

## 产品承认书

### SPECIFICATION FOR APPROVAL

客户 CUSTOMER : \_\_\_\_\_  
品名 PART NAME: 直流无刷冷却风扇  
尺寸 Dimension 50\*50\*20MM  
型号 TYPE NO : AB05020H12FP  
客户料号CUSTOMER MODE : \_\_\_\_\_  
日期 DATE : \_\_\_\_\_

客户确认栏 CUSTOMER APPROVAL		正凌精密工业(广东)有限公司 确认栏 CUSTOMER APPROVAL		
批准 APPROVAL BY	检查 CHECK BY	批准 APPROVAL BY	检查 (CHECK BY)	作成 (MADE BY)

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机种名称 MODEL	AB05020H12FP
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## Specification

### 一、适用范围 Scope of application

本文件定义了该直流无刷风扇的机械和电气特性。

This document defines the mechanical & electrical characteristics of DC Brushless FANS .

### 二、机械规格 Mechanical Specification

1	产品尺寸	Dimensions	50*50*20mm
2	机壳	Frame	UL 94V-0 Glass filled polyester (PBT) RoHS
3	叶轮	Impeller	UL 94V-0 Glass filled polyester (PBT) RoHS
4	轴受构造	Bearing	滚珠 TWO BALL BEARING
5	重量	Mass	约 37.0 g About

### 三、电气特性规格 Properties specifications

NO.	项目 Item	规格值 Specifications	条件 Conditions
1	旋转方向 Rotation Direction	看叶轮方向逆时针旋转 Counterclockwise when look into impeller side.	
1	额定电压 Rated Voltage	12VDC	
2	使用电压范围 Operating Voltage	6-13.8V	
3	额定电流 Rated current	0.20A	额定电压、在空气没有任何障碍的情况下 IN free air at Rated Voltage and room temperature
4	额定功率 Rated Input	2.4W	额定电压、在空气没有任何障碍的情况下 IN free air at Rated Voltage and room temperature
5	工作占空比范围 Operating Duty Cycle Range	20%~100%	额定电压、在空气没有任何障碍的情况下 IN free air at Rated Voltage and room temperature
6	启动占空比 START-UP DUTY CYCLE	30%	额定电压、在空气没有任何障碍的情况下 IN free air at Rated Voltage and room temperature
7	额定转速 Rated Speed	6000±10%min-1	额定电压、在空气没有任何障碍的情况下 IN free air at Rated Voltage and room temperature
8	最大风量 Max air Flow	19.15CFM	额定电压、在空气没有任何障碍的情况下 IN free air at Rated Voltage and room temperature
9	最大静压 Static Pressure	6.42[mmH2O]	额定电压、在空气没有任何障碍的情况下 IN free air at Rated Voltage 9.8[Pa]=1[mmH2O]
10	A特性音压 A Noise level	38.5dB (A)	测定位置距离风扇吸风面1.0m At 1.0m away from the suction surface of the fan
11	期待寿命 Life Expectancy	50000 Hours	在40℃ 湿度为65%时 at40℃/ 65%RH
12	使用温度 Operating Temp.	-30℃~+85℃	在湿度为65%+/-20%相对湿度时 At 65% + / - 20% RH
13	保存温度 Storage Temp.	-40℃~+85℃ (常湿)	
14	绝缘电阻 Insulation Resistance	10MΩ 以上 Not less than	DC500V 机壳和电源正极之间 DC500V between frame and lead wire.
15	耐电压 Withstanding Voltage	AC500V1分钟或者AC600V1秒钟 风扇不能有任何损坏	机壳和电源正极之间 between frame and lead wire.

NOT: 风扇应以额定转速运转、风机应在最大启动占空比下运行, 除非另有说明, 相对湿度为65%, 温度为25℃, 用于标准测试, 如有任何疑问, 请参阅确认文件

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### 三 特性和定义 CHARACTERISTICS & DEFINITION

1、根据附件的数据表规定了所有额定特性。

All rated characteristics were specified as per data sheet enclosed.

2、额定电流：额定电流应在额定电压下连续旋转3分钟后测量。

Rated Current: Rated Current shall be measured after 3 minutes of continuous rotation at rated voltage.

3、额定转速：3分钟后测量额定转速。

Rated Speed : Rated Speed shall be measured after 3 minutes.

4、启动电压：通过突然接通“ON”能够启动风扇运行的电压，

Start Voltage : The voltage which is able to start the fan to operate by suddenly switching ' ON

5、输入功率：输入功率应在额定电压下连续旋转3分钟后测量。

Input Power : Input Power shall be measured after 3 minutes of continuous rotation at rated voltage.

6、堵转电流：堵转电流应在1分钟内测量，在清洁空气中以额定电压连续旋转3分钟后，转子锁定。

Locked Rotor Current: Locked current shall be measured within one minute of rotor locked, after 3 minutes of continuous rotation at rated voltage in clean air

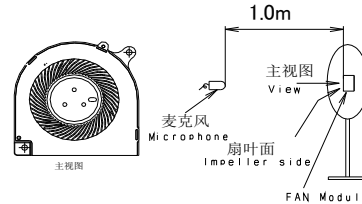
7、空气流量和静压：应根据AMCA-210标准在进气侧测量的双室试验中确定空气流量数据和静压。

Air Flow & Static Pressure: The air flow data and static pressures should be determined in measurement. accordance with AMCA-210 standard in a doublechamber testing with intake -side

8、A特性音压：A特性音压测量参照行CNS8753执行，在消声室中，麦克风位于距进气口1.0米处。试验风机应悬挂在干净的空气中。

Noise Level : The measurement of noise level is carried out with reference to CNS8753 in an anechoic chamber with the microphone positioned 0.5 meter from the air intake. Testing fan shall be hung in clean air .

A特性音压测量 NOISE LEVEL MEASUREMENT



### 4. 可靠性试验 Reliability testing

1	期待寿命 Life Expectancy	在给定温度和额定电压电压的连续工作寿命之后，90%的试验风扇仍应运行。 After the continuous working life of the given temperature and rated voltage and voltage, 90% of the test fans should still be in operation.
2	耐热性 Dry heat	温度85±2℃中放置500小时、常温放置24个小时后再测定数据，其他符合JIS C0022 The DC.fan shall be stored at a temperature of 85±2 °C for 500 hours. The data were measured after 24 hours at room temperature, Other JIS compliant C0022
3	耐寒性 Cold	温度-40±2℃中放置500小时、常温放置24个小时后再测定数据，其他符合JIS C0022 The DC.fan shall be stored at a temperature of -40±2°C for 500 hours. The data were measured after 24 hours at room temperature, Other JIS compliant C0023
4	耐湿性 Moisture resistance	根据MIL-STD-202F方法103B湿度试验，96小时后，95%RH，40+/-2℃下，绝缘电阻和介电强度的测量数据应符合规范要求。 After 96 hours, 95% RH, 40+/-2 °C per MIL-STD-202F, method 103B humidity test, the measured data on insulation resistance and dielectric strength shall meet the specificaiton.

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5	热冲击 Heat shock	<p>下记温度重复500个循环、常温放置1~2个小时后再测定数据。 Write temperature was repeated for 500 cycles, at normal temperature for 1 or 2 hours after the determination.</p> <p style="text-align: center;">温度(°C) temperatuer</p> <div style="text-align: center;"> <p style="text-align: center;">1循环 1Cycles</p> <p style="text-align: center;">时间Time(h)</p> </div>
6	自由落体冲击 Free Drop Shockt	<p>在最小包装条件下，风机应能承受来自，高度为30cm，安装在10mm厚的木板上。 In minimum package condition, the fan should withstand drops on any three faces from a height of 30cm onto a wood board of 10mm thick</p>
7	低温動作试验 Low temperature operation test	<p>风马达放置在-30℃的试验箱内，额定电压5V，连续工作168H.常温放置1-2H后测定数据。 The FAN motor is placed in the test chamber -30 °C, rated voltage 5V, continuous working168H, Data measured at room temperature after 1-2H placement .</p>
8	高温動作耐久 High temperature operation durability	<p>风马达放置在+85℃的试验箱内，额定电压5V，连续工作1000H.常温放置1-2H后测定数据。 The FAN motor is placed in the test chamber +85 °C, rated voltage5V, continuous working 1000H, Data measured at room temperature after 1-2H placement .</p>
9	ON/OFF开关试验	<p>风马达放置在设定的试验环境中，额定电压5V，通电工作30秒，停止30秒。 重复规定的周期，试验结束后，常温放置1-2H后测定数据 The wind motor is placed in the test environment set, rated voltage 5V, power 30 seconds. stop 30 seconds, The cycle is repeated provisions, after the test, measurement data at room temperature after 1-2H placement</p> <p>试验条件：常温情况下，试验2000个循环 Testing conditions: 3.Normal cases, 2000 cycle test</p>

规格(No.1~9): 电气和机械性能满足产品规格要求

Specifications (No.1 ~9): Electrical and mechanical characteristics shall be satisfied.

以上各种试验结果：性能和特性满足产品规格

The test pieces must satisfy spec when after each test.

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## 5. 其他规格书 Other Specifications

1	堵转保护	<p>在旋转锁定状态下连续72小时后，不得发现任何损坏。一旦释放了对运行的限制，重新启动将自动进行。</p> <p>No damage shall be found after 72 hours continuously at condition of rotation locked.</p> <p>Restarting is automatic as soon as constraint to running has been released.</p>
2	自动重启功能	<p>所有风机都具有针对堵转状态的综合保护，一旦释放了对旋转的任何限制，将进行重新自动启动。当风机置于死角位置时，开关从off变为on。自动重新启动正常就证明了这个风扇是好风扇。</p> <p>All fans have integrated protection against locked rotor condition so that there will be no damage to winding or any electronic component. Restarting is automatic as soon as any constraint to rotation has been released. As fan placed at dead angle position, and the switch was changed from off to on. Restarting</p>

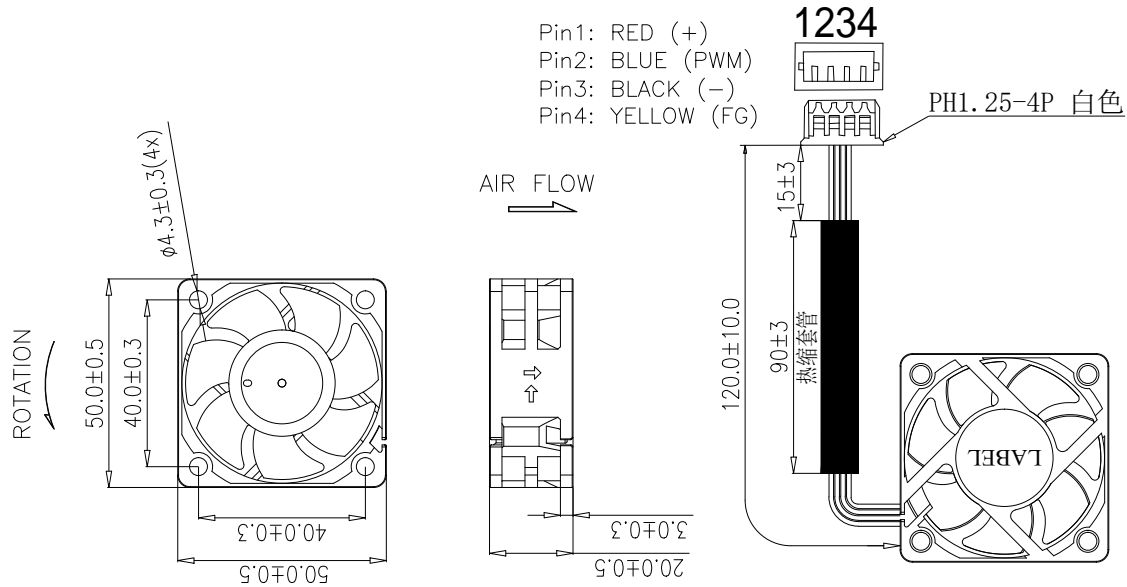
## 6. 特记事项 Precaution

- (1) 保管：避免放在有腐蚀性、高温、高湿的场所，保存期限不要超过6个月。  
Storage: No high temperature, high humidity and corrosive atmosphere. Storage over 6 months is not recommended.
- (2) 不要让石油化工原料（油、油脂等）接触风扇树脂部分。  
Avoid the contamination with petrochemical materials such as oil, grease and etc. with the fan's plastic parts.
- (3) 风机运行时，不要故意长时间锁紧风机，因为长时间锁紧产生的电机过热会损坏风机。  
While the fan is running, do not intentionally lock the fan for a long time since the overheating of the motor produced by the long-time locking will damage the fan.
- (4) 螺丝安装最大扭矩应为0.49N·m以下。  
Maximum torque for screw mount shall be 0.49N · m.
- (5) 避免损坏，连接前检查电压是否正确，极性是否正确。  
To avoid the damage, check the correct voltage and proper polarity before connecting with
- (6) 因使用不当，如拆卸风机、被灰尘覆盖或将风机浸入水中而导致缺陷不在保修范围内。不要在有腐蚀性空气或液体的环境中使用风机。  
Improper use such as disassembling the fan, being covered with dust, or dipping the fan in water that results in defects is not covered in the warranty. Do not use the fan in the environment with corrosive air or liquid.
- (7) 本规格书的变更，由双方协商后进行。  
The change of the specification put in practice with a conference of both companies.
- (8) 在满足产品规格书范围内的改进，有可能会变更一些零件。  
It will be able to happen sometimes that the change of specification for improving performance with in the part sphere satisfaction.
- (9) 本产品满足RoHS要求。  
This product is satisfied RoHS standard.

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## 7. 外形尺寸 WAOUTLINE STYLING & DIMENSIONS



### NOTES:

- 1.THE PRODUCT IS RoHS COMPLIANT
- 2.HOUSING: A1251H-4P (COLOR: WHITE) OR EQUAL
- 3.TERMINAL: A1251-TP OR EQUAL
- 4.LEAD WIRE: UL1061 AWG28 OR EQUAL



## 8 Notes:

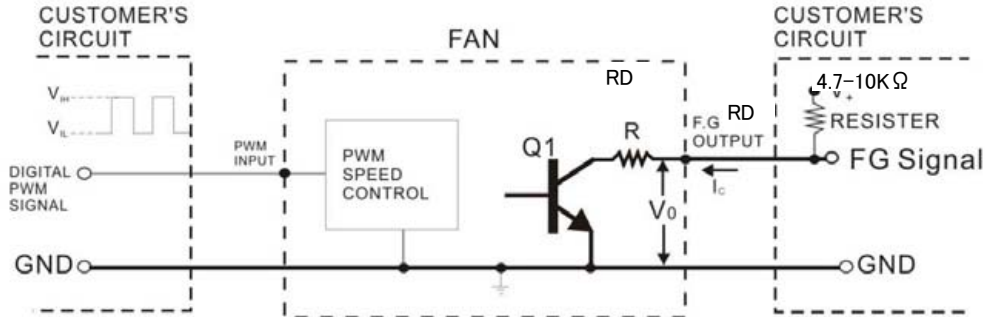
- 8.1 Please do not touch and push Fan Blade with fingers or others, fan blade and hypro bearings may be damaged and it causes noise defect.
- 8.2 Do not carry the fan by its lead wires.
- 8.3 If the fan does not have the polarity protection function, the connection of the colored wires should be red + red, and black + black, or else the fan will be damaged in no time.
- 8.4 For the models without reverse connection of polarity protection, please do not connect the lead wire in reverse
- 8.5 Please don't install this fan in series with 2x voltage inputs. For example, if a single fan rated at 5V, then don't install two of them in series with 10V input.
- 8.6 Every specific fan is designed for its certain application (project). Therefore, if you want to use this fan in other application (project), please inform to my company first so that we can confirm whether there is any issue which might be incurred from the reason of this different application (project) or not.
- 8.7 The "Life Expectancy" of this fan has not been evaluated for use in combination with any end application. Therefore, the Life Expectancy in the Test Reports (L10 and MTTF Report) that relate to this fan is for reference only and shall not construe any kind of warranty of company to the life of any specific fan, either expressed or implied.
- 8.8 The period of product warranty, unless otherwise agreed by company in written, shall be 12 months starting from the date of production.
- 8.9 In Lead Wire, there is a possibility to come off from frame.
- 8.10 In order to avoid abnormal bumping or interference caused by deformed impeller when fan is fastened, suggested distance of at least 0.5mm is strongly reserved in front of the frame (the sight from the impeller face).

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9、Provision of digital PWM Speed control and locked signal(FG)

OUTPUT of locked signal-----Opend Collector type

(External signal function design is decided by customer)



\*TRANSISTOR Q1 AT "ON" POSITION (FG Signal) (at Ta:25°C)

FG Supply Voltage----- $V_{+}=2.5V\sim 5V$

RELEASE VOLTAGE----- $V_{OH}=2.5V\sim 5V$

SATURATION VOLTAGE----- $V_{OL}=0.6V\text{ MAX}$

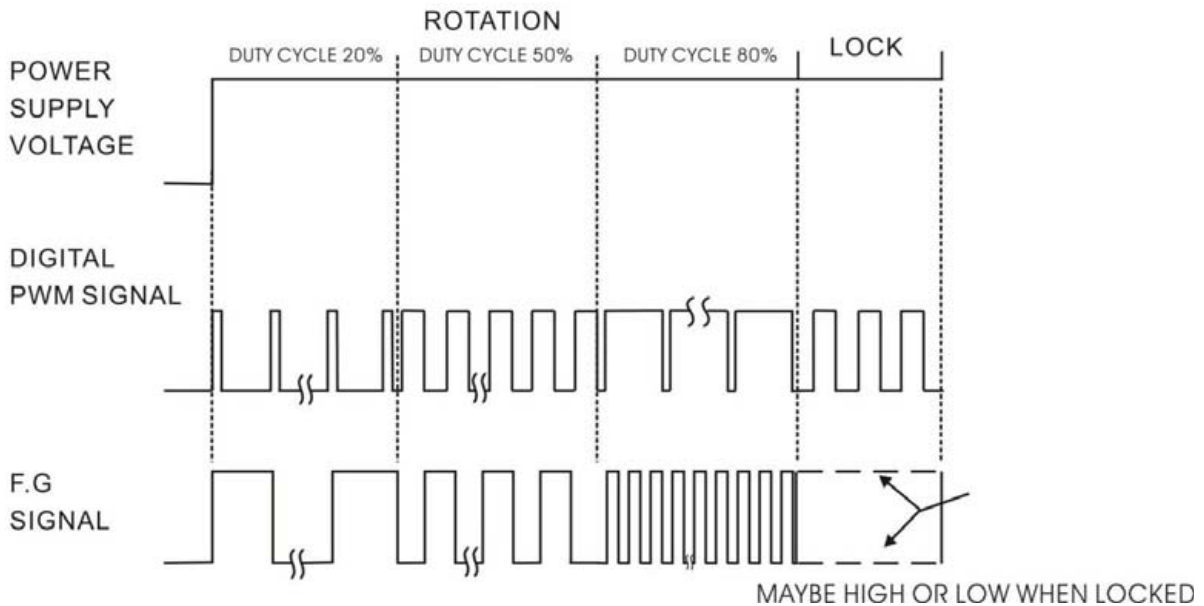
COLLECTOR CURRENT----- $I_c=3mA\text{ MAX}$

\*DIGITAL PWM SPEED CONTROL POSITION (at Ta:25°C) ( $V_{cc}=5V$ )

\*PWM INPUT FREQUENCY----- $FPWM:20KHZ\sim 30KHZ$

PWM INPUT VOLTAGE HIGH----- $V_{IH}=2.5V\sim 5V$

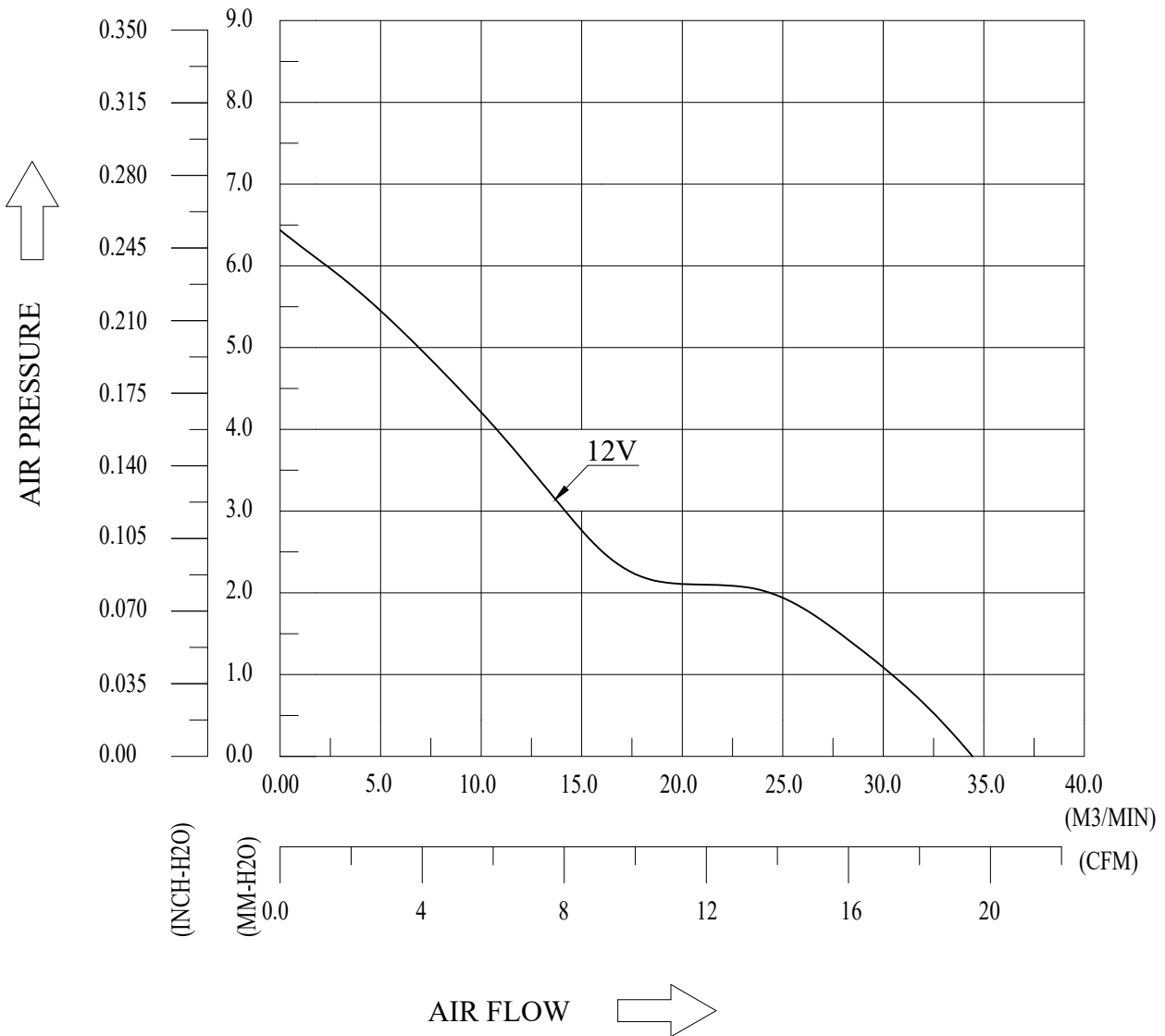
PWM INPUT VOLTAGE LOW----- $V_{IL}=0\sim 0.5V$



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### 10. 风压风量曲线 P & Q CURVE



\* 测试条件TEST CONDITION:

输入电压INPUT VOLTAGE — — — 操作电压OPERATION VOLTAGE

环境温度TEMPERATURE — — — 室温ROOM TEMPERATURE (AT 25°C)

环境湿度HUMIDITY — — — — 相对湿度65%RH

## <风扇马达的拿取方法>

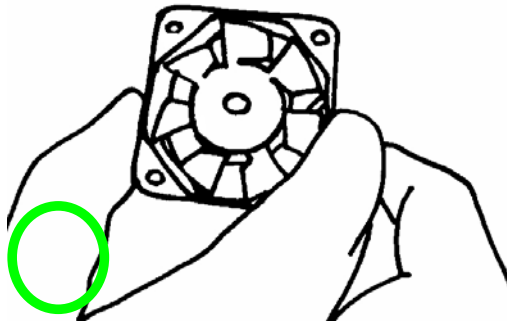
### Fan motor handling explanation

\* 此说明全系列产品通用，实际收到的产品及包装可能会与下记图片有不同之处。

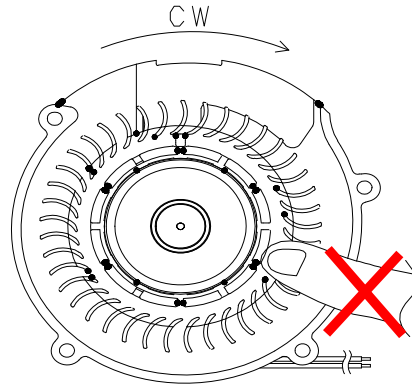
\* This description is common to all models, but the actual products and the package will be different from the picture.

#### 1. 风扇从包装箱取出时注意事项

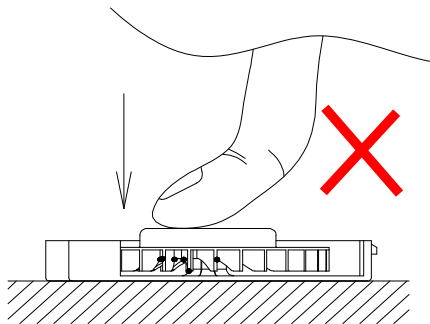
Attention when catch a product and take out a product from package.



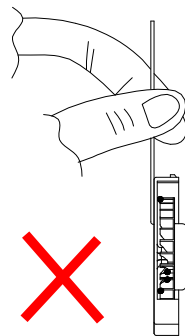
正确的拿取方法：  
请握住机壳侧面，取出时手指避免碰触到扇叶。  
Method OK which catches a product :  
Please do not touch it with a feather.  
Please get the side of a case.



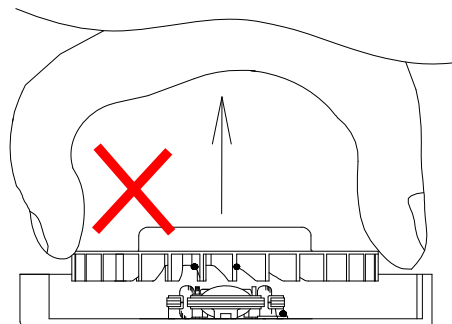
错误的拿取方法：  
禁止用手逆时针旋转扇叶，  
It is forbidden to rotate the blades  
counter-clockwise by hand,



错误的拿取方法：  
禁止用手按压扇叶，  
Do not press the Fan Blade  
with your hand,

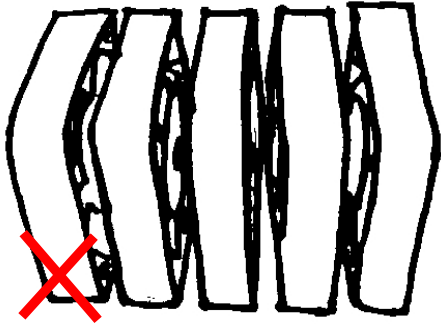


错误的拿取方法：  
禁止用手拉导线  
Do not pull cable  
by hand

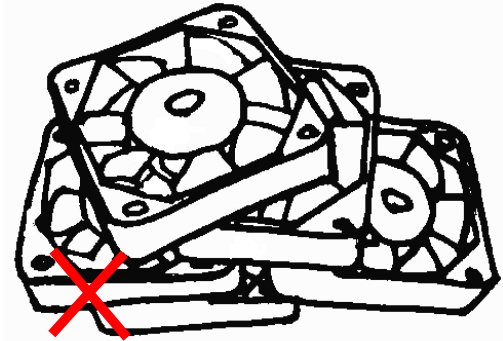


错误的拿取方法：  
禁止把扇叶取出  
Do not pull out blades

## 2. 关于风扇的放置方法 How to set products.



错误的放置方法：  
直立放置容易倾斜向一旁倒塌。  
Wrong placement method :  
There is danger of falling when putting it on length.



错误的放置方法：  
这样的方式堆积产品，使扇叶受到直接冲击、增加压力，引起叶片变形，起动不良。  
Wrong placement method :  
I prohibit you from I put a product, and displaying it.  
Feather transformation and poor movement outbreak

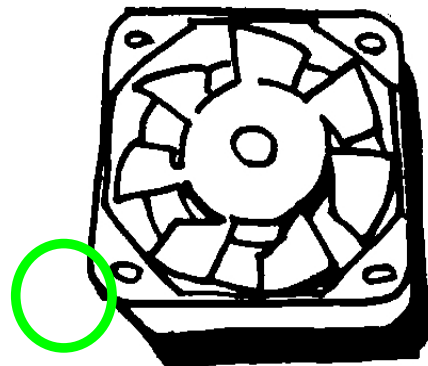
严禁掉落  
Fall strict prohibition



More than 20cm.  
(Ball bearing type is more than 5cm.)

20cm  
以上  
滚珠轴  
承5cm  
以上

严禁产品掉落。  
从20cm以上的高度掉落，产品容易发生破损。  
(滚珠轴承型号的5cm以上)  
Please do not drop a product below :  
It is likely to damage it when dropping it from the height of 20cm or more.  
(But ball-bearing type fan does not drop of over 5cm.)



正确的放置方法：：  
请不要将产品重叠放置。  
Method OK to set a product :  
Please do not put a product on the top.