



Y-H系列三相异步电动机

Y-H SERIES THREE-PHASE INDUCTION MOTOR

随机文件（版本/Ver:A-1 2022）

DOCUMENTS PROVIDED WITH THE MOTOR



山东华力电机集团股份有限公司

SHANDONG HUALI ELECTRIC MOTOR GROUP CO., LTD.

船用电动机质量证明书

QUALITY CERTIFICATE OF MARINE MOTOR

产品名称/Description		船用电动机/Marine Motor	
型式认可证书号 Type Approval Cert. No.	QD20PTB00013	图纸批准号 Drawing Approval No	
用于/Intended for:	船舶与海上设施/Ships and Offshore Installations	产品使用限定/Restriction for application of product:	
产品型号Type		产品编号Serial No.	
额定功率Rated Power		制造日期Date of Manufacture	
额定电流Rated Current		额定转速Rated Speed	
额定电压Rated Voltage		防护等级Protective Class	
额定频率Rated Freq.		绝缘等级Insulation Class	
产品检验标志 CCS Inspection Mark	产品铭牌上标有:  The Nameplate is Stamped with		
产品执行标准 Product Standard	中国船级社《钢质海船入级规范》(2018)及其修改通报第4篇第3章 Chapter 3, Part Four of China Classification Society Rules for Classification of Sea-going Steel Ships 2018 and its Amendments		
检验/试验项目及结果 Scope of Inspection/ Testing and the Result	外观检验、绝缘电阻测量、绕组电阻测量、过载/过流试验(适用于大于100kW的电动机)、超速试验(鼠笼式电机除外)、空载试验、耐压试验、轴承检查。 Visual inspection, Insulation Resistance Measurement, winding Resistance Measurement, Over-load/Over-Current (suitable for ≥100kW Motor), Over-Speed Test (except for Squirrel-cage Motor), No-load Test, High Voltage Test, bearing Check.	合格 Qualified	
<p>A、产品按照CCS规范进行生产制造。 The product was produced according to CCS Rules for Classification of Sea-going Steel Ships.</p> <p>B、产品的生产制造过程与认可条件保持一致。 The product's manufacturing process is kept the same with the approval terms.</p> <p>C、产品按照CCS批准和接受的验收技术条件试验合格,试验项目及试验数据真实有效。 The product was inspection with satisfaction according to CCS approval and acceptance technical conditions, the test item and data is real and valid.</p> <p>D、制造厂对产品质量负责。 The manufacturer is responsible for the product quality.</p> <p style="text-align: center;">工厂质检部门印章 Stamp of Q.C.Dept</p>			
质量监督负责人: QC Chief	质检员: Inspector		
制造厂名: 山东华力电机集团股份有限公司 Manufacturer: Shandong Huaili Electrical Motor Group Co., Ltd	地址: 山东省荣成市荣昌路9号 Add: No.9 Rongchang Road, Rongcheng, Shandong		
电话(Tel): 0631-7555999	传真(Fax): 0631-7553744		
* 1、本证书中英文两种语言表达, 准确含义以中文为准。 The certificate is written in Chinese & English, Chinese version is real meaning.			
2、盖章有效 复印无效。 The seal is valid, the copy is invalid.			

使用维护说明书

▲ 概述

我公司船用电动机产品包括普通型船用三相异步电动机和隔爆型船用三相异步电动机。适用于船舶上驱动各种机械，如泵类、通风机、分离器、液压机械及其他辅助设备之用。

▲ 工作环境条件

- 1 环境空气温度随季节变化不超过45℃，最低温度为-15℃。
- 2 近海装置营运中的冲击、振动的影响；有油雾、盐雾、霉菌的影响；倾斜： $\pm 22.5^\circ$ ，摇摆： $\pm 22.5^\circ$ 。
- 3 环境空气最大相对湿度不超过95%。
- 4 额定电压为380/440V，频率为50/60Hz，可提供其他电压、频率。
- 5 电动机是以连续工作制(S1)为基准的连续定额，允许满压启动。

▲ 安装前的准备

- 1 详细核对铭牌上所载的各项数据，如额定功率、电压、频率、转速等是否与实际需要相符。
- 2 仔细检查各零部件的装配是否良好，紧固件是否松动，并用手转动转子，检查有无相擦现象。
- 3 用500伏兆欧表测量各绕组之间及绕组对地的绝缘电阻，使用过程中测得的绝缘电阻至少不低于 $1M\Omega$ ，否则应进行干燥处理。

▲ 安装

- 1 立式电动机在使用中不允许有任何的轴向负荷。
- 2 安装时，应保证电动机有良好的通风条件，风罩近风端预留空间不得小于下表的规定。

机座号	H63~135	H160~180	H200~355
预留空间	25mm	30mm	50mm

- 3 接线盒的填料函方向，可在轴伸方向以外的其他三个方向进行调换，当需要重新确定接线盒填料函的方向时，可取下接线盒的四个螺钉，将接线盒移位。
- 4 将填料函内的橡皮圈穿孔后进行接线，并将压紧螺母拧紧，达到防水、防震的要求。
- 5 安装完毕，应检查各紧固件、联接件是否可靠，用手转动装置应轻松无相擦。

▲ 运转

- 1 本系列电动机共有6根接线头，分别标以U1、V1、W1、U2、V2、W2，电动机引出线接线方法请按接线盒盖上标明的方法连接。
- 2 电动机在实际负载运转中应继续观察其起动情况，运转时声音是否正常，以及实际负载电流是否超过铭牌上的规定值，在运转0.5~1小时后，应停车检查电动机各机械连接部分有无松动，轴承有无过热及漏油，定转子有无相擦等。如无异常情况发现，即做正式使用。
- 3 电动机应满压起动，如电源容量不足不能满压起动时，则可采用降压起动。电动机的起动转矩降低与电压降低的平方成正比，降压起动一般采用Y- Δ 起动补偿器。
- 4 外接地螺栓应可靠接地

▲ 维护及检修

- 1 电动机应按铭牌所载的额定值使用，切莫过载，并应注意清洁和检查，防止受潮或异物进入机体内部。
- 2 电动机运转时，应经常记录有关仪表及温度计的读数，运行期间的检修情况。同时故障处理亦应做好记录，以供今后维护及检修作参考。
- 3 除H80~132电动机使用封闭轴承不用再加润滑脂外，H160以上电动机均设有轴承润滑脂注入及排除装置。平时需要时，可取下电动机前后的注油螺塞，用油枪将润滑脂注入。
- 4 电动机运行时轴承允许温度不得超过95℃（温度计法），轴承每运行2500小时（约半年）至少检查一次。轴承使用的润滑脂为3号锂基脂，一般轴承运行2500小时（约半年），应更换润滑脂一次，如发现油脂色泽暗，上面有水珠或灰尘聚集，油脂硬化变质或轴承发热等现象，应即更换新油脂。更换油脂时，应将陈脂清除，并将轴承及轴承盖洗净，然后加入新润滑脂，所加的油脂量以2极为轴承室的1/2，4极及以上加至轴承室的2/3为宜。
- 5 为了消除电动机事故隐患，保证运行质量，电动机应定期进行检修，一般三个月小检修一次，每年大检修一次，小检修

清除机体外的积尘、污垢，应保持接线板清洁，以免积尘受潮，产生爬电，检查电动机线圈的绝缘电阻、接头、接地线、各紧固零件及传动机构的连接等有无松动，消除所发现的缺陷。大修时，应将电动机拆开，除进行小检修的项目外，要注意线圈，检查线圈是否完好，端部绑扎有否损坏，清洁机体内外，检查电动机的轴承磨损情况及更新润滑脂。

▲ 干 燥

- 1 受潮的电动机，使用前应进行干燥。
- 2 受海水侵蚀过的电动机，在干燥前应用淡水清洗。
- 3 干燥时，干燥处理温度不允许超过100℃，干燥时间一般为4小时左右。

▲运输 贮存

- 1 机贮存中应保持环境干燥，空气中不得含有腐蚀性体，并避免周围环境温度的急剧变化。
- 2 电动机贮存中不宜堆积太高。
- 3 在贮存和运输过程中，电动机不可倒置。
- 4 保护轴伸，不得用绳子套在轴伸上抬运电动机。

▲ 保证期

在用户按照使用维护说明书的规定使用和存放电动机的情况下，我公司保证电动机使用的一年内（自制造厂起运的日期不超过二年）能良好的运行。如在此规定的时间内，电动机因制造质量不良而发生损坏或不正常工作时，我公司无偿地为用户修理，更换零件或电机。

▲ 意见书

为使产品质量不断改进和提高，更好的为用户服务，恳请各用户对此型号电动机提出宝贵意见，深表感谢。本系列电动机的主要规格见表1

表一 Y-H系列电动机功率转速对照表

机座号 Frame No.	同步转速 (50、60Hz) r/min				
	3000/3600	1500/1800	1000/1200	750/79	600/72
	0	0	0	0	0
功率 Power (kW)					
80M1	0.75	0.55	0.37	0.18	--
80M2	1.1	0.75	0.55	0.25	--
90S	1.5	1.1	0.75	0.37	--
90L	2.2	1.5	1.1	0.55	--
100L1	3	2.2	1.5	0.75	--
100L2		3		1.1	--
112M	4	4	2.2	1.5	--
132S1	5.5	5.5	3	2.2	--
132S2	7.5				--
132M1	--	7.5	4	3	--
132M2	--		5.5		--
160M1	11	11	7.5	4	--
160M2	15			5.5	--
160L	18.5	15	11	7.5	--
180M	22	18.5	--	--	--
180L	--	22	15	11	--
200L1	30	30	18.5	15	--

200L2	37		22		--
225S	--	37	--	18.5	--
225M	45	45	30	22	--
250M	55	55	37	30	--
280S	75	75	45	37	--
280M	90	90	55	45	--
315S	110	110	75	55	45
315M	132	132	90	75	55
315L1	160	160	110	90	75
315L2	200	200	132	110	90
355M1	220	220	160	160	110
355M2	250	250	200		132
355L1	280	280	220	185	160
355L2	315	315	250	200	185

注：S、M、L后面的数字1、2分别代表同一机座号和转速下不同的功率。

▲ 主要故障及修理方法

故障	可能原因	修理方法
起动时不转有响声或振动	一相断路	查出断电处并修理
转动时有响声且电机过热	绕组短路	修理绕组
起动后转速低	(1)相绕组首端末端接错 (2)电压降低	(1)找出每相首端末端后正确连接 (2)检查电源电压
绝缘电阻较低	绕组脏污或受潮	清理电机干燥绕组
绕组温升过高	电机过载	减轻负载
轴承过热	(1)电动机与转动机械连接偏心, 皮带涨力过大 (2)轴承润滑脂过多或过少 (3)轴承损坏	(1)检查同心 (2)检查润滑脂储量
轴承响	(1)轴承磨损 (2)轴承脏污, 润滑脂干少	(1)换轴承 (2)换新润滑脂
振动超标	(1)基础刚度不够 (2)电动机轴与传动机械轴不同心	(1)重新安装 (2)检查同心

型号:

编号:

意见性质	存在问题	改进意见
结构		
电气性能		
外观质量和外形尺寸		
安装和拆卸及安装尺寸		
机械性能		
其他		

填表人：

日期：

OPERATION AND MAINTENANCE

▲ General

Our motors include general three-phase asynchronous motors and flameproof three-phase asynchronous motors. Suitable for driving all kinds of machinery, such as pumps, fans, separators, hydraulic machinery and other auxiliary equipment.

▲ Working conditions

- (1) Ambient air temperature varies with the season, but not more than 45°C, and the minimum ambient air temperature is -15°C.
- (2) Impact and vibration in offshore device operation; Oil fog, salt fog, mold influence; Tilt: $\pm 22.5^\circ$, swing: $\pm 22.5^\circ$.
- (3) The maximum relative humidity of ambient air is no more than 95%, with condensation.
- (4) The rated voltage is 380V and 440V, and other voltages can be provided as required.
- (5) Rated frequency is 50Hz and 60HZ.
- (6) Motor quota is based on continuous duty system (S1), allowing full voltage start.

▲ Preparation before installation

- (1) Check all the data given on the nameplate, such as rated power, voltage, frequency and speed, if they are consistent with the actual demands.
- (2) Inspect carefully if the assemblies of all the parts are in condition and if the fixing parts are loose. Turn the rotor by hand to observe if there is any rubbing.
- (3) Measure the insulation resistance between the phase windings and between windings to the ground with a 500V megger. During operation, the measured value should not be

less than $1M\Omega$ otherwise it must be dried.

▲ Installation of Motor

(1) Any axial load will be not allowed in a vertical motor during operation.

(2) The motor must be installed in a well-ventilating condition, and the clearance of the air intaking side of fan hood must not be less than the specified value in flowing table.

Frame No.	H63~132	H160~180	H200~355
Clearance	25mm	30mm	50mm

(3) The cable gland of the terminal box can be fixed in three directions except of the shaft extension side. If the direction of the cable gland needs to be changed, the terminal box can be moved by removing the four symmetrical bolts on the box.

(4) After punching the rubber pad in the cable gland, the cable may be connected. And the packing nuts must be screwed up in accord with demands of waterproof and shockproof.

(5) After installation, check all the fixing and joint parts, see if they are reliable, and rotate the rotor by hand without any rubbing.

▲ Trial Running

(1) There are totally six terminals on each motor of this series, which are marked respectively U1, V1, W1, U2, V2, and W2. Lead wires must be connected according to the connecting method marked on the connecting plate on the cover of the terminal box.

(2) During actual operation on load, still observe if starting condition or sound is normal, and if the load current goes beyond the rated value, when the machine has run for 0.5~1

hour, shut down and observe if the joint parts of the machine have loose, or the bearings overheated or the oil leaked out, and the touching between the stator and the rotor occurred, if no such phenomenon is found, the motor can be put into practical operation.

(3) The motor should be started at full voltage, if the power supply capacity is not enough to start at full voltage, step-down starting can be adopted. The decrease in starting torque is proportional to the square of the voltage drop. Y- Δ starting compensator is normally used for the step-down starting.

(4) External ground bolts shall be reliably grounded.

▲ Service, Maintenance and Storage

(1) The motor must be operated according to the ratings on the nameplate and never be overloaded. Cleaning and inspection should be cared and it must be prevented from moistening and from foreign matters entering.

(2) The readings of relevant instruments, thermometer and maintenance situation should be always noted during operation. The treatments of troubles should be also kept as a reference to the service and maintenance in future days to come.

(3) Motor H80~132 mounted with closed bearings no need for extra grease, motors H160 and bigger ones are equipped with grease filling and draining devices. You can remove the front and rear filling screw plugs to fill grease with a grease gun if it is necessary.

(4) When the motor is running, the allowable temperature of the bearing shall not exceed 95 °C (thermometer method), and the bearing shall be checked at least once every 2500 hours (about half a year). The grease used by the bearing is no. 3 lithium base

grease. Generally the bearing runs for 2500 hours (about half a year). The grease should be replaced once. If the grease is dark in color, water droplets or dust accumulates on it, the grease hardens or deteriorates, or the bearing heats up, it should be replaced with new grease at once. When replacing grease, the old grease should be removed, and the bearing and bearing cover should be cleaned, then new grease should be added, the amount of grease added should be $1/2$ of the bearing chamber for 2 pole motors and $2/3$ of the bearing chambers for 4 pole motors and above.

(5) Periodical inspection should be taken, in order to avert the possibility of accident and ensure normal operation. Generally maintenance should be done every three months and an overhaul every year. For a maintenance, the dust and dirt must be cleaned away from the external body, and the connecting plate should be kept clean to avoid dampness due to gathered dust, because damped connecting plate often causes creeping, detect the connections of the insulation resistance of windings, check the connection of terminals and grounding cables, and see if the joints of the fixing parts and drive mechanism have loosed. Every found fault must be eliminated. For an overhaul, the motor must be disassembled. Besides the items which must be done in the maintenance, you should notice the windings if they are in condition, and if the end windings are damaged, you should also clean the inside and outside of the body, observe if the motor bearing are worn out, and refresh the grease as required.

▲ Transportation and storage

(1) Environment should be kept dry in the motor storage,

corrosive gas should not be contained in the air, and sharp changes in ambient temperature should be avoided.

(2) Motor should not be stacked too high in storage.

(3) During storage and transportation, the motor cannot be turned upside down.

(4) Protect the shaft extension. Do not use a rope to cover the shaft extension to transport the motor.

▲ Dry

(1) The damp motor should be dried before use.

(2) Motor eroded by sea water shall be cleaned with fresh water before drying.

(3) When drying, the drying temperature shall not exceed 100°C, and the drying time is generally about 4 hours.

▲ Guaranteed period

It is guaranteed by the manufacturer that the motor will perform in a good running condition, for a period of one year (within two years from the date of shipment), on the basis that the customer operate and store the motor according to the maintenance and operation instructions, any defects owing to poor quality of the workmanship by the manufacturer, it is will be repaired and changed of parts or motor by the manufacturer.

▲ Opinions welcomed

In order to serve our customers well, improve and upgrade the product quality, we beg to have your precious opinions to this type of motor, thank you. The main specifications of this series of motors are shown in table 1.

Table1 Y-H series motor power and speed corresponding

机座号 Frame No.	同步转速 (50、60Hz) r/min				
	3000/3600	1500/1800	1000/1200	750/790	600/720
	0	0	0	0	0
功率 Power (kW)					
80M1	0.75	0.55	0.37	0.18	--
80M2	1.1	0.75	0.55	0.25	--
90S	1.5	1.1	0.75	0.37	--
90L	2.2	1.5	1.1	0.55	--
100L1	3	2.2	1.5	0.75	--
100L2		3		1.1	--
112M	4	4	2.2	1.5	--
132S1	5.5	5.5	3	2.2	--
132S2	7.5				--
132M1	--	7.5	4	3	--
132M2	--		5.5		--
160M1	11	11	7.5	4	--
160M2	15			5.5	--
160L	18.5	15	11	7.5	--
180M	22	18.5	--	--	--

180L	--	22	15	11	--
200L1	30	30	18.5	15	--
200L2	37		22		--
225S	--	37	--	18.5	--
225M	45	45	30	22	--
250M	55	55	37	30	--
280S	75	75	45	37	--
280M	90	90	55	45	--
315S	110	110	75	55	45
315M	132	132	90	75	55
315L1	160	160	110	90	75
315L2	200	200	132	110	90
355M1	220	220	160	160	110
355M2	250	250	200		132
355L1	280	280	220	185	160
355L2	315	315	250	200	185

Note: the Numbers 1 and 2 after S, M and L respectively represent different power under the same frame size and rotating speed.

▲ Main troubles and trouble shooting

Truble	Cause	Remedy
Fail to start with noise or vibration	One phase open circuited	Check the power line
Ratates with noise and overheat	Windings shot circuited	Repaie windings
Very low speed	Wrong connected or low voltage	Check connecting and power voltage
Low insulation resistance	Winding is dirty or damped	Clean or dry the winding
winding overheat	Motor overloaded	Reduce the loading
Bearing overhest	1) shaft and equipment are not concentric connected or belt tension too high 2) not suitable bearing grease quantity or bearing is damaged	1) check concentric 2) check bearing grease and bearing
Bearing noise	Bearing is damaged or little grease	Replace bearing or Refresh grease
Excess vibration	1) The stiffness of foundation is too low 2) Motor's shaft is not concentric with driven machine	1) Reinstall 2) Check concentricity

Model:

Series No.:

Field	Problem	How to improve
Constructor		
Electricals		
Appearance		
Install and dismount		
Mechanicals		
Other		

Signature:

Date:

地 址：山东省荣成市荣昌路 9 号
邮 编：264300
经 营：0631-7551307
传 真：0631-7553744
技 术：0631-7587026、7587027
传 真：0631-7587025
售 后：0631-7555999
网 址：www.hualimotor.com.cn
邮 箱：tech@hualimotor.com.cn

Address: 9 Rongchang Road, Rongcheng City, Shandong
Province
Postcode: 264300
Sales department: 0631-7551307
Fax: 0631-7553744
Technology: 0631-7587026, 7587027
Fax: 0631-7587025
Technical service: 0631-7555999
Web site: www.hualimotor.com.cn
Mail box: tech@hualimotor.com.cn