

1. 适用范围/ General:

本说明书适用于圆筒式永磁直流电机 1162016 型

This specification applies to cylindrical permanent-magnetic motors DC model 1162016

2. 使用条件/ Operating Condition:

项目/ Item	规格/ Specification	条件・备注/ Condition Remark
2-1 额定电压/ Rated Voltage	3.0V DC	
2-2 使用电压范围/Operating Voltage	0.9~3.0V DC	
2-3 额定负荷/ Rated Load	振子/Vibration Weight: NO	见外形图/See Outline Drawing
2-4 额定转/ Rated Speed	8000±2000rpm	
2-5 旋转方向/ Rotation	C.W.	
2-6 马达位置/ Motor Position	All position	
2-7 使用环境/Operating Environment	-20~+70℃ 10~90%	无水气凝结 No condensation of moisture
2-8 存放环境/Storage Environment	-40~+80℃ 5~95%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℃	
2-2 湿度/ Humidity	65±5%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

以上数据均在温度 20℃，湿度 65%的条件下测得；判定有异议时，请在温度 5~35℃、湿度 45~85%的范围内测定。

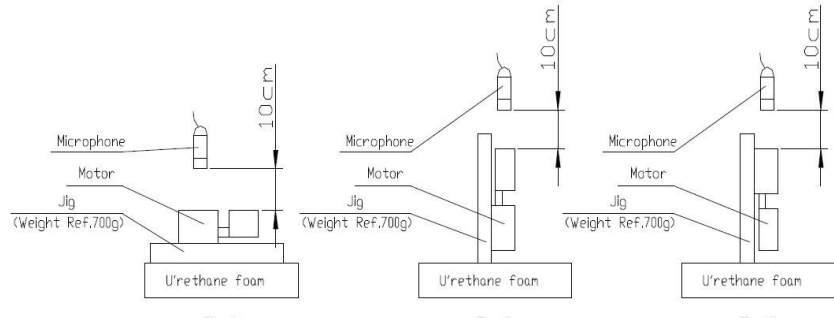
All data are based on the measurement under the temperature of 20℃ and humidity 65%RH. however. the ranges of temperature 5~35℃ and humidity 45~85%RH are to be applicable as long as no problems.

4. 机械要求/ Mechanical Specification

项目/ Item	规格/ Specification	条件・备注/ Condition Remark
4-1 结构 Configuration	见外形图 As specified in outline drawing	外形图编号 Outline drawing No: LZ--
4-2 外观 Appearance	不含有机机械损坏及不充分的侵蚀等 There shall be no mechanical damage and 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 Play	0.05-0.3mm	
4-4 质量 Mass	Approx.	
4-5 振子固定力 Holding Strength of Vibrator weight	无	

5. 性能特征/ Performance and characteristics:

项目/ Item	规格 / Specification	平均数/ Average	条件・备注/ Condition Remark
5-1 额定转数/Rated speed	8000±2000RPM	8000rpm	在额定电压和额定负载(振子) At rated voltage and rated Load (vibration weight).
5-2 额定电流/ Rated current	≤60mA Max	55mA	
5-3 堵转电流/ Stall current	120mA Max	110mA	
5-4 起动电压 Starting Voltage	0.8V Max	0.8V	在额定负载下电枢的任意位置 At rated load any position of rotor.

5-5	绝缘电阻 Insulation Resistance	1MΩ Min	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	3.6±10%Ω	3.7Ω	At 20℃.
5-7	机械噪音 Mechanical Noise	<p><50dB(A) <35dB(A)</p> <p>在额定电压、额定负载（振子）下。 At rated voltage and rated load (vibration weight). 背景噪音：不大于 28dB.A 计权/ Back ground noise 28dB(A) Max. 测试仪器：B&K/ Weasuring instruments: B&K 夹具重量：700G/ Weight of jig: 700G</p> 		

6. 可靠性/ Reliability:

项目/ Item	规格/ Specification	判定基准/ Requirements
6-1	寿命 Life 位置/ Position: 轴水平/ Horizon 电压/ Voltage: 3.0V DC 温度/ Temperature: 20℃ 湿度/ Humidity: 65% 寿命/ Life: 15000 cycles	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.
	6-1-1 测试状态 / Test Mode: Continuous run (C.W). 测试时间/ Test time:40 hours	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.
	6-1-2 测试状态/ Test Mode: 8 seconds on (C.W.) then 8 seconds off 测试循环/ Test cycle: 15000 cycles.	

项目/ Item	测试环境/ Test condition	判定基准/ Requirements
6-2	低温放置 Low Temperature 温度/ Temperature: -20±2℃ 时间/ 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 Temperature 温度/ Temperature: 60±2℃ 时间/ Time: 96h.	
6-4	湿度放置 Humidity Exposure 温度/ Temperature: 40±2℃ 湿度/ Humidity:65% ±20%RH 时间/ Time: 96h. 无水气凝结/ No condensation of moisture.	
6-5	振动 Vibration 全振幅/ Displacement:1.5mm(p-p) 频率/ Frequency: 10 to 55 Hz 周期/ Period:2 Minutes log sweep	

		(10-55-10Hz) Direction: x,y,z 时间/ Time: Each 2 hour	After the test, motors shall be approved as specified in item 7-2.
6-6	自然跌落 Free Fall	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(including the motor) weight of block and drop the motor on the concrete floor. 高度/ Height: 1.2 meters. 方向/ Direction: $\pm x$, $\pm y$, $\pm z$. 次数/ Number of times: Each 2 times.	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.

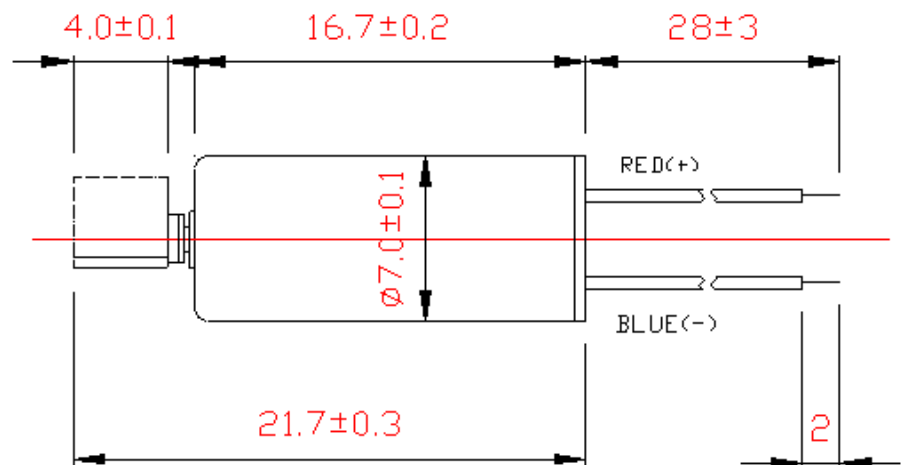
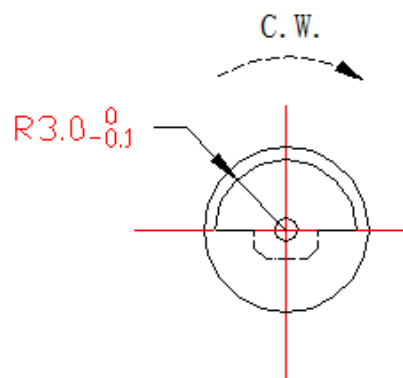
7. 要求/ Requirements

项目/ Item		判定基准 Requirements
7-1	表 A Table A	1) 额定转速/ Rated Speed : Data $\pm 30\%$ Max. 2) 额定电流/ Rated Current : Data $\pm 30\%$ Max 3) 绝缘电阻/ Insulation Resistance : 1M Ω Min. 4) 起动电压/ Starting Voltage : 0.8V
7-2	表 B Table B	1) 额定转数/ Rated Speed : Data $\pm 30\%$ Max. 2) 额定电流/ Rated Current : Data $\pm 30\%$ Max

GENERAL INSTRUCTIONS: 一般事项

- 电机在运输过程中应小心轻放，避免严重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 serious damage to the motor body or its electric function because of collision.
- 必须按照规格书的标准使用，否则会影响电机寿命；
Please use the motor according to the instruction of this product specification, or else, it will be bad for motor' s life.
- 请在 3 个月内使用，请不要在高温、低温、高湿环境下存储。在使用和打开马达外包装时请避免水气凝结。
Make arrangement to limit the storage period to 3 months or less. Please do not store motor in high temperature. Low temperature. High humidity environment. Condensation of atmosphere must be avoided in motor usage or opening the packaging of the motor.
- 马达应适当操作、储趣和运转环境中均不可存在腐蚀性气体。例如：H2S、SO2、NO2、CL2 等。另外存储环境中不可有诸如硅、氰、甲醛水和苯酚等能放射出腐蚀性气体的物质，在电机的机械构造或装置中，如果存在腐蚀性气体，那么就会引起马达不运转；
For proper operation. Storage and operating environment must not contain corrosive gases. For example H2S、SO2、NO2、CL2, etc. In addition storage environment must not have materials that emit corrosive gases especially from silicon. cyanic. Formalin and phenol group. In the mechanism or set. Existence of corrosive gases may cause no rotation in motor.
- 请通电后不要长时间堵住机轴，并且马达转动时不要触碰振子；
Please don' t stall the shaft for a long time after powering and not to touch the weight when motor is rotating
- 马达轴向间隙处不应有杂物（如颗粒、纤维物、头发、胶带、胶水等）。
There should be no sundries (such as grain, fiber, hair small tape, glue etc.) in the shaft end play.
- 本条款如需修改应经双方协商讨论方可进行。
Any revisions on the specification shall be done based on mutual discussion and agreement.
- 请注意我方仅对本条款中描述的马达操作方式和情况负责。

Please pay attention that we do not guarantee motor operations or conditions not described in this specification.



Technical Requirements

1. Refers to GB/T 1804-m, if the dimension of tolerance is not indicated.
2. Refers to GB/T 1184-k, if the tolerance of form is not indicated.
3. Shaft play is between 0.05 to 0.3mm.