



INDUSTRIAL CEILING FAN

OPERATIONG INSTRUCTIONS

For after-sales service:

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Before operating this series unit, please read this manual carefully.

Cautions

1. Do not throw anything and jump under the ceiling fan. Users with lower ceiling should pay more attention.
2. Do not allow to hold up the infant under the rotating ceiling fan to prevent the human body and other objects from contacting the ceiling fan and causing mechanical injury.
3. Do not turn off the fan directly. When sudden overload protection comes, press the red "off" key to shut down before restarting.
4. Please cut off the power and send the fan to qualified technician for checking if the running fan emit unusual noise, smoke or machine blade can not run after power supply.
5. Except for the scope of maintenance permitted in this specification, non-professional personnel shall not disassemble, repair or modify the fan on their own, and all disassembly, repair or modification personnel must hold an electrician's certificate and an aerial work certificate to operate.

Maintenances

1. Regularly check running state of ceiling fan and check if the fan runs abnormally or emit abnormal noise.
2. Regularly check working status of the control box whether there is failure.
3. Check whether the blade is horizontal or shaking.
4. Check whether the fastening bolts are loose.
5. Check the building structure where ceiling fans are installed.
6. Check the tension of protective rope.
7. Check if power wire is damage.
8. The fan must be cleaned periodically to keep clean and attractive.
9. When cleaning fan, the power supply should be cut off first. Arrange professional aerial workers with soft sweep, soft cloth or a little cleaning liquid wipe (do not use gasoline or other corrosive liquid such as paint parts) to clean and dry with cloth.
10. Be careful not to let water flow into the motor or contact other electrical components with water when cleaning; Do not collide with the blade or change the angle of the blade.

Features and Uses

1. The rare earth NdFeB permanent magnet rotor motor directly drives the fan blades without gear box and long-term maintenance-free.
2. The blade is designed with high lift-resistance ratio aviation airfoil without electrostatic aviation composite
3. The installation hanger adopts double universal structure and automatically adjusts the perpendicularity.
4. Suitable for large logistics warehouses and distribution centers, large workshops, public buildings, large farms, stations, stadiums etc. for ventilation and improving environment.

Operating Instructions

1. Please refer to the installation and operation specification before installation. Before installation, check the spare parts detailedly to prevent bumping or damage during transportation.
2. The voltage and frequency should be the same as the motor label fixed. Don't use it in corrosive and other wet environment.
3. The fan shall be supplied by electric box. After the power switch is put on, the fan shall run after pressing the green "on" button.
4. Adjust rotary knob or button to adjust the air volume.
5. When turning off the fan, please press the red "off" button, and then turn on the power switch after the fan slowly stops.

Product Advantage

1. Permanent magnet synchronous external rotor motor
Features: high efficiency and energy saving (Level I energy efficiency which reaches 84.5%), small volume and light weight ;
(patent) labyrinth type dust-proof structure to prevent dust from entering motor core part ;
(patent) motor core heat dissipation system, low temperature rise, long service life.



2、Blade

Features: aviation polymer composite material (helicopter wing material) with high strength, light weight, impact resistance, anti-aging with long service life, large air volume, high pressure, uniform air volume, high efficiency and energy saving. Patent designed wingtip guide plate to reduce vortex and effectively reduce.



3、Product performance

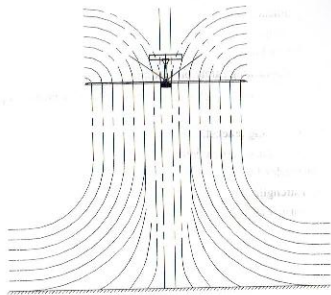
Omnidirectional natural wind covers super large area.

Soft, comfortable and cool wind makes people feel temperature drop scale from 4°C ~ to 8°C .

Using together with central air-conditioner, effect of this fan will be much better.

High efficiency and energy saving are achieved.

Omnidirectional natural wind



4、Customized special frequency converter

Developed in cooperation with professional manufacturer of frequency converter, with over-current protection, over-voltage / under-voltage protection, overload protection, and effective matching with fans. Start, accelerate, decelerate, stop softly without impact, it can effectively reduce vibration and noise.



5、12 major safety protection designs.

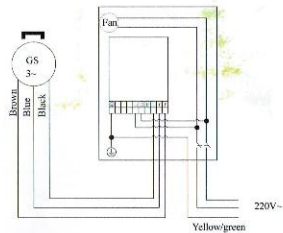
Features:

1. Steel beam locking safety structure protection.
2. Hanger safety steel cable protection.
3. Motor shaft safety bracket protection.
4. Anti-drop safety structure protection in the motor end cover
5. Step lock safety design inside the motor.
6. Permanent magnet self-locking safety protection.
7. The blade is made of non-metal polymer composite material, which is impact resistant and not easy to break.
8. Reinforced blade mounting bracket.
9. Blade safety link mechanism protection.
10. Control system overload protection.
11. Grade 12.9 high strength fasteners.
12. Anti-loosening washer and thread anti-loosening glue achieve at double protection.



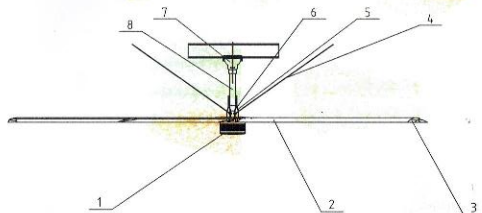
6. Multiple patents, with CE and CB certification.

Wiring Drawing



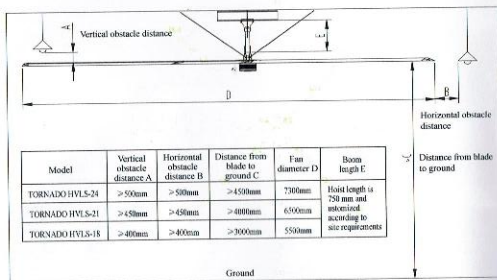
Specification

Model	Parameter	Item	Speed rpm	Air volume m ³ /min	Noise dB(A)	Power W	Wind coverage area m ²	Best Use Area m ² Wind speed ≥ 1m/s
TORNADO HVLS-18			80	12000	39	850	800	450
TORNADO HVLS-21			70	16000	39	1150	1000	620
TORNADO HVLS-24			60	18000	39	1250	1250	800



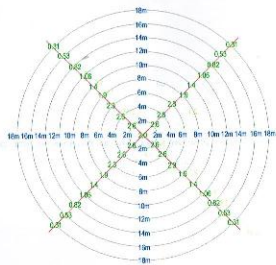
1. Motor 2. Blade 3. Wingtip 4. Wire rope 5. Anti-falling bracket
6. Motor mounting parts 7. Mounting bracket 8. Connecting square tube

Product Dimensions

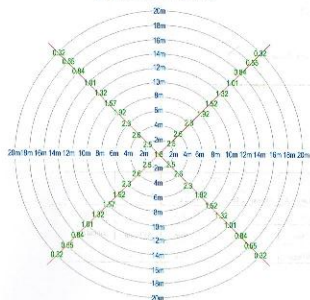


Coverage Area

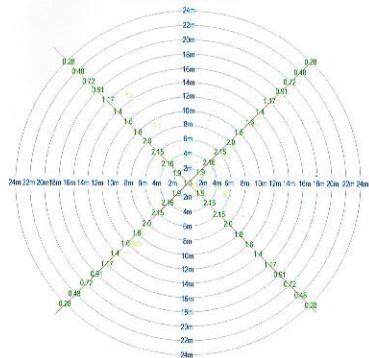
TORNADO HVLS-18



TORNADO HVLS-21



TORNADO HVLS-24





INDUSTRIAL CEILING FAN

Installation Instructions

Before operating this series unit, please read this manual carefully.

1. Determined installation scheme.

1) Wear labor safety protection equipment (safety helmet, safety belt for high-altitude operation and professional insulating shoes). The installation personnel must have the qualification of high-altitude operation and electrician certificate.



2) Estimate that the structure has sufficient bearing strength and can be installed safely and firmly. Measure the installation height and evaluate the safety distance (more than 500mm) between the blades and building and lamps after the installation.



3) Determine the installation position of the control box, evaluate the safety of the high-altitude wiring passing through, and measure the total wiring length.

4) Isolate the installation area.



2. Ground auxiliary work

1) Open the box and check the quantity and integrity of all the parts according to the packing list.



2) Prepare the tools required for aerial work, and confirm that the equipment is in normal condition.



3) Use threading tools to thread the power cord into the plastic coated metal hose.



4) Loosen the 10 bolts and remove the blade flange.



Type	Dimensions	Qty
Hex Bolt	M8×30	5
Hex Bolt	M8×50	5
Flat Washer	Φ8	10
Spring washer	Φ8	10

5) Install the motor mounting parts, anti-falling bracket and blade flange (the bolts of the blade flange need not be fully tightened, and reserve the installation clearance).



Type	Dimensions	Qty
Hex Bolt	M10×80	2
Hex Bolt	M12×120	1
Hexagon Lock Nut	M10	2
Hexagon Lock Nut	M12	1
Flat Washer	Φ10	4
Flat Washer	Φ12	2
Spring washer	Φ10	2
Spring washer	Φ12	1

3. Installation of lifting bracket group

1) Installation of mounting bracket

1.1) Steel Beam Structure



Type	Dimensions	Qty
Hex Bolt	M14×65	4
Hexagon Lock Nut	M14	4
Flat Washer	Φ14	8
Spring washer	Φ14	4

1.2) Cement Beam Structure



Type	Dimensions	Qty
Hex Bolt	M14×65	4
Hexagon Lock Nut	M14	4
Flat Washer	Φ14	8
Spring washer	Φ14	4
Expansion bolt	M12×100	10

2) Installation of universal suspender.



Type	Dimensions	Qty
Hex Bolt	M12×150	2
Hexagon Lock Nut	M12	2
Flat Washer	Φ12	4
Spring washer	Φ12	2

3) Installation of connecting square tube.



Type	Dimensions	Qty
Hex Bolt	M12×110	2
Hex Bolt	M6×16	2
Hexagon Lock Nut	M12	2
Flat Washer	Φ12	4
Flat Washer	Φ6	2
Spring washer	Φ12	2
Spring washer	Φ6	2



4. Installation of motor

1) Place the motor with installed components on the lifting operation platform, and use the platform to lift the motor to the lower part of the connecting square tube, or use other safe methods to align the installation holes of the motor mounting parts and anti-falling bracket with that of the connecting square tubes, and fix them through the bolts and lock nuts.



Type	Dimensions	Qty
Hex Bolt	M12×120	2
Hexagon Lock Nut	M12	2
Flat Washer	Φ12	4
Spring washer	Φ12	2

2) Adjust the verticality connection of square tube and meet the horizontality of motor, and tighten all bolts and lock nuts.



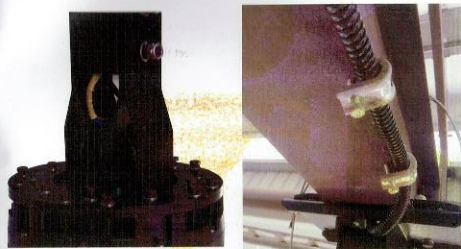
3) According to the installation structure, cut a suitable length of protective wire rope on the ground, pass the protective wire rope through the connecting square tube, and circle it with moderate tension, and lock the two ends of the wire rope with wire rope rolling head.



Type	Dimensions	Qty
Wire rope rolling head	M5	2

5. Wiring and installation of control box

1) Starting from the installation bracket, fix the power cord by C-type clip, reserve enough length for the exposed power cord, pass through the universal suspender and connecting square tube, and connect the motor outlet line with closed-circuit terminal.



2) Fix the power cord at the firm place. Two C-type clips shall be used at the beginning, and one C-type clip shall be used for the others. The C-type clip shall not be pried by hand without tools, and the interval between them shall not be longer than 1.5 m.



3) The control box shall be installed at the position convenient for operation and firmly installed, and must meet the requirements of safe electricity use.



4) All power cords are connected according to the corresponding electronic wire color. All wiring requirements are safe and firm.

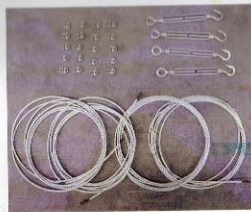


6.No-load operation of the motor

- 1) After checking that all the connections are correct, switch on the control box and check the parameter settings of the frequency converter.
- 2) Switch on the motor, check if it is running normally and no abnormal noise.
- 3) After passing the no-load operation testing, turn off the power and hang the "No switching on" sign at the obvious position of the control box.

7. Installation of protective wire rope

1) According to the installation structure, measure the length of the cable-stayed protective wire rope, and cut four pieces cable-stayed protective wire ropes. One end of the protective wire rope is tied into a safety lock with wire rope rolling head, and the other end is reserved for the pull codes.



Type	Dimensions	Qty
Wire rope rolling head	M5	16
Wire rope tightener	M10	4

2) Fix the 4 protective rope end with safety lock on the 4 supporting points, and the other end is hooked on the mounting hole of the motor through wire rope tightener.



3) Keep the motor horizontal by adjusting wire rope tightener.



8. Installation of blade and blade holders

1) Put blades on the lifting operation platform, raise the blades to the blade installation position and insert the blade mounting bracket into the blade installation position on the motor upper cover. Fixed with bolts, then the left four blades are installed accordingly.



Type	Dimensions	Qty
Hex Bolt	M8×45	10
Hex Bolt	M8×50	5
Flat Washer	Φ8	15
Spring washer	Φ8	15

2) After installing the blades, tighten all bolts on the motor.

3) Install five blade holders on the reserved installation holes of the blade, and fix with bolts and lock-nuts.



Type	Dimensions	Qty
Hex Bolts	M8×50	5
Large side flat washer	Φ8	5
Spring washer	Φ8	5
Hexagon Lock Nut	M8	5

9. Installation completed checking

1) Check the square tube verticality and the motor horizontal.



2) Lower the lifting operation platform, manually rotate the blade to confirm that the rotation is smooth and no mechanical collision.

3) Check all fasteners to confirm that the components are firmly installed. All bolts and lock-nuts are marked, and the bolts and lock-nuts at key positions are photographed and archived.

10. Trial operation

1) Switch on the control box, run the industrial ceiling fan, adjust to the highest speed, check the output current of the frequency converter, confirm that the motor is not overloaded and the industrial ceiling fan is operating normally.

2) Switch on and power off for three times to confirm if the installed industrial ceiling fan is working normally.