YSA(意萨)风冷高速电机

YSA　Air-cooling High-speed Motor

使用说明书

User's Manual

一、一般要求

General requirements

1.收货检验

Receipt inspection

1.1、收货后，检验电机有无外部损伤，检验所有铭牌数据，尤其电压和绕组的链接方式（Y 或△）。

After receipt of the motors, inspect the motor for any external damage and verify all nameplate data, in particular the voltage and winding connection (Y or △).

1.2 用手旋转电机轴头，应手感灵活，旋转均匀，无阻滞现象。

Rotating the shaft of the motor by hand, should be flexible and uniform in rotation without any hindrance.

2.绝缘性能检测

Insulation performance test

2.1、电机初次使用前，绕组可能受潮，都要测量其绝缘阻值。

The insulation resistance must be measured, before the motor is used for the first time, with the windings may get wet.

2.2、用 500V 兆欧表测量电机绕组的绝缘电阻，其值不应低于 5 兆欧。

Measure the insulation resistance of the motor winding with a 500V megohmmeter. The value should not be less than 5 megohms.

2.3、如果没有达到绝缘电阻值，绕组务必烘干处理后使用。

If the insulation resistance value is not reached, the winding must be used after drying.

2.4 烘炉稳定为 90℃，时间为 12-16 小时。

The oven is stable at 90°C for 12-16 hours.

二、使用说明（请务必注意）

Instructions of use (Important Notes)

1.正常工作的环境温度在-25℃到+40℃之间，海拔不应高于 1000 米。

The ambient temperature for normal operation is between -25°C and +40°C. The altitude should not exceed 1000 meters.

2.电机应有熟悉相关安全要求的专业人员进行安装接线作业。

The person should have professional personnel familiar with relevant safety requirements to perform motors wiring operations.

3.安装时必须有安全装置防护，已以防止事故发生。

The installation must be protected by safety devices to prevent accidents.

4.正常运行时，电机表面会有发热，但不会超过额定许用温度的 60%。

During normal operation, there will be heating on the surface of the motor but it will not exceed 60% of the rated allowable temperature.

5.**电机必须通过变频器或驱动控制器配套使用，禁止直接工频电源启动。**
The motor must be used with the inverter or drive controller. It is prohibited to start the direct-frequency power supply.

6.电机安装时禁止敲打，特别是出轴端。
Do not knock when installing the motor, especially the shaft end.

7.为延长电机的使用寿命，新的电主轴或更换新轴承的电主轴应在转速范围内均分 4-8 个档，每段运行 30 分钟后在升速，避免直接高速运转而缩短轴承的使用寿命。
In order to prolong the service life of the motor, the new electric spindle or the electric spindle for replacing the new bearing should be divided equally between 4 and 8 gears in the speed range. Each segment should be ramped up after 30 minutes to avoid direct high-speed operation and shorten the bearing's service life.

8.接通电源后，变频器先点动，观察电主轴的旋转方向是否与电主轴指示方向一致，如果旋转方向不一致应立即关机调整，电主轴严禁在错误的旋转方向上运转。
After the power is turned on, the inverter first jogs, and observes whether the rotation direction of the motor spindle is the same as the direction indicated by the motor spindle. If the rotation direction is inconsistent, it should be immediately switched off and the spindle must not be operated in the wrong direction of rotation.

9.电主轴与变频器的动力连接线不宜超过 25 米。
The power connection between spindle and frequency converter should not exceed 25 meters.

10.螺帽、筒夹的使用。
Use of nuts and collets.

10.1 装夹刀具时，必须将夹筒、螺帽、内锥孔、刀柄清洗干净，以免影响精度。
When clamping a tool (knives), the clamping cylinder, nuts, cone bore, and tool holder must be cleaned to avoid affecting the accuracy.

10.2 将夹头放入螺帽内，轻轻转动卡簧，待螺帽偏心部分凹入卡簧槽内，沿箭头方向均匀用力推动卡簧，即可装入螺帽内。
Place the chuck into the nut and gently rotate the clamping spring until the eccentric part of the nut is recessed into the circlip groove, and evenly push the circlip in the direction of the arrow to fit the nut.

10.3 将夹筒与螺帽一起安装在夹头体或机床轴内，把刀具圆柱部擦净后装入夹持孔内，使用扳手紧固螺帽，直到刀具夹牢为止，方可使用。
Install the chuck and nut together in the chuck body or the machine shaft. Clean the cylindrical part of the tool (knives) and insert it into the clamping hole. Use a wrench to tighten the nut until the tool (knives) is clamped firmly.

10.4 换刀时，用扳手松开螺帽带出来夹头及其刀具，沿箭头方向用力推动卡簧，使其退出，然后根据需要更换上其他孔径的卡簧即可。
When a tool (knife) is changed, use a wrench to loosen the nut to bring out the chuck and its tool (knife), push the spring in the direction of the arrow to force it to exit, and then replace the clip with other holes according to the need.

10.5 螺帽内螺纹与转轴外螺纹均为细牙螺纹，连接前必须擦洗干净，头两牙连接旋转手感比较顺畅方可拧紧，以免发生既拧不紧、又松不下，甚至损坏螺帽及转轴。
The internal thread of the nut and the external thread of the shaft are fine threads, must be scrubbed before connection, and the rotation of the first two teeth can be relatively smooth and can be tightly tightened to avoid the occurrence of both tightness and looseness, and even damage to the nut and the shaft.

10.6 如发生刀柄不紧或装刀精度不理想，经过多次清洗后重新装刀还是无效时，只能更换新的螺帽、夹筒、螺帽、夹筒最好用配套的，使用配套螺帽、夹筒精度比一般的要高。
If the tool (knife) holder is not tight or the precision of the tool (knife) is not ideal, and the re-tooling is not effective after multiple cleanings, only the new nuts, clamps, nuts, and clamps can be replaced. Nuts and chucks have higher precision than normal.

三、贮存
Storage

1.所有的电机都应保存在室内，要求干燥、防震，防尘的环境中。
All motors should be stored indoors, requiring dry, shockproof, dustproof environment.

2.无保护层的电机表面（轴伸端部）应该采取防锈措施。
The surface of the motor (shaft extension) without a protective layer should be protected against rust.

3.建议定期检查电机，用手转动转轴，纺织润滑脂流失或其他问题。
It is advisable to check the motor regularly, turn the shaft by hand, lose the textile grease or other problems.

4.电机在运输中，必须做好包装。单台超过 15KG 的需安装木箱。
The motor must be packaged during transportation. Single wooden box over 15KG is required.

5.贮存及运输不允许超过 4 层。
It is not allowed to store and transport more than 4 floors.

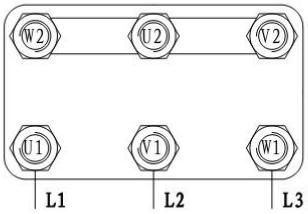
四、平衡
Balance

1.电机采用全键校平衡。
The motor adopts full-key calibration.

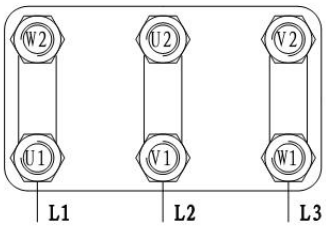
2.为了避免振动，刀具必须经过平衡，才能安装到电机轴上使用。
In order to avoid vibration, the tool must be balanced before it can be mounted on the motor shaft.

五、主轴电机接线与变频器控制原理简图
Spindle motor wiring and inverter control principle diagram

Y型380V接线盒接线示意图



△型220接线盒接线示意图



六、YSA 意萨电机维护

Motor Maintenance

1.定期注意电机噪音和温度的变化。

Pay regular attention to changes in motor noise and temperature.

2.保持电机清洁，空气流通。

Keep the motor clean and air circulation.

3.检查安装连接状况和安装螺钉。

Check the mounting connection and mounting screws.

4.通过监听异常噪声，振动测量，温度检测等来检查轴承运行情况。

Check the running status of the bearing by monitoring abnormal noise, vibration measurement, temperature detection, etc.

5.如有异常发生，立即停止使用，检查原因并及时排除。

If any abnormality occurs, stop using it immediately, check the cause and remove it in time.

6.为了提高电机轴承寿命，应进行电机轴承的使用前跑合，跑合可以从额定的转速的 20～50%开始，当达到稳定温度时在提高转速，直到达到电机的额定转速并且温度稳定为止（跑合过程中，当前盖温度超过 60℃，应停机待温度降低约 10℃，再以同样的转速重新启动，直至跑合结束）。

In order to improve the life of the motor bearings, run before and after the use of the motor bearings should be carried out, running and starting from the 20 to 50% of the rated speed, when the stable temperature is reached in the increase in speed until the motor rated speed and temperature stability So far (in the running-in process, the current cover temperature exceeds 60°C, and the temperature should be reduced by about 10°C until the temperature is reduced, and then restarted at the same rotation speed until the end of run-in).

7.为了延长主轴电机的寿命和保持主轴电机的加工精度，建议本设备在正常使用 6 个月后应更换专用油脂。

In order to extend the life of the spindle motor and maintain the machining accuracy of the spindle motor, it is recommended that the device should be replaced with special grease after 6 months of normal use.

七、变频器基本参数设定指导

参数类别 Parameter	设定值 Setting	变频器出厂设置 Factory setting of	说明

category	value	the inverter	
额定运行频率 Rated operating frequency	铭牌标示频率 Nameplate frequency	50/60HZ	务必修改该参数，否则电机的转速不能提升到额定转速运转，只能在变频器默认的频率对应转速范围内运行，恒转矩电机的最大运行频率为额定频率，恒功率为最后一个节点 Be sure to modify this parameter, otherwise the motor speed can not be increased to the rated speed, can only run in the default frequency corresponding to the inverter speed range, the maximum frequency of constant torque motor is the rated frequency , constant power is the last node.
额定电压 Rated voltage	铭牌标示的电压 The voltage 220/380V	220/380V	务必选择对应变频器电压等级选择电机的接线方式，如果电机的额定电压不是 220V，用在 380V 输出的电压上会造成电机的电流很大，绕组很快升温，严重则会导致烧毁定子绕组 marked on the nameplate must select the voltage type of the corresponding inverter to select the motor connection mode. If the rated voltage of the motor is not 220V, the output voltage of 380V will cause the motor current to be very large and the winding will heat up quickly. Severely leads to burning of the stator winding.
额定功率 Rated power	铭牌标示的功率 The power marked on the nameplate	视变频器规格 Depends on the inverter specifications.	注意这个设定，如果变频器的设定的功率值大于电机的额定功率范围，会导致电机的过流等无法得到有效的保护监测，且会是电机的电流升高，导致电机的损坏 With this setting, if the set power value of the inverter is greater than the rated power range of the motor, overcurrent, etc., of the motor will not be effectively monitored and the motor will be protected. Current rises, causing damage to the motor.
中间频率电压 The middle frequency voltage		5Hz/10v	恒转矩电机一般情况按照出厂默认值即可，恒功率电机按照说明要求设定对应的参数 Constant torque motor can be in accordance with the factory default value, constant power motor according to the instructions set the corresponding parameters.
加减速时间 Acceleration and deceleration time			一般设定范围为 5~10S The general setting time range is 5~10s

注意：变频器的参数合理设置会影响电机的使用效能、温升发热和电噪声，请咨询专业的技术人员 0755-29469509

Note: The reasonable setting of the inverter's parameters will affect the motor's performance, temperature rise,

heating and electrical noise. Please consult professional technical personnel 0755-29469509

八、YSA 意萨电机的常见故障与维护方法

YSA motor's faults and maintenance

故障现象 Faults	可能原由 Possible Causes	处理方法 Approach
电动机不能启动 Motor cannot start	1 定子绕组某相断路 The stator windings are disconnected in one phase.	检查定子绕组，查出断路，加以修复 Check the stator windings, find the open circuit, and repair it.
	2 定子绕组匝间及相间短路 Stator winding inter-turn and phase-to-phase short-circuit	测量定子绕组每相电阻和各项空载电流是否平衡，查出所在处，加包绝缘 Measure the balance of each phase resistance of the stator winding and the no-load current, and find where it is located, plus insulation
	3.定子接线错误 Improper stator wiring.	按铭牌上规定的接线和线盒上的接线图，查出定子绕组的接线，纠正错误连接 According to the wiring on the nameplate and the wiring diagram on the box, find the wiring of the stator winding and correct the incorrect connection.
	4 变频器参数设置不当 Invalid parameter setting of the inverter.	检查变频器参数设置，进行相关调整 Check the parameter setting of the inverter and make related adjustments.
运转时速度变动异常 Abnormal speed change during operation	1.变频器的输出频率与输出电压设定不当 Invalid output frequency and output voltage of the inverter.	检查变频器参数设置，进行相关调整 Check the inverter parameter settings and make relevant adjustments.
	2.负载过重 Excessive load	检查负载传动装置是否异常 Check if the load transmission is abnormal
异常噪音或振动过大 Abnormal noise or vibration is too large	1.机械摩擦（包括定转子相擦） Mechanical friction (including stator rotor rubbing)	检查转动部分与静止部分间隙，找出相擦原因，加以处理 Check the clearance between the rotating part and the stationary part to find the cause of the rubbing and handle it.
	2.缺相运行 Phase-to-phase operation	检查电源或电机缺相原因 Check the cause of power or motor phase loss
	3.轴承缺油或损坏 Bearing lack of oil or damage	清洗轴承，加新油脂或更换新的轴承 Clean the bearing, add new grease or replace the new bearing

	4.电动机接线错误 Motor wiring error	查明原因加以更正 Find out the reason and correct it
	5.修理后转子平衡被破坏 The rotor balance is destroyed after repairs	重新校正动平衡 Recalibrate the dynamic balance
	6 轴伸弯曲变形 shaft bending deformation	校直转轴，必要时更换转轴 Straight shaft, replace shaft if necessary
	7 锁紧螺钉或螺母松动 Loose locking screw or nut	查清松动处并拧紧 Check looseness and tighten
	8.安装基础不平衡或有缺陷 The installation foundation is unbalanced or defective.	检查基础固定情况，并加以处理 Check the basic fixation and handle it.
电机温升过高 Motor temperature rise is too high	1.过载 Overload	检查变频器面板的电流显示值，发现过载时应减轻使用负载（或更换大功率电机） Check the current display value of the inverter panel and find that the load should be reduced (or replace the high-power motor) when overload is found.
	2.缺相运行 Phase-to-phase operation	测量各相间电压，检查电动机定子接线或变频器接线，加以修复 Measure the voltage between each phase and check the motor stator wiring or inverter wiring to repair it.
	3 电动机接法错误 motor connection error	△接法电动机误接成 Y 型工作运行，立即断电停机修正 △ connection motor misconnected into Y-type operation, immediately power off the correction.
	4.定子绕组对地或匝间、相间短路 Short-circuit and phase-to-phase short-circuit between the stator	检查找出短路和对地部分，进行修复 windings on the ground or in the turn
	5 定子转子相擦 Stator rotor phase wipe	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 Inspect the bearing assembly for looseness and the stator and rotor assembly is repaired with no problems.
	6.变频器的 V/F 参数设置不当，使用电动机低速运转时出现过激，电流高于额定值	调整变频器 V/F 曲线参数 Adjust the V/F curve parameters of the inverter.

	The V/F parameter of the inverter is set improperly. When the motor runs at low speed, over-voltage occurs. The current is higher than the rated value.	
电动机外壳带电 Motor casing current leakage	1.接地不良 Bad grounding	检查接地螺栓，接地线与机壳接触是否紧密 Check the grounding bolts, and if the grounding wire is in close contact with the chassis
	2.绕组受潮，绝缘电阻过低 The winding is damp, the insulation resistance is too low	绕组干燥处理 dry the winding.
	3.绝缘损坏，定子线圈碰铁芯 Insulation damage, stator coil touch core	给与相应修复 repair
	4.接线板有污垢 Contamination of the wiring board	清理接线板 Clean the wiring board.
	5.引出线绝缘破损 Leading wire insulation damage	破损处用绝缘材料包扎或更换引出线 Damaged parts are wrapped with insulation material or replacement lead wire
三相电流不平衡 Three-phase current imbalance	1.匝间短路 Short circuit between windings	修理绕组 Repair winding.
绝缘电阻低或击穿 Low insulation resistance or breakdown	1.接线错误 Wiring error	改正接线 Correct wiring
	2.绝缘老化或损伤 Insulation aging or damage Repair insulation	检修绝缘 Check insulation.
	3 不清洁 unclean	用干燥的压缩空气吹净内部 Clean the interior with dry compressed air
	4.绕组或接线板受潮	烘干处理 dry wingding.

	Winding or wiring board dampened	
	5.电机过热 Motor overheating	检修电机防止继续过热 Check motor to prevent overheating

1.**注：用户若需要进一步详细的产品资料，请与 YSA 意萨（中国）公司指定服务商联系。**

Note: If the user needs further detailed product information, please contact YSA (China) company designated service provider.

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The company reserves the right to use the motor to maintain the manual.