



# 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:

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客户编码Encoding:

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物料描述Description:

步进电机

\_\_\_\_\_

规格型号Part No:

20BYJ46-025085100-1002

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客 户 确 认/ Customer Approved

料 号/ Part No.

签 章/ Signatures

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

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存货编码/Stock

30902000002

拟制/Drawn

李正洪

审核/Check

熊欢

批准/Approved

章启策

存货编码/Stock	30902000002
拟制/Drawn	李正洪
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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:

20BYJ46-025085100-1002

The specification is applicable to Inlon's part:

20BYJ46-025085100-1002

## 2. 使用条件/Operating condition

№	项目/Item	规格/Specification
2-1	额定电压 Rated voltage	DC 5V
2-2	相数 Phase	4 相
2-3	激磁方法 Excitation method	1-2相激磁 1-2 Phase Excitation
2-4	驱动方式 Excitation mode	双向转动 Double Rotation Direction
2-5	减速比 Reduction ratio	1 / 85
2-6	步距角 (输出轴) Step angle	0.088235294°
2-7	使用环境 Operating environment	-20~60°C, 0~95% (RH) 无水气凝结 No coagulation of moisture
2-8	保存环境 Storage environment	-40~85°C, 0~95% (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°C, 相对湿度45~75% (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°C, 45~75% (RH). To ensure the coherence, it must be tested according to the below chart.

№	项目/Item	规格/Specification
3-1	温度 Temperature	20±2°C
3-2	湿度 Humidity	65%±5% RH

## 4. 机械外观要求/Mechanical appearance requirements

№	项目/Item	规格/Specification	测定条件/备注 Measuring conditions/Remark
4-1	外观 Appearance	不应有明显的机械损伤、锈蚀和输出轴松动等现象 No evidence of mechanical damage, rust corrosion, loosening of the grip 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 conditions/Remark
4-3	电机质量 Mass	25±10%g	精密天平scale
4-4	绝缘等级 Insulation class	Class F for Coil	155℃ Max.
4-5	扭力传送 Torque transfer	SHAFT/轴	
4-6	顿转转矩 Detent torque	600gf-cm Min	不通电状态下的自定位转矩 Self setting torque without power supply
4-7	输出轴强度 Output shaft strength	2Kgf 10 sec	径向强度/Radial strength
		2Kgf 10 sec	抗拉强度/tensile strength
		2Kgf 10 sec	抗压强度/compressive strength
4-8	引出线拉拔强度 Lead wire strength	1Kgf 历时10 秒(初回, 静负荷)	Between motor and lead wire
		1Kgf 历时10 秒(初回, 静负荷)	Between lead wire and terminal
4-9	齿轮运行强度 Gear running strength	30个循环后无障碍, 卡死等不良 Give 30 cycle	1个循环包括输出轴以180° /秒的速度正反向旋转
4-10	输出轴间隙 Output shaft clearance	3.5度 Max	
4-11	电机绕组温升 Temperature rise of motor winding	50K Max	At 100PPS, 5V DC /马达通5V直流电压 (电阻法测量电机温升)

5. 性能特征/Performance and characteristics

No	项目/Item	规格/Specification	测定条件/备注 Measuring conditions/Remark
5-1	阻抗 Resistance	25Ω ±10%	At 25℃ Each phase/每相
5-2	噪音 Noise	40 dB Max	At 25℃ Each phase/每相
5-3	最大自启动周波数 Max. starting pulse rate	500 PPS Min	5V Steady voltage 1-2pahse driving to load/ 无负载
5-4	最大应答周波数 Max. slewing pulse rate	900 PPS Min	5V Steady voltage 1-2pahse driving to load/ 无负载 (Continuius driving, by 10 ppsincrement/连续每次10 PPS 加速)
5-5	输出转矩 Pull put torque	600gf-cm Min	At 400PPS, 5V DC /马达通5V直流电压 (OT测试输出转矩方法)
5-6	绝缘耐压 Dielectric Strength	1mA Max	在端子和外壳加上600V交流电压1s 600V AC, 1sec between case and coil
5-7	绝缘阻抗 Insulation impedance	50MΩ Min	在端子和外壳加上500V直流电压 500V DC, between case and coil



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## 6. 可靠性/Reliability

No	项目/Item	测试条件/Specification	判定标准/Judgment
6-1	低温存放试验 Low temperature	电机放置在-20℃环境中保存48小时，然后在常温恢复3小时以上。 The motor was stored at - 20 °C for 48 hours, and then recovered at room temperature for more than 3 hours.	试验后电机性能特征符合规格书要求 After the test, the performance characteristics of the motor meet the specification requirements
6-2	高温存放试验 High temperature storage test	电机放置在80℃环境中保存48小时，然后在常温恢复3小时以上。 The motor was stored at 80 °C for 48 hours, and then recovered at room temperature for more than 3 hours.	试验后电机性能特征符合规格书要求 After the test, the performance characteristics of the motor meet the specification requirements
6-3	高温高湿存放试验 High temperature and humidity storage test	电机放置在85℃，90-95%RH 环境中保存48小时，然后在常温恢复3小时以上。 The motor was stored in 85 °C, 90-95% RH for 48 hours, and then recovered to normal temperature for more than 3 hours.	试验后电机性能特征符合规格书要求 After the test, the performance characteristics of the motor meet the specification requirements
6-4	恒温恒湿试验 Constant temperature and humidity test	电机放置在40±2℃，90-95%RH 环境中48小时，然后常温中恢复1-2小时。 The motor was placed in 40 ± 2 °C, 90-95% RH environment for 48 hours, and then recovered in normal temperature for 1-2 hours.	试验后电机性能特征符合规格书要求 After the test, the performance characteristics of the motor meet the specification requirements
6-5	跌落试验 Drop test	电机在标准纸箱包装状态下从75CM 的高度自由跌落地板，以X, Y, Z三个方向各跌落一次。 The motor is free to fall from the height of 75cm to the bottom plate under the condition of standard carton packaging, once in X, y and Z directions.	试验后电机性能特征符合规格书要求 After the test, the performance characteristics of the motor meet the specification requirements



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No	项目/Item	测试条件/Specification	判定标准/Judgment
6-6	热冲击试验 Drop test	5个循环的热冲击试验, 1个循环包括: 在60℃温度下连续放置2 H, 然取出在常温放置30min, 再在-10℃的温度下放置2 H, 然后取出在常温下放置30min, Five cycles of thermal shock test, one cycle includes: continuously placed at 60 °C for 2 h, then removed and placed at room temperature for 30 min, then placed at - 10 °C for 2 h, and then removed and placed at room temperature for 30 min	试验后电机性能特征符合规格书要求 After the test, the performance characteristics of the motor meet the specification requirements
6-7	寿命试验 life test	在电压: 5V DC 频率: 100PPS 负载: 200g. cm, 1-2Phase/exciting励磁条件下运行10000小时 Under the excitation condition of voltage: 5V DC, frequency: 100pps, load: 200g. cm, 1-2phase / exciting, 10000 hours are operated	试验后电机性能特征符合规格书要求 After the test, the performance characteristics of the motor meet the specification requirements



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

7.1 本产品应符合RoHS指令要求。

This product shall comply with RoHS directive.

\* 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

\* 多溴联苯醚及其化合物最大允许含量为1000PPM

PBDE and Compound:1000PPM Max







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9. 包装要求/Packing requirements:

9-1: 每个包装盒里放50PCS电机, 包装盒尺寸为444\*300\*35

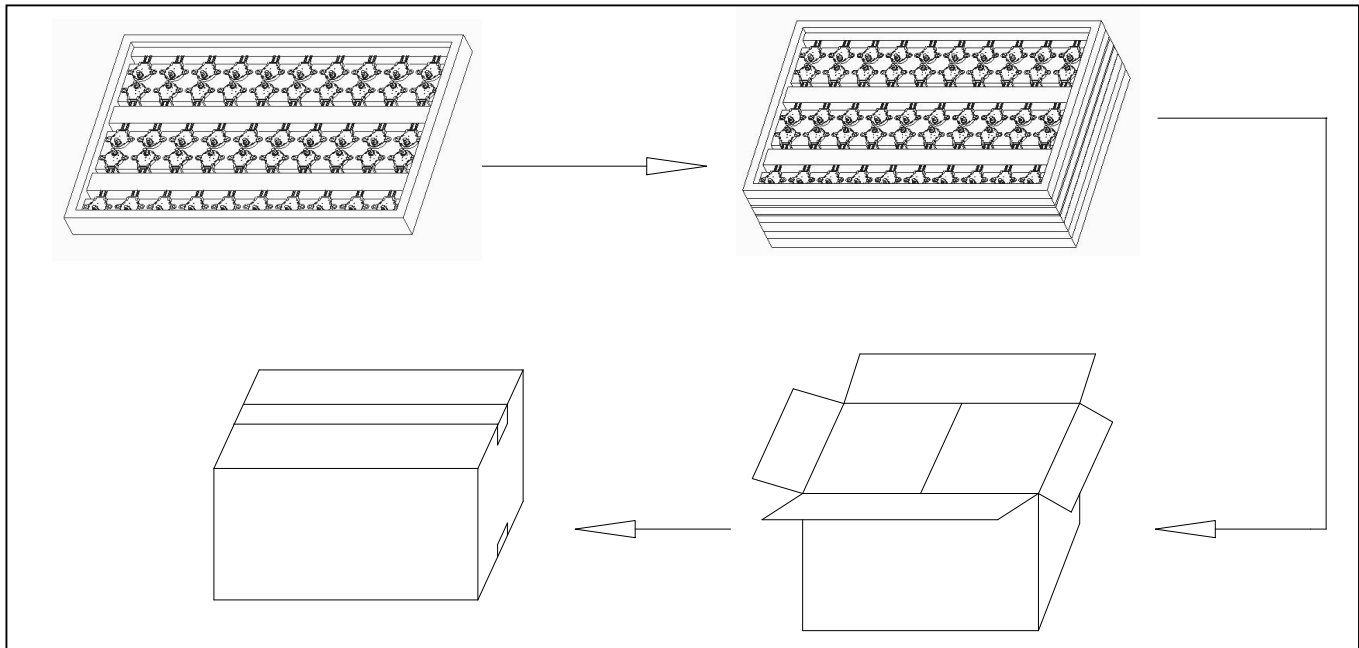
50pcs/pallet, pallet size 444\*274\*35

9-2: 每5盒放入一个外箱里, 数量为: 250PCS, 外箱尺寸为455\*310\*140

2 inner-box/outer-box, Qty: 250pcs. box size: 455\*310\*140

9-3: 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.







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

11-1 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.

11-2 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.

11-3 不能长时间用外力锁死输出轴，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.

11-4 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.

11-5 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.