



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.	VZ4SL2A0280001		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
2020.07.01	2020.07.01	2020.07.01	

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1. 适用范围/General

本规格书适用于空心杯永磁直流电机 VZ4SL2A0280001。

This specification applies to Coreless Permanent Magnetic DC motors Model: VZ4SL2A0280001.

2. 使用条件/Operating Condition

项目/Item	规格/Specifications	条件·备注/Conditions & Remarks
2-1 额定电压 Rated voltage	1.3V DC	
2-2 额定负荷 Rated load	振子 Counterweight	见 9. 外形图 As specified in 9. 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	1.1~1.6V 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

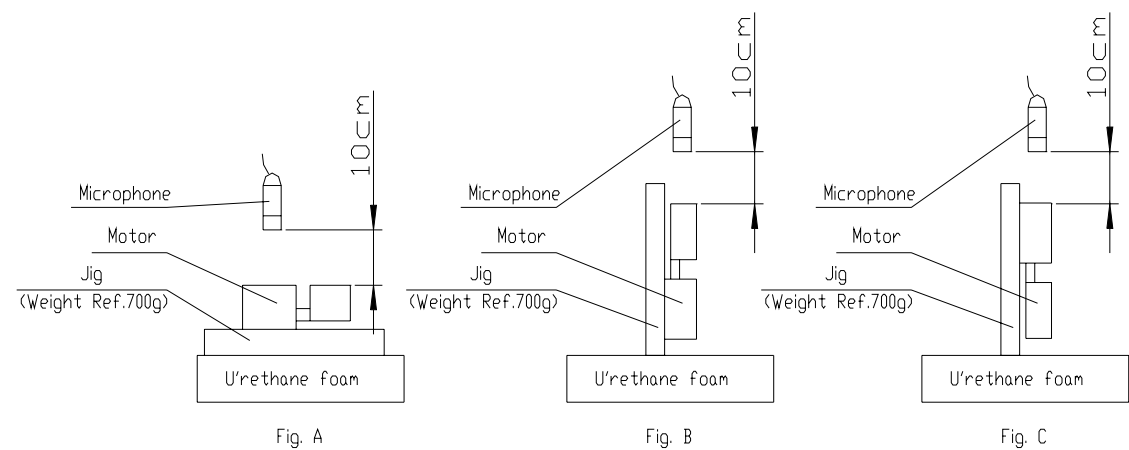
项目/Item	规格/Specification	条件·备注/Condition Remark
3-1 温度 Temperature	20±2℃	
3-2 湿度 Humidity	65±5% RH	
3-3 位置 Motor posture	轴向水平 Motor shaft horizontal	将马达固定在试验台上 Lock the motor in a test fixture

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.

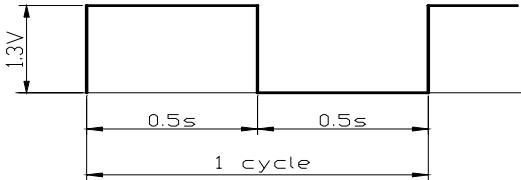
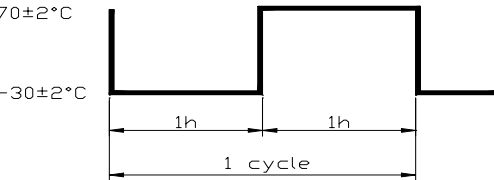
4. 机械要求/Mechanical specification

项目/Item	规格/Specifications	条件·备注/ Conditions & Remarks
4- 结构 Configuration	见 9. 外形图 As specified in 9. Outline Drawing	Outline drawing No: VZ4SL2A0280001
4- 外观 Appearance	不含有机机械损坏及不充分的浸蚀等。 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- 轴向间隙 Shaft end play	0.05mm~0.2mm	
4- 振子固定力 Holding strength of vibration weight	49N (5kgf) Min	

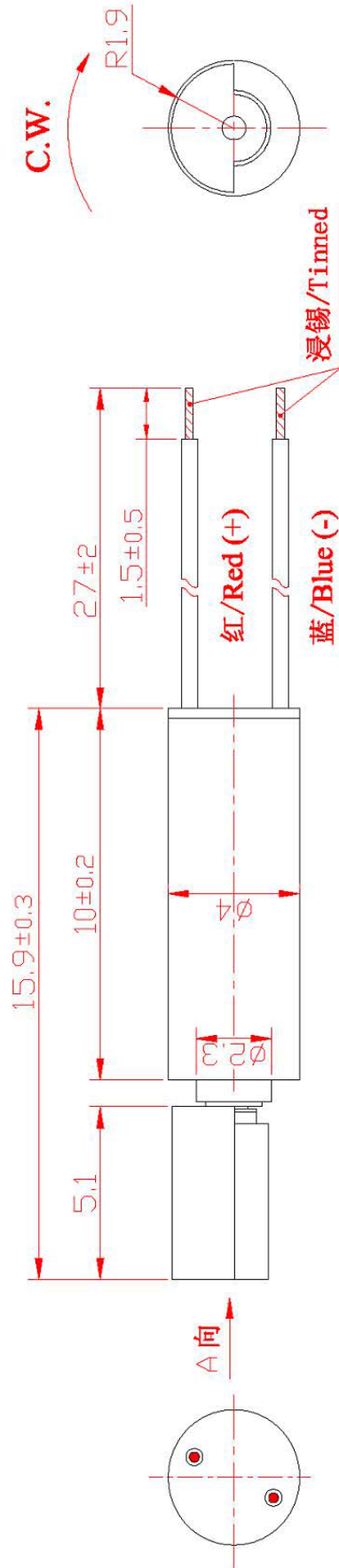
5.性能特征/Performance and characteristics

项目/Item		规格/Specification	条件·备注/Condition Remark
5-1	空载转速 Non load speed	9,500±2000 rpm	在额定电压下。 At rated voltage.
5-2	空载电流 Non load current	90 mA Max	
5-3	堵转电流 Stall current	125 mA Max	在额定电压下 At rated voltage.
5-4	起动电压 Starting Voltage	1.0V DC Max	在额定负载（无振子）下电枢的任意位置。 At rated load (non vibration weight) any position of rotor.
5-5	端子阻抗 Terminal resistance	13Ω (±20%)	在 20℃ 下 At 20℃
5-5	绝缘电阻 Insulation resistance	1MΩ Min	在 100V 直流下 At DC 100V between
5-6	机械噪音 Mechanical noise	50dB(A)Max	<p>在额定电压下。 At rated voltage. 背景噪音：不大于 28db.A 计权 Back ground noise 28db(A) Max. 测试仪器：B&k Measuring instruments: B&k 夹具重量：700g Weight of jig: 700g</p> 

6. 可靠性/Reliability

项目/Item		规格/Specification						判定标准/Judgment
6-	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-	低温放置 Low temp exposure	温度 /Temperature:	-40±2℃					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-	高温放置 High temp. Exposure	温度 /Temperature:	80±2℃					
6-	湿度放置 Humidity exposure	湿度 /Humidity:	90~95%RH					
6-	振动 Vibration	频率 /Frequency:	10~55~10Hz					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.
		全振幅 /Displacement:	1.5mm (p-p)					
		加速度 /Acceleration:	22m/s ²					
6-	自然跌落 Free fall	试验状态/Test state:	将马达固定在约 100 克 (包括马达本身) 的物体上, 落向水泥地面。 Set the motor to the approximately 100g (include the motor) weight of block drop the motor on the concrete floor.					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.
		高度 /Height:	1.5m					
		方向 /Direction:	6 个面 / 6 faces					
6-	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.
		70±2℃						
		-30±2℃						

9. 外形图/Outline Drawing

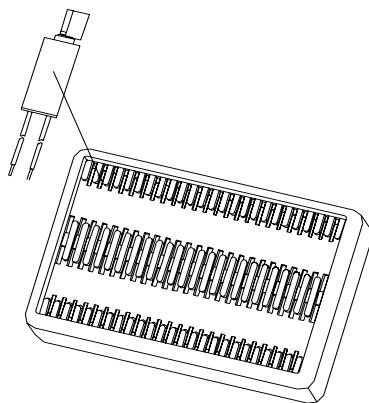


技术要求/Technical requirement

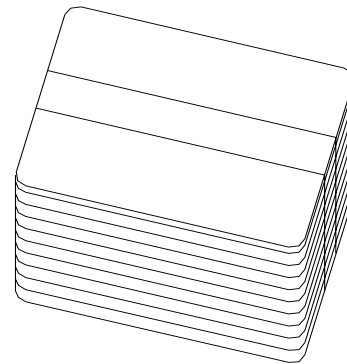
1. 额定电压/Rated voltage: 1.3V
2. 额定电流/Rated current: 90mA Max
3. 额定转速/Rated speed: 9500 ± 2000 rpm
4. 堵转电流/Stall current: 125mA Max
5. 端子阻抗/Terminal resistance: $13\Omega (\pm 20\%)$
6. 启动电压/Starting voltage: 1.0V Max
7. 轴向间隙/Shaft end play: $0.05 \sim 0.2$ mm
8. 导线规格/Lead spec: AWG32 UL3302
9. 所有尺寸为A向压紧后的尺寸(不包括轴向间隙)
/Overall length is measured after counterweight being pressed against body in direction A. (Shaft end play is not included.)
10. 未注线性公差为/Unmarked tolerance: ± 0.1 mm

10. 包装/Packaging

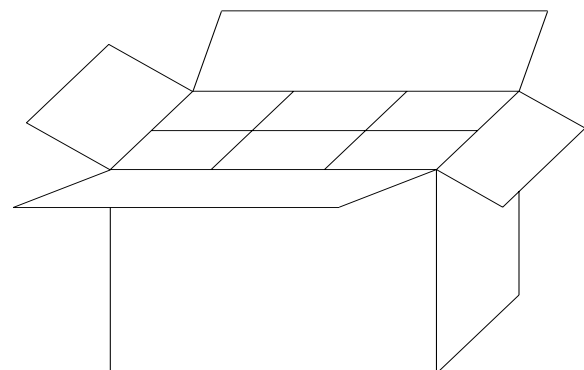
圆柱马达包装 Packaging drawing of cylindrical motor



100PCS (1 tray) × 10



1000PCS (1 bundle) × 6


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:

- 1000PCS/CTN: 23.5cm × 17cm × 27cm
- 2000PCS/CTN: 33.5cm × 23.5cm × 27cm
- 4000PCS/CTN: 46.5cm × 33.5cm × 27cm
- 6000PCS/CTN: 50.5cm × 46.5cm × 27cm

OPP TAPE

