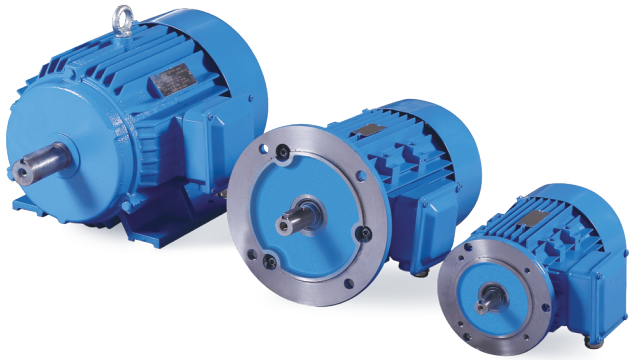
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中文

BONENG

马达
使用手册

Motor
Use Manual

EN

10/2025

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概述

说明

本说明书为我公司马达的随机文件。其中介绍了马达起动、储运、安装的要求和注意事项，以及使用、维护马达的要求、方法和注意事项，使用维护人员必须认真阅读此说明书。认真审阅马达上的铭牌、标牌、警示牌等。使用单位应对操作人员进行专业培训后，方能上岗作业。

⚠注意:

为保证设备安全和正确的安装、操作和维护，请务必遵守本说明书的相关条款。负责安装操作或维护设备的人员应注意相关说明，忽视说明将会使质保失效。

产品适用范围

本说明书适用于博能各标准系列及其所派生的各种系列马达（防爆系列马达除外）。

机座中心高：56-280。（对一些特殊应用场合或有特殊设计考虑的型号马达还需参阅其它特别的指导说明）。

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1. 起动

1.1 收货检验

◆收货后，立即检验马达有无外部损伤，检验所有的铭牌数据，尤其是电压的连接方式(Y或△)。

◆用手旋转转轴，检测马达空转情况，如果马达装有锁定装置，注意将其打开。

◆带制动器马达，应通电看其制动器能否动作，带手柄制动器，应扳动手柄，检查手动释放性能。

1.2 绝缘性能检测

◆马达初次使用之前，绕组有可能受潮，都要测量其绝缘阻值；对双绕组多速马达要分别测量两套绕组的绝缘电阻。

⚠ 注意:测量后绕组要立即放电，避免电击。

◆绕组被海水浸泡后一般要重绕。

1.3 直接起动、Y/△起动及变频起动

◆标准单速马达的接线盒一般有6个接线螺栓和至少1个接地螺栓。

◆马达通电之前，必须按规定要求可靠接地，不能接零代替接地。

◆电压连接方式在铭牌上有标注。

◎直接起动

绕组可以采用Y或△接法，例如660VY，380V△分别表示660V为Y接法，380V为△接法。

◎Y/△起动

→电源电压必须等于△接法马达的额定电压。

→拆下接线板上所有的接线片，按Y/△起动装置接线，妥善连接到马达六个接线柱上，并能从起动初期的Y连接跳到启动完成的△接。

→双速马达和其他特种马达的电源接法必须依照接线盒内的接线图说明。

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◎变频起动

→按照变频器的使用说明书，对变频器正确地实施接线并进行通电前的检查。检查无误后，先不接马达，对变频器的各项参数逐一设定、调整。在确认变频器运转无问题后，再联接马达。

→给出“接通”指令后，若马达不转，请先检查一下变频器，设置参数是否正确，若马达还不转，请再检查马达的接线和负载情况。

→对IC416冷却方式的变频马达，强冷风机启动正常运行后，再启动马达，并注意观察马达、传动装置、生产机械及变频器面板的显示数据，若有异常现象应立即停机，查明故障并排除之后，方可重新启动。

1.4 接线柱和旋转方向

◆从马达的驱动端观察转轴，其旋转方向为顺时针。

◆换接电源线中的任意两相就可以改变马达的旋转方向。

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2. 使用说明

2.1 运行环境

◆马达用于工业生产。

◆正常的环境温度在-15℃到+40℃之间，海拔不高于1000m。

2.2 安全要素

◆马达应由熟悉相关安全要求的专业人员安装和接线。

◆安装时必须有安全装置以防止事故发生，安装的位置也必须符合规定。

2.3 遵守规则

◆马达不能用于加速和超载运行。

◆一些有特殊设计考虑的马达需要特别的指导说明。

3. 管理

3.1 储存

◆所有马达都应保存在室内，要求干燥，防震，防尘的环境。

◆无保护层的马达表面(轴伸端部和法兰)应该采取防锈措施。

◆建议定期检查马达，用手转动转轴，防止润滑脂流失或其它问题。

◆如果装有抗凝露加热器，最好使用。

3.2 运输

马达在运输时需要安装锁紧装置。

4. 电气联接

4.1 概述:

◆马达顶部的接线盒允许旋转，可按要求选择出线方向。

◆没有电缆进入的进线口必须封闭。

◆除了主绕组和接地端的接线，接线盒内还可包括热敏电阻，加热带，热敏开关或PT100电阻元件及制动器的接线部件。

◆对于装有电磁制动器的马达用户自供电源时应保证马达电源与制动器电源同步切换。

◆冷却方式为IC416的变频马达需安装轴流风机。轴流风机配有专用的接线盒。风机马达应与相应的电源电压相接，注意风机马达须用工频电源，其接线应接在变频器的输入端。风机叶轮的正确旋转方向必须与风机机壳上的旋转方向箭头相一致。

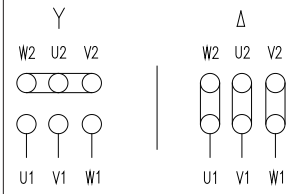
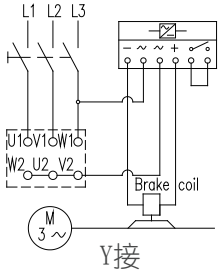
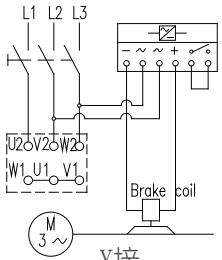
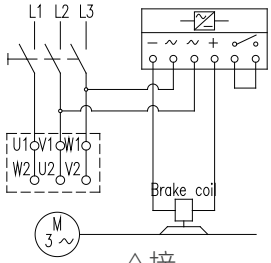
⚠ 注意:

1、防护等级比较高的马达（如户外使用），接线盒电缆与接头部分需用户做好防护，由于此处导致的马达接线盒进水,责任由客户自行承担。

2、马达停转时,在接线盒内仍可能带电,不要立即触摸接线柱。

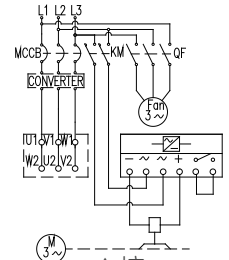
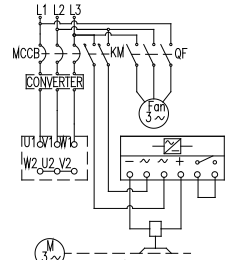
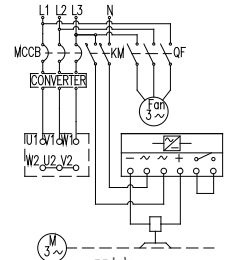
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4.2 接线指示图(标配):

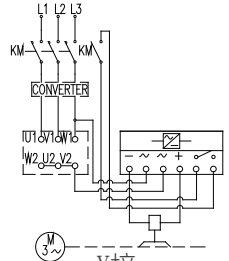
型号	接线指示图	适用范围
MU MP YZ		适用于所有 电压范围。
MU+Brake MP+Brake YZ+Brake	 Y接	制动器外接交流 电压220~240V.
	 Y接	制动器外接交流 电压380~420V.
MU+Brake MP+Brake YZ+Brake	 △接	制动器外接交流电 压220~240V或 380~420V.

⚠ 注:a、以上所列风机均为三相风机，且风机电压频率跟马达一致。

b、上表所列制动器接线均为较慢速制动控制方式，较快速制动，见下图例。

型号	接线指示图	适用范围
MU+Brake +Fan MP+Brake +Fan YZ+Brake +Fan	 △接	制动器外接交流电 压220~240V或 380~420V.
	 Y接	制动器外接交流 电压380~420V.
MU+Brake +Fan MP+Brake +Fan YZ+Brake +Fan	 Y接	制动器外接交流 电压220~240V.

图例(快速制动):

型号	接线指示图	适用范围
MU+Brake MP+Brake YZ+Brake	 Y接	制动器外接交流 电压220~240V.

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5. 维护

5.1 概论

◆定期检修马达。

◆保持马达清洁，空气流通。

◆检查轴伸的密封圈，如有必要应及时更换。

◆检查安装连接状况和安装螺钉。

◆通过监听异常噪声，温度检测等来检查轴承运行情况。

◆如有异常发生，应立即停机，检查原因并及时排除。

5.2 轴承润滑

马达标配装有封闭式轴承，免维护。

5.3 制动器的维护

◆制动器气隙的调整

○制动器的摩擦面经过长期使用后，将受到磨损，引起电磁铁与衔铁间的气隙增大和弹簧工作长度的增加，从而降低了弹簧压力，减少了制动力矩，同时由于气隙的增大，使衔铁吸合时电流值上升，严重时将使衔铁不能吸合，因此需经常检查气隙，进行调整或更换摩擦片。

○ 气隙调整步骤如下：(参考图1)

→取下风罩(7)。

→取下防尘罩(5)。

→调节气隙。

→调整在下表所列范围内。

机座中心高	71	80	90	100	112	132	160	180	200	225	250	280
正常工作气隙(mm)	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.6
最大工作气隙(mm)	0.5	0.5	0.5	0.75	0.75	0.75	1	1	1	1.2	1.2	1.2

◆更换摩擦片

○ 摩擦片属易损件，当摩擦片磨损超过下表数值时，就需要更换新的摩擦片：

机座中心高	71	80	90	100	112	132	160	180	200	225	250	280
最大磨损量(mm)	1.5	1.5	1.5	2.5	2.5	3.5	3.0	4.0	4.5	4.5	5.0	5.0

○ 更换摩擦片步骤如下：

→取下风罩(7)。

→取下风扇(6)。

→旋下螺栓(9)。

→取下连接轴(8)。

→取下防尘罩(5)。

→将制动器线圈拆下。

→取下制动盘，便可更换摩擦片。

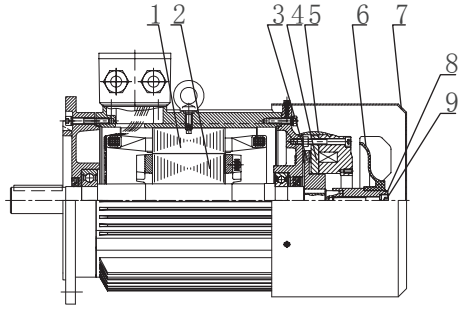


图1　电磁制动马达

5.4 变频马达的维护特点

◆正常运行中的维护

用变频器对马达进行调速运转，由于变频器输出波形中含有的高次谐波的影响，马达噪音及振动比电网供电时的略大是正常的。随着运转频率的变化，基波分量、高次谐波分量在广范围内变化，与马达各部分及机械负载的谐振现象也增加，在调速到与系统谐振频率相一致的点时，机械系统将有大的振动和噪音。产生这种现象时，可采用增强系统刚度的方法来避免谐振，也可利用变频器的频率跳变功能，使与谐振点相当的输出频率向上或向下跳变，避开谐振频率，实现平滑运转。

◆附件的使用和维护

○对于马达所带的光电编码器或测速机，请注意不应随意拆卸，并应避免碰撞。马达在搬动时，也不应以此处作为受力部位。安装与使用必须严格遵守编

○码器或测速机使用说明书的规定。

带有制动器的马达采用变频器驱动时，需要注意以下几点：

→马达所带的电磁制动器为失电制动型，通电后制动器即释放。制动器中磨擦盘内的间隙已在出厂前调整好，一般不宜随意变动。应严防油脂内物质和其它杂质进入磨擦盘，以确保制动器断电后制动器的可靠性。

→制动器电源不能接在变频器的输出侧，而一定要接在变频器的输入侧。

→由于制动作功量与转速的平方成正比，因此，高速时制动不应直接采用电磁制动器。而应利用变频器的再生制动功能，先将马达转速降低到工频转速以下，然后再进行电磁制动。

→如果变频器正在输出功率时制动器动作，将造成过电流切断。所以要在变频器主回路切断之后进行制动。

6 马达的常见故障和维护方法

故障现象	造成故障的可能原因	处理方法
(1)不能起动	a. 定子绕组有一相开路	检查定子绕组，查出断路处，加以修复
	b. 定子绕组匝间及相间短路	测量定子绕组每相电阻和各相空载电流是否平衡，查出所在处，加包绝缘
	c. 定子接线错误	按铭牌上规定的接法和接线图，查出定子绕组的接线，纠正错误联接
	d. 负载或传动机械有故障	把马达和负载分开，如马达能正常起动，应检查被拖动机械，消除障碍
	e. 变频器参数设置不当	检查变频器参数，进行调整（变频马达）
	f. 制动器未动作	检查制动器及其电器（制动马达）
(2)变频马达起动后转速低于额定转速	a. 变频器的输出频率与输出电压设定不当	按使用要求重新设定
	b. 负载过重	检查负载传动装置是否正常
(3)马达有异常噪声或振动过大	a. 机械摩擦（包括定转子相擦）	检查转动部分与静止部分间隙，找出相擦原因，进行校正
	b. 缺相运行	断电，再合闸，如不能起动，则可能有一相断电，检查电源或马达并加以修复
	c. 轴承缺油或损坏	清洗轴承，加新油。或更换新轴承
	d. 马达接线错误	查明原因，加以更正
	e. 修理后转子平衡被破坏	重新校动平衡
	f. 轴伸弯曲、变形	校直，必要时须更换转轴
	g. 联轴器俩连接松动	查清松动处，把螺栓拧紧
	h. 安装基础不平衡或有缺陷	检查基础固定情况，加以纠正

故障现象	造成故障的可能原因	处理方法
(4)马达温升过高	a. 过载	用电磁式电流表测量定子电流或检查变频器面板上的电流显示值(变频马达)，发现过载时，应减轻负载
	b. 缺相运行	检查马达定子接线或变频器接线（变频马达），并加以修复
	c. 马达接法错误	△接法马达误接成Y接工作或相反，必须立即断电改接
	d. 定子绕组接地或匝间或相间短路	检查找出短路和通地的部分，进行修复
	e. 定、转子相擦	检查轴承装配有无松动，定子和转子装配有无不良情况，加以修复
	f. 通风不畅	检查风机和风叶有否损坏，风道有否阻塞。风机或风叶损坏应予以修复或更换。风道阻塞应移开妨碍通风的物件，清除风道污垢、灰尘及杂物，使空气流通
	g. 变频器的V、f参数设置不当，使马达低速轻载时出现过激励，电流大于额定值	调整V/f的参数设置（变频马达）
	h. 利用变频器的直流制动功能对马达进行制动时，制动电流太大	调整直流制动电流的设置，根据制动频繁程度，一般设置在额定电流的100%-150%。(变频马达)
	i. 制动器动作迟缓	检查制动器气隙和直流励磁电压(制动马达)

故障现象	造成故障的可能原因	处理方法
(5)轴承过热	a. 轴承损坏	更换轴承
	b. 轴承润滑脂过多、过少或有杂质	调整或更换润滑脂
	c. 轴承与轴、轴承与端盖配合过松或过紧	修整到合适的配合
	d. 马达两侧端盖或轴承盖没有装配好（不平行）	将两侧端盖或轴承盖止口装平，旋转螺栓
	e. 轴伸端油封安装不良	调整到合适的安装状态
(6)马达外壳带电	a. 接地不良	检查接地螺栓，接地线同机壳接触是否紧密
	b. 绕组受潮，绝缘电阻过低	绕组干燥处理
	c. 绝缘损坏，定子线圈碰铁芯	予以修复
	d. 接线板有污垢	清理接线板
	e. 引出线绝缘磨破	破损处用绝缘材料包扎
(7)马达在负载时不能起动	a. 定子绕组有匝间短路	检查各相电阻和各相电流
	b. 过载	检查马达负载电流
(8)三相电流不平衡	a. 匝间短路	修理绕组
	b. 接线错误	改正接线
	c. 三相电源电压不平	改善供电质量
(9)保险丝融断	a. 两相间短路	修理绕组
	b. 负载过大	减小负载
	c. 电压过低	升高电压
(10)绝缘电阻低或击穿	a. 绝缘老化或损伤	检修绝缘
	b. 不清洁	用干燥的压缩空气吹净内部
	c. 绕组或接线板受潮	拆开烘干或处理后再用
	d. 马达过热	拆开检修防止继续过热
(11)制动马达制动失灵	a. 摩擦片磨损较大	调整气隙
	b. 弹簧失效	调换弹簧
	c. 动作迟缓	调整气隙,检查励磁电压
	d. 整流器损坏	调换整流器
	e. 制动线路故障	正确排除制动线路故障

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Overview

Instruction

This instruction book is a document provided with motor. It introduces starting, storage and installation requirements of motor and the notes, requirements, methods and notes for application and maintenance of motor. Maintainers should carefully read this instruction manual. Read nameplate, label, alarm signs on motor. Operators should pass relevant trainings before going to work.

⚠ Note:
To ensure safe and correct installation, operation and maintenance of device, please conform to relevant clauses in this instruction manual. Staffs responsible for installation or maintenance should pay attention to relevant instructions, the neglect of instruction will make quality assurance lose effect.

Applicable scope of products

This instruction book is appropriate for standard series and the derived series motors of Boneng (except anti-explosion motors).
Frame size central height: 56-280. (For the motors of special application sites or with special design, refer to other special instructions).

1.Starting

1.1 Reception inspection

- ◆After reception, check whether the motor has external damage, inspect all the nameplate data, especially the connection method of voltage and windings(Y or △).
- ◆Spin running shaft with hand, check empty running situation of motor. If the motor is installed with locking device, open it.
- ◆For brake motor, connect power source, check whether the brake can be released, for brake with handle, pull the handle, check manual release performance.

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1.2 Insulation performance inspection

- ◆Before first use of motor, windings may be affected with damp, measure the insulation resistance; for double winding various speed motor, measure insulation resistance of the two groups of windings.

⚠ Note:
After measurements, winding should discharge electricity immediately, avoiding electric shock.

- ◆Winding should be remade when immersed in seawater.

1.3 Direct start, Y/△ start and various frequency start

- ◆Wiring box of standard single speed motor usually has 6 wiring bolts and at least 1 grounding bolt.
- ◆Before the motor is connected with power, it should be reliably grounded according to regulations, zero connecting can’ t replace grounding.
- ◆Connection method of voltage and winding are marked on nameplate.

◎Direct start
Winding can apply Y or Δ connection method, for example, 660VY, 380VΔ express 660V ,Y connection method and 380V, Δconnection method.

◎Y/Δstart

→Power source voltage should be equal to rated voltage of Δwiring motor.
→Tear down all the wiring pieces on wiring plate, install wiring according to Y/Δstarting, connect it to six wiring columns of motor, it can trip from Y connection of initial period of starting toΔ connection with completed starting.
→The power source connection of double speed motor and other special motors should be done according to the wiring diagram in wiring box.

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◎ Various frequency start

→Make correct wiring to frequency changer according to instruction manual of frequency changer, make inspection before charging. After inspection, first not connect motor, set and adjust parameters of frequency changer. After confirming that there is no problem for frequency changer running, connect motor.

→After giving out “connection” order, if the motor doesn’ t rotate, please first check the frequency changer, whether output frequency has been set; If the motor doesn’ t run, please check wiring and loading situation of motor.

Before the motor (cooling method to IC416) starts, start fan and ensure it runs well , pay attention to motor, transmission device, production machinery and displayed data of frequency changer panel. If there is any abnormal situation, stop the machine immediately, check out the fault and remove the fault, then restart.

1.4 Wiring column and rotation direction

◆Observing rotation shaft from motor driving terminals, the rotation is in clockwise dirction.

◆Switching any two phases of power cable can change running direction of motors.

2.Instructions

2.1 Running environment

◆Motor is used for industrial production.

◆Normal ambient temperature is between -15°C and 40°C, the altitude is not higher than 1000m.

2.2 Safety factors

◆The motor should be installed and wired by specialists who are familiar with relevant safety requirements.

◆During installation, there should be safety device to prevent accidents, the position should conform to regulations.

2.3 Conform to rules

◆The motor can't be used for acceleration and overloading running.

◆Motors with special design considerations should be indicated.

3.Management

3.1 Storage

◆All the motors should be stored indoor, the environment should be dry, with no vibration and dust.

◆Motor surface (shaft extension end and flange) with no protective layer should take anti-rust measures.

◆It is suggested to check motor regularly, turn running shaft with hand, prevent lubrication grease loss or other problems.

◆If it is installed with anti-condensation heater, better apply.

3.2 Transportation

The motor needs to install the lock device in transportation.

4.Electrical connection

4.1 Overview:

◆The wiring box at the top of motor can be rotated, select outlet direction according to requirements.

◆You can also select wiring box installation method of side outlet wire.
The inlet port with no cable should be sealed.

◆Except the wiring of main winding and grounding end, the wiring box has thermistor, heating zone, thermoswitch or PT100 resistive element and wiring parts of brake in wiring box.

◆For motors with magnetic brake, when customers provide power source by themselves, ensure motor power by switched together with brake power source.

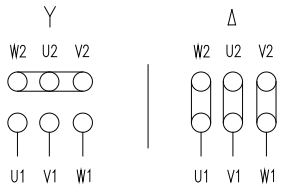
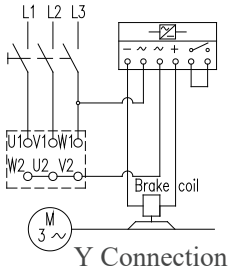
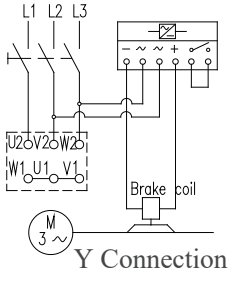
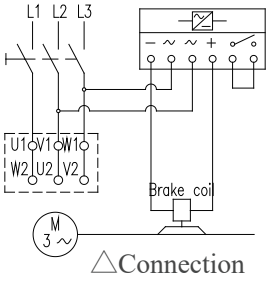
◆Frequency-changing motor with cooling method IC416 should be installed with axial flow fan. Axial flow fan is equipped with special wiring box. Fan motor should be connected with relevant power source voltage. Fan motor should apply non-reversible frequency power source, the wiring should be on input end of frequency changer. The correct running direction of fan blade should be the same with the running direction arrow on fan cover.

⚠Note:

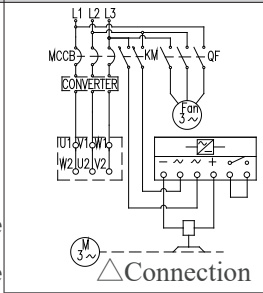
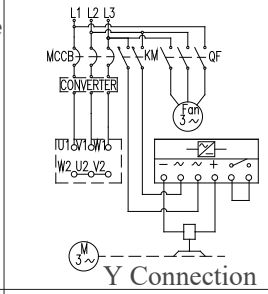
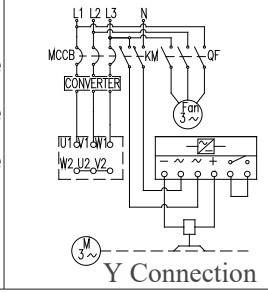
1. For motors (if used outdoor) with high protection level, wiring box cable and joint should make protections. if motor wiring box has water inside, the responsibility will be borne by customers.
2. When motor stops running, the wiring box may be with electricity, don’ t touch wiring column.

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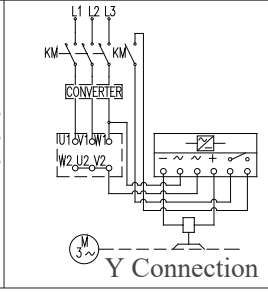
4.2 Wiring diagram (standard configuration)

Type	Wiring diagram	Applicable scope
MU MP YZ		Applicable to all voltage range.
MU+Brake MP+Brake YZ+Brake		Brake with external AC voltage 220~240V.
		Brake with external AC voltage 380~420V.
MU+Brake MP+Brake YZ+Brake		Brake with external AC voltage 220~240V or 380~420V.

⚠ Note:
a. The above listed fans are three-phase fan,fan voltage frequency is the same with motor.
b. The brake wiring applies slow speed wiring control method. More rapid braking, see illustration below.

Type	Wiring diagram	Applicable scope
MU+Brake +Fan MP+Brake +Fan YZ+Brake +Fan		Brake with external AC voltage 220~240V or 380~420V.
		Brake with external AC voltage 380~420V.
MU+Brake +Fan MP+Brake +Fan YZ+Brake +Fan		Brake with external AC voltage 220~240V.

Legend (Fast braking) :

Type	Wiring diagram	Applicable scope
MU+Brake MP+Brake YZ+Brake		Brake with external AC voltage 220~240V.

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5. Maintenance

5.1 Overview

- ◆Check motor regularly.
- ◆Keep motor clean, air flow.
- ◆Check sealing ring of shaft extension, change in time when necessary.
- ◆Check installation and connection situation, mounting bolts.
- ◆Check bearing running situation by listening to abnormal noise, temperature detection, etc.
- ◆If there is abnormal situations, stop the machine immediately, check out the reason, remove the problem in time.

5.2 Bearing lubrication

Standard motor is fitted with seal type bearing and free maintenance.

5.3 Maintenance of brake

- ◆Adjustment of brake air gap
- ○After long-term application of abrasion face of brake, it will be damaged, increasing air gap between electromagnetic iron and armature and the spring working length, thus reducing spring pressure and brake torque, at the same time, as the increasing of air gap, current rises when armature pulls in, when the situation is serious, armature will not be pulled in. So you should often check air gap, adjust it or change abrasion piece.
- ○Air gap adjustment procedure is as follows: (reference Fig. 1)

→Take wind cover down(7).
→Remove the dust cover(5).
→Adjust the air gap.
→Adjust the range listed in table below.

Central height of frame size	71	80	90	100	112	132	160	180	200	225	250	280
Normal working air gap	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.6
Maximum working air gap(mm)	0.5	0.5	0.5	0.75	0.75	0.75	1	1	1	1.2	1.2	1.2

- ◆Change friction disc
- ○Friction disc is easy to be damaged, when friction of the disc exceeds the following value, change a new one

Central height of frame size	71	80	90	100	112	132	160	180	200	225	250	280
Maximum friction quantity(mm)	1.5	1.5	1.5	2.5	2.5	3.5	3.0	4.0	4.5	4.5	5.0	5.0

The procedure of changing friction disc:
→Take down wind cover(7).
→Take down fan(6).
→Screw down bolt(9).
→Remove the connecting shaft(8).
→Remove the dust cover(5).
→Tear down lead wire of brake coil.
→Tear down brake disc, change friction disc.

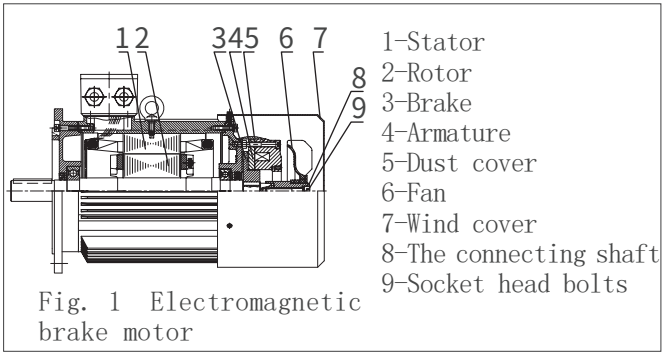


Fig. 1 Electromagnetic brake motor

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5.4 Maintenance characteristics of various frequency motor

◆Maintenance during normal running

Adjust the speed of motor with frequency changer. As there is higher harmonic influence in frequency -changer output wave, motor noise and vibration are larger than the situation during mains supply, there is normal. When the change of running frequency, fundamental component, higher harmonic component change in a large scope, the resonance with each part of motor and mechanical loading are increasing, when adjusting to the point the same with system resonance frequency, mechanical system will has large vibration and noise. When there is such kind of phenomenon, you can apply the method of increasing system rigidity to avoid resonance, or you can make the output frequency equal to resonance point jump upward or downward by frequency jumping function of frequency changer, avoid resonance frequency, realize smooth running.

◆Application and maintenance of accessories

○Photoelectric encoder or speed-measuring machine brought with motor should not be torn down, avoid collision. When the motor is moved, this part should not be used as stressed part. Installation and application should strictly conform to regulations of encoder or speed-measurement machine.

○When motor with brake applies frequency- changer driving, pay attention to the following points:

→Electro magnetic brake of motor is power-off type brake and released after power-on. the cearance of brake pads has been well adjusted befor delivery and no changes should be made arbitarily. Oil grease substance and other impurities should be prevented from entering into brake pads to ensure the reliability of brake in case of power-off.

→Brake power source should not be connected on output side of frequency changer, it should be connected in input side of frequency changer.

→As brake work is proportional to quadratic running speed, so high speed brake should not apply electromagnetic brake directly. Reduce motor speed under frequency speed with the regeneration brake function of frequency changer, then make electromagnetic brake.

→If brake moves when frequency changer is outputting power, the current will be cut off. Brake should be done after main return circuit of frequency changer is cut off.

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6 Common fault and maintenance method of motor

Fault	Possible reasons of fault	Treatment
(1)Can't start	One phase of stator windings is open-circuited	Check stator winding, check the shortcut part, repair
	Phase or interturn of stator windings is short-circuited	Measure whether stator winding resistance and no-load current of each phase are balanced, checkout the position, with insulation
	Stator wiring error	Check out stator winding wire according to the regulated connection method on nameplate and the wiring diagram, correct wrong connection
	Loading or transmission machinery have faults	Separate motor from loading, if the motor can start normally, check the machinery being pulled, remove faults.
	Frequency-changer parameter setting is not appropriate	Check frequency changer parameters, adjust (frequency changer motor)
	Brake doesn’ t work	Check brake and the machine (brake motor)
(2)After frequency changer motor starts, speed is lower than rated speed	Output frequency and output voltage setting of frequency changer are not appropriate	Reset according to application requirements
	Loading is too heavy	Check whether loading transmission device is normal

Fault	Possible reasons of fault	Treatment
(3) Motor has abnormal noise or the vibration is too large	Mechanical friction (including stator and rotor phase friction)	Check the distance between transmission part and the static part, check out phase friction reason, correct
	Phase-lack running	Cut off electricity, switch on, if it can’ t start, maybe one phase cuts electricity, check the power source or motor to repair
	Bearing lacks oil or is damaged	Clean bearing, add new oil, or change new bearing
	Motor wiring is wrong	Check out the reason correct
	Balancing of rotor after repair is damaged	Re-correct balancing
	Shaft extension bends, transforms	Correct, change running shaft when necessary
	Coupling connections loose	Check out the loosing part, screw down bolts
	Installation foundation is not balanced or has defects	Check foundation fixing situation, correct
(4) Motor temperature rise is too high	Overload	Measure stator current of electromagnetic current table or check the current display value on frequency changer panel (frequency - changer motor), if it is overloaded, reduce loading.

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Fault	Possible reasons of fault	Treatment
(4) Motor temperature rise is too high	Phase-lacking running	Check motor stator wiring or frequency changer wiring (frequency changer motor), and repair
	Motor wiring is wrong	Δ-connection wiring of motor is connected incorrectly in Y or vice versa, cut off power source to change connection
	Stator winding grounding or interturn or phase-to-phase short circuit	Check out short circuit and grounding part, repair
	Stator, rotor frictions	Check whether bearing assembly loose, whether stator and rotor assembly are bad, repair
	Ventilation is not good	Check whether fan and blade are damaged, whether wind path is blocked. If fan or blade is damaged, repair or change. If the wind path blocks, remove the articles that obstructs ventilation, clean wind path dirt, dust and impurities, make air flow smoothly

Fault	Possible reasons of fault	Treatment
(4) Motor temperature rise is too high	V,F parameter settings of frequency changer are not appropriate, there will be over excitation when motor is under low speed and light loading running, the current is larger than rated value	Adjust parameter setting of V/f (frequency changer motor)
	When braking the motor with DC brake function of frequency changer, brake current is too large	Adjust DC brake current setting, according to brake frequency, set it to be 100%- 150% of rated current.
	Brake action is slow	Check brake air gap and DC excitation voltage (brake motor)
(5) Bearing is overheat	The bearing is damaged	Change bearing
	Bearing has too much or too less lubrication grease, or with impurities	Adjust or change lubrication grease
	The mating of bearing with shaft, bearing or end cover is too loose or too tight	Repair to appropriate allocation

Fault	Possible reasons of fault	Treatment
(5) Bearing is overheat	Side end cover or bearing cover of motor are not assembled well (not paralleled)	Make side end cover or bearing cover seam horizontal, rotate bolts
	Shaft extension oil sealing is not installed well	Adjust to appropriate installation status
(6) Motor cover has electricity	Grounding is not good	Check grounding bolt, whether grounding wire has tight connection with machine cover
	Winding damps, insulation resistance is too low	Winding drying treatment
	Insulation is damaged, stator coil collides with iron core	Repair
	Wiring plate has dirt	Clean wiring plate
	Outlet insulation is damaged	Pack the damaged parts with insulation materials
(7)Motor can’t start with loading	Rotor winding has interturn shortcircuit	Check resistance and current of each phase
	Overload	Check motor loading current
(8)Three-phase current is not balanced	Interturn shortcircuit	Repair winding
	Wiring is wrong	Correct wiring
	Three-phase power source and voltage are not balanced	Improve electricity supply quality

Fault	Possible reasons of fault	Treatment
(9)Fuse cuts	The two phase has shortcircuit	Repair winding
	Loading is too large	Reduce loading
	Voltage is too low	Rise voltage
(10)Insulation resistance is too low or be broken down	Insulation aging or damaged	Repair insulation
	Not clean	Blow the inner part with dry compressed air
	Winding or wiring plate damps	Tear down to dry or reuse after treatment
	Motor is overheat	Tear down inspection, prevent continuous heating
(11)Brake motor brake loses effect	Friction disc is seriously abraded	Adjust air gap
	Spring loses effect	Change spring
	Action is slow	Adjust air gap, check excitation voltage
	Rectifier is damaged	Adjust rectifier
	Brake wire path has fault	Remove brake wire fault correctly

⚠ Note:
1.Customers want to obtain detailed data, please contact with us.
2.We have the right to modify the maintenance manual without notice.

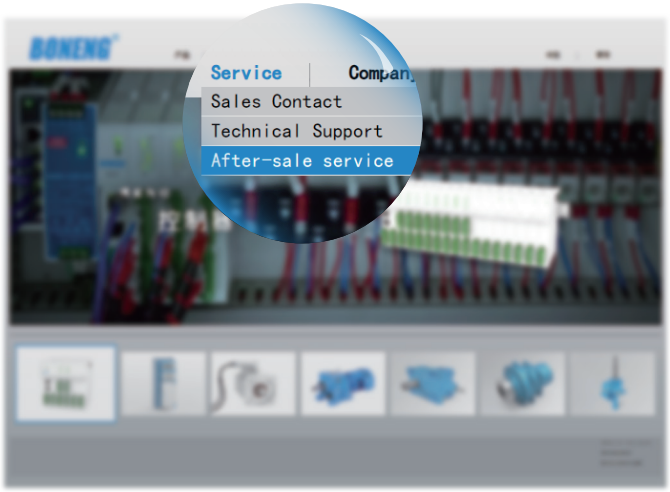
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After–sale service

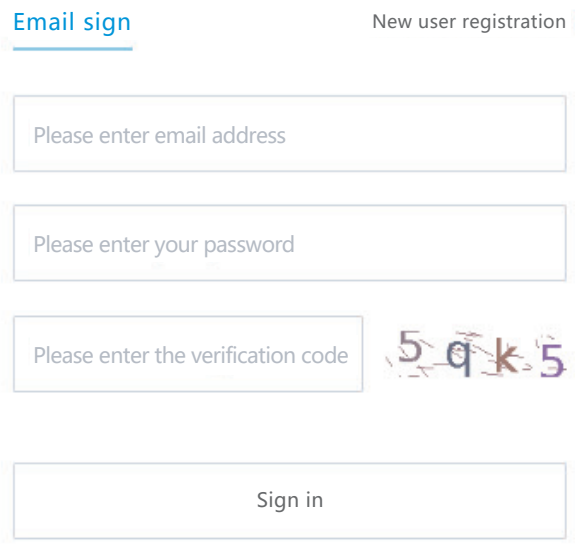
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Motor/Gear motor/Gearbox : 0512-66189918

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Controller/Drive : 024-31271571
Motor/Gear motor/Gearbox : 024-31292571

BONENG TRANSMISSION(TIAN JIN)CO.,LTD
Controller/Drive : 022-86928559
Motor/Gear motor/Gearbox : 022-26929558

BONENG TRANSMISSION(KAIFENG)CO.,LTD
Controller/Drive : 0371-23335230
Motor/Gear motor/Gearbox : 0371-23277771

BONENG TRANSMISSION(WEIFANG)CO.,LTD
Controller/Drive : 0536-4699687
Motor/Gear motor/Gearbox : 0536-4699667

BONENG TRANSMISSION(CHANGSHA)CO.,LTD
Controller/Drive : 0731-88386958
Motor/Gear motor/Gearbox : 0731-88380725

BONENG TRANSMISSION EQUIPMENT (CHENGDU)CO.,LTD
Controller/Drive : 028-87740066
Motor/Gear motor/Gearbox : 028-87740066

BONENG TRANSMISSION(ZHAOQING)CO.,LTD
Controller/Drive : 0757-86719757
Motor/Gear motor/Gearbox : 0758-2699830

BONENG TRANSMISSION(SUZHOU)CO.,LTD
Controller/Drive Southern Jiangsu : 0512-66182005
Motor/Gear motor/Gearbox Southern Jiangsu : 0512-66189918
Controller/Drive Zhejiang-Shanghai : 0512-66182005
Motor/Gear motor/Gearbox Zhejiang-Shanghai : 0512-66189918
Controller/Drive Jiangsu-Anhui District : 0512-66182005
Motor/Gear motor/Gearbox Jiangsu-Anhui : 025-52171612

BONENG TRANSMISSION(USA/Canada)CO.,LTD
Technical Support/Debugging/After-Sales Service :
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Office Tel: 1-216-618-3099 / 1-216-618-0138

BONENG TRANSMISSION(India)CO.,LTD
Technical Support/Debugging/After-Sales Service :
Plot No. E-10/3, MIDC sinnar (Malegaon) Industrial Area, Nashik, 422123, Maharashtra, India.
Email:india@boneng.com
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