



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/0
品名描述 Product Description	圆柱直流马达 Cylindrical DC motor		
型号Part No.	VZ7AV2K0760001C		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
2020.09.04	2020.09.04	2020.09.04	

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1. 重要提示 Important Notes:

- 1) 如对电机的性能和（或）寿命有任何争议，仅基于此规格书作出判断。

If there is any argument on motor performance and/or life, judgment is to be made base on specification only.

- 2) 客户方有责任确认该电机能满足您的使用要求。

Customer has the responsibility to ensure that motor can satisfy the requirement of your application.

- 3) 如果公司未提供技术规格，该文件将详细叙述与贵公司商定的技术规格。

In the event that an official specification is not present by customer, this document will specify the agreed technical specification.

- 4) 在满足规格的条件下，我司可以改变零件材料、尺寸及形状来改善品质（或）性能（或）生产效率。

Within the limitation to satisfy this specification, Vybronic has the convenience to change the materials, size and shapes of components of the motor for the purpose of improving quality, and/or performance, and/or production efficiency.

- 5) 收到此规格书后，贵司应于下订单之前将规格书副本签回以示贵司已确认。如贵司未能在规定时间内签回副本，我司将认为贵司已收到并承认该规格书。

After the receipt of this specification, customer should send a signed copy to Vybronic, before you issued purchase order for the confirmation on acknowledgment. Vybronic, regard it as the receipt of this specification acknowledged if customer fails to return the confirmation to us within the described period.

2. 更改记录/ Records of Revision

修改号 Rev. No.	日期 Rev. Date	页码 Page No.	修改项目 Revised Item	更改原因 Reason
A/0	2020.09.04	/	产品颁布/ Release for Production	

3. 应用范围 Application

— 本说明书适用于 VZ7AV2K0760001C 电机。

This specification applies to ERM vibration VZ7AV2K0760001C model.

— 此规格书提供了直线振动马达的结构、功能和使用条件。

These specifications provide structure, function and usage condition for ERM motor

4. 储存和使用环境 Storage, Operating Temperature/Humidity Circumstance

序号 NO.	项目 Items	条件 Condition
2-1	储存环境 Storage temperature range	-40°C ~ 85°C , ordinary humidity (No condensation of moisture)
2-2	使用环境 Operating temperature range	-40°C ~ 85°C, ordinary humidity (No condensation of moisture)

5. 标准测试条件 Standard Test Conditions

序号 NO.	项目 Items	条件 Condition
2-1	温度 Standard test temperature	20±5°C
2-2	湿度 Standard test humidity	65%±20%RH
2-3	测试条件 Test Condition	见图 1 Refer to Figure 1

6. 测试方法 Test Method

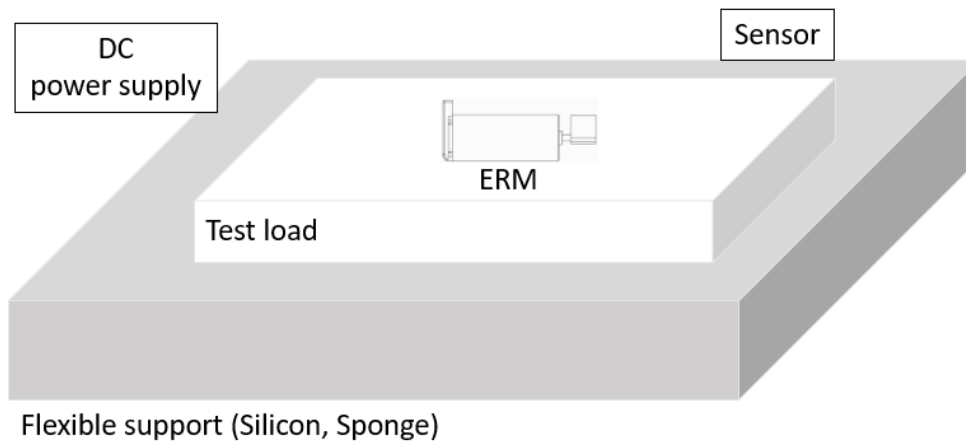


Figure 1
 Sketch of test method: Test load and fixation should keep ERM stable vibrating and Sensor could be Infrared or Accelerometer.

6-1 将马达和传感器尺寸位置固定好，测试过程中，需保持测量系统稳定

Fix Sensor and ERM vibrator on the position of test load. All system should be stabilized in measurement.

6-2 接通后 2-3 秒后读数.

Measurement of ERM vibrator should be 2~3 second later when DC power input

6-3 为了测量数据准确，测量数据取平均值.

For the precise measurement, test data of ERM vibrator is averaging.

6-4 在不影响判定结果的情况下，测试环境温度和湿度可以放宽至 5-35°C，45%-85%RH.

If the judgment is not questionable, recognize measurement at 5 to 35°C & relative humidity 45%RH to 85%RH.

7. 规格 Specifications

NO.	项目/Items	规格/Specification
7-1	电阻/ Resistance	$24 \pm 3 \Omega$
7-2	额定电压/ Rated Load Voltage	12 Vdc
7-3	额定转速/ Rated Load Speed	21000 \pm 3500 rpm
7-4	额定电流/ Rated Load Current	180 mA Max
7-5	堵转电流/ Blocking Current	1 A Max
7-6	噪音/ Noise	Max. 50 dB(A) (30cm distance from decibel meter)
7-7	绝缘电阻/Insulation Resistance	Min. 10M ohm (100V DC input, between Case and lead wire)
7-8	触觉模式 Haptic Driving pattern	$V_p=12V$ DC $t_1=8ms$ (Accelerate) $t_2=3ms$ (Brake) $t_3=2000ms$ (Off) (Refer to Figure 2)

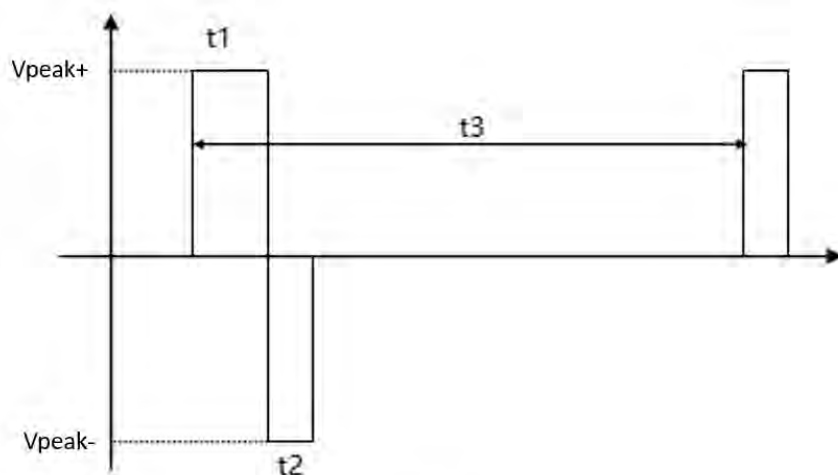


Figure 2

Driving waveform measured by Oscilloscope: Red connected to Power+,
Black connected to GND-. Rotation orientation is Clockwise.

8. 可靠性试验 Reliability Test

NO. 序号	Item 项目	Test condition 试验条件
8-1	高温储存试验 High temperature storage test	温度/Temperature: (85±2) °C 时间/Time: 96H 湿度/Humidity: 常湿/Ordinary Humidity
8-2	低温储存试验 Low temperature storage test	温度/Temperature: (-40±2) °C 时间/Time: 96H 湿度/Humidity: 常湿/Ordinary Humidity
8-3	寿命试验 Life test	测试模式/test pattern: Haptic Driving pattern 寿命周期/life cycle: Min. 1,000,000 cycles 温度分布/temperature distribution: -40~85°C 湿度/Humidity: 常湿/Ordinary Humidity

9. 可靠性试验判定 Requirement Reliability Test Judgment

9-1 以下条件必须在试验结束后满足/After test, following specifications must be satisfied.

额定转速/ Rated Load Speed: 初始值/Initial Value ±30%

噪音/Noise: 55dB(A) Max at 30cm distance

9-2 试验完毕后需在标准测试条件下放置 2 小时后再测试。

The measurement is conducted after 2hours of recovery under standard test condition after reliability test.

9-3 外表和结构无异常或损坏。

There should be no abnormalities or breakdown in appearance and structure.

10. 注意事项 Caution

10-1 马达的驱动方式和波形 Driving method and waveform

推荐使用直流供电的 H 桥驱动方式，驱动波形参考 5-9。偏心振子的旋转方向为顺时针，逆时针旋转容易造成损坏，引起电流过大或停止振动。

H-bridge driving with DC power supply is recommended, please refer to 5-9 haptic pattern. Rotation orientation of Eccentric mass is clockwise and Counter clockwise rotation could cause motor damage, overcurrent or stop operation.

10-2 马达安装方式 Installation

振动方向上必需固定好，否则将容易引起噪音。

Vibrator should be fixed to house firmly in vibrating direction, or it will be easy to cause noise.

推荐使用硅胶、双面胶或者螺丝孔固定，同时用软态材料(硅胶垫、泡棉)提供减震。

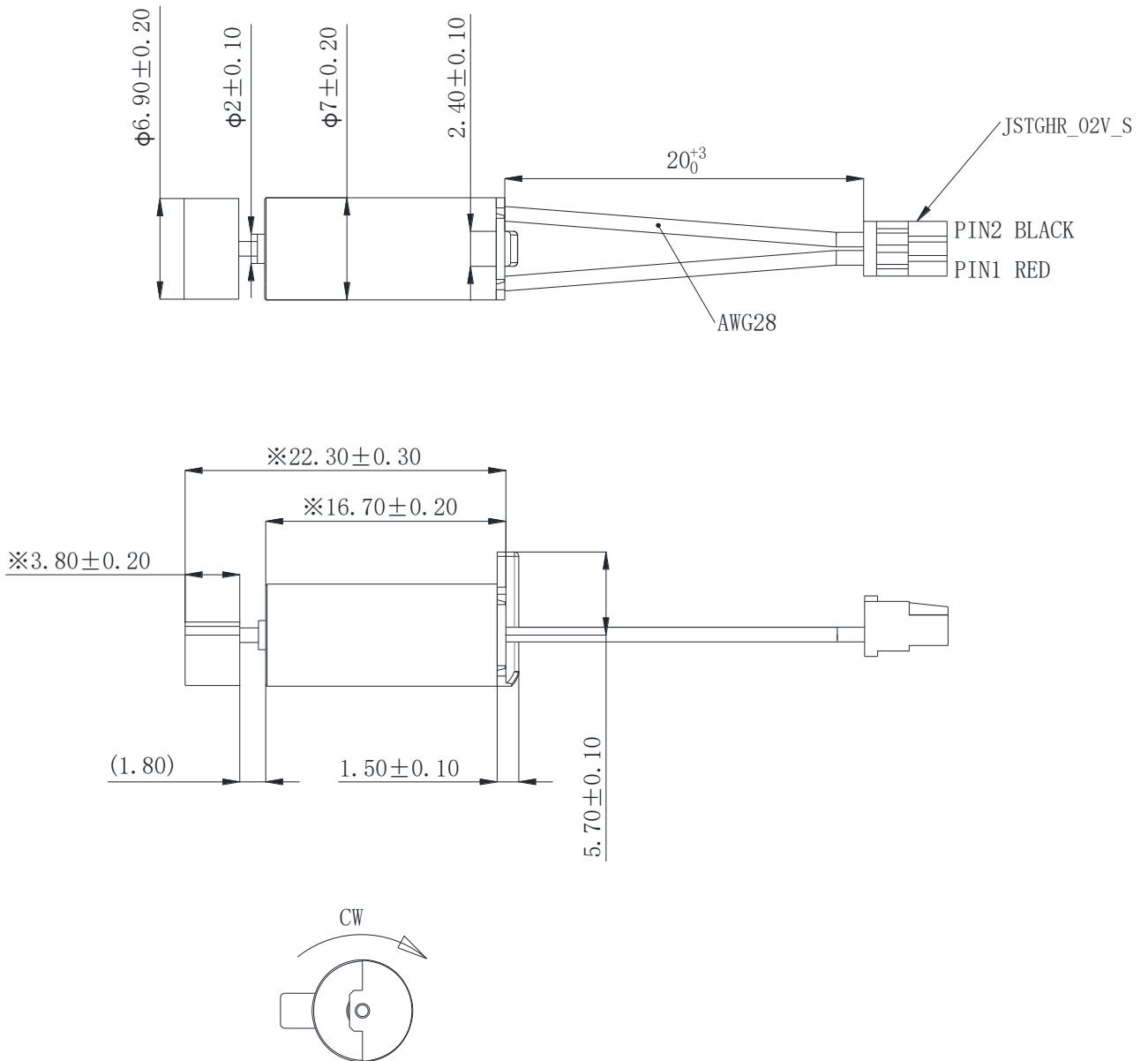
Use adhesive or screwing to fix the motor, soft material (such as silicon poron, poam etc.) to provide damping.

10-3 发生任何问题，客户与Vybronic之间可通过协商解决问题，并通过书面的形式来反映问题

If any problems occur, both the user and Vybronic shall try to solve the problem by mutual agreement and on reflection of the specification sheet.

10-4 禁用物质允许含量 Prohibited substances Compliance with RoHs2.0 requirement.

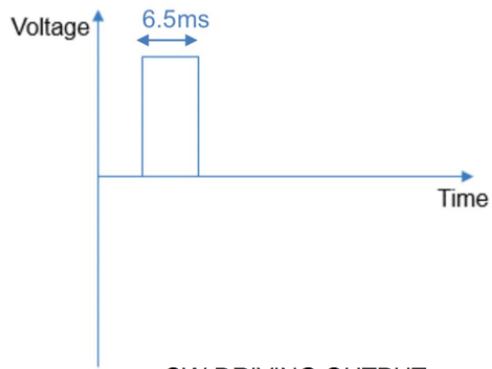
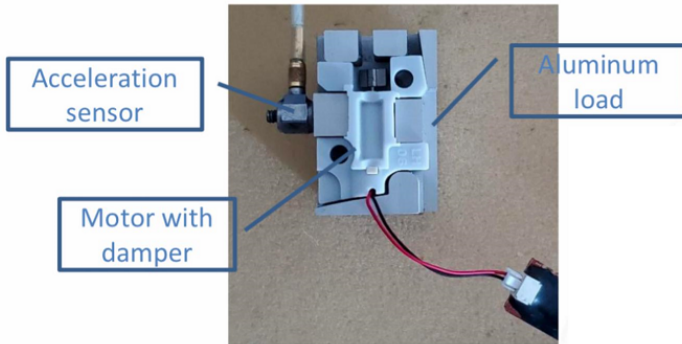
11. 产品外形图 Product Outline Drawing



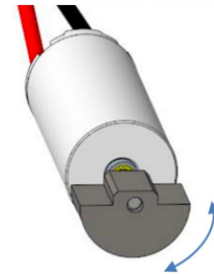
马达外形图如 Figure 3 所示，电路外接方式可根据实际情况定制，可选但不限于：引线、FPC、连接端子等

Outline drawing of vibration motor is as figure 3. Circuit connection can be customized according to the requirement, optional but not limited to: lead wire, FPC, connector etc.

Test methods



CW DRIVING OUTPUT



Initial position of eccentric in bottom lowest point

Performance Test

No.	Speed/RPM	Current/mA
1	23150	170
2	21050	182
3	22400	175

Haptic vibration Test

