



LJ DEVICE CO., LTD.

力臻股份有限公司

LJ DEVICE CO., LTD.

零件規格書 / 承認書

SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_

DESCRIPTION : Vibration Motor

MODEL : FG-B1027L2728B

CUSTOMER PART NO : \_\_\_\_\_

### APPROVED SIGNATURES

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Rev	Date	Description	Designed	Checked	Approved
A	2020/5/29	Release		Leo	

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# 规格书内容

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## 1. 适用范围/ Applicable Scope

本说明书适用于扁平式永磁直流电机FG-B1027B系列.

This specification applies to Coin Motor DC model FG-B1027B series.

## 2. 使用条件/ Operating Conditions

项目/Item		规格/Specification
2-1	额定电压 Rated voltage	3.0V DC
2-2	使用电压范围 Operating voltage	2.7~3.3V DC
2-3	旋转方向 Rotation	CW(clockwise) or CCW(contrary clockwise)
2-4	使用环境 Operating environment	-20~+60℃, 0~95%RH
2-5	保存环境 Storage environment	-30~+70℃, 0~95%RH

## 3. 测定条件/ Testing Conditions

项目/Item		规格/Specification
3-1	温度 Temperature	25±3℃
3-2	湿度 Humidity	65±20% RH
3-3	气压 Air Pressure	1013±40 hPa
3-4	电源 Power	稳压直流电流 Constant DC Current

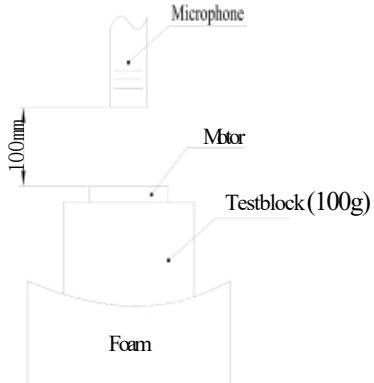
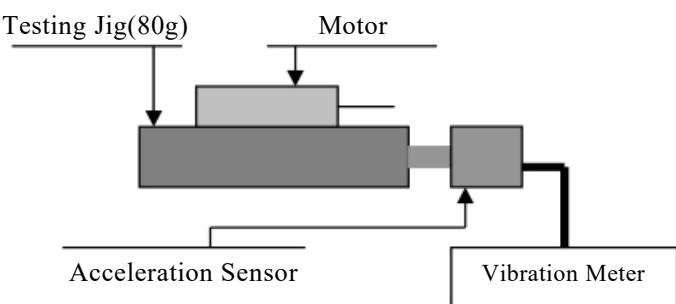
## 4. 初期电气性能/ Initial Electrical Characteristics

项目/Item		规格/Specification	条件/Condition
4-1	额定转速 Rated Speed	10000rpm Min	额定电压下和额定负载下。 At rated voltage and rated load.
4-2	额定电流 Rated Current	75 mA Max	
4-3	起动电流 Starting Current	120 mA Max	在最小起动电压下起动 Motor is rotating at min starting voltage.
4-4	起动电压 Starting Voltage	2.3V DC Max	
4-5	绝缘电阻 Insulation Resistance	10MΩ Min	在100V直流下，导线和机壳间测量 At DC 100V between lead wire and case.
4-6	端子阻抗 Terminal Resistance	30Ω±15%(相接触) 60Ω±15%(相串联) 15Ω±15%(相并联)	在25℃下 At25℃

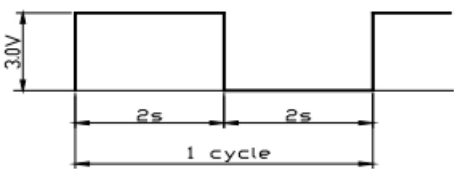
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## 5. 机械性能/ Mechanical Characteristics




项目/Item		规格/Specification
5-1	底盖偏转强度 Bracket deflection strength	9.8N以上 ≥9.8N
5-2	机械噪音 Mechanical noise	小于50分贝. A计权 ≤50dB (A)
	<p>在额定电压下。 背景噪音：不大于28dB.A计权 电机轴向水平固定在约100g测试夹具上， 拾音器沿轴向正对电机平面。 测试距离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.</p> 	
5-3	Vibration Test 振动测定	<p>1.0 ± 0.2G (AVG)</p> 

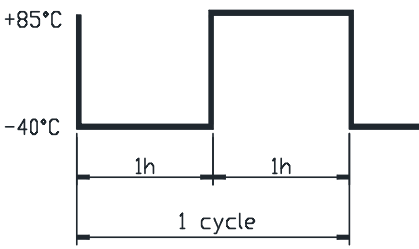
## 6. 耐久性能/ Reliability Characteristics




项目/Item	规格/Specification	判定标准/Judgment
6-1 寿命 Life	 <p>额定电压/ Rated voltage: 3.0V DC 试验模式/ Test mode: 2s On, 2s Off, as one cycle. 循环次数/ Test cycle: 50,000 cycles</p>	<p>在常温常湿下放置4h后，电机性能应符合以下要求。</p> <ol style="list-style-type: none"> <li>1)额定转速:指标不低于初始值-30%；不高于初始值+50%</li> <li>2)额定电流:指标在初始值±30%以内。</li> <li>3)起动电压:2.3V DC Max直流电压。</li> </ol> <p>After 4h exposure in the ordinary temperature and humidity,the motor's performance should accord with below requirements:</p> <ol style="list-style-type: none"> <li>1)Rated speed:Data-30% Initial Min, Data+50% Initial Max.</li> <li>2)Rated current:Data ± 30% Max.</li> <li>3)Starting voltage: 2.3V DC Max</li> </ol>

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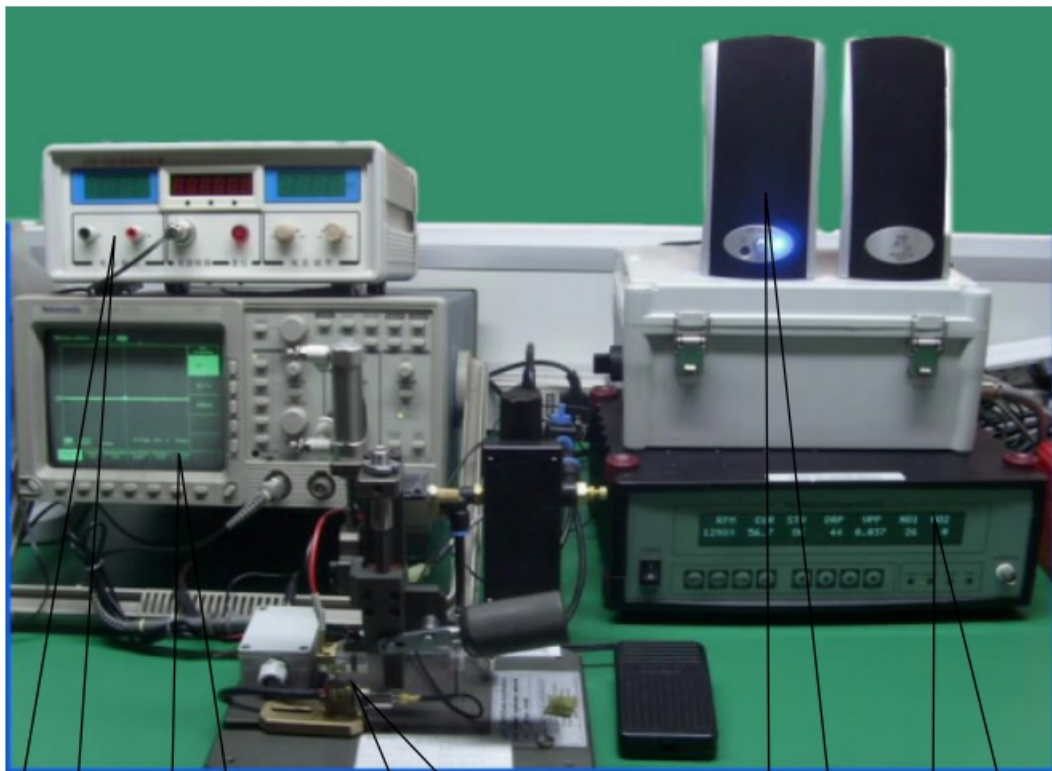
项目/Item		规格/Specification	判定标准/Judgment
6-2	低温放置 Low Temperature Exposure	温度 /Temperature: $-20 \pm 2^{\circ}\text{C}$ 时间 /Time: 96h	<p>在常温常湿下放置4h后，电机性能应符合以下要求。</p> <p>1)额定转速:指标在初始值<math>\pm 30\%</math>以内。 2)额定电流:指标在初始值<math>\pm 30\%</math>以内。 3)起动电压:2.3V DC Max.</p> <p>After 4h exposure in the ordinary temperature and humidity, change rates of the motor's performance should accord with below requirements:</p> <p>1)Rated speed: within <math>\pm 30\%</math> of initial value. 2)Rated current: within <math>\pm 30\%</math> of initial value. 3)Starting voltage: 2.3V DC Max</p>
6-3	湿度放置 Humidity Exposure	温度 /Temperature : $+ 40 \pm 2^{\circ}\text{C}$ 湿度 /Humidity: 90 ~ 95%RH 放置时间 / Exposure time : 96h 无水气凝结 /No condensation of moisture	
6-4	高温放置 High temp. Exposure	温度 /Temperature : $+70 \pm 2^{\circ}\text{C}$ 时间 /Time : 96h	
6-5	振动 Vibration	频率 /Frequency: 10~55Hz 加速度 /Acceleration: 22m/s <sup>2</sup> 周期 /Period: 10 Minutes log sweep (1.0G), (10~55~10Hz) 条件 /Condition: This motion shall be applied for a period of 10 minutes in direction of X, Y, Z.	
6-6	自然跌落 Free fall	试验状态: 将马达固定在约100克(包括马达本身)的物体上, 落向水泥地面。 Test state: Set the motor to a block of an approx. 100g weight (including the motor) and drop it onto the concrete floor. Height: 1.5m Direction : $\pm x, \pm y, \pm z$ Number of times: 3 times each direction Shock: 29420m/s <sup>2</sup> equivalent to 3000G.	

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项目/Item		规格/Specification	判定基准 / Requirements
6-7	滚筒试验 Barrel roll test	滚筒高度: 1.0M 滚筒次数: 300次. 滚筒速率: 13±1次/分钟  Height: 1.0M Times: 300 times. Speed: 13±1 times/Minute	在常温常湿下放置4h后, 电机性能应符合以下要求。 1)额定转速:指标在初始值±30%以内。 2)额定电流:指标在初始值±30%以内。 3)起动电压:2.3V DC Max. After 4h exposure in the ordinary temperature and humidity, change rates of the motor's performance should accord with below requirements: 1)Rated speed: within ±30% of initial value. 2)Rated current: within ±30% of initial value. 3)Starting voltage: 2.3V DC Max
6-8	热冲击 Heat stock test	 <p>试验循环 /Test cycle:32cycles</p>	在常温常湿下放置4h后, 电机性能应符合以下要求。 1)额定转速:指标在初始值±30%以内。 2)额定电流:指标在初始值±30%以内。 3)起动电压:2.3V DC Max. After 4h exposure in the ordinary temperature and humidity, change rates of the motor's performance should accord with below requirements: 1)Rated speed: within ±30% of initial value. 2)Rated current: within ±30% of initial value. 3)Starting voltage: 2.3V DC Max

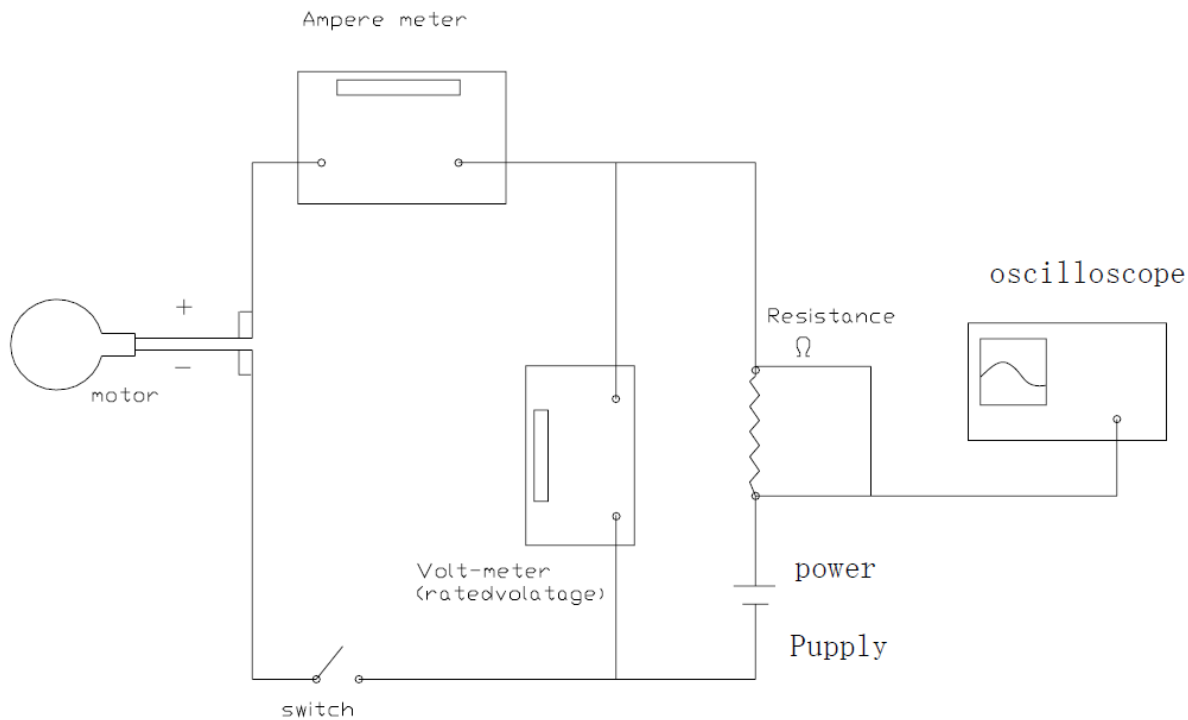
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7. 标准测 方法/ Standard Measuring Method



- 启动测 仪  
Start-Work Test  
Meter
- 波形 冲显  
Oscilloscope
- 安放  
Test Jig (for  
Clamping the  
Motor in Place)
- 噪 测 仪  
Noise Test Meter
- 合测 仪  
Multi-functional Test  
Meter

8. 测 方法及回 图/ Measuring Method & Circuit Map



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9. 使用时注意事 / Caution in Use

9-1 必 按照 格书标准使用, 否则性 和寿命 将受到相当地减少 必 注意电压的使用 围. / The performance and lifetime would be considerably reduced if the operation is not done as per the specification defines. Do pay attention to the range of operating voltage in use.

9-2 建 在六个月内使用, 不 在以下环境中使用及保存

- 温和 湿的场所
- 性气体, 如 H<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub>、Cl<sub>2</sub>
- 生 场所。

It is suggested to use the motors within 6 months as possible as you can.

It is not suggested to use or store the motors under the following conditions:

- High temperature and high humidity area.
- Corrosive gas environment, such as H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, Cl<sub>2</sub> etc.
- Dusty areas.

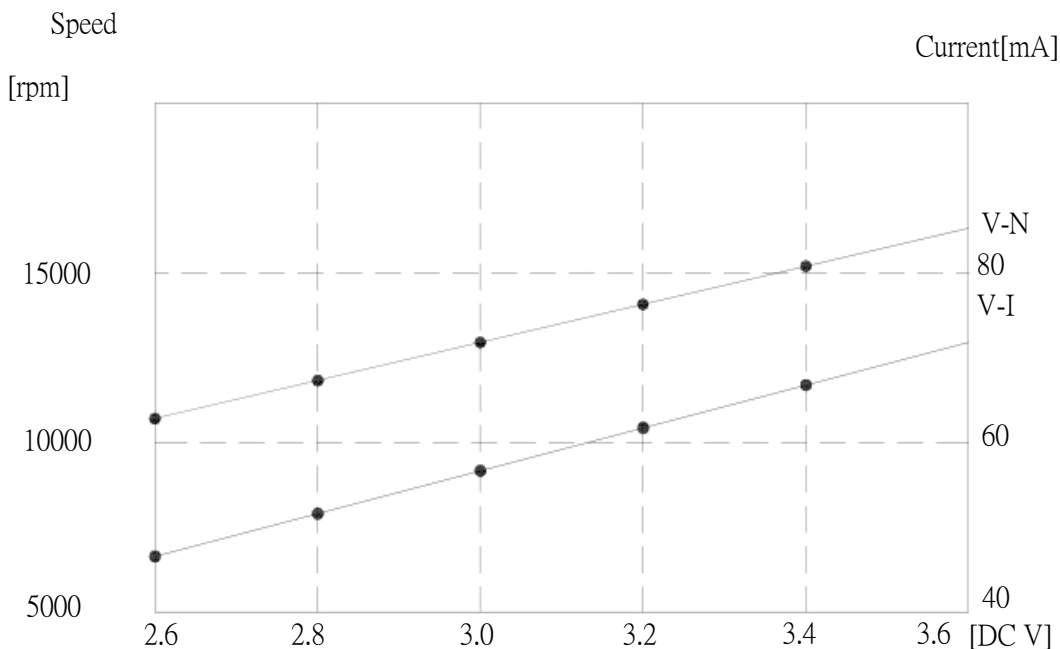
9-3 注意处理 的工作环境 免含 物体 吸住 否则 将会产生噪声 性 会低 从 减少产品可 性。 / Keep clean the working environments to avoid the objects such as iron powder etc are attracted by the magnet. Otherwise, it would cause noise, function deterioration and lower reliability.

9-4 应 信本产品不会与相关标准、法律、政令相 。 / Be sure not to disobey the local laws and rules.

9-5 拿 时 拿 放。 / The motors should be taken up and placed gently in operation.

9-6 板 或 有少 斑是允 的。 / Slight rust on the edge of the steel housing is permitted.

10. 特性曲 图/Characteristics Graph



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11. 环境 理物 / Environmental Management Materials:

11.1 本产品应 合RoHS 指令 求和无卤 求。

The product should be in compliance with RoHS/ REACH requirements:

及其化合物最大允含为 100PPM

Cadmium and Compound: ≤ 100PPM

及其化合物最大允含为 1000PPM

Lead and Compound: ≤1000PPM

汞及其化合物最大允 含 为1000PPM

Hydrargyrum and Compound: ≤1000PPM

六价 及其化合物最大允 含 为1000PPM

+6 Chromium and Compound: ≤1000PPM

多溴 及其化合物最大允 含 为1000PPM

PBB and Compound: ≤1000PPM

多溴二 及其化合物最大允 含 为1000PPM

PBDE and Compound: ≤1000PPM

氯溴两 卤 之和最大允 含 为1500PPM

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

氯卤 最大允 含 为900PPM

The allowed content of Cl is 900PPM Max.




溴卤 最大允 含 为900PPM

The allowed content of Br is 900PPM Max.

11.2 本品所含有以下物 是RoHS指令 免

The below substance contained in the motor is exempted from RoHS directives:

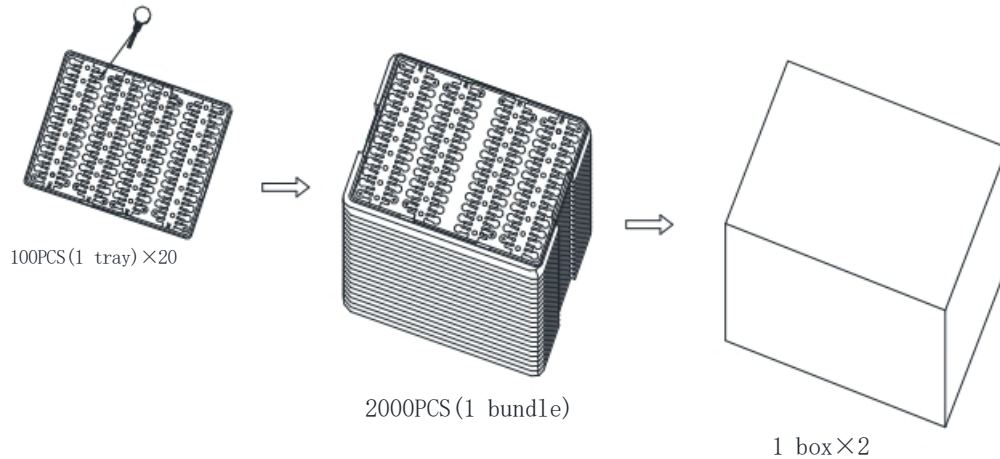
序号 NO.	品名 Part Name	材 Material	含有材 Harzadaous Substance	允 容 Limited Content	品 Weight of Part
#1	含油 承 Oiled Bearing	合 Copper Alloy	Pb	≤ 4%	≈ 0.03g

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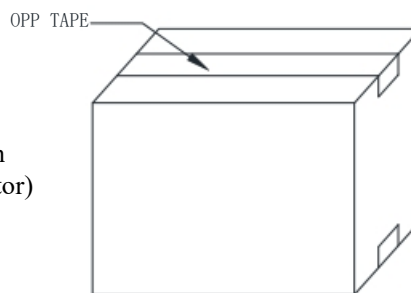
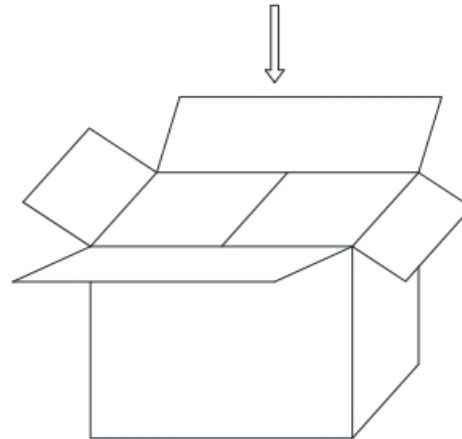


13. 包 / Packaging

Pack drawing of coin type



Remarks:  
 4000PCS/CTN: 46cm × 28.5cm × 16cm  
 8000PCS/CTN: 46cm × 28.5cm × 30.5cm



Test state: Set the motor to a block of an approx. 100g weight (including the motor) and drop it onto the concrete floor.  
 Height: 1.5m  
 Direction : ±x, ±y, ±z  
 Number of times: 3 times each direction  
 Shock: 29420m/s<sup>2</sup> equivalent to 3000G.

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