



# 重庆市灵龙电子有限公司

CHONGQING LINGLONG ELECTRONIC CO., LTD.

## 承 认 书

### SPECIFICATION FOR APPROVAL

客 户Customer:

\_\_\_\_\_

项目名称Project:

\_\_\_\_\_

规格型号Part No:


L0832F-022678075-0012

客 户 确 认/ Customer Approved	
料 号/ Part No.	签 章/ Signatures

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存货编码/Stock	30502000019
拟制/Drawn	况青
审核/Check	江丰春
批准/Approved	章启策



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### 1. 适用范围/General

本规格书适用于重庆灵龙电子有限公司所提供的产品：L0832F-022678075-0012

The specification is applicable to Inlon's part:L0832F-022678075-0012

### 2. 使用条件/Operating condition

No	项目/Item	规格/Specification
2-1	额定电压 Rated voltage	1.8 V RMS AC SINE WAVE
2-2	使用电压范围 Operating voltage	0~1.85 V RMS AC SINE WAVE
2-3	输入频率 Input frequency	FIX 235±0.1 Hz FO 235±5 Hz
2-4	马达位置 Motor position	All positions
2-5	使用环境 Operating environment	-20~60℃, 10~90% (RH) No coagulation of moisture
2-6	保存环境 Storage environment	-30~70℃, 10~90% (RH) No coagulation of moisture

### 3. 测量条件/Measuring condition

一般情况下, 马达可以在5~35℃, 相对湿度45~85% (RH) 的环境中测试。为了保证一致性, 测试应在下表规定内进行Normally, it should be tested under 5~35℃, 45~85% (RH) .To ensure the coherence, it must be tested according to the below chart.

No	项目/Item	规格/Specification
3-1	温度 Temperature	25±3℃
3-2	湿度 Humidity	85%RH Max
3-3	测定位置 test position	Refer Figure 1

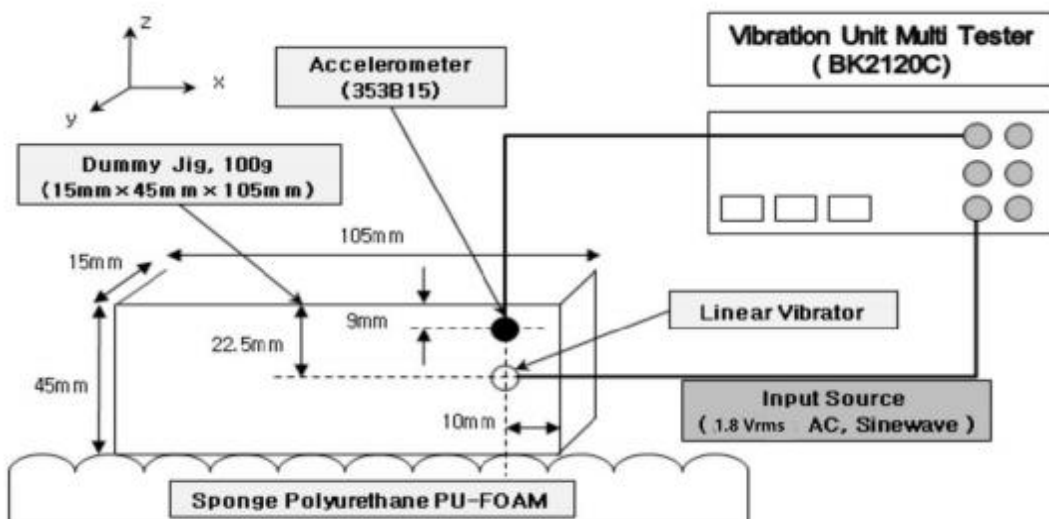



Figure 1


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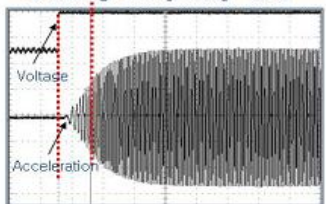
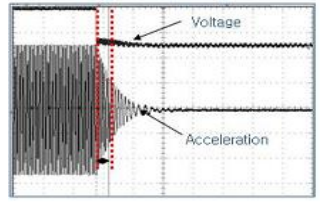
#### 4. 机械要求/Mechanical specification

No	项目/Item	规格/Specification	测定条件/备注 Measuring conditions/Remark
4-1	外观 Appearance	No evidence of mechanical damage, rust corrosion, and so on.	Visual examination

#### 5. 性能特征/Performance and characteristics

No	项目/Item	规格/Specification	测定条件/备注 Measuring conditions/Remark
5-1	端子阻抗 Terminal resistance	<b>23±4 Ω</b>	Test between the two touch pins
5-2	额定电流 Rated current	<b>90 mA Max</b>	Input Source:1.8 Vrms AC, sinewave, F0:205Hz
5-3	振动量 (定频) Acceleration (Fix)	<b>1.0 Grms Min</b>	Input Source:1.8 Vrms AC, sinewave, Fix:205Hz
5-4	振动量 (扫频) Acceleration (sweep)	<b>1.4±0.2 Grms</b>	Input Source:1.8 Vrms AC, sinewave, F0:235Hz±5Hz
5-5	频率特性 Frequency Characteristics	<b>Refer Figure 2</b>	
5-6	尺寸 Dimensions	<b>Refer Figure 5</b>	Test with vernier caliper or micrometer
5-7	重量 Weight	<b>1.1±0.1 gram</b>	Test with precision balance
5-8	定频噪音 Noise 1 Fix:205Hz	Noise by mechanical touch	<b>35dB Max</b>
		Noise THD	<b>25% Max</b>
		Noise Band	<b>35dB Max</b>
	扫频噪音 Noise 3 Sweep: 195-215Hz	Noise by mechanical touch	<b>35dB Max</b>
		Noise THD	<b>25% Max</b>
		Noise Band	<b>35dB Max</b>
5-9	绝缘电阻 Insulation resistance	<b>10 MΩ Min</b>	100V DC input, between Case and FPCB

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No	项目/Item	规格/Specification	测定条件/备注 Measuring condicions/Remark
5-10	响应时间 Rising Time	40 ms Max	
5-11	下降时间 Falling Time	55 ms Max	
5-13	机械噪音 Mechanical noise	45 dB Max	Refer Figure 2

额定电压下，背景噪声 $\leq 28$  dB(A)，电机轴向水平固定在测试夹具上(100g)，拾音器沿轴向正对电机平面，距离10cm

At rated voltage and scene noise as 28dB(A)Max, the shaft is horizontally fastened to the test jig(100g). The Microphone faces the plane of motor along the shaft. The distance is 10cm.

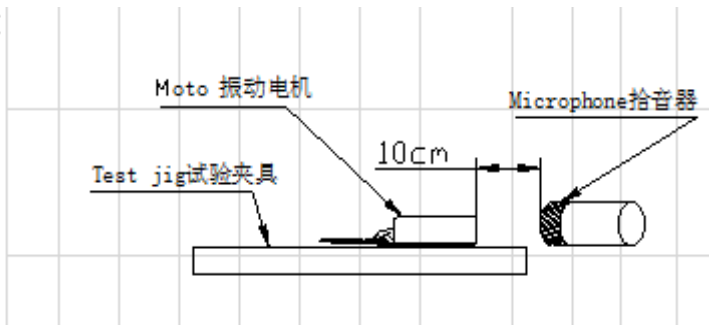


Figure 2

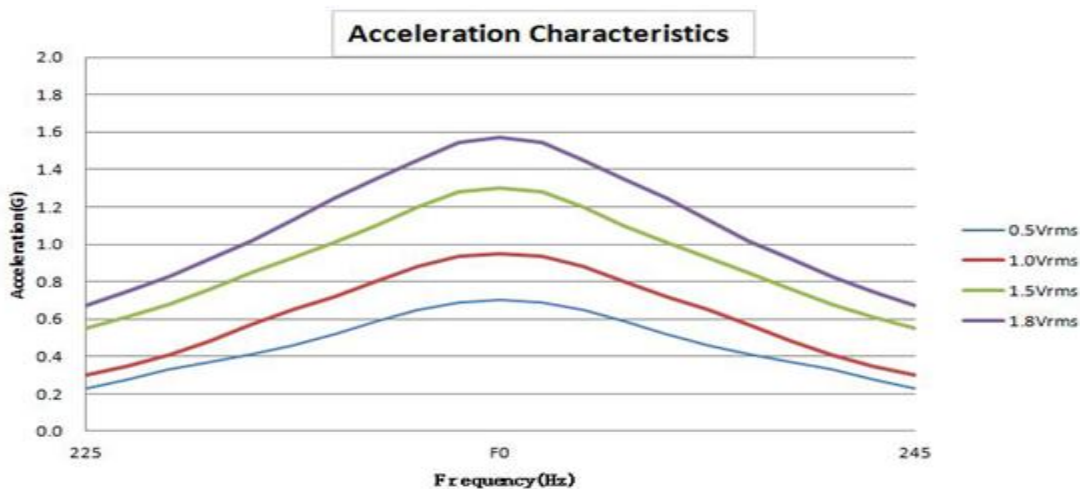


Figure 3



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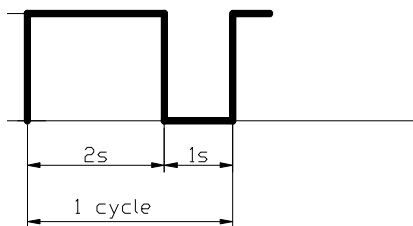
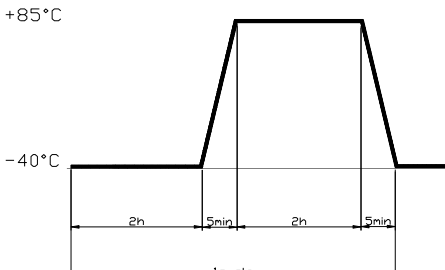
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6. 可靠性/Reliability

No	项目/Item	测试条件/Specification	判定标准/Judgment
6-1	寿命 Life	 <p>常温常湿下共循环1000000次。 Cycle 1000000times in the ordinary temperature and humidity.</p>	<p>在常温常湿下放置4h后, 电机性能应符合以下要求。</p> <p>1) 振动量: 指标在初始值±30%以内 2) 额定电流: 指标在初始值±30%以内。 3) 响应时间和下降时间: 在规格书范围内</p> <p>After 4h under normal temperature and humidity, the motor performance shall meet the following requirements.</p> <p>1) Vibration quantity: the index is within ±30% of the initial value 2) Rated current: the indicator is within ±30% of the initial value. 3) Response time and descent time: within the scope of specification</p>
6-2	低温贮存放置 Low temperature storage test	<p>温度Temperature: <math>-40 \pm 2^{\circ}\text{C}</math> 时间Time: 96h</p>	
6-3	高温高湿放置 High temperature storage test	<p>温度Temperature: <math>80^{\circ}\text{C}</math> 湿度Humidity: 85%RH 放置时间Exposure time: 96h</p>	
6-4	湿度放置 Humidity exposure	<p>温度Temperature: <math>60 \pm 2^{\circ}\text{C}</math> 湿度Humidity: 95%RH 放置时间Exposure time: 96h</p>	
6-5	振动试验 Vibration	<p>全振幅Full swing: 2mm (p-p) 频率Frequency: 10 to 2000Hz 速率velocity: 1 octave per minute 方向Orientation: <math>\pm x, \pm y, \pm z</math> 时间Time: 2h</p>	
6-6	温度冲击 (AIR-AIR) Temperature shock	<p><math>+85^{\circ}\text{C}</math></p>  <p><math>-40^{\circ}\text{C}</math></p> <p>周期Period: 20times</p>	

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No	项目/Item	测试条件/Specification	判定标准/Judgment
6-7	跌落试验 Drop test	<p>试验状态:将马达固定在约180克(包括马达本身)的物体上,落向花岗岩地面            高度:1.5m            方向:±x. ±y. ±z            次数:每个方向3次</p> <p>Test state:Fasten the motor onto a object(180g) and then let it fall down to the granite floor.            Height:1.5m            Orientation:±x. ±y. ±z            Times:3times per orientation</p>	<p>在常温常湿下放置4h后,电机性能应符合以下要求。</p> <p>1) 振动量:指标在初始值±30%以内            2) 额定电流:指标在初始值±30%以内。            3) 响应时间和下降时间:指标在初始值±30%以内。</p> <p>After 4h exposure in the ordinary temperature and humidity, the motor's performance should accord with below requirements:</p> <p>1)vibrator: Data±30% Max.            2)Rated current:Data±30% Max.            3)rising time and falling time: Data±30% Max.</p>

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7. 环境管理物质/Environmental management materials:

7.1 本产品应符合RoHS指令要求和无卤素要求

The product should be in compliance with RoHS requirements:

\* 镉及其化合物最大允许含量为100PPM

Cadmium and Compound:100PPM Max

\* 铅及其化合物最大允许含量为1000PPM

Lead and Compound:1000PPM Max

\* 汞及其化合物最大允许含量为1000PPM

Hydrargyrum and Compound:1000PPM Max

\* 六价铬及其化合物最大允许含量为1000PPM

+6 Chromium and Compound:1000PPM Max

\* 多溴联苯及其化合物最大允许含量为1000PPM

PBB and Compound:1000PPM Max

\* 多溴二苯醚及其化合物最大允许含量为1000PPM

PBDE and Compound:1000PPM Max

\* 氯溴两种卤素之和最大允许含量为1500PPM

The allowed content of Cl,Br is 1500PPM Max for total.





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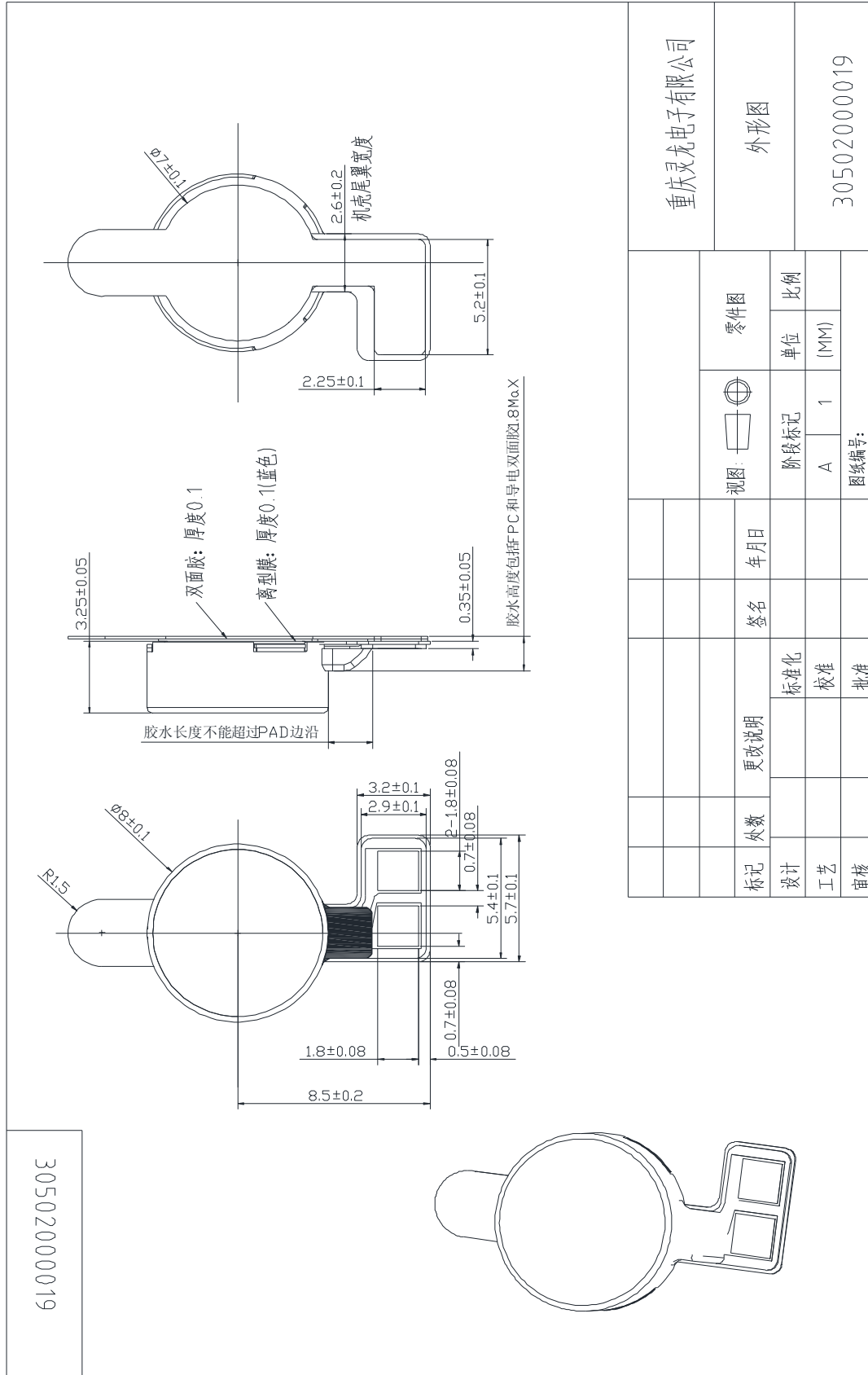
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8. 电机外形图/Motor outline drawing:



重庆灵龙电子有限公司		零件图		外形图	
		视图		30502000019	
		阶段标记		单位 (MM)	
		A 1		比例	
		图纸编号:			
		签名		年月日	
		更改说明		标准化	
		外数		校准	
		标记		审核	
		设计			
		工艺			
		批准			



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10. 包装要求/Packing requirements:

10-1: 每个吸塑盒里放100PCS电机, 包装盒尺寸为248\*203\*11.5

100pcs/pallet, pallet size:248\*203\*11.5mm

10-2: 每21个包装盒用胶带捆成一捆, 数量为2000PCS.

21pallets/bundle, Qty:2000pcs

10-3: 每捆装入一个内箱里面, 数量为2000PCS. 内箱尺寸为260\*220\*175

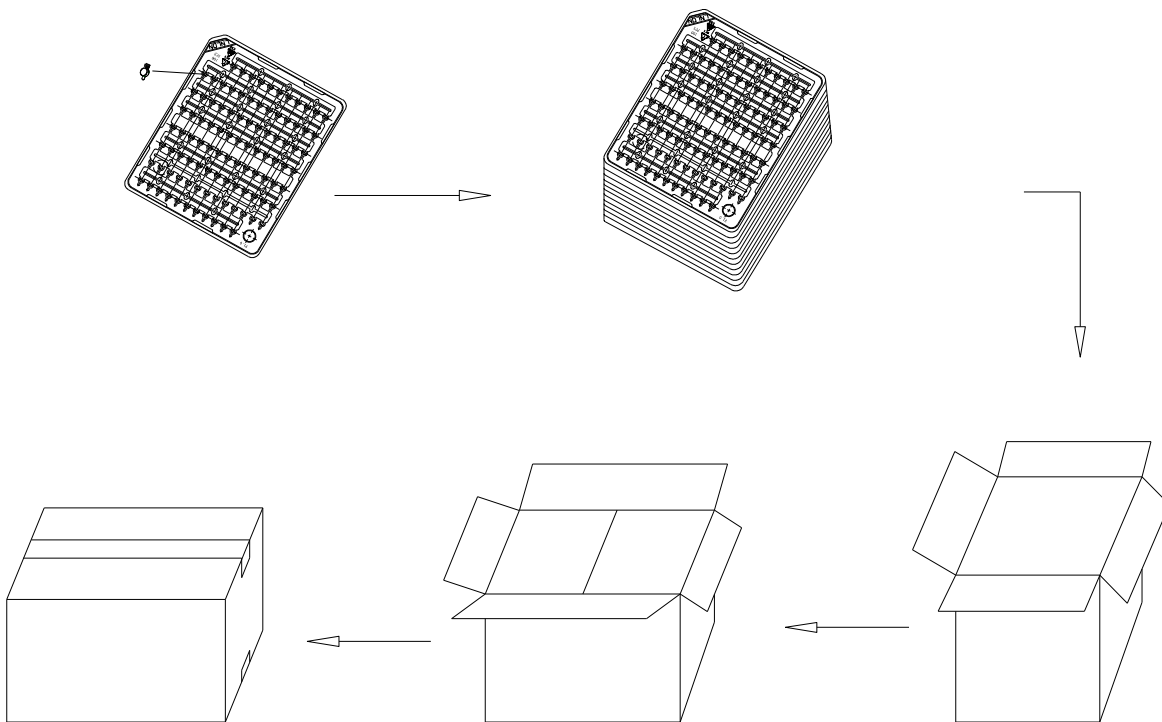
1bundles/inner box, Qty:2000pcs. box size:260\*220\*175mm

10-4: 每两个内箱放入一个外箱里, 外箱尺寸为465\*280\*200

2 inner-box/outer-box, box size:465\*280\*200 mm

10-5: 外箱封箱, 数量和生产批次, 均注明在外箱上面.

Seal the outer box and indicate the quantity, Lot No. on it.



10-6 包装试验要求/Packing test requirements:


(1) 标准: 整箱重量 $\leq 9\text{kg}$ , 跌落高度设定为75cm; 整箱重量 $> 9\text{kg}$ 但 $\leq 23\text{kg}$ , 跌落高度设定为60cm。


Standard: Gross weight  $\leq 9\text{kg}$  Fall height is 75cm; Gross  $9\text{kg} < \text{weight} \leq 23\text{kg}$  Fall height is 60cm.

(2) 试验方法: A、每面跌落1次, 共6次; B、任选三条同一角的棱, 各跌落一次, 共3次。

Test method: A、Fall one time per face, six times in total; B、Chose eight arris and fall one time each, three times in total.

(3) 判定基准: 经过跌落试验后, 产品外观、性能无不良。

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Judgement:After the fall test,the appearance and the performance are both passed.			

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11. 使用注意事项说明/Matters to be paid attention to when using motor

11-1 电机在运输过程中应小心轻放，避免碰撞敲击引起的电机机身和性能受损。

Please place the motors carefully in transportation to avoid any damage to the motor body or its electric function because of collision.

11-2 电机不能在高温、高湿、带有腐蚀性气体的环境中贮存和使用，否则有可能导致电机的性能下降。

Please don't leave and use the motors in the environment of high temperature, high humidity and corrosion gas, or it would cause the function to fall down.

11-3 不能长时间用外力锁死振动轮，以免烧坏线圈，电机不能工作。


Please don't lock up the vibrating wheel, or the coil would be burned up and the motors can't operate.

11-4 避免接触或靠近强磁性物体，否则有可能导致电机性能下降。

Please prevent from magnetic objects, or it may cause the function fall down.

11-5 请在6个月内使用，在使用时和打开包装时，请避免水气凝结。

Please use the motors within six months and prevent them from coagulation of moisture when open the package and use them.

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