

产品规格说明书

PRODUCT SPECIFICATION

|                 |                                     |                                     |                   |
|-----------------|-------------------------------------|-------------------------------------|-------------------|
| FILED BY BUYER  | 客户名称<br>Buyer Name                  |                                     |                   |
|                 | 客户料号<br>Buyer Part No.              |                                     |                   |
|                 | 客户承认签章<br>Buyer Approved Signatures |                                     |                   |
| FILED BY LEADER | 文件编号<br>Spec No.                    | Leader-3810                         |                   |
|                 | 品名<br>Part Name                     | 扁平振动马达<br>Coin Type Vibration Motor |                   |
|                 | 型号<br>Model No.                     | LCM1027A3810F                       |                   |
|                 | 样品承认日期<br>Date Samples Approved     |                                     |                   |
|                 | 作成 Designed by                      | 检讨 Checked by                       | 承认 Approved by    |
|                 | 李月婷<br>2025.08.23                   | 张冠军<br>2025.08.23                   | 王远东<br>2025.08.23 |

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# 规格书内容

## Contents of Specifications

|                                                 |       |
|-------------------------------------------------|-------|
| 1. 适用范围/ Applicable Scope                       | 1/10  |
| 2. 使用条件/ Operating Conditions                   | 1/10  |
| 3. 测试条件/ Test Conditions                        | 1/10  |
| 4. 初期电气性能/ Initial Electrical Characteristics   | 1/10  |
| 5. 机械性能/ Mechanical Characteristics             | 2/10  |
| 6. 耐久性能/ Reliability Characteristics            | 3/10  |
| 7. 标准测量方法/ Standard Measuring Method            | 5/10  |
| 8. 测量方法及回路图/ Measuring Method & Circuit Map     | 5/10  |
| 9. 使用注意事项/ Cautions in Use                      | 6/10  |
| 10. 特性曲线图/ Characteristics Graph                | 6/10  |
| 11. 环境管理物质/ Environmental Management Materials: | 7/10  |
| 12. 包装/ Packaging                               | 8/10  |
| 13. 外形图/ Mechanical Drawing                     | 9/10  |
| 14. 更改记录/ Revision Records                      | 10/10 |

1. 适用范围/ Applicable Scope

本说明书适用于扁平式永磁直流电机LCM1027A系列.  
This specification applies to Coin Motor DC model LCM1027A series.

2. 使用条件/ Operating Conditions

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

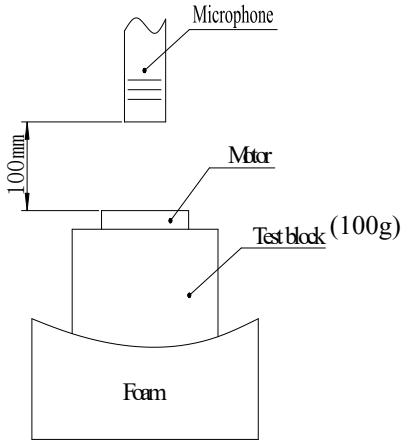
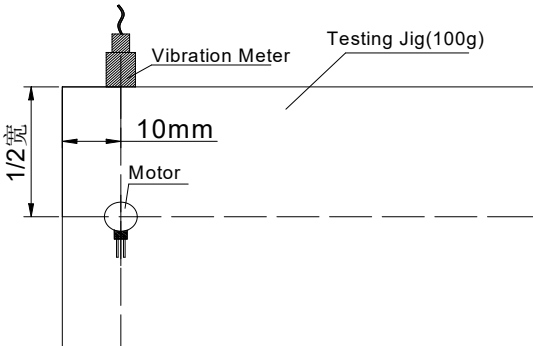
3. 测定条件/ Testing Conditions

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

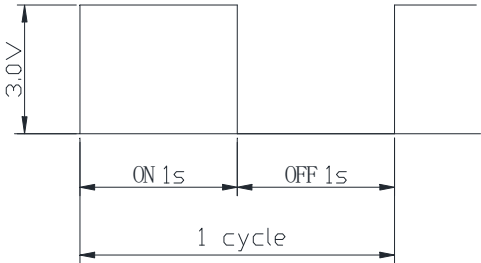
4. 初期电气性能/ Initial Electrical Characteristics

| 项目/Item |                                    | 规格/Specification                                | 条件/Condition                                                     |
|---------|------------------------------------|-------------------------------------------------|------------------------------------------------------------------|
| 4-1     | 额定转速<br>Rated Speed                | 13500±3500rpm                                   | 额定电压下和额定负载下。<br>At rated voltage and rated load.                 |
| 4-2     | 额定电流<br>Rated Current              | 80 mA Max                                       |                                                                  |
| 4-3     | 起动电流<br>Starting Current           | 120mA Max                                       | 起动时所需的最小电压，(开/关 模式)<br>Minimum voltage for starting(ON/OFF Test) |
| 4-4     | 最小起动电压<br>Minimum Starting Voltage | DC 2.3V Max                                     |                                                                  |
| 4-5     | 绝缘电阻<br>Insulation Resistance      | 10MΩ Min                                        | 在100V直流下，导线和机壳间测量<br>At DC 100V between lead wire and case.      |
| 4-6     | 端子阻抗<br>Terminal Resistance        | 30Ω±15% (相接触)<br>60Ω±15% (相串联)<br>15Ω±15% (相并联) | 在25℃下<br>At25℃                                                   |

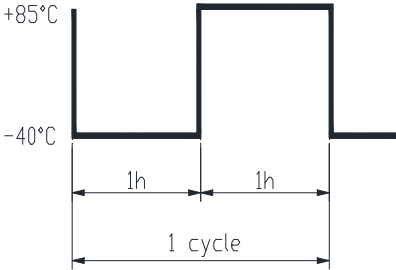
5. 机械性能/ Mechanical Characteristics

| 项目/Item |                                                                                                                                                                                                                                                                                                   | 规格/Specification                                                                                       |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 5-1     | 机械噪音<br>Mechanical noise                                                                                                                                                                                                                                                                          | 小于50分贝. A计权<br>≤50dB (A)                                                                               |
|         | 在额定电压下。<br>背景噪音：不大于28dB.A计权<br>电机轴向水平固定在约100g测试夹具上，<br>拾音器沿轴向正对电机平面。<br>测试距离10cm<br>At rated voltage and scene noise as<br>28dB (A)Max,<br>the shaft is horizontally fastened to<br>the test jig (100g).<br>The Microphone faces the plane of<br>motor along The shaft .<br>The distance is 10cm. |                      |
| 5-2     | Vibration Test<br>振动测定                                                                                                                                                                                                                                                                            | 1.3G Min (PEAK)<br> |

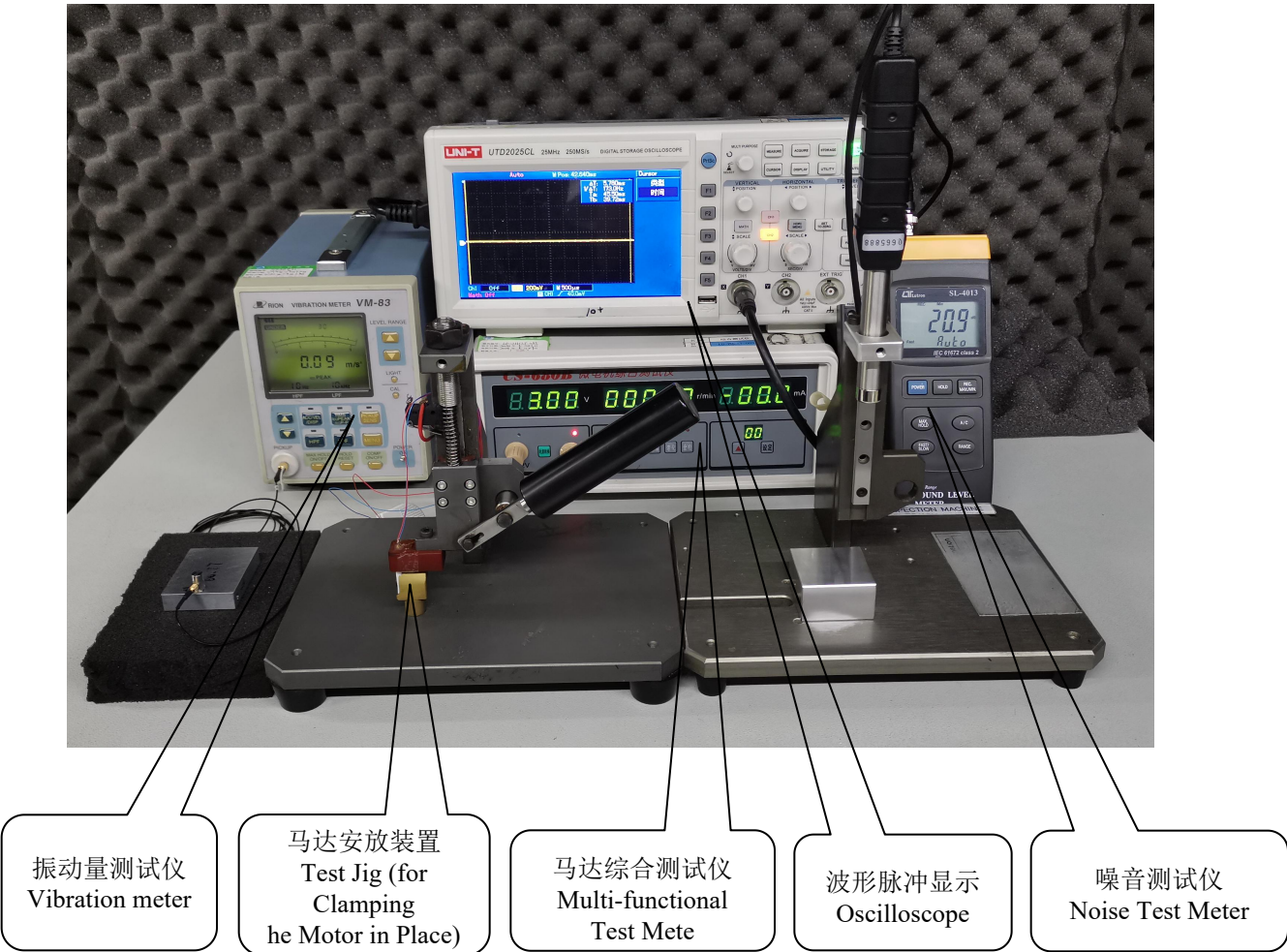
6. 耐久性能/ Reliability Characteristics

| 项目/Item |            | 规格/Specification                                                                                                      | 判定标准/Judgment                                                                                                                                                                                                                                                                                                                                                              |
|---------|------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-1     | 寿命<br>Life | <br>试验循环 /Test cycle: 86400 cycles | 在常温常湿下放置4h后，电机性能应符合以下要求。<br>1)额定转速:指标不低于初始值-30%；不高于初始值+50%<br>2)额定电流:指标在初始值±30%以内。<br>3)起动电压:2.3V DC Max直流电压。<br>After 4h exposure in the ordinary temperature and humidity,the motor's performance shoud accord with below requirements:<br>1)Rated speed:Data-30% Initial Min, Data+50% Initial Max.<br>2)Rated current:Data±30% Max.<br>3)Starting voltage: 2.3V DC Max |

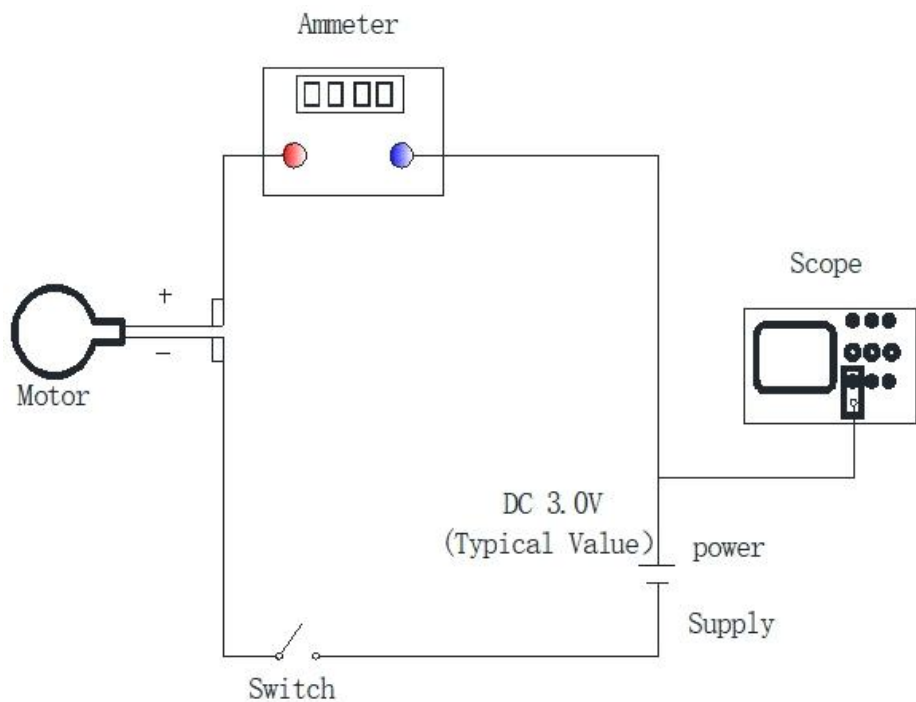
| 项目/Item |                                  | 规格/Specification                                                                                                                                                                                                                                                                                                        | 判定标准/Judgment                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-2     | 低温放置<br>Low Temperature Exposure | 温度 /Temperature: $-30\pm 2^{\circ}\text{C}$<br>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。</p> <p>2)额定电流:指标在初始值<math>\pm 30\%</math>以内。</p> <p>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.</p> <p>2)Rated current: within <math>\pm 30\%</math> of initial value.</p> <p>3)Starting voltage: 2.3V DC Max</p> |
| 6-3     | 高温放置<br>High temp. Exposure      | 温度 /Temperature : $+70\pm 2^{\circ}\text{C}$<br>时间 /Time : 96h                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 6-4     | 湿度放置<br>Humidity Exposure        | 温度 /Temperature : $+ 40\pm 2^{\circ}\text{C}$<br>湿度 /Humidity: 90 ~ 95%RH<br>放置时间 / Exposure time : 96h<br>无水气凝结 /No condensation of moisture                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 6-5     | 振动<br>Vibration                  | 频率 /Frequency: 10~55Hz<br>加速度 /Acceleration: 22m/s2<br>周期 /Period: 10 Minutes log sweep (1.0G), (10~55~10Hz)<br>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<br>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。<br>Test state: Set the motor to a block of an approx. 100g weight (including the motor) and drop it onto the concrete floor.<br>Height: 1.5m<br>Direction : $\pm x, \pm y, \pm z$<br>Number of times: 3 times each direction<br>Shock: 29420m/s <sup>2</sup> equivalent to 3000G. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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

7. 标准测量方法/ Standard Measuring Method



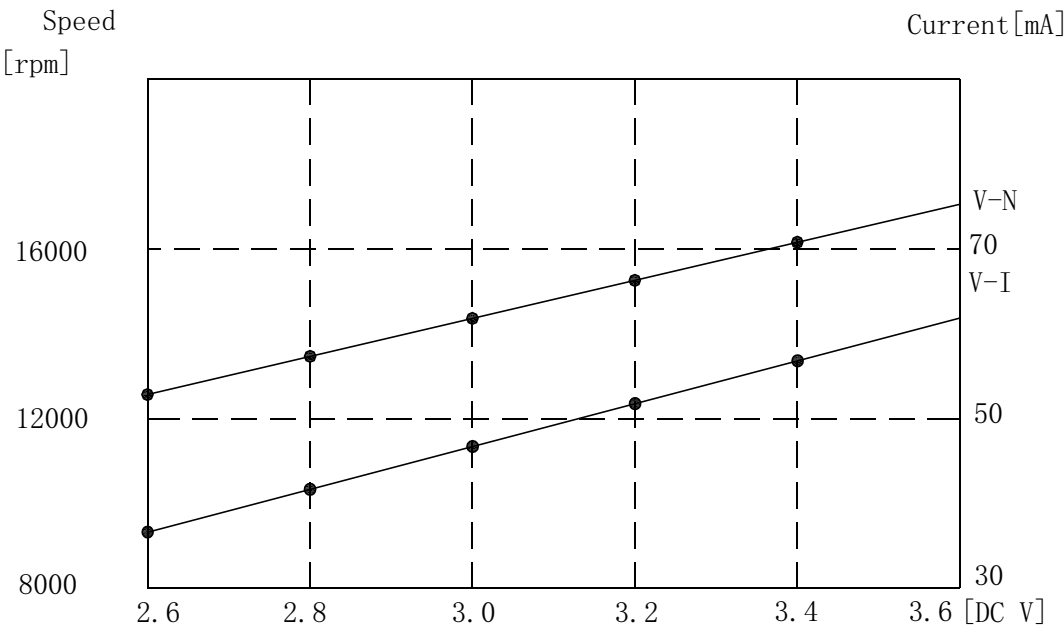
8. 测量方法及回路图/ Measuring Method & Circuit Map



9. 使用时注意事项/ Caution in Use

- 9-1 必须按照规格书标准使用,否则性能和寿命都将受到相当减少, 必须注意电压的使用范围. / 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 建议马达在六个月内使用,不要在以下环境中使用及保存:
- 高温和高湿的场所;
  - 腐蚀性气体,如: H<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub>、Cl<sub>2</sub>;
  - 生锈场所。
- 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.
  - Rusty place.
- 9-3 注意处理马达的工作环境, 避免含铁质物体被马达吸住, 否则马达将会产生噪声, 性能会降低, 从而减少产品可靠性。 / 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 应确信本产品不会与相关标准、法律、政令相背。 / Be sure not to disobey the local laws and rules.
- 9-5 拿马达时, 要轻拿轻放。 / The motors should be taken up and placed gently in operation.
- 9-6 钢板面或边缘有少许锈斑是允许的。 / Slight rust on the edge of the steel housing is permitted.

10.特性曲线图/Characteristics Graph





11. 环境管理物质/ Environmental Management Materials:

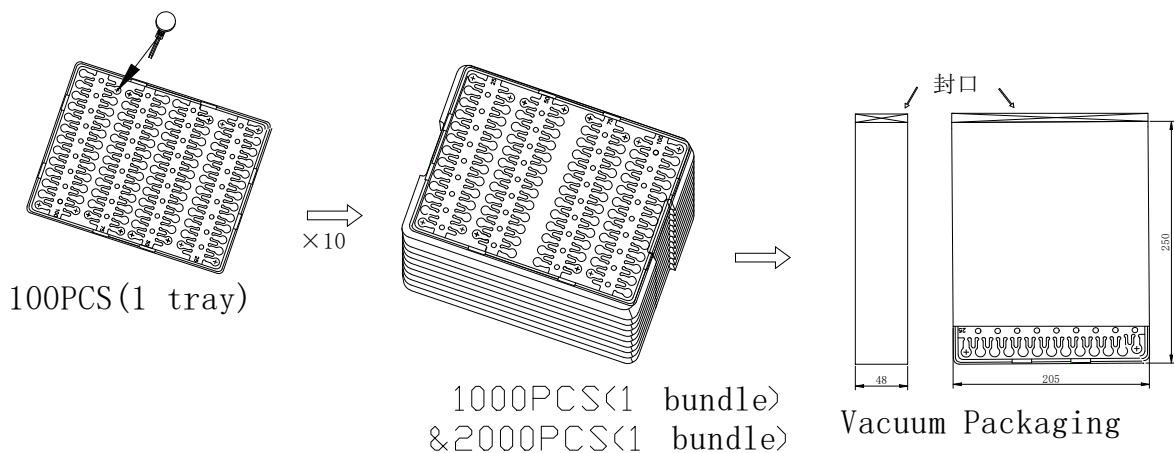
11. 本产品应符合RoHS 指令要求和无卤素要求。  
The product should be in compliance with RoHS/ REACH requirements:

- \* 镉及其化合物最大允许含量为100PPM  
Cadmium and Compound: ≤100PPM
- \* 铅及其化合物最大允许含量为1000PPM  
Lead and Compound: ≤ 1000PPM
- \* 汞及其化合物最大允许含量为1000PPM  
Hydrargyrum and Compound: ≤ 1000PPM
- \* 六价铬及其化合物最大允许含量为1000PPM  
+6 Chromium and Compound: ≤ 1000PPM
- \* 多溴联苯及其化合物最大允许含量为1000PPM  
PBB and Compound: ≤ 1000PPM
- \* 多溴二苯醚及其化合物最大允许含量为1000PPM  
PBDE and Compound: ≤ 1000PPM
- \* 氯溴两种卤素之和最大允许含量为1500PPM  
The allowed content of Cl and Br is 1500PPM Max for total.
- \* 氯卤素最大允许含量为900PPM  
The allowed content of Cl is 900PPM Max.
- \* 溴卤素最大允许含量为900PPM  
The allowed content of Br is 900PPM Max.

**12. 包装/ Packaging:**

## 振动马达包装

### Pack drawing of Vibrator Motor



包装尺寸/Packaging Size:

10000PCS/CARTON:

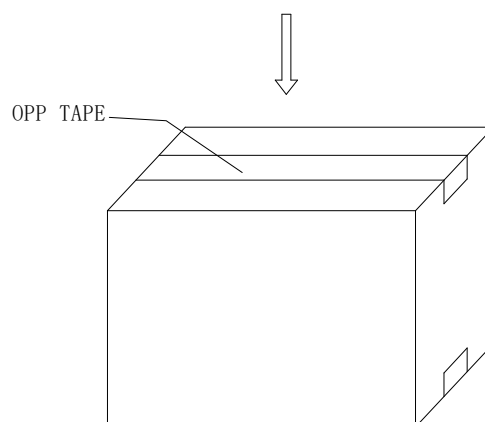
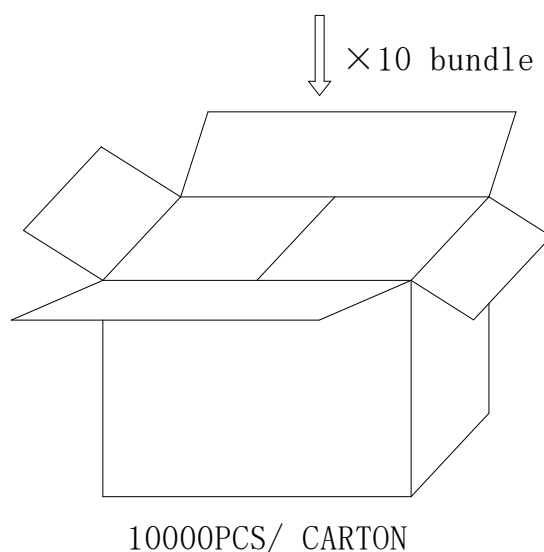
CARTON SIZE:430mm\*270mm\*220mm

包装试验要求:

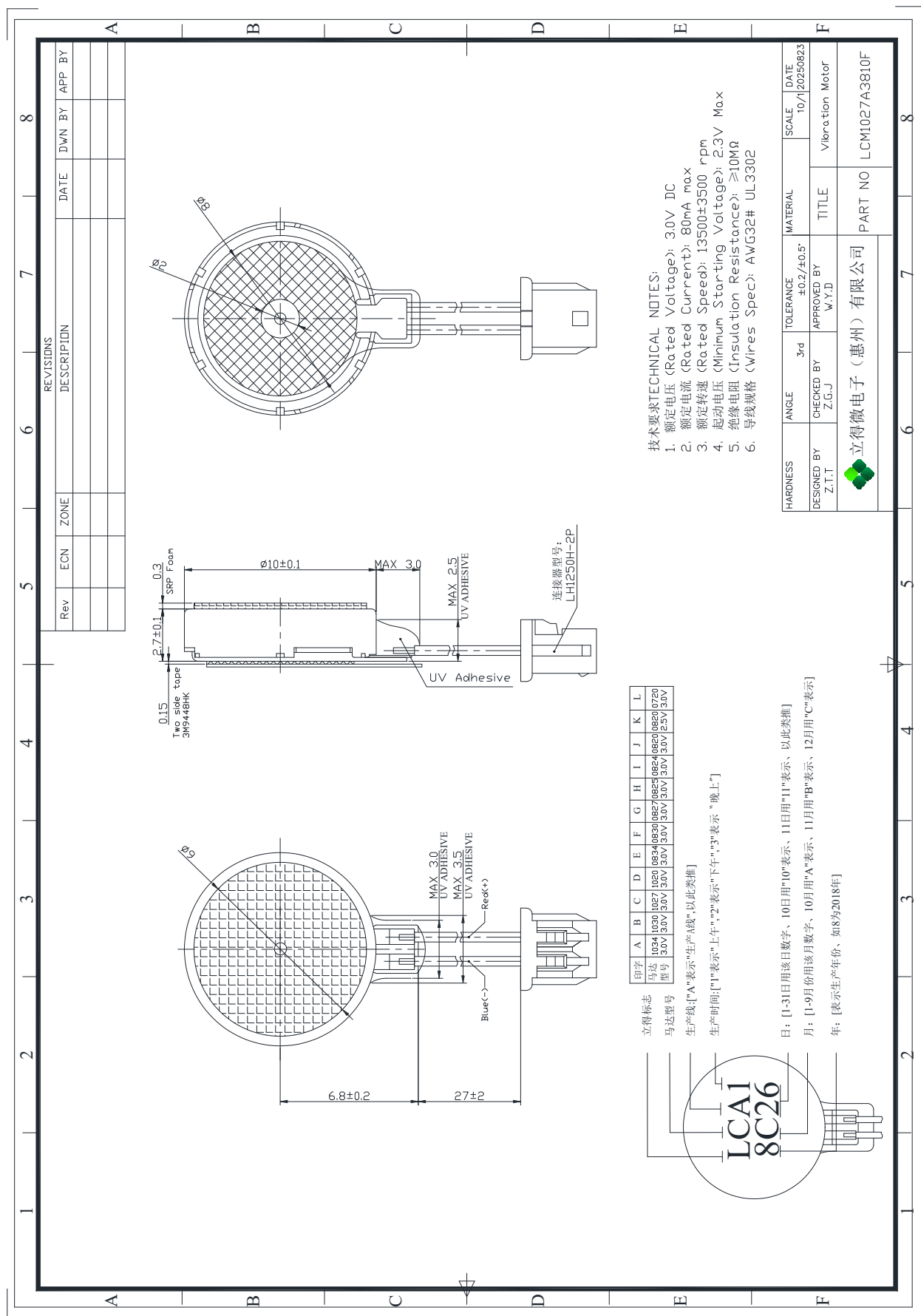
### Packaging test requirements:

沿外包装箱 $\pm x$ 、 $\pm y$ 和 $\pm z$ 方向,距水泥地面1.5m高度,各自由跌落2次,马达应无机械损伤,电气性能仍符合标准要求。

Along the outer packing box + X, + y and + Z direction, from the cement ground 1.5m height, the free fall 2 times, the motor should have no mechanical damage, electrical performance is still in line with the standard requirements.



### 13. 外形图/ Mechanical Drawing:



|                    |                   |                     |       |
|--------------------|-------------------|---------------------|-------|
| 2025.08.23 (REV,0) | 说明书/Specification | 编号/No.: leader-3810 | 10/10 |
|--------------------|-------------------|---------------------|-------|

14. 更改记录/ Revision Records:

|                          |               |                 |                     |
|--------------------------|---------------|-----------------|---------------------|
| CUSTOMER<br>顾客           |               | SPEC NO<br>规格书号 | 编号/No.: leader-3810 |
| PRODUCT<br>MODEL<br>产品型号 | LCM1027A3810F | DATE<br>日期      | 2025.08.23          |

REVISION RECORDS  
修改记录表

| REV NO<br>修改号 | DATE<br>日期 | PAGE<br>页码 | REVISION ITEM<br>修改项目 | REASON<br>更改原因 |
|---------------|------------|------------|-----------------------|----------------|
| REV,0         | 2024.04.23 | /          | 产品发布                  |                |
| REV,1         | 2025.08.23 | ALL        | 范式更新                  |                |
|               |            |            |                       |                |
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