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產品規格說明書 SPECIFICATION FOR APPROVAL

客戶 *Buyer Name:*

專案 *Application:*

品名 *Part Name:* Micro Motor

型號 *Part No:* IND-YZ0615J-4530

客戶確認 *Buyer Approval*

料號 <i>Buyer Part No.</i>	
簽章 <i>Signatures & Company Stamp</i>	

擬制 <i>Designed by</i>	曹利 Cao Li
審核 <i>Checked by</i>	王柳 Wang Liu
批准 <i>Approved by</i>	金哲 Jin Zhe

規格說明Specification

編號Spec No.:	I007-200630
版本Version:	A.1
日期Date:	2020-07-30

Index, Content, and History of Revision

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History of Revision

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1. General Scope

The specification applies to micro DC motor, part no.: IND-YZ0615J-4530

2. Operating Conditions

No.	專案/Item	規格/Specification
2-1	額定電壓Rated Voltage	1.3 V DC
2-2	使用電壓範圍Operating Voltage	0.9-1.6 V DC
2-3	旋轉方向Direction of Rotation	CW or CCW
2-4	馬達位置Position of Motor	All positions
2-6	工作溫度Working Temperature	-30 ~ 70°C, 65±20%RH. No moisture condensation.
2-7	保存溫度Storage Temperature	-40 ~ 80°C, 65±20%RH. No moisture condensation.

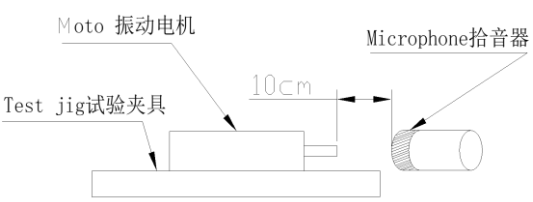
3. Measuring Conditions

The measurement at 20°C & 65%RH is standard. If the judgment is not questionable, recognize measurement at 5°C to 35°C & relative humidity 45% to 85%. Direction of motor is shaft horizontal.

4. Mechanical Specifications

No.	專案/Item	規格/Specification
4-1	外觀Appearance	By visual examination, no obvious evidence of machanical damage and rust.
4-2	軸向間隙Axial End Play	0.01-0.3mm
4-3	尺寸Dimensions	Refer to 10. Mechanical Drawing

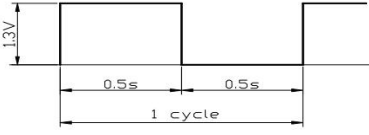
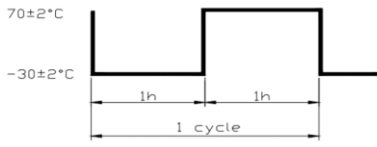
5. Electrical Performance

No.	專案/Item	規格/Specification	條件及備註/ Condictions & Remarks
5-1	額定轉速 Rated Speed	7,500±2000 rpm	At rated voltage and rated load.
5-2	額定電流 Rated current	80 mA Max	At rated voltage and rated load.
5-3	啟動電壓Starting Voltage	0.75 V DC Max	At rated load(Counterweight) any position of rotor
5-4	堵轉電流Stall current	145 mA Max	At rated voltage.
5-5	端子阻抗Terminal Resistance	11 Ω±20%	At 20°C
5-6	絕緣電阻Insulation Resistance	1 MΩ Min	At DC 100V between lead wire and case
5-7	負載數據Test data with load	Refer to 10. Mechanical Drawing	
5-8	機械噪音Mechanical noise	50dB (A) max.	See below sketch of noise test:
	在額定電壓、額定負載（振子）下 背景噪音：不大於 28dB.A 計權 測試儀器：B&k 夾具重量：700g At rated voltage and rated load (Counterweight). Back ground noise 28dB(A) Max Measuring instruments: B&k Weight of jig:700g		

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6. Reliability

No.	專案/Item	測試條件/Specification	判定標準/Judgment
6-1	壽命 Lifetime Test	Voltage: 1.3 V DC Test Mode: 0.5s On, 0.5s Off, as 1 cycle. Total cycles: 200,000. 	After 2 hours exposure in ordinary temperature and humidity, the motors shall meet: 1) Rated speed: Initial data -30% Min, Initial data +60% Max 2) Rated current: Initial data ±30% max 3) Starting voltage: 1.1 V DC max.
6-2	低溫貯存放置 Low Temperature Storage Test	Temperature: $-40 \pm 2^{\circ}\text{C}$ Time: 96hrs	After 2 hours exposure in ordinary temperature and humidity, the motors shall meet: 1) Rated speed: Initial data ±30% Max. 2) Rated current: Initial data ±30% Max. 3) Starting voltage: 1.1 V DC max.
6-3	高溫貯存放置 High Temperature Storage Test	Temperature: $60 \pm 2^{\circ}\text{C}$ Time: 96hrs	
6-4	濕度放置 Exposure to High Humidity	Temperature: $40 \pm 2^{\circ}\text{C}$ Humidity: 90~95%RH Time of Exposure: 96hrs No condensation of moisture	
6-5	熱衝擊 Heat Shock Test	 Test Mode: As shown above. Test Cycles: 20	After 2 hours exposure in ordinary temperature and humidity, the motors shall meet: 1) Rated speed: Initial data ±30% Max. 2) Rated current: Initial data ±30% Max. 3) Starting voltage: 1.1 V DC max.
6-6	自然跌落 Free Drop Test	Set the motor to the approximately 75g (include the motor) weight of block drop the motor on the concrete floor. Height: 1.5m Direction: $\pm x, \pm y, \pm z$ Number of times: Each 2 times	After the tests, the motors shall meet: 1) Rated speed: Initial data ±30% Max. 2) Rated current: Initial data ±30% Max. 3) Starting voltage: 1.1 V DC max.
6-7	振動 Vibration	Displacement: 1.5mm (p-p) Frequency: 10 to 55Hz Period: 20 Minutes log sweep (10~55~10Hz) Direction: x、y、z Time: Each 2 hours	After the tests, the motors shall meet: 1) Rated speed: Initial data ±30% Max. 2) Rated current: Initial data ±30% Max. 3) Starting voltage: 1.1 V DC max.

7. Environmental

The product is RoHS compliant.

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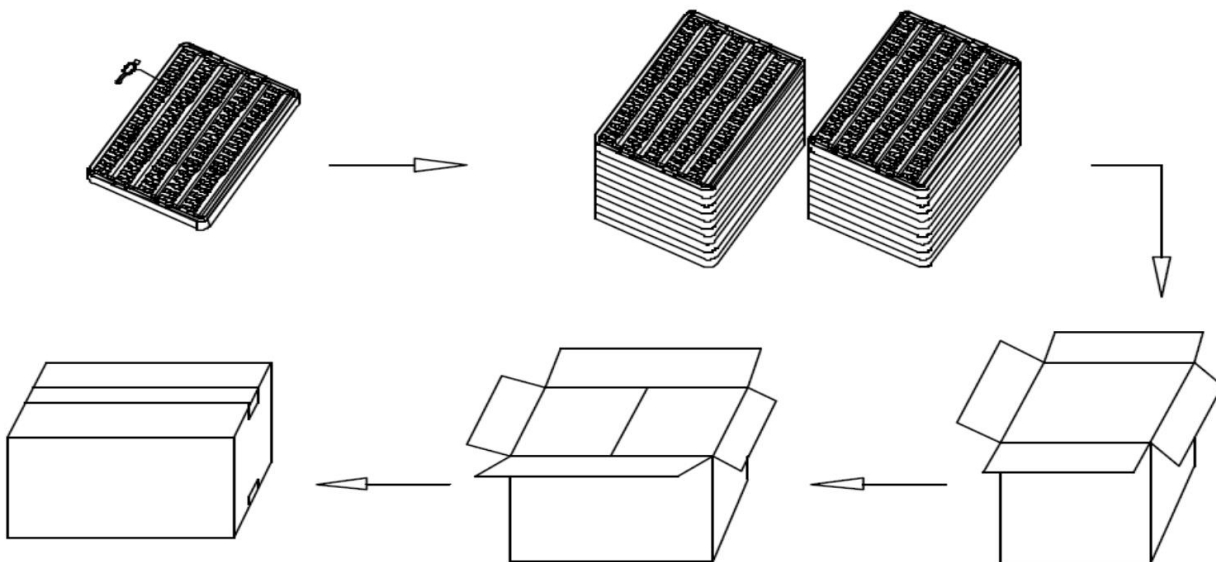
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8. Caution in Use

8-1	Please lay the motors carefully in transportation to avoid any serious damage to the motor body or its electric function because of collision.
8-2	Please use the motor according to the instruction of this product specification, or else, it will be bad for motor's life.
8-3	Make arrangement to limit the storage period to 6 months or less. Please do not store motor in high temperature. Low temperature. high humidity environment. Condensation of atmosphere must be avoided in motor usage or opening the packaging of the motor.
8-4	For proper operation. storage and operating environment must not contain corrosive gases. For example H ₂ S. SO ₂ . NO ₂ . CL ₂ . etc. In addition storage environment must not have materials that emit corrosive gases especially from silicon. cyanic. formalin and phenol group. In the mechanism or the set. existence of corrosive gases may cause no rotation in motor.
8-5	Please don't stall the shaft for a long time after powering, and not to touch the weight when motor is rotating.
8-6	There should be no sundries (such as grain, fibre, hair, small tape, glue etc.) in the shaft end play.

9. Packaging

- 9-1 100 pcs/tray, size of tray: 230mm*158mm*15mm.
- 9-2 20 trays/stack, Qty/ stack: 2000pcs.
- 9-3 2 stacks/inner box, Qty/inner box: 4000pcs.
- 9-4 2 inner boxes/carton, size of carton: 360mm*260mm*170mm..
- 9-5 Seal the carton, indicate the quantity and lot number on it.



9-6 Packaging Drop Tests

Standard height of drop: 75cm for gross weight within 9kgs; 60cm for gross weight between 9kgs and 23kgs.

Drop one time from each plate, totally 6 times. Drop one time from each corner, totally 3 times.

No damage to the motors after the packaging drop tests.

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10. Drawing

