



重庆市灵龙电子有限公司

CHONGQING LINGLONG ELECTRONIC CO., LTD.

承 认 书

SPECIFICATION FOR APPROVAL

客 户Customer:

项目名称Project:


规格型号Part No:

C0830L-066330017-0801

客 户 确 认/ Customer Approved	
料 号/ Part No.	签 章/ Signatures

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	产品规格书/specification	No	LL-3-J-32362
		版本Revision	A.1
	存货编码/Stock code.: 30112000005	页码Page	2 of 10
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1. 适用范围/General

本规格书适用于重庆灵龙电子有限公司所提供的产品: C0830L-066330017-0801

The specification is applicable to Inlon's part: C0830L-066330017-0801

2. 使用条件/Operating condition

No	项目/Item	规格/Specification
2-1	额定电压 Rated voltage	3.0 V DC
2-2	使用电压范围 Operating voltage	2.7~3.3V DC
2-3	旋转方向 Rotatationo rientation	CW(clockwise)
2-4	马达位置 Motor position	全方位 All positions
2-5	使用环境 Operating environment	-20~60℃, 10~90% (RH) 无水气凝结 No coagulation of moisture
2-6	保存环境 Storage environment	-30~70℃, 10~90% (RH) 无水气凝结 No coagulation of moisture


3. 测量条件/Measuring condition

一般情况下, 马达可以在5~35℃, 相对湿度45~85% (RH) 的环境中测试。为了保证一致性, 测试应在下表规定内进行Normally, it should be tested under 5~35℃, 45~85% (RH) .To ensure the coherence, it must be tested according to the below chart.

No	项目/Item	规格/Specification
3-1	温度 Temperature	25±3℃
3-2	湿度 Humidity	(63%~67%) RH
3-3	位置 Motor position	马达水平放置/lay motor horizontally

4. 机械要求/Mechanical specification

No	项目/Item	规格/Specification	测定条件/备注 Measuring condiction/Remark
4-1	外观 Appearance	不应有明显的机械损伤、锈蚀等现象 No evidence of machanical damage, rust corrision, and so on.	目视检查 Visual examination
4-2	尺寸 Dimensions	见外形图 As specified in outline drawing	使用游标卡尺或千分尺测量 Test with vernier caliper or micrometer

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No	项目/Item	规格/Specification	测定条件/备注 Measuring condiction/Remark
4-3	引线抗拉强度Anti-pulling strength of cable	5N(0.5kgf)Min	破坏性测试, 对导线沿着轴向施加拉力 Devastating test, pulling force to the cable along the horizontal shaft.

5. 性能特征/Performance and characteristics

No	项目/Item	规格/Specification	测定条件/备注 Measuring condiction/Remark	
5-1	额定转速 Rated speed	10000 rpm Min	在额定电压和额定负载下。 At rated voltage and rated load .	
5-2	额定电流 Rated current	90 mA Max		
5-3	启动电压 Starting voltage	2.3V DC Max	在额定负载下转子的任意位置。 At rated load any position of rotor.	
5-4	端子阻抗 Terminal resistance	相接触 Phase contact	30 Ω ±20%	在两接触脚之间测量 Test between the two touch pins
		相串联 Phase senrial	56 Ω ±15%	
		相并联 Phase parallel	15 Ω ±15%	
5-5	绝缘电阻 Insulation resistance	10MΩ Min	在100V 直流电压下, 导线和机壳间进行测量 Test between lead wire and case at DC 100V	
5-6	振动量 Vibration quantity	0.8G Min	见下图 See beow	

额定电压下, 电机固定在90*50*8的铝制板夹具(约100g)的左边, 夹具垂直悬空或放在海绵垫上. 将加速度感应器用双面胶粘在电机所对应的夹具的右边 (如图所示). 使用VM-83振动仪, 参数设置如下:

加速度(m/s²): 30

HPF (HZ): 50

LPF (HZ): 300

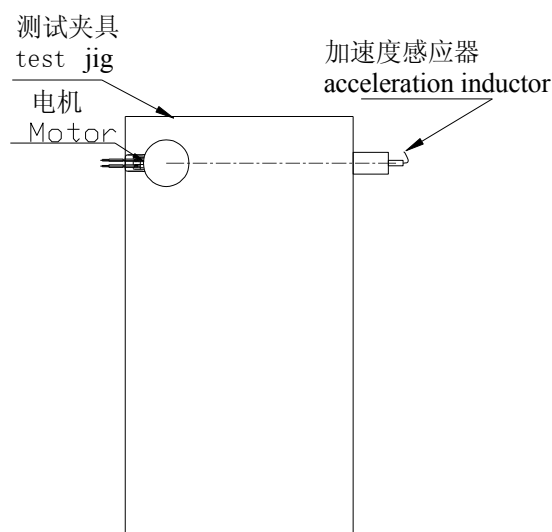
探测方式: RMS

At rated voltage, fasten the motor upto the left of aluminium-board jig (size:90*50*8), which is upright and hanged in the air or upon the sponge. Adhibit the acceleration inductor to the right side of the jig with double-faced tape(as right drawing). Use the apparatus VM-83, the parameter is as below:

Acceleration(m/s²): 30

HPF (HZ): 50

LPF (HZ): 300




5-6

No	项目/Item	规格/Specification	测定条件/备注 Measuring conditions/Remark
	机械噪音 Mechanical noise	小于50分贝.A计权 50db(A)Max 50	见下图: See below
5-7	<p>额定电压下,背景噪声≤ 28 dB(A),电机轴向水平固定在测试夹具上(100g),拾音器沿轴向正对电机平面,距离10cm At rated voltage and scene noise as 28dB(A)Max,the shaft is horizontally fastened to the test jig(100g).The Microphone faces the plane of motor along the shaft.The distance is 10cm.</p> <p>Moto 振动电机 Microphone拾音器 Test jig试验夹具 10cm</p>		

6. 可靠性/Reliability

No	项目/Item	测试条件/Specification	判定标准/Judgment
6-1	寿命 Life	<p>3V 2s 2s 1 cycle</p> <p>常温常湿下共循环96小时。 Cycle 96h in the ordinary temperature and humidity.</p>	<p>在常温常湿下放置4h后,电机性能应符合以下要求。</p> <ol style="list-style-type: none"> 1) 额定转速:指标不低于初始值-30%;不高于初始值+50% 2) 额定电流:指标在初始值$\pm 30\%$以内。 3) 起动电压:2.3V DC Max直流电压。 <p>After 4h exposure in the ordinary temperature and humidity,the motor's performance should accord with below requirements:</p> <ol style="list-style-type: none"> 1) Rated speed:Data-30% Initial Min, Data+50% Initial Max. 2) Rated current:Data$\pm 30\%$ Max. 3) Starting voltage: 2.3V DC Max
6-2	低温贮存放置 Low temperature storage test	<p>温度Temperature: $-40 \pm 2^\circ\text{C}$ 时间Time: 96h</p>	<p>在常温常湿下放置4h后,电机性能应符合以下要求。</p> <ol style="list-style-type: none"> 1) 额定转速:指标在初始值$\pm 30\%$以内。 2) 额定电流:指标在初始值$\pm 30\%$以内。 3) 起动电压:2.3V DC Max直流电压。 <p>After 4h exposure in the ordinary temperature and humidity,the motor's performance should accord with below requirements:</p> <ol style="list-style-type: none"> 1) Rated speed:Data$\pm 30\%$ Max 2) Rated current:Data$\pm 30\%$ Max. 3) Starting voltage: 2.3V DC Max
6-3	高温贮存放置 High temperature storage test	<p>温度Temperature:$80 \pm 2^\circ\text{C}$ 时间Time:96h</p>	<p>在常温常湿下放置4h后,电机性能应符合以下要求。</p> <ol style="list-style-type: none"> 1) 额定转速:指标在初始值$\pm 30\%$以内。 2) 额定电流:指标在初始值$\pm 30\%$以内。 3) 起动电压:2.3V DC Max直流电压。 <p>After 4h exposure in the ordinary temperature and humidity,the motor's performance should accord with below requirements:</p> <ol style="list-style-type: none"> 1) Rated speed:Data$\pm 30\%$ Max 2) Rated current:Data$\pm 30\%$ Max. 3) Starting voltage: 2.3V DC Max
6-4	湿度放置 Humidity exposure	<p>温度Temperature: $60 \pm 2^\circ\text{C}$ 湿度Humidity: 90~95%RH 放置时间Exposure time: 96h</p>	<p>在常温常湿下放置4h后,电机性能应符合以下要求。</p> <ol style="list-style-type: none"> 1) 额定转速:指标在初始值$\pm 30\%$以内。 2) 额定电流:指标在初始值$\pm 30\%$以内。 3) 起动电压:2.3V DC Max直流电压。 <p>After 4h exposure in the ordinary temperature and humidity,the motor's performance should accord with below requirements:</p> <ol style="list-style-type: none"> 1) Rated speed:Data$\pm 30\%$ Max 2) Rated current:Data$\pm 30\%$ Max. 3) Starting voltage: 2.3V DC Max
6-5	热冲击 Heat stock test	<p>+85°C -40°C 2h 20s 2h 20s 1cycle</p> <p>周期Period : 32times</p>	<p>在常温常湿下放置4h后,电机性能应符合以下要求。</p> <ol style="list-style-type: none"> 1) 额定转速:指标在初始值$\pm 30\%$以内。 2) 额定电流:指标在初始值$\pm 30\%$以内。 3) 起动电压:2.3V DC Max直流电压。 <p>After 4h exposure in the ordinary temperature and humidity,the motor's performance should accord with below requirements:</p> <ol style="list-style-type: none"> 1) Rated speed:Data$\pm 30\%$ Max 2) Rated current:Data$\pm 30\%$ Max. 3) Starting voltage: 2.3V DC Max

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No	项目/Item	测试条件/Specification	判定标准/Judgment
6-6	振动 Vibration	全振幅Full swing:1.5mm (p-p) 频率Frequency:10 to 55Hz 周期Cycle:20min (10~55~10Hz) 方向Orientation:x、y、z 时间Time:2h	在常温常湿下放置4h后, 电机性能应符合条款5:性能特征要求. After 4h exposure in the ordinary temperature and humidity, the motor's performance should accord with item 5:Performance requirements.
6-7	自然跌落 Free fall	试验状态:将马达固定在约100克(包括马达本身)的物体上, 落向水泥地面。 高度:1.5m 方向:±x. ±y. ±z 次数:每个方向2次 Test state:Fasten the motor onto a object(100g) and then let it fall down to the ground. Height:1.5m Orientation:±x. ±y. ±z Times:2times per orientation	在常温常湿下放置4h后, 电机性能应符合条款5:性能特征要求. After 4h exposure in the ordinary temperature and humidity, the motor's performance should accord with item 5:Performance requirements.
6-8	滚筒试验 Barrel roll test	滚筒高度:1.0M, 滚筒次数300次. 滚筒速率13±1次/分钟 Height:1.0M Times:300times. Speed:13±1times/M	在常温常湿下放置4h后, 电机性能应符合以下要求。 1) 额定转速:指标在初始值±30%以内。 2) 额定电流:指标在初始值±30%以内。 3) 起动电压:2.3V DC Max直流电压。 After 4h exposure in the ordinary temperature and humidity, the motor's performance should accord with below requirements: 1) Rated speed:Data±30% Max 2) Rated current:Data±30% Max. 3) Starting voltage: 2.3V DC Max

7. 环境管理物质/Environmental management materials:

7.1 本产品应符合RoHS指令要求和无卤素要求。

The product should be in compliance with RoHS requirements:

* 镉及其化合物最大允许含量为100PPM

Cadmium and Compound:100PPM Max

* 铅及其化合物最大允许含量为1000PPM

Lead and Compound:1000PPM Max

* 汞及其化合物最大允许含量为1000PPM

Hydrargyrum and Compound:1000PPM Max

* 六价铬及其化合物最大允许含量为1000PPM

+6 Chromium and Compound:1000PPM Max

* 多溴联苯及其化合物最大允许含量为1000PPM

PBB and Compound:1000PPM Max



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* 多溴二苯醚及其化合物最大允许含量为1000PPM

PBDE and Compound:1000PPM Max

* 氯溴两种卤素之和最大允许含量为1500PPM

The allowed content of Cl,Br is 1500PPM Max for total.

* 氯卤素最大允许含量为900PPM

The allowed content of Cl is 900PPM Max.

* 溴卤素最大允许含量为900PPM

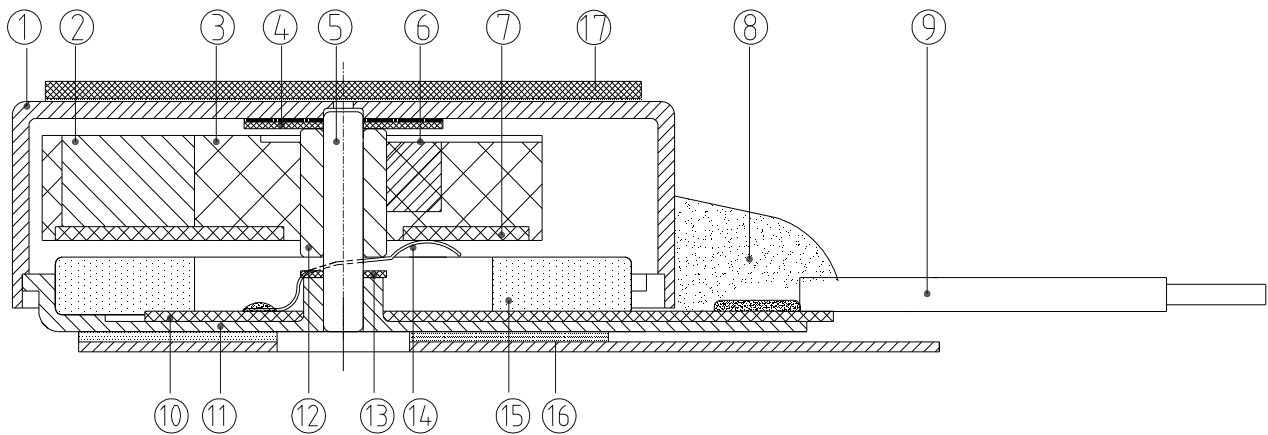
The allowed content of Br is 900PPM Max.

7.2本品含有以下物质,是RoHS指令豁免项

The product contains below materials, which are released from RoHS:

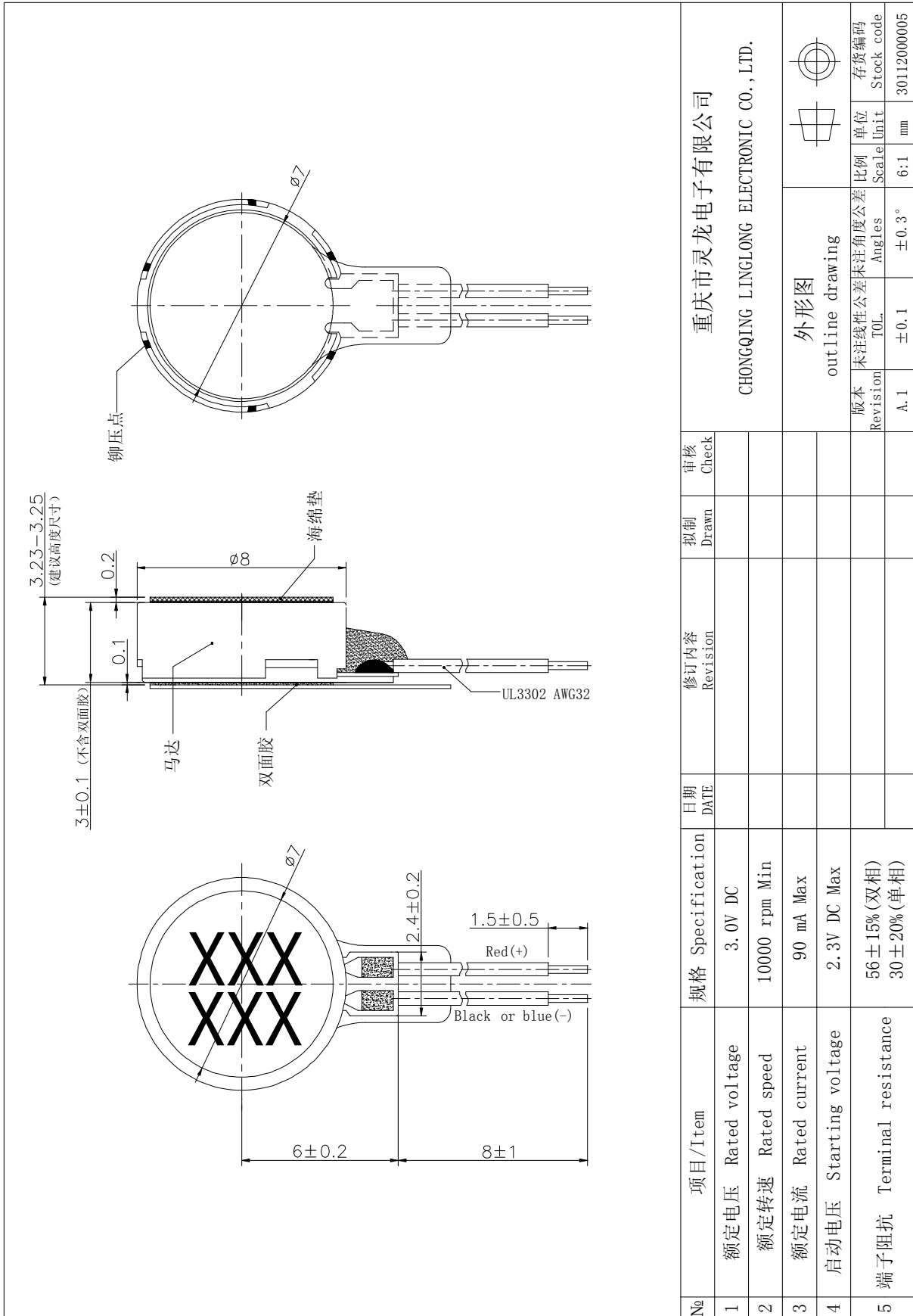
NO	品名 Part No.	材质 Material	含有物质 Substance included	最大允许含量 Max content	部品重量 Parts Weight
1	含油轴承 Bearing with Oil	铜合金 Copper alloy	铅 Lead	40000PPM	≈0.03g

8. 电机结构图/Motor configuratoin drawing



NO	名称/Name	NO	名称/Name
1	上机壳upper case	10	软PCB板Soft PCB
2	振子weight	11	下机壳lower case
3	塑料Plastic	12	含油轴承oil bearing
4	粘性垫片Adhesive mat patch	13	垫圈Gasket
5	轴shaft	14	电刷Brush
6	线圈Coil	15	磁钢Alnico
7	硬PCB板Hard PCB	16	双面胶Double-face tape
8	胶水glue	17	海绵垫foam
9	电子线electric wire		

9. 电机外形图/Motor outline drawing:



审核 Check		重庆市灵龙电子有限公司 CHONGQING LINGLONG ELECTRONIC CO., LTD.		外形图 outline drawing				单位 Unit mm		存货编码 Stock code 30112000005	
拟制 Drawn		修订内容 Revision		版本 Revision		未注线性公差 TOL.		比例 Scale		A.1	
日期 DATE		规格 Specification		未注角度公差 Angles		±0.1		±0.3°		6:1	
1	额定电压 Rated voltage	3.0V DC	日期 DATE	3.0V DC	未注公差 TOL.	±0.1	未注角度公差 Angles	±0.3°	比例 Scale	6:1	存货编码 Stock code
2	额定转速 Rated speed	10000 rpm Min	拟制 Drawn	10000 rpm Min	未注公差 TOL.	±0.1	未注角度公差 Angles	±0.3°	比例 Scale	6:1	存货编码 Stock code
3	额定电流 Rated current	90 mA Max	修订内容 Revision	90 mA Max	未注公差 TOL.	±0.1	未注角度公差 Angles	±0.3°	比例 Scale	6:1	存货编码 Stock code
4	启动电压 Starting voltage	2.3V DC Max	日期 DATE	2.3V DC Max	未注公差 TOL.	±0.1	未注角度公差 Angles	±0.3°	比例 Scale	6:1	存货编码 Stock code
5	端子阻抗 Terminal resistance	56 ± 15% (双相) 30 ± 20% (单相)	规格 Specification	56 ± 15% (双相) 30 ± 20% (单相)	未注公差 TOL.	±0.1	未注角度公差 Angles	±0.3°	比例 Scale	6:1	存货编码 Stock code

11. 包装要求/Packing requirements:

11-1: 每个吸塑盒里放100PCS电机, 包装盒尺寸为248*203*13.5

100pcs/pallet, pallet size:248*203*13.5mm

11-2: 每21个包装盒用胶带捆成一捆, 数量为2000PCS.

21pallets/bundle, Qty:2000pcs

11-3: 每捆装入一个内箱里面, 数量为2000PCS. 内箱尺寸为260*220*170

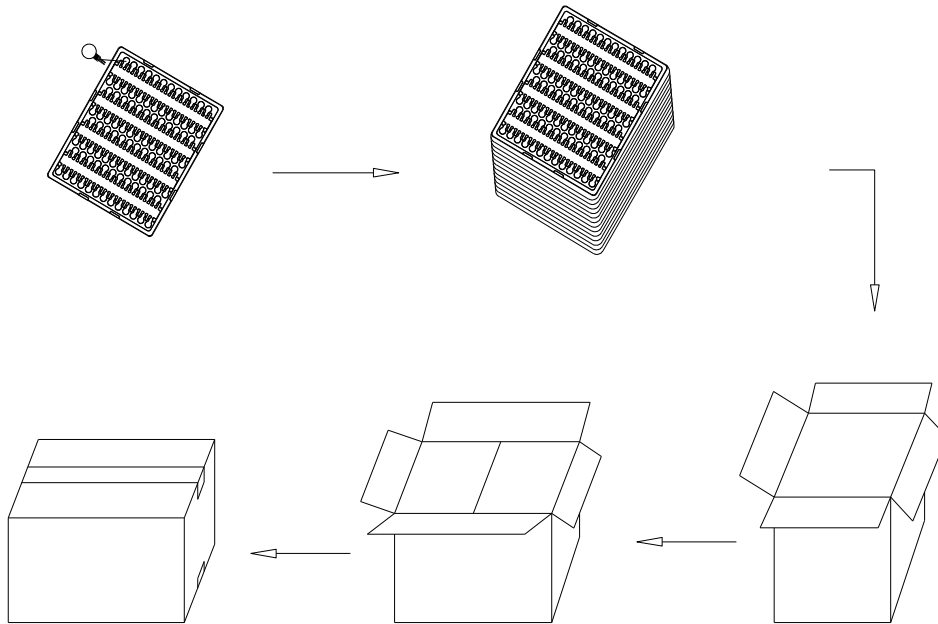
1bundles/inner box, Qty:2000pcs. box size:260*220*170

11-4: 每两个内箱放入一个外箱里, 外箱尺寸为470*275*185

2 inner-box/outer-box, box size:470*275*185 mm

11-5: 外箱封箱, 数量和生产批次, 均注明在外箱上面.

Seal the outer box and indicate the quantity, Lot No. on it.



11-6 包装试验要求/Packing test requirements:

(1) 标准: 整箱重量 $\leq 9\text{kg}$, 跌落高度设定为75cm; 整箱重量 $> 9\text{kg}$ 但 $\leq 23\text{kg}$, 跌落高度设定为60cm。


Standard: Gross weight $\leq 9\text{kg}$ Fall height is 75cm; Gross 9kg $<$ weight $\leq 23\text{kg}$ Fall height is 60cm.

(2) 试验方法: A、每面跌落1次, 共6次; B、任选三条同一角的棱, 各跌落一次, 共3次。

Test method: A、Fall one time per face, six times in total; B、Chose eight arris and fall one time each, three times in total.

(3) 判定基准: 经过跌落试验后, 产品外观、性能无不良。

Judgement: After the fall test, the appearance and the performance are both passed.

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12. 使用注意事项说明/Matters to be paid attention to when using motor

12-1 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 place the motors carefully in transportation to avoid any damage to the motor body or its electric function because of collision.

12-2 电机不能在高温、高湿、带有腐蚀性气体的环境中贮存和使用，否则有可能导致电机的性能下降。

Please don't leave and use the motors in the environment of high temperature, high humidity and corrosion gas, or it would cause the function to fall down.

12-3 不能长时间用外力锁死振动轮，以免烧坏线圈，电机不能工作。

Please don't lock up the vibrating wheel, or the coil would be burned up and the motors can't operate.

12-4 避免接触或靠近强磁性物体，否则有可能导致电机性能下降。

Please prevent from magnetic objects, or it may cause the function fall down.

12-5 请在6个月内使用，在使用时和打开包装时，请避免水气凝结。

Please use the motors within six months and prevent them from coagulation of moisture when open the package and use them.

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