



立得微电子（惠州）有限公司
Leader Micro Electronics (huizhou) Co., Ltd

产品规格书

PRODUCT SPECIFICATION

客户	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.	LEADER-Z-071621740-L40	
	品名 Description	圆柱直流马达 Cylindrical DC Motor	
	型号/Model	LCM071621740-L40	
	送样日期/Date		
	作成/Designed	检讨/checked	承认/Approved
	张婷婷 2022.11.22	张冠军 2022.11.22	王运东 2022.11.22

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1. Operating scope/适用范围

本说明书适用于圆筒式永磁直流电机 LCM0716型

This specification applies to cylindrical permanent-magnetic motors DC model LCM0716.

2. Operating conditions/使用条件

No. 序号	Items 项目	Specification 规格
2-1	Rated voltage 额定电压	3.0V DC
2-2	Rated speed 额定转速	7000±2000rpm
2-3	Rated cureent 额定电流	40mA MAX
2-4	Rotating direction 回转方向	CW / CCW all directions 顺，逆时针方向皆可
2-5	Motor posture 摆放位置	Any posture is available 任何位置都可以
2-6	Voltage range for use 使用电压范围	1.0V-3.2V DC
2-7	使用环境 Operating environment	-20~60°C, Ordinary Humidity
2-8	保存环境 Storage environment	-20~70°C, Ordinary Humidity
2-9	Appearance 外观	Should be free of crack, rust, stain and dents. 外观上没有刮伤，生锈及凹痕等不良现象



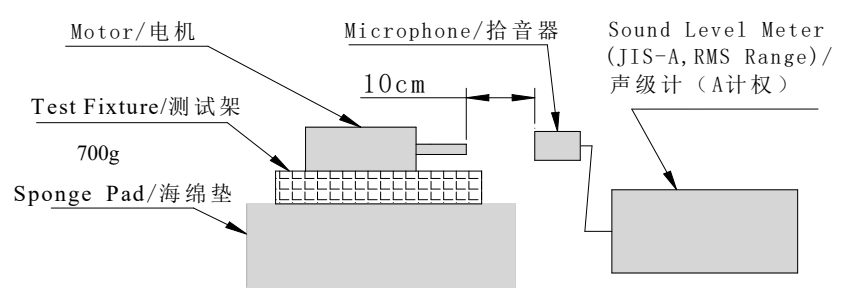
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3. Measurement conditions/测试条件

No. 序号	Items 项目	Measuring condition 测试条件	Specification 规格
3-1	Rated load 额定电流	Measure at rated voltage 在额定电压下测定	40mA max
3-2	Rated speed 额定转速	Measure at rated voltage 在额定电压下测	7000±2000rpm
3-3	Stall current 堵转电流	Measure current at locked weight in rated voltage 在额定电压及锁定电机振子条件下测 试	80 mA Max
3-4	Starting voltage 起动电压	Minimum voltage for starting (On / Off Test) 起动的最小电压条件作通断测试	1.2V DC Max
3-5	Terminal resistance 电枢电阻	Measure between terminals 在端子间测试	37.5Ω±20%
3-6	轴向间隙 Shaft end play		0.05mm~0.2mm
3-7	质量 Mass	机体/Body+振子/Vibration	3.2g Approx.
3-8	额定负荷 Rated load	见外形图 As specified in outline drawing	R3.0*4.0
3-9	Measuring condition 测试条件	常温常湿下测定，监测应当在 26±3°C, 65±5 %RH.条件下进行	

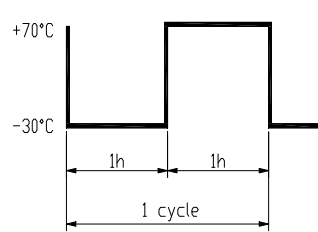
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4.Mechanical properties and properties/机械性能和特性

No. 序号	Items 项目	Measuring condition 测试条件	Specification 规格
4-1	振子轴向拔出力 Holding strength of Counterweight		≥3 KG
4-2	Insulation resistance 绝缘电压	At DC 100V between lead wire and cas 在100V直流下，导线和机壳间	20MΩ MIN
4-3	Mechanical Noise 机械噪音	At rated voltage and rated load back ground noise: 45dB(A) max. 额定电压及负荷下测试 背景噪音不超过35分贝	70dB(A) MAX
	 <p style="text-align: center;">Motor/电机 Microphone/拾音器 Sound Level Meter (JIS-A, RMS Range) / 声级计 (A计权)</p> <p style="text-align: center;">Test Fixture/测试架 10cm</p> <p style="text-align: center;">70g Sponge Pad/海绵垫</p>		

5.Requirements/判定基准

NO. /序号	Item/项目	Requirements/判定基准
5-1	TABLE A	(1)Rated speed/额定转速: 不低于初始值-30%; 不高于初始值+60% data-30% Initial Min; data+60% Initial Max (2)Rated current/额定电流: Initial data/初始值±30%Max (3)Starting voltage/起动电压: 1.2V DC Max (4)Insulation resistance/绝缘电阻: 大于1MΩ/1MΩ Min (5)Current wave/波形: 波形正常/No blot current wave
5-2	TABLE B	(1)Rated speed/额定转速: Initial data/初始值±30%Max (2)Rated current/额定电流: Initial data/初始值±30%Max (3)Starting voltage/起动电压: 1.2V DC Max

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6.Reliability test/信赖性测试			
NO./序号	Item/项目	Test condition/试验件	Requirements/判定基准
6-1	Life寿命	Voltage/电压: 3.0V DC LOAD/负荷: COUNTERWEIGHT(摆轮重) TEMPERATURE/温度: 26°C±2°C HUMIDITY/湿度: 65±2%RH TEST MODEL/试验形式: 一直通电 TEST TIME/试验时间: 50H	After the test ,motors shall be approved as specified in item 5-1试验后, 马达能满足5-1的规定
6-2	Low temp exposure低温放置	Temperature/温度: -40±2°C Time/时间: 48hours	After 2 hours exposure in ordinary temperature and humidity ,motors shall be approved as specified in item 5-2常温常湿条件下放置2小时后, 马达满足5-2的规定
6-3	High temp exposure高温放置	Temperature/温度: 60±2°C Time/时间: 48hours	
6-4	Humidity exposure湿度放置	Temperature/温度: 40±2°C Humidity/湿度: 90±5%Rh Time/时间: 48hours	
6-5	Thermal shock热冲击	 <p style="text-align: center;">Test cycle/试验循环周期数: 20cycles</p>	After 2 hours exposure in ordinary temperature and humidity ,motors shall be approved as specified in item 5-2常温常湿条件下放置2小时后, 马达满足5-2的规定
6-6	Free fall自然落下	Set the motor to the approximately 100g(include the motor)weight of block Drop the motor on the concrete floor 将马达放在一个重100g的盒子里跌落至混凝土地面上 Height/高度: 1.0m Direction/方向: x,y,z Number of times /次数: Each 2times	After the test , motors shall be approved as specified in item 5-1试验终止后, 马达能满足5-1项的判定基准



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6-7	振动 Vibration	全振幅/Displacement :1.5mm (p-p) 频率 /Frequency :10~55Hz 周期 /Period :20min 范围内 (10~55~10Hz) /20 Minutes log sweep (10~55~10Hz) 方向 /Direction :x、y、z 时间 /Time :每 2h /Each 2 hours	After 2 hours exposure in ordinary temperature and humidity ,motors shall be approved as specified in item 5-2常温常湿条件下放置2小时后, 马达满足5-2的规定
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7. Cautions/注意事项

7-1 电机在运输过程中应小心轻放，避免碰撞敲击引起的电机机身和性能受损。

(Please lay the motors carefully in transportation to avoid any damage to the motor body or its electric function because of collision.)

7-2 马达应避免高温放置，防潮、化学腐蚀，存储时间不超过 6 个月。

(Please don't leave the motors in the environment of high temperature, high humidity and gas that will cause rust and corrosion. Please don't store the motors for over 6 months.)

7-3 接电后不要经常性堵住机轴。

(Please don't lock the motor shaft when the electric power is supplied.)

7-4 马达转动时不要碰触转子。

(Please don't touch the weights when motor is rotating.)

7-5 注意电压及电流的使用范围，并且在本标准规定的情况下使用电机否则将相应降低电机的使用寿命和性能。

(Pay attention to voltage and current ranges for use and use the vibration motor in the condition Accordance with this specifications or the life and performance should be considerably reduced)

7-6 部分电机都在电机定子上提供了安装孔用来安装您的电机，请注意不要使用过长的螺钉以避免损坏电机内部元件。

(Some motors provide tapped holes in the motor housing for you to use to mount your motor. Please take care not to use screws so long that they can interfere with components inside the motor)

7-7 体积小功率高的电机通常温升高,如未咨询我司使用时请注意不能加过高的电压，不能运行在堵转或接近堵转状态过长时间。

(Motors with small size and high power usually increase in temperature. If you do not consult our company, please pay attention not to add too high voltage, and not to run in the locked rotor or close to locked rotor state for too long.)

7-8 我司电机在正常环境中的抗腐蚀能力是符合要求的，但机壳上有少许区域存在的裸露金属对腐蚀比较敏感,因此未经咨询请不要在腐蚀环境中存储或使用电机。

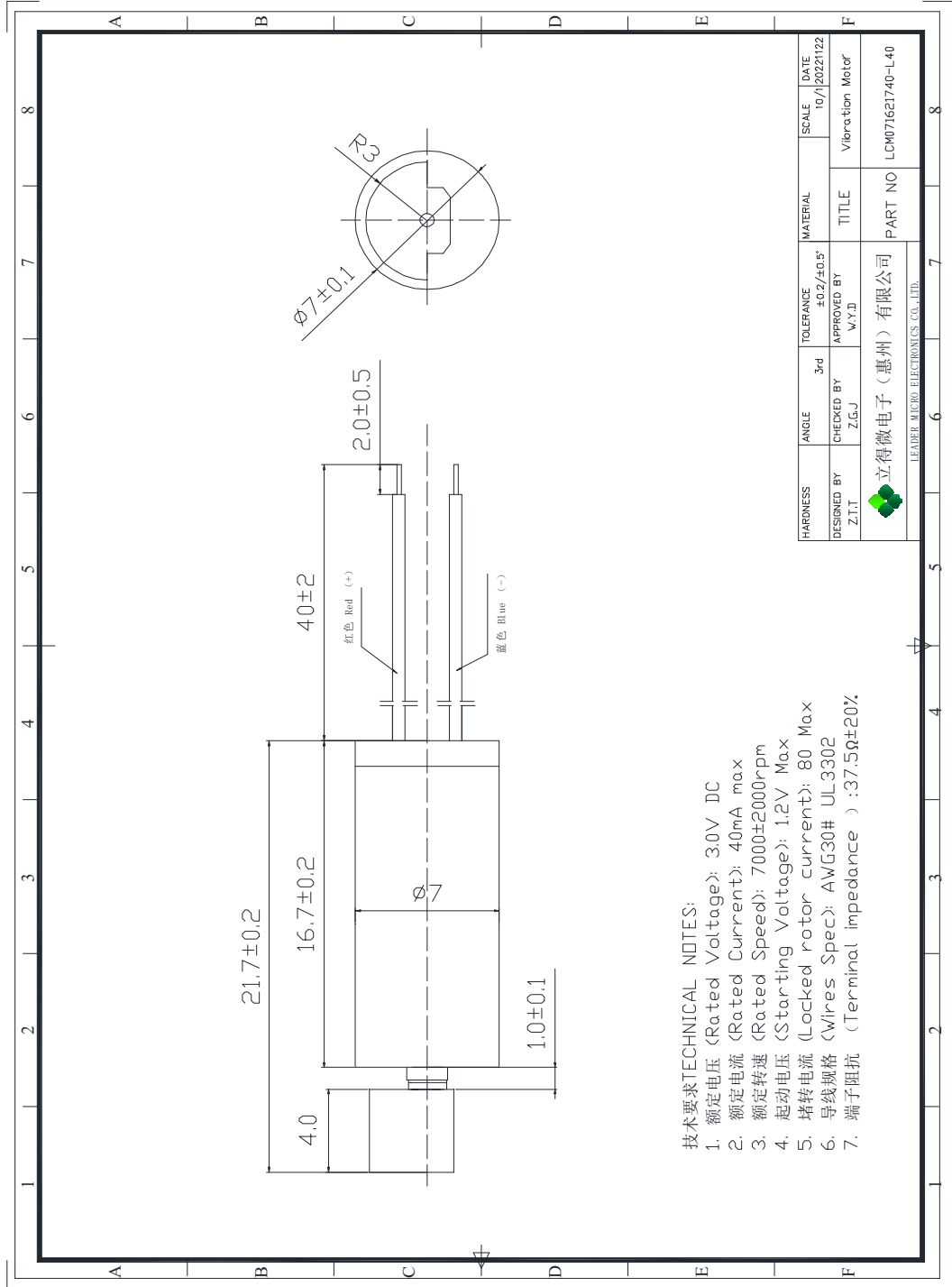
(The anti-corrosion ability of our motor in normal environment meets the requirements, but the exposed metal in a small area on the casing is more sensitive to corrosion, so please do not store or use the motor in a corrosive environment without consulting)

7-9 当换向器和电刷接触时，电机发出轻微的电噪音。

(The motor may cause slight electronic noise due to the contact between brush and commutator)

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8. Mechanical drawing/机械图



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9. Packing Specification / 包装规范

9-1 每个塑料盒里放 200 个马达。

200 motors in each tray

9-2 每 25 个塑料盒上盖一个塑料盖板，用胶带捆成一捆。

Put a plastic cover on every 25 plastic boxes and tie them with tape to make a bundle.

9-3 捆好后装入塑料袋内用胶带绑好。

Tie it up and put it in a plastic bag and tie it up with tape

9-4 依出货批量选用适当的外包装箱大小：

纸箱：5000PCS/CTN 495mm*335mm*247mm；

Choose the appropriate outer packing box size according to the shipment batch
carton: 5000PCS/CTN 495mm*335mm*247mm；

