



客户确认书

CUSTOMER CONFIRMATION



电机名称 Motor Name: 直流无刷电机(BLDC Motor)
电机型号 Motor Code: OT-EM3215D2450Y1R-BEZE
客户名称 Customer: BEZE
文件编号 Paper NO.: OT/KH-00BM-167
文件版本 Version: A0
编制日期 Date: 2022-9-23

我司确认 Our Confirmed:

制作 DESIGN	审核 CHECK	批准 APPROVAL
肖云海	齐志虎	綦宗千

客户确认签章 (CUSTOMER CONFIRMATION SIGNATURE) :

The purpose of the specification is to offer a clear standard for the quality of the product. The maker and user should accept it under the standard. For the detail Not included, we should update after consultations.

订立此规范的目的, 便于客户对产品的质量有一个明确标准, 制造和使用双方将按此标准验收, 至于一些尚未包括在内之细节内容, 双方可协商后补充修订。

If the specification accepted, Please reply this sheet to us in one month or before batch production.

若确认性能可以接受, 请在一个月内或正式投产前签回此份确认书。



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1、Construction-form/结构形式

NO.	Items 项目	Specifications 规格
1-1	Motor construction 电机结构	Brushless motor of outer rotor 外转子无刷电机
1-2	Number of phases 相数	3-phases 3 相
1-3	Number of magnet poles 磁极极数	8-poles 8 极
1-4	rectifying method 换向方式	electronic commutation 电子换向

2、Measuring Conditions/测量条件

NO.	Items 项目	Specifications 规格
2-1	Motor Position 电机位置	Horizontal and vertical to output shaft direction 出力轴水平或垂直方向
2-2	Temperature or Humidity 温度、湿度	Ambient temperature: 10-30 °C & Relative humidity: 30-85%Rh 常温（温度 10-30℃），常湿（湿度 30-85%Rh）
2-3	Power Source 电源	DC regulated power source, which has no doubt the results shall be used 使用直流稳压电源

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3、Characteristics & Standard operation condition/性能&标准使用状态

NO.	Items 项目	Specification 规格
3-1	Rated Voltage 额定电压	7.4V DC
3-2	Operating Voltage Range 使用电压范围	6.0V~8.0V DC
3-3	Operating Temperature Range 使用温度范围	-10°C~+60°C
3-4	Storage Temperature Range 储存温度范围	-30°C~+80°C
3-5	Operating Humidity Range 使用湿度范围	30%~85%RH
3-6	Direction of Rotation 回转方向	CW /CCW (顺时针/逆时针旋转)
3-7	Motor Position 电机位置	All Direction 全方向
1[mN.m]=10.197[gf.cm], 1[gf.cm]=0.098[mN.m]		

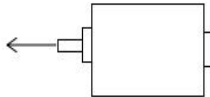
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4、Electrical Characteristics/电气特性

NO.	Items 项目	Conditions 条件	Specification 规格
4-1	No-load current 空载电流	At rated voltage and no-load 额定电压、无负荷	0.11(max.0.13)A
4-2	No-load Speed 空载转速	At rated voltage and no-load 额定电压、无负荷	2000±10% rpm
4-3	Rated load Speed 额定负荷转速	At rated voltage and rated load 额定电压、额定负荷	/
4-4	Rated load Current 额定负荷电流	At rated voltage and rated load 额定电压、额定负荷	/
4-5	Start Torque 堵转力矩	At rated voltage 额定电压	320 g.cm
4-6	Starting Current 堵转电流	At rated voltage 额定电压	0.8 (max.1.0)A
其它	TBD 待定/待商讨		

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5. Mechanical Characteristics/机械特性

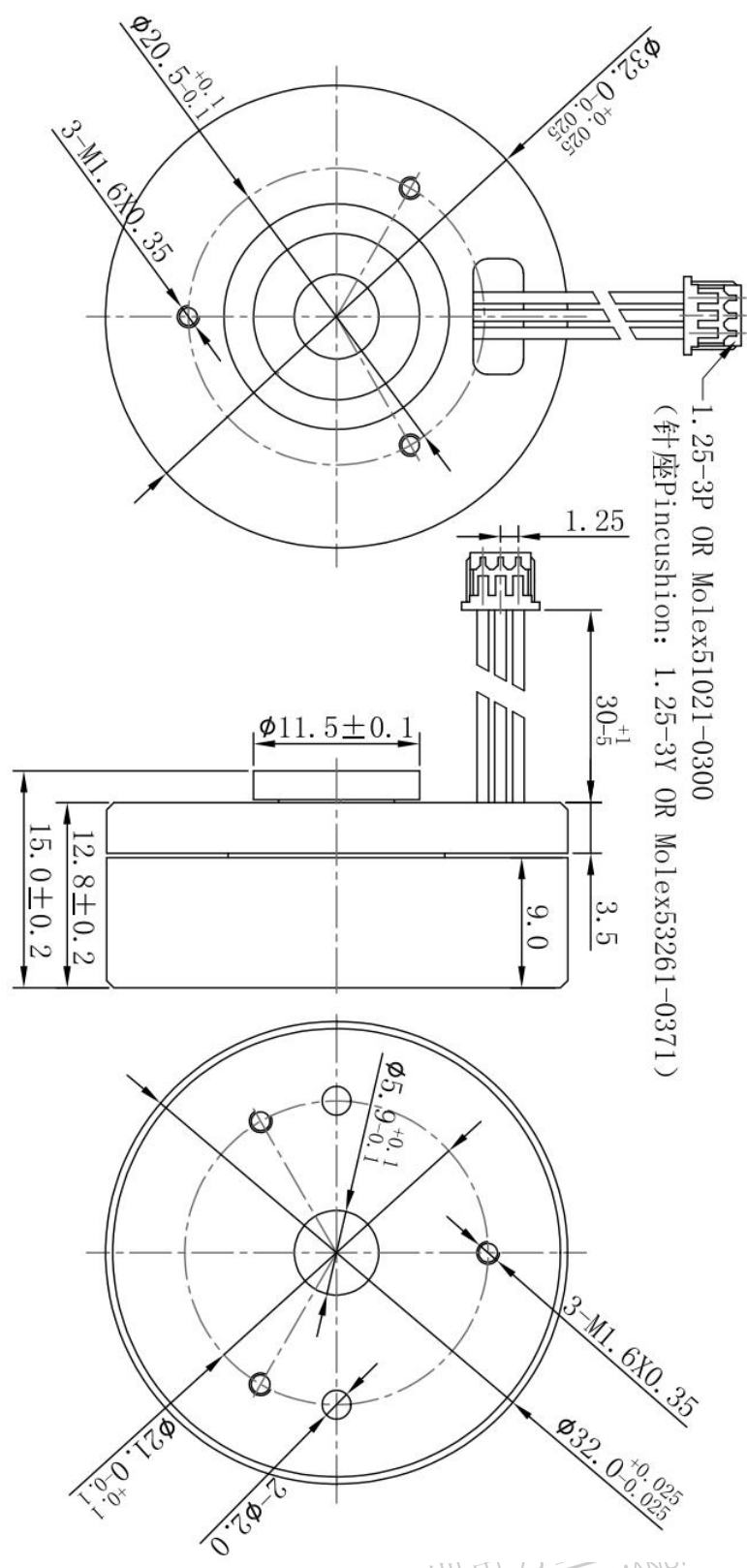
NO.	Items 项目	Conditions 条件	Specification 规格
5-1	Outline Dimension 外形尺寸	Measured by caliper or micrometer 卡尺或千分尺	Meet the requirements of drawing spec 符合图纸规格要求
5-2	Noise 噪音	The human ear recognition 人耳识别	No noise 无噪音
5-3	Axial Clearance 轴向窜动位	Measured by dial gauge 百分表或千分表 	0 mm
4-5	端子壳 Housing	型号 Model	1. 25-3P OR Molex51021-0300

6. Environmental Test/环境试验

NO.	Items 项目	Conditions-Remark 条件-备注	Acceptance 判定标准
	TBD 待定/待商讨		

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6、Motor appearance diagram/电机外观图:



Tolerance	
0.5~6.0	± 0.05
6.0~30	± 0.10
30~120	± 0.15
120~500	± 0.30

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8. Product packaging specification /产品包装规范

产品包装规范

顾客或公司对产品的包装要求

- 1、纸箱泡沫盒尺寸符合要求，外观应完整无缺且颜色均匀周边无批锋、无变形、无掉泡沫颗粒，包装盒内干燥无水珠。
Carton, foam box size meet requirements. Appearance should be intact and no burrs, distortion, and foam particle. Foam box should be dry.
- 2、箱买贴在纸箱侧面方格内，注明：品名、型号、订单编号、物料编号、数量、检查员印章、品管判定员印章、日期等，客户如有特殊要求还须注明。
Shipping mark paste on the carton outside and should have product name, model no., order serial no, article no., quantity, Inspector stamp, QA stamp, date, etc.
- 3、在外包装箱正面上方处的对面中间贴上‘RoHS’标签。
Labelling on the carton top side
- 4、外箱封胶纸须垂直封好后，再将纸箱侧面四个凌角封住。
Carton opening side should be taped and then tape the 4 corners.

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9. Once Top Motor Working Guide /万至达电机使用时注意项

1、确定和确保马达的匹配和合适于实际的操作和装备应用。例如确定在实际的装配中又没有选择了合适的电子的征性，机械性能，机械和电子噪音，储存环境和空气的影响等

1. Confirm and assure the matching and the reliability of the motor on actual set or unit application. The examples of the confirmation on actual set are the reliability, electric characteristics, mechanical characteristics, mechanical/electric noise, environmental storage, influence from atmosphere/gas etc.

2、如果含有少量硅分子的化合物的材料及硅性材料，被粘附在转向器和刷片等马达的其他部件上，因为经电能的整流子会使硅分子化合物分解成氧化硅，碳化硅和其他的成分,这样就导致了刷片和转换器之间的接触电阻增大。

因此无论是在装备马达还是在装配产品都应该小心,当硅性材料被用在装置时,检查好那些材料是不是放密封材料里，以至于让它不能产生有害的气体对马达驱动电源的内阻有害的生气体的性质.所以当使用中一些气体含有氰和硫磺时马达必须被适宜的分，是为了不让他和空气中有有害的成分接触。

2. If silicon materials, which contain low molecular silicon compounds, adhere to the motors commutator, brush or other parts, then upon rectification of the electric energy the silicon breaks down into SiO₂, SiC [and other constituents which produce a rapid increase in the contract resistance between the commutator and brush.

Therefore great care should be taken when silicon material is used in a unit and check well at the same time that such binding agents or sealing materials are not generating gases of detrimental the internal resistance of the motor driving power source nature, whether used for motor mounting or applied during your product assemblies.

Care must be taken for an optimum selection, especially when using those of cyanic adhesive and sulfur gas.

3、在使用接合剂粘合马达和物件时，请不要让任何的接合剂粘到轴承或掉进马达内部,从而会影响马达的功能。

3. When mounting your motors by means of binding agents, DON'T allow any adherence to the bearings nor intrusion into the motors.

4、由于对马达的轴的输出方(及轴伸)的轴向推力也会影响马达的寿命，例如,在装载蜗轮和风叶时用力过大会影响马达的寿命。所以为了预防当马达在装配产品后的使用寿命比预期的短的现象出现，当对于需要大力气装载负载时，应该考虑使用某些协助性机器来帮助完成装载以便保护轴承的轴伸。

4. Axial thrust on the output shaft could have an adverse effect on the motor life. i.e. As is produced by worm gears, fans, etc., Check the service life expected under the actual operating conditions by testing the motors installed in your application products. For heavy thrust loads, consider using something mechanical to retain the shaft enc.

5、也会出现马达驱动电源的内电阻(包含了一个电子的回路)能对马达的寿命产生影响的情况。例如当给马达输入一个低电压的情况时，内部电源的电阻变高的，会导致马达在一个短时间内坏掉。相反的当使用一个高的循环电压情况时，内部电阻变小并且马达的生命周期也会变短。当温度不同于通常温时，例如高或低的温度情况也会损害马达的寿命，所以请注意马达的使用条件和环境。

5. There are occasions when the internal resistance of the motor driving power source (Which contains an electrical circuit) can influence the life span of the motor. In instances where there is a low input of voltage to the motor, the internal resistance of the power source is large which may well result in an inferior motor after a short times, conversely in instances where high cyclic voltages are applied, this internal resistance is small and the motor life span is shortened. When the temperature deviates form the normal room temperature as is the case in low and high temperature situations, please note the conditions.

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6、过大的径向负载也会对马达的寿命产生有害的影响，例如旋转式的偏心轮，或外部带给电机的震动。为了避免这些所有的负面因素，请在装备产品时按照到马达的实际操作时所有需的合理条件来操作。

6. Motor life may be affected adversely by heavy radial load such as produced by rotating eccentric cams, est., and also by vibration given from outside. DO check over such negative factors by testing the motors to the actual operating conditions in your application products.

7、如果当组装马达和装配配件时，有时使用会放射出超声波的设备，这些设备会对马达的内部结构造成损害，所以请小心使用。

7. If when mounting the motor and assembling the unit, equipment which emits ultrasonic waves is used there is a danger that some of the internal parts of the motor might be damaged as please take care.

8、不要把马达贮存在高温和极度潮湿的地方。也不要将马达存放在可能会出现有腐蚀气体的空气中，因为这些都可能导致马达的功能被破坏。

8. DON'T store motors under environmental conditions of high temperature and extreme humidity. DON'T keep them also in an atmosphere where corrosive gas may be present, as it may result in malfunction.

9、操作环境和温度也会尽可能的或多或少的的影响马达的性能和寿命。请特别的注意马达当在高温和潮湿的环境下。

9. Ambient and operating temperatures exert an affect more or less on motor performance and life. DO pay particular attention to the surroundings when it is hot and damp.

10、当在压入合适的滑轮和齿轮等入马达的轴身时，总是要有一个支撑力在轴的另一边或者要有一个固定的金属垫在合适的位子和正确的方法。

10. When press fitting a pulley, gear etc., onto the motor output shaft, always support the shaft at the other end or its retaining metal pad in a proper and correct way.

11、当焊接时，必须确保尽可能快地完成，以至于不会让马达的端子旁边的橡胶受到影响而变形扭曲和内陷。在这种情况下，特别小心不要让焊接的锡屑和松香溶液滴落到电机的里面，必要时通过掩盖周边所有的洞和缝隙的预防措施也是很重要的。焊接任何马达都要快速的离开端子，必须小心以免让松香流进端子与电刷之间，因为这个可能导致电导的失灵。

11. When soldering, BE SURE to finish your work quickly so as not to develop plastic deformation around the motor terminals nor to give them any forced bend or inward depression. In doing so, special care must be taken not to allow solder debris and flux to spatter into motors and precautionary measures should be taken if necessary, by covering up all the nearby holes and apertures. Any motors having snap-in terminals must also be attended carefully so as not to get flux in along the terminals, as it may cause failure in electrical conduction.

12、不要让马达的轴被锁住当供电时，因为即使只是锁住很短的时间也可能会令马达产生过多的热量堵塞，导致烧坏马达。

12. DON'T leave motor shaft locked while power is applied, as even a short-time lock-up may cause excess heat build up resulting in burning damage to the motor depending on its specifications.

13、当后盖顶板受到强大的压力时可能会导致马达不可能运转。所以在组装马达时不要给过大的压力。如果需要要去推动后盖地板时，请向我们拿取合适的加载力参数。

13. Intensive pressure on the endbell boss might cause starting disability of motor. So please take care for motor mounting not to push endbell boss. If the endbell boss must be pushed, the load should be put on the center of the boss. Please ask us for the suitable value of the load.

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14、请不要触碰电机的轴承,因为轴承上的防治噪音的润滑油会被抹掉.

14. Please do not touch motor bearing as otherwise bearing oil will be drawn out, which might cause bearing noise.

15、薰剂(消毒剂)和它的气体会影响马达的性能.因此,如果有些包装材料是包含薰剂的,马达不可以暴露在其中的.

15. Fumigant and its gas may affect motor performance. Then, motors shall not be exposed to fumigant and its gas, if fumigation shall be made for packaging material etc.

16、在马达外壳用染料打印的标号可能会变得模糊和对色当在摩擦的时候. 所以应该小心.

16. Identification marking drawn on motor housing with dyestuff marker may be blurred or may fade out when rubbing.

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