



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	圆柱直流马达 Cylindrical DC motor		
型号Part No.	VZ4TH5B1709181L		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
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1. 适用范围/ General Scope

本说明书适用于圆筒式永磁直流电机 VZ4TH5B1709181L 型

This specification applies to cylindrical permanent-magnetic motors DC model VZ4TH5B1709181L

2. 使用条件/ Operating Conditions

项目/Item	规格/Specifications	条件·备注/Conditions & Remarks
2-1 额定电压 Rated voltage	3.0V DC	
2-2 额定负荷 Rated load	振子 Counterweight	见 10. 外形图 As specified in 10. Outline Drawing
2-3 旋转方向 Rotation	C.W/C.C.W (clockwise or counter clockwise)	
2-4 马达位置 Motor position	全方位 All position	
2-5 使用电压范围 Operating voltage	2.4~3.6V DC	
2-6 使用环境 Operating environment	-30 ~ 70℃, 常湿 /Ordinary Humidity:65±20%RH	无水气凝结 No condensation of moisture
2-7 保存环境 Storage environment	-40 ~ 80℃, 常湿 /Ordinary Humidity:65±20%RH	无水气凝结 No condensation of moisture

3. 测定条件/Measuring condition

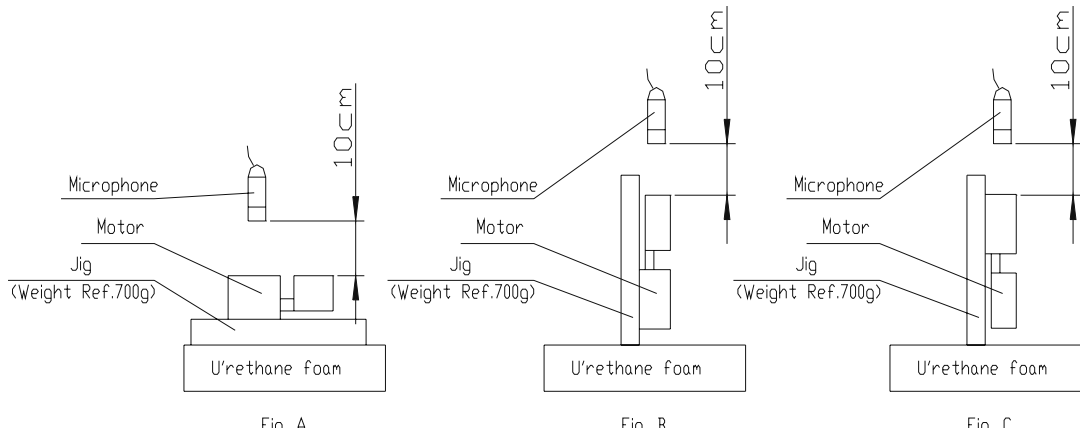
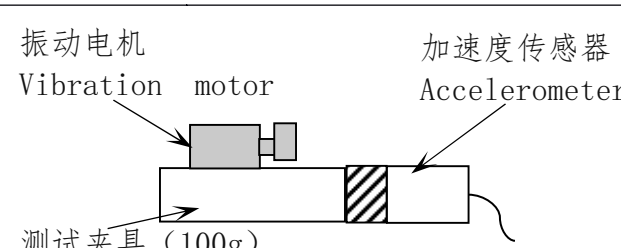
项目/Item	规格/Specifications	条件·备注/Conditions & Remarks
3-1 温度 Temperature	20±2℃	
3-2 湿度 Humidity	(63%~67%) RH	
3-3 位置 Motor position	轴向水平 Motor shaft horizontal	将马达固定在试验台上 Lock the motor in a test fixture

标准测试条件为温度 20℃, 湿度 65%。如无疑异, 也可在温度 5~35℃、湿度 45~85% 的条件下测试。马达测试时, 放置方向为轴向水平。/The measurement at 20℃ & 65%RH is standard. If the judgment is not questionable, recognize measurement at 5℃ to 35℃ & relative humidity 45% to 85%. Direction of motor is shaft horizontal.

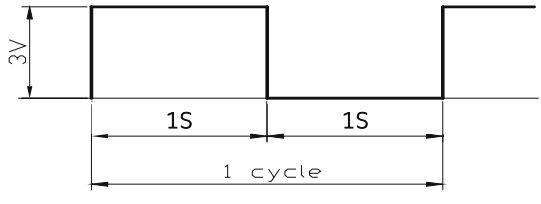
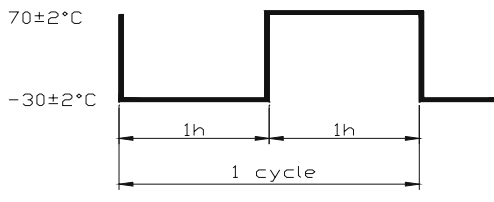
4. 机械要求/ Mechanical specification

项目/Item	规格/Specifications	条件·备注/Conditions & Remarks
4-1 结构 Configuration	见 10. 外形图 As specified in 10. Outline Drawing	Outline drawing No: VZ4TH5B1709181L
4-2 外观 Appearance	不含有机械损坏及不适当的侵蚀等。 There shall be no evidence of mechanical damage and shall not have inadequate corrosion and so on	目测 (容许范围根据样品外形) Visual examination(allowable extent is based on boundary sample)
4-3 轴向间隙 Shaft end play	0.1mm~0.3mm	
4-4 振子固定力 Holding strength of vibration weight	49N (5kgf) Min	

5.性能特征/Performance and characteristics

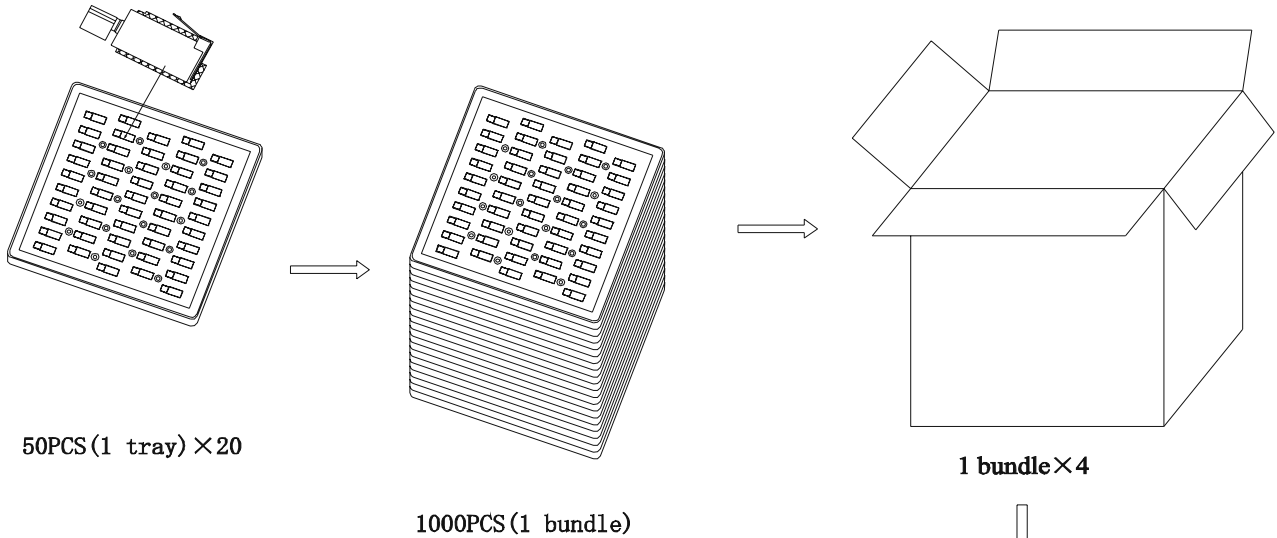
项目/Item	规格/Specifications	条件·备注/Conditions & Remarks				
5-1 额定转速 Rated speed	10000±2500rpm	在额定电压和额定负载(振子)下。 At rated voltage and rated load (vibration weight).				
5-2 额定电流 Rated current	110 mA Max					
5-3 堵转电流 Stall current	165 mA Max	在额定电压下 At rated voltage				
5-4 起动电压 Starting voltage	2.3V DC Max	在额定负载(振子)下电枢的任意位置。 At rated load (Counterweight) any position of rotor.				
5-5 绝缘电阻 Insulation resistance	10M Ω Min	在 100V 直流下, 端子和机壳间 At DC 100V between Terminal and case.				
5-6 端子阻抗 Terminal resistance	28 Ω (±20%)	在 20℃ 下 At 20℃				
5-7 机械噪音 Mechanical noise	50db(A) Max	<p>在额定电压、额定负载(振子)下 背景噪音: 不大于 28dB.A 计权 测试仪器: B&k 夹具重量: 700g At rated voltage and rated load (Counterweight). Back ground noise 28dB(A) Max Measuring instruments: B&k Weight of jig:700g</p> 				
5-8 振动量 Vibration Strength	<table border="1"> <tr> <td>Gms</td> <td>1.1 Min</td> </tr> <tr> <td>Gp</td> <td>1.5 Min</td> </tr> </table>	Gms	1.1 Min	Gp	1.5 Min	<p>振动电机 Vibration motor</p> <p>加速度传感器 Accelerometer</p>  <p>测试夹具 (100g) Test Fixture (100g)</p> <p>额定电压/Rated voltage : DC 3.0V</p>
Gms	1.1 Min					
Gp	1.5 Min					

6. 可靠性/Reliability

项目/Item		规格/Specification						判定标准/Judgment
6-1	寿命 Life time							在常温常湿下放置 2h 后，马达应符合项 7-1 的要求。 After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 7-1.
		位置 Position	电压 Volt	负荷 Load	温度 Temp	湿度 Humi	寿命 Life	
		轴水平 Horizon	额定 Rated	重量 Weight 振子	20℃	65%	200,000 Cycles	
6-2	低温放置 Low temp exposure	温度 时间	/Temperature: $-40\pm 2^{\circ}\text{C}$ /Time: 96h					在常温常湿下放置 2h 后，马达应符合项 7-2 的要求。 After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 7-2.
6-3	高温放置 High temp. Exposure	温度 时间	/Temperature: $60\pm 2^{\circ}\text{C}$ /Time: 96h					
6-4	湿度放置 Humidity exposure	温度 湿度 放置时间 无水气凝结/No condensation of moisture	/Temperature: $40\pm 2^{\circ}\text{C}$ /Humidity: 90~95%RH /Exposure time: 96h					
6-5	振动 Vibration	频率 全振幅 加速度 周期 方向 时间	/Frequency: 10~55~10Hz /Displacement: 1.5mm (p-p) /Acceleration: 22m/s^2 /Period: 20min 完成 10~55~10Hz /20 Minutes log sweep 10~55~10Hz /Direction: x, y, z /Time: 每个方向 2h /Each 2 hours					
6-6	自然跌落 Free fall	试验状态/Test state: 将马达固定在约 75 克（包括马达本身）的物体上，落向水泥地面。 Set the motor to the approximately 75g (include the motor) weight of block drop the motor on the concrete floor. 高度 /Height: 1.5m 方向 /Direction: 6 个面 / 6 faces 次数 /Number of times: 每个面 2 次 / Twice 2 each						测试结果应符合项 7-2 的要求。 After the test motors shall be approved as specified in item 7-2.
6-7	热冲击 Heat shock test	试验循环	/Test cycle: 20 cycles					在常温常湿下放置 2h 后，马达应符合项 7-2 的要求。 After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 7-2.
								

9. 包装/Packaging

圆柱马达包装 Packaging drawing of cylindrical motor


包装试验要求
1. 标准

- (1) 整箱重量小于等于9kg的，跌落高度设定为75cm.
- (2) 整箱重量大于9kg但小于等于23kg的，跌落高度设定为60cm.

2. 试验方法:

跌落要求为六面三棱一角.

- (1) 六面: 先从最大两面跌，然后是中间大小的两面，最后跌最小的两面，一共六次。
- (2) 三棱: 指任选三条同一角的棱，跌落秩序: 最长棱，中间长度，最短的，一共三次。
- (3) 一角: 指上一步三条棱所组成的角，跌落一次。

3. 判定基准

经过跌落试验后，产品外观、性能无不良。

Package Test Requirement:
1. Criteria

- (1) The weight of the whole carton less than 9kg, the dropping height is 75cm.
- (2) The weight of the whole carton more than 9kg and less than 23kg, the dropping height is 60cm.

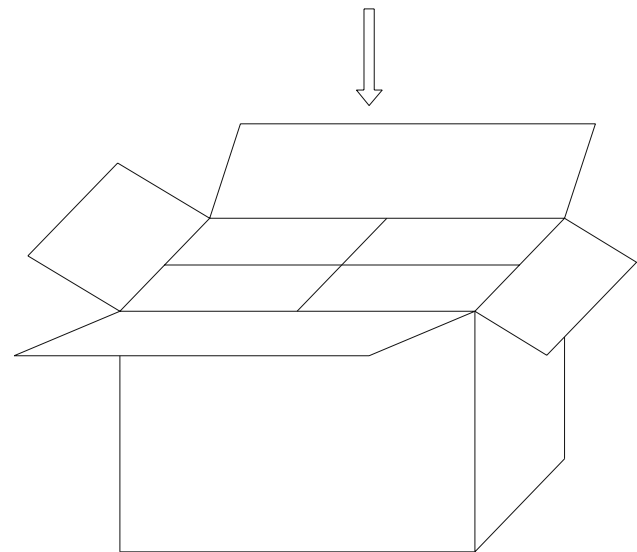
2. Test Methods:

Dropping requirement is 6 faces, 3 arris, 1 angle.

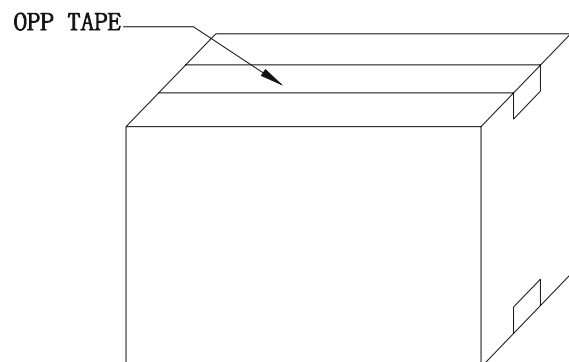
- (1) 6 faces: First dropping with two biggest faces, then dropping with another two middle faces, at last dropping with two smallest faces, once per face, total 6 faces.
- (2) 3 arris: Choose any 3 arris which make up of the same the angle, the dropping sequence is the longest arris, middle arris, shortest arris. Total 3 times.
- (3) 1 angle: Point to the angle which is made up with the 3 arris in the above step. Dropping for 1 time.

3. Judgement Criterion

After drop test, no evidence of damage on the appearance and performance.


Remarks:

4000PCS/CTN:43cm × 21cm × 25.5cm



10. 外形图/Outline Drawing

