWNER'S MANUAL

Commercial HVLS Fan

AAP-SF-4E

CIRCUIT DIAGRAM



INSTALLATION OF BALANCING WIRE ROPE

Each fan has 4 steel wire ropes. Please ensure the angle between each steel wire and the drive device is 45 degree, too big or small angle will affect the strength of the steel wires. Please adhere to the following guide lines:

1ST METHOD WITH TURNBUCKLE

- Attach the balancing wire rope before you install the blades
- Use four safety cable per fan, with 3 clamps per rope. (one clamp for building structure, two clamps for turnbuckle)
- Use the closed-end of turnbuckle to fix the steel wire to the building structure, and use the open end of turnbuckle to fix the steel wire to the safety ring of fan.

Caution: It is important to avoid wrapping the steel wire around the sharp corner. Although the external force used to fix and balance the fan is very small, the continuously running of fan may cause fatigue damage to the steel wire rope in the severely curled place.

- Attach the steel wire to the building structure first, install one clamps per wire. Go ahead and tight them, so that part of the job is completed.
- Attach the steel wire to the closed-end of turnbuckle, and use the open-end of turnbuckle to fix on the safety ring of fan, install two clamps per wire.
- Using the turnbuckle to tighten each steel wire rope gradually, and use the leveling instrument to make sure the drive device of fan at a vertical level position.

2ND METHOD WITH TIGHTENER

- Attach the steel wire to the build structure first, install one clamps per wire. Go ahead and tight them, so that part of the job is completed.
- Attach the steel wire to the safety ring of motor frame, install two clamps per wire, do not tight the screws immediately.
- Using the tightener to tighten each steel wire rope gradually, while using the leveling instrument to make sure the drive device of fan at a vertical level position. Then lock the clamp screw near to motor of each steel wire, loose the tightener and lock the end clamp screw.

Caution: The key is to make sure each wire rope has the same tightness after installed.

NSW/ACT

TEL: (02) 9677 1555

FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600

FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288

FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199

FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111

FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007

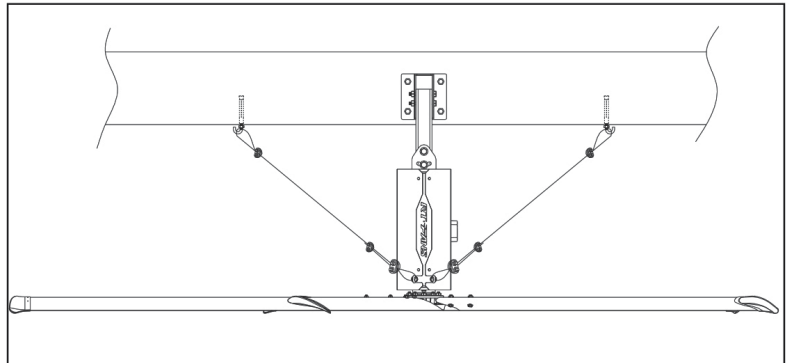
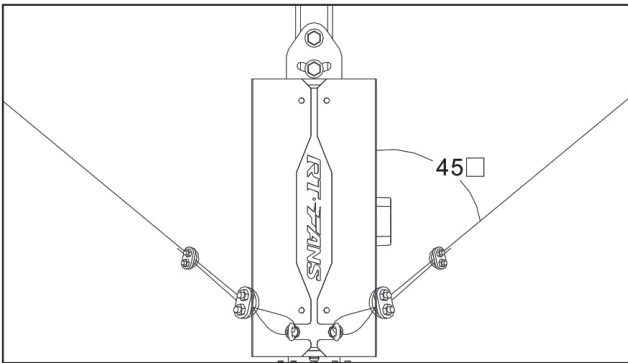
FAX: (09) 447 1008



OWNER'S MANUAL

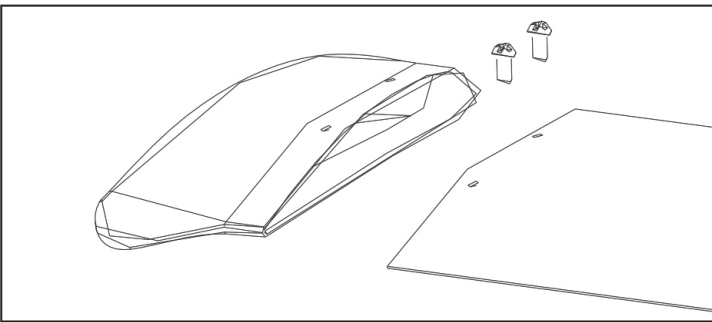
Commercial HVLS Fan

AAP-SF-4E



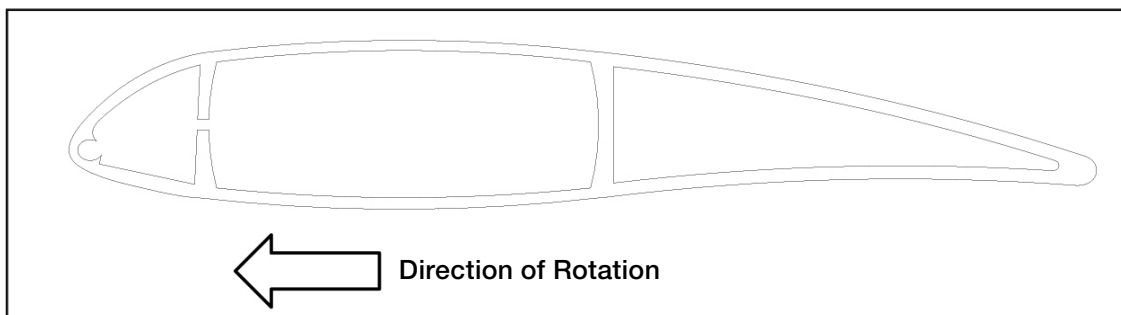
EMPENNAGE INSTALLATION TO AIRFOIL BLADE

Insert the empennage to each airfoil blade & fix using the bolt.



AIRFOIL BLADE INSTALLATION

The fan blade holder has been installed onto the fan wheel hub, just insert the airfoil blade onto the blade pin and fix it by bolts. The correct direction of blade installation should be the blade upwind surface (thick, round part of the blade) the highest, blade leeward surface gradually downward.



HUB COVER INSTALLATION

Take the Hub Cover close to the hub wheel and tighten it by the buckle.

NSW/ACT

TEL: (02) 9677 1555
FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600
FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288
FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199
FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111
FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007
FAX: (09) 447 1008



OWNER'S MANUAL

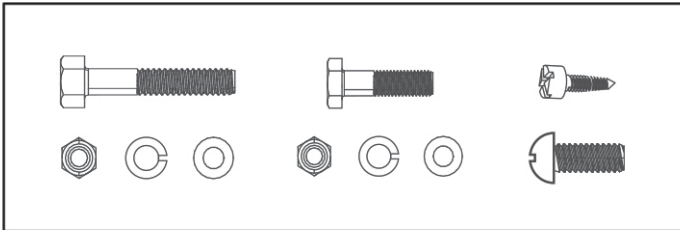
Commercial HVLS Fan

AAP-SF-4E

CHECK, ADJUST & DEBUG

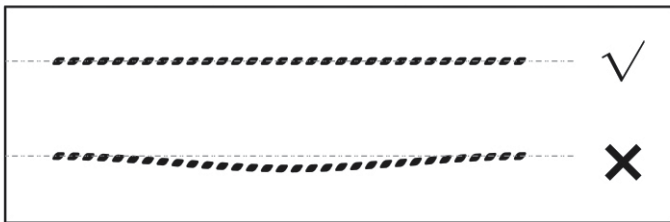
CHECK CONNECTION BOLTS

Upon completion of the above installation steps, double check and ensure that all fastening bolts are provided by RTFANS and are properly installed and fastened.



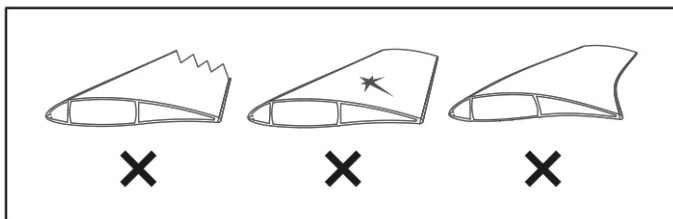
INSPECTION ON TENSION OF STEEL WIRE

Check if the wire rope around the beam is installed correctly, make sure the rope head is locked; and double check tensioning degree of the four fastening wire ropes to ensure the perpendicularity of the motor support and the balance of the chassis.



FAN BLADE CONDITION CHECK

The fan blade is made of aluminum alloy material with special fluorocarbon baking paint treatment. Please handle with care during installation to avoid scratches, crash or deformation. Any damage on fan blade might cause noise during operation. In case any damage occurs, contact Alemlube for replacement.



NSW/ACT

TEL: (02) 9677 1555

FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600

FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288

FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199

FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111

FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007

FAX: (09) 447 1008



OWNER'S MANUAL

Commercial HVLS Fan

AAP-SF-4E

OPERATIONAL GUIDELINES

CONTROLLER PANEL & FUNCTIONS



- ON / OFF** Start or stop the machine
- ENTER** Confirm and save the parameters setting
- SETTING** Parameters setting
- TIMER** Clock and timing settings

START-UP COMMERCIAL HVLS FAN

- Switch on the air switch in the box to connect with the power supply.
- Press the ON/OFF key button and start the fan.
- Keep the fan in low speed for 30 seconds and then turn the speed knob to the required speed.
- Do the reverse order when you stop

Caution:

Read the user's manual carefully before installation and operation and make sure that the fan is not obstructed in all directions.

Before the HVLS fan is repaired and maintained, please make sure that the power has been disconnected and locked.

Do not use the air switch in the control box to start or stop the fan, or any damage caused to the fan is not included in the warranty.

NSW/ACT

TEL: (02) 9677 1555
FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600
FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288
FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199
FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111
FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007
FAX: (09) 447 1008

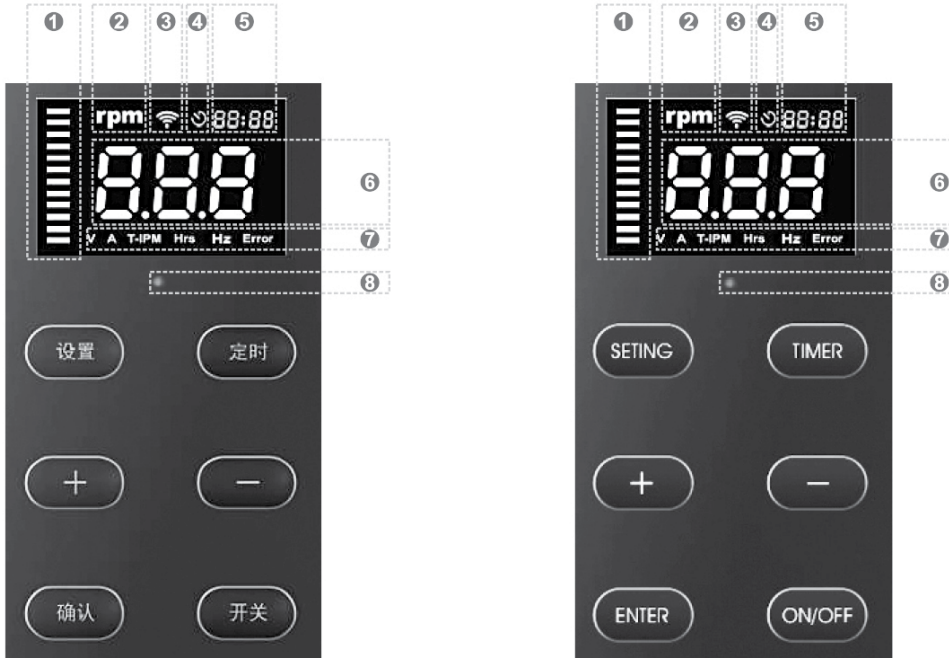


OWNER'S MANUAL

Commercial HVLS Fan

AAP-SF-4E

DISPLAY ICON DESCRIPTION



- 1 Speed icon: divide the minimum speed to the maximum speed into 12 equal parts, which are displayed according to the actual speed setting data & fixed display during operation.
- 2 Speed icon: when the data display area is the speed, the icon is displayed
- 3 WiFi icon: the icon is displayed when connection is normal. It is not displayed when disconnected & flashes when it is not set - temporarily unavailable.
- 4 Timer icon: during the time setting & countdown the icon continues showing.
- 5 Clock & Timer Display: shows real-time clock; initial clock is 12.00, 24 hour mode.
- 6 Data Display: displays running & setting data.
- 7 Parameter display icon.
- 8 Two colour indicator light: red - standby, green - running, flashing red - malfunctioning

NSW/ACT

TEL: (02) 9677 1555
FAX: (02) 9675 1155

QLD/PNG

TEL: (07) 3491 2600
FAX: (07) 3491 2699

VIC/TAS

TEL: (03) 8787 8288
FAX: (03) 8787 8266

WA

TEL: (08) 9302 4199
FAX: (08) 9303 2095

SA/NT

TEL: (08) 8241 7111
FAX: (08) 8241 7011

NZ

TEL: (09) 447 1007
FAX: (09) 447 1008



ELECTRICAL FAULTS & SOLUTIONS

| Error Code | Error Name | Troubleshooting | Solution |
|------------|--------------------------|---|---|
| E00 | Maintenance tips | Operated for more than 15,000 hours | Maintain the equipment |
| E1 | Overcurrent protection | Short circuit or leakage in the motor | Replace the motor |
| | | Frequency converter parameter setting error | Adjust frequency converter parameters |
| | | Sudden change of motor parameters | Replace the motor |
| | | Internal fault of frequency converter | Depot repair |
| E2 | Overvoltage protection | Input voltage too high to +15% of rated value | Adjust input voltage to the rated value |
| E3 | Undervoltage protection | Input voltage too low to -15% of rated value | Adjust input voltage to the rated value |
| | | Internal open circuit of motor | Replace the motor |
| E4 | Phase failure protection | Poor contact of motor UVW wire | Check the line |
| | | Phase loss of input circuit | Check type of accessories and structure |
| E7 | Overload protection | Excessive load or locked rotor | Check type of accessories and structure |
| | | Unsuitable motor | Replace the appropriate motor |
| E8 | Overload protection | Too high temperature for operating | Reduce ambient temperature |
| | | Air duct blockage | Clean the air duct |
| | | The cooling fan is damaged | Replace the motor cooling fan |
| F6 | Communication failure | Connection exception of panel & board | Reseat or replace |
| | | Circuit failure | Depot repair |



MAINTENANCE & SERVICE

- 1 Visual fan running state
- 2 Control box working state
- 3 Check the status of the fan blade
- 4 Check the tension of suspension wire rope
- 5 Check fin and fan blade firmness
- 6 Check whether the flange bolt of motor is fastened
- 7 Clean the leaf (be careful not to damage it)
- 8 Check the fastening bolts of the connecting frame
- 9 Check whether the flange screw of motor is fastened
- 10 Check the oil level of reducer tank
- 11 Check anti - release lock catch
- 12 Check fan suspension
- 13 Check the safety rope on the beam
- 14 Check welding position
- 15 Check motor supports and fastening bolts

TROUBLE SHOOTING

The fan is running in wrong direction

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

Popping noise comes from the fan

The fan blade popping noise may come from the blades are not tightened to the specified torque, cut off power at VFD controller and tighten the fan blade fastener to the specified torque. If popping noise still occurs, check the connection between fan blade and hub. If the connect is ok, slow the fan down and switch the fan off, then contact Alemlube.

The fan is not working

Make sure that all wires are securely connected
Make sure the switch is in 'Run' position.
Verify the supply power is adequate and functional

The motor makes noise when you speed up the fan

Audible high frequency noise is normal during fan operation, if it exceeds your acceptable range, or you feel that the noise maybe a result of mechanical failure, please contact Alemlube.

For the trouble of VFD, please check the trouble shooting approach in the instruction manual of Danfoss according to the alarm message of VFD. If the error code can not be solved, please contact Alemlube.

For the trouble shooting of gearbox and motor, please follow the problem solving instruction of NORD. If not, please contact Alemlube.