



維盟科技有限公司
Evowave Technology Co., Ltd.

規格書 / Specification

Description:	Coin Type Vibrator
Part No.:	VD102712WXX
Date:	2015/04/24

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重要提示 Important Notes:

1. 如对电机的性能和（或）寿命有任何争议，仅基于此规格书作出判断。

If there is any argument on motor performance and/or life, judgment is to be made base on this specification only.

2. 客户方有责任确认该电机能满足您的使用要求。

Customer has the responsibility to ensure that motor can satisfy the requirement of your application.

3. 如果公司未提供技术规格，该文件将详细叙述与贵公司商定的技术规格。

In the event that an official specification is not present by customer, this document will specify the agreed technical specification.

4. 在满足规格的条件下，我司可以改变零件材料、尺寸及形状来改善品质（或）性能（或）生产效率。

Within the limitation to satisfy this specification, DMEGC has the convenience to change the materials, size and shapes of components of the motor for the purpose of improving quality, and/or performance, and/or production efficiency.

5. 收到此规格书后，贵司应于下订单之前将规格书副本签回以示贵司已确认。如贵司未能在规定时间内签回副本，我司将认为贵司已收到并承认该规格书。

After the receipt of this specification, customer should send a signed copy to DMEGC, before you issued purchase order for the confirmation on acknowledgement. DMEGC, regard it as the receipt of this specification acknowledged if customer fails to return the confirmation to us within the described period.

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1、应用范围 Application

— 本说明书适用于 VD102712WXX 扁平式振动电机。

This specification applies to Coin Vibration Motor VD102712WXX model.

— 此规格书提供了扁平马达的结构，功能和使用条件。

These specifications provide structure and usage condition for Coin Vibration motor

2、结构形式 Construction Form

序号 NO.	项目 Items	内容 Specification
2-1	电机结构 Motor construction	直径为 10mm 的扁平振动电机 10-flat coreless vibration motor
2-2	相数 Number of phases	2 相 2-phases (-connection)
2-3	磁极极数 Number of magnet poles	四极（磁钢内置） 4-poles (inner magnet type)
2-4	线圈结构 Coil construction	扁平型线圈 Flat coreless coil
2-5	换向方式 Rectifying method	电刷换向器装置 Precious brush and commutator

3、标准运行条件 Standard operating condition

序号 NO.	项目 Item	规格 Specification	条件・备注 Condition・Remark
3-1	额定电压 Rated voltage	DC3.0V	加在端子两端的电压 Voltage added to both ends of the terminal
3-2	额定负荷 Rated load	振子 Vibrator	
3-3	旋转方向 Rotation direction	顺或逆时针方向 CW OR CCW	
3-4	摆放位置 Motor position	任意位置 Any position	
3-5	工作电压范围 Voltage range	DC2.7~3.3V	
3-6	使用环境 Operating conditions	-20℃~70℃ 15%RH~90%RH	无水气凝露 No condensation of moisture
3-7	存储温度 Storage temperature	-20℃~70℃ 15%RH~90%RH	无水气凝露 No condensation of moisture

4、标准测试环境 Environmental Test Conditions

序号 NO.	项目 Item	测试环境条件 Environmental Conditions
4-1	温度 Temperature	20±2℃
4-2	湿度 Humidity	60±5% RH
4-3	电机位置 Motor position	水平 Horizontal
4-4	电源 Power supply	直流稳压电源 DC Power Supply DC3.0V±5%

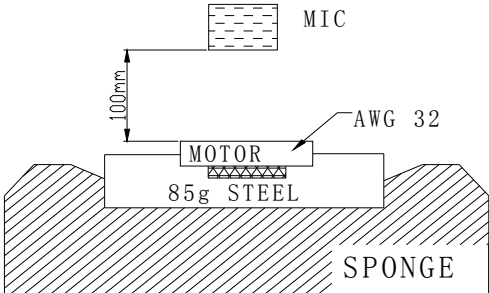
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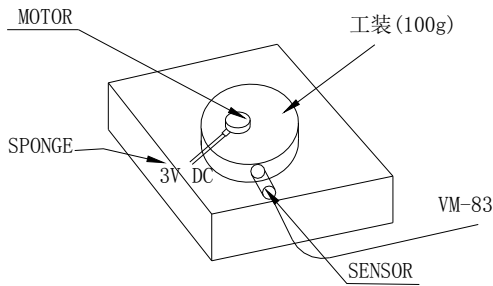
为了保证一致性,测试应在规定内进行。在对判定不发生异议时,也可以在温度 5~35℃,湿度 45~85%RH 的环境下测试。

NOTE:

To ensure the coherence, it must be tested according to the chart. However, the range of temperature can be 5~35℃ and humidity 45~85%RH if there is no doubt about the judgment.

5、电气性能 Electrical Characteristics

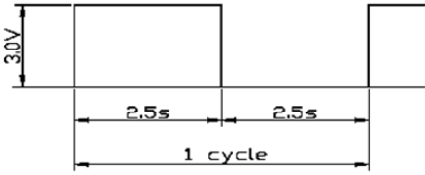
序号 NO.	项目 Item	测试条件 Measuring condition	规格 Specification
5-1	额定电压 Rated voltage	加在端子两端的电压 Voltage added to both ends of the terminal	DC3.0V
5-2	额定转速 Rated speed	在额定电压及负荷下测试 At Rated voltage and rated load	14000 ± 2500rpm
5-3	额定电流 Rated current	在额定电压及负荷下测试 At Rated voltage and rated load	90 mA MAX
5-4	起动电流 Starting current	额定电压下锁定电机轴条件下测试 At rated voltage and shaft locked	120 mA MAX
5-5	起动电压 Starting voltage	在额定负载下转子任意位置 At rated load any position of rotor	DC 2.3V MAX
5-6	电枢电阻 Terminal resistance	端子阻抗 Measure between terminals	1 Phase contact: 28 Ω ± 15%
			2 Phase serial: 53 Ω ± 15%
			2 Phase parallel: 15 Ω ± 15%
5-7	绝缘电阻 Insulation resistance	100V 直流电压下导线与机壳之间 Test between lead wire and case at DC 100V	10M Ω MIN
5-8	绝缘电压 Insulation voltage	在导线与马达机身之间提供 DC50V 电压一分钟 DC50V between lead wire and motor case for one minute	No destruction occurs
5-9	机械噪音 Mechanical noise	 额定电压下，背景噪声 ≤ 28 dB(A)，电机固定在测试夹具上，拾音器沿轴向正对电机平面，距离 10 cm。 At rated voltage, Back ground noise: 28 dB(A) Max, Fix the motor in a test jig. Microphone is faced to the motor and recedes by 10cm	50dB(A)MAX

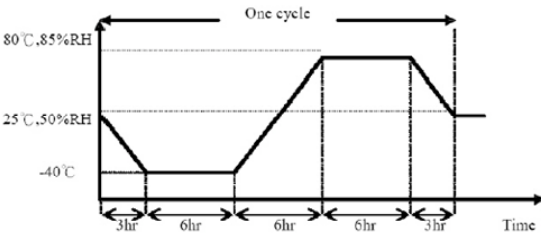
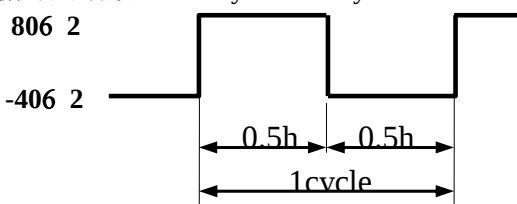
序号 NO.	项目 Item	测试条件 Measuring condition	规格 Specification
5-10	反应时间 Reaction time	3.0V 标准电压下, 0.15 秒 At 3.0V,0.15S	≥ 9000 RPM
5-11	振动量 Vibration swing		$\geq 1.0G$

6、机械特性 Mechanical Characteristic

序号 NO.	项目 Item	测试条件 Measuring condition	规格 Specification
6-1	外观尺寸 Configuration	游标卡尺 Vernier caliper	参考相关图纸 As specified in outline drawing
6-2	外观 Appearance	目测 Visual examination	不得有明显的机械划痕、裂缝、锈迹、污点 No obvious evidence of mechanical damage、crack、rust and stain
6-3	重量 Weight	天平 Balance	1 克（左右） 1g（Approx）
6-4	引线脱落强度 Lead wires loose strength	引线脱落强度测试 Lead wire loose strength test	$\geq 1Kgf$
6-5	解体强度 Motor collapse strength	电机解体强度测试 Motor collapse strength test	$\geq 1Kgf$

7、可靠性试验 Reliability Test

NO. 序号	Item 项目	Test condition 试验条件	Requirements 判定基准
7-1	寿命测试 Life test	测试条件/Test Condition 电压/Voltage:3.0V 负荷/ Load: 偏心锤/ Counter weight 位置/Position 轴水平/Horizon 	在常温常湿下放置 4H 后测试 After 4 hours exposure in ordinary temperature and humidity
7-1-1	温室寿命测试条件 Room Temperature Life Test Condition	测试环境/Test Environmental: 温度/ Temperature: $(25 \pm 2)^\circ\text{C}$ 相对湿度/ humidity: $50 \pm 5\% \text{RH}$ 循环周期/life cycles: 100,000 cycles, continue test To 300,000 cycles 检查周期: 测试前、测试后和每 20000 个循环都需对马达的所有性能进行测试。 Check cycle: Before, after and 20,000 cycles to measure the all electrical characteristic.	100,000 循环后, 在常温常湿下放置 4H 后, 满足 8-1 项。300000 循环后, 马达可以启动和无异常噪音。 100,000 cycles , After 4 hours exposure in ordinary temperature and humidity, motors shall be approved as specified in item 8-2, After 300,000 cycles the vibrator should operate, and cannot have non vibration, ecceptional noise
7-1-2	低温寿命试验 Low temperature Life test	测试环境/Test Environmental: 温度/ Temperature: $(-20 \pm 2)^\circ\text{C}$ 寿命周期/life cycles: 53,000 cycles 检查周期: 测试前、测试后和每 20000 个循环都需对马达的所有性能进行测试。 Check cycle: Before, after and 20,000 cycles to measure the all electrical characteristic.	满足 8-1 项。
7-1-3	高温高湿寿命试验 High temperature Humidity Life test	测试环境/Test Environmental: 温度/ Temperature: $(65 \pm 2)^\circ\text{C}$ 相对湿度/ humidity: 95%RH 寿命周期/life cycles: 53,000 cycles 检查周期: 测试前、测试后和每 20000 个循环都需对马达的所有性能进行测试。 Check cycle: Before, after and 20,000 cycles to measure the all electrical characteristic.	motors shall be approved as specified in item 8-1

NO. 序号	Item 项目	Test condition 试验条件	Requirements 判定基准
7-2	低温放置 Low temperature exposure	温度/ temperature: $(-30 \pm 3) ^\circ\text{C}$ 时间/Time: 240H 湿度/Humidity: 常湿/Ordinary Humidity	在常温常湿下放置 4H 后, 满足 8-1 项。 After 4 hours exposure in ordinary temperature and humidity, motors shall be approved as specified in item 8-1
7-3	高温放置 High temperature exposure	温度/ temperature: $(70 \pm 2) ^\circ\text{C}$ 时间/Time: 240H 湿度/Humidity: 常湿/Ordinary Humidity	
7-4	高低温湿度循环试验 High/Low temperature Humidity Cycle Storage	温度/ temperature: $-40 ^\circ\text{C} \leftrightarrow 80 ^\circ\text{C}$ 循环周期数/Circle cycle: 6 cycles 相对湿度/ humidity: 95%RH 	
7-5	振动试验 Vibration test	全振幅/ Displacement(P-P): 1.5mm 频率/ Frequency: 10~55Hz 加速度/Acceleration: 22m/s^2 周期/Period 20min 完成 10~55~10 Hz /20 Minutes log sweep 10~55~10 Hz 方向/ Direction: x-y-z 时间/Time: 每个方向 2h/Each 2 hours	满足 8-1 项。 motors shall be approved as specified in item 8-1
7-6	跌落试验 Free Fall Drop Test	将马达安装到 100 克 (含马达重量) 的长方体中, 自由地跌落至混凝土地面上。 Set the vibrator to the around 100 g (include the vibrator) weight of block, and fall free on the concrete floor 跌落高度/Drop Height: 150 cm 跌落方向/Direction: 6 faces 跌落次数/Times: Each faces 3Times	
7-7	热冲击试验 Thermal Shock test	温度/Temperature: $-40 ^\circ\text{C} \sim 80 ^\circ\text{C}$ 时间/Time: 1h 循环周期数/Circle cycle: 50 cycles 	在常温常湿下放置 4H 后, 满足 8-1 项。 After 4 hours exposure in ordinary temperature and humidity, motors shall be approved as specified in item 8-1

8、可靠性试验评估表 Requirement Reliability Test

序号 NO.	Item 项目	Specification 规格
8-1	TABLE A	1) 额定转速/ Rated speed: 初始值/ Initial data -30%/+50% 2) 额定电流/Rated current: 初始值/Initial data -30%/+50% 3) 端阻/ Terminal resistance: 初始值/Initial data $\pm 15\%$ 4) 起动电压/Starting voltage : 2.5V DC MAX 5) 绝缘电阻/ Insulation resistance: 10M Ω MIN 6) 无异常噪音/ Should not be unusual mechanical noise

9、注意事项 Cautions

9-1 工作范围/ Allowable range for use

注意电压及电流的使用范围，并且在本标准规定情况下使用马达，否则将相应降低马达的使用寿命和性能。
Pay attention to voltage and current ranges for use and use the vibration motor in the condition accordance with this specification, or the life and performance should be considerably receded.

9-2 移动电机 Move your motor

拿电机时，应轻拿轻放，应尽可能的利用外壳部分。请勿将其跌落或加以超过 5 公斤的压力。否则会引起电机的外部形态和电气特性的改变。电机在运输过程中应小心轻放，避免严重碰撞敲击引起的电机机身和性能受损。

Please deal with the motors gently; you should make use of the outer case as possible as you can. Do not press the product with more than 0.5Kgf or drop it, in case cause the transformation of performance or external appearance. Please lay the motors carefully during transportation to avoid any serious damage to the motor body or its electric function because of collision.

9-3 储存

储存温度: $-20^{\circ}\text{C}\sim 70^{\circ}\text{C}$

储存湿度: 15%RH~90%RH

避免放置在高温、潮湿及有腐蚀性气体的环境中。

Storage

Storage temperature: $-20^{\circ}\text{C}\sim 70^{\circ}\text{C}$

Storage relative humidity: 15%rh~90%rh

Avoids storing in high temperature、high humidity or corrosive gas environment.

马达应适当的操作、储存和运转环境中均不可存在腐蚀性气体。例如： H_2S 、 SO_2 、 NO_2 、 CL_2 等。另外存储环境中不可有诸如硅、氰、甲醛水和苯酚等能放射出腐蚀性气体的物质，在电机的机械构造或装置中，如果存在腐蚀性气体，那么这会引起马达不运转。

For proper operation、storage and operating environment must not contain corrosive gases. For example , H_2S . SO_2 . NO_2 . CL_2 . Etc. In addition storage environment must not have materials that emit corrosive gases especially from silicon、cyanic、Formalin and phenol group. In the mechanism or the set existence of corrosive gases may

cause no rotation of motor.

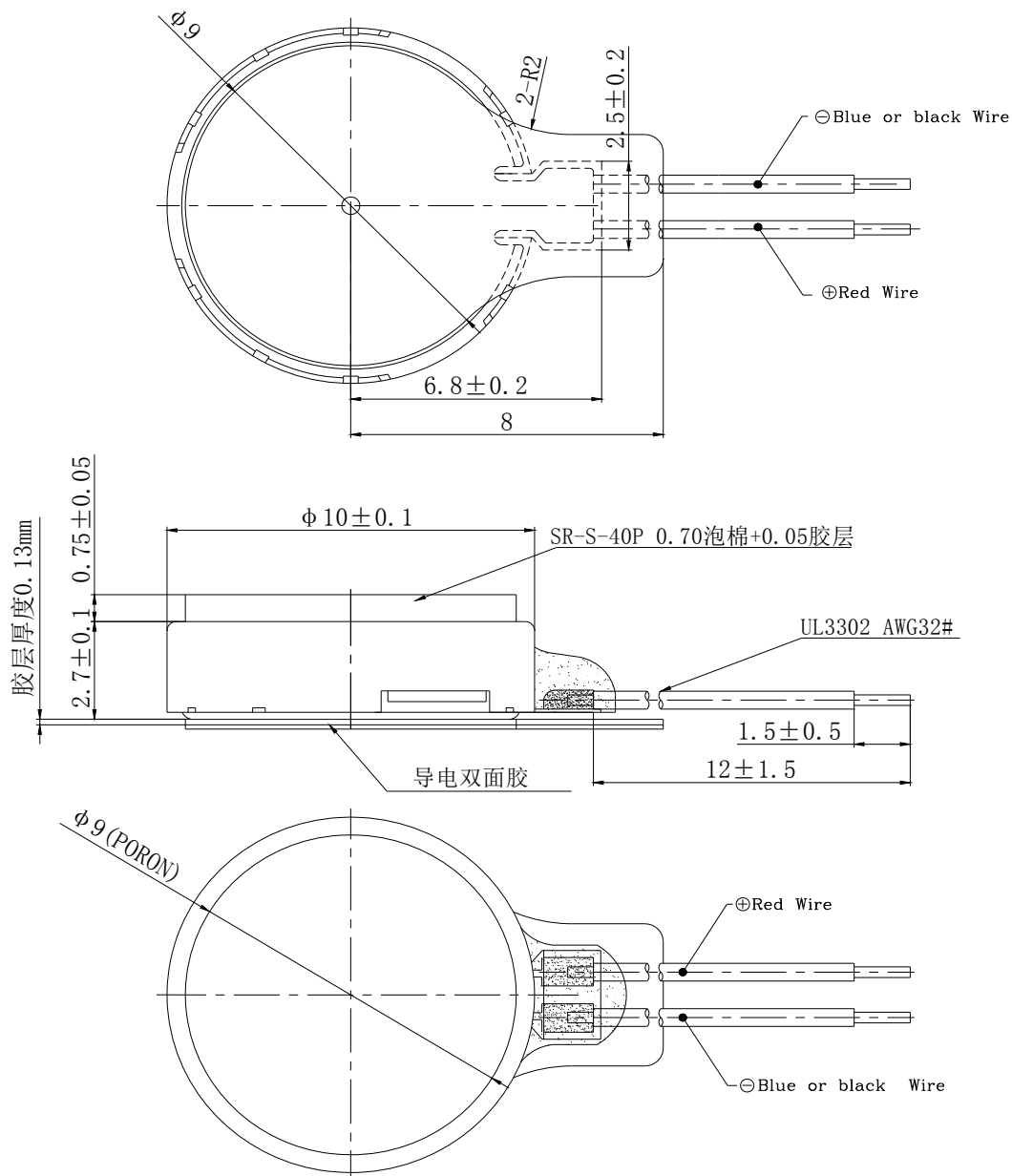
9-4 使用马达

- 小心拿取、使用。
- 避免放置在磁性物体附近或接触其表面，这将影响其功效。
- 注意操作环境，尤其注意若铁粉被磁铁吸附，将出现噪音问题，降低使用寿命。
- 请勿靠近磁体或有磁场的装置存放或运行电机。
- 请不要在高温、低温、高湿环境下存放，在使用和打开马达外包装时请避免水气结。
- 建议马达在 6 个月内使用
- To handle and hold the vibration motor case softly.
- Do not bring magnetized object near or contact with the surface of motor to avoid of performance being deteriorated.
- Pay attention to the handling and working environments of motor , because such objects as iron powder if attracted by motor magnet , will cause noise characteristic deterioration ,thus reducing the reliability.
- Please do not operate or store the motor near magnet or magnetic devices.
- .Please do not store motor in high temperature、Low temperature and high humidity environment. Condensation of atmosphere must be avoided in motor usage or opening the packaging of the motor.
- The motor is best used within 6 months

9-5 禁用物质允许含量 Prohibited substances allowed in

禁用物质名称	镉及镉化物 (Cd) ppm	铅及铅化物 (Pb) ppm	汞及汞化物 (Hg) ppm	六价铬化合物(Cr) ppm
标准	≤100	≤1000	≤1000	≤1000
禁用物质名称	包装材料合计 (Cd+Pb+Hg+Cr) ppm	多溴联苯 (PBB) ppm	多溴二苯醚 (PBDE) ppm	溴 Br 氯 Cl
标准	≤1000	≤1000	≤1000	Br≤700ppm Cl≤900ppm 合计含量≤1500ppm

10、产品外形图 Product Drawing



技术要求

1. 未注尺寸公差为 $\pm 0.2\text{mm}$ 。
2. 喷码方式如下示例：

东磁公司代码 DM 07 产品型号

变形号 24K 15 1 20 A 1 本日第几批

年 月 日 班组

11、 包装规范 Packing Specification

1. 一箱内包装 4000PCS 标准。

Pack 4000 pcs standards in a case

2. 箱体规格为 470mm×275mm×185mm(4000 只装外包装)。260mm×220mm×170mm (2000 只装内包装)。
The body specification of the case is 470mm × 275mm × 185mm(4000pcs), 260mm × 220mm × 170mm(2000pcs)

3. 单盒为 100PCS 标准，一匝为 20 盒 2000PCS 标准，一箱为 2 匝 4000PCS 标准。

The single box is 100 pcs standards; one circle is 2000 pcs standards of 20 boxes, a case is 20 point circles 4000 pcs standard

4. 箱外侧标识品名、型号、厂名。

Marked name of an article, type, quantity, weight and factory name on the outside of the case.

GIVE A DEMONSTRATION 包装示例

