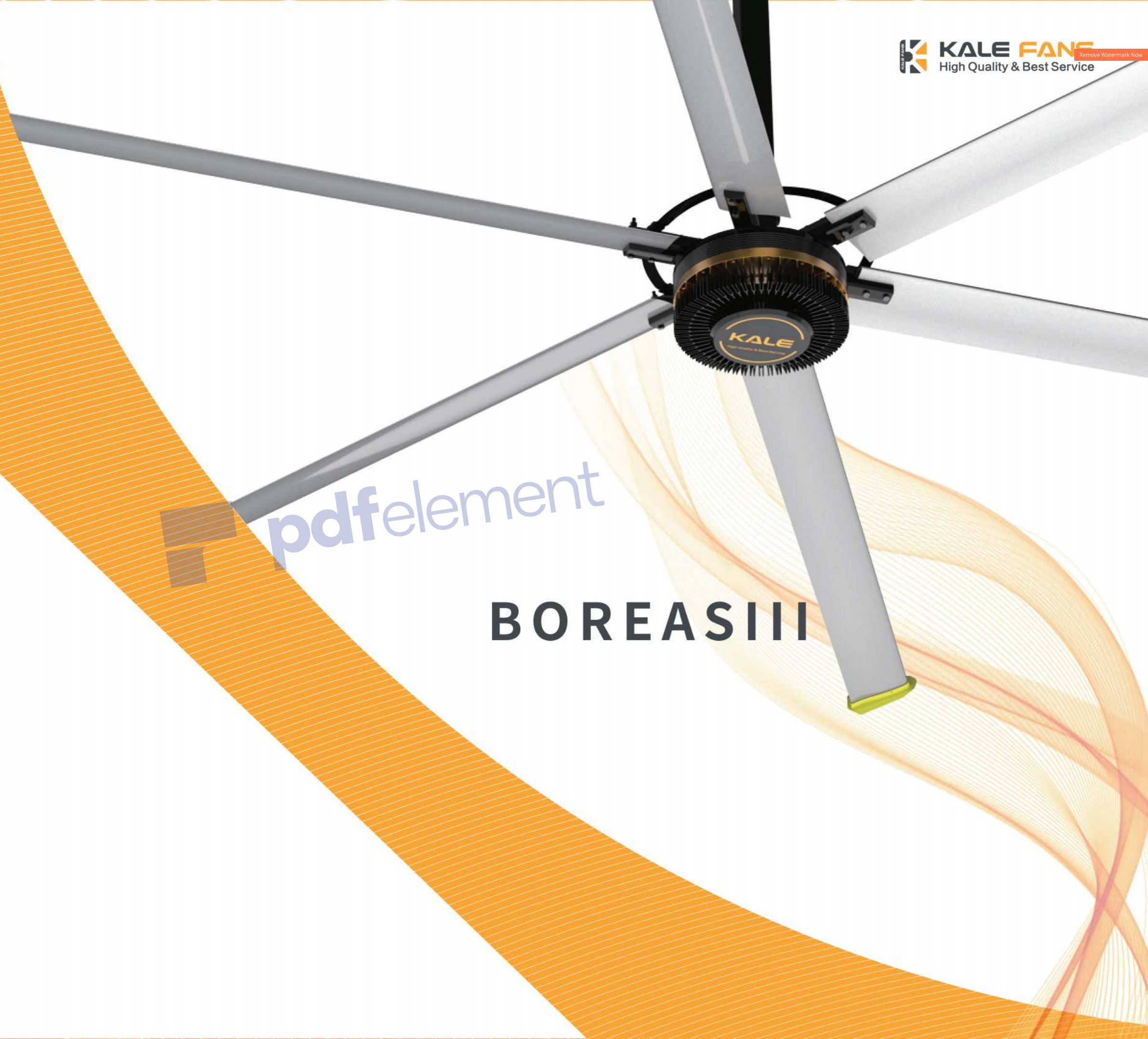


**Metal Editions (Pvt) Ltd.**  
Automated Entrance Solutions - Complete Docking System



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**KALE FANS**  
High Quality & Best Service



KL-DZ-CYGB-00497

Kale Fans continues to developing and innovating to meet the higher demands of users.  
For more details, please visit the company website or call us.



Local Office or Authorized Dealer:

Kale Environmental Technology (Shanghai) Corporation.  
Website : [www.kalefans.net](http://www.kalefans.net)  
Tel : +86 180 1624 5385

**BOREASIII**





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All the time

There exists a piece of brilliant mind

Expecting to develop such a mega fan

It can provide users with pleasant experience in cooling down from the sweat directly and violently.

You could feel absolutely comfortable and peaceful with such a fan when you focus on your work.

In addition, it can always run quietly and it is maintenance-free.

You would be fascinated by its appearance every time you take a quick glance.

This piece of mind, finally comes into reality with the introduction of BOREAS III.

Now

Let's enjoy it

### Application for BOREAS III

Workshop / Logistics Warehouses / Gym / Stadium / Exercise Room

Exhibition Center / Car Show Room / Product Distribution Market / Shopping Malls

Business Office Lobby / Villa / Cafeteria / Museum / Large Outdoor Business Event

Theme Park / Large Garden / Metro Station / Bus Station / Terminal Building





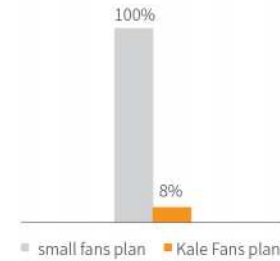
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## Advantages of HVLS

### ◆ Energy saving effect compared with small fan

The area covered by a 7.3m diameter BOREAS III is approximately equal to the coverage area of 50 units of small 0.75m fans. For example, in a 9000-square-meter factory, it is hoped to achieve full coverage. A small fan needs about 300 units, while a BOREAS III industrial energy-saving fan only needs 6 units. According to the use of 4 years, 8 months per year, 10 hours per day, about 10,000 hours of total operation, BOREAS III consumes 90000kW·h, small fan 1080000kW·h, energy saving 990000 kW·h, energy saving 92%!

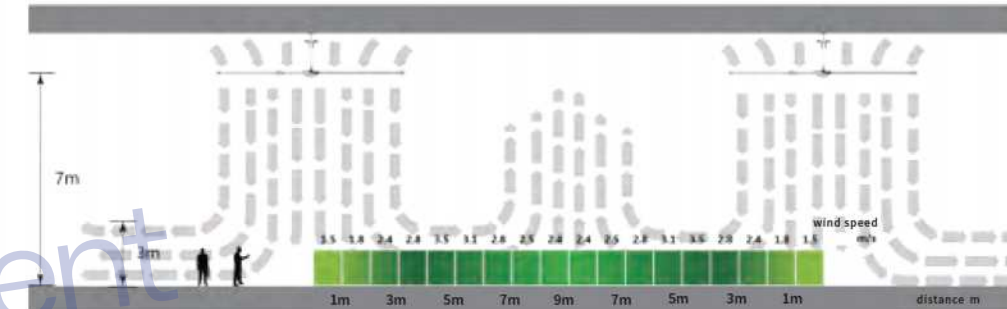
Diameter (m)	Coverage area (m <sup>2</sup> )	Air volume (m <sup>3</sup> /min)	Fans (unit)	Power (kW)	Operation hrs (h)	Consumption (kW.h)	Total cost (USD)	Save (USD)	Service life (Year)
7.3	1500	13100	6	1.5	10000	90000	18000	198,000	10
0.75	30	300	300	0.36	10000	1080000	216,000		2



Application comparison	Free maintenance	Comfort level	Easy to operate	Easy to manage
Kale fan	✓	✓	✓	✓
Small powerful fan	×	×	×	×

### ◆ Three-dimensional natural breeze

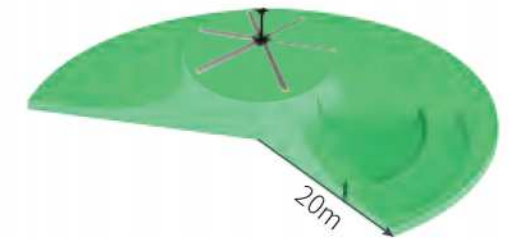
You will feel the three-dimensional air supply from all directions, covering the entire body part, maximizing the evaporation surface of the sweat, thus forming a breeze system that resembles nature. The traditional high-speed fan is very uncomfortable to blow the human body at high speed. Not only is the wind speed too high, but it also forces the body temperature to drop suddenly. This will bring many health problems, such as fan disease. The BOREAS III combines the application of various occasions. The wind speed can be adjusted from 1m/s to 5m/s to meet the needs of each occasion. You can get the best wind speed you want by simply turning the knob.



### ◆ Large coverage area

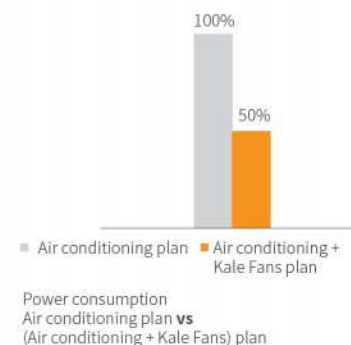
After experiencing the huge coverage area of industrial energy-saving fans, our customers all praised: "This fan has such a low speed and so small power. Why can it cover such a large area?"

Industrial energy-saving fans cover such a large area, depending on the EURUS III wing-shaped Kale Airfoil Blades design, which minimizes drag and converts the most efficient energy into air kinetic energy. In addition, the airflow structure of the fan is different from that of the ordinary small fan. The small fan can only cover the range of the fan diameter, and the industrial energy-saving fan first pushes the airflow vertically to the ground, and then forms a gas layer of 1-3 meters on the ground. Thus, an oversized coverage area is formed that is not limited to the underside of an industrial energy saving fan.



### ◆ It can save more than 50% when working with air conditioners

In the spring and autumn, the temperature is usually between 20-34 °C. For air-conditioned places, it will be very embarrassing to keep the air conditioner on or off in such a weather. After applying the energy-saving fan, you do not need to turn on the air conditioner. Come to the comfortable natural ventilation to cool down, the energy saving effect is very significant. When the air conditioning unit is turned on or cooled, the energy consumption of the air conditioning unit is very high. If an energy-saving fan is used, the result is completely different--the industrial energy-saving fan and the air conditioner can fully mix the indoor air evenly. It can reduce the startup time of the air conditioning unit or turn off some air conditioning units, which will greatly save power.



### ◆ Comparison of common ventilation cooling solutions

Programme classification	Coverage effect	Air circulation	Safety	Cool down	Cost	Comprehensive
Kale fan	★★★★★	★★★★★	★★★★★	★★★★☆	★☆☆☆☆	★★★★★
Small fan	★☆☆☆☆	★☆☆☆☆	★★★★☆	★★★★☆	★★★★☆	★☆☆☆☆
Station fan	★★★☆☆	★★★☆☆	★★★★☆	★★★☆☆	★★★☆☆	★★★☆☆
Water cooled air conditioner	★★★☆☆	★★★☆☆	★★★☆☆	★★★★★	★★★★★	★★★☆☆



# Advantages of PMSM (Permanent Magnet Synchronous Motor)

## ◆ More powerful

BOREAS III series is a new type of fan developed by Kale Fans based on PMSM (Permanent Magnet Synchronous Motor) technology. its maximum diameter is 7.3 meters. The product combines a series of advanced technologies such as aerodynamics, transmission dynamics, pulse width modulation control technology, mechanical mechanics, simulation technology, communication control, industrial design, etc., and is manufactured by advanced precision processing equipment at home and abroad. It can promote the circulation of space airflow under extremely high efficiency, achieve the purpose of cooling personnel, and greatly improve the environmental comfort.



## ◆ Motor maintenance free

Different from the common products using gear transmission technology in the market, it is necessary to replace the gearbox lubricating oil regularly (requires periodic lifting and disassembly work); BOREASIII series adopts PMSM motor, adopts electromagnetic induction principle, double bearing transmission, completely sealed, truly the motor is maintenance free.



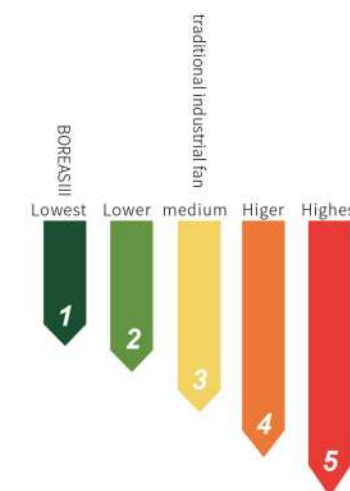
Gearmotor



PMSM

## ◆ More efficient

The permanent magnet motor parameters, especially the power factor, are not affected by the number of poles of the motor, so it is easy to design a multi-pole motor (for example, it can be more than 100 poles). This can be used directly to drive the load motor through the gearbox. Then the transmission efficiency can be greatly improved.



## ◆ More silent

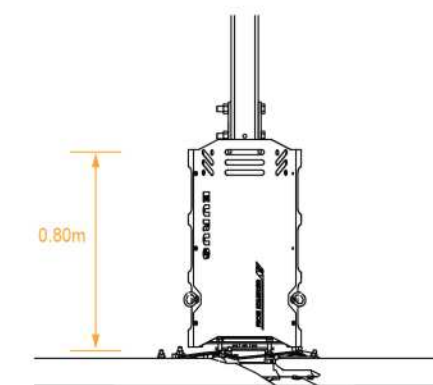
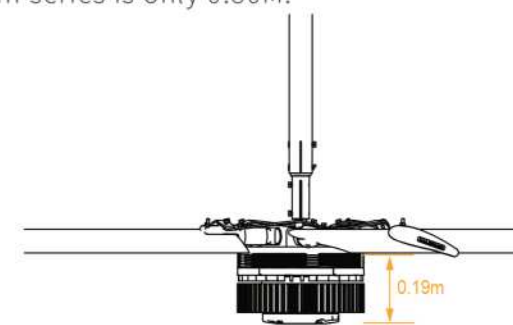
The noise level is lower. The noise of the common gearmotor in the market comes from the excitation noise of the motor housing and the friction of the gear of the reducer. The noise standard is usually more than 50dB. The application of the BOREASIII series of PMSM motors solves these problems in one fell swoop, reducing the noise figure of the BOREASIII series to 38.7dB for the first time.



noise 38.7dB

## ◆ More sophisticated

The BOREASIII series is more compact and requires less space for installation. The height of the BOREASIII series is only 0.19m. The common product installation space is more than 1.2M, and the BOREASIII series is only 0.80M.



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# Original technology

## ◆ Design safety

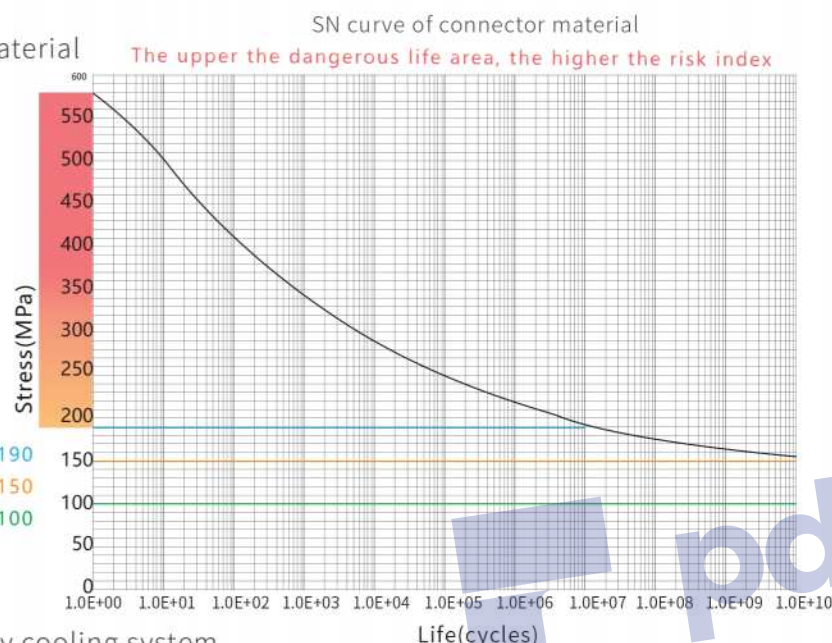
The safety factor of the variable load compon >5 (refer to the right figure);

Static load component design and material selection are based on infinite life;

Infinite life design of the connector



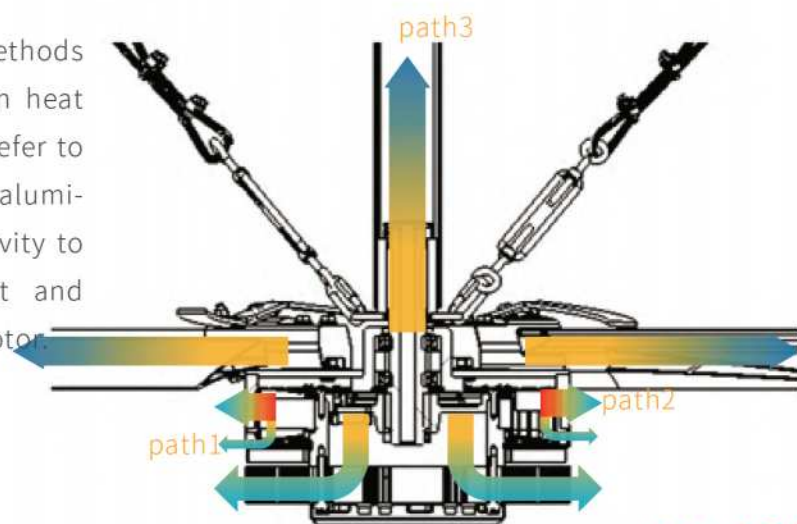
(Usable life design )190  
(Infinite life design)150  
(Kale connector real stress level)100



Lifetime - compact design of high efficiency cooling system

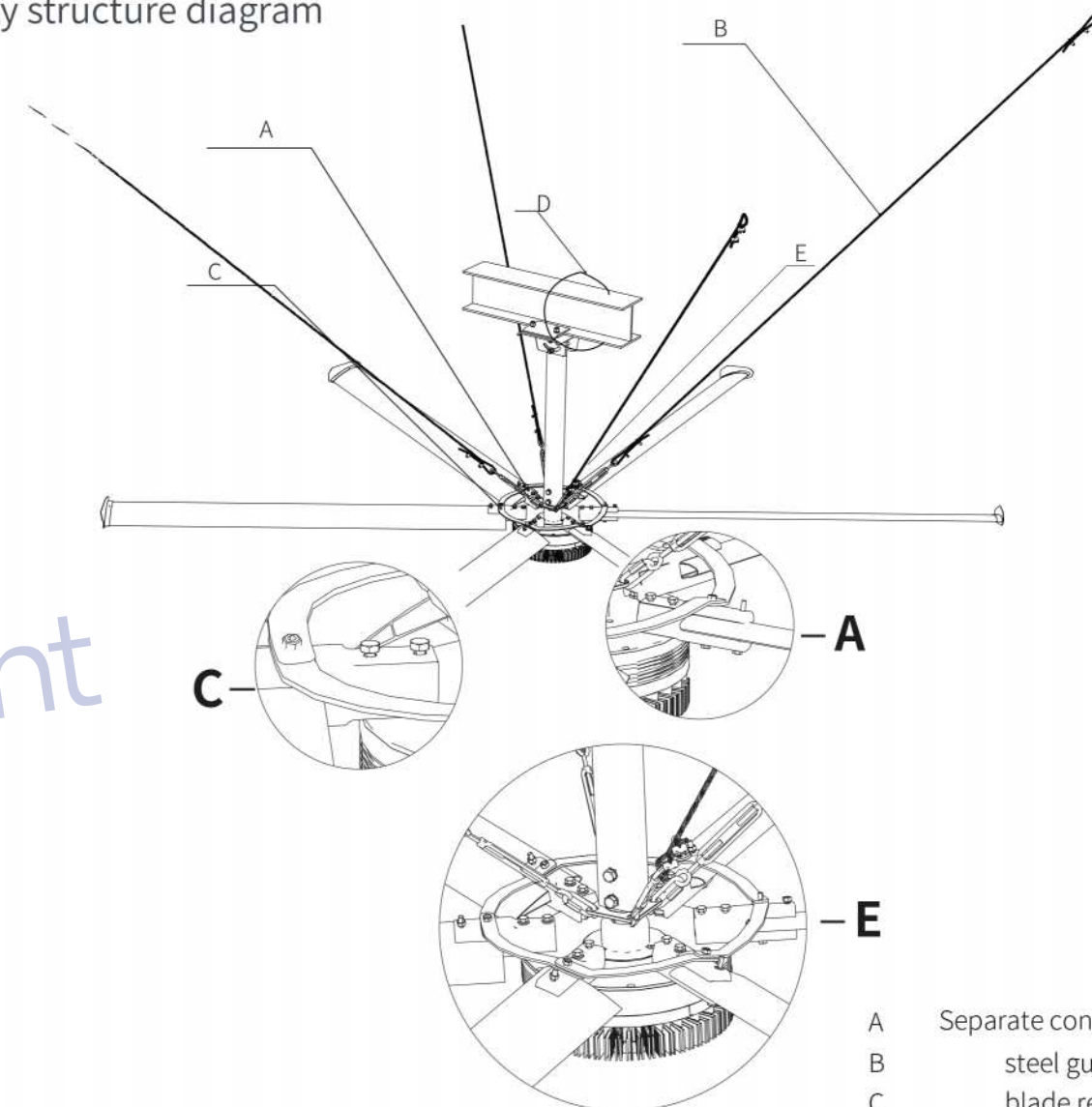
Efficient cooling system (heat dissipation surface area up to 2.16m<sup>2</sup>), perfect solution to the contradiction between performance and heat in PMSM technology.

In the heat dissipation system, the two methods of contact heat dissipation and radiation heat dissipation, ingenious structural design (refer to the right figure), use high-density alloy aluminum material with high thermal conductivity to achieve perfect heat dissipation effect and ensure longer life characteristics of the motor



# Safety structure

## ◆ Safety structure diagram



- A Separate connector
- B steel guy wire
- C blade retainer
- D Safety rope
- E Fan body

## ◆ Unexpected situation, safety structure ensures safety

Accidents are designed with electrical and structural protection measures to ensure safety, as follows:

Motor shaft failure: There are 7 protective measures, which are 4 sets of high-strength fasteners, one lock nut and one split pin and one set of joint for shaft and extension rod.

Bearing fragmentation failure: The rotor disk as a whole will fall on the stator disk.

Within 10mm of the pitch, no parts will fall off.

Accidental collision: The force to the blade is transmitted to the connector. In the worst case, the connector fails, there is still a blade retainer to protect it from any parts.



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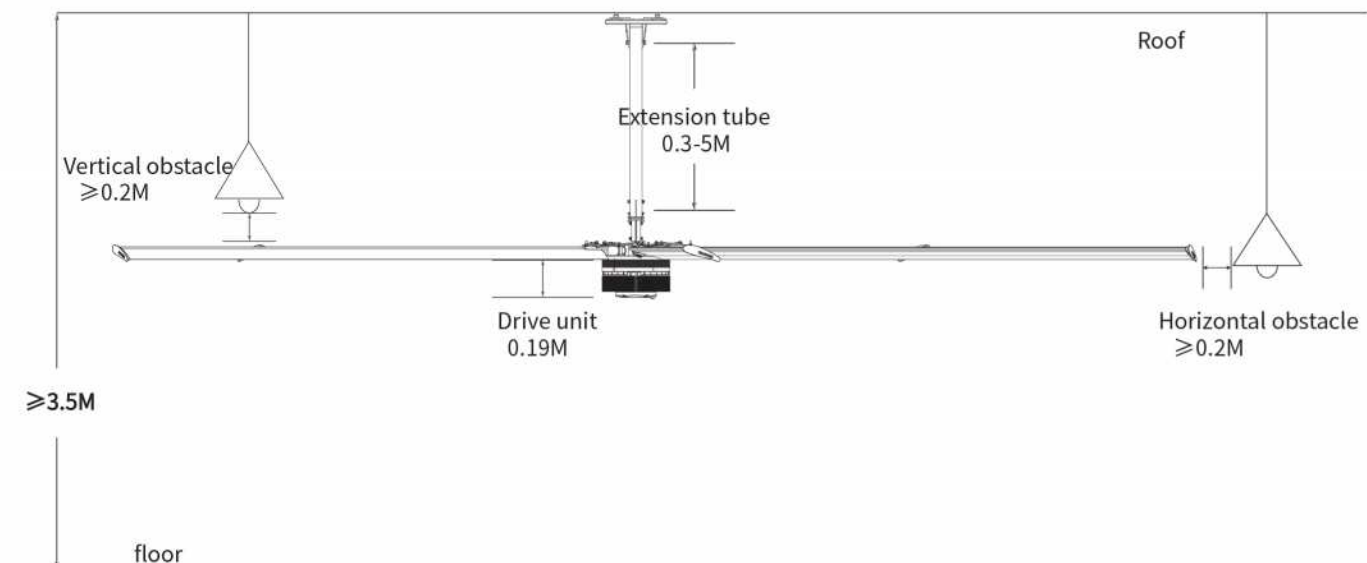


# Installation conditions and technical parameters

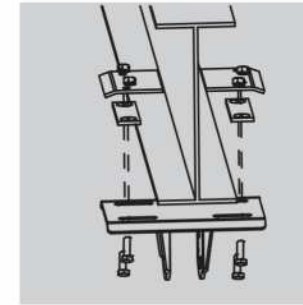
## ◆ Installation condition

KALE FANS has an experienced team of electrical, mechanical and construction engineers who can perform stress analysis for different building structures and provide the most reasonable installation solution; it can be installed for various buildings with installation conditions. We know that installation is extremely important, so there are strict operating practices and installation standards during the operation. Our expertise and high requirements will eliminate all your doubts.

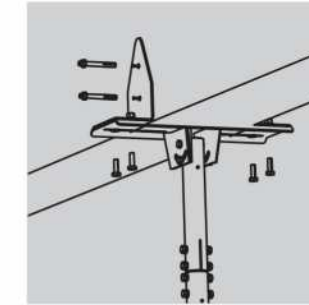
- A. Installation plan, tailored;
- B. The lift truck is installed and equipped;
- C. Level, height, balance debugging, and experienced;
- D. Balance test, running smoothly;
- E. Fasteners have torque standards for optimum fastening;
- F. Installation process, concise science;
- G. Building structure: H-beam, I-beam, concrete beam, spherical column and other structures.
- H. The total height of the building is required to be greater than 3.5m.
- I. The safety distance between the blades and the obstacle is 0.2m minimum.
- J. Input power: single phase 220V ± 10%.



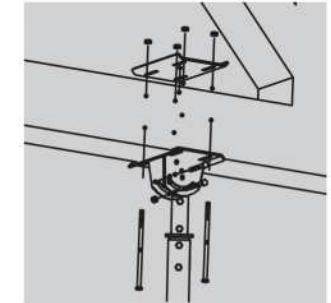
## ◆ Mounting structure type



I-beam structure



concrete structure



bent structure

Note: The above are common structures, for other structures, there are proper installation brackets to match.

## ◆ Technical Parameters

Product diameter	16ft (4.9m)	18ft (5.5m)	20ft (6.1m)	24ft (7.3m)
Product number	HVLS-D4AAA49	HVLS-D4AAA55	HVLS-D4AAA61	HVLS-D4AAA73
Maximum air volume	10700m <sup>3</sup> /min	11500m <sup>3</sup> /min	12200m <sup>3</sup> /min	13100m <sup>3</sup> /min
range of rotation	10-75RPM	10-65RPM	10-60RPM	10-50RPM
Body weight	108kg	111kg	114kg	120kg
Input power	1.0kW	1.0kW	1.2kW	1.3kW
Full load current	4.5A	4.5A	5.5A	5.9A

Note: 1. Weight calculation: The weight of the main body does not include the control box, extension tube, top connection parts, etc.

2. product diameter: listed above is the product standard diameter, other specifications need to be customized.

3. Input power: single phase 220V ± 10%.

4. Drive motor: PMSM (permanent magnet synchronous motor).



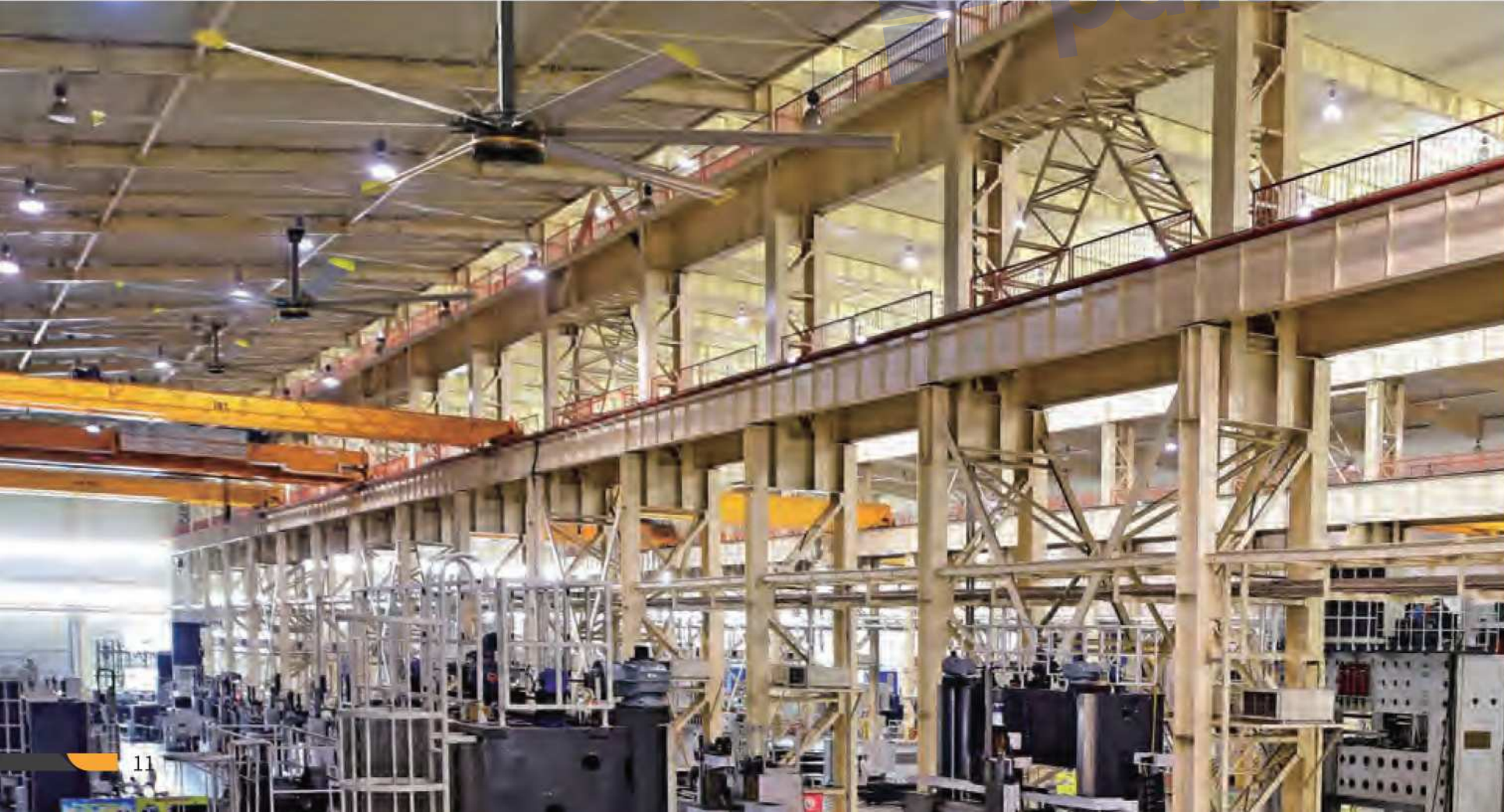
# Typical Case

Industrial case

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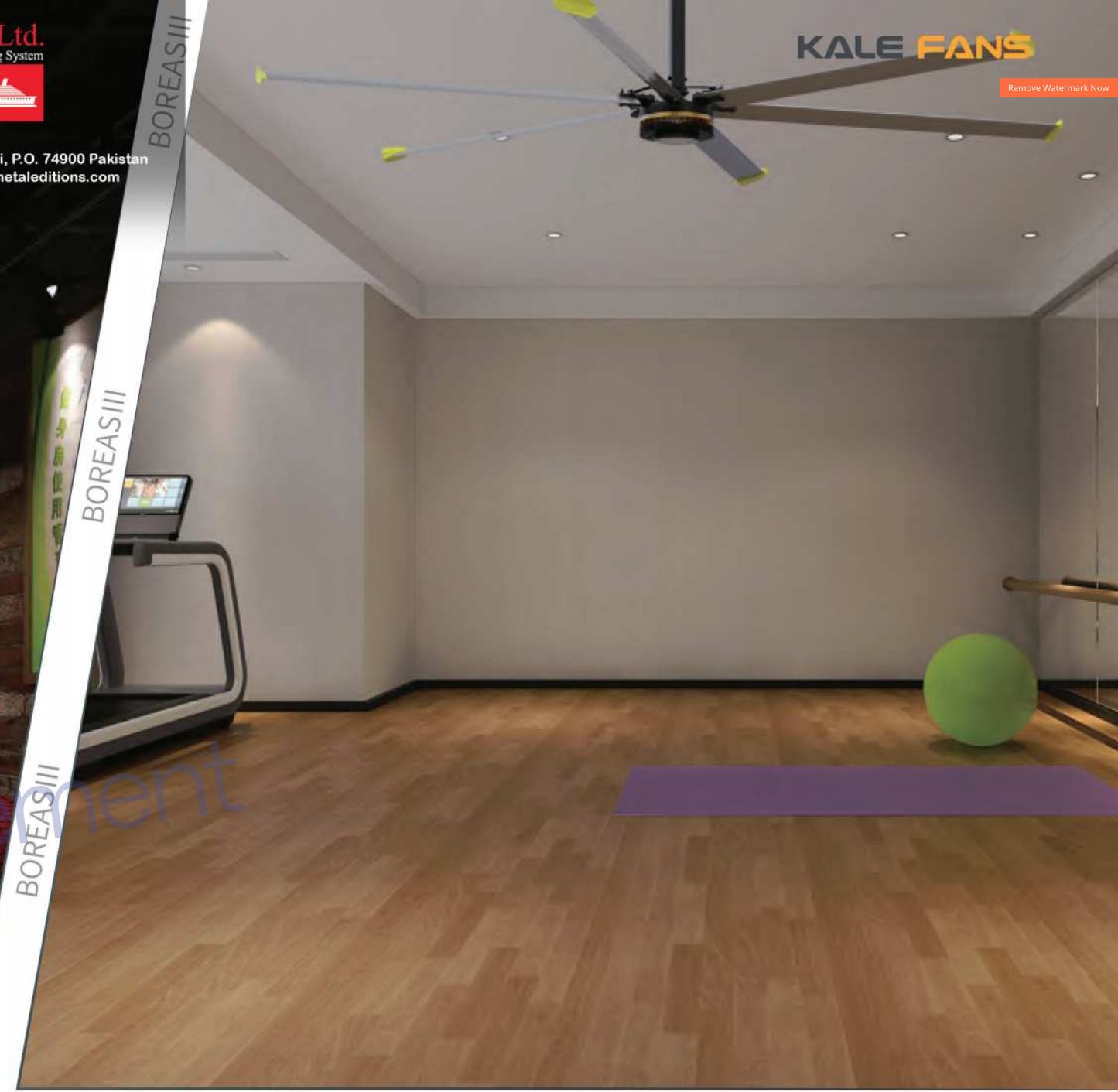
BOREASIII BOREASIII BOREASIII BOREASIII BOREASIII BOREASIII BOREASIII BOREASIII BOREASIII





# Typical Case

◆ Commercial case



BOREASIII BOREASIII BOREASIII BOREASIII BOREASIII BOREASIII BOREASIII





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# Company Profile

## ◆ Corporate Vision of Kale Fans

**Corporate Vision:** Fan the World, and Fame in the Globe.

**Corporate Mission:** Manufacture fine products, and offer excellent services

**Corporate Spirit:** Just do it!

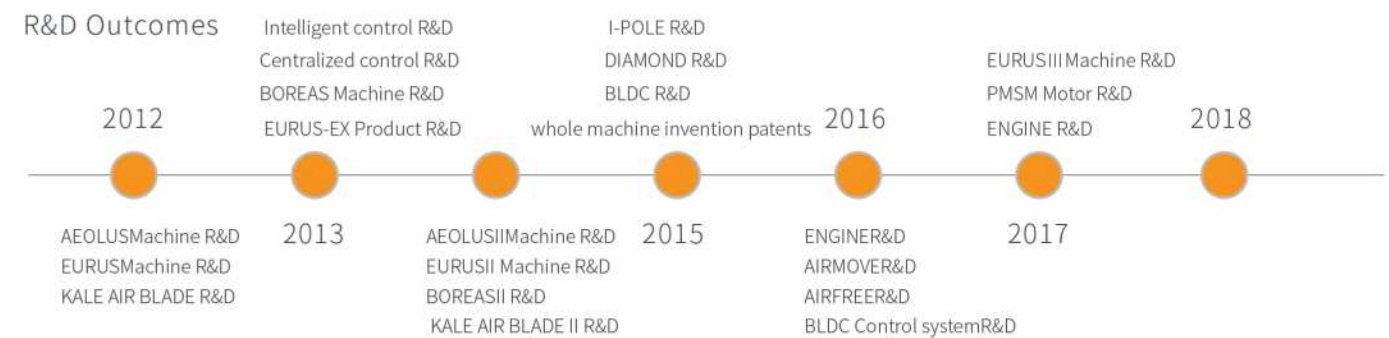
**Core Values:** Sincerity, Respect; Concentration, Devotion.

"Fan", creating the wind. On behalf of Kale Fans, it is highly focused on the HVLS industry. "Fan the World" describes HVLS products as prevalent in China. HVLS has been in the Chinese market from scratch, and in last ten years, it has been widely recognized and adopted by the market. In this process, Kale Fans has promoted the rapid development of the entire industry in China with almost one effort. "Flame in the world" means that we are not satisfied with the first in the domestic market, but also to look around the world. The goal of Kale Fans is "the World's No.1 HVLS industry share, the world's best-known brand in the HVLS industry." In order to realize the corporate vision, Kale Fans will always take the customer as the center and undertake the corporate mission of "manufacturing excellent products and providing quality services".



## ◆ Manufacture fine products

KALE FANS makes products through scientific and technological innovation, conscientious materials, and meticulous production. The product concept is "aesthetic design, strong performance and high quality". In research and development, Dr. Zhang, who learned from the academician Tang Renyuan was the academic leader of the motor, the academic leader of mechanical fluid is the chief of the original large-scale listed company, and the chief engineer of the first electric vehicle driver in China was the leader of the control system. They established a senior elite R & D team, undertake in-depth research of more than 30 majors, and fully master the core technology. Kale Fans has 31 patents and 2 inventions in the industry. It has a complete independent intellectual property system and won many honors such as high-tech enterprises, small giant enterprises, special-purpose special enterprises and technology centers. In terms of production and quality, Kale Fans has 60,000 square meters of the world's largest HVLS production base, with the most advanced production and processing equipment in the industry, it has the first quality assurance laboratory and the industry's most complete quality inspection equipment. The company has passed ISO9000 quality system certification, and has 2000 units of finished and semi-finished products, which can guarantee the quality and delivery of customers.







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◆ Manufacture fine products

R&D - major honors



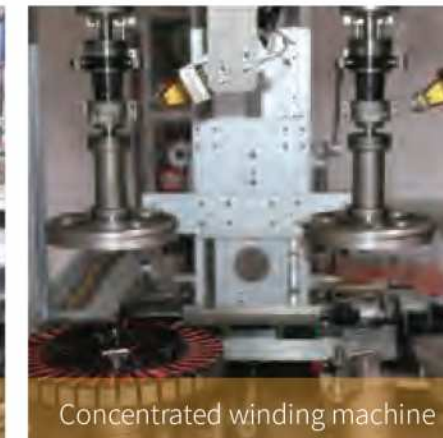
Production - advanced equipment

The main production equipment: CNC machining center, PMSM motor winding machine, PMSM assembly line, industrial main assembly line, forging machine, CNC lathe, Chenlong sawing machine, vertical milling machine.

Independent research and development equipment: fan controller, power analyzer, dynamometer, simulator, etc.



PMSM Assembly line



Concentrated winding machine



Separating winding machine

Production base scale



Zhejiang Haining Phase 1 Production Base



Zhejiang Haining Phase 1 Interior



Zhejiang Haining Phase 2 Production Base



CNC machining center



Industrial mainframe assembly line





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◆ Manufacture excellent products

Quality Assurance - Experimental Equipment



Analysis of spectral component



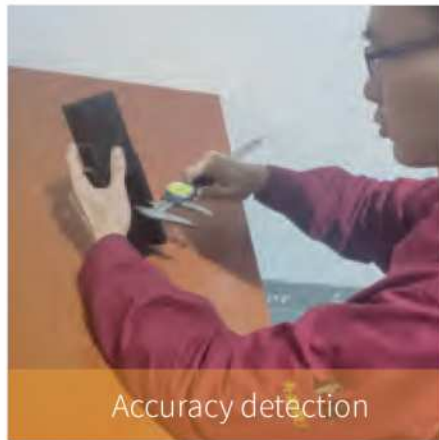
Motor detection



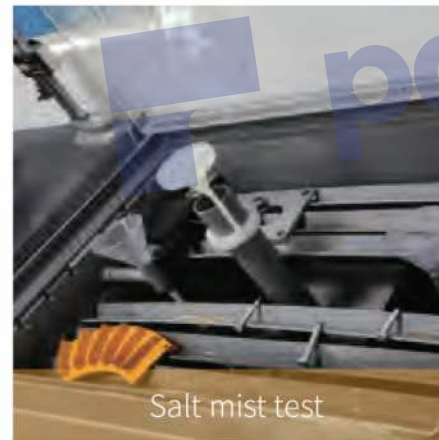
Breitbart hardness machine detection



Pull detection



Accuracy detection



Salt mist test

Inspection and testing equipment: intelligent thermal wind speed and direction detector, metal material analyzer, PMSM motor testing machine, motor reducer testing machine, fatigue testing machine, control system testing machine, Leeb hardness tester, etc.

In the future, employees of Kale Fans will always uphold the values of “sincerity, respect and dedication”, the endless passion for products and services, the unremitting pursuit of innovation and technology, and the historic opportunity given by the generosity of the times.

◆ Provide quality service

International Service Network



Kale Fans exported to Asia, the Americas, Africa, Europe and other 80 countries.



Factory in Mexico



Factory in India





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◆ Provide quality service

◆ Our customers



Standards: When it comes to customer service, every detail process has standard specifications and processes in order to achieve the most efficient and safest goals.

Kale Fans has its own installation service team, with a total of 400 people.  
Own lift platform 100 sets, safe and fast.

Installation service team professional training, assessment, certification on duty.  
Installation service team landing national branch management, can achieve extremely fast response.

Workshop



Vehicle parts



Logistics & Malls



Public places

