



金龙机电股份有限公司
JINLONG MACHINERY & ELECTRONICS CO., LTD.

规 格 书
SPECIFICATION

客户信息/ Customer Information	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-21003	
品名/Description	圆柱直流马达/Cylindrical DC motor	
型号/Part No.	Z4TL2B1242655	
设计/Designed	审核/Checked	批准/Approved
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2021.2.1	2021.2.1	2021.2.1

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规格书内容/Contents

1、适用范围/ General Scope	3/9
2、使用条件/ Operating Conditions	3/9
3、测定条件/ Measuring Conditions	3/9
4、机械要求/ Mechanical Specifications	3/9
5、性能特征/Performance and characteristics	4/9
6、可靠性/Reliability	5/9
7、要求/Requirements	6/9
8、使用时注意事项/ attentions	6/9
9、包装/Packaging	7/9
10、外形图/Outline Drawing	8/9
11、修改记录 / REVISION HISTORY	9/9

型号/Part No.	Z4TL2B1242655
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1. 适用范围/ General Scope
 本规格书适用于圆筒式永磁直流电机 Z4TL2B1242655 型
 This specification applies to cylindrical permanent-magnetic motors DC model
 Z4TL2B1242655

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	2.2~3.6V 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 Conditions

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

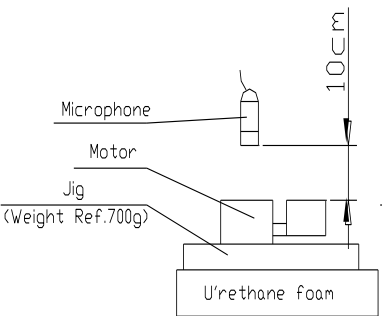
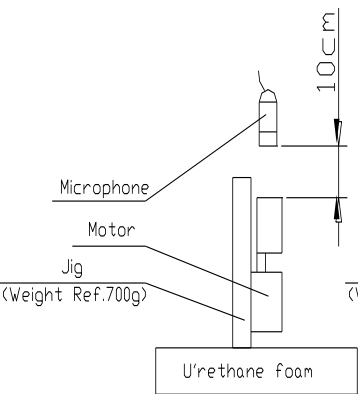
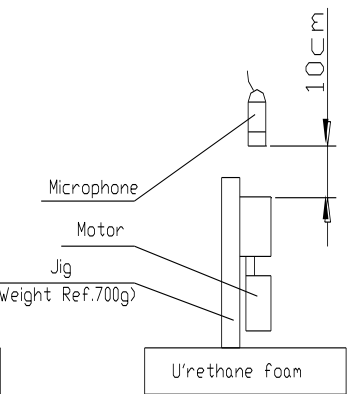
标准测试条件为温度 20℃, 湿度 65%。如无疑异, 也可在温度 5~35℃、湿度 45~85%的条件下测试。马达测试时, 放置方向为轴向水平。/The measurement at 20℃ & 65%RH is standard. If the judgment is not questionable, recognize measurement at 5℃ to 35℃ & relative humidity 45% to 85%. Direction of motor is shaft horizontal.

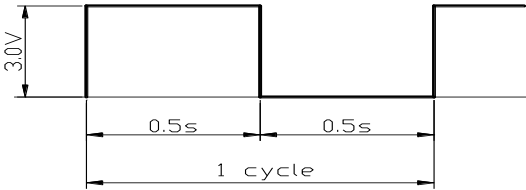
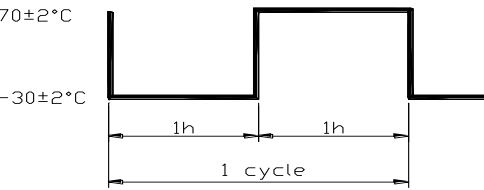
4. 机械要求/Mechanical Specifications

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: Z4TL2B1242655
4-2 外观 Appearance	不含有机机械损坏及不适当的浸蚀等。 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~0.3mm	
4-4 振子固定力 Holding strength of vibration weight	30N (3kgf) Min	

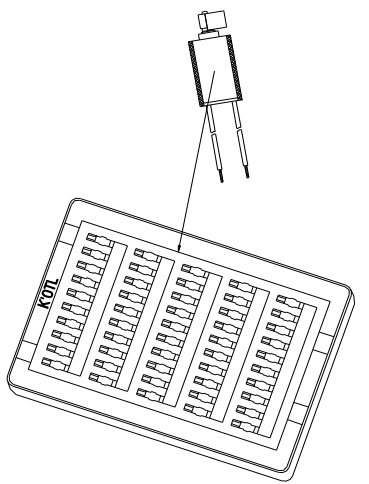
5.性能特征/Performance and characteristics

	项目/Item	规格/Specifications	条件 备注/Conditions & Remarks
5-1	额定转速 Rated speed	15,000±2500 rpm	在额定电压和额定负载（振子）， 在 20N 夹具静压下测试 At rated voltage and rated load (Counterweight).
5-2	额定电流 Rated current	80 mA Max	
5-3	堵转电流 Stall current	105 mA Max	在额定电压下。 At rated voltage
5-4	起动电压 Starting voltage	2.0V 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	35Ω (±20%)	在 20℃ 下 At 20℃

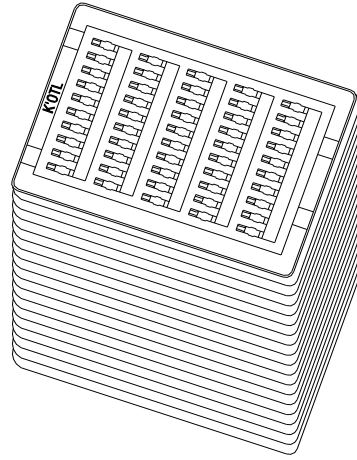
	机械噪音 Mechanical noise	50dB(A)Max	<p>在额定电压、额定负载（振子）下 背景噪音：不大于 28dB.A 计权 测试仪器：B&k 夹具重量：700g At rated voltage and rated load (Counterweight). Back ground noise 28dB(A) Max Measuring instruments: B&k Weight of jig:700g</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Fig. A</p> </div> <div style="text-align: center;">  <p>Fig. B</p> </div> <div style="text-align: center;">  <p>Fig. C</p> </div> </div>
5-7	<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>		

2021.2.1		规格书/Specification		编号/No KOTL-B-21003		代码/code:0		5/9		
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							
6-4		放置时间 /Exposure time:	96h							
6-4		无水气凝结/No condensation of moisture								
6-5	振动 Vibration	全振幅 /Displacement :	1.5mm (p-p)				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.			
6-5		频率 /Frequency:	10 ~ 55Hz							
6-5		加速度 /Acceleration:	22m/s ²							
6-5		周期 /Period:	20min 完成 10~55~10Hz							
6-5		/20 Minutes log sweep 10~55~10Hz								
6-5		方向 /Direction:	x, y, z							
6-5		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。						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.	
6-6		高度 /Height:	1.5m							
6-6		方向 /Direction:	6 个面 / 6 faces							
6-6		次数 /Number of times:	每个面 2 次							
6-6		/ 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.			
6-7										
6-7										

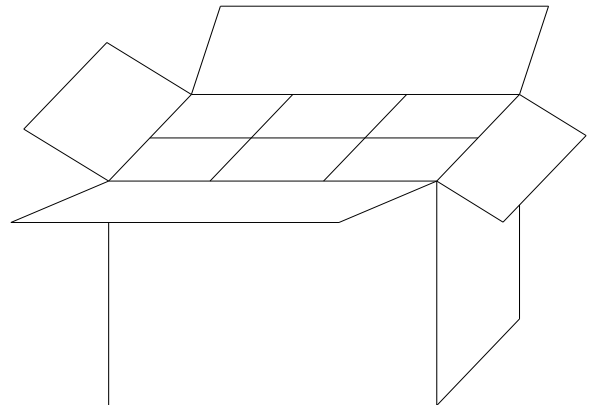
4mm(L型) 圆柱马达包装 Packaging drawing of 4mm cylindrical motor



50PCS (1 tray) × 20



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.

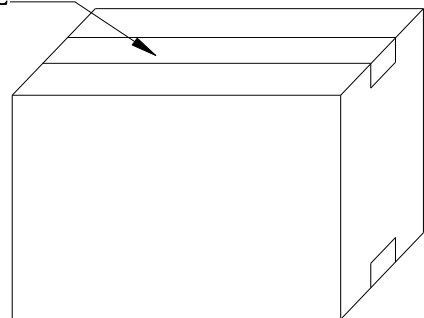
3. Judgement Criterion

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

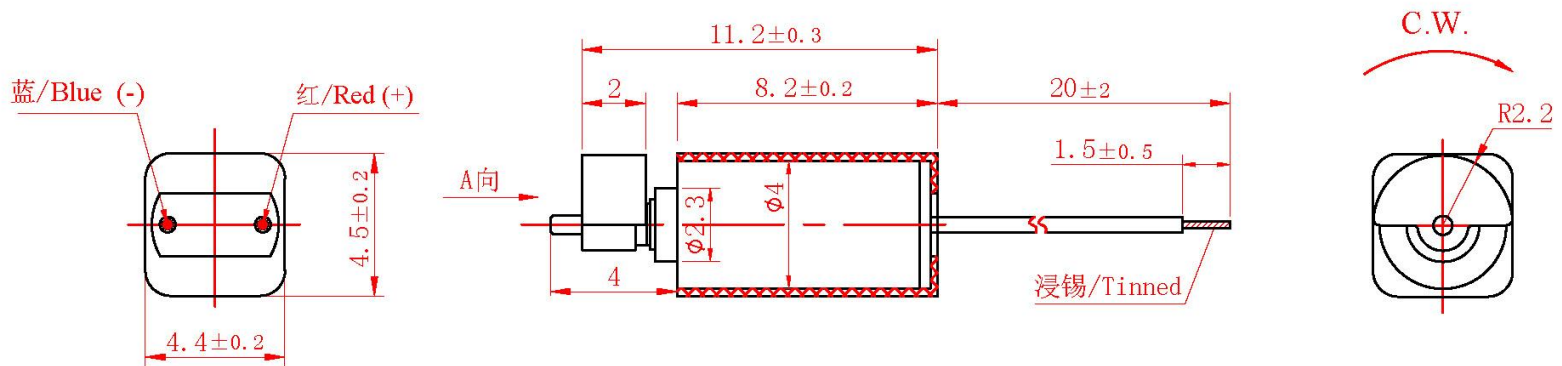


10. 外形图/Outline Drawing

Z4TL2B1242655

技术要求/Technical requirement

1. 额定电压/Rated voltage:3.0V
2. 额定电流/Rated current:80mA Max
3. 额定转速/Rated speed:15000±2500rpm
4. 堵转电流/Stall current:105mA Max
5. 端子阻抗/Terminal resistance:35Ω (±20%)
6. 起动电压/Starting voltage:2.0V Max
7. 轴向间隙/Shaft end play:0.05~0.3mm
8. 导线规格/Lead wire 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:±0.1mm
11. 符合金龙机电有限公司最新版《禁用有害物质标准》



借 (通) 用
件 登 记

旧底图总号

底图总号

签 字

日 期

档案员 日 期

标记处数	更改内容	签字	备注
设计		标准化	
制图		审定	
校对		批准	
工艺			

金龙机电股份有限公司

外形图

图样标记 单位 比例

A0 mm 5:1

Z4TL2B1242655

第 页 共 页

