



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. | HG2230-70S | 版本 | A/1 |
| 品名描述 Product Description | LRA 扁平振动马达 LRA Coin Vibration Motor | | |
| 型号Part No. | VG2230001H | | |
| 送样日期Date | | | |
| 设计Designed by | 审核Checked by | 批准Approved by | |
| | | | |
| 2022.04.22 | 2022.04.22 | 2022.04.22 | |

www.vybronic.com

sales@vybronic.com

REVISED RECORD 修订记录

| Rev. No | Rev. Date | Page No. | Revised Item | Reason |
|---------|------------|----------|--|--------|
| A/0 | 2022.02.24 | / | Preliminary Spec/初始规格 | |
| A/1 | 2022.04.22 | / | Update voltage operating parameters /更新电压工作参数 | |
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1. Operating scope 适用范围

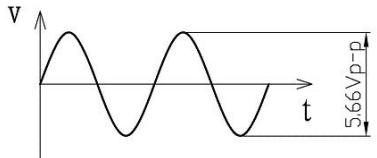
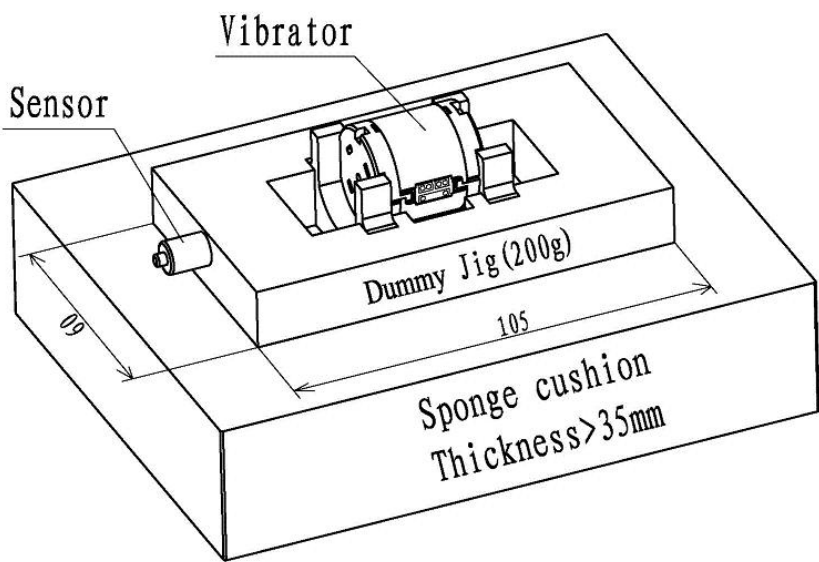
This specifications apply to linear vibrator model VG2230001H.

本规格书适用于 VG2230001H 线性振动器。

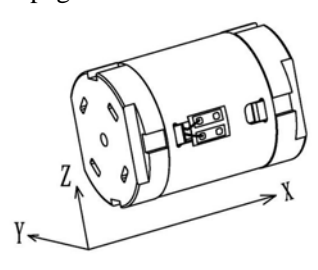
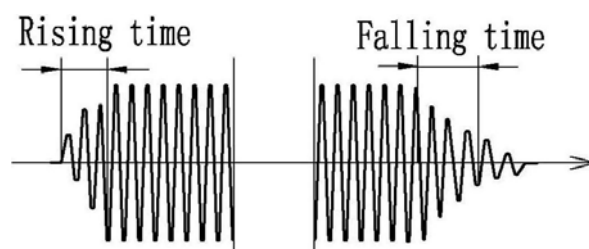
2. Storage, Operating temperature / Humidity conditions (储存、使用温度/湿度条件)

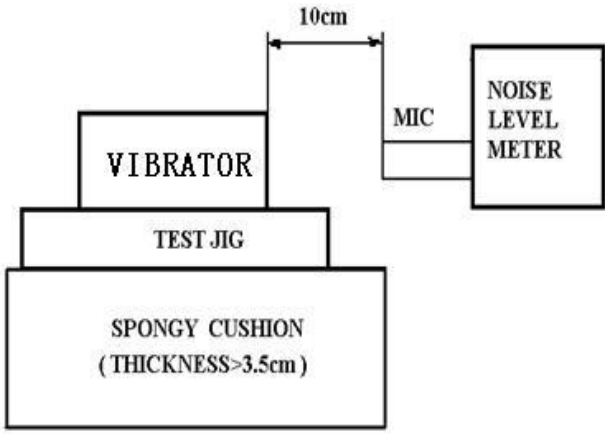
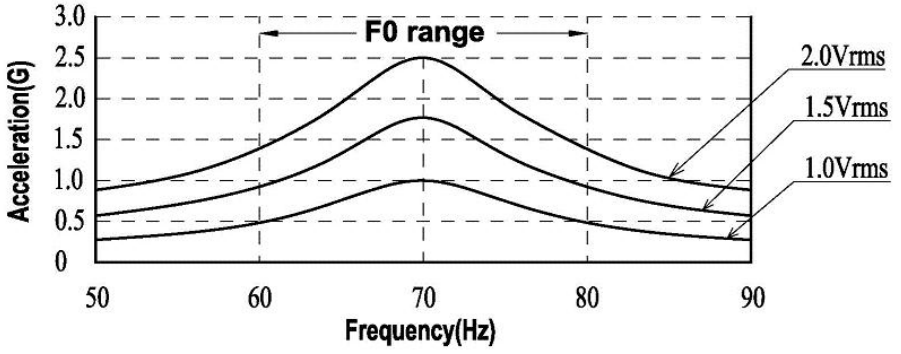
| No | Items (项目) | Conditions (条件) |
|-----|---------------------------------|---|
| 2-5 | Operating Environmental 使用环境 | Temperature / 温度: $-30^{\circ}\text{C} \sim 70^{\circ}\text{C}$ Humidity / 湿度: $5 \sim 95\%RH$ |
| 2-6 | Storage Environmental 储存环境 | Temperature / 温度: $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$ Humidity / 湿度: $5 \sim 95\%RH$ |

3. Standard measurement conditions (标准测试条件)

| NO | ITEMS/项目 | SPECIFICATION/规定 | |
|-----|-----------------------------|--|--|
| 3-1 | Temperature/温度 | $20 \pm 5^{\circ}\text{C}$ | |
| 3-2 | Humidity/湿度 | $(65 \pm 20\%)RH$ | |
| 3-3 | Rated voltage 额定电压 | AC Mode AC 模式 | $2.0 \pm 0.05V_{rms}$ $(V_{p-p} = 5.66V)$  |
| 3-4 | Operating Frequency 工作频率 | @F0 ($F0 \in 70 \pm 5Hz$) | |
| 3-5 | Measuring method 测量方法 | <p>Place Vibrator horizontally (Lock the Vibrator on a 200g dummy jig) 振动器水平放置 (固定在 200 克的测试夹具上)</p> <p>The direction of the sensor as same as the direction of Vibrator vibration (As item 4-2) 传感器检测方向和振动器振动方向保持一致。(参见项目 4-2)</p>  | |

4. Product performance (制品性能)

| NO | Items(项目) | Requirements (要求) | Conditions Or Remark (条件/备注) |
|------|-----------------------------|--|--|
| 4-1 | Shape size 外形尺寸 | $\phi 22*30$ (mm) not included Welding lead position 不包含引线焊接部位 | Details refer to page 8  |
| 4-2 | Vibration direction 振动方向 | X axis | |
| 4-3 | Weight/重量 | 36±2g | / |
| 4-4 | Resonant Frequency 谐振频率 | 70±5Hz | / |
| 4-5 | Operating voltage 工作电压 | Maximum 3.0Vrms Sine wave/正弦波 | 采用较高电压工作时，请将工作频率请设置在 f0 或附近，否则可能因电流过大造成温升过高。 When working with high voltage, please set the working frequency at or near F0, otherwise the temperature rise may be too high due to excessive current. |
| 4-7 | Acceleration 振动加速度 | ≥ 1.3G(2.6Gpp)@F0 | Sine wave 1.2Vrms (3.40Vp_p) |
| | | ≥ 2.5G(5.0Gpp)@F0 | Sine wave 2.0Vrms (5.66Vp_p) |
| | | ≥ 3.5G(7.0Gpp)@F0 | Sine wave 2.5Vrms(7.07Vp_p) |
| 4-8 | Rise time 启动时间 | ≤60ms | Rise to 90% of the nominal acceleration 加速度上升到典型值的 90%  |
| 4-9 | Falling time 断开时间 | ≤100ms | Down to 10% of the nominal acceleration 加速度下降到典型值的 10% |
| 4-10 | Rated current 额定电流 | ≤60mArms | @f0 Sine 1.2Vrms |
| | | ≤200mArms | @other frequency Sine 1.2Vrms |
| | | ≤100mArms | @f0 Sine 2.0Vrms |
| | | ≤300mArms | @other frequency Sine 2.0Vrms |

| | | | |
|------|---|--|--|
| 4-11 | Terminal resistance 端子电阻 | 6.5±0.6Ω | AT 20°C |
| 4-12 | Insulation resistance 绝缘电阻 | 10MΩ(Min) | 100V DC, Between the vibrator terminal and case.测试电压 DC100V,端子和外壳间。 |
| 4-13 | Operating Attitude 工作姿态 | All direction (全方向) | |
| 4-14 | Mechanical Noise 机械噪音 | 45dB-A (MAX) | <p>At rated voltage and load; F0 , Background noise 35dB-A (MAX)/在额定电压, 额定负载下测试, 背景噪音不超过 35dB.</p>  |
| 4-15 | Voltage- Acceleration Characteristics 输入电压—加速度特性曲线 |  | |

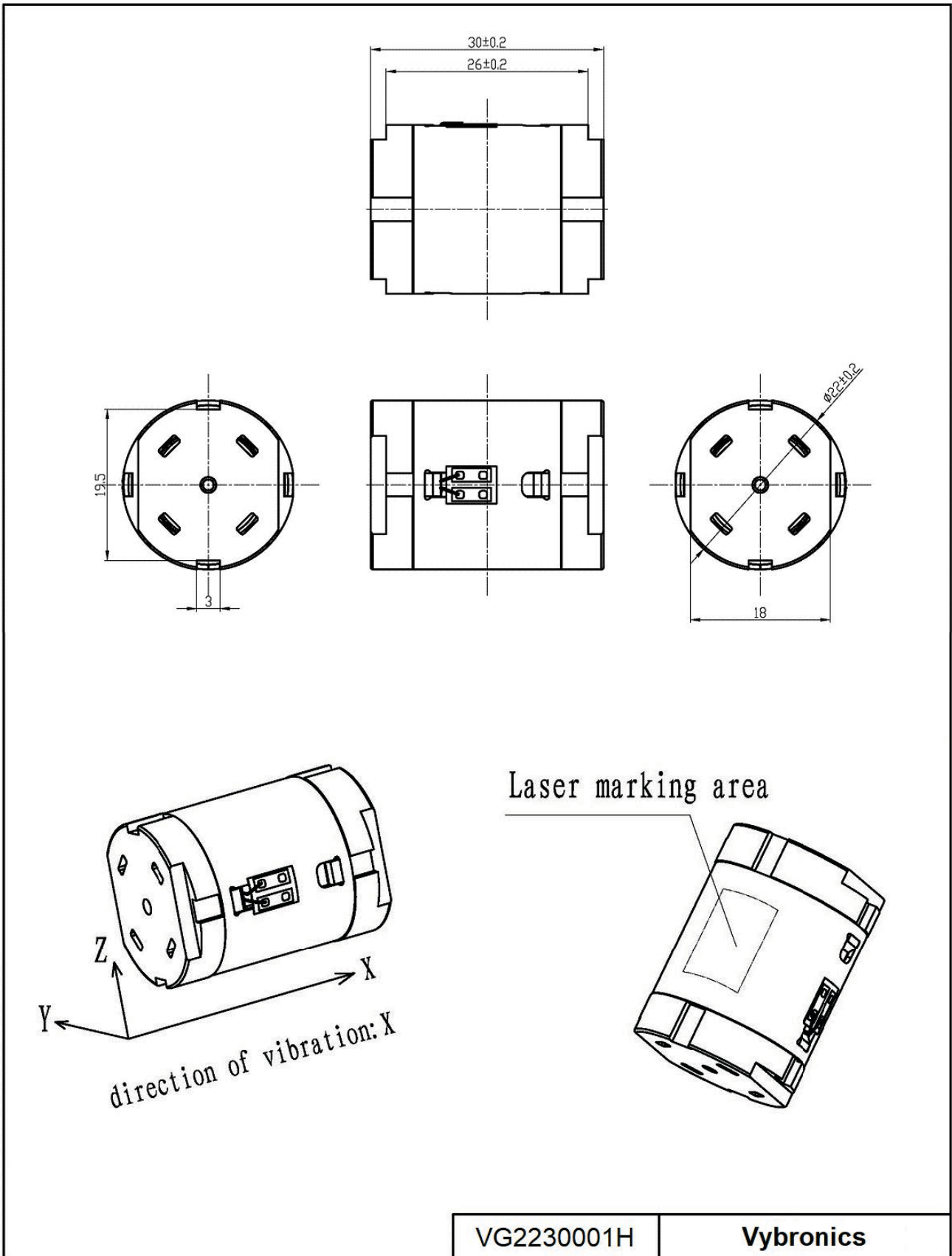
5. External performance (外观性能)

it should not remarkable wound and deleterious defect, No distortion、rust、stain, etc.不应有明显的划伤、有害缺陷, 无变形, 锈蚀, 污迹等。

6. Reliability test 可靠性试

| NO | Items(项目) | Standard test conditions(标准试验条件) | Judgment (判定) |
|----------------------------------|---|---|---|
| 6-1 | Life test 寿命试验 | Lock the vibrator on a test fixture (200g JIG) 振动器固定在 200g 的测试夹具上。 Temperature/温度: 25±5℃ Humidity/湿度: 65±20%RH Sine wave 1.2Vrms, f=60Hz 正弦交流电 1.2Vrms, 频率 60Hz Test model/试验形式: ON Total time:1000hours(1000 小时/42Days) | After the test, vibrator shall be satisfy with specified in item 6-8 试验结束后, 振动器应满足 6-8 中规定的要求。 |
| 6-2 | Low temp Storage 低温存放试验 | Temperature (温度): -20±2℃ Test time (试验时间): 240 hours | After the test, After 2 hours placed in ordinary temperature and humidity, vibrator shall be satisfy with specified in item 6-8 试验结束后, 在常温常湿中放置 2 小时后, 振动器应满足 6-8 中规定的要求 |
| 6-3 | High temp storage 高温存放试验 | Temperature (温度): 60±2℃ Test time (试验时间): 240 hours | |
| 6-4 | Heat shock 温度冲击 | -30℃/+65℃ 2hours/cycle,24cycles. 低温-30℃, 高温+65℃, 2 小时切换, 24 个循环 | |
| 6-5 | Humidity storage 湿热存放试验 | Temperature (温度): 65±2℃ Humidity (湿度): 95%RH Test time (试验时间): 240hours | |
| 6-6 | Drop test 跌落试验 | Dummy JIG 200g , drop to the granite floor. 治具 200g, 自由落下到花岗岩板上 Height/高度: 1.2m Direction/方向: 6 faces and 12 sides of the JIG . Times/次数:Each direction 1 drop, totaling 18 times. 每方向跌落 1 次, 共计 18 次 | After the test, vibrator shall be satisfy with specified in item 6-8 试验结束后, 振动器应满足 6-8 中规定的要求。 |
| 6-7 | Repetitive Drop Test 微跌试验 | JIG/治具: 200g Height/高度: 7cm impact surface/冲击面: steel floor Times/次数: Front and back each 2500 drops | |
| 6-8 | AFTER TEST REQUIREMENTS/试验后特性判定 | | |
| | 1、 Acceleration within ±30% from initial./加速度变化在初始值的±30%内; | | |
| | 2、 Insulation resistance within±20% from initial./绝缘电阻变化在初始值的±20%内; | | |
| | 3、 Terminal resistance within±20% from initial./ 端子电阻变化在初始值的±20%内; | | |
| 4、 No signs of corrosion/无明显腐蚀迹象 | | | |

7. Outline drawing (外形图)



VG2230001H

Vybronic

8. Encoding rules 试码规则

To be determined according to customer's requirements

依据客户需求确定

9. Packaging requirements 包装要求

50 pcs per box, 5 boxes per bundle, 2 bundles per box, 500 total.

每盒 50PCS, 每捆 5 盒, 每箱 2 捆, 共 500PCS

10. Caution for Use 使用注意事项

10-1. Please use vibrator in the specification of this specification. Otherwise the service life and performance of the vibrator will be affected. 请在本规格书规范内使用振动器, 否则会影响振动器的使用寿命和性能。

10-2. Make arrangement to limit the storage period to 6 months or less. 请在 6 个月内使用。

10-3. Please do not push the load of 15N or more on the surface of the vibrator, when exceeding 20N, it causes the trouble. 振动器表面承载压力不得超过 20 牛顿, 否则可能会导致功能故障。

10-4. Vibrators should be firmly fixed in the direction of vibration (Recommended Installation Force 5-8N), Otherwise it will be prone to noise. 振动器应牢牢固定在振动方向上 (推荐安装力 5-8N), 否则容易产生噪声。

10-5. Please lay the vibrators carefully in transportation to avoid any serious damage to the vibrator body or its electric function because of collision. 在运输过程中应小心轻放, 避免振动器碰撞受损

10-6. when soldering FPCB, The soldering iron temperature does not exceed 350 degrees and the soldering time per spot does not exceed 3 seconds. 焊接 FPCB 时, 电烙铁温度不超过 350°, 每个点焊接时间不超过 3 秒。

10-7. Vibrators can't be used in high temperature, High humidity and corrosive gas environment.

振动器不能在高温、高湿度和有腐蚀性气体环境中使用。

10-8. The vibrator has a strong magnet, So please be aware that it has a magnetic force on the surface of the bracket.

振动器有一个强的磁铁, 因此请注意, 它的支架表面有磁力。

10-9. Under the conditions of meeting this specification, our company can change the material, size and shape of parts to improve quality, performance or production efficiency. 在满足本规范的前提下, 我司可以改变零件材料、尺寸及形状来改善品质、性能或生产效率。

10-10. If there is any argument on vibrator performance and/or life, judgment is to be made base on this specification only.

如对振动器的性能和 (或) 寿命有任何争议, 仅基于此规格书作出判断。