



Leading R&D capability



Superior Quality



Advanced manufacturing capability



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SHANIT GLOBAL

PMSM INDUSTRIAL HVLS FANS



SHANIT GLOBAL

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Committed To Building A World-class Intelligent Electromechanical Brand



Lower Noise
Higher Security
Higher Stability
Higher Cost-effectiveness

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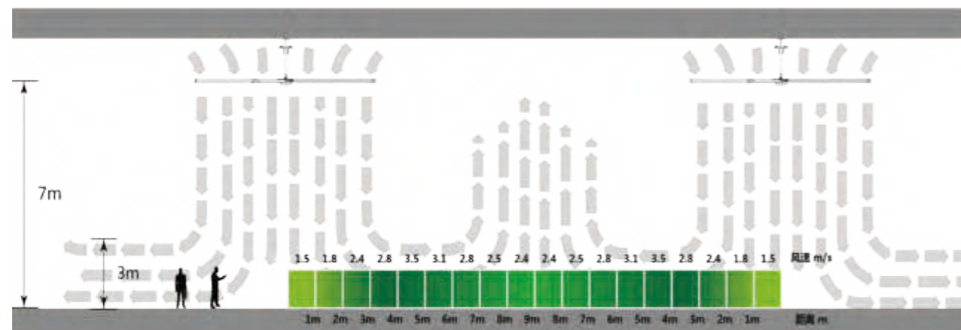
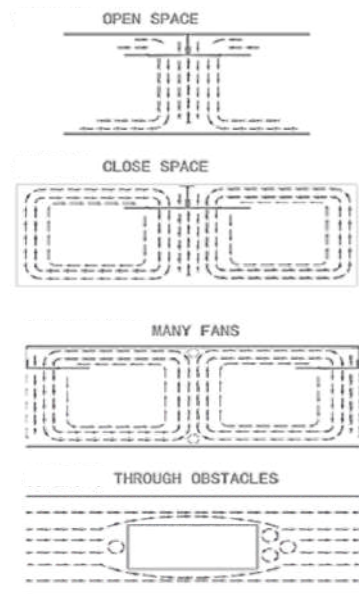
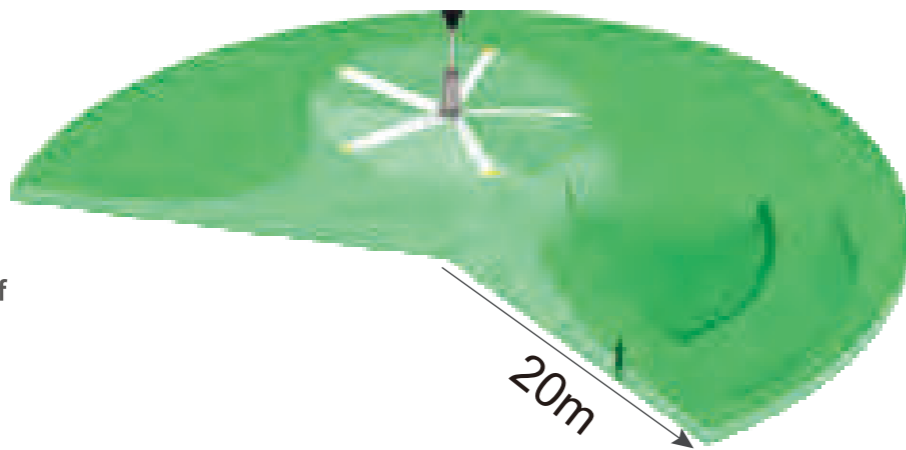
Structure

Industrial HVLS Ceiling Fan Characteristics

Ventilation Theory

- Three-Dimensional Natural Breeze
- Large Circulation Natural Ventilation
- Optimal Air Setting Position
- Dehumidification and Moisture-Proof
- Cool down 8 °C

Ventilation Air Flow Direction



Product Function

Personnel Cooling

The Industrial fan produces a natural breeze to blow the surface of the body, evaporate sweat, and take away the heat to cool down. The cooling feeling can reach 4-7°C.

Natural Ventilation

The ventilation solutions such as small fans, air conditioners, and exhaust fans are subject to many restrictions in tall and wide enclosed space, while large Industrial HVLS fans can effectively enhance the orderly movement of the airflow field, promote air mixing, improve air quality and at the same time can match with air conditioners and exhaust fan together to get better ventilation and cooling effect.

Dehumidification & Moisture-Proof

Industrial fans promote air mixing in the entire space, so that the gas inside can be well dissipated, thereby improving the air quality of the entire room and obtaining a healthy, dry and safe working environment.



Energy-Saving & Environmental Protection

Compared with central air conditioners, water air conditioners, small fans and cooling equipment, permanent magnet direct drive industrial fans have lower energy consumption, longer life, lower maintenance costs, no pollutants generated during operation, and very good energy saving and environmental protection effect.

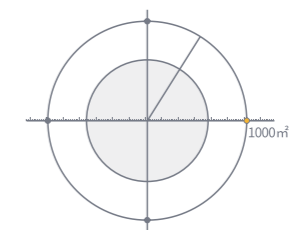
Advantages



High Safety Factor

Multiple safety protection measure to ensure safe installation and use independent invention patent: the casing and shaft is suspended with separate hanging structure, double anti-loosening, independent suspension inside and outside, floor anti-loose pad + rubber pad, double anti-loosening.

In the event of a sudden power failure, the fan blades do free inertial motion, stop slowly, and will not suddenly lock up, avoiding the risk of fan blades falling off and breaking.



Wide Covering Area

Giant diameter (7.3 meters) and low speed can promote the orderly flow of air in a wide range, and the effective coverage area is 800-1500 m².




Maintenance Free

Permanent magnet direct-drive inner rotor motor is lifetime maintenance free, which can save maintenance costs.

Industrial HVLS Ceiling Fan(Inner Rotor PMSM)

Parameters				
Model	Unit	WF5IPM73	WF5IPM61	WF5IPM55
Diameter	MM	7300	6100	5500
Blades	PCS	6	5	5
Weight	KG	126	108	103
Voltage	V	380	380	380
Current	A	3.4	2.0	2.0
Power	KW	1.5	0.88	0.88
Max. Speed	RPM	55	58	63
Max. Air Volume	m ³ /min	14950	12050	10550
Coverage	m ²	1500	1200	1000



Introduction

1. High-end models in the market, independently developed and manufactured
2. High protection (Ip66)
3. High heat dissipation
4. High stability

Products are widely used in industrial factories, warehousing and logistics parks, convention and exhibition centers, livestock farms, agricultural greenhouses, indoor stadiums, stations, etc.

14950

Max. air volume (m³/min)

55

Max. speed (RPM)

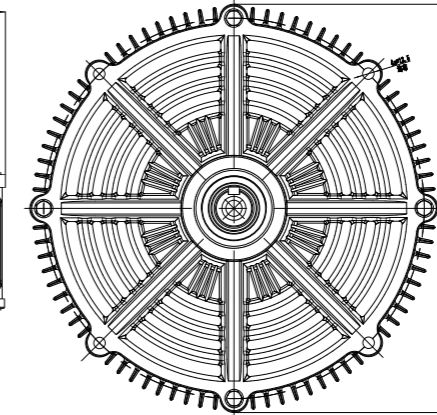
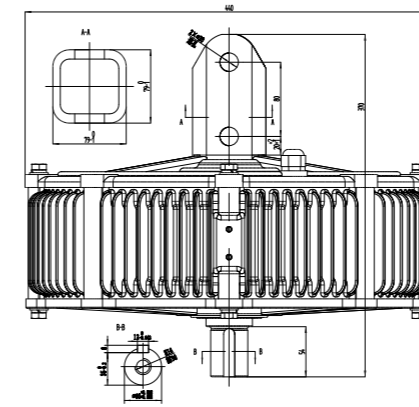
1.5

Rate power (KW)

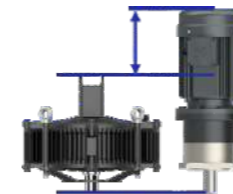
20%+

Annual electricity savings

Inner Rotor PMSM(Permanent Magnet Synchronous Motor)



Parameters	
Voltage (VAC)	380
Current (A)	3.4
Noise (dB)	≤40
Speed (r/min)	10~55r/min
Speed (r/min)	55
Protection Level	Ip66
Insulation Grade	F



1 Compact Size

Simple structure without gearbox, which is 40% lighter than geared motor of the same specification, easy for installation.



2 High Energy Efficiency

The motor has high operating efficiency, can output rated torque at 5Hz low frequency, and saves 20% more power than asynchronous motors of the same specifications at the same air volume.



3 High Torque

Using high magnetic performance permanent magnet materials and a special built-in tangential rotor magnetic circuit structure, the magnetic energy utilization rate is higher, the anti-demagnetization effect is stronger, and the motor torque is increased by 20%.

4 Protection

Adopt the full sealing design, the protection grade reaches Ip66, rubber seal bearing, good oil seal, suitable for all kinds of high temperature, high humidity environment.



5 Heat Dissipation


The inner rotor structure with an external heat source directly dissipates heat to the surrounding air through the casing, and the airflow directly acts on the surface of the heat-dissipating motor, taking away the heat in time, so that the temperature rise of the motor is very low. Compared with products of the same specification on the market, the temperature rise Reduce 10-15K, greatly improving motor service life and product stability.

6 Maintenance Free

With Inner rotor structure, the motor vibrations smaller, the noise is less than 40db at a distance of 1meter, and the protection level reaches Ip66, maintenance-free for whole life.

Industrial HVLS Ceiling Fan(Outer Rotor PMSM)

Parameters		
Model	Unit	WF50PM73
Diameter	MM	7300
Blades	PCS	5
Weight	KG	100
Voltage	V	380
Current	A	2.6
Power	KW	1.2
Max. Speed	RPM	55
Max. Air Volume	m ³ /min	14950
Coverage	m ²	1500



Introduction

1. High energy saving: The weight and thickness of the motor are further reduced, making the ceiling fan host thinner and lighter.
2. High cost performance: While ensuring high energy efficiency and high reliability, it has a higher cost performance.
3. Large torque: Compared with the inner rotor motor, the outer rotor direct drive force arm is longer and the torque is greater.

The unique outer rotor torque design combines cutting-edge technologies in mechanical design, electromagnetic design, thermal design and other comprehensive disciplines to design the motor into a structure with high efficiency, small size, light weight, low noise and high reliability; Shanit Global masters the core technology (Permanent magnet brushless motor and drive integration), providing customers with high-stability products.

14950

Max. air volume (m³/min)

55

Max. speed (RPM)

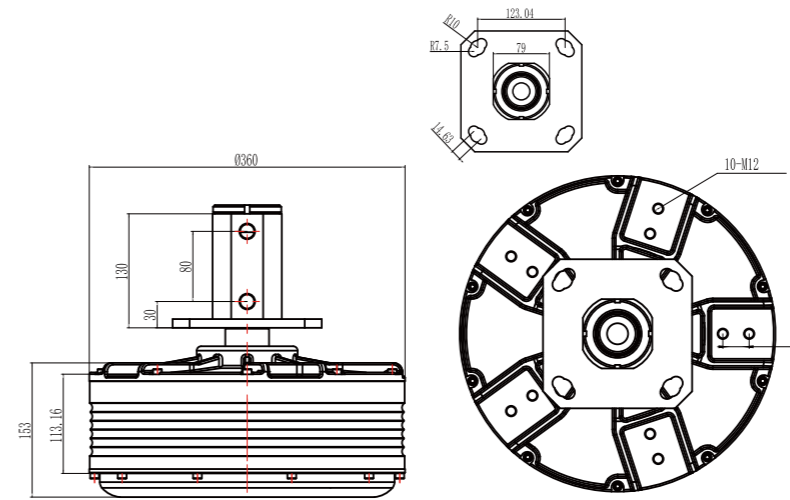
1.2

Rate power (KW)

20%+

Annual electricity savings

Outer Rotor PMSM(Permanent Magnet Synchronous Motor)



Parameters	
Voltage (VAC)	380
Current (A)	1.2
Noise (dB)	2.6A
Speed (r/min)	≤40
Speed (r/min)	10-55
Protection Level	Ip44
Insulation Grade	F

1 Lighter

The overall structure is made into a flat structure, which is smaller in size and 60% lower than the height of traditional motors. The height of the outer rotor main unit is only 0.12M, making it easy to apply in various small spaces.

2 More Reliable

Independent wheel hub mounting method, safe and reliable. The high retentivity magnetic steel and card slot fixing design prevent the magnets from demagnetizing or falling off; the fan blade connection end is supported by double bearings, which ensures smoother operation, low vibration, and long life.

3 More energy efficient

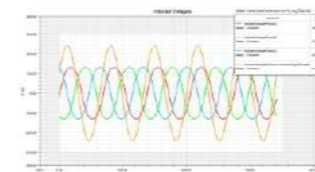
Super performance and efficiency, motor efficiency is as high as 84%. It reaches the national first-level energy efficiency standard and saves more than 20% of electricity compared with the asynchronous motor + reduction gearbox industrial ceiling fan of the same specification.

4 Low Noise

Noise levels are lower. Using the optimal number of slot poles and unequal air gaps, the sinusoidal air gap waveform and cogging torque are optimized to reduce the motor noise index to below 40dB.

5 Maintenance-Free

The permanent magnet direct drive motor has no reduction mechanism and does not need to change the lubricating oil regularly. In addition, the motor has low vibration and low temperature rise design, making the motor truly maintenance-free.

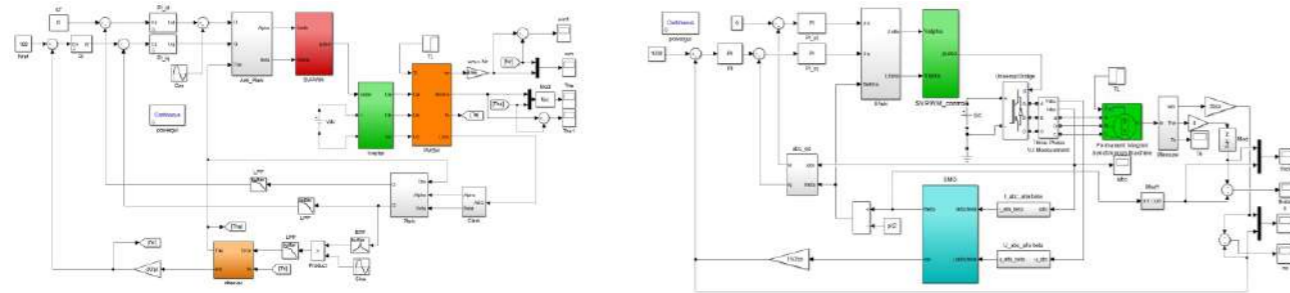


Since the heat source of the outer rotor structure is located on the inner layer of the main unit, it is more difficult to dissipate heat than the inner rotor. It is necessary to design heat dissipation slots to conduct internal heat away to ensure low temperature rise and long service life. Compared with the inner rotor structure, its protective properties are slightly worse, suitable for various low-noise, relatively closed places such as factories, shopping malls, and reading halls.

Control System

Control system - intelligent inverter

The drive motor and drive controller are designed in an integrated manner, with better parameter matching, lower motor electromagnetic noise and better operation stability.



A dust-proof net and a groove at the bottom of the box are added to the control cabinet to ensure that water, oil and other liquid contaminants can be discharged from the grooves on their own. The surface of the control circuit board is coated with conformal anti-paint and a layer of acrylic board is added to enhance the antiinterference and corrosion resistance of circuit boards.

Guide rail troughs are installed in the cabinet, and the electrical circuit layout is clear, neat and stable, which can prevent instability caused by external factors and ensure the efficiency and stability of the control cabinet.

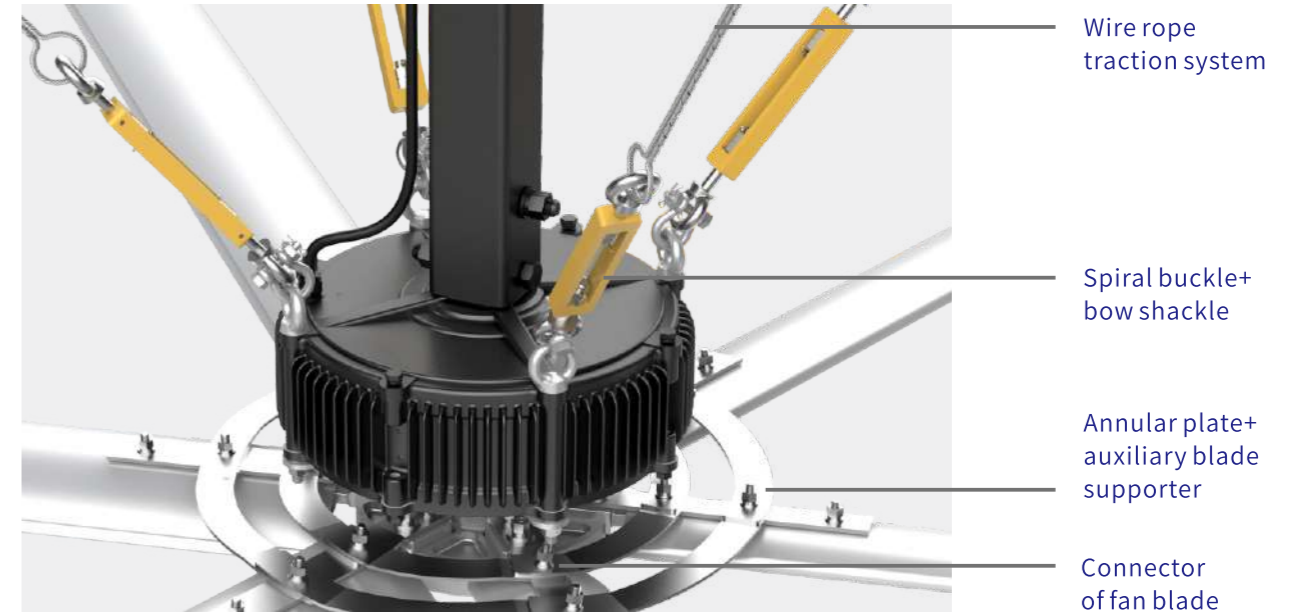
Advantages

1. Built-in overload & overcurrent protection, which can automatically cut off the power supply when an accident occurs, thereby ensuring the safety of industrial fans in large factories. Simple and user-friendly control panel settings, convenient and clear to use.
2. Open-phase protection: Built-in open-phase protection prevents the inverter from shutting down immediately when a certain coil is not energized to prevent the motor from burning out.
3. Noise control: debug the driver output power waveform to the best, reduce peak waveforms, match the best carrier parameters, and debug electromagnetic noise to the best state.
4. Multiple expansion functions (touch screen, time controller, modular control).



Safety Guarantee

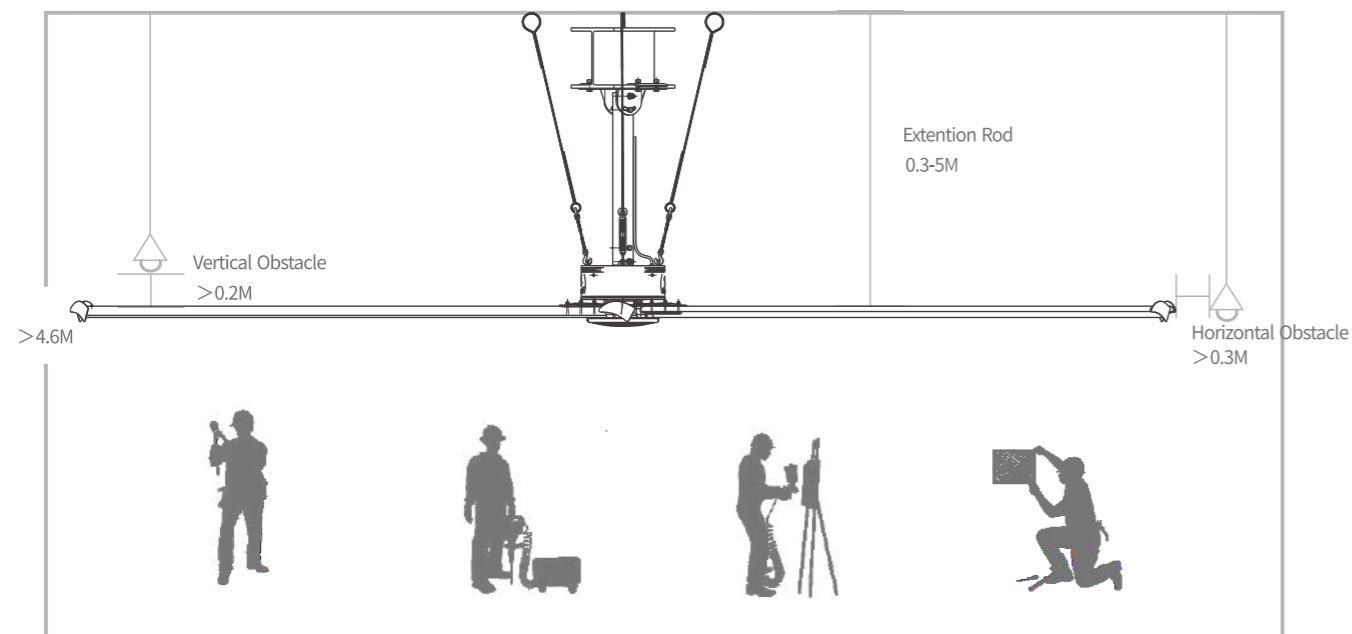
1.Design of six major safety components



Safety protection measures	Description
Wire rope traction system	Ensure the balance of the main body and ensure the main body will not fall under external forces The stress intensity of each steel wire cable: reach 1000KG.
Spiral buckle + bow shackle	Avoid the risk of loose wire rope decoupling in traditional hook structures Providing more safety assurance.
Annular plate + auxiliary blade supporter	Ensure that the fan blade will not fall and fly out if the Main supporter of the fan blade breaks under external force.
Connector	The main safety components of the fan to ensure the safety of the fan's long-term operation. Material: Aluminium 6061-T6 Processing: Forged and CNC precision machining
Fasteners	Grade of fasteners: 12.9 All fasteners will be tightened after installation to ensure that they will not loosen permanently.
Controlling system	Automatically alarm and slowly stop operation for protection in the event of an accident or overload of the wind mill.

2.Safety Installation

- 01** Customized Installation Plan
- 03** Experienced In Level, Height, Balance
- 02** Scientific&Concise Installation Process
- 04** Fasteners Have Torque Standards For Optimal Tightening



Installation Conditions

- Fan blade distance from the ground>3m
- Fan blade dstance from obstacles like crane>0.3m
- Blade end distance from obstacles like column, light>0.3m
- Any complex structure such as steel structure, concrete structure, spherical grid structure can be installed
- Special installation places are installed after modification according to the site

3.Security Debugging

The control cabinet safety alarm device has built-in overload and phase loss protection, which can send out alarm signals in time to ensure safe operation.

Blade safety connection piece, shaft connection protection plate.

Fasteners have torque standards for optimal fastening and anti-loosening structure.

On-site commissioning and testing to ensure the customer's installation effect.



4.Security

Strictly abide by the quality management system standards and complete the test report.

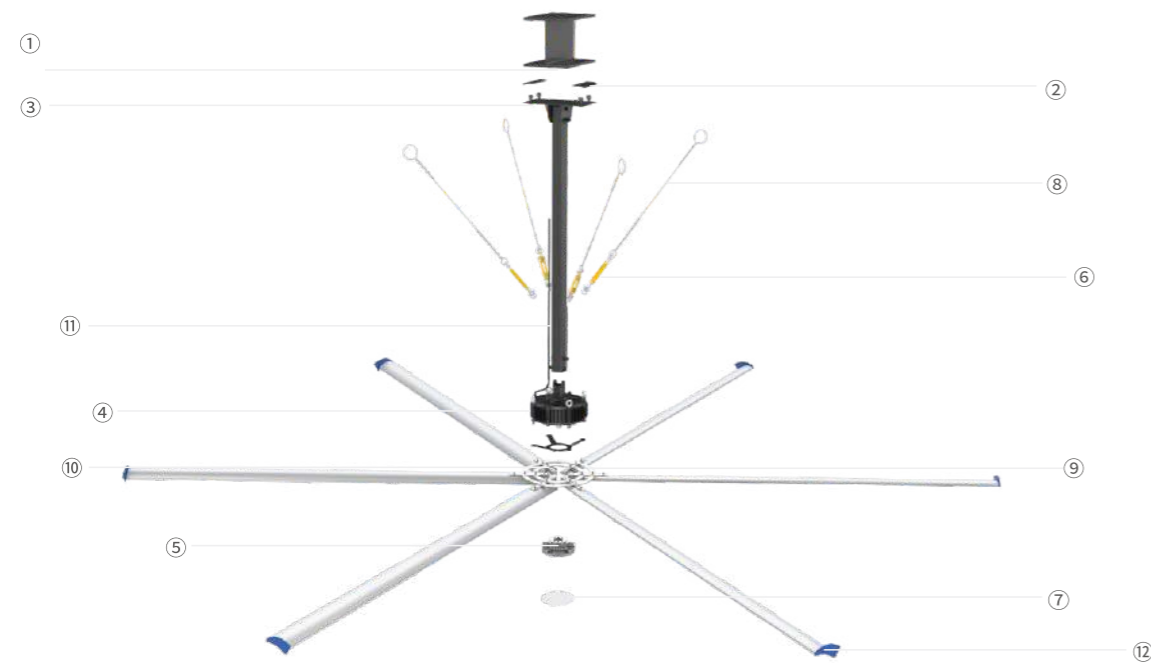
100% full inspection of specifications, parameters and noise of the delivered product, and the quality standards are consistent with international standards.

2 years warranty for whole unit.

Any problems, the after-sales department will respond within 24 hours.

OEM and ODM serviced are warmly welcome.

Installation of PMSM Industrial HVLS Ceiling Fan(Inner Rotor)

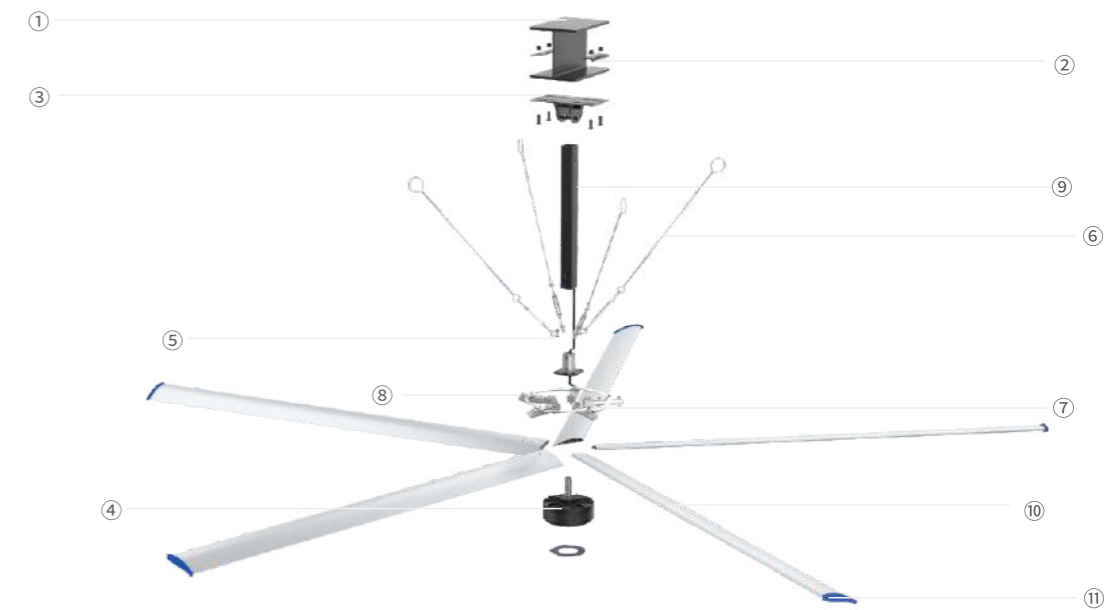


- | | | | |
|-----------------------|-------------------------------|------------------------|------------------|
| ① I beam | ④ PMSM | ⑦ Bottom case | ⑩ Connector |
| ② Beam pressing plate | ⑤ Mounting plate of Fan blade | ⑧ Stainless steel wire | ⑪ Supporter |
| ③ Mounting plate | ⑥ Turnbuckle | ⑨ Round plate | ⑫ Fan blade tail |

Installation steps:

1. Use M18 bolts to securely connect the I beam (1) to the Beam pressing plate (2) and the Mounting plate(3). Then fix the upper end of the Supporter (11) to the Mounting plate (3) through bolts.
2. Use M18 bolts to securely connect the top end of PMSM (4) to the lower end of Supporter (11).
3. Use a level tester to adjust the PMSM (4) so that the PMSM (4) and the I beam (1) remain level.
4. Connect the 4 Turnbuckles (6) to the top of the PMSM (4), then use 4 wire ropes to pull the 4 Turnbuckles (6) at one end, and fix the other end to the surrounding I beams (1)
5. Install the 5 blade connector (10) in the 5 slots of the mounting plates of fan blade (5) and fix them with M12 bolts;
6. Insert the 5 connector of fan blades (10) into the 5 Fan blade tail(12), fix them with M10 bolts, and then use Round plates (9) to connect and fix the 5 Fan blade tails (12) to complete the fan blade installation.
7. Fix the Bottom case(7) to the bottom of the Mounting plate of fan blades(5) with M4 screws:
8. All fixing bolts must be coated with bolt locking glue before tightening.

Installation of PMSM Industrial HVLS Ceiling Fan(Outer Rotor)



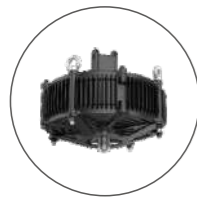
- | | | | |
|-----------------------|------------------------|---------------------------|-------------------|
| ① I beam | ④ PMSM | ⑦ Round plate | ⑩ Fan blade |
| ② Beam pressing plate | ⑤ Turnbuckle | ⑧ Connector of fan blades | ⑪ Fan blade tails |
| ③ Mounting plate | ⑥ Stainless steel wire | ⑨ Supporter | |

Installation steps:

1. Use M18 bolts to securely connect the I beam(1) to the Beam pressing plate(2) and Mounting plate(3). Then fix the upper end of the Supporter(9) to the Mounting plate(3) through bolts.
2. Use M18 bolts to securely connect the top stator sleeve of PMSM(4) to the lower end of Supporter(9).
3. Use a level tester to adjust PMSM (4) so that PMSM (4) and I beam (1) remain level.
4. Connect the 4 Turnbuckles (5) to the four lifting holes on the top suspension plate of the PMSM (4), then use 4 wire ropes (6) to pull the 4 Turnbuckles (5) at one end and fix the other end to the surrounding I beam (1)
5. Insert the 5 connector of fan blades (8) into the 5 fan blades (10), install the Auxiliary support plate and pre-tighten it with M10 bolts and lock nuts, and install the Fan blade trails (11) at the end of the blades. And fix it with M5 bolts and nuts. Complete fan blade installation
6. Install the assembled blade assembly into the 5 slots on the upper end cover of PMSM (4), and secure it with M12 loosening nuts and the reserved bolts in the slots;
7. Unscrew the nuts of the middle bolts connecting the connector of fan blades (8) and Fan blades (10), use the Round plate (7) to connect and fix the five connector of fan blades (8), and tighten the pre-fixed screws in step 5. Tight link bolts;
8. All fixing bolts must be coated with bolt locking glue before tightening.

Optional Accessories

In addition to supplying complete machines we also provide you with a wide range of industrial HVLS fan parts, including motor, blade, controller, etc. At the same time, you can also customize the fan according to your needs and purchase parts separately to upgrade your fan.



PMSM Motor
(Inner Rotor)



PMSM Motor
(Outer Rotor)



Mounting plate



Turn Buckle +
Bow Shackle



Beam pressing plate

The outer surface of the parts is galvanized, and the anti-corrosion and anti-rust capabilities are far greater than the spray painting process of ordinary manufacturers.



Main connector of fan blade

Made of aviation aluminum (6061), forging process.



Fan blade with tails

The blades are made of aviation aluminum alloy (6063-T6), with internal rib design and unique aerodynamic blade airfoil design.



Inner rotor
Mounting plate of Fan blade

Made of aviation aluminum alloy(6061-T6), integrated hot forging technology, and CNC precision machining process after one-piece molding, the precision tolerance is controlled at $\pm 0.05\text{mm}$.



Taper sleeve

Manufactured with CNC precision machining technology to increase the combined area with the chassis taper surface.



Inner Rotor
Connection board



Inner Rotor
Inner Pressing plate



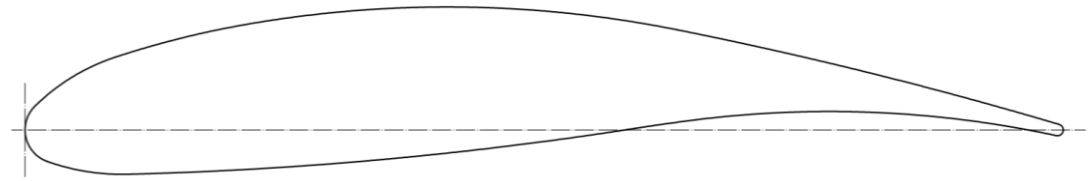
Inner rotor protective plate



Round plate

Structure

The blade structure is independently developed, making it more scientific and efficient.(Joined with the R&D team of senior doctoral supervisors from 985 colleges and universities, we independently developed and designed the blade cross-section shape and installation angle, making the fan more energy-saving and efficient when working, with a larger air volume)



The key structural parts are designed with unlimited lifespan to ensure that the product can be used for a long time without failure.

After analysis and calculation, under 1.5 times the load, key structural parts such as the connector of fan blades (material 6061-T6, maximum stress 53.11MPa), fan blades (material 6063-T6, maximum stress 38.96MPa) have reached infinite life.

(Note: According to the material life-frequency curve, any frequency segment of the stress calculated through analysis is below the curve, that is, under this stress condition, it can work with unlimited frequency and the product life is unlimited)

