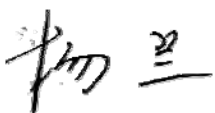




产品规格书

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/1
品名描述 Product Description	线性振动马达 LINEAR VIBRATION MOTOR		
型号Part No.	VL91022-170H		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
			
2020.12.01	2020.12.01	2020.12.01	

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更改记录/Revision History

Rev. No.	Rev. Date	Page No.	Revised Item	Reason
A/0	2020. 10. 27	/	Release for Production	
A/1	2020. 12. 01	/	changed company name from JINLONG MACHINERY to VYBRONICS, changed part # from L91022-170H to VL91022-170H	Rebranding

1. Operating scope 适用范围

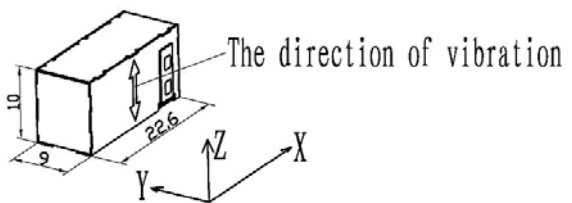
This specifications apply to linear vibrator model VL91022-170H.

本规格书适用于 VL91022-170H 线性振动器。

2. Storage, operating, conditions 储存, 使用条件

No	Items (项目)	Conditions (条件)
2-1	Operating temperature range 使用温度范围	-20 Celsius ~ +60 Celsius -20℃~+60℃
2-2	Storage temperature range 储存温度范围	-30 Celsius ~ +70 Celsius -30℃~+70℃
2-3	Operating humidity range 使用湿度范围	Humidity: 10~90%RH 湿度: 10~90%RH。
2-4	Storage humidity range 储存湿度范围	Humidity: 5~95%RH 湿度: 5~95%RH

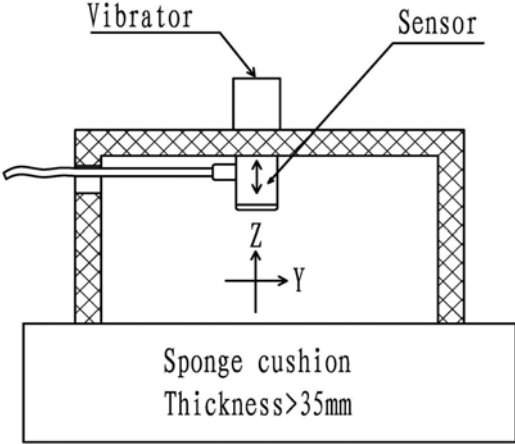
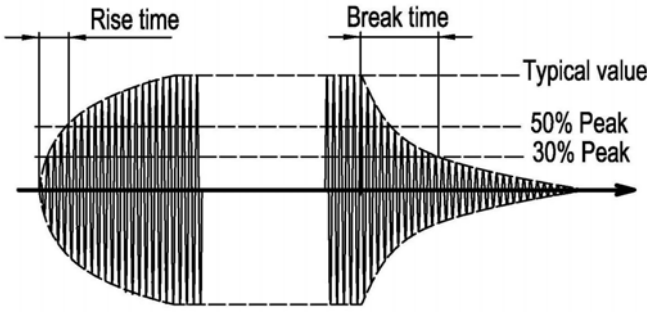
3. Measuring conditions 测量条件

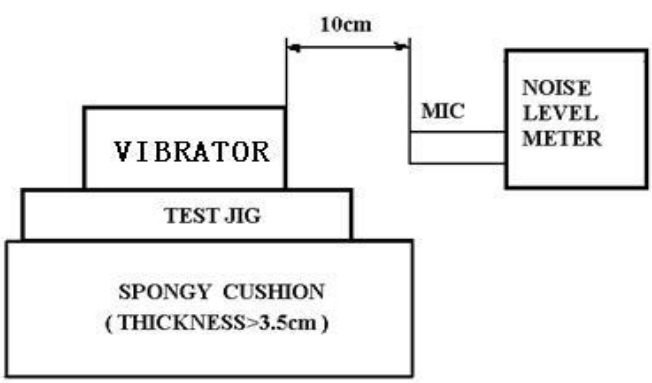
No	Items (项目)	Conditions (条件)
3-1	Rated voltage 额定电压	DC3.0Vpeak square wave, Duty cycle 50%, 170±0.5Hz
		AC1.5Vrms Sine wave, 170±0.5Hz
3-2	Operating voltage 使用电压范围	DC2.5~3.5Vpeak square wave, Duty cycle 50% 170±2Hz
		AC1.2~1.8Vrms Sine wave, 170±2Hz
3-3	Vibration direction 振动方向	Z axis /Z 轴 
3-4	Vibrator position/振动器方位	All direction/全方向

4. Appearance requirements 外观要求

NO	Items(项目)	Requirements (要求)	Remarks (备注)
4-1	Shape structure size 外形结构尺寸	According to the outline drawing 依照外形图	Refer to outline drawing 参见外形图
4-2	Appearance 外观	No distortion 、 rust 、 stain, etc. 无变形、 锈蚀、污迹等	Visual examination 目视检查

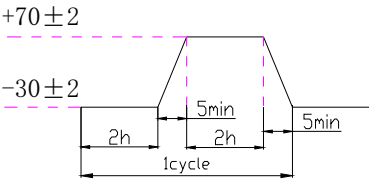
5. Specifications 技术参数

NO	Items/项目	Specifications/规格	Conditions (条件)
5-1	Rated Current 额定电流	180mA (Max)	Lock the vibrator on a test fixture (100g JIG) 振动器固定在 100g 的测试夹具上 DC3.0Vpeak square wave (Duty cycle 50%, 170 Hz) DC3.0Vpeak (峰值) 方波脉动直流, 占空比 50%, 170 Hz The direction of the sensor as same as the direction of the vibration/传感器的检测方向与振动器的振动方向保持一致。
5-2	Acceleration 加速度	$2.6 \pm 0.6G$	
5-3	Rise time 启动时间	<50ms	50% of the Typical value / 加速度上升到典型值的 50%
5-4	Break time 断开时间	<120ms	 30% of the Typical value / 加速度下降到典型值的 30%

5-5	Insulation resistance 绝缘电阻	5M Ω (Min)	100V DC, Between the vibrator terminal and case. 测试电压 DC100V, 端子和机壳间。
5-6	Weight 重量	6.5 $\pm$ 0.5g	Use scale/用天平测量
5-7	TERMINAL RESISTANCE 端子电阻	9 $\pm$ 2 Ω	AT 20 $^{\circ}$ C
5-8	MECHANICAL NOISE 机械噪音	55dB-A (MAX)	At rated voltage and rated load; background noise 30dB-A (Max) 在额定电压，额定负载下测试，背景噪音不超过 30dB-A. 

All data are based on the measuring conditions: temperature, 20 $\pm$ 5 $^{\circ}$ C; humidity, 65%~80% RH. 所有数据的测试条件为：温度 20 $^{\circ}$ C，相对湿度 65%~80%RH。

6. Reliability test 可靠性试验

NO	Items (项目)	Specifications(规格)	Judgment (判定)
6-1	Life test 寿命试验	Lock the vibrator on a test fixture (100g JIG) 振动器固定在 100g 的测试夹具上 DC3.0Vpeak square wave (170Hz, Duty cycle 50%) DC3.0Vpeak (峰值) 方波脉动直流, 170Hz, 占空比 50% Temperature (温度): $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Humidity (湿度): $70 \pm 10\% \text{RH}$ Test model (试验方式): 1S NO 1S OFF Test time (试验时间): 168h	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): $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Test time (试验时间): 96 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项中规定的要求
6-3	High temp storage 高温存放试验	Temperature (温度): $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Test time (试验时间): 96 hours	
6-4	Humidity storage 湿度存放试验	Temperature (温度): $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Humidity (湿度): $90 \sim 95\% \text{RH}$ Test time (试验时间): 96 hours	
6-5	Temperature shock 温度冲击	 Test duration (试验持续时间): 4cycles Transition times (转换时间): 5min	
6-6	Vibration test 振动试验	Total peak amplitude (全振幅): 1.5mm (P-P) Frequency (频率): 60Hz Period (周期): 10-55-10Hz Direction (方向): X, Y, Z Test time (试验时间): 10 minutes at each stage (每个阶段 10 分钟)	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	Drop test 跌落试验	The vibrator is fixed in a fixture about 100g, and falls freely to the Cement Floor. 振动器放在大约 100g 重的夹具中, 并自由落落到水泥地面上。 Fall Height (跌落高度): 1.0m Direction (方向): $\pm X, \pm Y, \pm Z$ Fall Times (跌落次数): 2 times per plane (每一平面 2 次)	

6-8	AFTER TEST REQUIREMENTS/试验后特性判定
	1、Rated load current within $\pm 20\%$ from initial./额定电流变化在初始值的 $\pm 20\%$ 内;
	2、Acceleration within $\pm 20\%$ from initial./加速度变化在初始值的 $\pm 20\%$ 内;
	3、Terminal resistance within $\pm 10\%$ from initial./端子电阻变化在初始值的 $\pm 10\%$ 内;
	4、Insulation resistance within $\pm 10\%$ from initial./绝缘电阻变化在初始值的 $\pm 10\%$ 内;
	5、Rise time within $\pm 20\%$ from initial./启动时间变化在初始值的 $\pm 20\%$ 内;
	6、Break time within $\pm 20\%$ from initial./断开时间变化在初始值的 $\pm 20\%$ 内;
	7、No signs of corrosion/无腐明显蚀迹象

7. Caution for Use 使用注意事项

- 1) Pay attention to voltage and current ranges for use, and use the vibrator in the condition accordance with this specifications, or the life and performance should be considerably reduced.

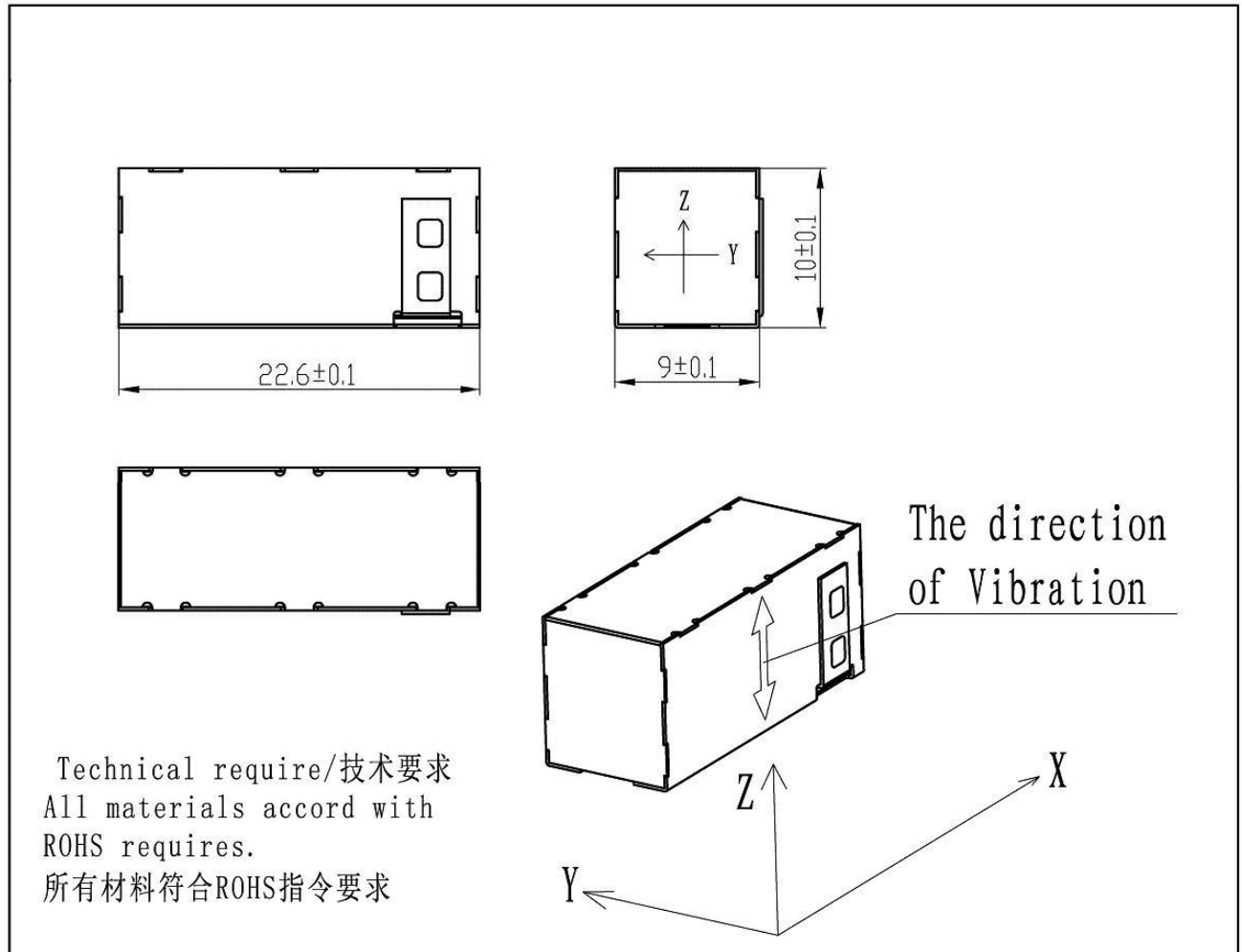
注意电压及电流的使用范围，并在本标准规定下使用，否则将降低振动器的使用寿命和性能。

- 2) Make arrangement to limit the storage period to 12 months or less.

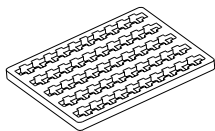
请在 12个月内使用。

- 3) Please lay the vibrators carefully in transportation to avoid any serious damage to the vibrator body or its electric function because of collision.

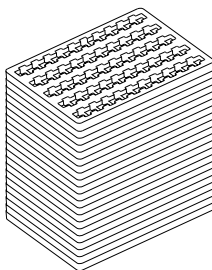
在运输过程中应小心轻放，避免振动器碰撞受损

8. Outline drawing 外形图


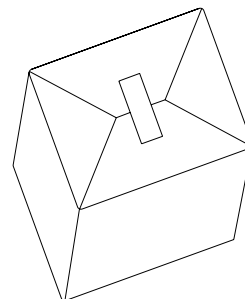
9. Packaging requirements 包装要求



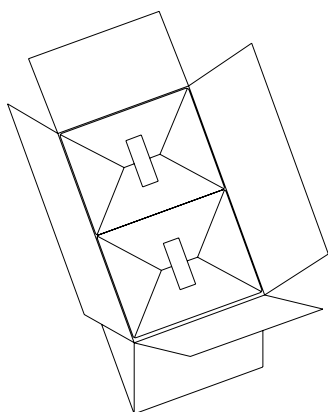
Each tray is equipped
with 50 vibrators
每托盘装50只振动器



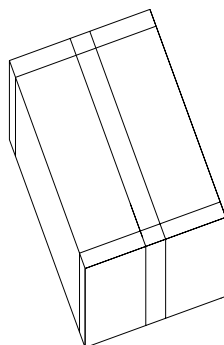
1000 vibrators per heap
每堆1000只振动器



Use plastic bags to
prevent humid
用塑料袋包装防潮



Each packing box is equipped
with 2000 vibrators
每个包装外箱装2000只马达



Seal the outer box with adhesive
tape and tie it firmly with
packing strap
用胶带密封外箱，并用打包带捆扎牢固。

Packing box specification table
包装箱规格表

数量 (pcs)	长 (cm)	宽 (cm)	高 (cm)
2000	39	27	27