



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 Buyers Approval & Signatures | |

| | | | |
|-----------------------------|-------------------------------------|---------------|-----|
| 文件编号Spec No. | | 版本 | A/1 |
| 品名描述 Product Description | 扁平振动马达 Coin type vibration motor | | |
| 型号Part No. | VC0824K002L | | |
| 送样日期Date | | | |
| 设计Designed by | 审核Checked by | 批准Approved by | |
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| 2020.07.01 | 2020.07.01 | 2020.07.01 | |

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1.适用范围/Scope Of Application

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

2.使用条件/Standard Operating Condition

| NO. | 项目/Item | 规格/Specifications |
|-----|---------------------------------------|-------------------|
| 2-1 | 额定电压 Rated voltage | DC3.0V |
| 2-2 | 使用电压范围 Operating voltage range | DC 2.5~3.5V |
| 2-3 | 旋转方向 Rotating direction | CW / CCW |
| 2-4 | 使用温度范围 Operating temperature range | -30℃~+70℃ |
| 2-5 | 保存环境范围 Storage temperature range | -40℃~+80℃ |

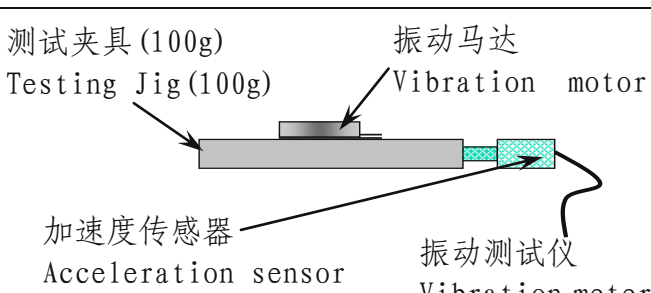
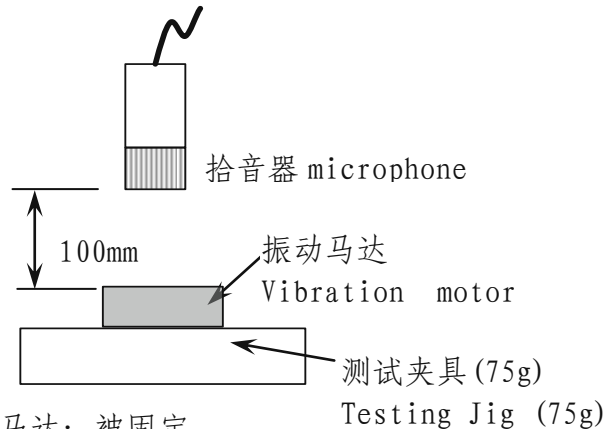
3.测试条件/Testing Condition

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

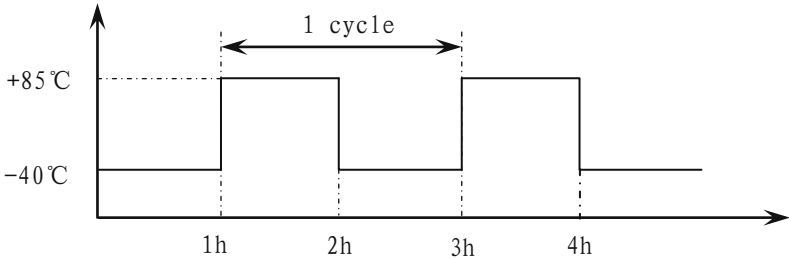
4. 电气特性/Electrical Characteristic

| NO. | 项目/Item | 单位/Unit | 规格/SPEC. | 条件/Condition |
|-----|-------------------------------|---------|--|---|
| 4-1 | 额定转速 Rated speed | rpm | 10000Min | 额定电压: DC 3.0V Rated voltage: DC 3.0V |
| 4-2 | 额定电流 Rated current | mA | 85Max | 额定电压: DC 3.0V Rated voltage: DC 3.0V |
| 4-3 | 启动电压 Starting voltage | V | 2.3Max | DC2.3V电压下, 开/关为1个循环, 共3个循环 On/off-1cycle, total 3cycles under DC2.3V |
| 4-4 | 端子阻抗 Terminal resistance | Ω | 单相 1phase: 33 ± 20% 双相 2phase: 60 ± 20% | 正极和负极之间 Between positive and negative |
| 4-5 | 启动电流 Starting current | mA | 120Max | 启动电压: DC 2.3Max Starting voltage: DC 2.3Max |
| 4-6 | 绝缘电阻 Insulation resistance | MΩ | 10Min | 测量机壳和引线之间。 测试电压直流100V。 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 Vibration Strength | Grms | 0.5 Min | 测试夹具 (100g) Testing Jig (100g)  振动马达 Vibration motor 加速度传感器 Acceleration sensor 振动测试仪 Vibration meter |
| | | Gp | 0.7Min | 马达: 被固定。 Motor : be fixed. 额定电压:DC 3.0V Rated voltage : DC 3.0V . |
| 5-2 | 机械噪音 Mechanical Noise | dB | 50 MAX |  拾音器 microphone 100mm 振动马达 Vibration motor 测试夹具 (75g) Testing Jig (75g) |
| 5-3 | 底盖偏转强度 Bracket Deflection | gf | 1000 MIN | 通过推拉计进行破坏测试 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 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。 Exposed at -40℃ for 96hours, then return to normal temperature and humidity for 2 hours before test. |
| 6-2 | 高温贮存试验 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。 Exposed at +80℃ for 96hours, then return to normal temperature and humidity for 2 hours before test. |
| 6-3 | 高湿贮存试验 High humidity Storage test | 在+40℃, 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。 Exposed at +40℃ 90%RH for 96hours, then return to normal temperature and humidity for 2 hours before test. |
| 6-4 | 温冲试验 Thermal shock test | <p>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。 Confirmed to operating of motor during 15 cycles as following test condition, then return to normal temperature and humidity for 2 hours before test.</p> <p>试验条件: Test condition:</p>  <p>高低温转换时间: ≤5分钟 Transfer time between high temperature and low temperature: ≤5min</p> |
| 6-5 | 跌落 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。 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 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"> 1) 振频范围: 10-55Hz 2) 全振幅1.5mm 3) 振频变化10-55-10 约10分钟 4) 振动方向: 三个垂直方向 5) 持续时间: 每个方向10分钟（共30分钟） <p>The motor that is attached to a 100g jig (plastic housing) and test according following condition:</p> <ol style="list-style-type: none"> 1) Vibration frequency range: 10~55Hz 2) Total amplitude: 1.5mm 3) Sweep ratio: 10~55~10Hz approximate 10min 4) Direction of vibration: Three perpendicular directions 5) Duration: 10min(30min in total) |
|-----|--|--|

▶ 判定标准/Judgment standard

④ 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.

⑤ 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 10 万次。

(DC3.0V, 常温常湿)

1 SEC ON, 1SEC OFF 1CYCLE , 100,000 CYCLES.

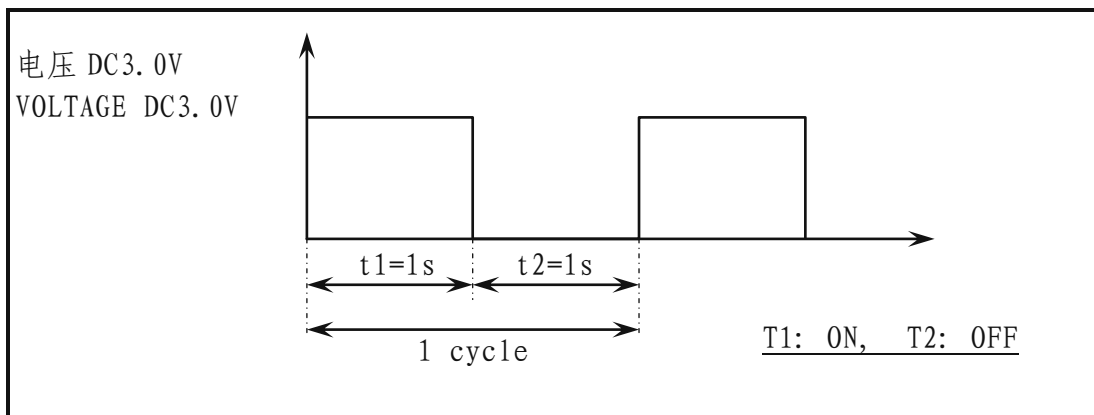
(DC3.0V, at normal temperature and humidity)

▶ 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H₂S、SO₂、NO₂等

Avoid using the motor in the following environment.

- High temperature and high humidity area.
- Corrosive gas such as H₂S、SO₂、NO₂ 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。

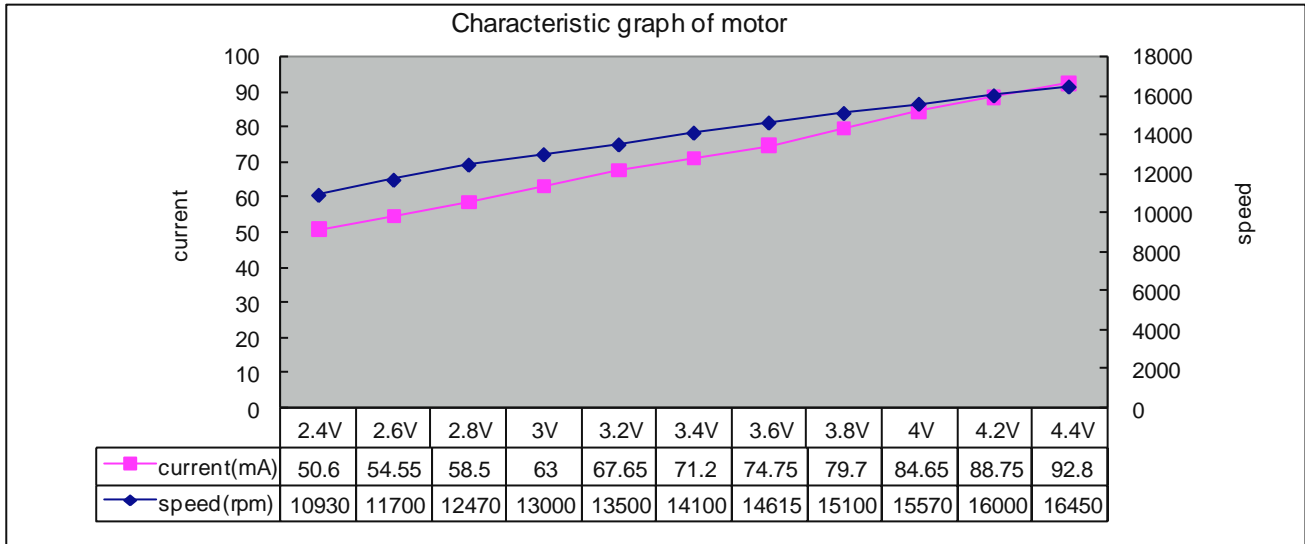
Beacause there is error of the measurement equipment ,permit the standard
of the rotational frepency to ±5%

- (9) 本产品所有零部件符合欧盟RoHS2.0/无卤/REACH指令要求

This product conforms to the EU ROHS2.0, Halogen-Free and REACH
certification

9. 附/Attached

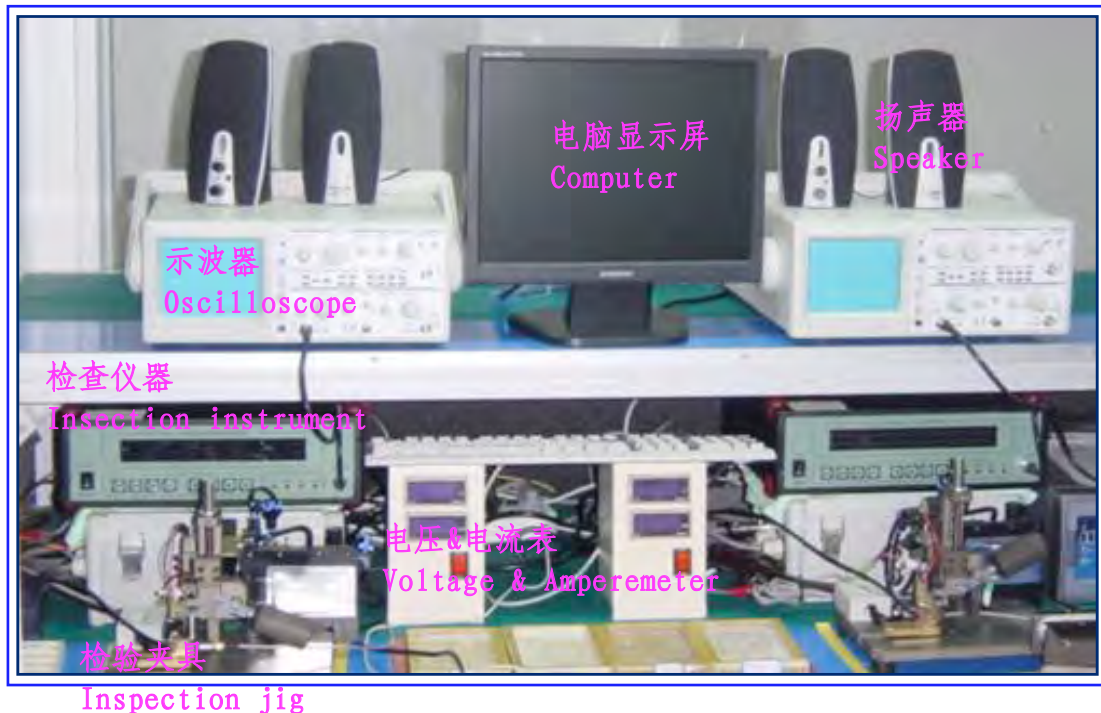
9-1 马达特性图/characteristic graph of motor



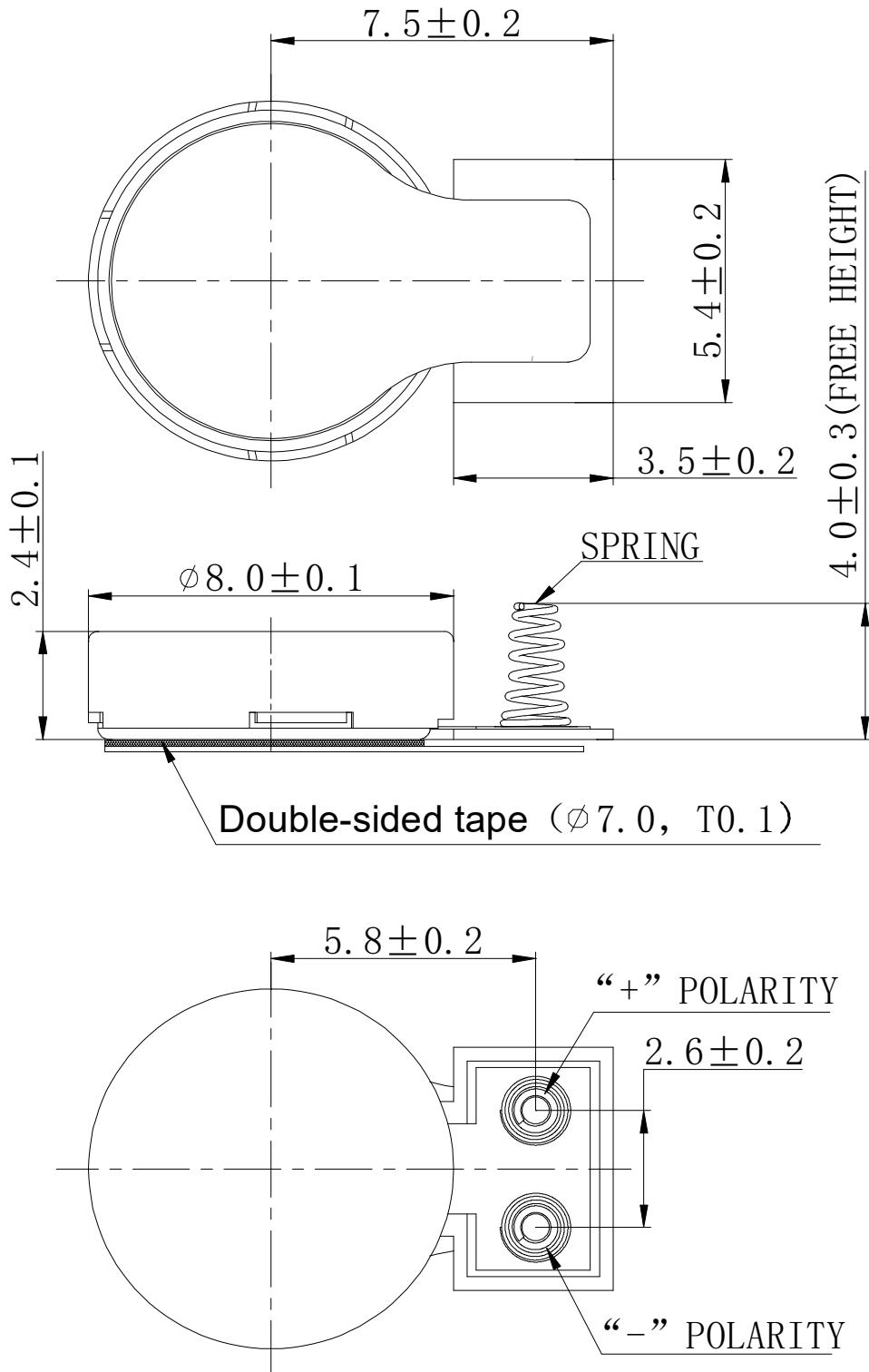
9-2 标准测量方式/state of standard measurement

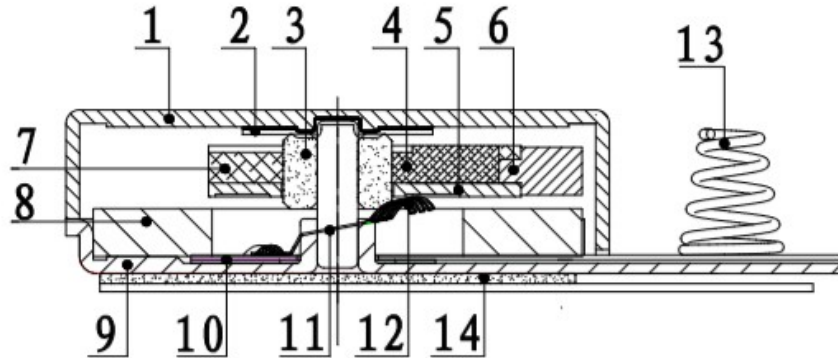
测试项目: 启动电压, 额定电压下的电流, 额定电压下的转速, 绝缘电阻。

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



10. 外形图/Outside view



11. 结构图及物料清单/Structure drawing & BOM


| NO. | 物料名称/Part name | 材料/Material |
|-----|-----------------------|-------------------|
| 1 | 上机壳 Upper case | SPC-E |
| 2 | 滑片 Slide | PE+Acrylic |
| 3 | 轴承 Bearing | Cu+Fe |
| 4 | 线圈 Coil | Copper+PU |
| 5 | 硬基板 HPCB | Epoxy |
| 6 | 振子 Weight | Tungsten alloy |
| 7 | 塑料 Resin | PBT |
| 8 | 磁钢 Magnet | NdFeB |
| 9 | 下机壳 Lower case | SPC-E |
| 10 | 软基板 FPCB | PI+AD+Copper+Glue |
| 11 | 钢轴 Shaft | DSR7B |
| 12 | 电刷 Brush | MX215 |
| 13 | 弹簧 Spring | SWP-B |
| 14 | 双面胶 Double-sided tape | Cloth+Adhesive |

12. 包装/Packaging



吸塑盒尺寸 (长: 250mm 宽: 210mm 高: 11mm)

Tray dimension (L: 250mm W: 210mm H: 11mm)

每个吸塑盒放 100 只

100 Pcs per tray

内箱尺寸 (260mm 宽: 215mm 高: 80mm)

Inner-box dimension (L: 260mm W: 215mm
H: 80mm)

每 11 个吸塑盒捆在一起, 数量为 1000 只,
装入内箱

Put into inner-box 11 tray together
with tape 1000 Pcs per 11 tray .

4 个内箱装入外箱, 数量共 4000 只;

Put 4 inner-box into outer-box, total
4000 Pcs.

外箱尺寸: (450mm 宽: 280mm 高: 180mm)

Outer-box dimension:

(L: 450mm W: 280mm H: 180mm)