



# 产品规格书

PRODUCT SPECIFICATION

|  |  |
|--|--|
| 客户名称Buyer Name                         |  |
| 客户料号Buyer Part No.                     |  |
| 客户承认签章<br>Buyers Approval & Signatures |  |

|                             |                                     |               |     |
|-----------------------------|-------------------------------------|---------------|-----|
| 文件编号Spec No.                |                                     | 版本            | A/1 |
| 品名描述<br>Product Description | 扁平振动马达<br>Coin type vibration motor |               |     |
| 型号Part No.                  | VC1027B200N                         |               |     |
| 送样日期Date                    |                                     |               |     |
| 设计Designed by               | 审核Checked by                        | 批准Approved by |     |
| 陳满                          | 陈满                                  | 陈满            |     |
| 2020.07.01                  | 2020.07.01                          | 2020.07.01    |     |

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**更改记录/ Records of Revision**

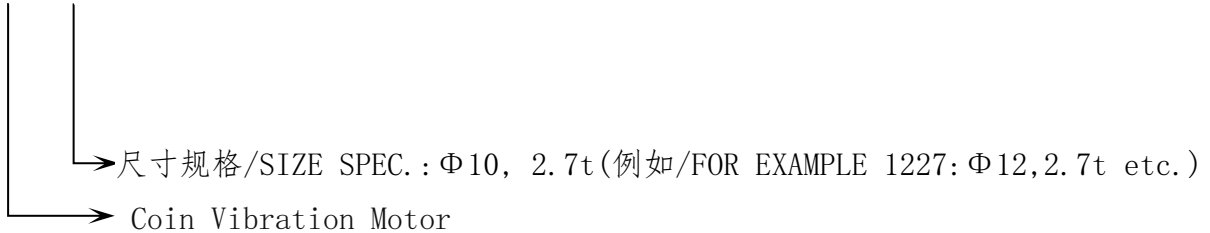
| 修改号<br>Rev. No. | 日期<br>Rev. Date | 页码<br>Page No. | 修改项目<br>Revised Item  | 更改原因<br>Reason |
|-----------------|-----------------|----------------|---|----------------|
| A/0             | 2019.06.08      | /              | 产品颁布/Release for Production   |                |
| A/1             | 2020.07.01      | /              | changed company name from JINLONG MACHINERY to VYBRONICS, changed part # from C1027B200N to VC1027B200N | Rebranding     |
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**1. 适用范围/Scope of application**

This specification sheet is stipulated for vibration motor, for mobile phone.

型号名称标准/Standard of model name:

VC 1027


**2. 使用条件/Standard operating condition**

| NO. | 项目/Item                               | 规格/Specifications |
|-----|---------------------------------------|-------------------|
| 2-1 | 额定电压<br>Rated voltage                 | DC3.0V            |
| 2-2 | 使用电压范围<br>Operating voltage range     | DC 2.4~3.6V       |
| 2-3 | 旋转方向<br>Rotating direction            | CW / CCW          |
| 2-4 | 使用温度范围<br>Operating temperature range | -30°C~+70°C       |
| 2-5 | 保存环境范围<br>Storage temperature range   | -40°C~+80°C       |

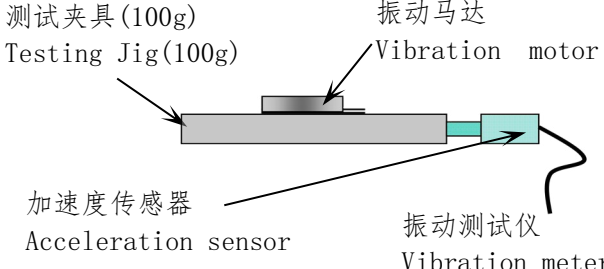
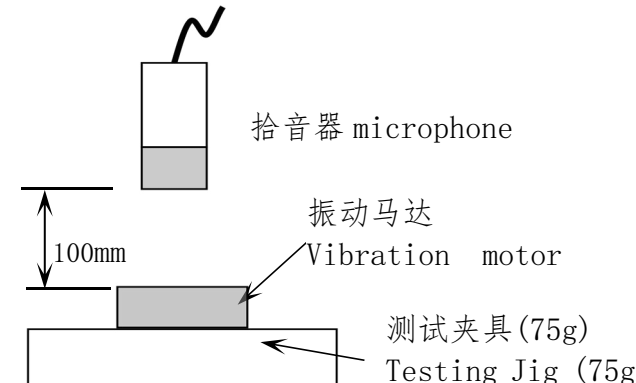
**3. 测试条件/Testing condition**

| NO. | 项目/Item                              | 规格/Specifications                               |
|-----|--------------------------------------|---|
| 3-1 | 温度<br>Temperature                    | 25°C ±3   |
| 3-2 | 湿度<br>Humidity                       | 45% ~85%RH                                      |
| 3-3 | 电源电压<br>Power supply, voltage source | 直流电源或电池 3.0V<br>DC power supply or battery 3.0V |
| 3-4 | 马达安放状态<br>Posture of motor           | 标准测量方式<br>State of standard measurement         |

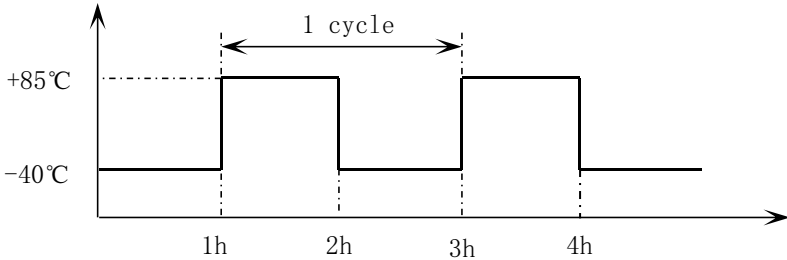
**4. 电气特性/Electrical characteristic**

| NO. | 项目/Item                       | 单位<br>/Unit | 规格/SPEC.   | 条件/Condition  |
|-----|-------------------------------|-------------|--|---|
| 4-1 | 额定转速<br>Rated speed           | rpm         | 9000Min  | 额定电压:DC 3.0V<br>Rated voltage:DC 3.0V   |
| 4-2 | 额定电流<br>Rated current         | mA          | 80Max  | 额定电压:DC 3.0V<br>Rated voltage:DC 3.0V   |
| 4-3 | 启动电压<br>Starting voltage      | V           | 2.3Max   | DC2.3V电压下, 开/关为1个循环, 共3个循环<br>On/off-1cycle, total 3cycles under DC2.3V                 |
| 4-4 | 端子阻抗<br>Terminal resistance   | Ω           | 单相<br>1phase: 35 ± 20%<br>双相<br>2phase: 70 ± 20% | 正极和负极之间<br>Between positive and negative  |
| 4-5 | 启动电流<br>Starting current      | mA          | 100Max   | 启动电压:DC 2.3Max<br>Starting voltage:DC 2.3Max  |
| 4-6 | 绝缘电阻<br>Insulation resistance | MΩ          | 10Min  | 测量机壳和引线之间。<br>测试电压直流100V。<br>Measuring between case and lead wire. Test voltage DC 100V |

**5. 机械特性/Mechanical characteristics**

| NO  | 项目/Item                            | 单位/Unit | 规格/SPEC. | 条件/Condition  |
|-----|------------------------------------|---------|----------|---|
| 5-1 | 振动量<br>Vibration Strength          | 1.1G    | MIN      |  <p>测试夹具(100g)<br/>Testing Jig(100g)</p> <p>振动马达<br/>Vibration motor</p> <p>加速度传感器<br/>Acceleration sensor</p> <p>振动测试仪<br/>Vibration meter</p> <p>马达: 被固定/Motor : be fixed.<br/>额定电压:DC 3.0V/Rated voltage : DC 3.0V .</p>   |
| 5-2 | 机械噪音<br>Mechanical Noise           | dB      | 50 MAX   |  <p>拾音器 microphone</p> <p>100mm</p> <p>振动马达<br/>Vibration motor</p> <p>测试夹具(75g)<br/>Testing Jig (75g)</p> <p>马达: 被固定/Motor : be fixed<br/>额定电压:DC 3.0V/Rated voltage : DC 3.0 V<br/>背景噪音: 25dB MAX.<br/>Back ground noise: 25dB MAX.<br/>拾音器沿轴向正对电机平面<br/>Microphone faces the plane of motor along the shaft</p> |
| 5-3 | 底盖偏转强度 Bracket Deflection Strength | gf      | 1000 MIN | 通过推拉计进行破坏测试<br>Demolition test by push-pull gauge.  |

**6. 环境试验/Environmental test**

| NO  | 项目/Item                                 | 条件/Condition  |
|-----|---|---|
| 6-1 | 低温贮存试验<br>Low temperature Storage test  | 在-40℃的环境下放置96小时，然后在常温常湿下恢复2小时后测试。<br>Exposed at -40℃ for 96 hours, then return to normal temperature and humidity for 2 hours before test.  |
| 6-2 | 高温贮存试验<br>High temperature Storage test | 在+80℃的环境下放置96小时，然后在常温常湿下恢复2小时后测试。<br>Exposed at +80℃ for 96 hours, then return to normal temperature and humidity for 2 hours before test.  |
| 6-3 | 高湿贮存试验<br>High humidity Storage test    | 在+50℃,90%RH的环境下放置96小时，然后在常温常湿下恢复2h后测试。<br>Exposed at +50℃ 90%RH for 96hours, then return to normal temperature and humidity for 2 hours before test.  |
| 6-4 | 温冲试验<br>Thermal shock test              | 马达按照以下试验条件放置 15 个周期，然后在常温常湿下放置 2 小时后测试。<br>Confirmed to operating of motor during 15 cycles as following test condition, then return to normal temperature and humidity for 2 hours before test.<br>试验条件/Test condition:<br><br>高低温转换时间：≤5分钟<br>Transfer time between high temperature and low temperature: ≤5min |
| 6-5 | 跌落<br>Drop test                         | 将马达固定在100g的塑料夹具上，从1.5米的高度跌落到水泥地面上，六个面的每个面都跌落2次。<br>The motor that is attached to a 100g jig (plastic housing) and drop it onto the concrete floor from 1.5m height. Drop twice in each of the six planes.   |

|     |  |  |
|-----|--|--|
| 6-6 | <p style="text-align: center;">振动试验<br/>Vibration test</p> | <p>将马达固定在100g的塑料夹具上，按以下要求进行试验：</p> <ol style="list-style-type: none"> <li>1) 振频范围:10-55Hz</li> <li>2) 全振幅1.5mm</li> <li>3) 振频变化10-55-10 约10分钟</li> <li>4) 振动方向:三个垂直方向</li> <li>5) 持续时间:每个方向10分钟（共30分钟）</li> </ol> <p>The motor that is attached to a 100g jig (plastic housing) and test according following condition:</p> <ol style="list-style-type: none"> <li>1)Vibration frequency range: 10~55Hz</li> <li>2)Total amplitude: 1.5mm</li> <li>3)Sweep ratio: 10~55~10Hz approximate 10min</li> <li>4)Direction of vibration: Three perpendicular directions</li> <li>5)Duration: 10min(30min in total)</li> </ol> |
|-----|--|--|

▶ 判定标准/Judgment standard

① 试验后，测试数据必须符合以下规格：

After test, measured data must be satisfied as following specifications;

- 启动电压: DC2.3V MAX.
- Starting voltage: DC2.3V MAX.
- 额定转速: 变化率在初始值的-30%~+50%以内。
- Rated speed: changing rate must be within -30%~+50% of initial value.
- 额定电流: 变化率在初始值的-30%~+50%以内。
- Rated current: changing rate must be within -30%~+50% of initial value.
- 端子阻抗: 变化率在初始值的±15%以内。
- Terminal resistance: changing rate must be within ±15% of initial value.

② 外形结构无异常.

There should be no abnormalities in appearance and structure.



**7. 寿命试验/Life test**
**▶ 试验条件/Test condition:**

1 秒转, 1 秒停为 1 个周期, 共 5 万次。

( DC3.0V, 常温常湿 )

1 SEC ON, 1 SEC OFF 1CYCLE , 50,000 CYCLES.

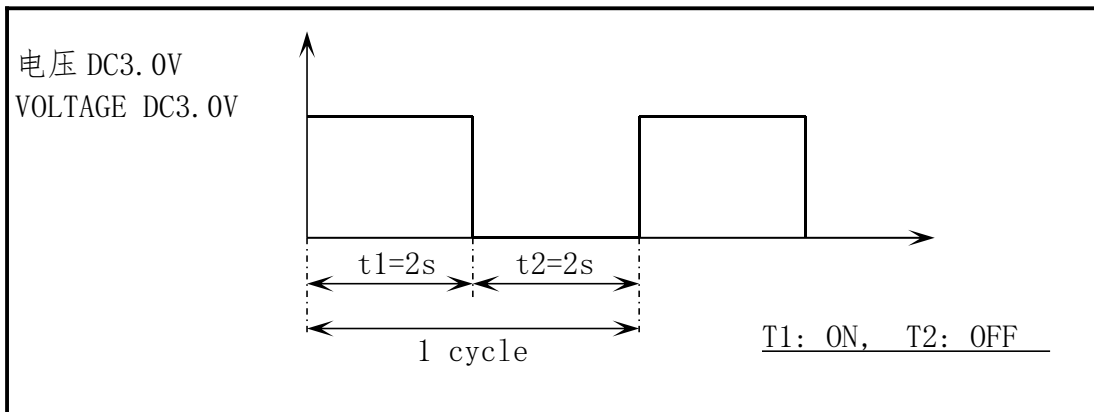
( DC3.0V, at normal temperature and humidity )

**▶ 判定条件/Judgment standard:**

试验后, 测试数据必须符合以下规格:

After test, measured data must be satisfied as following specifications:

- 启动电压: DC2.3V MAX.
- Starting voltage: DC2.3V MAX.
- 额定转速: 变化率在初始值的-30%~+50%以内。
- Rated speed: changing rate must be within -30%~+50% of initial value.
- 额定电流: 变化率在初始值的-30%~+50%以内。
- Rated current: changing rate must be within -30%~+50% of initial value.



## 8. 注意事项/CAUTION FOR USE

- (1) 该马达是微型精密产品，在运输过程中不要承受超过0.5 kgf的力，否则会引起外形或性能的变化。

As this motor is small and precise, do not press it over 0.5kgf force or while transportation, it can cause the transformation of performance or external appearance.

- (2) 请注意马达不要接触到液体性物质（比如：水，酒精等）  
please be careful, not to be contacted fluid substances  
(such as: water, alcohol etc.)

- (3) 不要在高温下长时间放置，否则有可能导致电机的性能下降。

Do not expose the motor to high temperature for a long periods of time, it may cause a decline in performance.

- (4) 马达不要在以下环境中使用：

- 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>等

Avoid using the motor in the following environment.

- High temperature and high humidity area.
- Corrosive gas such as H<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub> etc.

- (5) 请不要在靠近磁铁或带有磁场的仪器旁边使用或存放马达。

Please do not operate or store the motor adjacent to magnet or apparatus That has a magnetic field.

- (6) 请注意底盖的表面存在漏磁通量。

Please be careful that there exists a leaking magnetic flux on the surface of bracket.

- (7) 电刷和换向器的相互作用，有可能产生轻微的电噪音。

Due to interaction between brush and commutator, there is a possibility to occur electrical noise slightly.

- (8) 因测试设备有误差，允许有±5%偏差。

Beacause there is error of the measurement equipment ,permit the standard of the rotational frequency to ±5%

- (9) 马达通过ROHS认证

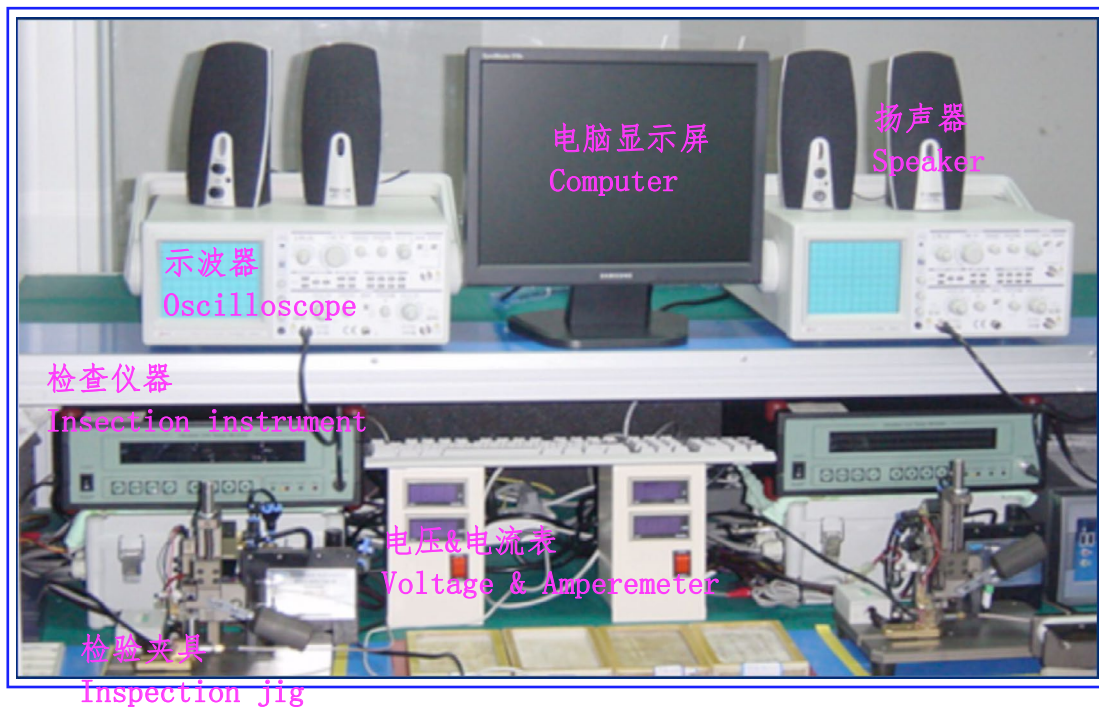
This motor pass the system of ROHS certification

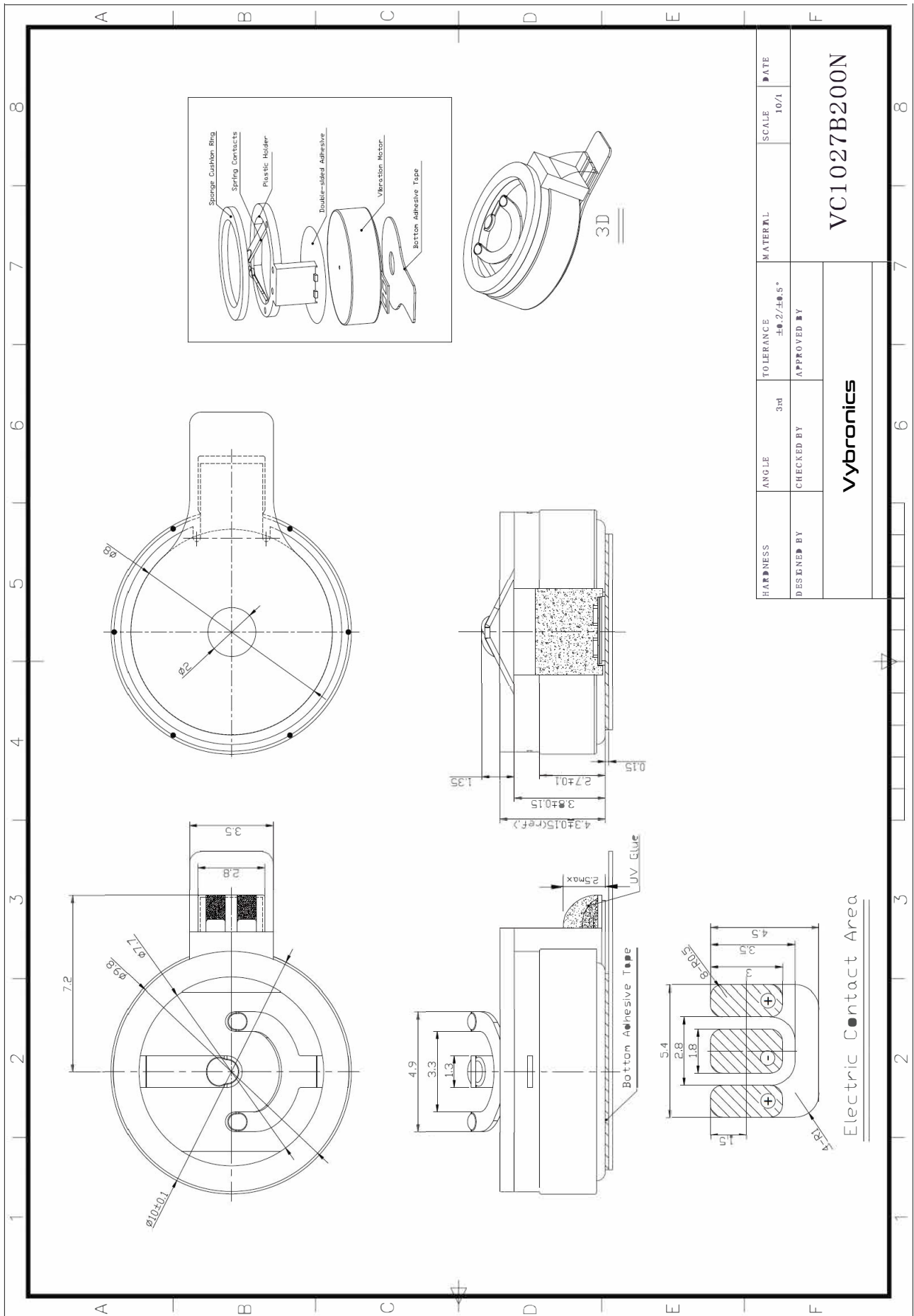
9. 附/Attached

9-1标准测量方式/state of standard measurement

测试项目：启动电压，额定电压下的电流，额定电压下的转速，绝缘电阻。

Measure item: starting voltage, current at rated voltage, speed at rated voltage, insulation resistance.





|             |            |                           |          |       |      |
|-------------|------------|---------------------------|----------|-------|------|
| HARNNESS    | ANGLE      | TOLERANCE                 | MATERIAL | SCALE | DATE |
| DESIGNED BY | CHECKED BY | $\pm 0.2 / \pm 0.5^\circ$ |          | 10/1  |      |
| APPROVED BY |            | VC1027B200N               |          |       |      |
| Vybronic    |            |                           |          |       |      |

Electric Contact Area