

产 品 规 格 书

PRODUCT SPECIFICATION

产品系列 Product Series: 交流离心风机 AC Centrifugal Fan

产品型号 Model: SC280B1-AL5-01

配置代号 Configuration code: 101



泛仕达机电股份有限公司
FANS-TECH ELECTRIC CO.,LTD.

换版记录/Records of revision

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产品设计标准和安规要求/ Engineering standard and safety regulations

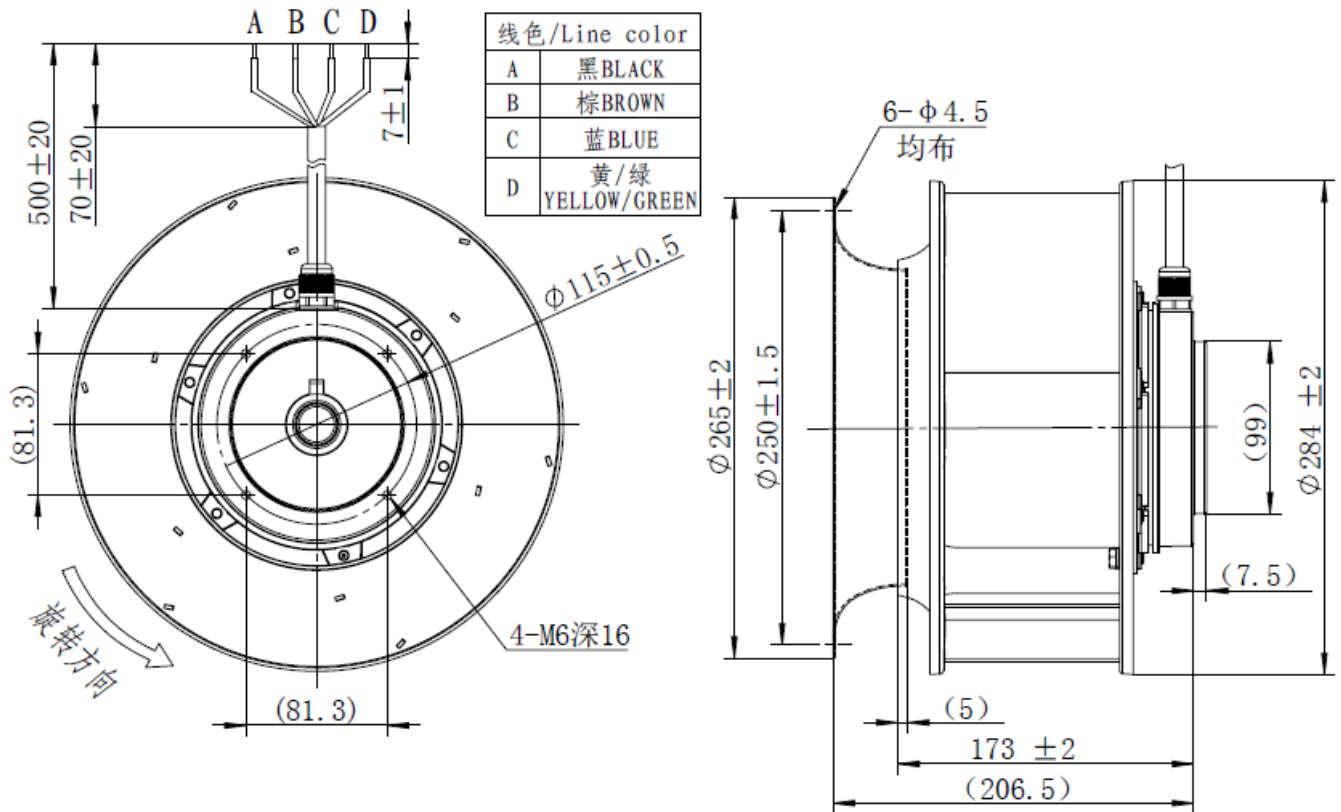
- ◆ GB12350 《小功率电动机的安全要求》 /GB12350 *Safety requirements of small power motors.*
- ◆ JB/T10563-2006 《一般用途离心通风机通用技术条件》 /JB/T10563-2006 *General technical requirement for general centrifugal fan.*
- ◆ EN60335-1 《家用和类似用途电器的安全》 /EN60335-1 *Safety of household and similar electrical appliances.*
- ◆ 风机振动速度有效值，按照 JB/T8689-2014 标准规定 /The fan vibration speed virtual value according to JB/T8689-2014 standard.
- ◆ 本产品通过以下认证/ Certification
 - ☐ UL+cUL ☒ CE-LVD ☐ CE-LVD+EMC
 - ☐ CE-EMC ☐ TUV ☐ CCC
 - ☐ 其他 Others
- ◆ 本产品全部材料符合RoHS2.0和REACH要求。 /All materials accord with RoHS2.0 and REACH.

使用环境 / Operating environment requirements

- ◆ 工作温度/Operating temperature: $-25^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- ◆ 工作湿度/Operating humidity: 5%~95% RH
- ◆ 贮存温度/Storing temperature : $-25^{\circ}\text{C} \sim +80^{\circ}\text{C}$
- ◆ 贮存湿度/Storing humidity: 5%~95% RH
- ◆ 海拔高度/Altitude: $\leq 2000\text{m}$

因为空气密度变化，风机 PQ 性能会随着海拔高度升高而降低。

Because of the change of air density, the PQ performance of fan will decrease continuously with the increase of altitude.



关键零部件明细表 Schedule of major components

项目 Item	规格 Specification
轴承 Bearing	滚动轴承/NSK/6002-ZZ/轴承油脂温度: -40~+150℃, 每台风机用 2 个。 Rolling bearing/ NSK/6002-ZZ / Bearing grease temperature ranges from -40 to +150℃, Each fan uses 2 bearings.
定子座 Stator housing	压铸铝合金 Casting aluminium.
漆包线 Enamelled wire	MW30-C(QZY-2/180)
电源引出线 Cable	UL4389/6C 18AWG/200℃ 外径 $\phi 7.8 \pm 0.5\text{mm}$ /UL-E214184、E214859 UL4389/6C 18AWG/200℃ The diameter of $\phi 7.8 \pm 0.5\text{mm}$ / UL-E214184、E214859
轴 Shaft	材质 45#钢 / $\phi 15$ The material is 45# steel / $\phi 15$

高温高湿试验/High temperature and high humidity test requirements

温度及湿度：70℃、95%RH，时间：在上限工作电压 440Vac 下运行 504h。

样品数量：4 个（2 个通上限电压运行，2 个仅存储）。

试验后风扇正常工作，转速、电流、噪音、耐压和绝缘电阻满足规格书要求，转速及电流变化率不超过 10%。对风扇拆解分析，内部轴承、轴等金属部件没出现腐蚀，试验前后噪音变化不超过 3dB。对风扇拆解分析，轴承不得发生滑动，轴承与轴、轴承与轴承座孔的配合面不得明显磨损，所有零部件不得出现生锈，塑料件等不得开裂、熔融等异常。

注：试验后耐压测试测试电压为额定耐压测试的 0.85 倍。

Temperature and humidity: 70℃, 95%RH, time: 504h under the upper operating voltage of 440Vac.

Number of samples: 4 (2 for upper voltage operation, 2 for storage only).

After the test, the fan works normally. The speed, current, noise, voltage resistance and insulation resistance meet the requirements of the specifications. The speed and current change rate do not exceed 10%. The disassembly analysis of the fan shows that there is no corrosion in the metal parts such as the internal bearing and shaft, and the noise change before and after the test does not exceed 3dB. For fan disassembly analysis, bearing shall not slide, the mating surface of bearing and shaft, bearing and bearing seat hole shall not wear obviously, all parts shall not rust, plastic parts shall not crack, melt and other abnormalities.

Note: The test voltage of withstand voltage test after test is 0.85 times of the rated withstand voltage test.

防腐要求/Anticorrosion requirements

喷雾浓度为 $(5 \pm 0.1)\%$ NaCl 溶液，pH 值在 6.5~7.2 (35 ± 2)℃ 之间；中性盐雾试验 720h。

完成试验后，风机部件会出现生锈或腐蚀，但风机的功能正常，性能在规格书声明范围内，安规合格。

The spray concentration was $(5 \pm 0.1)\%$ NaCl solution, and the pH value was between 6.5 and 7.2 (35 ± 2)℃. Neutral salt spray test 720h.

After the completion of the test, the fan components will appear rust or corrosion, but the function of the fan is normal, the performance is within the scope of the specification, and the safety regulations are qualified.

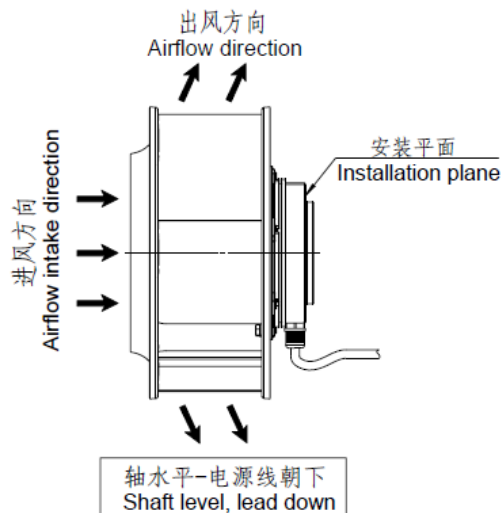
风机主要部件及表面处理/Material and surface treatment of main components of fan:

转子铁芯/ Rotor iron core	B50A800/表面电泳和喷粉 B50A800/ Surface electrophoresis and spraying
定子铁芯/ Stator core	B50A800/表面喷环氧漆 B50A800/ The surface is sprayed with epoxy paint
轴头/Shaft head	45#/轴头位置涂 AB 胶 45#/ shaft head position coated with AB glue
导风圈/ Inlet cones	SGCD/表面电泳和喷粉处理 SGCD/ surface electrophoresis and spraying

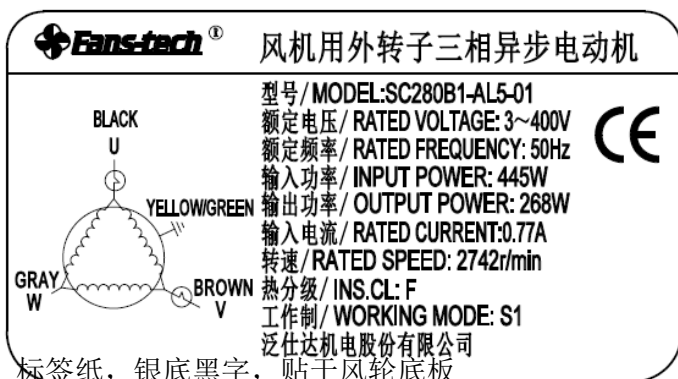
安装方向/Installation direction description:

轴水平安装(建议进风口预留 200mm，出风口预留 130mm 以上的空间距离)

Horizontal shaft installation (It is recommended to reserve a space distance of 200mm for the air inlet and 130mm for the air outlet)

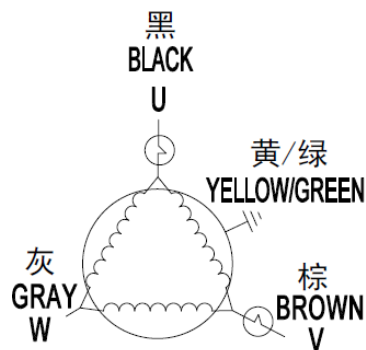


铭牌标识/Nameplate drawing



Label paper, black letters on silver background, affixed to wind wheel bottom plate.

接线示意图/ View lead connection



性能参数 / Nominal data

额定电压/Nominal voltage	400Vac
额定电压范围/Nominal voltage range	360~440Vac
启动电压/Starting voltage	306V
额定频率/Frequency	50Hz
额定电流/Current (±10%)	0.77A
启动电流(瞬时峰值)/ Starting current (instantaneous peak,)	<7.4A (参考值/ reference value)
输入功率/Power input(±10%)	445W
允许最大输入功率/Maximum allowed input power	577W (参考值/ reference value)
转速/Speed(±10%)	2742 r/min
风量/Air flow(±10%)	2400 m³/h
最大静压/Max Pst (±10%)	785 Pa
噪音/Noise(-7/+3)	84 dB(A)
测试状态/ Method of obtaining data	放空状态/ Free air

最高效率点参数/Parameters at maximum efficiency point

静压/Pst	598 Pa
输入功率/Power input	548 W
风量/Air flow	1371 m³ /h

机械参数 / Mechanical data

电机/Motor	AE106B1-00003
漆包线温度等级/Temp. grade of enamelled wire	H
叶轮/Impeller	铝合金/Aluminum alloy
重量/Weight	8.4Kg(典型值/ Typical values)
电机防护等级/motor degree of protection	IP54
轴承/Bearing	滚动轴承 Ball Bearing
耐冲击能力/ Impact resistance	加速度为 30G, 测试时间 11ms; 每个面 3 次, 共进行 18 次 Acceleration is 30G, test time 11 ms; Three times per face, A total of 18 times
正弦扫频振动耐受/ Sinusoidal sweep frequency vibration tolerance	风机承受 X/Y/Z 方向、频率 10~150Hz 的正弦扫频振动, 加速度 1G, 次数各 20 次 The fan is subjected to sinusoidal sweep vibration in X/Y/Z direction with frequency of 10~150Hz,with acceleration 1G,and frequency 20 times.
振动/Vibration	≤2.5mm/s
平衡/Balancing	在 2742 ±10%/min 运转时, 每个端面动平衡精度不低于平衡品质等级 G6.3。/When the fan is running at 2742±10%/min, the dynamic balance accuracy of each end side is not lower than the balance quality grade G6.3.

电气参数/Electrical description

绝缘等级/Insulation class	F
绝缘电阻/Insulation resistance	在风机电源线、接地线施加 500VDC, 风机冷态绝缘电阻 ≥ 50MΩ, 热态绝缘电阻 ≥ 5MΩ
接触电流/ touch current	≤0.75mA (标准 EN60335-1)

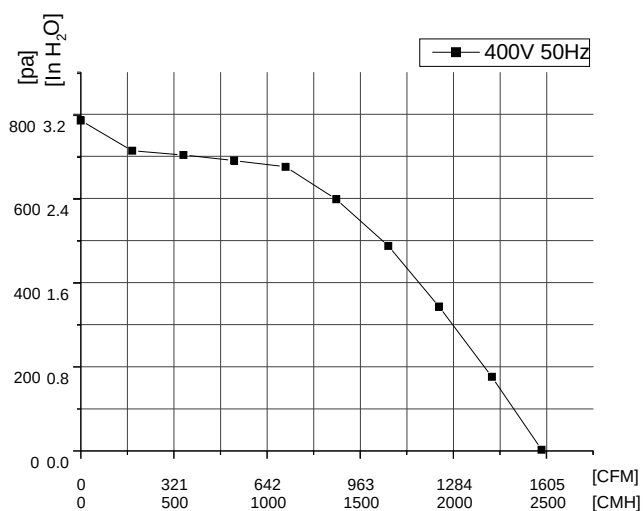
		绝缘耐压/Insulation withstand voltage	电源端对接地端耐压: 2100Vac/8mA/3s 无闪烁、不击穿 Power terminal to ground terminal: 2100Vac/8mA/3s no flicker, no breakdown
转速/Speed	2663 r/min	保护/Protection	热保护器 断开温度:150-160℃ 复位温度: 95-125℃ Thermal protector cut off temperature: 150-160℃ reset temperature:95-125℃

最大电流点参数（供参考）Parameters at maximum current point (For reference)

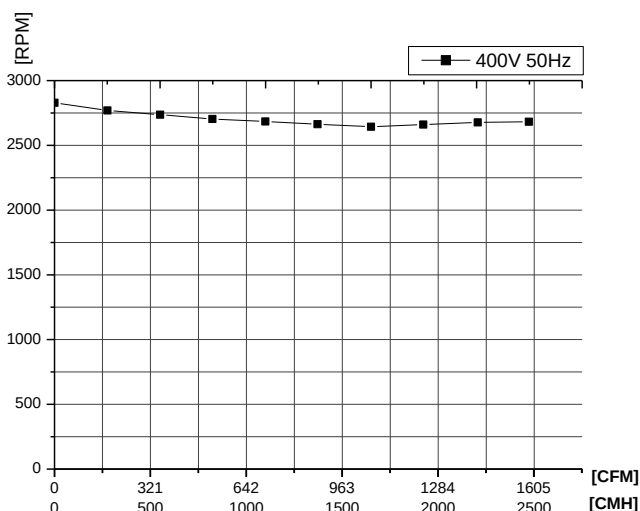
额定电压/Rated voltage	400Vac	最大电流/Current	0.97A
频率/Frequency	50 Hz	输入功率/Power input	577 W
静压/Pst	487 Pa	转速/Speed	2644 r/min
		风量/Air flow	1650 m ³ /h

特性曲线 /Performance curve

压力-流量 /P-Q



转速-流量/n-Q



电压 U VAC	频率 f Hz	输入电流 I A	输入功率 P W	转速 n r/min	静压 Pts Pa	流量 QV CMH	静压 Pts inH2O	流量 QV CFM
400	50	0.62	308.4	2829	785	0	3.15	0
400	50	0.85	492.6	2703	690	823	2.77	485
400	50	0.93	548.4	2663	598	1371	2.40	808
400	50	0.97	577	2644	487	1650	1.95	972
400	50	0.91	535.4	2677	176	2206	0.71	1300
400	50	0.90	530.3	2682	3	2472	0.01	1457

寿命/Life expectance

在额定电压400V、50Hz、环境温度40℃、风机全速连续运转时，预期寿命为40000小时。（根据应用产品实际工况，预期寿命会有不同。）/The life expectancy is 40000_hours at rated voltage 400V and 50Hz, ambient temperature of 40℃, and continuous operation of the fan at full speed. (According to the actual working conditions of the product, the life expectancy will be different).保质期以双方约定的协议为准。/The warranty period is subject to the agreement agreed by both parties.

备注/Note:

测试环境：在室温为 25℃，相对湿度为 85%RH 时测试/Tested at room temperature of 25 ° C and relative temperature of 85% RH.

风量：根据 ISO5801 安装类别 A 标准进行测试；/Air volume is tested according to ISO 5801 installation category A standard;

噪音：进行声压级测试，根据按 GB/T2888《风机和罗茨鼓风机噪声测量方法》进行测试，轴水平放置风机,离风机进风口 1 米处测试。给定的值在上述条件下有效，并且可能根据实际安装情况而有所不同。/noise is tested for sound pressure level, according to GB/T 2888 Fan and Roots Blower Noise Measurement Method, the axis is placed horizontally and the fan is tested 1 meter away from the air inlet of the fan. The given value is valid under the above conditions and may vary according to the actual installation situation. Measurement Method, the axis is placed horizontally and the fan is tested 1 meter away from the air inlet of the fan. The given value is valid under the above conditions and may vary according to the actual installation situation.

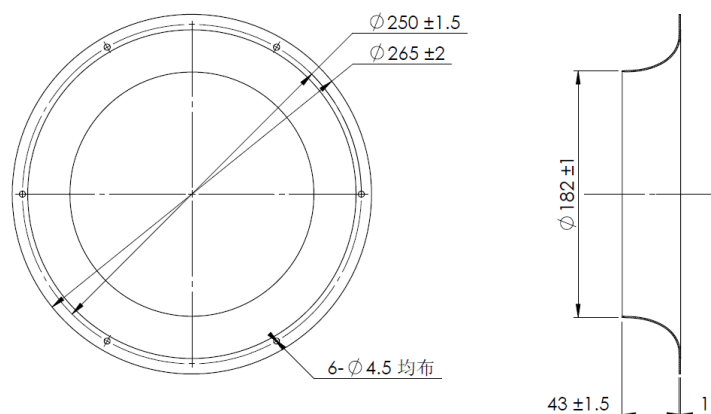
电源频率相关说明：（一）风机设计方案基于电源频率 50Hz 时测试结果定案，使用频率范围为 20~50Hz,但低频使用时需有相应的措施降低风机温升，如降低电压等；（二）应确保风机电源的各相谐波峰值电压不超过 600V，否则会影响风机的绝缘系统，降低风机运行的可靠性。/ **Description of power frequency:** (1) The design scheme of the fan is based on the test results at the power frequency of 50Hz. The use frequency ranges from 20 to 50Hz. However, when the low frequency is used, corresponding measures should be taken to reduce the temperature rise of the fan, such as reducing the voltage. (2) Ensure that the peak harmonic voltage of each phase of the fan power supply does not exceed 600V; otherwise, the insulation system of the fan will be affected and the reliability of the fan will be reduced.

配附件/Other requirements on accessory

导风圈/Inlet cones

SGCD\电泳、喷粉

SGCD \ electrophoresis and spraying



导风圈/Inlet cones

警示语 /Warning:

在使用产品之前, 请仔细阅读以下说明, 遵守以下警告, 以防止发生故障或对人员造成危险。以下标志表示存在潜在危险。/ Read these instructions carefully before starting work on the device. Observe the following warnings to prevent malfunctions or danger to persons.



危险/ DANGER:

表示在紧急的情况下, 如不采用指定的措施, 会导致死亡和重伤, 必须遵守说明。/Indicates an imminently hazardous situation which will result in death or serious injury if the specified actions are not taken. Compliance with the instructions is imperative.

1) 没有防护, 在操作过程中, 手、衣物、长头发可能会卡在设备中, 从而导致严重伤害。/Without protection hands, clothing, and long hair may get stuck in the device, resulting in serious injury during operation.

2) 风机请安装在儿童不能接触到扇叶和带电部件的地方, 也不允许儿童单独使用本产品。/ The fan should keep away from the children especially the blade and electric parts. And the children are not allowed to operate the fan alone.

警告/ WARNING:

表示潜在的危险情况下, 可能导致死亡或严重伤害, 工作格外小心。/ Indicates a potentially hazardous situation which can result in death or serious injury if the specified actions are not taken. Exercise extreme caution while working.

1) 产品在安装、拆卸过程中可能打滑、掉落, 可能会导致致命或严重的伤害以及财产损失, 设备严重损坏。/The product may slip and fall during installation and disassembly, which may result in fatal or serious injury, property damage, and serious damage to the equipment.

2) 噪音可能超过 $L_p: 70\text{dB(A)}$ 时, 有引起听力损失的风险。/ the sound pressure level may exceed 70dB(A) . Risk of noise-induced hearing loss.

警戒/ CAUTION:

表示潜在的危险情况下, 如果不采取指定的措施, 可能会导致轻度或中度伤害或财产损失。/Indicates a potentially hazardous situation which can result in minor or moderate injury or damage to property if the specified actions are not taken.

1) 从包装中取出风扇时有割伤和压伤的危险。/Cutting and crushing hazard when removing fan from packaging.

注意/ NOTE:

可能会发生潜在的有害情况, 如果不避免, 可能会导致财产损失。/A potentially harmful situation can occur and, if not avoided, can lead to property damage.

1) 包装运输仅以原始包装运输。在原始包装中, 清洁的环境中保护其不受天气影响, 并且不受振影响。/ Transport the device in its original packaging only, protected against the weather and free from vibration, in the original packaging in a clean environment.

2) 在客户端进行安装时须满足可能出现的机械、温度及使用寿命相关的应力要求。/ When installing at the client, it must meet the mechanical, temperature and service life-related stress requirements that may occur

3) 在接入设备前, 请检查数据连接、输入的电压是否与铭牌相匹配。/Before connecting to the device, check whether the information on the nameplate matches the connection data, and make sure the power supply matches the device voltage.

4) 在移动产品的时候, 不得以风机扇叶为受力点搬运产品, 否则会造成扇叶变形而使风机震动过大。/ Be careful when moving the fan and do not take the blades as a handle because it will cause the distortion and chatter.

5) 使用的安装螺丝不得超过要求长度, 否则会造成风机损坏。/ The length of the mounting screws shall not exceed the requirement, otherwise the fan will be damaged.

6) 请不要自主拆装风机, 否则将影响动扇叶平衡、防水等效果, 严重的将引起安全问题。/ Do not disassemble the fan arbitrarily. It may hurt the capacity of watertightness and dynamic balance or cause other serious problems.

7) 带导风圈的风机需按照推荐尺寸设计和安装, 否则将影响产品性能。/ The fan with inlet ring should be installed follow the requirements or it will affect the performance.

8) 对于未带电缆线之风机, 客户所接电缆线的外径需在要求的范围内, 否则将影响防水效果。/ Users should use the standard cable when install the fan otherwise it will affect the watertightness.



危险/ DANGER:

表示带电设备, 触电危险。/ Electrically charged device, Risk of electric shock

警告/ WARNIN: 设备关闭, 重新起动, 有触电的危险。/ Live terminals and connections even with device switched off, Electric shock

警戒/ CAUTION: 发生故障时, 给电机或风机通电或者在停电后, 如果设备设置有控制电压或者存储速度值, 电机将自动重启, 有受伤的风险。/ When a fault occurs, power on the motor or fan or after a power failure, if the device is set with a control voltage or stored speed value, the motor will automatically restart, there is a risk of injury.



警戒/ CAUTION:

表示外壳表面高温, 有烫伤危险和着火危险。/ High temperature on electronics housing Risk of burns

1) 电机接线必须按接线图的指示, 有接地线要求的产品请务必接上地线, 不建议客户使用延长线, 所有不按指示接线都可能造成电机烧坏。/ Wiring depends on the wiring diagram and please connect the earth ground if required. we don't suggest to use the extension cord. Any wrong connection may cause the damage of the fan.

2) 对于有接温控器要求的风机, 请务必接上带温控器的引线, 否则有可能造成电机内部温度过高而损坏。/ Connect the thermostat if required otherwise it would damage the motor because of the over temperature.

3) 风机的电气连接必须有合适的过流保护器以防止电流过大对产品造成损坏。/ The overcurrent protector is necessary in case the damage from the overcurrent.