



浙江省东阳市东磁诚基电子有限公司 **RoHS HF**

Zhejiang Dongyang Dmegc Chengji Electronics Co.,Ltd.

# 产品规格书

## PRODUCT SPECIFICATION

产品信息 Product Information	品名/Description	圆筒式振动电机/ Cylinder Motor	
	规格型号/Part No.	DM-YK408-1	
	文件编号/DN	DS-01-03-408-01	
	设计/Designed	审核/Checked	批准/Approved
	何英俊	何振高	周仕
	2022.12.15	2022.12.15	2022.12.15

客户信息 Customer Information	客户名称/Customer	
	机型/Model	
	客户料号/Part NO.	
	客户承认/Customer Approved	

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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 DM-YK408-1 电机。

This specification applies to cylinder vibration motor DM-YK408-1 model.

— 此规格书提供了圆柱马达的结构，功能和使用条件。

These specifications provide structure and usage condition for cylindrical vibrator.

### 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 4mm 的空心杯振动电机 4mm cylindrical DC coreless motor
2-2	相数 Number of phases	3 相 3-phases (-connection)
2-3	磁极极数 Number of magnet poles	2 极 (磁钢内置) 2-poles (inner magnet type)
2-4	线圈结构 Coil construction	圆柱型线圈 Cylindrical coil
2-5	换向方式 Commutation method	电刷换向器装置 Brush commutator device



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### 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 applied to both ends of the terminal
3-2	额定负荷 Rated load	振子 (R2.25 L=2) Vibrator weight	
3-3	旋转方向 Rotation direction	顺时针或逆时针方向 CW OR CCW	从振子端看 When vibration weight side
3-4	摆放位置 Motor position	任意位置 Any position	
3-5	工作电压范围 Voltage range	DC2.4~3.6V	
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	-40℃~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	轴伸水平 Shaft Horizontal
4-4	电源 Power supply	直流稳压电源 DC Power Supply DC3.0V±5%

备注:

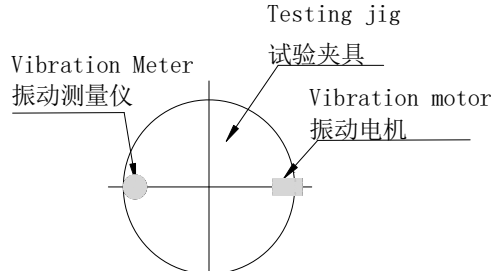
为了保证一致性,测试应在规定内进行。在对判定不发生异议时,也可以在温度5~35℃,湿度45~85%RH的环境下测试。

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±2000 rpm
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	100mA MAX
5-4	堵转电流 Stall current	At rated voltage and shaft locked, except commutation slot. 额定电压及锁定电机轴条件下测试,但换向槽隙位置除外。	120mA 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 2.0V MAX
5-6	电枢电阻 Terminal esistance	端子阻抗 Measure between terminals	35× (1±10%) Ω
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	10MΩ MIN
5-8	绝缘电压 Insulation voltage	在导线与马达机身之间提供 DC100V 电压一分钟 DC100V between lead wire and motor case for one minute.	1mA MAX cut off current
5-9	机械噪音 Mechanical noise	 <p>额定电压下, 背景噪声≤30 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: 30 dB(A) Max, Fix the motor in a test jig. Microphone is faced to the motor and recedes by 10cm.</p>	50dB(A)MAX

序号 NO.	项目 Item	测试条件 Measuring condition	规格 Specification
5-10	振动量 Vibration swing	<p>电机固定在 <math>\Phi 50 \times 5 \text{mm}</math> 铁质圆柱体边缘，振动锤悬空，将振动仪探头固定在电机对称圆柱体边缘位置，电机接通额定电压，直接用振动仪测试电机振动量。</p> <div style="text-align: center;">  </div> <p>Fix the motor on the edge of an iron cube which is <math>\Phi 50 \times 5 \text{mm}</math>, Suspend the vibration weight, secure the probe of the vibration tester onto the symmetrical point as the vibrator on the cylinder (see sketch), supply the motor with rated voltage, the vibration tester will get the vibration swing value.</p>	$\geq 1.0 \text{G}$

### 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	0.8 克（左右） 0.8 g（Approx）
6-4	轴向间隙 Shaft end play	轴沿着轴向可移动的距离 Distance of axial play on shaft	0.05~0.2 mm
6-5	振子拉脱力试验 Vibrator pull test	固定电机，平行于轴方向缓慢加力拉振子，直到振子拉脱记录下拉脱时的力。 Fix the motor and increase the force to pull the vibrator slowly until fall down and keep a record for the force.	拉脱力 $\geq 30 \text{N}$ Pull force $\geq 30 \text{N}$



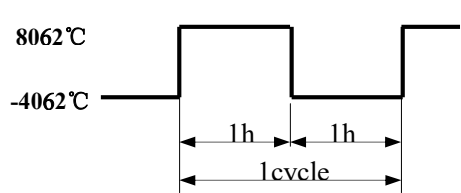
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### 7、可靠性试验 Reliability Test

NO. 序号	Item 项目	Test condition 试验条件	Requirements 判定基准
7-1	高温放置 High temperature exposure	温度/ temperature: (80±2) °C 时间/Time: 96H 湿度/Humidity: 常湿/Ordinary Humidity	在常温常湿下放置 2H 后, 满足 8-2 项。 After 2 hours exposure in ordinary temperature and humidity, motors shall be approved as specified in item 8-2
7-2	低温放置 Low temperature exposure	温度/ temperature: (-40±2) °C 时间/Time: 96H 湿度/Humidity: 常湿/Ordinary Humidity	
7-3	湿度测试 Humidity test	温度/ temperature: (60±2) °C 时间/Time: 96H 湿度/Humidity: 90%~95%RH	
7-4	跌落试验 Drop test	方向/ Direction: x, y, z 高度/ High: 1.5m 跌落次数/Time: 每个方向各 3 次/3 times each 试验状态/Test state: 将电机放在重约 100 克的工装里, 自由地跌落至混凝土地面上 The motor is set into the box approximately weight 100g and fall free on the concrete floor	
7-5	振动试验 Vibration test	全振幅/ Displacement(P-P): 1.5mm 频率/ Frequency: 10~55~10Hz/min 方向/ Direction: x-y-z 时间/Time: 30min/Each	
7-6	热冲击试验 Thermal Shock test	温度/Temperature: -40°C~80°C 时间/Time: 2h 循环周期数/Circle cycle: 10 cycles 	
7-7	寿命测试 Life test	1)测试电压/ Voltage: DC 3.0V 2)负荷/ Load:: 偏心锤/ Counter weight 3) 温度/ Temperature:: (20±2) °C 4)相对湿度/ humidity: 60%RH~70%RH 5)将马达固定在试验台上 Lock the motor in a test fixture 测试方式/Test mode: 一个周期/1 cycle: 1sec ON 1sec OFF 寿命周期/life cycles: 100,000 cycles	



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### 8、可靠性试验评估表 Reliability Test Requirements

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 $\pm 50\%$ 2) 额定电流/Rated current: 初始值/Initial data $\pm 50\%$ 3) 起动电压/Starting voltage : 2.0V DC MAX
8-2	TABLE B	1) 额定转速/ Rated speed: 初始值/ Initial data $\pm 30\%$ 2) 额定电流/Rated current: 初始值/Initial data $\pm 30\%$ 3) 起动电压/Starting voltage : 2.0V DC MAX

### 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:  $-40^{\circ}\text{C}\sim 70^{\circ}\text{C}$

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:  $-40^{\circ}\text{C}\sim 70^{\circ}\text{C}$

Storage relative humidity: 15%RH~90%RH

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



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**9-4** 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<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub>、Cl<sub>2</sub> 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<sub>2</sub>S. SO<sub>2</sub>. NO<sub>2</sub>. Cl<sub>2</sub>. 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.

### 9-5 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。

- 请在 6 个月内使用，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。

- 请通电后不要长时间堵住机轴，并且马达转动时不要触碰振子。

-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.

-. Make arrangement to limit the storage period to 6 months or less. 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.

- Please don't stall the shaft for a long time after powering, and not to touch the weight when motor is rotating.

### 9-6 禁用物质允许含量 Prohibited substances allowed in

禁用物质名称 Substance name	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 Threshold Level	≤70	≤800	≤500	≤500
禁用物质名称 Substance name	包装 (In packing material) (Cd、Pb、Hg、Cr) ppm	多溴联苯 (PBB) ppm	多溴二苯醚 (PBDE) ppm	溴 Br 氯 Cl
标准 Threshold Level	≤80	≤500	≤500	Br≤900ppm Cl≤900ppm 合计含量≤1500ppm
禁用物质名称 Substance name	邻苯二甲酸二乙酯 (DEHP)	邻苯二甲酸二丁酯 (DBP)	邻苯二甲酸二丁苄酯 (BBP)	邻苯二甲酸二异丁酯 (DIBP)
标准 Threshold Level	ND	ND	ND	ND





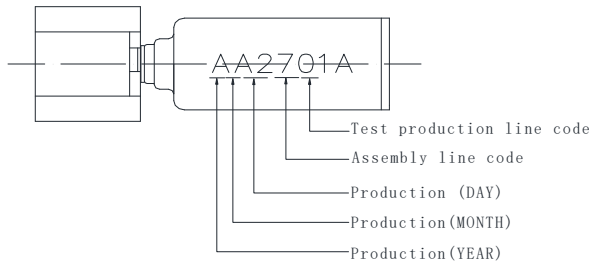
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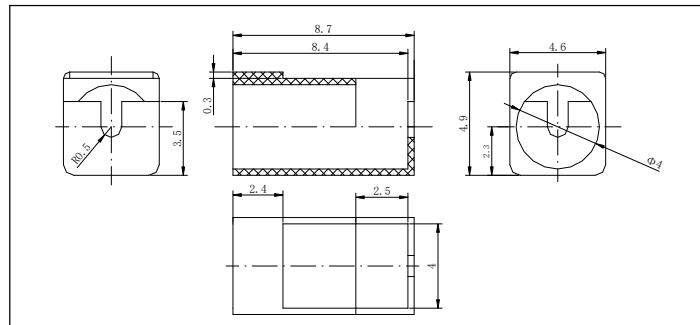
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### 10-2 喷码示意图 Lot making



年 day	1	2	3	4	5	6~31						
字码 print	01	02	03	04	05	06~31						
月 month	1	2	3	4	5	6	7	8	9	10	11	12
字码 print	1	2	3	4	5	6	7	8	9	A	B	C
年 year	2021	2022	2023	2024	2025	2026~2031						
字码 print	A	B	C	D	E	F~K						

### 10-3 胶套示意图 Rubber drawing



DM-YK407-47C 皮套 Rubber

### 11 包装规范 Packing Specification

1	SCOPE 范围	This packing specification is applied to the DM-YK408-1 used for vibration motor. 此包装形式适用于 DM-YK408-1 振动马达产品	
2	ITEMS 项目	INSIDE PACKING 内包装	OUTSIDE PACKING 外包装
3	KIND 种类	Inner box 内箱	Out box 外箱
4	MATERIAL 材料	bubble box PET	DW-2(carton box) 双层瓦楞 (DW-2)
5	DIMENSION 尺寸	150 (L) ×150(W)×12(H)	320 (L) ×320(W)×135(H)
6	QUANTITY 数量	100EA max	4,000EA max

## 12-2 包装示意 Packing Specification

1、一箱内包装 4000PCS。

Pack 4000 pcs standards in a case

2、箱体规格为 320mm×320mm×135mm(4000 PCS 装)。

The case size is 320mm×320mm×135mm(4000pcs/case).

3、单盒为 50PCS 标准，一匣为 20 盒 1000PCS 标准，一箱为 4 匣 4000PCS 标准。

50 pcs per tray, 20 trays per stack, total 4 stacks in a case.(4000pcs/case).

4、内包装吸塑盒、外包装双层瓦楞箱。

The internal packing is plastic box while the external packing is double corrugated box.

5、箱外侧标识品名、型号、数量、厂名及环保标识。

Mark the product name, type, quantity, weight and factory name on the outside of the case.

6、包装示例 Give a demonstration

