

高效率三相异步电动机

High Efficiency three-phase asynchronous motor

使用说明书

Instruction for Use

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概述 Brief Introduction

YE3、YE4 系列超高效率三相异步电动机是在 YE3 系列电动机基础上更新设计的一般用途笼式全封闭自扇冷式三相异步电动机。YE3 能效等级符合 GB18613-2020 的 III 级标准，YE4 能效等级符合 GB18613-2020 的 II 级标准，属高效节能产品。广泛使用在矿山、机械、石油、化工等领域。

The YE3 and YE4 series ultra high efficiency three-phase asynchronous motors are general purpose cage type fully enclosed self fan cooled three-phase asynchronous motors updated and designed on the basis of the YE3 series motors. The energy efficiency level of YE3 meets the Class III standard of GB18613-2020, while the energy efficiency level of YE4 meets the Class II standard of GB18613-2020, making it an efficient and energy-saving product. Widely used in mining, machinery, petroleum, chemical and other fields.

使用条件 Regular service condition

电动机宜在下列条件下保证稳定运行：

Please use the series YX3 three-phase asynchronous motors under following conditions:

海拔高度：不超过 1000 米

Above sea level: Less than 1000 meters

环境温度：不超过 40°C，不低于-15°C

Ambient temperature: More than -15°C and less than 40°C

频率：50Hz

Frequency: 50Hz

电压：按铭牌订单

Voltage: In accordance with the brand of the logo or customer orders

接线方式：3kW 以下为 Y 形接法，4kW 以上为△形接法

Mode of connection: Its output is less than 3kW for star-connection method, more than 4kW for delta-connection method.

绝缘等级：F 级

Class of insulation: Class F insulation

定子绕组温升极限：80K（电阻法）

Limit temperature rise of the stator winding: Less than 80K using in Resistance method.

外壳防护等级：IP55

The protective class is IP55

冷却方式：IC411

Cooling method: IC411

工作方式：S1（连续工作制）

Manner of working: The motor will operate continuously for type S1.

电动机的安装结构型式 **Structural style of the motors**

YE4 系列电动机的结构及安装型式见下表

Please see following table about the structural style & Installation type of series YX3 motors:

机座号 Frame No	结构及安装代号 Code of the structural style & Installation type
80~112	B14、B43、V18、V19
80~160	B3、B5、B6、B7、B8、B35、V1、V3、V5、V6、V15、V36
180~280	B3、B5、B35、V1
315~355	B3、B35、V1

安装前的检查 **Checking before Installation of the motor**

1、 安装前，仔细检查电动机在运输过程中有无损伤，并小心清除电动机上的灰尘及轴伸上的防锈层。

Before mounting the motor, ensure the motor is finally, and clean the dust on the motor & the antirust oil on its shaft extension carefully.

2、 核对电动机铭牌上的各项数据是否符合要求。

Please check if the data on the motor nameplate accord with the requirements.

3、 检查零部件是否装备齐全，紧固件有无松动或脱落，用手转动电动机转子轴伸应灵活。

Check whether parts are well equipped, check if fasteners for loose or fall off, if the motor is flexible through running the motor rotor shaft by hands.

- 4、 用 500V 兆欧表测量定子绕组的绝缘电阻应不低于 5 兆欧（冷态）；否则，应对定子绕组进行干燥处理，干燥处理时的温度不得超过 120°C。

To measure the stator winding of insulation resistance using 500 V tramegger, its value should be not less than 5 megohm in the cold state, **otherwise**, deal with the stator winding drying processing, the drying temperature should not more than 120°C.

电机的安装 Easy motor mounting

- 1、 电动机必须安装在牢靠、坚固的基础上。

The motor must be installed on the basis of strong firm.

- 2、 电动机的安装应保证其良好的通风冷却条件。不可用于日晒雨淋的场所。

The motor should be kept in dry and shade place, and the place has be sure of good ventilation and cooling conditions.

- 3、 电动机的安装应妥善接地，接线盒内设有接地装置及标志。中心高 315-355 机座底脚另设一处接地装置。

The installation of the motor should be properly grounded. Terminal box should have grounding device and marks. Saving one place grounding device is necessary that the motors belong to the plane should base on the feet 315-355mm of **height of center**, or use at the end of the motor feet or flange tighten bolts grounded.

- 4、 电动机安装联轴器、皮带轮或其它部件时，应避免采用锤击强行敲入的装配方式。尽可能采用冷压压入或将部件加热套入电机轴伸。否则，将会因安装不当造成电动机轴承损坏而声音异常甚至不能正常使用。

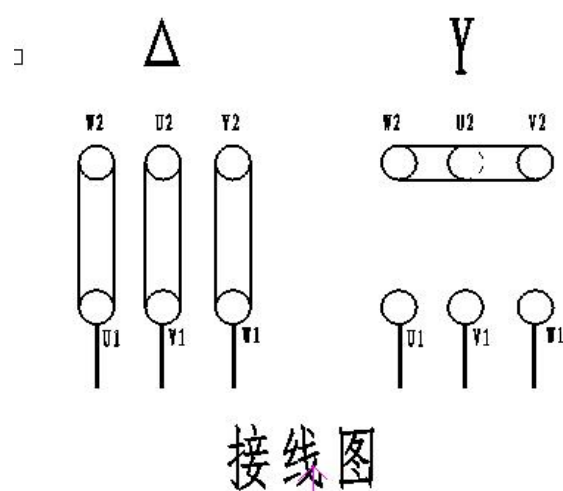
When the motor would be mounted such as pulley, coupling shaft coupling or components, to avoid using hammer blow forced in assembling of type way, please use as far as possible hydraulic pressure into it, or set into the motor shaft stretch heated these parts. If above methods are difficult, to remove the fan cover first, fixing the shaft neck, after it could not be ensured axial play, then mounting these slave parts. It should be avoided to cause bearing damage in the motor during installation, if not, the motor will work abnormal.

- 5、 当电源相序 A、B、C 分别与接线柱标志 U1、V1、W1 相

对应时，电动机的转向从轴伸端视之为顺时针。电动机安装时必须空载测试转向，如与负载要求不符，可将任何两相电源互换来调整电动机的旋转方向。

When the Power sequence No A, B & C correspond to the wiring pillar marks such as U1, V1 & W1 respectively, Motor direction of rotation would be clockwise viewing to from the end of the shaft stretch. It is necessary to test its direction of rotation at unload. If inconformity, the motor direction of rotation would be changed through swapping two phase wire discretionarily.

6、电动机接线方式请按以下接线图正确接线。



电动机的运转 Motor running

1、 电动机的频率与额定值的偏差超过 1%或电压与额定值的偏差超过 5%时，电动机不能保证连续输出额定功率。

The motor can't ensured continuous rated power output, when its frequency would be exceeded 1% or above than its nominal frequency, or its voltage would be exceeded 5% or above than its rated voltage.

1.1、 电动机不允许过载连续运转。（电流超过额定值）

The motor does not allow overload continuously, otherwise its electric current would be more than the ratings.

1.2、 电动机运转时不应有异常响声或震动。轴承温度不应超过 95°C（温度计法）。

When the motor is running, it should not have abnormal noise or vibration. Its bearing temperature would less than 95°C.

1.3、电动机应装有过热保护、短路保护、断相保护和零序保护装置。

The motor must be equipped with protector including thermal protection, short-circuit protection, open-phase protection and zero-phase sequence protection.

1.4、外接电源导线的允许载流量应是电机满载额定电流的125%。

The allowable current-carrying capacity of external power supply of wires could be rated current of the 125% at full load of the motor.

电动机的维护及储存 **The motor maintenance and storage**

1、使用环境应经常保持干燥，清洁，电动机进风口不应受尘土、纤维等物的阻塞，为保证电动机外壳的良好散热，电动机表面应经常清洁。

Use of the environment often should keep dry and cleaning, the air inlet of the motor should not be obstructed such as the dust or chemical fiber, etc. The motor surface should be often clean, to ensure the good motor shell heat dissipation.

2、当电动机的热保护及短路保护连续发生动作或突然发生异响时应立即停机查明故障原因并排除后方可投入运作。

To stop the motor immediately to find out the cause of the problem, when the motor thermal protection and short circuit protection appear abnormal sound or rattle continuously. After the faults removed out, the motor could be operated.

3、电动机轴承应保持良好的润滑，YE4 系列电动机轴承用润滑脂为 ZL-3 锂基润滑脂。

The motor bearing should maintain good lubrication, and use lithium lubricating grease to lubricate the bearing only as model ZL-3.

4、若轴承损坏或运行时电机的振动及噪声明显增大，即应及时更换同型号的新轴承。

Please change new bearing immediately, when bearing damaged, or there motor vibration and noise are increased.

5、电动机库存应置于清洁、干燥、阴凉、无酸碱等腐蚀性气

体的场所。

Motor inventory should be kept in a place with cool and dry, clean, and without soda, acid, corrosive gas.

6、 本公司在三包期内免费为用户提供因制造质量不良而发生故障的“三包”服务。

The company to provide a year limited warranty service.

保养与维修 **Maintenance and repair**

1、 电动机应定期检查和清扫，外壳不得堆积灰尘，不得用水龙头喷射清扫电机。

It is necessary to check and clean up the motor regularly, the motor shell shall not accumulation of dust, not water faucet cleaning the motor.

2、 电动机运行时轴承允许温度不得超过 95°C（温度计法），轴承每运行 2500 小时（约半年）至少检查一次，如发现轴承润滑脂变质必须及时更换，更换前，须将轴承外盖、贮油箱内的废油以及注排油装置的油管、油杯清理干净，并用汽油将轴承清洗干净，润滑脂采用锂基润滑脂 3 号（GB7324-87），加脂量 2 极电机为轴承室净容积的 1/2，4 极及以上电机为 2/3。

When operating electromotor, its bearing allows temperature should not be more than 95°C. The bearings would be checked up at least one time for every 2500 operating hours (about half a year) . Such as the discovery of bearing greases metamorphic must change in time. Before replacement, To clean waste oil in the dust cap of bearing, the oil storage box, filler with discharge pipe & oil cup, and cleaning the bearings using gas. The use of lubricating grease would be NO.3 of lithium lubricating grease to meet China National Standards for publication number will be GB7324-87. Injected volume of lithium lubricating grease wouldn't be more than a half of net volume of bearing housing for 2 poles of motor, and two-thirds for above 4 poles of motor.

3、 电机受潮时，必须干燥处理，可采用烘干炉或短路电流法。在干燥过程中，电机绕组温升应逐渐升高，且不可超过 155°C，用短路电流干燥时，电机处于短路状态，其输入电流为 0.6~0.8 倍额定电流值为宜，严重受潮电机宜用直流电干燥，以免发生

电解现象。

It must be treated by dry processing if the motor should be affected with damp, can use drying stove or short circuit current process. Please to increase the motor winding temperature rise gradually until no more than 15 degrees Celsius during drying process. Use short circuit current for drying, at this time the motor is in a short circuit state, the input current of 0.6 ~ 0.8 times the rated current value is advisable. Dry the motor with DC serious damp, In order to avoid has the electrolytic phenomenon.

4、 更换绕组时，须记下原绕组的型式尺寸，匝数线规，当失落这些数据时，应向制造厂索取。随意改变原设计绕组会使电动机某项或几项性能恶化，以致不能使用。

Please write down size the primary winding type when it would be changed. Please contact the supplier, if lost the data such as number of windings and wire gauge. It is note to change the winding original design will make several properties deteriorated with the result that the motor won't to work.

5、 贮存时间超过半年的电动机，使用前必须空载运转一小时。才能带负载以免受潮烧毁电机。

The motor must be no-load running an hour before using, when it would be kept in storage for more than six months. Then the motor can bring load operation to avoid damp burned the motor.

