

愛立德电子（香港）有限公司

INEED ELECTRONICS (HONGKONG) LIMITED

Company No.: 1653395 - Registered Office: Room 02,21/F, Hip Kwa Commercial Building, 38 Pitt Street, Yau Ma Tei, Kowloon, Hong Kong
China Office:Room 4-1904, Yuan Meng Ya Ju, Zongbu 3rd Road, Songshanhu North Hi-Tech Park, Dongguan, Guangdong 523808, China
Tel: (+86) 769 2289 1073 Fax: (+86) 769 2289 1076 URL: <http://www.ineed.hk>

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-YZ0408H-002

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>	魏友平 Wei Youping
審核 <i>Checked by</i>	王飛 Wang Fei
批准 <i>Approved by</i>	陳峰 Chen Feng

規格說明Specification

編號Spec No.:	IND-YZ0408H-002
版本Version:	A.1
日期Date:	2019-10-31

Index, Content, and History of Revision

No.	Contents	Page
0	Index, Content, and History of Revision	1
1	General Scope	2
2	Operating Conditions	2
3	Measuring Conditions	2
4	Mechanical Specifications	2
5	Electrical Performance	2
6	Reliability	3
7	Environmental	3
8	Caution in Use	3
9	Packaging	4
10	Mechanical Drawing	5

History of Revision

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1. General Scope

The specification applies to micro DC motor, part no.: IND-YZ0408H-002

2. Operating Conditions

No.	專案/Item	規格/Specification
2-1	額定電壓Rated Voltage	3.0 V DC
2-2	使用電壓範圍Operating Voltage	2.2-3.6 V DC
2-3	旋轉方向Direction of Rotation	CW/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	0.1-0.3mm
4-3	尺寸Dimensions	Refer to 10. Mechanical Drawing

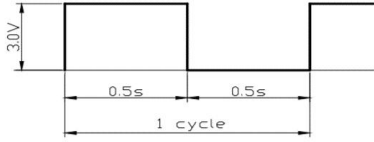
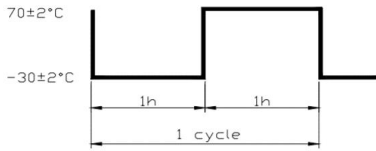
5. Electrical Performance

No.	專案/Item	規格/Specification	條件及備註/ Condictions & Remarks
5-1	額定轉速 Rated Speed	13,000±2,500 rpm	Tested at Item 2-1 rated voltage.
5-2	額定電流 Rated current	30 mA Max	Tested at Item 2-1 rated voltage.
5-3	啟動電壓Starting Voltage	2.4 V DC Max	At rated load(Counterweight) any position of rotor
5-4	堵轉電流Stall current	40 mA Max	Tested at Item 2-1 rated voltage.
5-5	端子阻抗Terminal Resistance	93 Ω±20%	Tested between the two lead wires.
5-6	絕緣電阻Insulation Resistance	1 MΩ Min	Tested at DC 100V between the wires and housing.
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		

規格說明Specification

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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: 3.0V DC Test Mode: 0.5s On, 0.5s Off, as 1 cycle. Total cycles: 200 000. 	After tests, the motors shall meet: 1) Rated speed: Initial data -30% Min, Initial data +60% Max 2) Rated current: Initial data $\pm 30\%$ max 3) Starting voltage: 2.8 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 the tests, after two hours placed at room temperature, the motors shall meet: 1) Rated speed: varies within $\pm 30\%$ of initial data. 2) Rated current: varies within $\pm 30\%$ of initial data. 3) Starting voltage: 2.8 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: 90~95RH Time of Exposure: 96hrs	
6-6	熱衝擊 Heat Shock Test	 Test Mode: As shown above. Test Cycles: 20	After the tests, after two hours placed at room temperature, the motors shall meet: 1) Rated speed: varies within $\pm 30\%$ of initial data. 2) Rated current: varies within $\pm 30\%$ of initial data. 3) Starting voltage: 2.8V DC max.
6-7	自然跌落 Free Drop Test	The motor is fixed with a jig of 100 grams (include the motor). Free drops onto the concrete floor from a height of 1.5 meters, in direction of $\pm x$, $\pm y$, $\pm z$. Two times each direction.	After the tests, the motors shall meet: 1) Rated speed: varies within $\pm 30\%$ of initial data. 2) Rated current: varies within $\pm 30\%$ of initial data. 3) Starting voltage: 2.8V DC max.

7. Environmental

The product shall be RoHS compliant.

8. Caution in Use

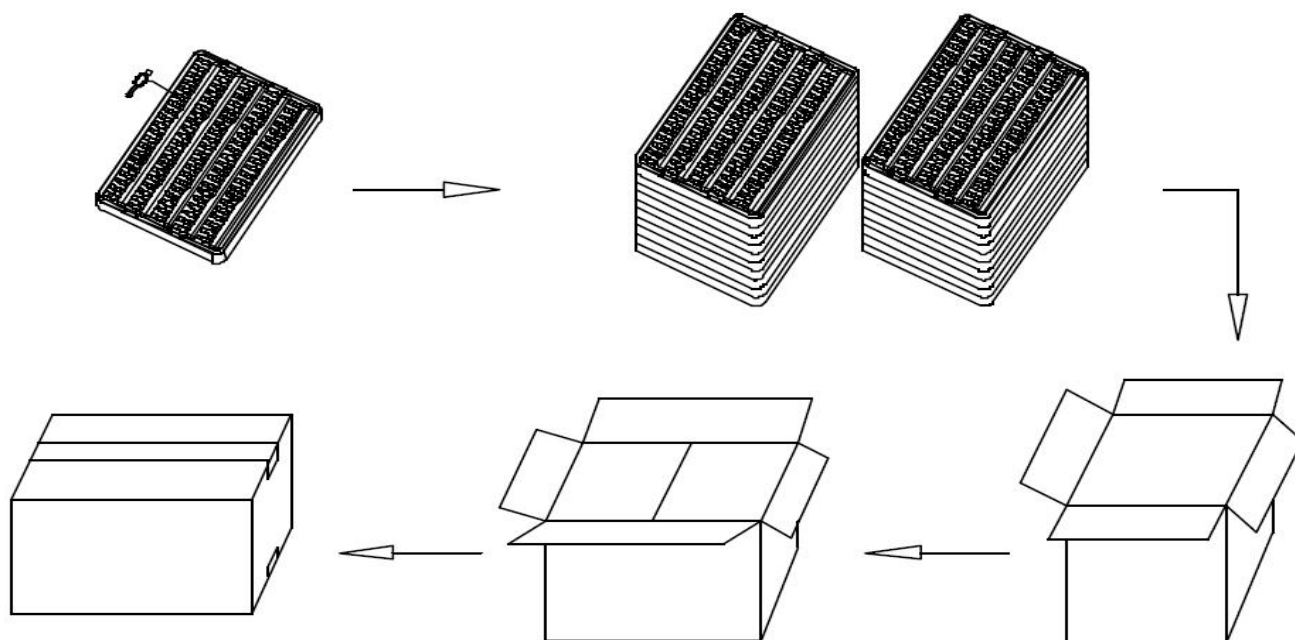
8-1	Place the motors carefully in transportation to avoid any damage to the motor body; otherwise, its functions would be damaged due to collision.
8-2	Do not leave and use the motors in the environment of high temperature, high humidity and corrosion gas; otherwise, it would cause damage to the functions.
8-3	Do not lock the shaft and bearing; otherwise, the coils would be very hot and burn up and the motor will stop working.
8-4	It is not permitted to place the motor with magnetic objects; otherwise, it may cause the functions fall down.
8-5	Use the motors within six months after you buy it. Do not place it at moisture place. Ventilation is required in your store.

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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.

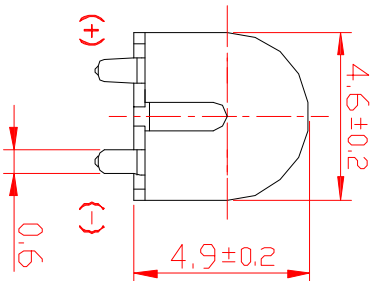
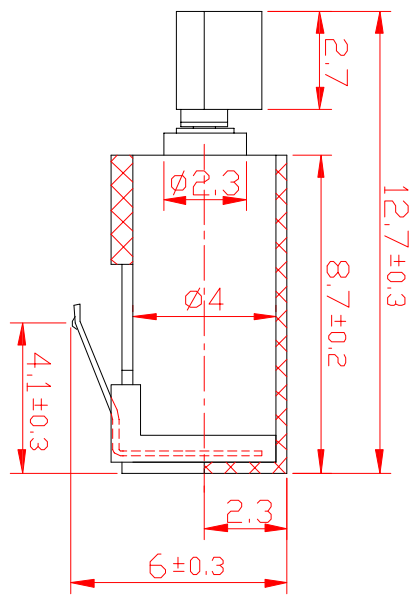
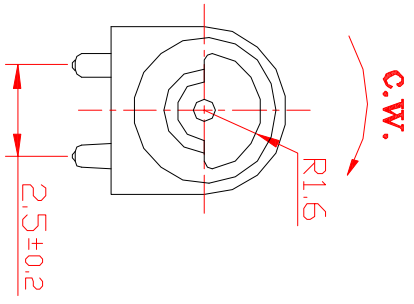
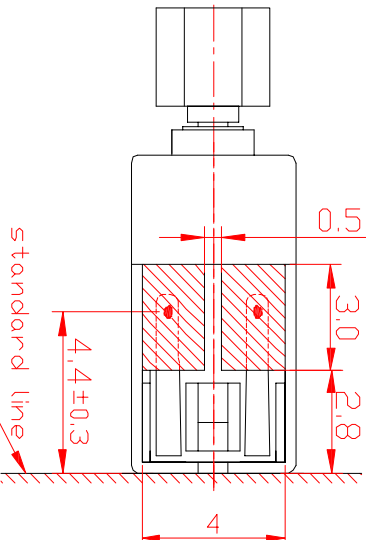
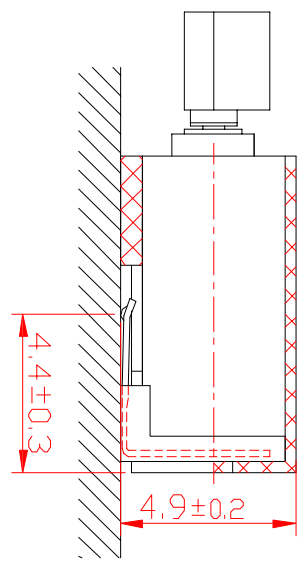


9-6 Packaging Drop Tests

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.



- 技术要求TECHNICAL REQUIREMENTS:
1. 额定电压(Rated Voltage): 3.0V DC
 2. 额定电流(Rated Current): 30mA Max
 3. 额定转速(Rated Speed): 13000±2500rpm
 4. 堵转电流(Stall Current): 40mA Max
 5. 端子阻抗(Terminal Resistance): $93\Omega \pm 20\%$
 6. 启动电压(Starting Voltage): 2.4V/Max
 7. 轴向间隙(Shaft end play): 0.05~0.2mm
 8. 未注线性公差为(Unmarked tolerance): $\pm 0.1\text{mm}$

HARDNESS		ANGLE	TOLERANCE	MATERIAL		SCALE	DATE
DESIGNED BY	W.Y.P	CHECKED BY	W.F	APPROVED BY	C.F	TITLE	Cylinder Type Vibration Motor
INEED ELECTRONICS (HK) LIMITED				PART NO	IND-YZ0408H-002		