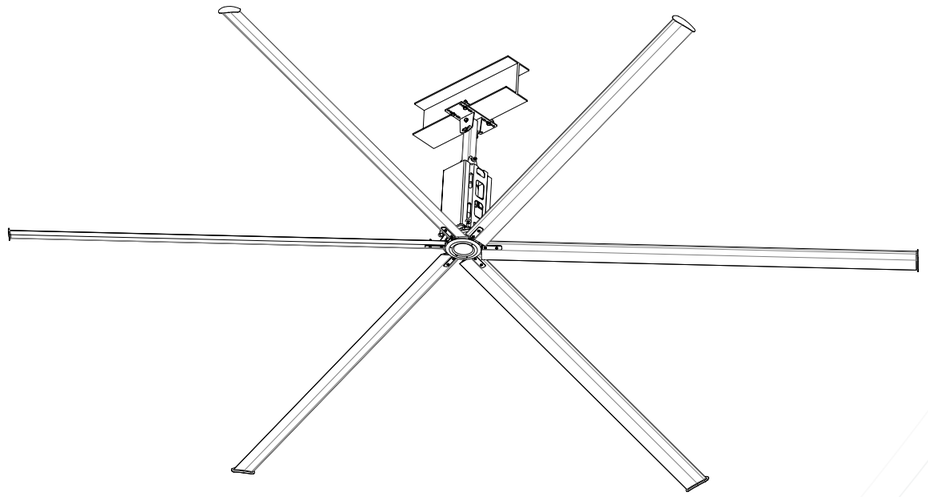


HVLS FAN

Quick installation guide

Distributor:

BEFORE YOU BEGIN

SAFETY & PRECAUTIONS

READ THE ENTIRE MANUAL BEFORE OPERATING THE FAN

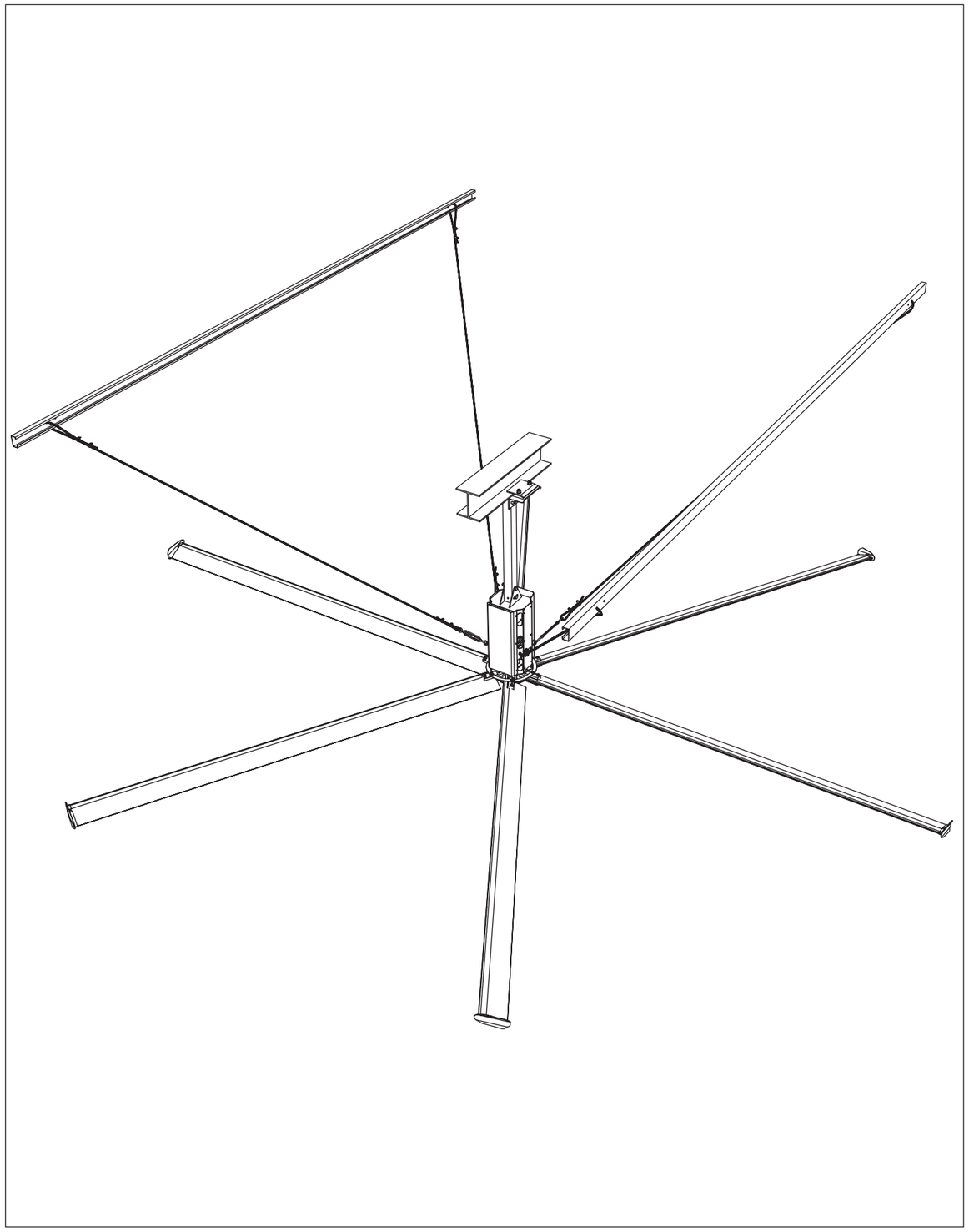
Read and understand this manual before installing or operating a fan unit. Installation, adjustment, repair or maintenance must be performed by qualified personnel.

Follow all safety practices and instructions during the installation, operation and servicing of the fan. Failure to apply these safety practices could result in death or serious injury. If you do not understand the instructions, please call Technical Department for guidance.

All fan controls and incoming power should be installed only by qualified technicians.Failure to follow these guidelines will void the manufacturer’s warranty. All electrical controls are configured at the factory and are ready to use. No user adjustments are available. Follow the included installation instructions when installing this device to ensure proper operation. Do not make any changes to any part of the fan without first consulting Technical Department.

HVLS FAN

Contents



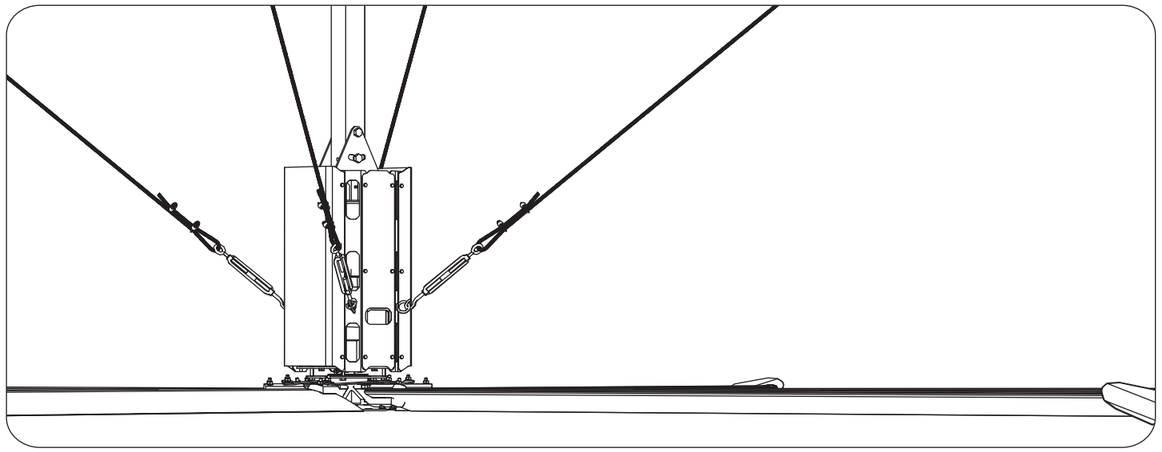
INSTALLATION GUIDE

1. Product Introduction

Big Energy-Saving fan is a super fan with a diameter of 7.3m! Airfoil bades, which are streamlined, are developed with the advanced technologies and the principle of aerodynamics. With a power of 1.5KW or less, the blade is able to drive a mass of air and makes the natural wind system with ultra-large area, which leads to the double functions of ventilation and temperature reduction.

Compared to the traditional HVAC conditioner and small high-speed air blower, the fan is superior in application, and that makes it immaculate for the large space to ventilate and reduce temperature.

HVLS fan coverage can be up to 1800 sq metres. The fans are mainly applied in large space such as the plant, logistics & warehouse, supermarket and farm, etc.

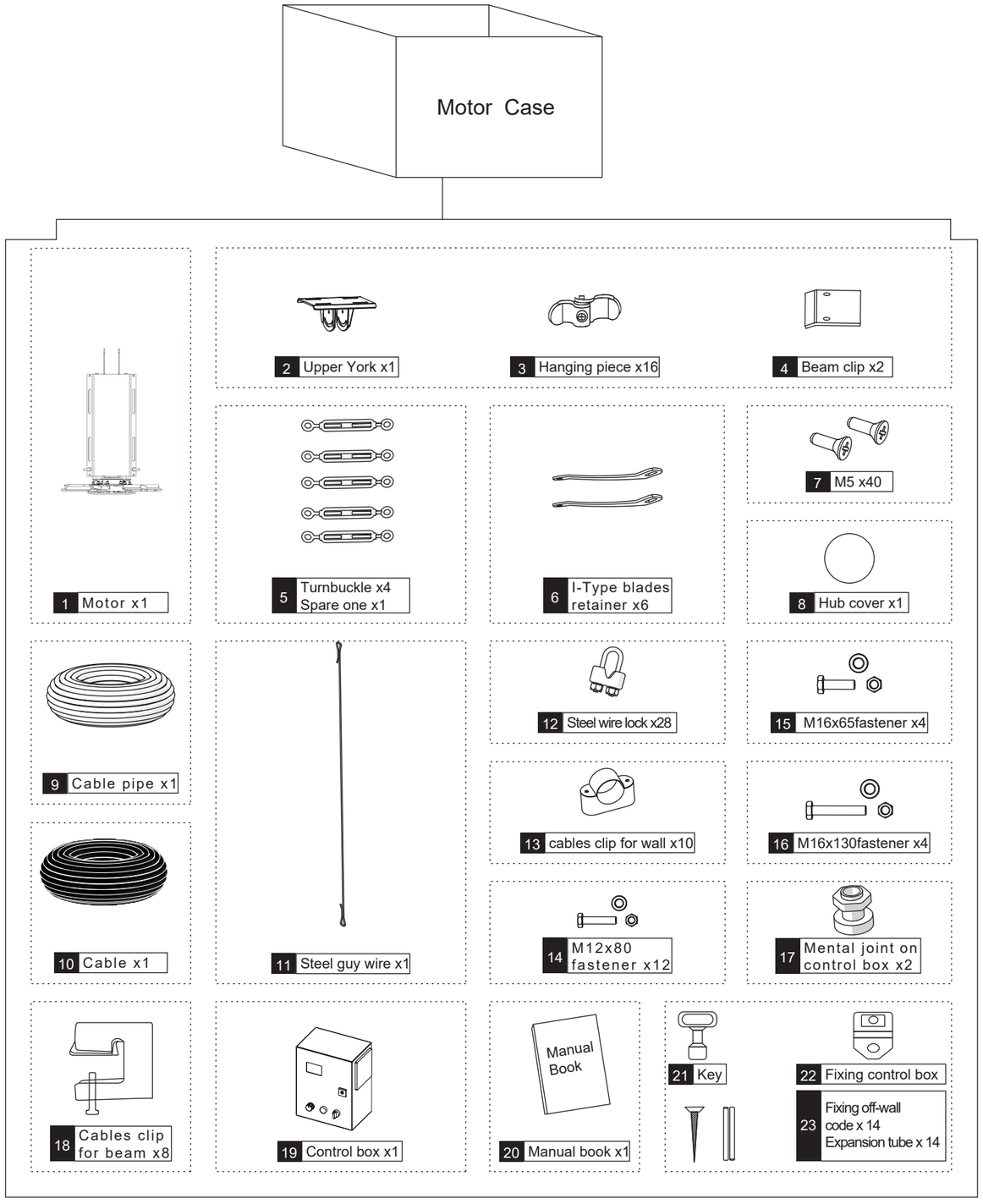


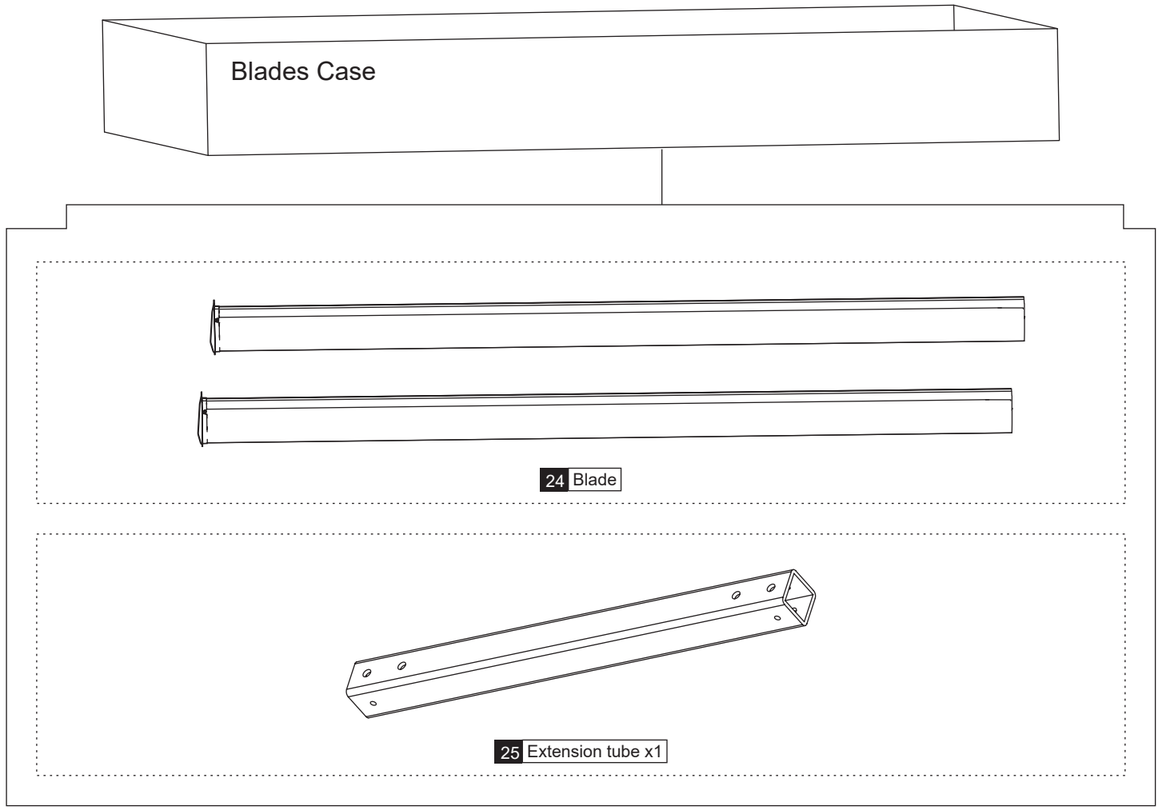
1.1 Product Parameter

Technical Specifications	12ft (3.7m)	16ft (4.9m)	18ft (5.5m)	20ft (6.1m)	24ft (7.3m)
Model	FF-RF6-37	FF-RF6-49	FF-RF6-55	FF-RF6-61	FF-RF6-73
Air disp.@Max speed	5800m³/min	7600m³/min	9200m³/min	11200m³/min	13200m³/min
Max coverage	630Sqm	850Sqm	1050Sqm	1380Sqm	1600Sqm
Range of rotation rate	20-75RPM	20-64RPM	20-64RPM	20-53RPM	20-53RPM
Fan weight	102kg	111kg	116kg	125kg	128kg
Moto size	1.5Kw	1.5Kw	1.5Kw	1.5Kw	1.5Kw
Full load amps	3.91Amps/380v	3.79Amps/380v	3.62Amps/380v	3.56Amps/380v	3.23Amps/380v

Note:
1.Weight:the weight doesn't contain control box,top connection parts etc.
2.Size:the above-mentioned product size is standard,other size can be customized.
3.Noise:sound level measured a distance of 1m from the motor,electromagnetic noise is less than 40db(A).
4.Packing:Export standard crates.
5.Input power:380V,3P,50/60 Hz. 220V,3P,50/60Hz. 220V,1P,50/60 Hz.

2. HVLS Fan BOM List



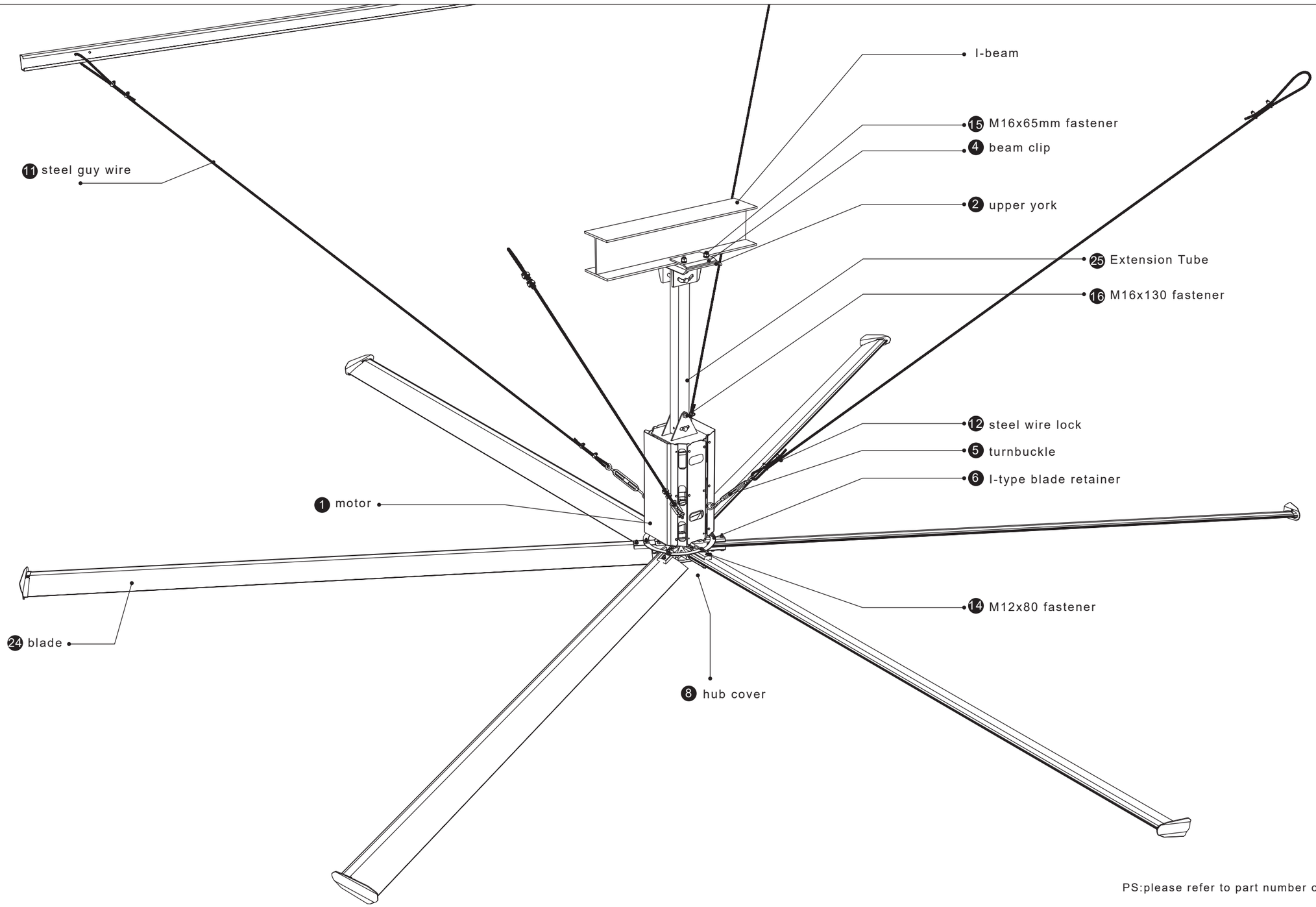


2.1 Components and Parts

NO.	NAME	NO.	NAME	NO.	NAME	NO.	NAME	NO.	NAME	NO.	NAME
1	motor	5	turnbuckle	9	cable pipe	13	cables clip for wall	17	mental joint on control box	21	key
2	Upper York	6	I-type blades retainer	10	cable	14	M12x80 fastener	18	cables clip for beam	22	fixing control box
3	Hanging piece	7	M5x8fastener	11	steel guy wire	15	M16x65 fastener	19	control box	23	fixing off-wall code Expansion tube
4	beam clip	8	hub cover	12	steel wire lock	16	M16x130 fastener	20	manual book	24	blade
										25	extension tube

INSTALLATION GUIDE

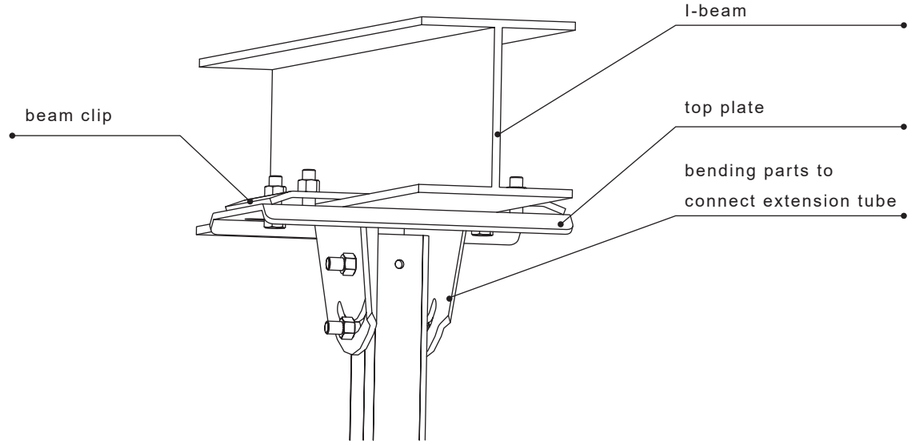
3.Product Drawing



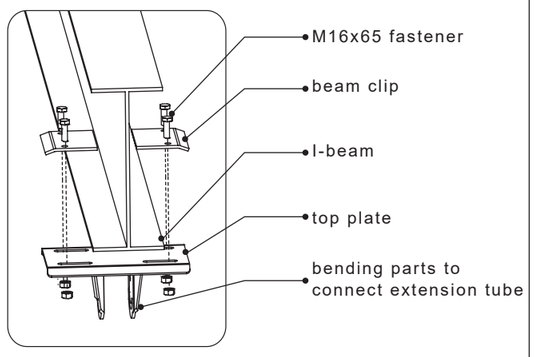
PS:please refer to part number on P4

3.1 Components Drawing

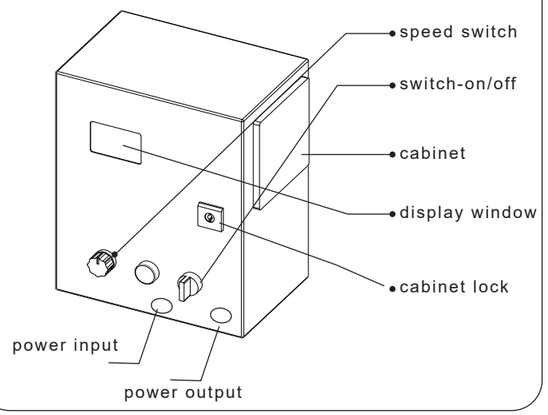
Steel structure fastening



I-shaped steel

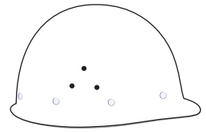


Control system structure



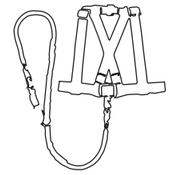
4. Preparation Before Installation

4.1 Security Tool Preparation

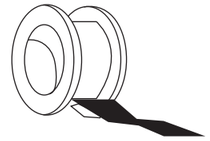


a safety cap

b work gloves

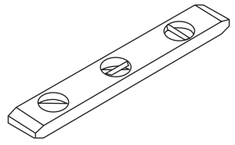


c safety belt

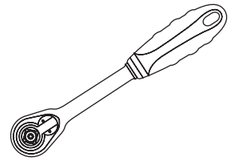


d warning line

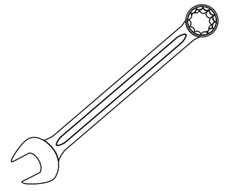
4.2 Installation Tool Preparation



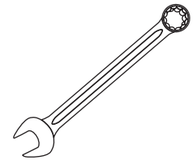
e level-meter



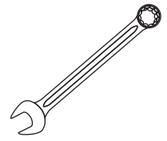
f speed wrench



g 24#open end wrench



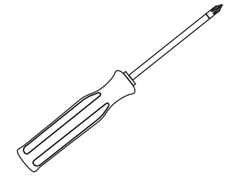
h 18#open end wrench



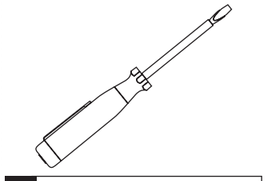
i 17#open end wrench

j wire cutter

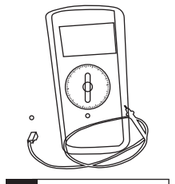
k wire stripper



l cross screwdriver

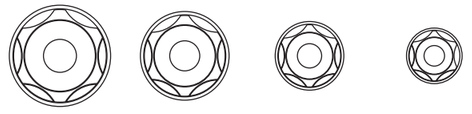


m straight screwdriver



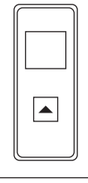
n multimeter

socket wrench

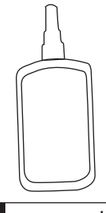


o 24# p 19# q 16# r 10#

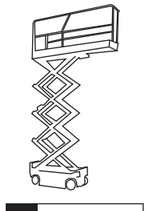
s insulated rubber tape



t diastimeter



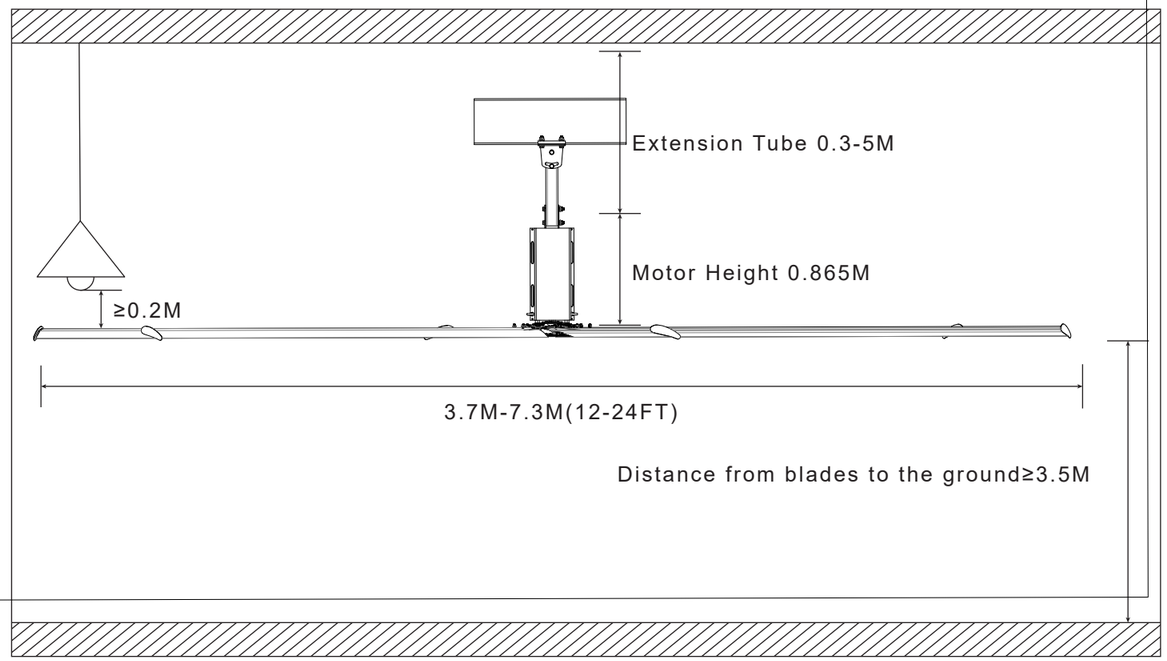
u screw glue



v lift truck

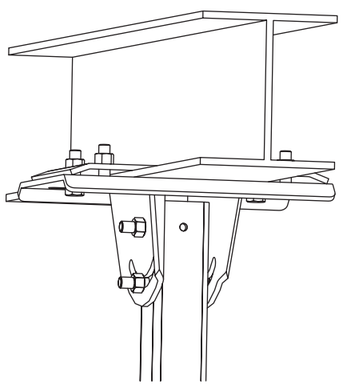
5. Roof Installation Requirement

5.1 Installation point requirement



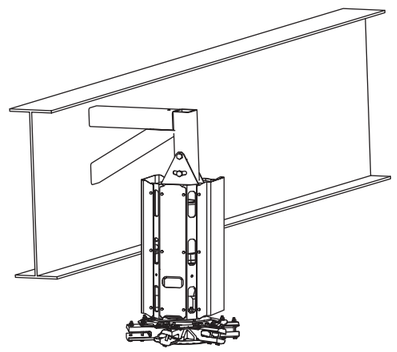
5.2 Brief Introduction of Beam Structure

Hanging on I-beam



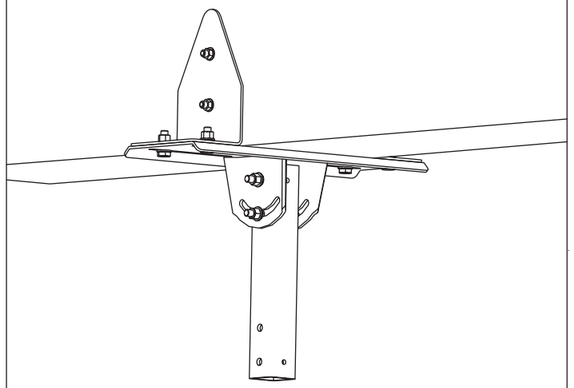
Mounting on I-beam:
1.first confirm the mounting position;
2.then assemble top plate,spacer and beam clip.
3.Keeping the beam is in the mddile of the top plate, and top plate is vertical; spacer and beam clip must fit together the beam.

Side mount on I-beam



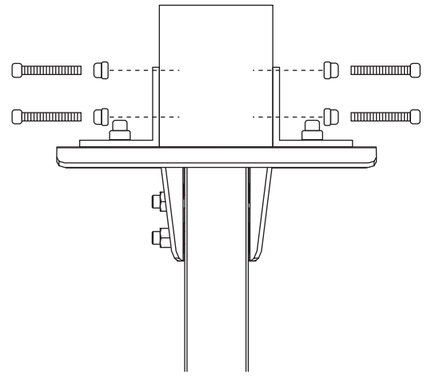
Side mount on I-beam:
confirm the size of the beam, and the position to weld bracket and guarantee to keep the distance from the bottom of beam to fan blade no less than 30cm.
First paint off,then spot welding for brackets.
and then full welding after confirming the balance of bracket.At last clean welding slag and paint as before.

Hang on concrete



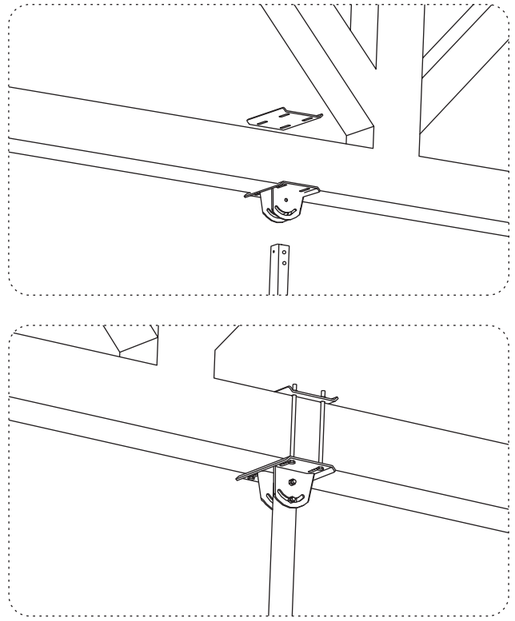
Assemble extended top plate with bending pieces, to fit the concrete beam. Keep top plate vertical referring to the beam bottom. Dig holes marked at first with percussion drill, the depth of the hole refers to the length of expansion bolt. Drive expasion bolts into the holes and then mount fasteners for bending pieces.

Side mount on concrete



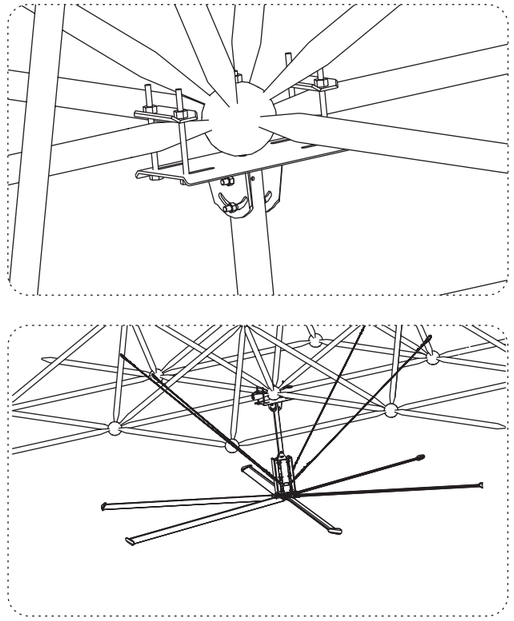
Confirm the size of the concrte beam, and the position to mount bracket and guarantee to keep the distance from the bottom of beam to obstacles no less than 30cm.Dig holes marked at first with percussion drill, the depth of the hole refers to the length of expansion bolt. Drive expasion bolts into the holes and then mount side-mounted brackets and tighten fasteners.

Mount on bent structure



Two steel plates hoop the beam with 4 pcs studs,tighten with doubled nuts and washers to guarantee the structure's stability.

Mount on Pipe/Tube structure

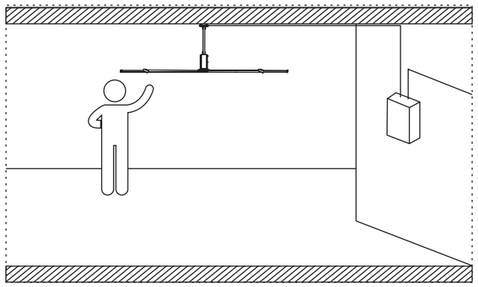


Confirm installation position, it's better that the position is close to the pipe connection. Measure the pipe's diameter,if its diameter is less than 15cm, keep brackets mounted along the pipe. Cut stud, and each stud length should be 10cm longer than pipe. Mount top plate under the pipes and tighten the brackets to keep steady.

INSTALLATION GUIDE

6. Start Installation

1 Site survey confirmation



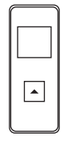
- Confirm installation position
- Measure the height to mount fan with diastimeter(t)
- Confirm any obstacle or not (crane,light,cables,fire protection equipment,camera etc)
- Confirm the position on beam to connect steel guy wire
- Confirm the position to mount control box

2 Installation readiness check

Check all accessories. Prepare safety equipment(safety belt, safety cap etc), life truck and installation tools.

safety cap

work gloves



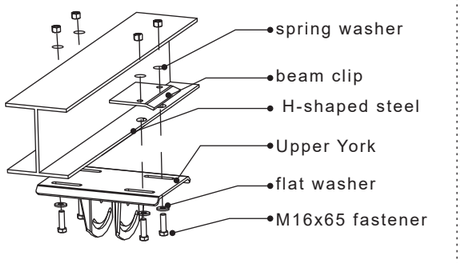
diastimeter

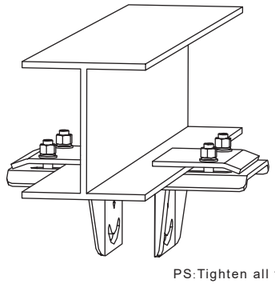
lift truck

PS:Detailed installation tools please refer to P8

3 Installing roof -bilateral upper york

First confirm the mounting position, keeping the beam is in the mddile of the top plate, and top plate is vertical; spacer and beam clip must fit together the beam. Use 24# open end wrench(g), speed wrench(f) and 24# socket wrench(o) to tighten M16x65mm fasteners.Other mounting brackets also required to install firmly.

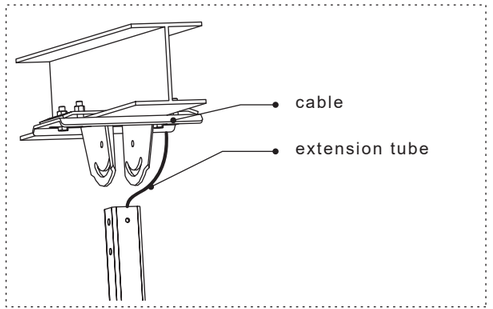


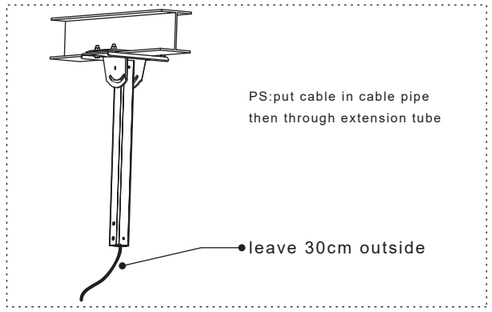


PS:Tighten all fasteners

4 Cable through extension tube

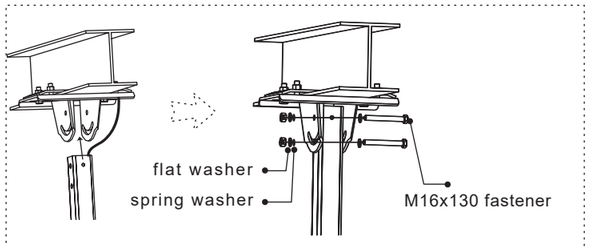
put cable through the extension tube, leave 30cm outside to connect cables from motor.
Please keep no scratch on the cable.

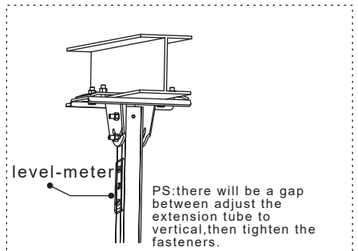




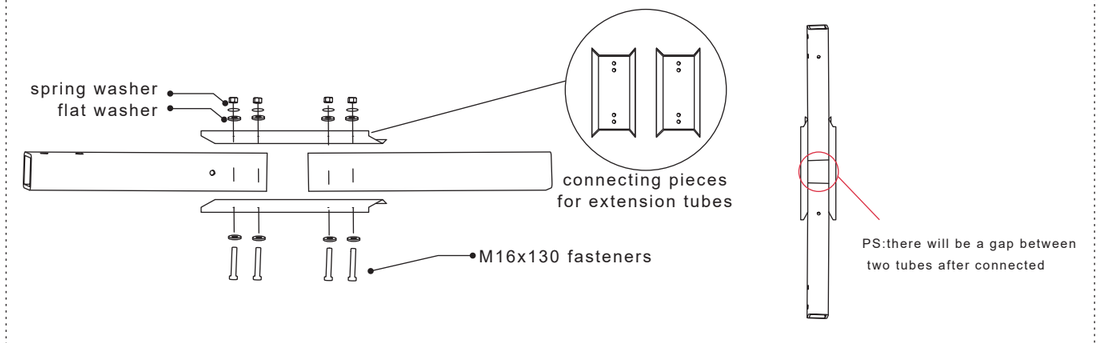
5 Install extension tube

Put extension tube between the bending pieces, align to the holes with M16X130mm fasteners and pretighten them.Adjust the tube vertical with level-meter(e), then tighten fasteners with 24# open end wrench(g), speed wrench(f) and 24# socket wrench(o).





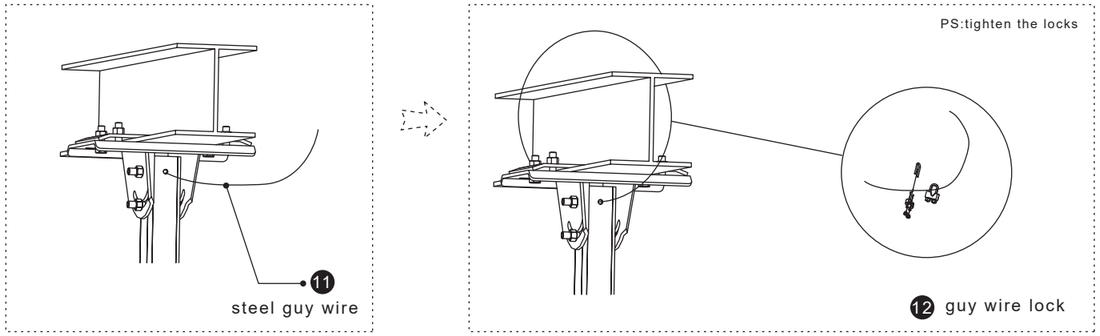
For some sites, one more extension tubes will be used, the method to connect two extension tubes as below:



INSTALLATION GUIDE

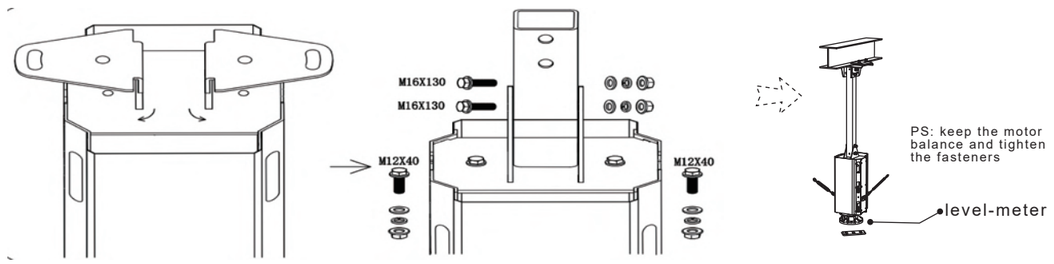
6 Install safety rope

Put wire through a small hole on extension tube, and then twist the whole beam, adjust the safety wire and tighten the guy wire locks with speed wrench(f) and 10# socket wrench(r).



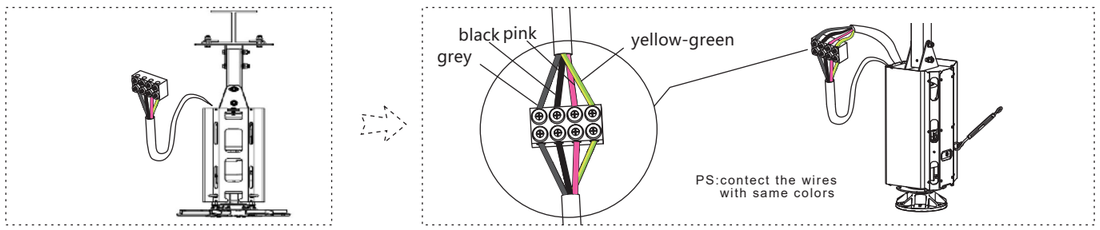
7 Install motor

Fix 4 pcs turnbuckles on the motor,and connect the motor with extension tube,adjust the bottom of motor to balance with level-meter(e),then tighten fasteners with 24# open end wrench(g),speed wrench(f) and 24#socket wrench(o).



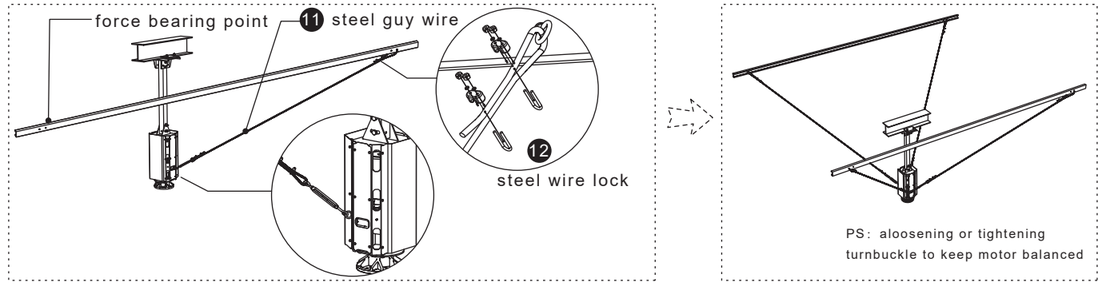
8 Wiring on motor

Strip the cable with wire stripper(k) and keep copper wire unbroken. Connect four lines with the same color, and fix the connector with cross screwdriver(l), then packed with insulated rubber tape to avoid sparks and improper contact.



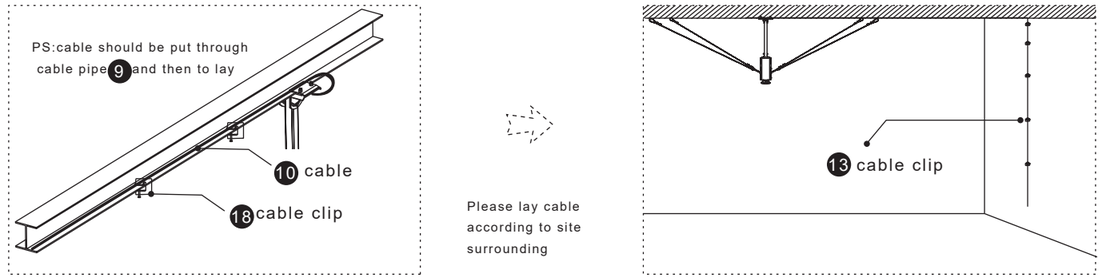
9 Install safety steel guy wire

Please pre-judge the 4 points can bear the force or not, put the wire through the hole punched beforehand on the purlin.Connect turnbuckle with eyebolt on motor with guy wire, then loosen the turnbuckle at the most and put guy wire through lock and connect turnbuckle. Four safety wires must be isometric, symmetrical and even load. At last tighten all wire locks with speed wrench(f) and 10# socket wrench(r), and paint with screw glue on locks and turnbuckle.



10 Wiring for control box

Cable routing should be neat and good-looking, every 1.5M with a cable clip while laying cable, and then tighten cable clips on beam and wall with straight screwdriver(m).

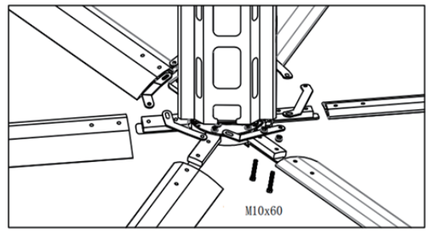


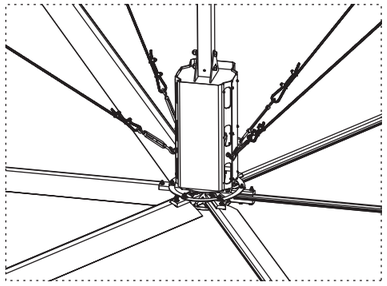
11 Install fan blade

Install the fan blades on the opposite as first to keep the whole balanced, be tender for the fan blade and keep unbroken while installing and tighten fasteners with 18# open end wrench(h), speed wrench(f) and 19# socket wrench(p).After installation, remove off the protective cover on the fan blades.

12 Install I-type fan blade retainer

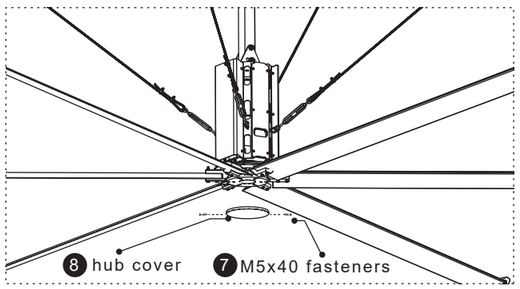
Unbolt the pre-tightened fasteners on fan blade next to hub,connect fan blade retainer one by one with 17# open end wrench(i),speed wrench(f) and 16# socket wrench.
Please note that slotted hole is underneath and round hole is on top.

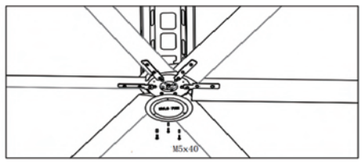




13 Install hub cover

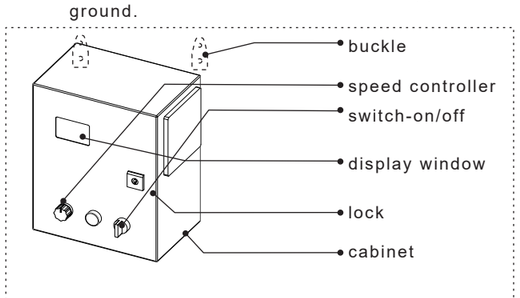
Tighten 2 pcs M5x8 fasteners to fix hub cover on the hub with straight screwdriver(m).

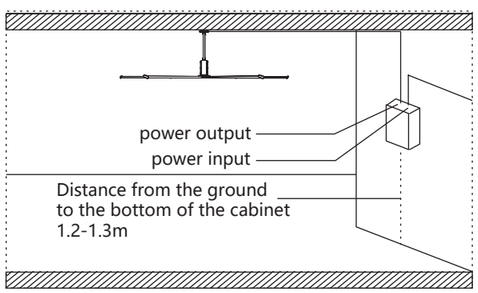




14 Installation control system

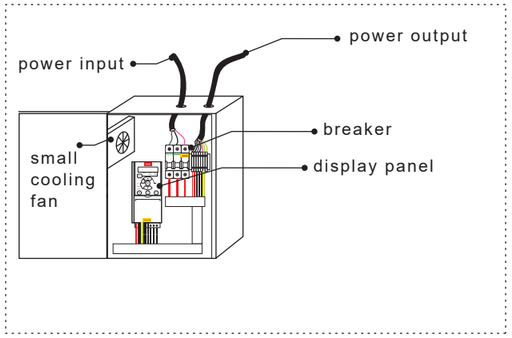
Fix control box to confirm mounted position,keep box balanced.Punch hole with electric tools and fix buckles into the holes with cross screwdriver(I).The box should be fixed at a height between 1.2m-1.3m from the ground.

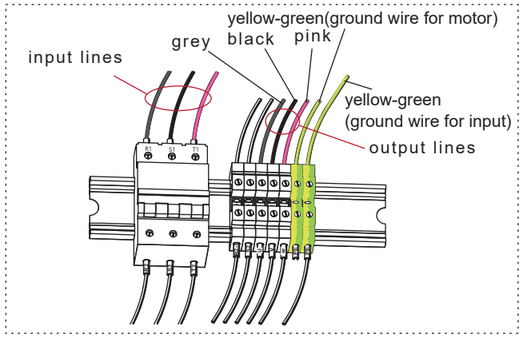




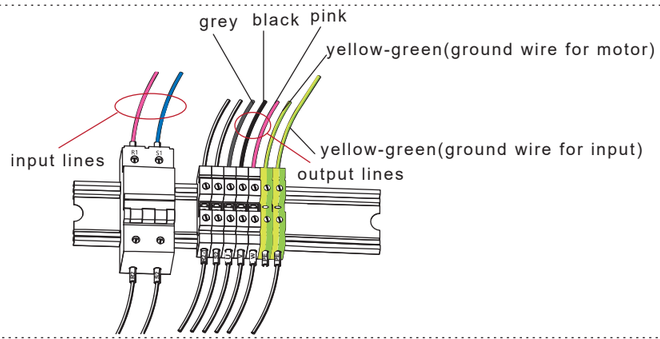
15 Wiring for control box

Cable from motor connect power output end on controller and power supply connect the input end, and tighten them with straight screwdriver(m). Must confirm to connect wires with the same color, output and input ends must not be connected wrongly, and note the data on the screen.



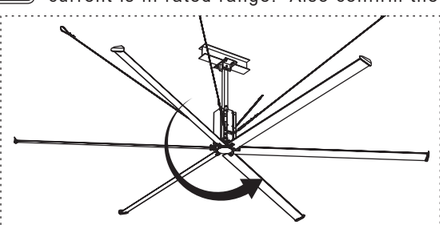


Option 1: wiring method for power of 380V-480V, 3 phases at site
Option 2: wiring method for power of 220V-240V, Single phase at site

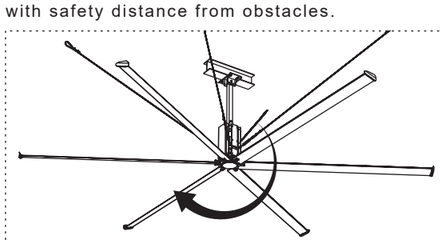


16 Test run

Test run for 15 mins to check whether there is any abnormal sound/noise, any shake of safety guy wire, or the current is in rated range. Also confirm the fan running safely with safety distance from obstacles.

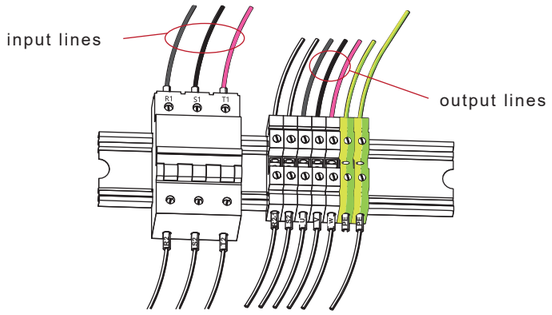


counter-clockwise direction is forward
(Right)



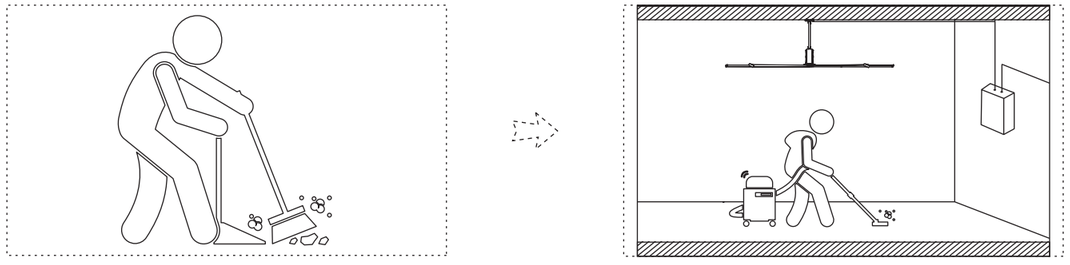
clockwise direction is reverse
(Adjust to forward)

If the fan reverse runs with small air volume,please power off correctly and exchange the connection of two lines U (red),V (yellow) and W (blue) to keep forward running.



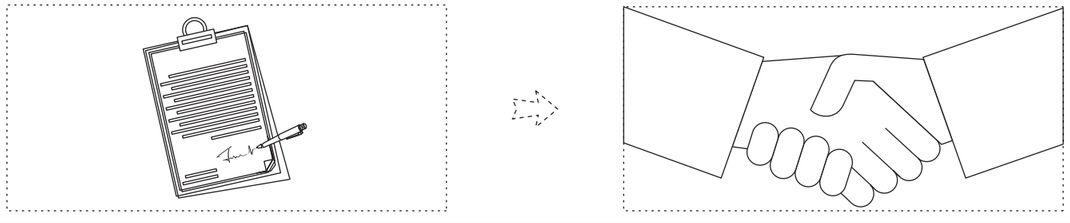
17 Clean up the scene

Remove all things about installation, clean the site and return the scene.



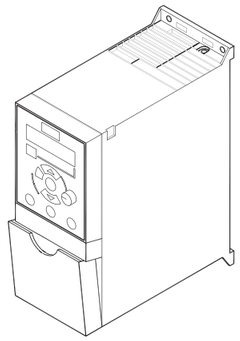
18 Customer signature

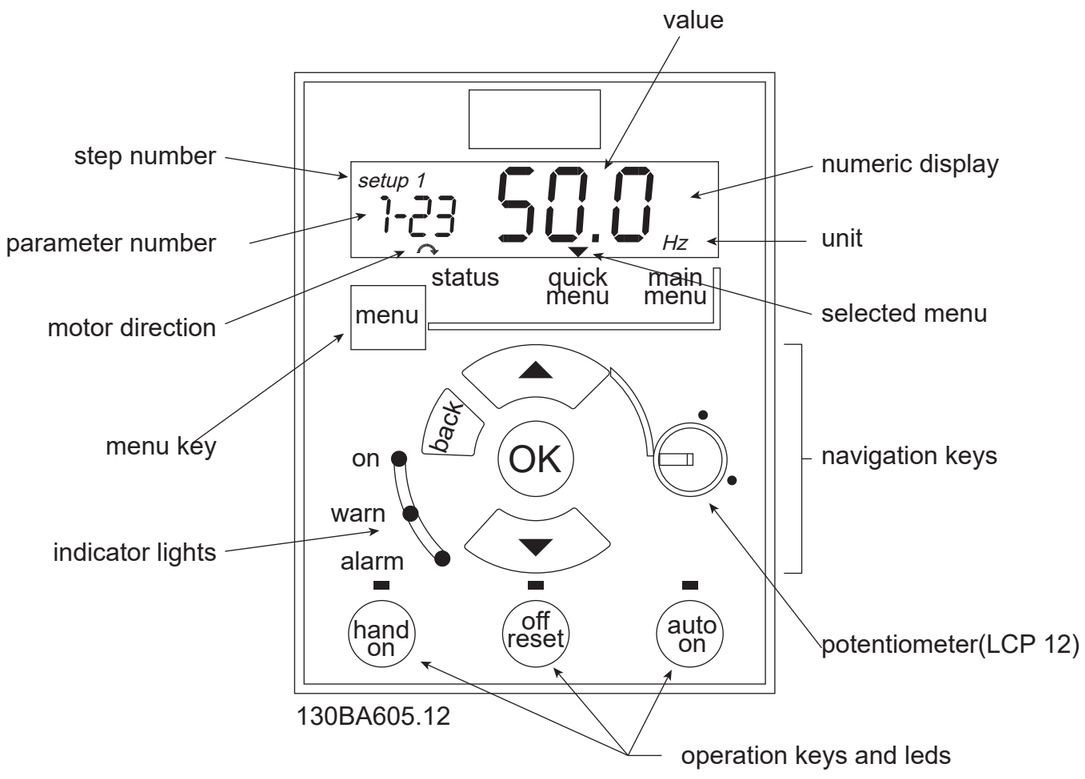
Client's signature and acceptance.



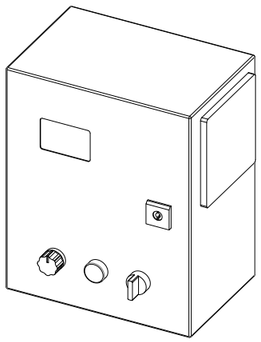
19 Installation is complete

7. Control Panel and Display System





8. Operating Instruction



Speed switch Switch on/off

Three gears control switches.

Three gears control switches are the electrical devices that control OFF, RUN and Reset, and they are weak current control switches. They directly control the requency converter.

Run:Fans are running forward,wind blowing downward
Stop:Fans stop running
Reset.

Before operating the equipment, please read the product instruction and clear the obstacles in the fan revolve area to ensure there is enough safety space for the fan operation.
Warning: Please make sure to turn off the power supply first before doing any electrical and fan maintenance and did by professionals to avoid being wounded!

◆ Normal boot sequence of operations

1. Confirm there is no obstruction and potential danger in the fan operation space ;
2. Confirm the input power supply is correct and meet the product's requirement;
3. Confirm the speed knob at the minimum position;
4. Turn on the fan, turn the control switch from STOP position to RUN position;
5. After the fan starts, adjust speed knob to get the appropriate speed and best effect.

◆ Normal shutdown sequence of operations

1. STOP device, turn the control switch from RUN position to STOP;
2. Power outage is prohibited during the fan normal operation.

9. Safety Instructions

- ◆ In the installation, adjustment and the cleaning processes,please don't bend the fan blades, or it will damage the equipment or affect using effects.
- ◆ Please make sure the fan's input voltage and supply voltage are the same before cut-in the power.
- ◆ Please don't proceed examine and repair works while power on so as to prevent electric shock.
- ◆ Please don't secretly alter the structure and installation site of the fan.
- ◆ Please don't open the electrical control box while power on so as to prevent electric shock.
- ◆ Please don't operate the damaged devices, or it will bring serious consequences of personal injury.
- ◆ Strictly prohibit the structural changes or parameter changes of the electrical control box, or it will cause equipment damage or personal injury and death accident duo to the improper set.
- ◆ In the electrical control box there includes high-voltage storage capacitor. When you operate the fan control device, please wait for 3 minutes to let the voltage release out (notes: the displayer blackness is not the mark that the voltage has reached the safety level) to prevent electric shock.
- ◆ Strictly prohibit the operation when the safety space of the fun is insufficient.
- ◆ Strictly prohibit the operation during the reverse back process of the fun's operating space, and make sure whether there are obstacles before starting.

Caution

- ◆ The installation and layout of the circuit wiring must be performed by professional qualified staff.
- ◆ Please use the specified device component appointed by our company.
- ◆ While the fan is running, please don't cut off the power, otherwise it will cause damage to the fan. It should cut off the power when the fan is drop-dead halt.
- ◆ When the fan is in the corotation (inversion) state, please don't switch the button to the opposite direction directly or it will cause the mechanical failure.

10. Troubleshooting

Common causes for the malfunctioning operation:

- ◆ The external power supply of the control box is not valid;
- ◆ Open the master switch, and then turn on the three gears control switch, if the fan can still not work, please check whether the speed knob is of the MIN state. Otherwise, please contact with technical department ;
- ◆ Non-professional staffs do not open the electrical control box! For repair or adjustment,please follow the instruction of technical department.
- ◆ If you find the equipment is damaged or has abnormal sound, please stop running as soon as possible, cut off power supply, and contact our service department;

Notes:
Equipment damages due to the improper use are not covered by the warranty. Personal injuries and equipment damages for your failure to comply with the contents of this manual, the company will not bear any responsibilities.

10.1 Explanation Of error Codes

No.	Description	Warning	Alarm	Trip	Error	Casue of Problem
2	Live zero error	X	X			Singal on terminal 53 or 60 is less than 50% of the value set in: 6-10 Terminal 53;Low Voltage; 6-12 Terminal 53 Low Current; 6-22 Terminal 54 Low Current
4	Mains phase loss 1)	X	X	X		Missing phase on supply side, or too high voltage imbalance. Check supply voltage.
7	DC over voltage 1)	X	X			DC-link voltage exceeds the limit.
8	DC under voltage 1)	X	X			DC-link voltage drops below the voltage warning limit.
9	Inverter overloaded	X	X			More than 100% load for too long.
10	Motor ETR overtemperature	X	X			Motor is too hot. The load has exceeded 100% for too long.
11	Motor thermistor overtemperature	X	X			Thermistor or thermistor connection is disconnected.
12	Torque limit	X				Torque exceeds value set in either parameter 4-16 Torque Limit Motor Mode or 4-17 Torque Limit Generator Mode.
13	Overcurrent	X	X	X		Inverter peak current limit is exceeded.
14	Ground fault	X	X	X		Discharge from output phases to ground.
16	Short Circuit		X	X		Short circuit in motor or on motor terminals.
17	Control word time-out	X	X			No communication to frequency converter.
25	Brake resistor short-circuited		X	X		Brake resistor is short-circuited,thus the brake function is disconnected.
27	Brake chopper short-circuited		X	X		Brake transistor is short-circuited,thus the brake function is disconnected.
28	Brake check		X			Brake resistor is not connected/working.
29	Power board over temp	X	X	X		Heat sink cut-out temperature has been reached.
30	Motor phase U missing		X	X		Motor phase U is missing. Check the phase.
No.	Description	Warning	Alarm	Trip	Error	Casue of Problem
31	Motor phase V missing		X	X		Motor phase U is missing. Check the phase.
32	Motor phase W missing		X	X		Motor phase W is missing. Check the phase.
38	Ground fault		X	X		Contact local Danfoss supplier.
44	Ground fault		X	X		Discharge from output phases to ground.
47	Control Voltage Fault		X	X		24 V DC is overloaded.
51	AMA check Unon and Inom		X			Wrong setting for motor voltage and/or motor current.
52	AMA low Inom		X			Motor current is too low. Check settings.
59	Current limit	X				Frequency converter overload.
63	Mechanical Brake Low		X			Actual motor current has not exceeded the release brake-current within the start delay-time window
80	Frequency Converter Initialised		X			All parameter settings are initialised to default settings.
84	The connection between frequency converter and ICP is lost				X	No communication between LCP and frequency converter.
85	Key disabled				X	See parameter group 0-4* LCP.
86	Copy fail				X	An error ocurred while copying from frequency converter to LCP,or from LCP to frequency converter.
87	LCP data invalid				X	Occurs when copying from LCP if the LCP contains erroneous data-or if no data was uploaded to the LCP.
88	LCP data not compatible				X	Occurs when copying from LCP if data are moved between frequency converters with major differences in software versions.
89	Parameter read only				X	Occurs when trying to write ro a read-only parameter.
90	Parameter database busy				X	LCP and RS485 connection are trying to update parameters simultaneously.
91	Parameter value is not valid in this mode				X	Occurs when trying to write an illegal value to a parameter.
92	Parameter value exceeds the min/max limits				X	Occurs when trying to set a value outside the range.
nw run	Not While Running				X	Parameters can only be changed when the motor is stopped.
Err	A wrong password was entered				X	Occurs when using a wrong password for changing a password-protected parameter.
1) These faults are caused by mains distortions.Install a Danfoss line filter to rectify this problem.						

INSTALLATION GUIDE

11. Customer Service

After-sales service is very important for the stability of the equipment operation, because of this, we offer customers high quality products and perfect after-sales service, at present, we had set up sales and after-sales service centers in five major areas across the country to ensure that we can provide users with thoughtful,fast, high quality and comprehensive after-sales service, make users feel relieved, without worry.

Product technical support

Combined with fan equipment installation,commission,and operation process,we provide users with free training about the product basic knowledge, operation, maintenance technology and related qualifications and certificates,to ensure long term stable operation of equipment.

Support can be got through the following ways:

1. Contact our company after-sales department to get support.
2. Contact sales engineers to download the latest product technical specification.
3. our company adhering to the customer first and provide the best service for you.

12. Fan Working Condition

In order to take full advantage of the product's performance and extend its life, the installation environment if of very important. Please install the fan in the environment as requested in the following table:

Environment	Requirement
Installation site	Indoors
Ambient temperature	-15~+55˚C To improve the reliability, please don't use the product in the places where temperature changes rapidly. Avoid freezing the product.
Humidity	Below 95%RH
Surrounding	◆ Places with no corrosive gas and flammable gas; ◆ Place that metal powder,oil water and other foreegn matter will not enter the controller; ◆ Place of less salt corrosion.

13. Quality Assurance

Details of the warranty of quality

Quality assurance is for the whole machine .The quality guarantee period is from the date of acceptance by customers. Failure occurs during the quality guarantee period, such as products, our company provide free consultation, maintenance services (including vulnerability free replacement of spare parts), quick response,professional troubleshooting.

The damages caused following reasons are not in warranty scope:

1. Improper use,maintenance and safekeeping;
2. Buyer and user themselves dismount or remove the product;
3. Force majeure factors(lighting,earthquake,typhoon,etc.).

14. Warranty and Maintenance

Our product design is maintenance-free, but in order to ensure the long life of the normal operation, the fan should also be maintained regularly, especially when applied in harsh environments.For any fan or inverter controller maintenance, please be sure that the fan stops running and cut off the controller power to protect the safety of personnel.

Interval	maintenance content
Test run	Check the operation of the fan, any abnormal sound or vibration
3000 hours	Clean the dust on the inverter Clean the dust on the blades
4000 hours	Check the mechanical fasterners to ensure that there's no looseness Check wire cable to ensure that there's no damage
9000 hours	Check the operation condition of power-driven device Check the oil level of motor gearbox

If the fan is running with a serious abnormal noise or vibration, it indicates that there exists some damages to themechanical parts somewhere, and you should immediately shut down the fan and do a comprehensive inspection.

Product warranty

Product warranty period: 36 months for complete machine after delivery.For failures within the warranty period, please do not try to solve by yourself, the company can send you a free onsite professional service. But the following occasions are the paid services:

- Failures caused by incorrect use.
- Failures caused by your transform of our products without our permission.
- Failures caused by natural disasters and fires.
- Over the warranty period
- Other failures caused by non-corporate responsibilities.

Our products are manufactured under strict quality control, and each set of the products have passed the rigorous testing process before delivery.

When the product is used in the occasions that may cause major accident or loss due to the improper operation,please configure the relevant security measures.

INSTALLATION GUIDE

Maintenance and Maintenance Acceptance Form

Customers' confidence to our products comes from products' quality:

Strict quality control and international quality standard components and raw materials guarantee the longevity of our products.

We have an efficient and professional after-sales service team to provide users with comprehensive after-sales service.

Service concept: enthusiasm, efficient, professional.

The meaning of maintenance: to extend the lifespan of the product, reduce the cost of input.

service items:

Operation safety inspection

Test items: mechanical structure operation stability, dynamic balance, six safety structures of the whole machine, wiring detection.

Fastener Checking

Full fastener inspection.

Cleaning and decontamination maintenance

Maintenance items: fan blade cleaning and decontamination, motor cover cleaning and dust removal.

Motor maintenance

Motor detection and cleaning.

Gearbox maintenance

Gearbox cleaning, gearbox oil replacement.

Control system maintenance

Electrical cabinet cleaning, electrical device testing, internal line testing, parameter testing.

Service contact

We provides 24/7 service,please contact local distributors.

After get your company maintenance requirements, our after-sales department will respond within 24 hours, and formulate maintenance personnel arrangements, detailed execution plans and quotations for your company's products.

Maintenance process

The customer proposes maintenance requirements both parties confirm - professional workers go to maintenance - your company signing confirmation happy cooperation.

Maintenance cycle

Time	9 steps deep-clean (Whole fan)	18 steps safety inspections (whole fan)	Replacement of safety fastening system for fan blades	Replacement of Mechanical Safety Balanced Cable System	Replacement of radiator fans in control box	Replacement of Inverter
1st year	●	●	–	–	–	–
2nd year	●	●	–	–	–	–
3rd year	●	●	●	●	●	–
4th year	●	●	–	–	–	–
5th year	●	●	–	–	–	–
6th year	●	●	●	●	●	–
7th year	●	●	–	–	–	–
8th year	●	●	–	–	–	–
9th year	●	●	●	●	●	–
10th year	●	●	–	–	–	–

● Service item – Non-service item

In order to meet your maintenance needs our maintenance service consists of three powerful components:

· Repair maintenance · · Preventive maintenance· · Improved maintenance·

This manual focuses on preventive maintenance, which is the key to achieving optimal performance and long-term operational benefits.

Preventive maintenance can help you avoid unexpected interruptions, provide emergency on-site service, detect failures and unnecessary energy consumption, thereby reducing overall costs.
It protects and extends the life of fans.

Items	18 Steps safety inspections (whole fan)	
1.Motor balance	7.Blade Strut	13.Operating current
2.Smooth operation	8.Blades	14.Circuit breaker
3.Safety rope	9.Fan tail	15.Switch
4.Fasteners	10.Line	16.Speed control
5.Wire lock	11.Wiring	17.Radiator fan
6.Safety ring	12.Inverter parameters	18.Other anomalies

Client's name:_____

Installation address:_____ Quantity:_____(sets)

Tel:_____ Product type:_____

Serial number:_____

Service type:_____

Class A - routine inspection [ ] Class B - Deep Maintenance [ ]

Maintenance level	Checking content		Implementing measures	Inspection Period
Routine inspec-tion:1.2.3. 4.5.6.7.8. 9.10.17.18	Electrical control section	1.Whether the controller box is damaged, deformed, corroded, loose.	Check, replace, fasten	24 months
		2.Whether the wires and terminals are aged & voltage is unstable due to overheating.		6 months
		3.Switch On/Off , the inverter is working effectively.		6 months
		4.Check the wiring in&out side ports standard, oxidation degree.	Inspection, proofreading, repair	6 months
		5.Check parameters, measure voltage, current value.		6 months
		6.Whether the start ,stop and speed switch are effective.		6 months
		7.Running detection noise value.	Cleaning,inspection, repair , replace	12 months
		8.Whether Control box enter and exit the ventilation port is blocked.		6 months
		9.Running and check the dynamic balance fastening parts (Hub system).	Replacement, repair	12 months
Deep mainte-nance: 1. 2 .3. 4. 5.6.7.8.9. 10.11.12. 13.14.15. 16.17.18	Mechani-cal part	10.Machine cleaning (host, fan blade, control system).	Inspection, cleaning, decon-tamination	12 months
		11.Bottom safety clearance and reducer oil filling port.	Inspection, repair, replacement	18 months
		12.Fan blade curve is even and flat, no cracks and impact marks.	Inspection, cleaning	12 months
		13.Check gearbox oil level according to running time and sampling oil.	Replace Shell VG680	36 months
	Safety balance	14.Whether the motor ending fan blades are damaged or deformed.	Fasten, replace	18 months
		15.When standing, measure the verticality and overall level of fan.	Fasten, replace	18 months
		16.The wire rope should have no obvious shaking, the turn buckle and screws are not abnormal.	Replace	18 months
		17.Fan operating scope, upper, lower ,side safety distance	Measurement, adjustment	12 months
		18.Insert end face and hub fit.	Inspection, replace	12 months

Remarks: _____

Customer representative signature:_____ Repair date:_____

Maintenance plan

Item	classification	Detail	Recommended maintenance Period (running time / hour)	Remarks
1	Safety inspection	Operational safety inspection	3000	The maintenance period can be adjusted according to the on-site operating environment.
2		Fastener inspection	3000	
3	Cleaning and decontam-ination	Cleaning and decontam-ination maintenance	3000	
4		Motor maintenance	3000	
5	Replacement of lubricant	Gearbox maintenance	3000	
6	Circuit detection	Electrical cabinet maintenance	3000	

Maintenance record

Client name:_____

Client address:_____

Contact:_____

Contact number:_____

Date	Quantity(set)	Item No.	Maintenance project selection	Maintenance manager
			1 □ 2 □ 3 □ 4 □	
			1 □ 2 □ 3 □ 4 □	
			1 □ 2 □ 3 □ 4 □	
			1 □ 2 □ 3 □ 4 □	
			1 □ 2 □ 3 □ 4 □	
			1 □ 2 □ 3 □ 4 □	

INSTALLATION GUIDE

Acceptance report of installation and commissioning

Customer:_____

Contract No.:_____

Principal of the customer: _____

Tel:_____Fax: _____

1. Main installation and commissioning work for this project:

Installing Site information :

Field structure		Blade height from the ground	
Field Height		Blade tip distance from obstacle	Upper: Below: Winglets end:
Mounting point height		Extension tube length	
Motor Brand		VFD brand model	
Rated voltage(V)		Running current(A)	
Field voltage(V)		Running upper and lower limit frequencies(HZ)	Upper limit HZ Lower limit HZ

Product Type:

Products Info	Quantity	Product Number

Inspection Items:(Customer selection)

Has been received product manual (inverter/motor manual, Quality certificate, key, user manual).	Yes □	No □
All equipment works normally and smoothly (no vibration, abnormal sound, electric appliances no alarm)	Yes □	No □
Fan shape without defects	Yes □	No □
On-site training fan operation methods, precautions, and warning instructions (do not use the power switch to control fan operation)	Yes □	No □
Power on and commissioning operation (running time is 15 minutes)	Yes □	No □
Installation accordance: A. customer installation drawings B. Customer project leader site fixed installing position.	A □	B □

2. Time of installation and commissioning:

_____ to _____ (Month/ Date/Year)

3. Work attitude of the technician:

□ Good □ All right □ Not good enough

4. Quality of service

□ Good □ All right □ Not good enough

5. Final situation of the installation and commissioning:

□ Good □ All right □ Not good enough

6. Detail:_____

7. Conclusion of acceptance: : □ Qualified □ Unqualified

8. Customer's comment:

Signature and stamp of customer:

(Month/ Date/Year)

Warranty Claim Form

Name:_____ Signature: _____

Company:_____

Shipping Address: _____

City/State/ZIP: _____

Phone:_____ Fax: _____

Items Returned:_____ Date of purchase: _____

Reason(s) for returning Item(Please provide detail,including the length of time after fan had been in operation that problem was noticed,nature of problem,any attempts you made to remedy the problem,etc.

ATTENTION:Do not return any items without first connecting with sales manager.

Date Replacement Parts Should be Shipped(if know): _____

Please do not request shipment until you are prepared to install;you may call sales manager to arrange shipment when you have scheduled installation.

Acknowledgment of Receipt of Warranty Return Notification.

Acknowledgment By:_____ Date: _____

Date of Install		Voltage		Frequency	
Whole Fan No.		Reducer Box No.			
VFD S/N		Motor No.			
Warranty					

THANKS FOR KEEPING!