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产品规格书  
PRODUCT SPECIFICATION

客 户 信 息	客户名称/ Buyer Name	
	客户料号/Buyer's Part No.	
	客户承认签章 /Buyer's Approval & Signatures	

金 龙 公 司	文件编号/Spec No.	KOTL-S13069	
	品名描述	扁平振动马达	
	Product Description	Coin type vibration motor	
	型号/Part No.	C1030Q002F	
	送样日期/Date		
	设计/Designed by	审核/Checked by	批准/Approved by
	王范/ WANG FAN	刘琪敏/ LIU QI MIN	黄剑辉/ HUANG JH
	2013.09.29	2013.09.29	2013.09.29

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**1. 重要提示 /Importance 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 this 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 the motor can satisfy the requirement of your application.
- 3) 如果贵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，和/或性能，和/或生产效率。  
Within the limitation to satisfy this specification, KOTL has the convenience to change the materials, sizes and shapes of components of the motor for the purpose of improving quality, and/or performance, and/or production efficiency.
- 5) 符合金龙机电股份有限公司最新版《禁用有害物质标准》。  
Conform to the Standard of Prohibition in Using Hazardous Substances in new version by Jinlong Machinery & Electronics Co., Ltd
- 6) 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 KOTL before you issued purchase order for the confirmation on acknowledgement. KOTL 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 Revised record**

<u>修改号</u> Rev. No.	<u>日期</u> Rev. Date	<u>页码</u> Page No.	<u>修改项目</u> Revised Item	<u>更改原因</u> Reason
0	2013.9.29	/	产品颁布/ Release for Production	

### 3. 马达爆炸图： / Coin type motor break up drawing



### 4. 马达原材料明细表： Coin type motor BOM

	名称/Name	材料/Material
1	上机壳/Up case	SPCC-SD
2	磁钢/Magnet	ND-FE-B/N42H
3	粘片/Slide	PET FILM
4	线圈/Coil	VT TYPE
5	振子/Vibration	W-ALLOY
6	含油轴承/Bering	FCS-50
7	塑料/PBT	PBT
8	PCB/Had PCB	EPOXY(FP-4)
9	磁钢/Magnet	ND-FE-B/N42H
10	电刷/brash	MX215
11	FPC	POL YIMIDE
12	轴/Shaft	SUS420J/DSR7B
13	下机壳/Low Case	SPCC-SD
14	FPC	POL YIMIDE
15	弹簧/ Spring	SWP-B
16	泡棉/ Sponge	SRS-40P

## 5.适用范围/General Scope of Application

本说明书适用于扁平式永磁直流电机 C1030Q 系列。

This specification applies to coin type permanent-magnetic motors DC model C1030Q.

## 6.使用条件/Operating Conditions

项目/Item		规格/Specifications
6-1	额定电压 Rated voltage	2.0V DC
6-2	使用电压范围 Operating voltage	1.7 ~2.3V DC
6-3	旋转方向 Rotation	CW (clockwise) or CCW (counter clockwise)
6-4	使用环境 Operating environment	-30~70℃,常湿/Ordinary Humidity:65±20%RH
6-5	保存环境 Storage environment	-40~80℃,常湿/Ordinary Humidity:65±20%RH

## 7.测定条件/Conditions of Measurement

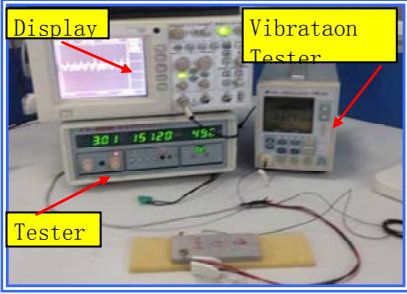
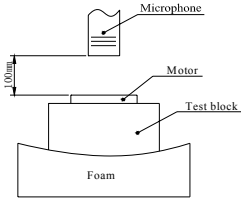
项目/Item		规格/Specification
7-1	温度 Temperature	25±3℃
7-2	湿度 Humidity	65±10% RH
7-3	电源电压 Power supply	稳压直流电源 2.0V。 Constant Power supply 2.0V DC.

## 8.电气性能/Electrical Characteristics

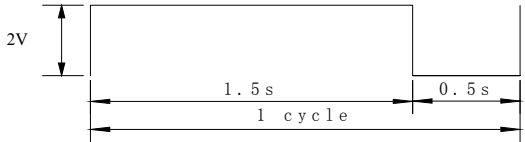
项目/Item		规格/Specification	条件/Condition
8-1	额定转速 Rated speed	12000±3000rpm	额定电压下。 At rated voltage.
8-2	额定电流 Rated current	70mA Max	
8-3	起动电流 Starting current	150mA Max	在最小起动电压下起动。 Motor is rotating at minimum starting voltage.
8-4	起动电压 Starting voltage	1.1V DC Max	
8-5	绝缘电阻 Insulation resistance	10MΩ Min	在 100V 直流下, 导线和机壳间 /At DC 100V between lead wire and case.
8-6	端子阻抗 Terminal resistance	17Ω ±15%(单相 single posture)	在 25℃下。 At 25℃
8-7	响应时间/ The response time	170Ms Max	额定电压 2.0V 下转速的 90%所需的时间/ Reach 90% of the rated speed measurement under 2.0 V rated voltage

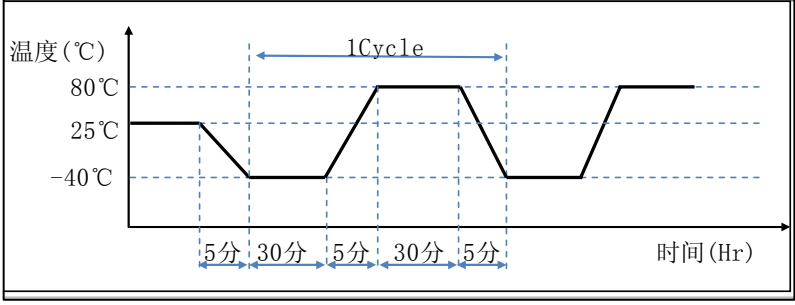


**9.机械性能/Mechanical Characteristics**

项目/Item	规格/Specification
9-1 底盖偏转强度 Bracket Deflection strength	9.8N 以上 9.8N or more.
9-2 测量模具/using dummy set(100g) 设备/equipment:PV-90B 感测器/sensor:VM-83 输入电压: 2.0V input voltage : 2.0V 振动量/Vibrations: 0.5G (AVG.)	
9-3 机械噪音 Mechanical noise	小于 50 分贝. A 计权 50dB (A) Max.
	在额定电压下。At rated voltage. 背景噪音: 不大于 28dB. A 计权. Back ground noise 28dB (A) Max.
	

**10.耐久性能/ Reliability Tests**

项目/Item	规格/Specification	判定标准/Judgment
10-1 寿命 Lifetime	额定电压/ Rated voltage: 2.0V DC 试验模式/ Test mode: 1.5s On, 0.5s Off, as one cycle. 循环次数/ Test cycle:200,000 cycles 	试验后, 马达应符合项 11-1 的要求。After the test, motors shall be approved as specified in item11-1.
10-2 低温放置 Low temperature exposure	温度/Temperature: $-40^{\circ}\text{C}$ 时间/Time: 96h	常温常湿下放置 2h 后, 马达应符合项 11-2 的要求。After 2 hours exposure in ordinary temperature and humidity, motors shall be approved as specified in item11-2.
10-3 高温放置 High temperature Exposure	温度/Temperature: $+85^{\circ}\text{C}$ 时间/Time: 96h	常温常湿下放置 2h 后, 马达应符合项 11-2 的要求。After 2 hours exposure in ordinary temperature and humidity, motors shall be approved as specified in item 11-2.

项目/Item		规格/Specification	判定标准/Judgment
10-4	湿度放置 High Humidity exposure	温度/Temperature: +80℃ 湿度/Humidity: 80%RH 放置时间/ Exposure time: 96h 无水气凝结/ No condensation of moisture	常温常湿下放置 2h 后, 马达应符合项 11-2 的要求。After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 11-2.
10-5	振动 Vibration	全振幅/Displacement: 1.5mm (p-p) 频率/Frequency: 10~55Hz 加速度/Acceleration: 22m/s <sup>2</sup> 周期/Period: 10 分钟范围内 (10~55~10Hz)/ 10 Minutes log sweep (10~55~10Hz) 条件/Condition: 在样机中, 在 3 个垂直的轴方向每个方向做 10 分钟的测试。Samples shall be applied for a period of 10 minutes in three axial directions.	测试结果应符合项 11-2 的要求。After the test motors shall be approved as specified in item 11-2.
10-6	自然跌落 Free fall	试验状态/Test mode: 将马达固定在约 150 克 (包括马达本身) 的物体上, 落向水泥地面。Set the motor to a fixture of approx. 100g (include the motor) and drop it onto the concrete floor. 高度/Height: 1.5m 方向/Direction: 6 面 4 棱角 次数/Number of times: 每个方向 3 次/ Each 3 times	测试结果应符合项 11-2 的要求。After the test motors shall be approved as specified in item 11-2.
10-7	Tumble Test / 翻滚测试	安装在 150g dummy jig 里, 1m 高度上跌落在铁板上. 以 8rpm 数度实行。	测试结果应符合项 11-2 的要求。After the test motors shall be approved as specified in item 11-2.
10-8	热冲击 Thermal shock	测试模式/ Test mode: 30 hour at -40℃, 30 hour at +85℃, as one cycle. Transfer time between extreme temperatures: <5 分/5min 循环次数/Test cycle: 24 cycles Transfer < 5min 	常温常湿下放置 2h 后, 马达应符合项 11-2 的要求。After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 11-2.



**11.判定基准/ Judgments after Reliability Tests**

项目/Item		判定基准 / Requirements
11-1	表 A Table A	1)额定转速/Rated speed: 不低于初始值-30%; 不高于初始值+30% No lower than -30% of initial data; No more than +50% of initial data. 2)额定电流/Rated current: 不低于初始值-30%; 不高于初始值+30% No lower than -30% of initial data; No more than +50% of initial data. 3)端阻/Terminal resistance: 不大于初始值±15% No more than +15% of initial data; No less than -15% of initial data. 4)起动电压/Starting voltage: 不大于 1.5V 直流电压 1.5V DC Max 5)绝缘电阻/Insulation resistance: 大于 10MΩ/ 10MΩ Min
11-2	表 B Table B	1)额定转速/Rated speed: 不大于初始值±20% No more than +20% of initial data; No less than -20% of initial data. 2)额定电流/Rated current: 不大于初始值±20% No more than +20% of initial data; No less than -20% of initial data. 3)起动电压/Starting voltage: 不大于 1.5V 直流电压 1.5V DC Max 4)端阻/Terminal resistance: 不大于初始值±15% No more than +15% of initial data; No less than -15% of initial data.

**12.使用时注意事项/ Cautions for Use**

12-1 必须按照规格书标准使用，否则性能和寿命都将受到相当地减少，必须注意电压的使用范围。

Unless it is used in accordance with the specifications, the performance and life may be considerably reduced. Due attention should be paid to voltage and range for use.

12-2 建议马达在六个月内使用，不要在以下环境中使用及保存：

1. 高温和高湿的场所；
2. 腐蚀性气体,如：H<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub>、Cl<sub>2</sub>；
3. 生锈场所。

Advice uses this motor within 6 months as avoiding as possible.

Avoid use or save the motor in the following environment.

1. High temperature and high humidity area
2. Corrosive gas such as H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, Cl<sub>2</sub>.
3. Dusty area.

12-3 注意处理马达的工作环境，避免含铁质等物体被马达吸住，否则马达将会产生噪声，性能会降低，从而减少产品可靠性。

Due attention must be paid to the handling and working environments because such objects as iron powder if attracted by the motor magnet, will cause noise, characteristic deterioration thus reducing the reliability.

12-4 应确信本产品不会与相关标准、法律、政令相背。

Please confirm enough no problems of standards and laws and ordinances on your cellular phone.

12-5 拿马达时，要轻拿轻放。

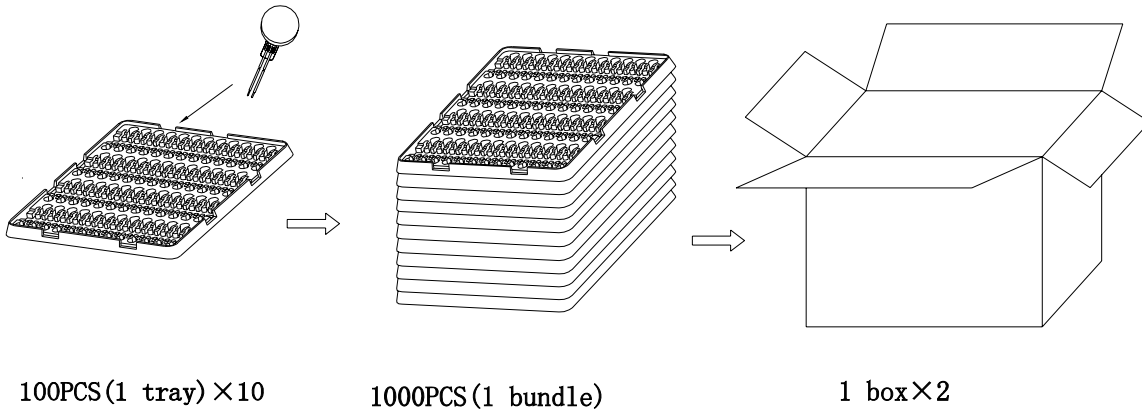
To handle the motor, hold the motor case softly.

12-6 钢板面或边缘有少许锈斑是允许的。

Rust of plate (steel) and similar edge should be OK.

## 13.包装/PACKING

### 扁平系列马达包装 Pack drawing of coin type



100PCS (1 tray) × 10

1000PCS (1 bundle)

1 box × 2

**Remarks:**

4000PCS/CTN: 45cm × 28cm × 20cm

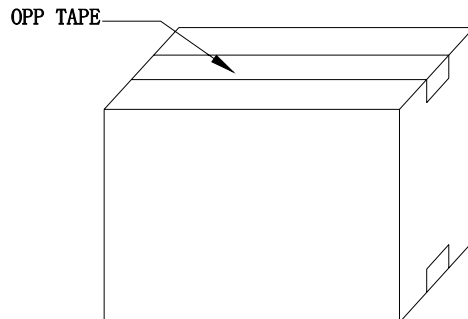
6000PCS/CTN: 45cm × 28cm × 30cm

**包装试验要求:**

沿外包装箱±x, ±y和±z方向, 距水泥地面1.5m高度, 各自由跌落2次, 马达应无机械损伤, 电气性能仍符合标准要求。

**Drop Test with carton:**

Drop the carton in the axial directions of ±x, ±y, ±z onto the concrete floor from 1.5m height, drop twice each direction. After drop test, no mechanical damage to motors, and the electrical performances remain unchanged.



金龙机电股份有限公司  
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14. 外形图/ OUTLINE DRAWINGS

