



# HVLS FANS

(Permanent Magnetic Synchronous Motor)



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***Innovation***

***Change The Future***

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# About AirTS



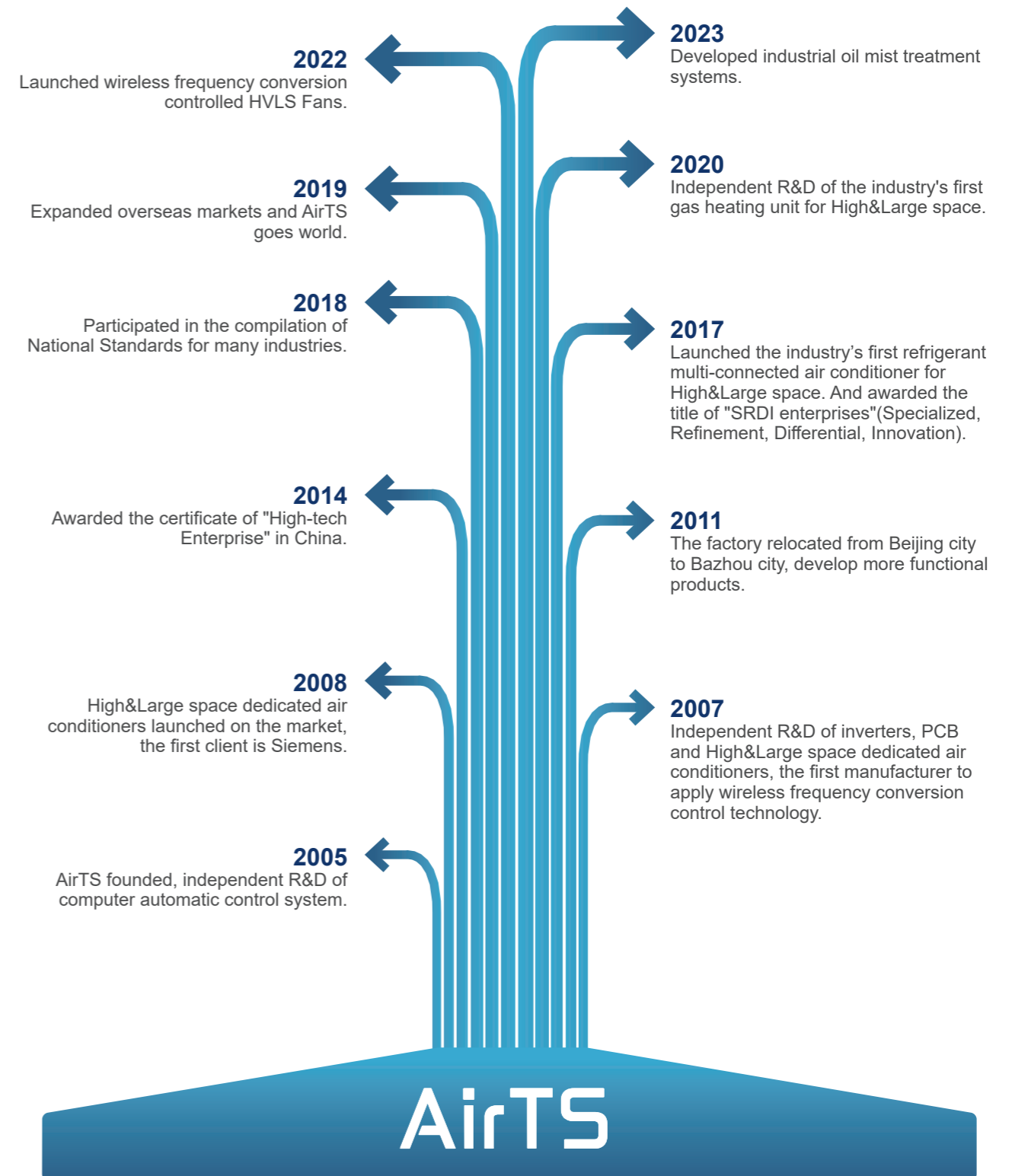
AirTS, founded in 2005, is a technology-driven enterprise integrating R&D, production, sales, service of energy-efficient products, and it is professional in system design and implementation for energy saving project. With strong technical support, Fujian Air Technology Systems Co.,Ltd devotes itself to expand domestic and foreign markets, increase AirTS international market share and its global influence.

AirTS primarily offers energy-efficient air conditioning systems for high and large space, including heating units, heating and cooling units, gas direct heating units, gas radiation units, frequency conversion multi-connected air conditioning units, hot air curtains, HVLS Fans, servo converters, industrial controls and related products which allow to meet the needs of heating/cooling/ventilation/humidification/dehumidification/dust removal/auto control for buildings ranging from 4 to 30 meters in height.

AirTS owns 2 production bases covering a total area of 135,000m<sup>2</sup>, equipped with over 10 auto production lines and total 45 R&D technicians.

As a leading enterprise, AirTS has participated in the drafting and formulation of the Chinese national standard "Selection and Installation of Heating (Air Conditioning) Equipment for High and Large Spaces". So far, AirTS has 43 patents, obtained ISO9001, ISO14001, CE, EAC certification, etc. Meanwhile, AirTS is a national high-tech enterprise, and is awarded the title of SRDI Enterprise (Specialized, Refinement, Differential, Innovation). And AirTS is always dedicated to providing the best environmental air handling solutions for customers.

# AirTS History



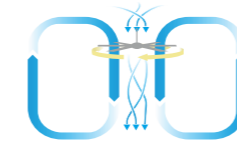


# Working Principle

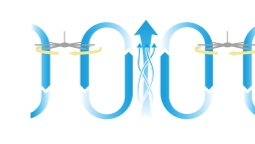


# Working Principle

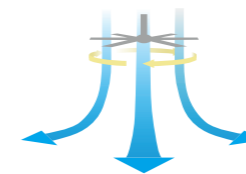
## Stereoscopic Natural Wind



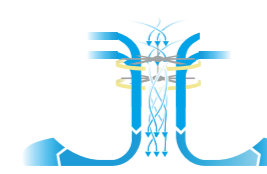
Circulating air supply in enclosed space, forming effective circulating airflow



Circulating air supply by multi fans, effective upward airflow can be formed between fans



Full range and large area air supply, suitable for various large spaces



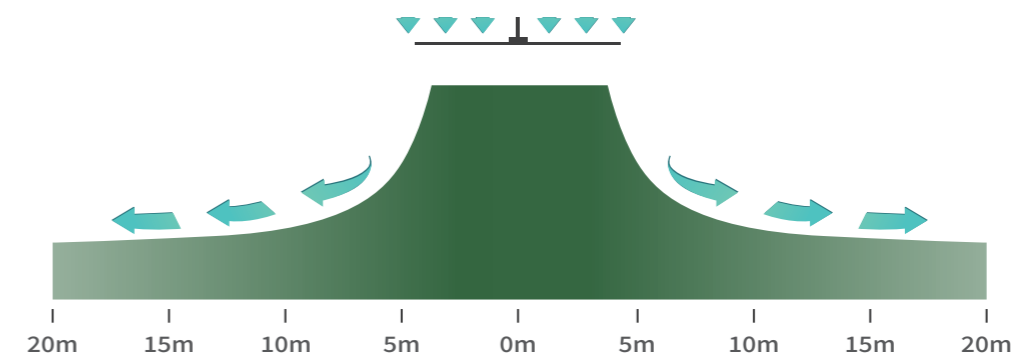
Low-speed uniform air supply, high volume, stable wind speed

## Save more than 30% energy, when coordinated with High&Large space dedicated air conditioner

In spring and autumn, the temperature is usually between 20-34°C. In such temperature, applying energy-saving fans, there is no need to turn on the air conditioning, which immediately brings you a comfortable natural wind and significant energy-saving effects. In high and large buildings, temperature stratification is obvious, when turn on the air conditioner for heating or cooling, coordinated with the AirTS-F series fans, which can mix the air can be fully, eliminate the separation of cold and hot air, improve the cooling effect, and reduce air conditioning power consumption, therefore achieving energy-saving effects.

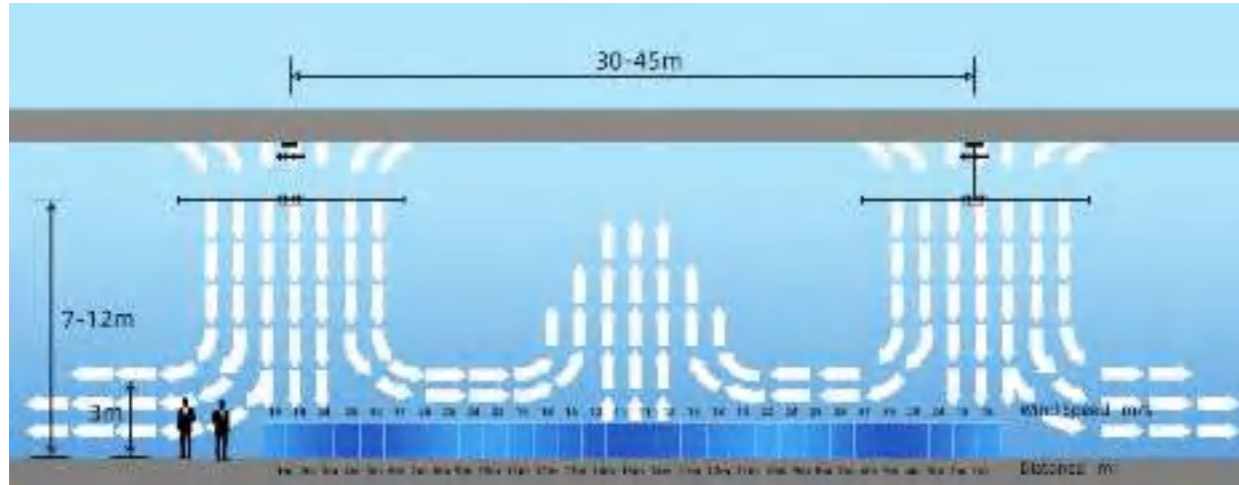
## Large Coverage Area

The AirTS-F series large energy-saving fans adopt wing shaped blades, which can minimize air resistance and efficiently convert electrical energy into kinetic energy of the air. The airflow covers a range beyond the diameter of fan, pushing the airflow vertically towards the ground, forming a 1-3 meter high airflow layer on the ground, thus forming a super large coverage area not only limited to fans size.



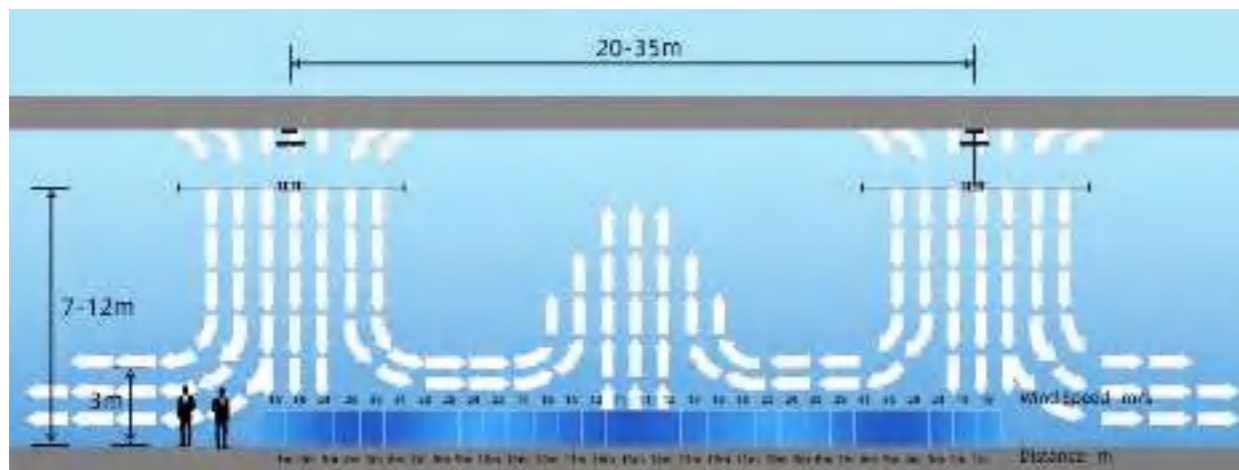
# Design Suggestionss

## Our Suggestion--Layout Plan for Densely Populated Areas



Remarks: Fan blade height from the ground: 7-12m    Airflow layer height:3m    Test height:1.5m

## Our Suggestion--Sparse Areas Layout Plan



Remarks: Fan blade height from the ground: 7-12m    Airflow layer height:3m    Test height:1.5m

# Technical Specifications

## AirTS-F



Model	AirTS-F49	AirTS-F55	AirTS-F61	AirTS-F73
Blades (PCS)	5	5	5	5
Diameter (mm)	4900	5500	6100	7300
Rotation range (RPM)	15-75	15-65	15-65	15-55
Max airflow (m³/min)	10500	11500	12500	13000
Voltage (V)	110/220/380	110/220/380	110/220/380	110/220/380
Frequency (Hz)	50/60	50/60	50/60	50/60
Motor power (kW)	0.75	0.75	1.00	1.20
Rated current (A)	1.8	1.8	2.3	2.7
Noise (dB(A))	38	38	38	38
Coverage area (m²)	500	600	1000	1700
Body weight (kg)	80	105	120	135

Weight: Control box, extension rod, top connector not included.



## Standard Control



Cover outside

1. Electrical protection
2. Knob speed control
3. Digital display



Converter Inside

## Optional IoT Control

### IoT control by mobile APP for Android:

1. Remotely monitor the operating status of HVLS Fans
2. Data collection, analysis in time
3. Error alarm when fault happen
4. Support group control about 200 units

### Operation View:



### More Safety and Reliable

**Electrical protection:** It has protection functions, such as overvoltage, undervoltage, loss of voltage regulation, overload, collision, overheating, lightning strike, abnormality, and alarm linkage and so on.

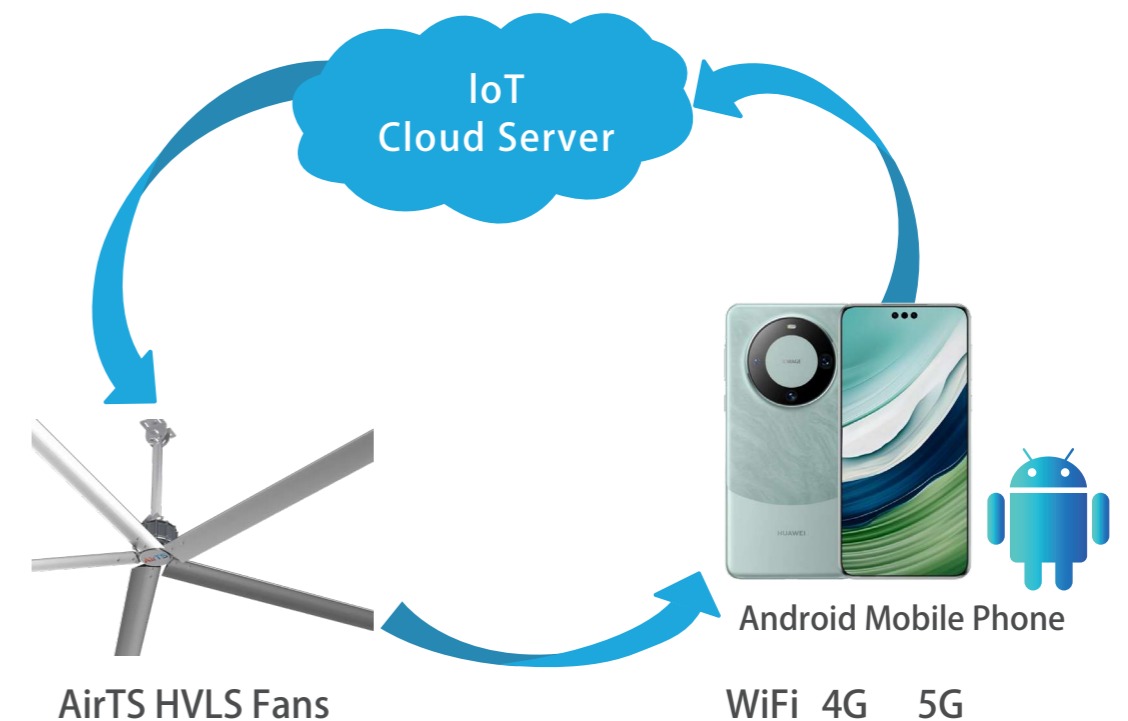
**Running indicator light (RUN):** When the light is off, the inverter is in shutdown state; when the light is on, the inverter is in running state.

**Keyboard operation, terminal operation and remote operation (communication control) indicator light (LOC):**

- LOC light off: Panel start/stop control.
- LOC light on: Terminal start/stop control.
- ◐ LOC light blink: Communication start/stop control.

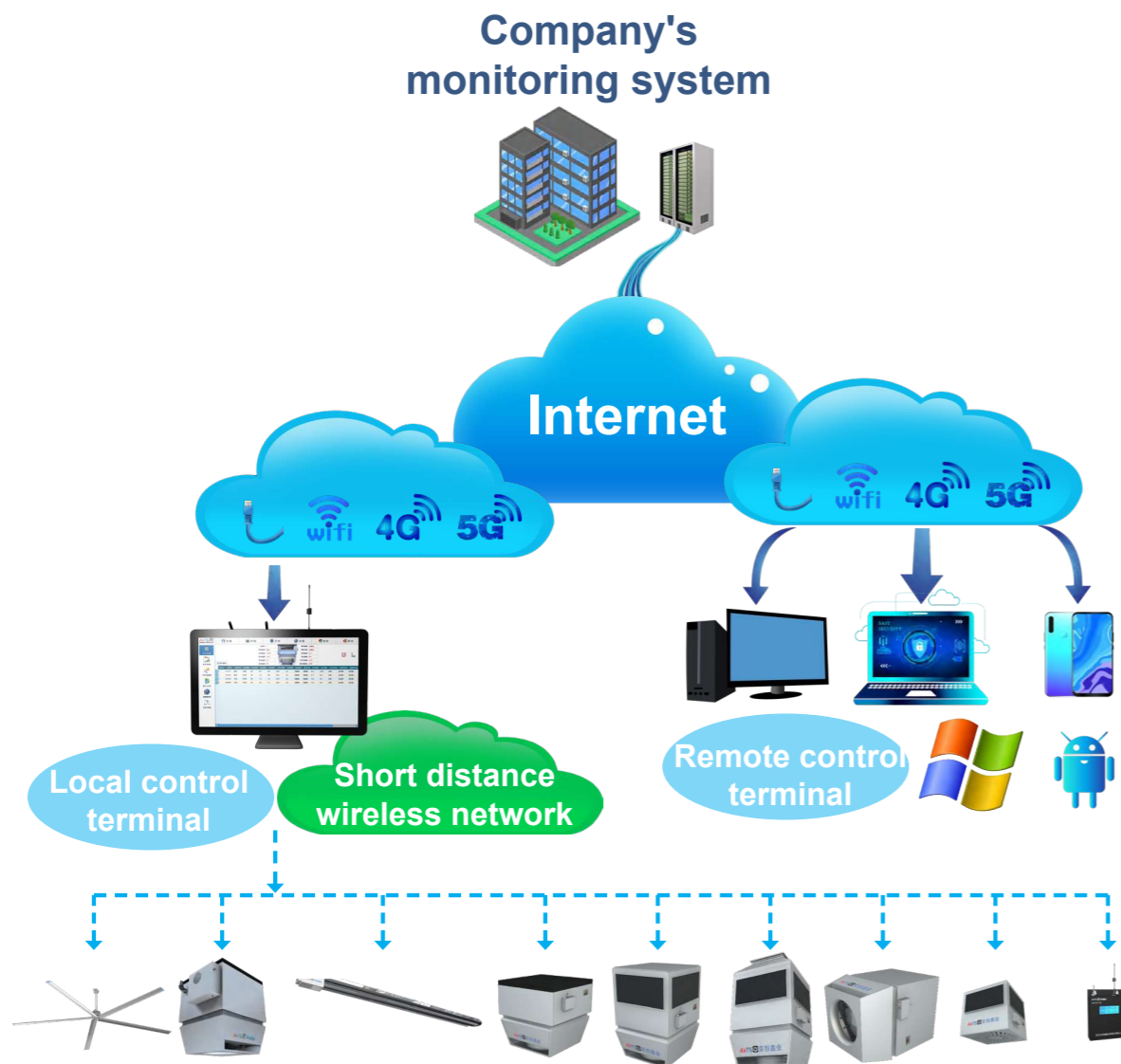
**Tuning/Torque Control/Fault Indicator Light (TUNE):**

When the light is on, it means it is in torque control mode. If it flashes slowly, it is in tuning state. If it flashes quickly, it is in fault state.



## Optional Wireless Control System

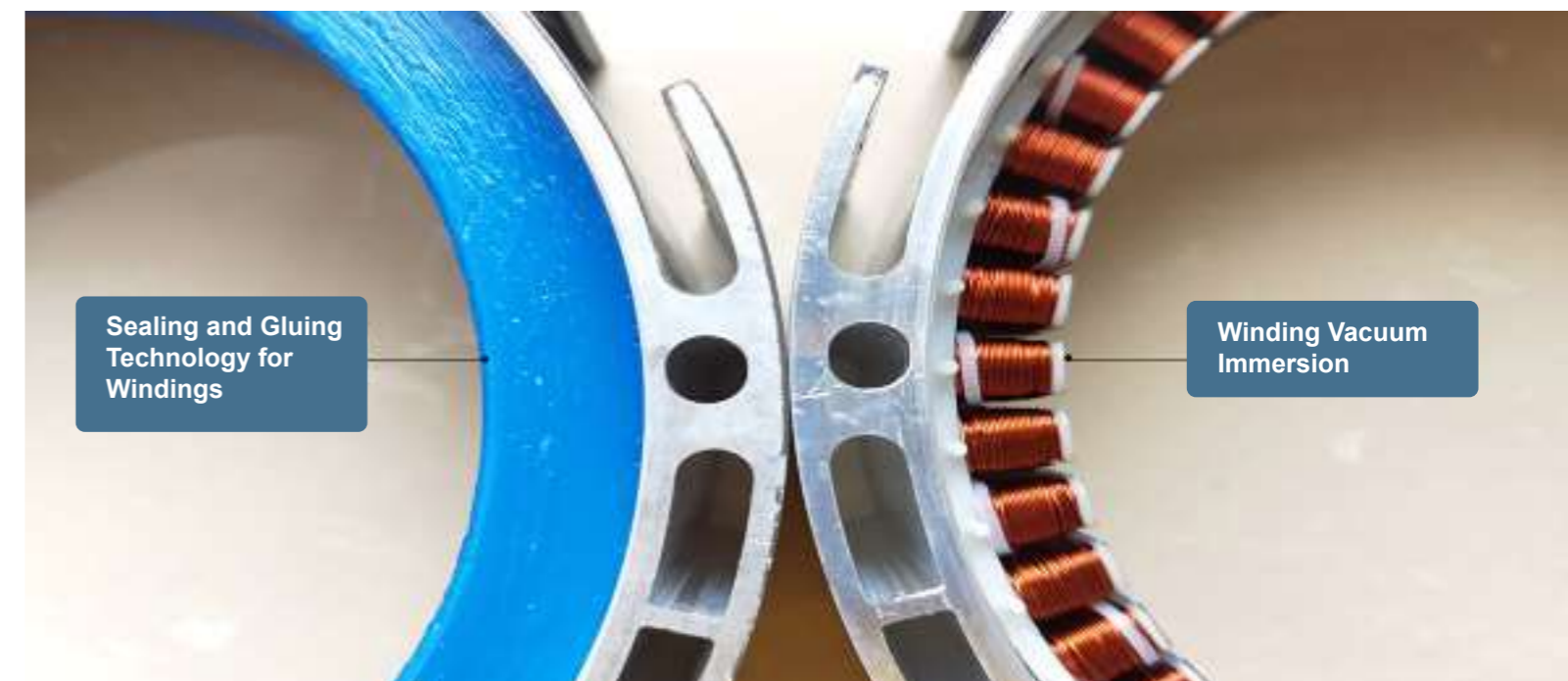
1. Wireless control operation
2. The host computer can monitor all devices within a radius of 1km
3. Centralized control of multiple devices, partial control, single machine single control
4. Support for remote control by mobile APP
5. Accurate energy-saving and consumption reduction, automatic operation
6. Data recorded, multi-dimensional analysis
7. Support full AirTS products linkage control



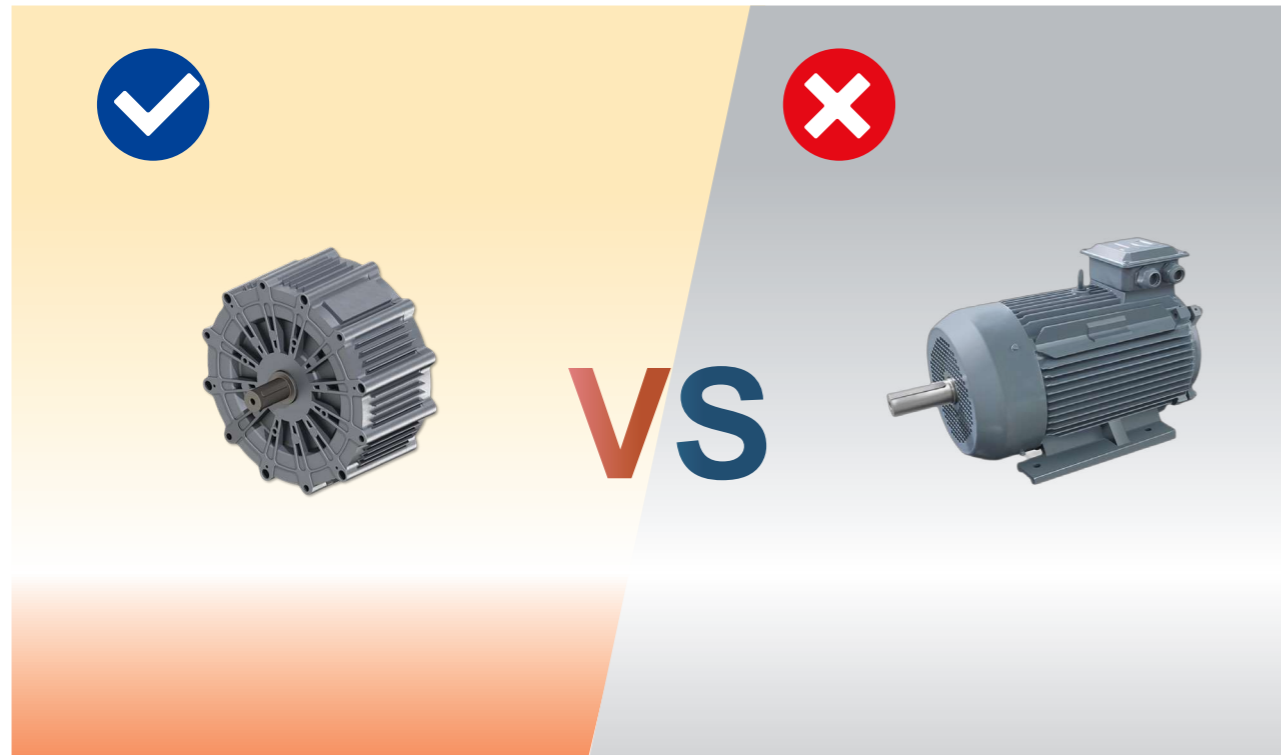
## Advantages

### New Permanent Magnetic Synchronous Motor (Inner rotor)

1. Lifetime increased more than 20%
2. Protection grade IP65
3. 180°C temperature resistant permanent magnet
4. Primary energy efficiency
5. Weight reduced 20%
6. High quality imported brand bearing



## ▲ PMSM VS Gear Shifting Motor



### PMSM Motor Advantages:

- A** More energy saving
- B** Simple structure
- C** Smaller size and lighter weight
- D** Low noise
- E** Frequency range: 0-50Hz
- F** Direct drive motor without maintenance

### Gear Shifting Motor Weakness:

- A** More power consumption
- B** Complex structure
- C** Bigger size and heavier weight
- D** Loud noise
- E** Frequency range: 25-50Hz
- F** Gear shifting motor, the gear should be replaced

## ▲ AirTS-F Inner VS Outer Rotor



### Inner rotor structure advantages:

- A** **Better heat dissipation :** Stator is outside (heat source).
- B** **More safety:** The rotating parts are only the motor shaft and fan blades.
- C** **Longer lifetime:** The hanger rod and motor can be integrated as a whole, and the rotating bearings only need to bear the weight of the wind blades, slightly wear.
- D** **Stable operation:** The motor body and fixed steel wire rope are fixed on the motor mounting plate, and the motor does not rotate.

### Outer rotor structure weakness:

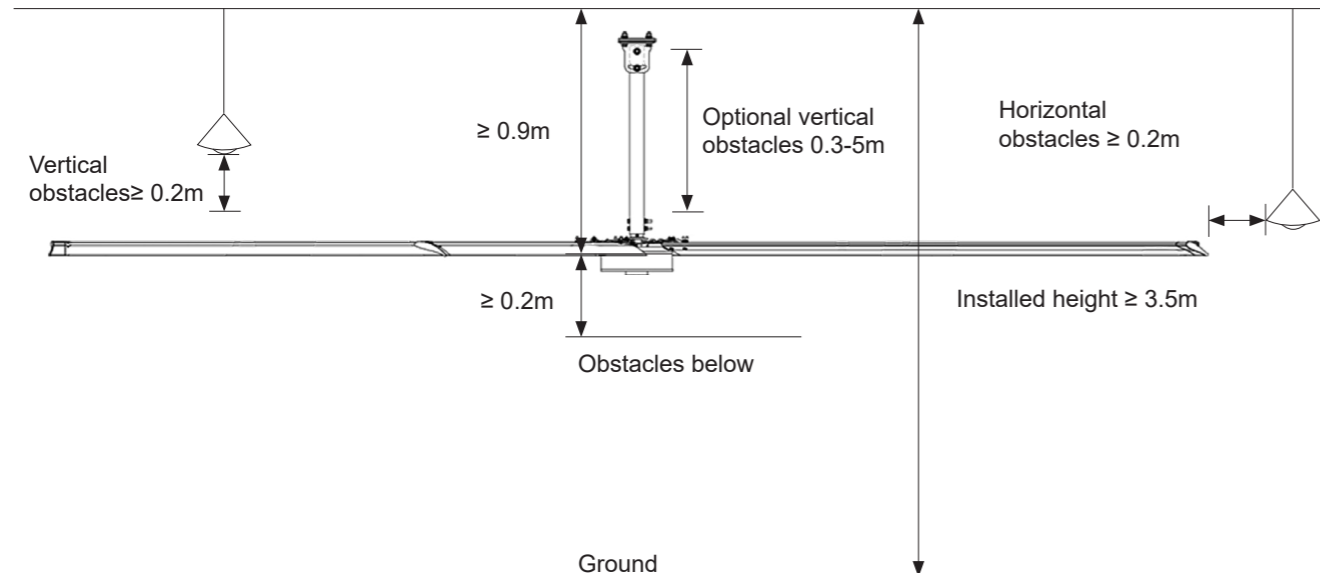
- A** **No better heat dissipation:** Stator is inside (heat source).
- B** **Less safety:** The rotating parts include the motor body and fan blades.
- C** **Shorter lifetime:** Single hanger rod, small stress area, and heavy bearing capacity.
- D** **Easy to shake:** The hanger rod bears all the weight of the fan and the torque generated during operation.



## Installation

### Installation Requirements

1. Input power: 110-120V, 380-460V (3 phase) or 220-240V (can meet special power supply requirement)
2. Building total height:  $\geq 3.5\text{m}$
3. Building structure: H-beam, I-beam, steel-concrete, square beam, etc.
4. Safety distance : The minimum safety distance between the fan blades and obstacles is 0.2m.



1. The maximum torque generated by fan is 300n/m, and the noise is  $<40\text{ dB(A)}$ .
2. Places with continuous heat sources or oil fumes are not suitable for installation.
3. The distance between the control box and the fan should be less than 20m.
4. The roof should can be loaded over 150kg capacity, the total weight of fan equipment is about 120kg.
5. The spacing between adjacent fans is 30m.
6. The optimal installation height of the fan is about 7-9m between fan blade and ground, the minimum is no less than 3.5m.
7. The net height of building should be above 4.2m, and the distance of load bearing columns should be greater than the diameter of fan, above 60cm.

## Safety Structure



### 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 tube.

#### Bearing fragmentation failure:

The rotor disk as a whole will fall on the stator disk, within 10mm of the pitch, no parts will drop out.

#### Accidental collision:

The force to the blade is transmitted to the connector. At worst, the connector fails, there is still a blade retainer to protect it from any parts.



## Project Cases

### Warehouse & Logistic Center

HVLS Fans can improve air quality, dehumidifying and cooling, prevent storage from corrosion and decay, improve working environment.



#### Large Workshop

HVLS Fans are used in factories in mechanical processing, automobile repair, aircraft assembly, shipbuilding and other industries. They can create flowing wind in large spaces, improve environmental comfort and employee labor efficiency.



#### Public Building

HVLS Fans are used in places with large flow of people, such as stadiums, train stations, and airports, promoting air flow, dissipating odors, and creating a comfortable public environment.



#### GYM

HVLS Fans are used in fitness centers, amusement parks, supermarkets, food stalls and other business places. Gentle and steady breeze can make people happy, create a comfortable leisure, shopping environment, stimulate potential purchasing power and consumption.

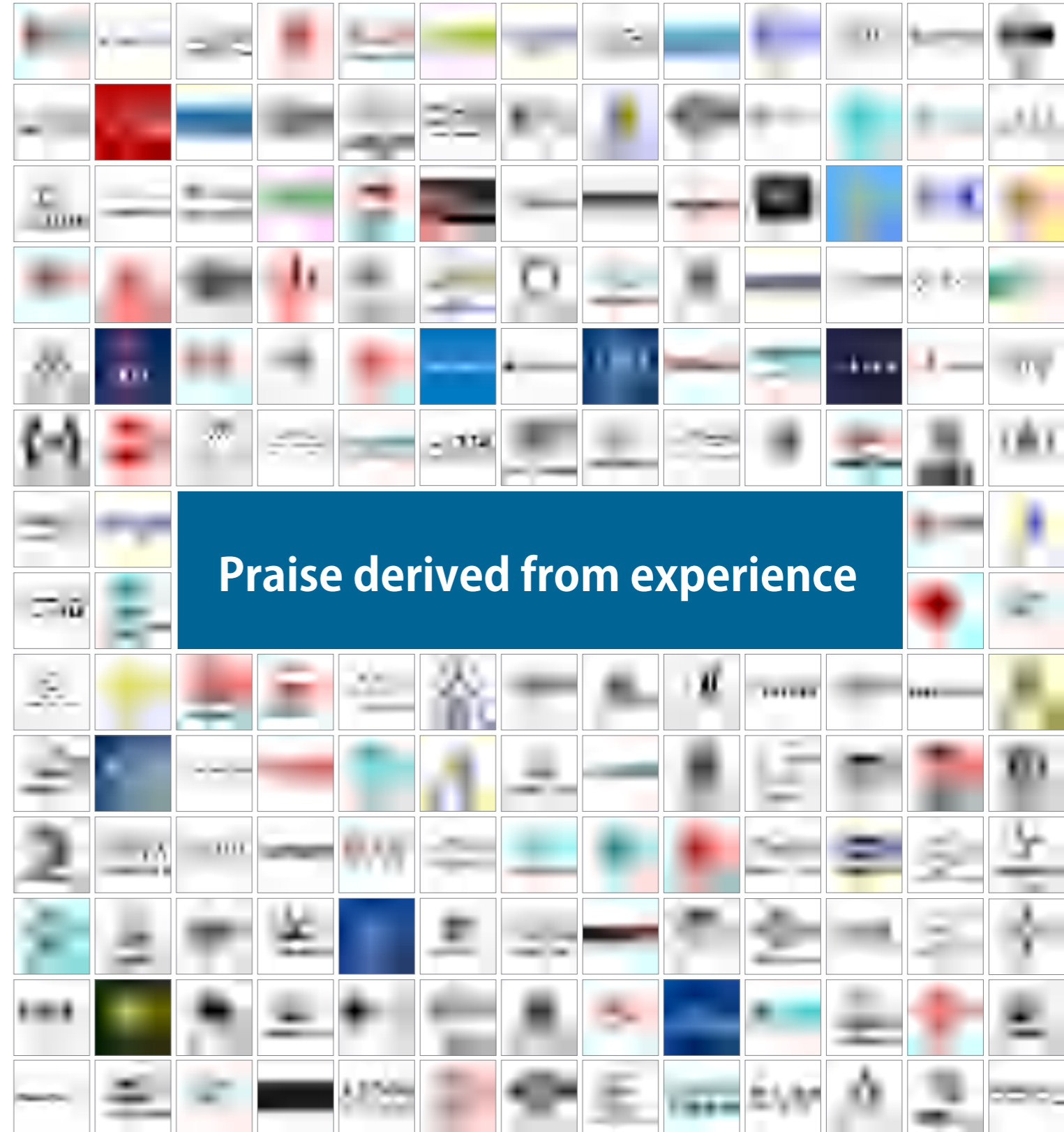
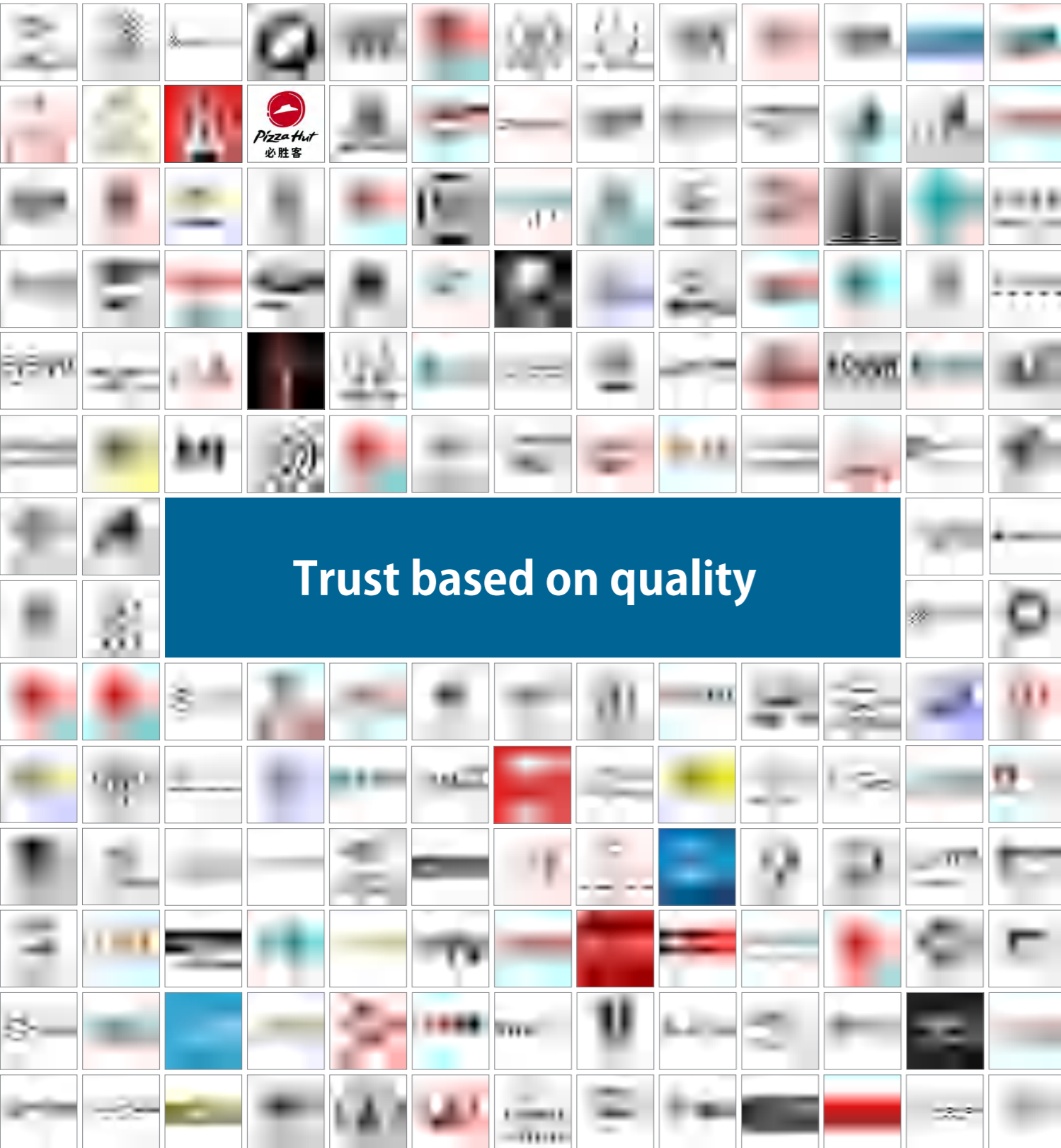


#### Botanical Garden and Cowshed

HVLS fans are used in botanical garden, dairy farms, feedlots, hatcheries and other places. It can create a good ventilation environment, improving air quality, removing moisture, dispersing odors, reducing livestock morbidity, and improving poultry, eggs, milk, meat yield and quality.



# Our Customers





# Our Honors

## Honors



## Patents



## Test Reports



## Copyrights

