

广东兆力电机集团股份有限公司  
GUANGDONG ZHAOLI MOTOR GROUP CO., LTD.

产品规格书  
Specification For Approval

客户名称(CUSTOMER): E1472

产品名称(Product name): 无刷直流电机(BLDC Motor)

客户料号(Prat Number): /

产品型号(MODEL): DBT48H4B34

产品料号(Prat Number): DBT48H4B34

版本(Revision): A

日期(DATE): 2025-06-03

客户确认(Customer confirmation)

承认 (APPROVED)	审核 (CHECK)	检验 (TEST)

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核准 (APPROVED)	审核 (CHECK)	制作 (DRAWN)
周长胜	周长胜	韦凉

## 1. 适用范围 APPLICATION

本规格书是关于此直流电机的规定。

This document specifies BLDC Motor.

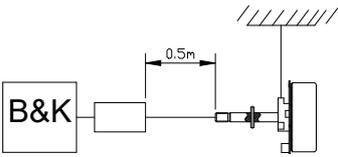
## 2. 结构形式 CONSTRUCTION-FORM

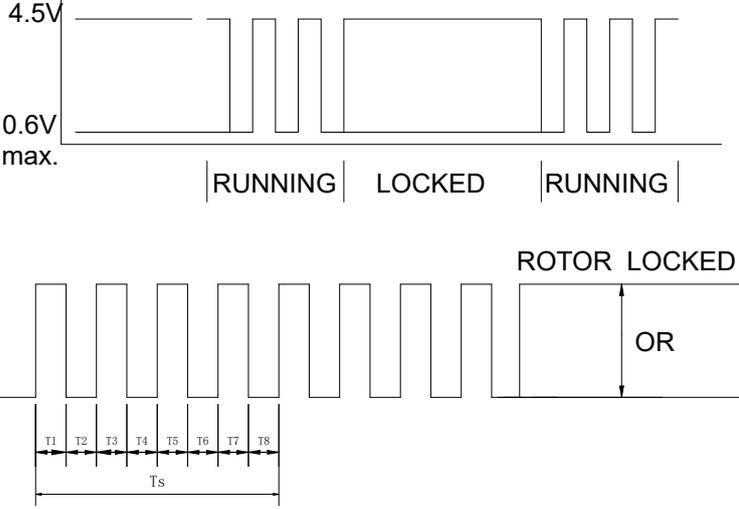
序号 No.	项目 ITEM	规格 SPECIFICATION
1	马达结构 Motor construction	外转子 Outer rotor
2	相数 Number of phases	三相 Three phases
3	定子槽数 Number of stator slots	12 Twelve
4	磁极数 Number of magnet poles	10 Ten
5	换向方式 Rectifying method	电子 Electronics
6	轴承系统 Bearing system	双滚珠轴承 Double ball bearings

## 3. 标准运行条件 STANDARD OPERATING CONDITION

序号 No.	项目 ITEM	规格 SPECIFICATION
1	额定电压 Rated voltage	DC24V
2	操作电压范围 Operating voltage	DC21.6~26.4V
3	转向 Direction of rotation	顺时针方向（从轴伸端看） CW（View from output shaft）
4	工作方式 Working rated	连续 S1 Continuous
5	使用环境 Operating codition	0°C~40°C, 5%~95%
6	保存环境 Storage codition	-20°C~60°C, 5%~95%

## 4. 电气特性 ELECTRICAL CHARACTERISTIC

序号 No.	项目 ITEM	规格 SPECIFICATION	测试条件 TEST CONDITION
1	额定电压 Rated voltage	DC24V	电源电压 Supply voltage
2	控制方式 Control method	频率调速 Frequency control	
3	位置感应方式 Position detection method	无霍尔元件方式 No Hall element	
4	额定负载转速 Rated speed	880±8%rpm	红外测试仪 Infrared velocimeter
5	额定负载电流 Rated current	1.2±20%A	电参数测试仪 Electrical parameter tester
6	绝缘等级 Insulation of motor coil	B级 Class B	由绝缘材料决定 Determined by insulation material
7	绝缘电阻 Insulation resistance	10MΩ Min. (500V DC)	绝缘电阻测试仪 Insulation resistance tester
8	耐压 Dielectric strength	600VAC/1S 泄漏电流5mA及以下 leakage current:5mA and less	耐压测试仪 Withstand voltage tester
9	温升测试 Temperture rise	测试线圈工作温升不超过75K,IC工作温升不超过65K Temperature rise of coil is <75K ; Temperature rise of IC is< 65K	
10	寿命 Life expectance	连续15000小时以上, 测试环温25°C 15000 Hours and more at 25°C	额定电压、额定负荷、额定转速下进行试验 Test under rated voltage, rated load and rated speed
11	声音测试 Mechanical noise	45dBA 及以下 45dBA or less 	额定工作电压, 空载转速调到额定负载转速,背景噪音小于25dBA,测试距离0.5M Measured at 50CM from motor rated voltage rated speed ,no load under controlled condition, undergrounded noise level is than 25dBA

序号 No.	项目 ITEM	规格 SPECIFICATION	测试条件 TEST CONDITION
12	频率信号 Frequency signal	频率范围: 60~462.5Hz range:60~462.5Hz 低电平: 0~0.5V 高电平: 4.5~5.5V L Level: 0~0.5V H Level: 4.5~5.5V 最大输入/输出电流: 1mA Max input/output current: 1mA  Frequency signal  $N=F*4$	
13	+5V 供电 +5V Power Supply	供电电压: +4.75~5.25V Supply Voltage:+4.75~5.25V	
14	FG 信号 FG signal	低电平: 0~0.5V 高电平: 4.5~5.5V L Level: 0~0.5V H Level: 4.5~5.5V 最大输入/输出电流: 1mA Max input/output current: 1mA FG 信号图示:  $T1=T2=T3=T4=T5=T6=T7=T8= \frac{1}{8}T_s$ $N=R.P.M \quad F=4/T_s$ $N=60 * F/4$	
15	刹车 BRAKE	低电平: 0~0.5V 高电平: 4.5~5.5V L Level: 0~0.5V H Level: 4.5~5.5V 最大输入/输出电流: 1mA Max input/output current: 5mA FG 信号图示:	

## 5. 机械特性 MECHANICAL CHARACTERISTIC

序号 No.	项目 ITEM	规格 SPECIFICATION	测试条件 TEST CONDITION
1	外观 Appearance	电机外表无伤、污损 Motor appearance nodamag' no stan	目视 Visual check
2	外形尺寸 Dimensions	按图纸标注 As per attached drawing	卡尺 千分尺 Calipers micrometer
3	质量 Mass	360克 360g	秤称 Mass mater

## 6. 保护机能 Protect function

## 6.1 堵转保护 Locked-rotor protection

当电机转子和出力轴锁住时，电机锁住保护功能开始工作，电机输出关闭，电机输出电流归零，电机停止工作。

When the motor rotor and shaft are locked, this protection functions starts to work. Motor stops working (no output current).

## 6.2 电路保护 Circuit protection

本电机不具备过电压和反接情况下的保护电路，请在使用时，注意不要施加超过额定电压的浪涌电压或者反接。

It is not allowed to apply surge voltage which is over rated voltage or reverse connect as this motor does not have over-voltage and reverse-connection protection.

## 6.3 过流保护功能 Current limit function

当电机运转时的峰值电流超过11 A时，电机会被保护，停止运转。

When the current in the motor circuit exceeds 11A, the motor will be protected and stopped.

## 6.4 缺相保护 Open-phase protection

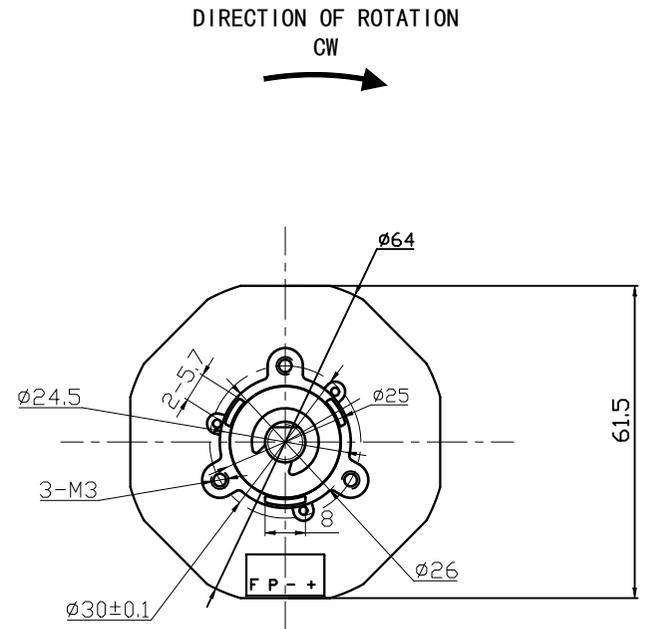
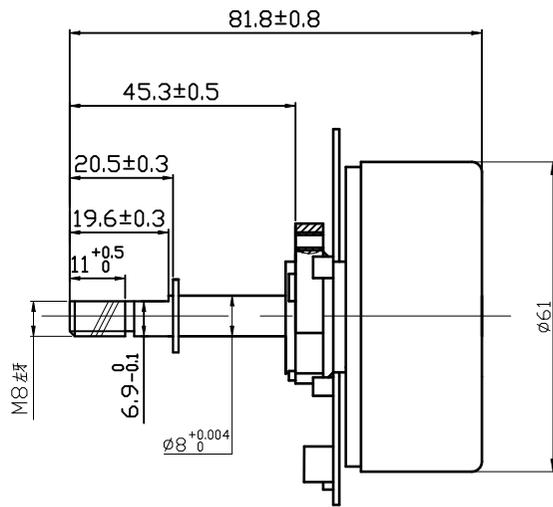
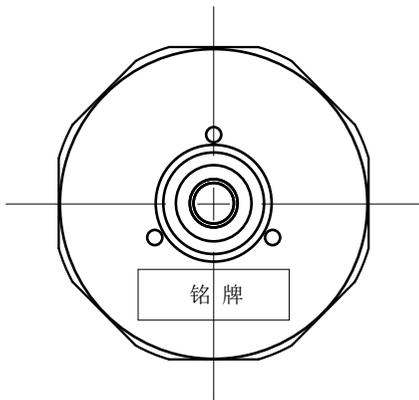
电机三相中有一相或两相不通电时，电机停转。

When one or two of the three phases of the motor are not energized, the motor stops running.

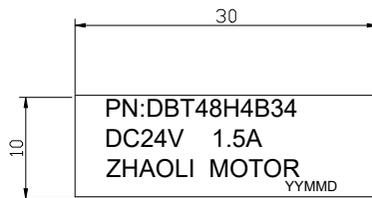
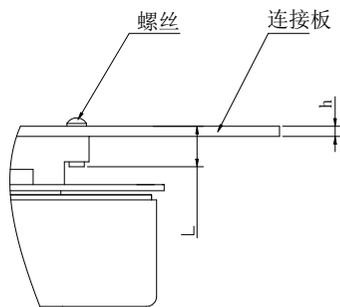
## 7. 信耐性试验 Reliability test

序号 No.	项目 ITEM	规格 SPECIFICATION
1	温湿度试验 TEMPERATURE AND HUMIDITY TEST(without condensation)	电机放置于温度在-20° C到60° C,湿度在5%到95%测试箱内72小时,然后,放置在室温环境12小时后进行测试,电机额定转速与电流要符合要求。 Motor must be left at the temperature range of -20°C to 60°C and the relative humidity range of 5% to 90% for 72 H. and then returns to room temperature 12 h. before measurement.rated load speed and rated load current must be conformed to 4.4 4.5 and 4.6
2	单体振动实验 Vibration test (non packing)	单体电机非通电状态下进行前后,左右,上下6个方向进行加速9.8M/S <sup>2</sup> 振动频率50Hz~0~50Hz,每次时间1分钟,测试30个周期后电机不受损坏。 No error should occur after test. Direction of vibration: front and rear, right and left, up and down. Vibration acceleration:9.8m/s <sup>2</sup> (sine eave) Vibration,frequency rang:50Hz~0~50Hz Repeating period: 1Min/1 cycle.Vivrating time: 30cycle(30min)
3	包装振动测试 Vibration test (packing)	最小包装电机进行前后,左右,上下6个方向进行加速9.8M/S <sup>2</sup> 振动频率50Hz~0~50Hz,每次时间1分钟,测试30个周期后电机不受损坏。 No error should occur after test at the mimimum package test condition.Direction of vibration:front and rear,right and left up and down. Vibration acceleration:9.8m/s <sup>2</sup> (sine eave) . Vibration,frequency rang:50Hz~0~50Hz repeating period: 1Min. Vivrating time:30cycle(30min) each direction.
4	冲击测试 Shock test (Packaging)	最小包装从50cm高度跌落,每个面跌落一次,电机不损坏。 No error should occur after test.At the minimum package. Drop height 50CM.Impact shock is applied for each surface.

8. 电机外形图 Outline drawing of motor  
见附图 As Attached drawings



Note:  
1. 锁电机螺丝长度(REF) :L<=h+5;



Label

Connector: XHB2.54-4P

NO.	PIN序
1	FG
2	PWM
3	GND
4	24V

- 轴承型号 前-608ZZ, 后-688ZZ;
- PCBA表面涂三防漆防护;
- 电机转向: CW (从轴伸端看);
- 额定电压: 24VDC;  
负载转速: 880±8% rpm ;  
负载电流: 1.2±20%A.

No.	Filename	Quantity	Drawing number	Material	Remarks
					Drawing number: <b>Three-phases DC brushless motor</b>
				Outline drawing	Edition: A    Unit: mm
				ZHAOLI code: <b>DBT48H4B34</b>	page 1 of 1    Scale: free
				Customer code:	Cast shadow:
				Designed by: 韦凉	GUANGDONG ZHAOLI MOTOR GROUP CO., LTD.
				Checked by: 周长胜	
				Approved by: 周长胜	
				Date: 2025.06.03	