



金龙机电股份有限公司

JINLONG MACHINERY & ELECTRONICS CO., LTD.


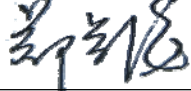

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规格书

SPECIFICATION

客 户 信 息	客户名称/Customer	
	客户料号/Part No.	
	客户承认签章 Customer Approved Signatures	

文件编号/Spec No.	KOTL-B-481	
品名/Description	圆柱直流马达/Cylindrical DC motor	
型号/Part No.	Z4SL2B0280131	
设计/Designed	审核/Checked	批准/Approved
		
2009.11.17	2009.11.17	2009.11.17

规格书内容/Contents

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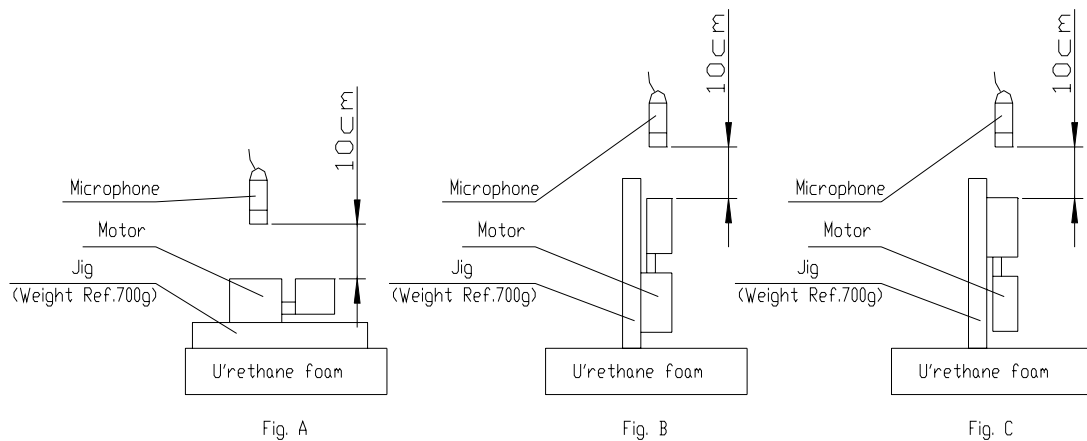
2009.11.17	规格书/Specification	编号/No KOTL-B-481	代码/code:0	3/9																																																			
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<p>1. 适用范围/ General Scope 本规格书适用于圆筒式永磁直流电机 Z4SL2B0280131 型 This specification applies to cylindrical permanent-magnetic motors DC model Z4SL2B0280131</p> <p>2. 使用条件/ Operating Conditions</p> <table border="1"> <thead> <tr> <th>项目/Item</th> <th>规格/Specifications</th> <th>条件·备注/Conditions & Remarks</th> </tr> </thead> <tbody> <tr> <td>2-1 额定电压 Rated voltage</td> <td>3.0V DC</td> <td></td> </tr> <tr> <td>2-2 额定负荷 Rated load</td> <td>振子 Counterweight</td> <td>见 10. 外形图 As specified in 10. Outline Drawing</td> </tr> <tr> <td>2-3 旋转方向 Rotation</td> <td>C.W/C.C.W (clockwise or counter clockwise)</td> <td></td> </tr> <tr> <td>2-4 马达位置 Motor position</td> <td>全方位 All position</td> <td></td> </tr> <tr> <td>2-5 使用电压范围 Operating voltage</td> <td>2.2~3.6V DC</td> <td></td> </tr> <tr> <td>2-6 使用环境 Operating environment</td> <td>-30~70℃, Ordinary Humidity</td> <td>无水气凝结 No condensation of moisture</td> </tr> <tr> <td>2-7 保存环境 Storage environment</td> <td>-40~80℃, Ordinary Humidity</td> <td>无水气凝结 No condensation of moisture</td> </tr> </tbody> </table> <p>3. 测定条件/ Measuring Conditions</p> <table border="1"> <thead> <tr> <th>项目/Item</th> <th>规格/Specifications</th> <th>条件·备注/Conditions & Remarks</th> </tr> </thead> <tbody> <tr> <td>3-1 温度 Temperature</td> <td>20±2℃</td> <td></td> </tr> <tr> <td>3-2 湿度 Humidity</td> <td>(63%~67%) RH</td> <td></td> </tr> <tr> <td>3-3 位置 Motor position</td> <td>轴向水平 Motor shaft horizontal</td> <td>将马达固定在试验台上 Lock the motor in a test fixture</td> </tr> </tbody> </table> <p>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.</p> <p>4. 机械要求/Mechanical Specifications</p> <table border="1"> <thead> <tr> <th>项目/Item</th> <th>规格/Specifications</th> <th>条件·备注/Conditions & Remarks</th> </tr> </thead> <tbody> <tr> <td>4-1 结构 Configuration</td> <td>见 10. 外形图 As specified in 10. Outline Drawing</td> <td>Outline drawing No: Z4SL2B0280131</td> </tr> <tr> <td>4-2 外观 Appearance</td> <td>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</td> <td>目测（容许范围根据样品外形） Visual examination(allowable extent is based on boundary sample)</td> </tr> <tr> <td>4-3 轴向间隙 Shaft end play</td> <td>0.05mm~0.2mm</td> <td></td> </tr> <tr> <td>4-4 振子固定力 Holding strength of vibration weight</td> <td>49N (5kgf) Min</td> <td></td> </tr> </tbody> </table>					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	2.2~3.6V DC		2-6 使用环境 Operating environment	-30~70℃, Ordinary Humidity	无水气凝结 No condensation of moisture	2-7 保存环境 Storage environment	-40~80℃, Ordinary Humidity	无水气凝结 No condensation of moisture	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	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: Z4SL2B0280131	4-2 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)	4-3 轴向间隙 Shaft end play	0.05mm~0.2mm		4-4 振子固定力 Holding strength of vibration weight	49N (5kgf) Min	
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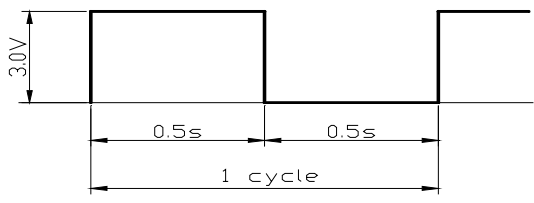
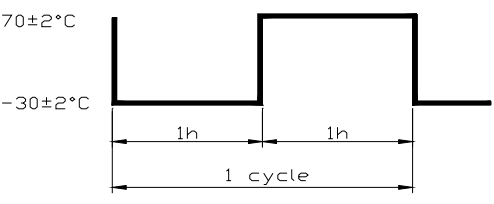
5.性能特征/Performance and characteristics

项目/Item		规格/Specifications	条件·备注/Conditions & Remarks
5-1	额定转速 Rated speed	12,000±2500rpm	在额定电压和额定负载（振子）下。 At rated voltage and rated load (Counterweight).
5-2	额定电流 Rated current	70 mA Max	
5-3	堵转电流 Stall current	90 mA Max	在额定电压下。 At rated voltage
5-4	起动电压 Starting voltage	1.7V 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	1MΩ 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	41 Ω (±20%).	在 20℃ 下 At 20℃
机械噪音 Mechanical noise		50dB(A)Max	

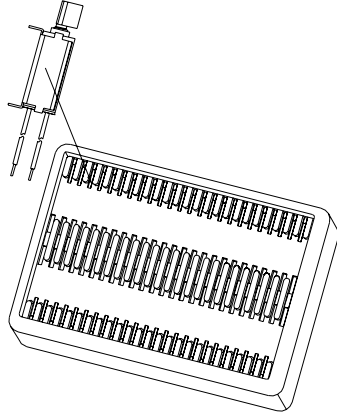
在额定电压、额定负载（振子）下
背景噪音：不大于 28dB.A 计权
测试仪器：B&k
夹具重量：700g
At rated voltage and rated load (Counterweight).
Back ground noise 28dB(A) Max
Measuring instruments: B&k
Weight of jig:700g

5-7

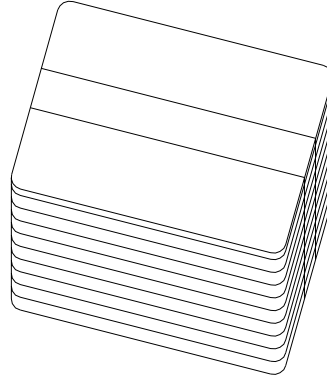


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6. 可靠性/Reliability									
项目/Item		规格/Specification						判定标准/Judgment	
6-1	寿命 Life time							试验后, 马达应符合项 7-1 的要求。 After the test, motors shall be approved as specified in item 7-1.	
		位置 Position	电压 Volt	负荷 Load	温度 Temp	湿度 Humi	寿命 Life		
		轴水平 Horizon	额定 Rated	振子 Weight	20°C	65%	200,000 Cycles		
6-2	低温放置 Low temp exposure	温度 /Temperature:	-40±2°C				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 /Temperature:	80±2°C						
6-4	湿度放置 Humidity exposure	湿度 /Humidity:	90~95%RH						
		放置时间 /Exposure time:	96h						
6-5	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						
		周期 /Period:	20min 完成 10~55~10Hz /20 Minutes log sweep 10~55~10Hz						
		方向 /Direction:	x, y, z						
		时间 /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 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						
		次数 /Number of times:	每个面 2 次 / Twice 2 each						
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.		
									

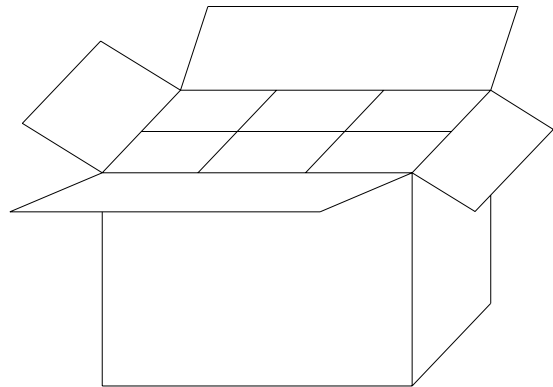
4mm(L型) 圆柱马达包装 Packaging drawing of 4mm cylindrical motor



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.

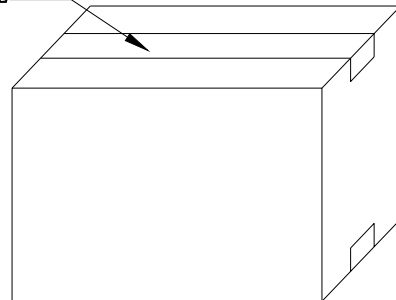
3. Judgement Criterion

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



10. 外形图/Outline Drawing

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Z4SL2B0280131

点胶示意图 A-A

电机

点胶处

技术要求/Technical requirement

- 1.额定电压/Rated voltage:3.0V
- 2.额定电流/Rated current:70mA Max
- 3.额定转速/Rated speed:12000 ± 2500rpm
- 4.堵转电流/Stall current:90mA Max
- 5.端子阻抗/Terminal resistance:41Ω(±20%)
- 6.起动电压/Starting voltage:1.7V Max
- 7.轴向间隙/Shaft end play:0.05~0.2mm
- 8.导线规格/Lead spec: AWG32 UL1571
- 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: ± 0.1mm

15.9±0.3

5.1

10±0.2

27±2

1.5±0.5

红/Red(+)

蓝/Blue(-)

浸锡/Tinned

C.W.

R1.9

2-0.8

4.6Max

4.4-4.7

A向

借(通)用件登记						金龙机电股份有限公司					
底图总号						jinlong-machinery.com					
签字						外形图					
日期						Z4SL2B0280131					
工艺						共 页 第 页					

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说明书/Specification

编号/No K0TL-B-481

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