

洁冠 DL/CISG 系列船用和磁力泵 使用手册

DL/CISG series marine and magnetic pumps instructions

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JIANGSU • CHINA

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1、介绍指南 Manual Introduction

1.1 前言 Preface

手册中包含重要信息，遵守安装操作指令对泵的正确、高效运行至关重要，并可延长泵的使用寿命，避免任何风险。

在手册内除了介绍安全指南外，还提供了产品正常使用，安装，维护的介绍，并附技术参数，部分图纸。

This manual contains important information for reliable proper and efficient operation. Compliance with the operating instructions is of vital importance to ensure reliability and a long service life of the product and to avoid any risks. The first chapters contain information about this manual and safety in general. The following chapters provide information about normal use, installation, maintenance and repair of the product. The annexes contain the technical data, the parts drawings and the declaration(s) of conformity.

●必须了解的内容

Make yourself familiar with the content

●正确掌握说明，指令

Accurately grasp directions and instructions

●不能改变安装，操作程序

Never change the sequence of the operations to be carried out

●保管好手册，以方便维护人员查阅

Keep this manual or a copy of it together with the logbook in a fixed place near the product which can be accessed by all personnel.

1.2 图示符号 Icon and symbols

本手册使用下列图标符号作补充说明

In this manual in all accompanying documentation the following icons and symbols are used



警告

电压安全信号满足 GB/T 3805-2008 标准

WARNING

Danger of electric voltage. safety sign according to GB/T 3805-2008



警告

用电符合操作程序要求，防止产品伤害人身安全，危险标志满足 GB/T 5465.2-2023

WARNING

Operations or procedures, if carried out without caution, may cause personal injury or damage to the product. General hazard sign according to GB/T 5465.2-2023



注意

不遵守安全说明，可能导致产品损坏

ATTENTION

Is used to introduce safety instructions whose non-observance may lead to damage to the product and its functions



环境说明

环境备注

ENVIRONMENT INSTRUCTION

Remarks with respect to the environment

2、标志、服务和技术支持 Identification,service and technical support

2.1 数据与信息 Obtaining data and information

铭牌表明型号系列，主要参数，识别码，订购配件时或者你需要了解更多的产品信息，请联系“洁冠”客服中心。

The name plate indicates the type/size,main operating data and identification number.Please quote this information in all queries,repeat orders and particularly when ordering spare parts.If you need any additional or instructions exceeding the scope of this manual or in case of damage please contact JIEGUAN's nearest customer service centre.

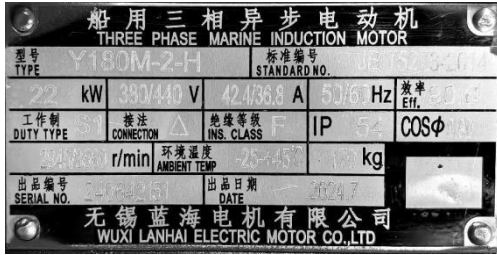


图 1:电机铭牌

Figure 1: Motor nameplate



图 2:水泵铭牌

Figure 2: Pump nameplate

表 1 标识说明

Table 1:Description sticker

标 示 Sticker	含 义 Description
DL24-8/150	型号 Type
22KW	电机功率 Motor power
60HZ	电机频率 Frequeney
22m³ /h	流量 Capacity
150 m	扬程 Head
3560 r/min	转速 Rotation speed

2.2 机械密封代码 Mechanical seal code

表 2:密封材料代码

Table 2:Material code of mechanical seal

根据 GB/T6556-2024 Code acc.to GB/T6556-2024	描述 Description	材料 Material	
T	动环 seat-ring	钨钴合金 Tungsten-cobalt alloy	YG8-14.5
T	静环 acting-ring	钨钴合金 Tungsten-cobalt alloy	YG8-14.5
F	弹簧 spring	不锈钢 Stainless Steel	06Cr19Ni10
F	弹簧座 spring seat	不锈钢 Stainless Steel	06Cr19Ni10
V	O 型圈 O-rings	橡胶 Rubber	FKM/EPDM/NBR

2.3 额定电流 Rated current

允许电机工作范围的电流显示在铭牌上，用来保护电机。

The nominal allowable current of the motor is stated on the motor nameplate. This shows the nominal working range of the motor and can be used to protect the motor.

泵在运行时可通过设定的电机保护开关，对泵，电机进行保护。

Measuring the actual current of the pump during operation can be used to preset the motor protection switch to protect the pump/motor combination.

这个电流值可以被用来确定适当的电气设备(如变频启动)开关，电线直径等。

This current value can also be used determine the proper electrical equipment such as variable frequency drive, main switch, wiring diameter etc.



警告 WARNING 不仅对电机，也同样对泵起被保护应用

Not only the motor, but also the pump has to be protected in its application

3、质保 Warranty

3.1 质保条款 Terms of warranty

保修期是在合同条款中的。

The warranty period is settled by the terms of your contract or at least by the general terms and conditions of sales.



注意 ATTENTION

修改或改变生产商提供的产品，必须由生产商允许或双方协商。授权生产商的原厂零配件和附件确保安全使用。使用其它厂商的配件所造成直接或间接损失生产商不负责。

Modification or alterations of the product supplied are only permitted after consultation with the manufacturer. Original spare parts and accessories authorized by the manufacturer ensure safety. The use of other parts can invalidate any liability of the manufacturer for consequential damage.



注意 ATTENTION

保修手册中有关产品操作运行的可靠性和安全性是指有效期内的，并且产品的使用参数必须满足本手册数据表内要求。

The warranty relating to the operate reliability and safety of the product supplied is only valid if the product is used in accordance with its designated use as described in the following sections of this manual. The limits stated in the data sheet must not be exceeded under any circumstances.

发生以下情况，保修无效。

The warranty becomes invalid if one or more of the points below occur

●用户自己修改产品

The buyer makes modifications himself

●用户自己维修达 1/3

The buyer carries out repairs himself or has these carried out by a third party.

●该产品已被处理或维护不当

The product has been handled or maintained improperly.

●该产品部件不是“洁冠”原厂部件

The product has non original JIEGUAN spare parts fitted.

“洁冠”保修期内缺陷解决。JIEGUAN remedies defects under warranty if the points blow are observed

●设计，材料，生产缺陷造成的。

Defects are caused by flaws in the design, the material or the production.

●缺陷已认可，并在保修期内。

The defect has been reported within the warranty period.

其它在合同内后保险条款

Other terms of warranty have been included in the general terms of delivery, which are available upon request.

4、安全与环境 Safety and environment

4.1 综述 General

“洁冠”产品采用先进技术，有效保证质量。

“洁冠”不接受因不遵守本手册中的指令或说明而引起的产品质量问题。

不遵守安全指示可能危及人员安全、环境和产品本身；不遵守安全说明将丧失赔偿的权利。例如，不遵守可能导致如下：

This JIEGUAN product has been developed using state of advanced technology; it is manufactured with utmost care and subject to continuous quality control. JIEGUAN does not accept any liability for damage and injure caused by not observing the directions and instructions in this manual. This also applies in cases of carelessness during the installation procedure, use and maintenance of the product. Non-compliance with safety instructions can jeopardize the safety of personnel, the environment and the product itself. Non-compliance with these safety instructions will also lead to forfeiture of any and all rights to claims for damages.

For example, in particular non-compliance can result in:

- 泵重要部件损坏 failure of important pump/system functions
- 无法维修维护 failure of prescribed maintenance and servicing practices
- 电气，机械，化学伤害别人 injure to persons by electrical, mechanical and chemical effects
- 导致有害物质的泄漏危及到环境 hazard of the environment due to leakage of hazardous substances
- 爆炸 explosions

针对不同应用，额外的安全措施可以联系“洁冠”客服中心，以防备隐患。

Depending on specific activities, extra safety measures may be required. Contact JIEGUAN if a potential danger arises during use.



注意 ATTENTION

确保产品参数在其工作范围，才能保证产品的性能。Make sure that the product operates within its working range. Only then the product performance is guaranteed.



注意 ATTENTION

不仅要制定安全规章，同时要遵守“安全”规章，而且安全指示要用特定标识。

All personnel involved in the operation, maintenance, inspection and installation of the product must be fully qualified to carry out the work involved.

4.2 用户 Users

参与安装，维护，检查操作人员必须经安全培训后方可上岗。供应商必须提供这些培训和指导，同时

也可委托制造商提供这种培训，确保让每个员工理解掌握。

All personnel in the operation, maintenance, inspection and installation of the product must be fully qualified to carry out the work involved.

Personal responsibilities, competence and supervision must be clearly defined by the operator, if the personnel in question is not already in possession of the required know-how, appropriate training and instruction must be provided. If required, the operator may commission the manufacturer/supplier to take care of such training. In addition, the operator is responsible for ensuring that the contents of the operating instructions are fully understood by the responsible personnel.

4.3 安全规定 Safety provisions

原厂零配件设计满足安全规程，修改或用非原厂配件会导致安全风险。

The product has been designed with the greatest possible care. Original parts and accessories meet the safety regulations. Modifications in the construction or the use of non-original parts may lead to a safety risk.



注意 ATTENTION

确保产品参数在其工作范围，才能保证产品的性能。

Make sure that the product operates within its working range. Only then the product performance is guaranteed.

4.3.1 产品标签 Label on the product

图标，警告，指示是产品应用的一部分。提供的安全标签不得删除，覆盖，标签必须保持清晰。不得损坏标签。

The icons, warnings and instructions applied to the product are part of the safety provisions. The label may not be removed or covered. The label must remain legible during the entire life of the product. Replace damaged label immediately.

4.4 安全预防措施 Safety precautions

4.4.1 正常使用 During normal use

●联系本地供电公司，了解供电问题。

Contact the local electricity company for questions about the power supply.

●部分部件会很热，所以不得接触。

Cover the parts that can become hot, so direct contact is impossible.

●耦合器外部装有防护板，来确保耦合器的正常运行。

When applicable, always place under formed coupling protection plates to protect the coupling, before putting the pump into use. Make sure that the coupling protection plates are never in contact with the running coupling.

●电机的接线盒要注意盖上。

Always close the terminal box on the motor.

4.4.2 安装，维护和修理 During installation, maintenance and repair

遵守安全法规，只有授权的人员可以安装，维护，修理电气，检查产品。

Only authorised personnel may install, maintain and inspect the product and repair electrical components. Observe the local safety regulations.



警告 WARNING 安装，维修和保养产品前，首先断开电源。Always disconnect the energy supply to the product first, before installation, maintenance and repairs. Secure this disconnection



警告 WARNING 泵表面发热，可继续连续运行。

Surfaces of a pump can be hot,after continuous operation.



警告 WARNING 确保无人靠近，才可启动泵。

Make sure that no one can be near rotating components when starting a pump.



警告 WARNING

处理危险液体的水泵时，要十分小心。避免泄漏对人和环境造成危害。处理液体泄漏时，建议
使用容器。

Handle a pump with dangerous liquids with the most care.Avoid danger for persons or the environment when repairing leakages,draining liquids and venting.It is strongly recommended to place a relief barge under the pump.



警告 WARNING

完工后，所有的安全防护措施必须重新检查到位。

Immediately following completion of the work,all safety-relevant and protective devices must be re-installed and/or re-activated.



警告 WARNING

产品调试启动时，请遵守所有指令要求

Please observe all instructions set out in the chapter'Commissioning/startup before returning the product to service.

4.5 环境方面 Environmental aspects

4.5.1 综述 General

“洁冠”在设计产品功能时考虑与环境关系。已采用可生物降解润滑油的保养。

The products of JIEGUAN are designed to function in an environmentally friendly way during their entire life.Therefore,when applicable,always use biodegradable lubricants for maintenance.



环境教育 ENVIRONMENTAL INSTRUCTION

有关健康，环境安全，按照法律，法规条例和指令。Always act according to the laws,by-laws regulations and instructions with respect to health,safety and the environment.

4.5.2 解除 Dismantling

用户负责产品环保处理。滑油的保养。

Dismantle the product and dispose of it in an environmentally friendly way.The owner is responsible for this.



环境教育 ENVIRONMENTAL INSTRUCTION 按照当地政府要求环保处理废弃材料。

Ask at the local government about the resue or the environmentally friendly processing of discarded materials.

5、水泵说明 Pump Introduction

5.1 主要型号 Model key

表 4:主要型号

Table 4:Model key

型号 Type	DL	立式多级离心泵 Vertical multistage centrifugal pump
	DL-G	高扬程多级离心泵 High head multistage centrifugal pump
	DL-CM	船用磁力驱动多级立式离心泵 Marine and magnetic driven multistage vertical centrifugal pumps
	CISG	管道离心泵 Pipeline centrifugal pump

5.2 产品说明 Description of the product

立式单级或多级离心泵系列，输送清水或海水和化学介质。通过进出水端部件与吸入排出管件连接，安装容易。泵组成部分为电机，泵。泵的过流部件为不锈钢。

The vertical, single or multi stage centrifugal pump series are designed for pumping clean, or lightly aggressive, and chemical mediums. Suction and discharge of the pump are in-line, making the pump easy to install. The hydraulic assembly is driven by an electric motor. All hydraulic parts of the pump are made of stainless steel.



DL 立式多级离心泵
DL Vertical multistage
centrifugal pump



DL-G 高扬程多级离心泵
DL-G High head multistage
centrifugal pump



DL-CM 船用磁力驱动多级立式离心泵
Marine and magnetic driven multistage
vertical centrifugal pumps



CISG 管道离心泵
CISG Pipeline
centrifugal pump

5.3 选型 Models selection

选型时取决于所需工况的参数：

To suit almost every application the pump is assembled out of modules which can be selected depending on the required working range Basic module are:

●基本型号：流量，压力，材料。

Basic pump model:which defines the capacity pressure and basic material

●连接方式：进出水管接口，及底板尺寸。

Connections:which define the suction and discharge connection as well as the base plate

●密封：机械密封，轴密封，弹性体。

Sealings:which define the elastomers, the mechanical seal and the shaft seal type.

●电机：大小尺寸，功率，电压，频率，电流，附件

Electric motor:which defines all requirements of the motor such as motor

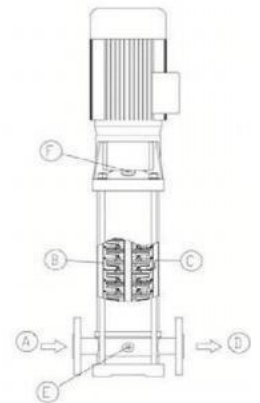
size, power, voltage, frequency and all possible motor accessories.

5.4 运行 Condition

离心泵运行时产生负压。在进水侧 A, 形成负压, 让介质吸入泵内完成第一段压力区 B。每一个叶轮使介质得到扩散, 增加叶轮的直径, 流道决定了本阶段的离心力和压力。

During centrifugal operation of the pump an negative pressure is created at the inlet of the impeller. This under pressure enables the medium to enter the pump at the suction connection (A). Every stage (B) consists of an impeller and diffuser. The passage of this stage determines the capacity of the pump. The diameter of the stages is related to the centrifugal forces and its "stage pressure": the more stages, the more pressure.

总容量, 压力被引导到外面 (到流体外) 腔室 C, 然后由筒体外套引出接入排出口 D。 This total capacity and raised pressure will be guided to the outside of the pump, between the pump stages and the outer sleeve and the medium will leave the pump at the discharge connection (D).



5.5 测量, 排水和排气 Measuring, draining and venting

泵有测量接头, 排水 E, 排气 F。

The pump is provided with plugs for measuring, draining (E) and venting (F).

A 接口处为吸入口压力测压口。(A) The suction pressure mouth

D 接口处为排出口压力测压口。(D) The outlet pressure mouth

5.6 工作范围 Working range

工作范围取决于使用的压力和温度。特殊条件的工作范围, 详见 5.3 选型。整个泵的运行参数见下表 5: The working range depends on the application and a combination of pressure and temperature. For specific and detailed limits advice the working ranges are described in the chapter 5.3: Modular selection. The overall working range of the pumps can be as follows:

表 5: 工作范围规范

Table 5: Specification of the working range

泵型号	DL	注解
环境温度 [° C] Tem	最高 +45°C	1
横摇 Roll	≤ 22.5°	
横倾 Heel	≤ 22.5°	
纵摇 Pitch	≤ 7.5°	
纵倾 Trim	≤ 15°	
最小进口压力 NPSH	NPSH+2m	
密度 [kg/m³] Density	清水/海水/化学介质 Fresh /Sea water/ Chemical mediums	2
冷却方式 Cooling	风冷 air cooling	3
最小频率 [Hz] Min frequency	50	
最小频率 [Hz] Min frequency	60	4
泵允许流过颗粒尺寸 Allowable solids pumped	5 μ m-1mm	

1. 如果环境温度超过上述值或电机位于海拔 1000 米以上, 电机的冷却效率降低, 可选用合适的电机。电机负载水平调整, 请联系“洁冠”客服中心获取更多的支持。 If the environment temperature more

than the value or motor, located 1000 meters above, motor cooling efficiency, can choose the right lower motor. Motor load level to adjust, please contact "JIEGUAN" customer service centre for more support.

2. 如果粘度或密度偏差较大, 重选一个合适的电机。请联系你的供应商获取更详细的建议。Deviation in viscosity and/or density could require an adapted motor power. Please contact your supplier for more detailed advice.

3. 电机的冷却风扇应有足够的风量冷却。

The cooling fan in order to have a sufficient flow of (cooling) air.

4. 水泵是在 50Hz 条件下运行, 不一定支持 60Hz 电源。Pumps that are intended for 50 Hz operation, may not be connected 60Hz power supply.

5.7 防爆安全 Explosion safety



注意 ATTENTION

本章包含了防爆基本信息, 必要时考虑采取配用水泵防爆电机来适应危险的环境。

This chapter contains fundamental information which has to be taken in consideration when installing the pump with EX permission in a hazardous environment.

5.7.1 综述 General

电机标签表明是否适用于有爆炸危险的环境

The motor label indicates whether it is suitable for use in an explosion hazard environment
适宜安装使用环境必须满足 GB/T 3836-2021

It is allowed to install the pump in a zone which is classified in directive GB/T 3836-2021
这是强制性的规范。

When in doubt it is compulsory to check the above directive.

5.7.2 指示 Indication

GB/T 3836.1-2021 《爆炸性环境》第 1 部分: 设备 通用要求

Explosive atmospheres-Part 1: Equipment-General requirements

GB/T 3836.1-2021 《爆炸性环境》第 2 部分: 由隔爆外壳 "d" 保护的 设备

Explosive atmospheres Part 2 : Equipment protection by flameproof enclosures "d"



注意 ATTENTION

当泵安装在一个爆炸危险的环境时, 拆装泵时, 防止产生火花。When the pump is placed in an explosion hazardous environment no pump should be opened or disassembled on site. Due to the probable creation of sparks during loosening and tightening of nuts and bolts.

5.7.3 调测(检查表) check list

在水泵运行前, 必须检查这些点。

It is compulsory to check these points prior to put the pump in operation.

● 检查防爆电机, 水泵是否符合分类标准。

Check if the EX-data on the motor and the in line with the specified category.

● 水泵, 电机有不同分类, 不得低于分类中的最低条件。

When the categories of the motor and the pump are different, the lowest category is leading.

● 分类 2: 确保防止外部损伤泵。

For category 2: make sure that the pump is protected against damage from outside.

● 检查电机, 电缆是否适用于设计参数, 参见电机型式。

Check that the motor, cable on the design parameters, and see the motor type.

● 检查泵内已充满液体, 不要运行干泵。

Check that the pump is fully filled with the liquid. Do not run the pump dry.

- 检查电机旋转方向，带有方向箭头的标志在泵的顶部风罩上。

Check the rotational direction of the motor. The motor has to run clockwise (seen from the non driven side). This direction is indicated with an arrow on the pump top bracket.

- 避免过热，保证最低流量，泵的参数符合 5.6 章工作范围。

Avoid overheating of the pump to ensure a minimum flow in the pump according with the description in chapter 5.6: Working range.

- 水泵中气泡问题：

The pump has to be deaired again when:

- 在泵运行时排出

The pump is taken out of operation

- 空气聚集在泵中

Some air is gathered in the pump

- 确保泵和电机轴的正常运行，没有过载和杂音

Make sure that the pump and the motor shaft are running smoothly and without excessive noise (e.g. no parts are running against each other).

- 确保泵接地

Make sure that the pump is connected to ground

6、运输 Transport

6.1 运输 Transport

1. 输送泵的正确方法.

Transport the pump in the position as indicated on the pallet or packaging.

2. 确保泵的稳定.

Make sure the pump is stable.

3. 观察包装上的说明.

See the instructions of packaging.



警告 ATTENTION

提升泵，如果需要使用升降机选择合适的吊索。

Lift the pump, if necessary using a hoist and suitable slings. Attach the slings to the transport lugs on the packaging, where present.



警告 ATTENTION

泵必须吊装时注意升降机械的承载负荷。只有合格人员才被允许把水泵吊装作业。

The pump must be lifted according to the current hoist guidelines. Only qualified personnel is allowed to lift the pump.

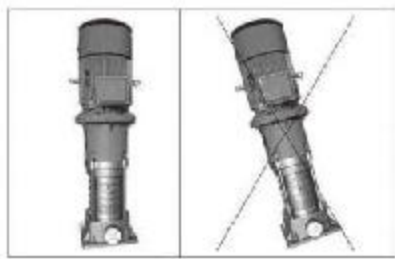


警告 ATTENTION

不要把水泵采用的变频器(如果放置). 电子零件、马达盖碰撞。要确保泵总是平衡。

Do not lift the pump by using the frequency converter (if placed), electrical parts or the motor cover. Be sure that the pump is always in balance.

表 9:运输位置 Transport positions



6.2 存储 Storage

在泵内补充乙二醇(甘醇)为保护它免受危险的冰冻。

Fill the pump with glycol in order to protect it against the risk of frost.

表 10:储存 Storage

6.2. 1 存储期间的检验 Inspection during storage

仓库 Storage	
温度[C] 环境	最高+40℃
t[C] ambient	up to 40℃
相对湿度	80%在 20℃时候不凝结
Max.rel.humidity	80%at20° °C not condensing

1. 转动轴，每三个月运转一次

Turn the shaft every three months and just before putting into operation

7、安装说明 Installation instructions

7.1 水泵安装 Installation the pump



注意 ATTENTION

确保泵的连接，特别是泵进出口上的连接，请见下表。

Make sure that the pump connections are not over-stressed at the inlet and outlet connections. Please see the table below.

表 11:DL 立式多级离心泵允许应力 Allowable force

型号 type	DN[mm]	力 Force[N]			
		Fx	Fy	Fz	Σ F
DL2.4	25	9400	3200	3200	10400
DL4.8	25	9400	3200	3200	10400
DL8	40	9400	3200	3200	10400
DL12	65	11000	2000	6500	12900
DL18	65	11000	2000	6500	12900
DL120	100	60000	40000	40000	82500

表 12:DL 立式多级离心泵允许扭矩 Allowable torque

型号 type	DN[mm]	力 Force[N]			
		F _x	F _y	F _z	ΣF
DL2.4	25	600	300	360	800
DL4.8	25	600	300	360	800
DL8	40	600	300	360	800
DL12	65	460	460	1000	1200
DL18	65	460	460	1000	1200
DL120	100	3600	6100	4800	8600

注意 ATTENTION



在表上值中，假定他们同时发生。

For the values mentioned in the tables above, it is assumed that they occur simultaneously



图 6:允许力

Figure 6:Allowable forces



注意 ATTENTION

泵不稳定或稳定站靠他们自己，应该安装在刚性和稳定的基础。

Pumps which do not stand steady or stable on their own, should be mounted on a rigid and stable base.



注意 ATTENTION

定位泵的地方以最低风险考虑噪音的干扰。

Locate the pump at the place with the lowest risk for noise nuisance.

1. 安装泵的地方，在一个水平，稳定干燥和无冰冻的一个房间。
2. Place and install the pump on a level, stable surface in a dry and without frost free room.
2. 保证空气可以流动能充分冷却风扇马达。自由空间的冷却，至少应该是 1/4 风扇直径盖进气口。
Make sure that sufficient air can reach the cooling fan of the motor. For this purpose the free space above the cooling fan should be at least 1/4 of the diameter of the fan cover air intake.
3. 安装泵防止法兰相反，水泵的安装非标准化时，查看水泵安装表。
Install the pump with counter flanges. For pumps with non standardised connections, counter flanges are delivered separately.
4. 泵与阀门的连接另行规定
It is advised to install a valve on the supply and on the delivered separately.
5. 停运时，避免介质回流通过泵，确定安装一个止回阀。
To avoid medium flowing back through the pump, when idle, make sure a non return valve is installed.



注意 ATTENTION

参照表格连接电机，同时检查旋转方向

Connect the motor according to table and always check the rotation direction.

电气连接:

Electrical connections:

- 确保选型正确，按照水泵、电机、电气按图正确接线

Make sure that the motor specifications correspond with the power supply to which the pump motor is connected. Consult "Electrical diagrams" in the annexes for the correct connection diagram.

- 使用电机安全开关连接电机

Connect the motor using a motor safety switch.

7.4 试运行 Commissioning



警告 WARNING

启动泵电机时，注意泵内要充满介质。

The pump must not be switched on when it is not completely filled up.



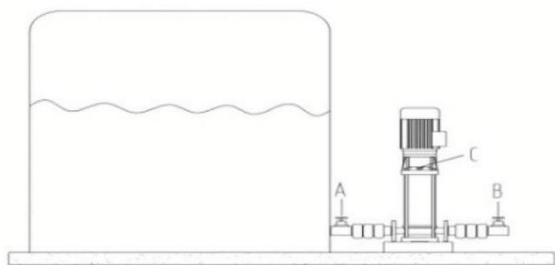
注意 ATTENTION

从电机顶部看电机旋转方向，改变方向可以通过交换电机三相连接方式

Seen from the top of the motor the pump should rotate clockwise. See 7.1.1 Indicators 17(B). In case of a 3phase motor the rotating direction can be changed by exchanging two of the three phase wires.

7.4.1 调节回路，提供压力

In an open or closed circuit with sufficient supply pressure.



1. 打开进水阀(A)和关闭出水阀(B)

Open the suction shut-off valve(A) and the outlet shut-off valve(B).

2. 打开排气阀(C)

Open the fill plug(C)

3. 逐渐打开进水截止阀，直到有液体流过排气阀(C).

Gradually open the suction shut-off valve until the liquid flows from the fill plug(C).

4. 关闭排气阀.

Close the fill plug.

5. 完全打开进口截止阀.

Fully open the suction shut-off valve.

6. 检查泵的旋转方向.

Check the rotational direction of the pump.

7. 完全打开出口截止阀.

Fully open the outlet shut-off valve.

7.4.2 后续运行.

After an extended period of non-operation or storage.

第一次运行检查机械密封是否漏水。如果有，请参照下列方式

During first start-up, check the mechanical seals for leakage. If so, Please proceed as following:

1. 手动转动轴

Turn shaft manually

2. 启动泵，正常运行下调节进出口阀门

Start up the pump, then open and close the outlet shut-off valve quickly during operation.

3. 检查机械密封是否还在漏水

Check if the mechanical seal is still leaking.

如果轴还在漏水:

If the shaft is still leaking:

1. 拆卸机械密封.

Disassemble the mechanical seal.

2. 对其表面进行清洁处理.

Thoroughly clean and decrease the running surfaces.

3. 重新装配机械密封.

Assemble mechanical seal and start-up.

如果没有解决轴泄漏，有必要更换机械密封.

If doesn't solve, replace the mechanical seal

更换机封步骤及注意事项:

Steps and precautions for replacing machine seal:

1. 依次拆下防护罩和联轴器。

Remove the guard and coupling in turn

2. 松开电机座与电机紧固件，拆下电机。

Loosen the motor base and the motor fastener, Remove motor.

3. 松开四个拉杆螺丝，依次拆下电机座及泵盖。

Loosen the four pull rod bolts, Remove motor base and pump cover in turn.

4. 拆下旧机封，按照机封图纸所标顺序装好机封。

Remove old machine seals, Install the seals in the order marked on the drawings.

5. 压上泵盖，装上电机座，预紧4个拉杆螺母，装上电机，紧固电机和电机座螺栓。

Press on pump cover, Install the motor base, pretighten 4 pullrod nuts, install the motor, and tighten the motor and motor base bolts.

6. 在电机轴和泵轴上装配联轴器，联轴器螺栓稍微预紧。

Assemble coupling on motor shaft and pump shaft, coupling bolt little tight.

7. 手盘联轴器能轻松转动，并用撬棒抬联轴器使泵芯逐步往上调节1.5-2.5mm。

The hand plate coupling can rotate easily, and lift the coupling with a crowbar to gradually adjust the pump core upward to 1.5-2.5mm

8. 紧固4个拉杆螺母，必须对角紧固。

Tighten the 4 pull rod nuts, It must be tightened diagonally.

9. 用撬棒抬联轴器使泵芯抬至最高，然后往下撬 2mm，最后紧固联轴器螺栓，联轴器夹块间隙要上下一致。紧固后确保联轴器能转动灵活，无卡涩。

Lift the coupling with crowbar to make the pump core lift to the highest level, then pry down for 2mm, and finally fasten the coupling bolts. The gap between the coupling clamp blocks shall be the same. After fastening, ensure that the coupling can rotate flexibly without jamming.

8、运行 Condition

8.1 运行 Condition

泵的控制不需要操作说明

The pump is controlled externally and therefore does not need any operation guidance.

9、维护保养 Maintenance

9.1 介绍 Introduction



警告 ATTENTION 为了安装、维护和修理请遵守一般安全措施 Observe the general safety precautions for installation maintenance and repair.

定期保养、正确操作、水泵维护咨询请联系“洁冠”客服中心。

Regular maintenance is necessary for the correct operation of a pump. For maintenance of the pump, please contact your supplier "JIEGUAN".

9.2 润滑 Lubrication

电动机和轴承在运行 2000 小时后必须定期润滑。如果泵在极端环境下，例如高温、振动，必须定期经常润滑。

Motors with lubricating nipples must be lubricated after 2000 hours. If the pump works under extreme conditions, such as vibrations and high temperatures, the motors must be lubricated more often.

使用-30℃/160℃轴承润滑油。

Use a lithium based -30℃/160 °C bearing lubricant (about 15 grams).

当发送的泵没有配电机或者配套电机与原厂不一致或品牌被其他的替代而不是“洁冠”验证合格的电机供应商产品时，请咨询“洁冠”客户中心。

When the pump is delivered without a motor and fitted with an other brand or the standard motor is replaced by an other brand than "JIEGUAN", please consult the maintenance instructions of the motor supplier.

注意 ATTENTION



按照供应商要求安装水泵电机

Also follow the instructions in 87.2: Mounting a motor on the pump.

9.3 非正常运行的维护

Maintaining of pump for an extended period of non-operation

传动轴 3 个月保养一次

Turn the shaft every three months. This protects the seals from seizure.

在冰冻情况下保护水泵可以按照下列方式：

Protect the pump against if there is a risk of frost. Proceed as follows:

1. 关闭所有阀门、

Close all pump valves.

2. 排尽泵内液体.

Drain each pump and/or the system.

3 把泵上的塞子全部打开.

Open the shut-off and fill/air vent plug, if present.

10、故障 Failures



警告 ATTENTION 在安装，保养，维护前，遵循安全预防措施。

Observe the general safety precautions before install, maintenance and repair.

10.1 DL 系列多级船用和磁力离心泵常见故障及解决方法

common faults and solutions of DL series marine and magnetic centrifugal pump

问题 Problem	可能原因 Possible cause	解决方法 Possible solution	检查点 Check points
沿轴泄漏 Leakage along the shaft	机械密封磨损 Running surfaces of the mechanical seal worn or damaged	更换机械密封 Replace the mechanical seal	见 (see): P25-P38 (10.1.1-10.1.7)
	新泵: 安装出现密封卡住 New pump: seal stuck due to assembly	操作过程中, 快速开、关出口截止阀 Open and close the outlet shutoff valve quickly during operation	
	机械密封安装不正确 Mechanical seal mounted incorrectly	正确安装机械密封, 使用润滑液 Install the mechanical seals correctly, using the lubricant	
	弹性件受损 Elastomers affected by medium	为机械密封使用合适的橡胶 Use the right rubber compound for the mechanical seal	
	压力太高 Pressure too high	使用正确型号的机械密封 Use the right type of mechanical seal	
	轴磨损 Shaft worn	更换轴和机械密封 Replace shaft and mechanical seal	
	无水操作干泵 Pump has been operating without water	更换机械密封 Replace the mechanical seal	
沿着壳体泄露 在顶部支架或 在泵底部 Leakage along the shroud at the top bracket or at the pump foot	O 型圈磨损 O-ring worn	更换 O 型圈 Replace the O-ring	见 (see): P39(10.1.8)
	O 型圈在运行中不耐介质 O-ring not resistant to the medium to be pumped	更换合适的 O 型圈 Replace O-ring by an O-ring with better resistance	
	水泵底部张力过大, 使之变形 Too much tension on the pump foot; it becomes oval	减小管路振动增加链接增加水泵底部 O 型圈张力 Decrease tension on piping Mount the pump foot O-ring's tension less Support the connections	
泵的振动和噪声 Pump is vibrating or noisy	联轴器安装错误 coupling mounted incorrectly	平行安装联轴器 Install the coupling in parallelism	见 (see): P44(10.1.9)
	泵无水 There is no water in the pump	泵补、充水 Fill and vent the pump	
	无水、无电 No supply	检查供水、供电 Make sure there is sufficient supply. Check for blockages in the supply line	
	轴承或电机磨损 Bearing of pump and/or motor worn	更换原厂配件 Have the bearings replaced by a certified company	

问题 Problem	可能原因 Possible cause	解决方法 Possible solution	检查点 Check points
泵的振动和噪声 Pump is vibrating or noisy	汽蚀 Available NPSH too low(cavitation)	提高吸入深度 Improve suction condition	
	泵不在工作范围 Pump does not work in its working range	正确选型、调整工作参数在工作范围内 Select another pump or adjust the system to work within its working range	
	水泵水平安装不平整 Pump is standing on an uneven surface	调水平 Level the surface	
异常 Malfunction	泵内部堵塞 Internal blockage in the pump	检查泵 Have the pump inspected by a certified company	
泵不运转 Pump does not start	终端线夹无电压 No voltage on the terminal clamps	检查电源 Check the power supply	电路 Circuit 主开关 Main switch 保险 Fuses
		检查电机 Check the motor safety relay	漏电开关 Earth leakage switch
	电机过热保护 Thermal motor safety switch triggered	经常发生复位可咨询“洁冠”客服中心 Reset the thermal motor safety. Contact “JIEGUAN” call centers, if this problem connect customer centre.	检查设置电压，调整争取电压值或更换电机 Check if the correct value is set, find the correct value on the motor type plant or replace the motor 见(See):P45(10.1.10)
电机能运行但泵不工作 The motor is running, but the pump does not work	泵轴断了 The pump shaft has broken	可咨询“洁冠”客服中心 Contact “JIEGUAN” call center	见(See):P39(10.1.8)
	联轴器松了 Outlet and/or inlet shut-off valve is closed	拧紧链接螺丝 Tighten the connecting screws to the recommended torque	
泵的流量扬程不够 Pump supplies insufficient capacity and/or pressure	进、出口阀关闭 There is air in the pump	打开进出口阀门 Open both shut-off valves	
	泵内有空气 There is air in the pump	排出空气 vent the pump	
	进口压力不够 The suction pressure is insufficient	增加进口压力 Increase the suction pressure	

问题 Problem	可能原因 Possible cause	解决方法 Possible solution	检查点 Check points
泵的流量 扬程不够 Pump supplies insufficient capacity and/or pressure	泵旋转方向不对 Pump rotates in the wrong direction	改变 3 相线序 Change over L1 and L2 of the three phase supply	
	进水管无法进入 The suction line has not been vented	调整进水管路 Vent the suction line	
	进水管内有空气 Air bubble in the suction line	重装进水管吸入管高于泵 Install the suction line with pump end higher than the other end	
	进水管路由于泄露发生漏气 Pump sucks air because of leakage in the suction line	修复泄漏 Repair the leakage	
	泵内水太少导致气泡堵塞 Too little water consumption so air bubbles clog up in the pump	确定流量，调整泵规格 Make sure the consumption increases or use a smaller pump	
	吸入管径小 The diameter of the suction line is too small	调整管路 Increase the diameter of the suction line	
	流量少 Capacity of water meter in the supply line is too small	增大流量并计量 Increase the capacity of the water meter	
	阀堵塞 Foot valve blocked	清理阀 Clean the foot valve	
	叶轮堵塞 The impeller or the diffuser is blocked	清洗叶轮 Clean the inside of the pump	
	叶轮与扩散器之间的 O 型圈不见 O-ring between impeller and diffuser is gone	更换 O 型圈 Replace the O-rings	
	O 型圈不耐介质 O-ring not resistant to the medium to be pumped	更换 O 型圈 Replace the O-rings	

10.1.1.1 DL4系列船用泵安装指导视频图片

The installation guide video of DL4 series marine pump pictures



DL 立式多级离心泵
JDL4-12.5-U1U1V-I 内装机封更换作业
DL series vertical multistage centrifugal pump
JDL4-12.5-U1U1V-I replacement inside mechanical seal



拆解电机座两侧防护罩
Dismantle the motor stool protective plates on both sides.



拆除联轴器螺栓
Dismantle the coupling bolts



拆除电机座上端螺栓
Dismantle the motor stool bolts



移走电机
Remove the motor.



拆除放气丝堵
Dismantle the vent plug



拆除拉杆螺母
Dismantle the pull rod nuts

拆除拉杆螺母
Dismantle the pull rod nuts



移走电机座
Remove the motor stool

移走电机座
Remove the motor stool



拆除泵盖
Dismantle the pump cover

拆除泵盖
Dismantle the pump cover



拆除机械密封
Dismantle the mechanical seal

拆除机械密封
Dismantle the mechanical seal



新机械密封安装前，请使用润滑脂对O型圈进行润滑
When install the new mechanical seal before, please use the lubrication oil to rubber O ring

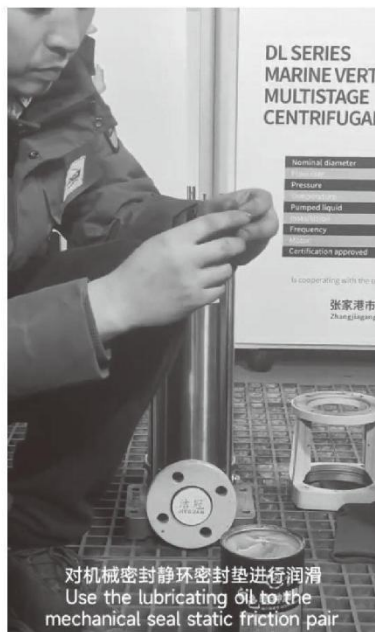
新机械密封安装前，
请使用润滑脂对O型圈进行润滑
When install the new mechanical seal
before, please use the lubrication oil to
rubber O ring



清洁泵轴
Clean the shaft



拆除机械密封静环
Dismantle the mechanical seal static friction



对机械密封静环密封垫进行润滑
Use the lubricating oil to the mechanical seal static friction pair



安装机械密封静环(保持摩擦副镜面清洁)
Keep the static friction pair clean.



安装泵盖
Install the pump cover



安装电机座
Install the motor stool



安装放气丝堵
Install the vent plug



安装电机
Install the motor



安装联轴器
Install the coupling



确保有1-2毫米轴向位移间隙
(参见联轴器作业指导书)
Ensure the shaft have 1-2mm free axial displacement clearance
See the "operation mstruction for coupling adjustment"



联轴器两侧缝隙一致
Ensure the clearance of coupling block is consistent.

联轴器两侧缝隙一致
Ensure the clearance of coupling block is consistent.



安装防护罩
Install protective plates

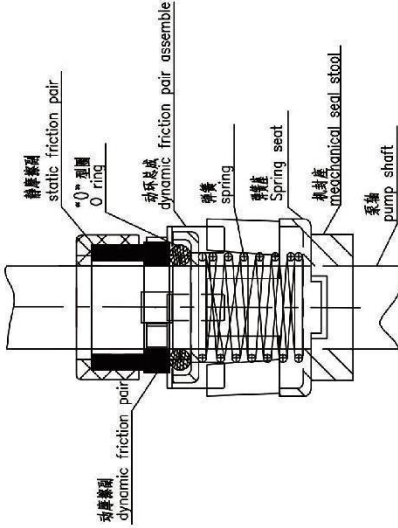
安装防护罩
Install protective plates



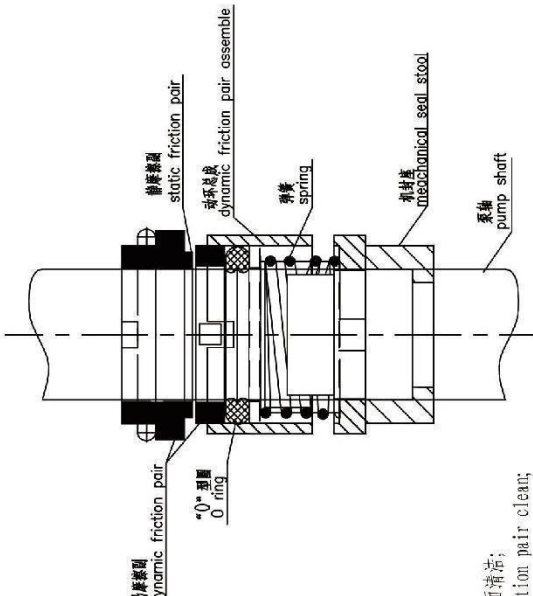
更换作业完成
It's done.

更换作业完成
It's done

10.1.3 JDL8-16-U1U1V-DLin-I内装机械密封更换作业指导书
Standard operating manual replacement of inside mechanical seal of pump

张家港市太平洋泵业制造有限公司 Zhangjiagang Pacific Pump Manufacturing Co., Ltd.		JDL8-16/U1U1V-DLin-I内装机械密封更换作业指导书 JDL8-16/U1U1V-DLin-I Standard operating manual replacement of inside mechanical seal of pump			
		产品图号 Product drawing No	零件图号 Part drawing No	机械密封 mechanical seal	共 1 页 第 1 页
		产品名称 Product name	零件名称 Part name	机械密封 mechanical seal	
		立式多级离心泵 Vertical multistage centrifugal pump			
工序号 Step number	工序内容 Step content	安装简图及注意 Installation diagram and notes			
1	拆除联轴器, 电机座上端螺栓, 移走电机。 Dismantle the coupling bolts, and motor stool bolts, then remove the motor.	 注意: Note: 1. 保持摩擦副镜面清洁; Keep the friction pair clean; 2. 安装前请使用润滑油对O形圈进行润滑。 When installing mechanical seal rubber o ring, use lubricating oil			
2	拆除电机密封垫, 移走电机座和泵盖。 Dismantle the motor stool bolts, then remove the motor stool and pump cover.				
3	3.1 拆除旧的机械密封, 在轴端安装新的机械密封。 Dismantle the old mechanical seal, then install new dynamic friction pair of mechanical seal on shaft. 3.2 在泵盖内安装新机械密封静摩擦副。 Installing new static friction pair of mechanical seal in pump cover.				
插图 Tracing		十字形螺丝起 Cross head driver			
校核 Proofread		梅花扳手 Ring spanner			
底图号 Drawing No		活络扳手 Adjustable spanner			
装订号 Binding No		内六角扳手 Hexagon wrench			
		橡胶榔头 Rubber hammer			
		多功能撬棒 Multifunctional crowbar			
标记 TAB	处数 Number of places	更改文件号 Change document number	签字 sign	日期 date	设计 Design
					黄志花 Huang zhihua
					审核 Examine
					刘竹君 Liu zhu jun
					标准化 Standardization
					会签 Sign
					刘竹君 Liu zhu jun
					版本号 Version number
					V1.0

10.1.4 JDL18-25-U1U1V-I内装机械密封更换作业指导书
Standard operating manual replacement of inside mechanical seal of pump

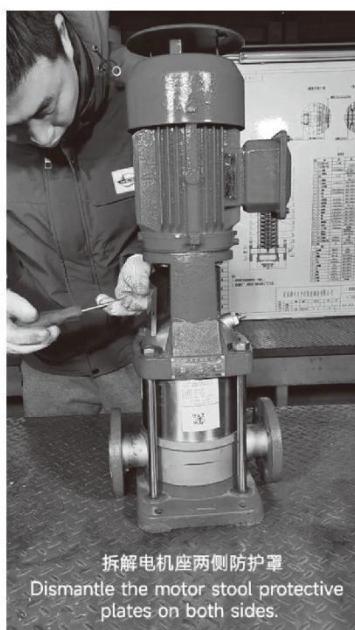
张家港市太平洋泵业制造有限公司 Zhangjiagang Pacific Pump Manufacturing Co., Ltd.				JDL18-25/U1U1V-I Standard operating manual replacement of inside mechanical seal of pump JDL18-25/U1U1V-I内装机械密封更换作业指导书					
工序号 Step number	工序内容 Step content	产品图号 Product drawing No	产品名称 Product name	零件图号 Part drawing No	零件名称 Part name	机械密封 mechanical seal	工具 Tools		
安装简图及注意 Installation diagram and notes									
1	拆除联轴器，电机座一端螺栓，移走电机。 Dismantle the coupling bolts, and motor stool bolts, then remove the motor.								
2	拆除电机座螺栓，移走电机座和泵盖。 Dismantle the motor stool bolts , then remove the motor stool and pump cover.	梅花扳手 Ring spanner							
3	3.1拆除旧的机械密封，在轴端安装新的机械密封摩擦副。 Dismantle the old mechanical seal, then install new dynamic friction pair of mechanical seal on shaft. 3.2在泵壳泵盖内安装新机械密封静摩擦副。 Installing new static friction pair of mechanical seal in pump cover.	活络扳手 Adjustable spanner 内六角扳手 Hexagon wrench 橡胶榔头 Rubber hammer 多功能撬棒 Multifunctional crowbar							
描图 Tracing									
校描 Proofread									
底图号 Drawing No									
装订号 Binding No									
标记 Tab	处数 Number of places	更改文件号 Change document number	签字 Sign	日期 date	设计 Design	审核 Examine	标准化 Standardization	会签 Sign	版本号 Version number
					黄春花 Huang chunhua	刘竹君 Liu zhu jun		刘竹君 Liu zhu jun	V1.0

10.1.5.1 DL-12系列船用泵安装指导视频图片

The installation guide video of DL-12 series marine pump pictures



DL立式多级离心泵
JDL4-12-U2U2V-O外装机封更换作业
DL series vertical multistage centrifugal pump JDL4-12-U2U2V-O replacement external mechanical seal



拆解电机座两侧防护罩
Dismantle the motor stool protective plates on both sides.



拆除联轴器螺栓
Dismantle the coupling bolts.



拆除电机座上端螺栓
Dismantle the motor stool bolts.



移走电机
Remove the motor.



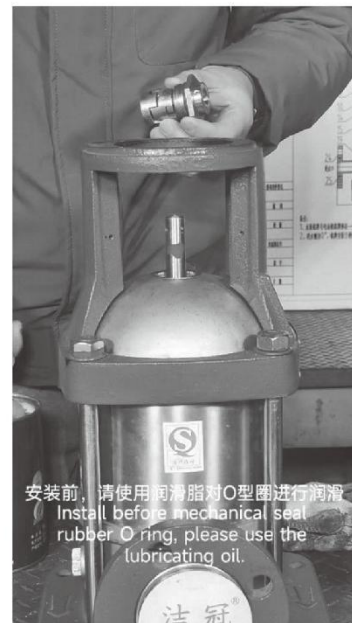
稍微松开三颗机械密封轴套定位螺栓
Loosen the mechanical seal axle sleeve locating bolts.



松开外装机封紧固螺栓
Loosen the external mechanical seal bolts.



拆除旧机械密封，在泵盖上安装新机械密封
Dismantle old mechanical seal, then install new mechanical seal assembly on pump cover.



安装前，请使用润滑脂对O型圈进行润滑
Install before mechanical seal rubber O'ring, please use the lubricating oil.



紧固机械密封轴套定位螺栓
Tighten the mechanical seal axle sleeve locating bolts.



将电机重新装上，紧固螺栓
Installing the motor tighten the bolts.



安装联轴器
Install the coupling.



确保有1-2毫米轴向位移间隙(参见联轴器作业指导书)
Ensure the shaft have 1-2mm free
axial displacement clearance
See the operation mstruction for
coupling adjustment



联轴器两侧缝隙一致
Ensure the clearance of coupling
block is consistent.



安装防护罩
Installing protective plates.



更换作业完成
It's done.



DL立式多级离心泵总成更换作业
DL series vertical multistage centrifugal pump the assembly replacement



拆解电机座两侧防护罩
Dismantle the motor stool protective plates on both sides



拆除联轴器螺栓
Dismantle the coupling bolts.



拆除电机座上端螺栓
Dismantle the motor stool bolts,



移走电机
Remove the motor.



拆除放气丝堵
Dismantle the vent plug



拆除拉杆螺母
Dismantle the pull rod nuts

拆除拉杆螺母
Dismantle the pull rod nuts



移走电机座
Remove the motor stool

移走电机座
Remove the motor stool



拆除泵盖
Dismantle the pump cover

拆除泵盖
Dismantle the pump cover



拆除机械密封
Dismantle the mechanical seal

拆除机械密封
Dismantle the mechanical seal



拆除水泵总成
Remove the assembly

拆除水泵总成
Remove the assembly



安装水泵总成
Install the pump assembly

安装水泵总成
Install the pump assembly



清洁泵轴
Clean the shaft



安装机械密封
(安装前, 请使用润滑脂对O型圈进行润滑, 并保持摩擦副镜面清洁)
Install before mechanical seal rubber
O ring, please use the lubrication oil



安装泵盖
Install the pump cover



安装电机座
Install the motor stool.



安装放气丝堵
Install the vent plug



安装电机
Install the motor



安装联轴器
Install the coupling.



确保有12毫米轴向位移间隙
(参见联轴器作业指导书)
Ensure the shaft have 1-2mm free
axial displacement
clearance See the "operation mstruction for
coupling adjustment"



联轴器两侧缝隙一致
Ensure the clearance of coupling
block is consistent.



安装防护罩
Install protective plates.



更换作业完成
It's done.

10.1.9 联轴器调整作业指导书
Operation instruction for coupling adjustment

张家港市太平洋泵业制造有限公司 Zhangjiagang Pacific Pump Manufacturing Co., Ltd.		联轴器调整作业指导书 Operation instruction for coupling adjustment			
		产品图号 Product drawing No	零件图号 Part drawing No	联轴器 coupling	
		产品名称 Product name	零件名称 Part name	共 1 页 第 1 页	
立式多级离心泵 Vertical multistage centrifugal pump <td>DL6/12-8x10-DN40-0001 <td>DL6/12-8x10-DN40-0201-J <td colspan="2"></td> </td></td>		DL6/12-8x10-DN40-0001 <td>DL6/12-8x10-DN40-0201-J <td colspan="2"></td> </td>	DL6/12-8x10-DN40-0201-J <td colspan="2"></td>		
工序号 Step number	工序名称 Step name	注 意 note			
1	断开电源 switch off the power	注意: Note: 1. 安装联轴器时, 微紧螺栓, 用撬棒使联轴器上下移动, 保持联轴器在中间位置, 微紧螺栓。 When installing the coupling micro tightening bolts, use a crowbar to move the coupling up and down keep the coupling in the middle position locking bolts. 2. 联轴器有1-2mm自由轴向位移可蒙 ensure the shaft have 1-2mm free axial displacement clearance			
	微松开联轴器螺栓, 使轴能上下移动, 用撬棒将联轴器抬至最高, 然后往下移动1-2mm, 紧固联轴器螺栓, 确保联轴器共线同轴上下一致, 转动灵活, 无卡涩。 Loosen the coupling bolts slightly to make the shaft move up and down. Lift the coupling to the highest position with a crowbar, and then move down by 1-2mm to tighten the coupling bolts. Ensure that the clearance of coupling clamp block is consistent up and down, and the coupling can rotate flexibly without jamming.				
2					
3	启动前, 先排气, 将泵内注满水, Before start-up, exhaust first, fill the pump with water.	万用表 Volt/Ohm meter 十字形螺丝起 Cross head driver 内六角扳手 Hexagon wrench 活络扳手 Adjustable spanner 多功能撬棒 Multifunctional crowbar			
标识 Tab	处数 Number of places	更改文件号 Change document number	签字 SIGN	日期 date	设计 Design 黄孝花 Huang Xiaohua
					审核 Examine 刘竹君 Liu zhu jun
					标准化 Standardization
					版本号 Version number V1.0

10.1.10 泵电机更换作业指导书
Standard operating manual replacement of pump motor

张家港市太平洋泵业制造有限公司 Zhangjiagang Pacific Pump Manufacturing Co., Ltd.		泵电机更换作业指导书 Standard operating manual replacement of pump motor							
		产品图号 Product drawing No.	零件图号 Part drawing No.						
		产品名称 Product name	零件名称 Part name	电机 motor	共 1 页 第 1 页				
立式多级离心泵 Vertical multistage centrifugal pump		注 意 note							
工序号 Step number	工 序 内 容 Step content								
1	断开电源 switch off the power	注意: Note: 安装联轴器时, 稍微紧固联轴器螺栓, 使轴能上下移动, 用撬棒将联轴器抬至最高, 然后往下移动 1-2mm, 紧固联轴器螺栓, 确保联轴器夹块间隙上下一致, 转动灵活, 无卡涩。 When installing the coupling, Fastening the coupling bolts slightly ensure the shaft move up and down. Lift the coupling to the highest position with a crowbar, and then move down by 1-2mm to tighten the coupling bolts. Ensure that the clearance of coupling clamp block is consistent up and down, and the coupling can rotate flexibly without jamming.							
2	拆卸电机的螺栓 Dismantle the motor bolts								
3	拆卸联轴器螺栓 Dismantle the coupling bolts								
4	拆卸电机 Dismantle the motor								
5	安装新电机 Install the new motor								
工具 Tools	万用表 Volt/Ohm meter 十字形螺丝起 Cross head driver 活络扳手 Adjustable spanner 多功能撬棒 Multifunctional crowbar 梅花扳手 Ring spanner								
描 图 Tracing									
校 描 Proofread									
底图号 Drawing No									
装订号 Binding No									
标记 Tab	处数 Number of places	更改文件号 Change document number	签字 Sign	日期 date	设计 Design	审核 Examine	标准化 Standardization	会签 Sign	版本号 Version number
					黄春花 Huang Chunhua	刘竹君 Liu zhu jun		刘竹君 Liu zhu jun	V1.0

10.1.11 DL-G 系列船用高扬程立式多级离心泵安装指导图片

The installation guide pictures of DL-G series Marine high lift vertical multistage centrifugal pump



在泵轴上安装叶轮平键
Installation impeller key on the shaft.



在泵轴上安装平衡鼓
Installation pump balance drum on the shaft.



在泵出口段安装末级导叶
Installation last guide impeller in the discharge body.



泵轴底部用木块垫高，
使平衡鼓高于末级导叶
Ensure the copper balance drum more
than height guide impeller plane.



安装叶轮
Installation the impeller.



安装导流壳
Installation the pump guide housing.



安装轴承导叶
Installation bearing guide impeller.



先安装短间级套，再安装合金内圈，
合金内圈槽口对准泵轴平键槽口。
First installation short stage sleeve, second
installation inner shaft sleeve, make
sure the key-way with shaft key-way.



将平键安装到泵轴槽口处
Installation the key on the shaft key-way.
Key-way.



安装叶轮
Installation the impeller again.



安装导流壳
Installation the guide housing.



安装普通导叶。
Installation common guide impeller.



安装长间级套，
长间级套槽口对准泵轴槽口
Installation long stage sleeve make
sure the key-way with shaft key-way.



安装平键
Installation the key.



安装叶轮
Installation the impeller.



安装导流壳
Installation guide housing.



安装普通导叶
Installation common guide impeller.



安装长间级套，
长间级套槽口对准泵轴槽口
Installation long stage sleeve make sure
the key-way with shaft key-way.



安装平键
Installation the key.



安装叶轮
Installation impeller.



安装导流壳
Installation guide housing.



安装普通导叶
Installation common guide impeller.



安装长间级套,
长间级套槽口对准泵轴槽口
Installation long sleeve make sure
the key-way with shaft
key-way.



安装平键
Installation the key.



安装叶轮
Installation the impeller.



安装导流壳
Installation guide housing.



安装普通导叶
Installation guide impeller.



安装长间级套，
长间级套槽口对准泵轴槽口
Installation long sleeve make
Sure the key-way with shaft
key-way.



安装平键
Installation the key.



安装叶轮
Installation impeller.



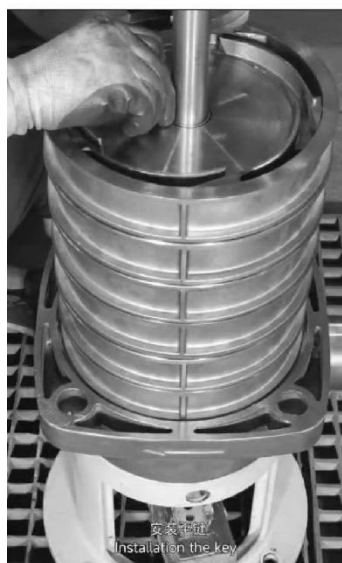
安装导流壳
Installation guide housing.



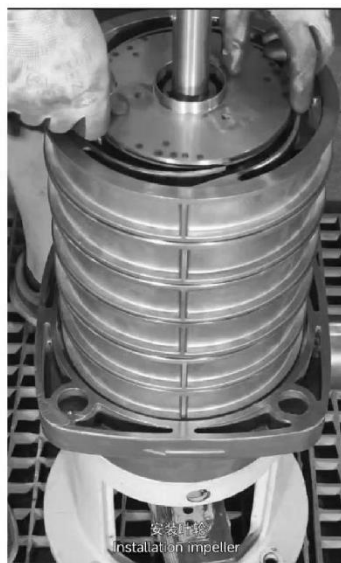
安装普通导叶
Installation common guide impeller.



安装长间级套,
长间级套槽口对准泵轴槽口
Installation long sleeve make sure
the key-way with shaft
key-way.



安装平键
Installation the key.



安装叶轮
Installation impeller.



安装导流壳
Installation guide housin.



安装普通导叶
Installation common guide impeller.



安装长间级套，
长间级套槽口对准泵轴槽口
Installation long sleeve make sure
the key-way with shaft key-way.



安装平键
Installation the key.



安装叶轮
Installation impeller.



安装导流壳
Installation guide housin.



安装轴承导叶
Installation bearing guide
impeller.



安装短间级套，再安装合金内圈，合金内圈槽口对准泵轴槽口。

Installation short sleeve, then installation inner sleeve gain, make sure the key-way with shaft key-way.



安装平键
Installation the key



安装叶轮
Installation impeller



安装末间级套和垫片，再拧上开槽螺母

Installation last sleeve and flat gasket and tighten slotted nut.



上紧开槽螺母
Tighten slotted nut again.



插入开口销并锁住
Insert cotter and locking.



在进水段上安装四根拉杆
Installation four rods on the
suction body.



进水段和泵体连接
Installation the suction body with
pump body.



用螺栓拧紧四根拉杆
Tighten nut for rods.



安装机械密封，机械密封槽口对准泵
轴上的定位销，镜面朝上安装。
Installation the mechanical seal,
make sure mechanical hole with
shaft dowel right and the dynamic
friction pair seat to up.



安装机械密封盖，并上紧螺栓。
Installation mechanical cover
and
Tighten nuts.



安装电机
Installation motor.



安装四颗螺栓并上紧
Tighten motor nuts.



安装联轴器定位销
Installation coupling dowel.



安装联轴器
Installation coupling.

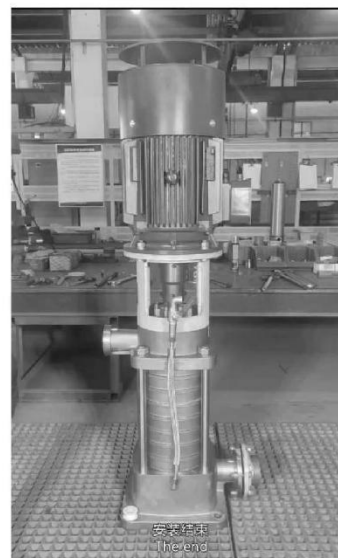


微紧螺栓，用撬棒使联轴器上下移位，保持联轴器处于中间位置后，确保泵轴有1-2毫米自由轴向位移间隙。

When installing the coupling, micro tightening bolts, using a crowbar to move the coupling up and down, keep the coupling in the middle position (ensure the shaft have 1-2mm free axial displacement clearance) lock bolts.



安装机封冷却管
Installation mechanical seal chamber cooling pipe.

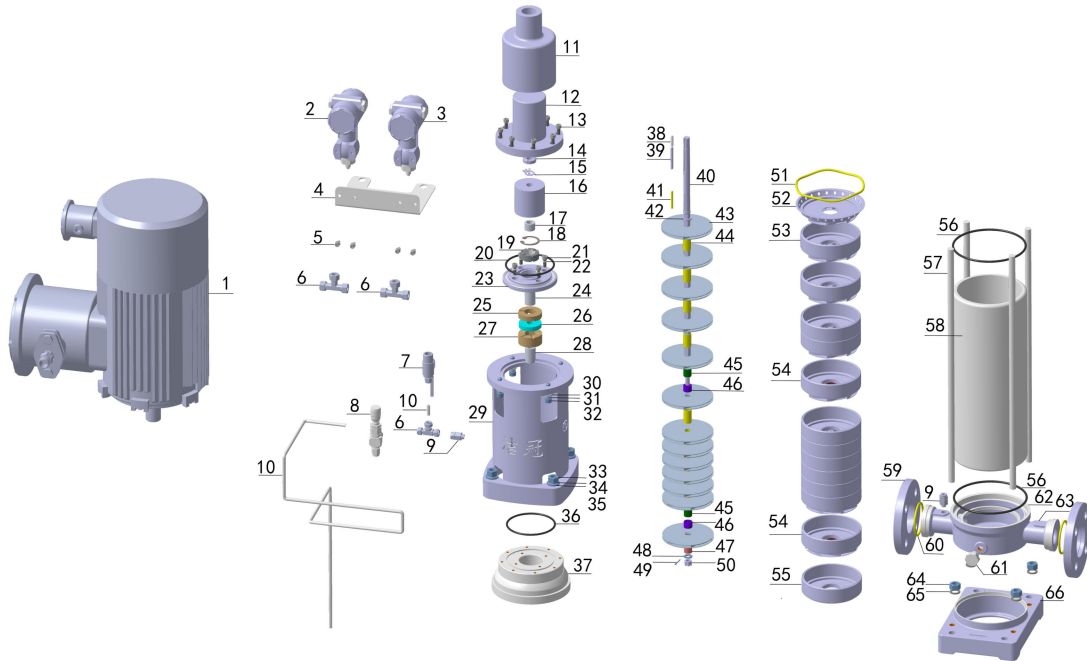


安装结束
The end.

10. 1. 12 DL-CM 系列磁力联轴器多级船用离心泵常见故障及解决方法

Common faults and solutions of DL-CM series magnetic coupling centrifugal multistage marine pump

1) 部件清单 List of parts



序号 NO.	部件名称 Name of parts	材质 Material quality	商品编码 product code
1	电动机 Motor	防爆电动机 Explosion-proof motor	205700040363
2	防爆压力变送器 Explosion-proof pressure transmitter	测量接触材质不锈钢 316L Measuring contact material Stainless Steel 022Cr17Ni12Mo2	101200061010
3	防爆温度变送器 Explosion-proof temperature transmitter	测量接触材质不锈钢 316L Measuring contact material Stainless Steel 022Cr17Ni12Mo2	103010061020
4	压力表背板 Pressure gauge back plate	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	405260004010
5	螺栓 Bolt	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102036006010
6	卡套三通 Tube Tee Connector	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	300026006012
7	空气排出球阀 Air discharge ball valve interface	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	103516040025
8	带刻度微量调节阀 Graduated micro regulating valve	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	101200070010

9	卡套直通 Tube Straight Connector	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	300026006011
10	多路径自润滑循环冷却管 Multi-Path Self-Lubricating Recirculating Cooling Tube	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	408016004010
11	外磁环 outer magnetic ring	316L 不锈钢/钐钴/钕铁硼 Stainless Steel/Samarium cobalt/Neodymium iron shed 022Cr17Ni12Mo2	207010004011
12	隔离套 isolating sleeve	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	207010004012
13	螺栓 Bolt	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102036006025
14	锁紧螺母 Locking nut	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102015005081
15	止退垫片 Stop gasket	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102015005082
16	内磁环 inner magnetic ring	316L 不锈钢/钐钴/钕铁硼 Stainless Steel/Samarium cobalt/Neodymium iron shed 022Cr17Ni12Mo2	207010004013
17	轴套 Shaft sleeve	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	408116004010
18	止推单元卡簧 Thrust bearing unit circlip	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	205320004011
19	止推单元定轴承 Thrust bearing unit alloy outer ring	浸渍石墨 Impregnated Graphite	207468004010
20	止推单元 O 形圈 Thrust bearing unit O-ring	三元乙丙橡胶 Ethylene-Propylene-Diene Monomer	102510090035
21	螺栓 Bolt	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102036006016
22	弹垫 Spring washer	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102016002060
23	止推单元压盖 Thrust bearing unit cover	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	408076004010
24	止推单元合金内圈 Thrust bearing unit alloy inner ring	硬质合金 YG8-14.5 cemented carbide	207468004011

25	止推单元上轴承 Thrust bearing unit upper bearing	浸渍石墨 Impregnated Graphite	207468004014
26	止推单元推力盘 Thrust bearing unit thrust disc	硬质合金 YG8-14.5 cemented carbide	207468004012
27	止推单元下轴承 Thrust bearing unit lower bearing	浸渍石墨 Impregnated Graphite	207468004015
28	止推单元导轴承 Thrust bearing unit guide bearing	硬质合金 YG8-14.5 cemented carbide	207468004013
29	电机支架 Motor base	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	408196004030
30	平垫 Flat gasket	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102016001080
31	弹垫 Spring washer	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102016002080
32	螺栓 Bolt	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102036008035
33	螺母 Nut	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102016003120
34	弹垫 Spring washer	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102016002120
35	平垫 Flat gasket	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102016001120
36	泵盖 O 形圈 Pump cover O-ring	三元乙丙橡胶 Ethylene-Propylene-Diene Monomer	102510090035
37	一体式止推轴承泵盖 Integrated Thrust Bearing pump cover	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	408216004010
38	内磁环平键 Inner magnetic ring flat key	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102065003084
39	推力盘平键 Thrust disc flat key	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102065003085
40	泵轴 Pump shaft	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	408146004130
41	导轴承平键 Guide bearing flat key	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102065003086

42	轴挡套 Shaft sleeve	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	405116004010
43	叶轮 Impeller	316L 不锈钢 Cold rolled stainless steel plage 022Cr17Ni12Mo2	405016002010
44	长间级套 Long interstage sleeve	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	205096004030
45	滑动轴承 Sliding bearing	硬质合金 YG8-14.5 cemented carbide	205467004021
46	短间级套 Short interstage sleeve	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	205096004020
47	末级套 Last instestage sleeve	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	205096004030
48	平垫 Flat gasket	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102015001080
49	开口销 Split pin	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102065001025
50	左旋槽型螺母 Left-Hand Slotted Nut	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102015005080
51	波形弹簧 Waveform spring	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	205336004010
52	出口导流器 Output deflector	316L 不锈钢 Cold rolled stainless steel plage 022Cr17Ni12Mo2	405036004010
53	普通导流器 Ordinary deflector	316L 不锈钢 Cold rolled stainless steel plage 022Cr17Ni12Mo2	405026004011
54	轴承导流器 Bearing deflector	316L 不锈钢 Cold rolled stainless steel plage 022Cr17Ni12Mo2	405056004014
55	底部导流器 Bottom deflector	316L 不锈钢 Cold rolled stainless steel plage 022Cr17Ni12Mo2	405046004011
56	泵体 O 型圈 Pump casing "O" ring seal	三元乙丙橡胶 Ethylene Propylene Diene Monomer	102510140050
57	长螺丝杆 Long screw rod	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	405516012490
58	压力壳 Pressure casing	316L 不锈钢 Cold rolled stainless steel plage 022Cr17Ni12Mo2	405156004131
59	活络法兰 Flexible flange	316L 不锈钢 Staniless stee 022Cr17Ni12Mo2	205636025010
60	活络法兰卡簧 Flexible flange circlip	65MN	205320004010

61	残留液丝堵/氮气吹扫进口 Residual Liquid Clogging/Nitrogen Purge Inlet	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	205405010011
62	进出水段 Suction and discharge section	316L 不锈钢铸件 Corrosion-resistant steel castings ZG03Cr19Ni11Mo2	405186004012
63	出口压力表取压口 Outlet pressure gauge tapping port	316L 不锈钢铸件 Corrosion-resistant steel castings ZG03Cr19Ni11Mo2	405205004011
64	螺母 Nut	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102016003120
65	自锁垫圈 Self-locking washer	316L 不锈钢 Stainless Steel 022Cr17Ni12Mo2	102010005120
66	进出水段座 Suction and discharge section base	316L 不锈钢铸件 Corrosion-resistant steel castings ZG03Cr19Ni11Mo2	405205004011

2) 使用说明 Warning

a、泵启动前必须排气：

The pump start before must be exhaust-air:

开启泵的进出口阀，泵冷却液和排气管微量调节阀，实现磁力泵的自动排气和对止推轴承及磁力联轴器的冷却。

1、Opening the input and output valve of pump.

2、Opening the cooling and exhaust-air micro regulating valve of pump.

3、Ensure the pump can automatic exhaust-air, and cooling liquid use to the thrust bearing unit and magnetic coupling.

b、因磁力泵轴承的冷却和润滑是靠被输送的介质，所以绝对禁止空运转，同时避免在工作中途停电后再启动时所造成时空载运转。

Since the cooling and lubrication of the magnetic pump bearings rely on the conveyed medium, idling is absolutely prohibited, and at the same time, avoiding idling operation caused by restarting after a power cut in the middle of the work .

c、在出口阀关闭的情况下，泵连续运转时间不得超过 2 分钟，以防磁力联轴器过热而失效。

When state of closed putout valve, the pump work time must less then 2 min make sure the magnetic coupling do not heating.

d、被输送介质中，若含有固体颗粒，泵入口要加过滤网：如含有铁磁质微粒，需加磁性过滤器。

If the conveyed medium contains solid particles, a filter should be added to the pump inlet: if it contains ferromagnetic particles, a magnetic filter should be added.

e、泵在使用中环境温度应小于 40℃，电机温升不得超过 75℃。

When the pump is in use, the ambient temperature should be less than 40℃, and the temperature rise of the motor should not exceed 75℃.

f、对于输送液为易沉淀易结晶的介质，使用后应及时清洗，排净泵内积液。

For the medium that is easy to settle and build up, the conveying fluid should be cleaned in time after use to drain the liquid accumulation in the pump.

g、磁力泵正常运行 1000 小时后，应拆检止推轴承单元的磨损情况，并更换不宜再用的易损件。

After 1000 hours of normal operation of the magnetic pump, the wear of the thrust bearing unit

should be disassembled and inspected, and the wearing parts that are not suitable for reuse should be replaced.

h、DL-CM 系列磁力联轴器多级船用立式离心泵采用高性能永磁材料，可能对下列器件产生潜在危害，请将下列器件与本系列泵保持距离。如：心脏起搏器、信用卡及其它磁卡、计算器、计算机硬盘、手表等。

The DL-CM series magnetic coupling multistage vertical centrifugal marine use high-performance permanent magnet materials, which may cause potential harm to the following devices. Please keep the following devices away from this series of pumps. Such as: pacemakers, credit cards and other magnetic cards, calculators, computer disks, watches, etc.

i、泵冷却液温度和压力微量调节阀操作

Adjustment of micro regulating valve of pump for cooling liquid temperature and pressure.

1、常开，随冷却液温度和压力变化手动调节。

Normally open. manual adjustment with the cooling liquid temperature and pressure variation.

2、运行时定期记录冷却液温度和压力变化。

Regular records the cooling liquid temperature and pressure variation with pump in operation.

3、冷却液温度设定小于 50-60 摄氏度。

The cooling liquid temperature less than 50-60°C.

4、冷却液压力设定小于 0.04-0.06mpa.

The cooling liquid pressure less than 0.04-0.06mpa.

j、泵严禁无液空转

The pump strictly prohibit without liquid idling.

k、泵在出口阀关闭的情况下，泵连续运转时间不得超过 2 分钟，以防磁力联轴器过热而失效。

When state of closed putout valve, the pump work time must less then 2 min, make sure the magnetic coupling do not heating.

3) 常见故障及解决方法

Common faults and solutions

问题 problem	可能原因 possible cause	解决方法 troubleshoot	检查点 Check points
止推轴承损坏 The thrust bearing broken	介质中含有颗粒物 The medium contain hard particle	更换 Replacement	
磁力联轴器失效或退磁 The magnetic coupling lose effectiveness or demagnetization	介质中含有铁磁杂质或冷却液温度过高 The liquid gab bad contain particle of steel and magnetic of substance or the cooling flow not enough	a: 安装磁性过滤器 installing magnetic filter for the suction of pump b: 清洗冷却管 cleaning the cooling pipe	

泵不出液 No liquid from the pump	泵反转 The pump is reversed 泵腔蓄液不足 Insufficient liquid storage in the pump cavity 电压太高，启动时联轴器打滑 The voltage is too high and the coupling slips when Starting 没有灌液或泵内灌液不足 No liquid or insufficient liquid in the pump 叶轮受阻不转 The impeller is blocked and does not rotate	改变电机接线 Change the wiring of the motor 增加蓄液量 Increase the amount of liquid storage 调正电压 Adjust the voltage 放净空气、灌满液体 Drain the air and fill with liquid 清洗叶轮、泵壳、隔离套 Clean the impeller, pump casing and isolation sleeve	
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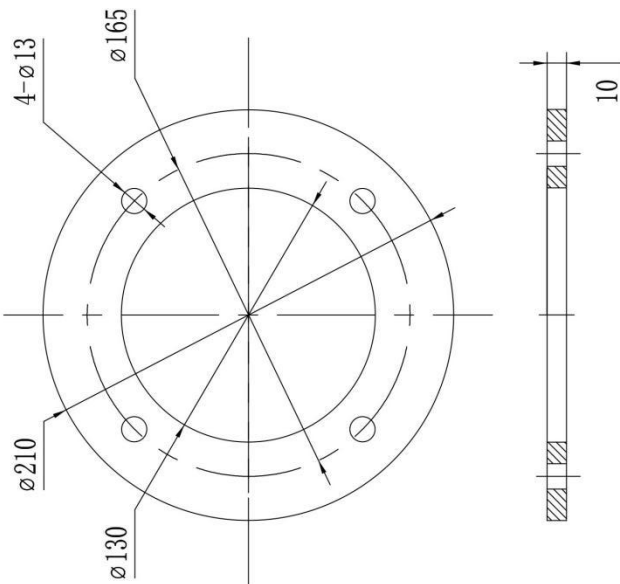
10.1.13 DL-CM 止推轴承单元安装作业指导书

Install standard operating manual of DL-CM Thrust bearing unit

DL-CM止推轴承单元安装作业指导书				Install standard operating manual of DL-CM Thrust bearing unit			
产品图号		DL-CM		零件图号		DL-CM	
Product drawing No.				Part drawing No.			
产品名称		磁力联轴器多磁极用离心泵		零件名称		止推轴承单元	
Product name		Magnetic couplings multistage		Part name		Thrust bearing unit	
		vertical centrifugal pumps in ships				Total page of	
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10.1.17 DL-CM 法兰式专用工具使用方法

Usage method of DL-CM flange type special tool

DL-CM法兰式专用工具使用方法				DL-CM flange type special tool			
产品图号		零件图号		DL-CM		TPY-20241025003	
产品名称		零件名称		法兰式专用工具		共 1 页 第 1 页	
Product name		Magnetic couplings unit flange vertical centrifugal pumps in ships		Flange type special tool		Total page of	
序号		内容		法兰式专用工具简图			
No.		Contents		Diagram of flange type special tool			
1		法兰式专用工具主要作用：紧固长螺栓杆，调节磁力联轴器内磁环轴向间隙，安装磁力联轴器隔离套时使用。 The main function of the flange type special tool is to tighten the long screw rods, adjust the axial clearance of the magnetic ring in the magnetic coupling, and install the magnetic coupling isolation sleeve.					
2		安装：在止推单元压盖安装完成后，使用法兰式专用工具安装在泵盖上，紧固长螺栓杆，安装轴套，磁力联轴器内磁环平键，内磁环，止退垫片和锁紧螺母，在安装止推单元O型圈和磁力联轴器隔离套后，即可拆除法兰式专用工具。 Installation: After the thrust unit cover is installed, install the flange type special tool on the pump cover than, tighten the long screw rods, install the shaft sleeve, and the inner magnetic ring flat key in the magnetic coupling, the inner magnetic ring, the stop gasket and the lock nut, and take off the flange type special tool after installing the thrust unit O-ring and the magnetic coupling isolation sleeve.					
3		拆除：在拆除电机支架和2根长螺栓杆后，使用法兰式专用工具安装在泵盖上，紧固另2根长螺栓杆，拆除磁力联轴器螺栓、磁力联轴器、止推轴承单元和止推单元压盖后即可拆除法兰式专用工具。 Dismantle: After take off the motor base and 2 long screw rods, install the flange tool on the pump cover, tighten another 2 long screw rods, take off the magnetic coupling bolt, magnetic coupling, thrust bearing unit and thrust unit cover, and then take off the flange type special tool.					
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10. 1. 18 DL-CM 电机、压力和温度变送器接线作业指导书

Standard operating manual of DL-CM motor and pressure and temperature transmitter connection chart

张家港市太平洋泵业制造有限公司 ZhangJiagang Pacific Pump MFG CO., LTD					DL-CM系列电机、防爆温度/压力传感器接线作业指导书 Standard operating manual of DL-CM series motor、Explosion-proof temperature / pressure transducer				
产品图号 Product drawing No.		DL-CM2.4/4-SXN-UN32-0001		零件图号 Part drawing No.		205700022317/103010061020/103010061010			
产品名称 Product name		磁力联轴器多级立式船用离心泵 Magnetic couplings multistage vertical centrifugal pumps in ships		零件名称 Part name		电机、防爆温度/压力传感器 Motor、Explosion-proof temperature / pressure transducer			
电机接线端子图 Motor terminal connection chart		防爆温度/压力传感器接线端子图 Explosion-proof temperature / pressure transducer terminal connection chart		防暴温度和压力传感器电缆的通过范围：6-12mm Explosion-proof temperature/pressure transducer cable diameter range: 6-12mm					
W2 U2 V2 U1 V1 W1 △		← 4~20mA 直流电源 数显表 4~20mA →							
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10.1.19 DL-CM 管道螺纹密封胶使用方法
Usage method of DL-CM pipe thread sealant

张家港市太平洋泵业制造有限公司 Zhangjiagang Pacific Pump MFG CO., LTD		DL-CM管道螺纹密封胶使用方法 Usage method of DL-CM Pipe thread sealant				TPY-20250108002
		产品图号 Product drawing No.	DL-CM	零件图号 Part drawing No.	DL-CM	共 1 页 第 1 页 Total page of
		产品名称 Product name	磁力联轴器多级轴用离心泵 Magnetic couplings multistage vertical centrifugal pumps in ships	零件名称 Part name	管道螺纹密封胶 Pipe thread sealant	
序号 No.	内 容 Contents					
1	管道螺纹密封胶用于锁固和密封金属螺纹接头，在两个紧密配合的金属表面间，与空气隔绝时固话，防止由于收到冲击和震动而导致的松动和泄露。 Pipe thread sealant is used to lock and seal metal pipe thread joints between two tightly fitting metal surfaces, isolated from air when fixed, to prevent loosening and leakage due to shock and vibration. 安装： 1、彻底清洗材料内外表面，待表面干燥后再进行下一步操作。 2、将密封胶涂施一圈于外螺纹前端螺纹上，不要涂施第一节螺纹。上紧螺纹，从而完全填充空隙。对于较大的螺纹与空隙，相应调整产品用量并且同时在内外螺纹上也涂施一圈。 3、安装和拧紧配件，直到装配位置合适为止。 4、完全装配好的连接件具有一定的即时密封能力，为了确保具有最大的耐压和耐溶剂性能，要确保密封胶至少固话24小时，以确保固话完全。 Installation: 1, thoroughly clean the internal and external surfaces of the material, and then proceed to the next step after the surface is dry. 2, apply sealant on the front end of the external thread, do not apply the first thread. Tighten the thread to completely fill the gap. For larger threads and voids, adjust the product dosage accordingly and apply a circle to the inner thread at the same time. 3, install and tighten the accessories until the assembly position is suitable. 4, the fully assembled connector has a certain instant sealing ability, in order to ensure the maximum pressure and solvent resistance, to ensure that the sealant is fixed for at least 24 hours to ensure that the fixed line is complete.					
3	拆卸： 1、用标准手工工具拆卸。 2、固化产品可以通过在溶剂中浸润与机械刮擦（如钢丝刷）结合进行拆除。 Remove: 1. Disassemble with standard hand tools. 2. the cured product can be removed by wetting in the solvent combined with mechanical scraping (such as wire brush).					
4	平均拆卸力矩： Average disassembly torque: M10 不锈钢制螺母螺栓 Stainless steel nut bolt : 1.9 N.m					
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10. 1. 20 DL-CM 船用磁力泵日常操作维护作业指导书

Standard operating manual of DL-CM marine magnetic drive pump Daily Maintenance

张家港市太平洋泵业制造有限公司 Zhangjiagang Pacific Pump MFG CO., LTD		DL-CM船用磁力泵日常操作维护作业指导书				Standard operating manual of DL-CM Marine Magnetic Drive Pump Maintenance						
		产品图号 Product drawing No. 产品名称 Product name	DL-CM	零件图号 Part drawing No. 零件名称 Part name	/	共 4 页 第 1 页 Total page page of						
检修磁力泵是一项细致操作的工作，主要涉及检查、维护和修复泵的关键部件，以确保其无泄漏、高效运行。以下是磁力泵检修的主要工作内容及步骤： Maintenance of magnetic drive pumps is a meticulous task that primarily involves inspection, servicing, and repair of critical components to ensure leak-free and efficient operation. Below are the key steps and procedures for magnetic drive pump maintenance:		一、检修前准备 Pre-Maintenance Preparation: 1、安全措施 Safety Measures: 1.1 切断电源并上锁挂牌 (LOTO)，确保安全作业；Disconnect power and implement Lockout-Tagout (LOTO) to ensure safe operation. 1.2 排空泵内介质，防止有毒或腐蚀性液体泄漏； Drain the pump of all media to prevent leakage of toxic or corrosive liquids. 1.3 佩戴防护装备 (手套、护目镜等)。Wear protective gear (gloves, goggles, etc.). 2、工具与材料 Tools and Materials: 2.1 准备专用工具 (如磁力强度检测仪)、更换件 (如止推单元、密封圈)； Prepare specialized tools (e.g., magnetic strength tester) and replacement parts (e.g., thrust unit, sealing rings). 2.2 查阅DL-CM船用磁力泵维护手册，了解结构 (如隔离套、磁转子位置)。Refer to the DL-CM Marine Magnetic Pump Maintenance Manual to understand the structure (e.g., isolation sleeve, magnetic rotor positioning).										
二、拆卸与检查 Disassembly and Inspection: 1、检查泵体有无裂纹、腐蚀或渗漏痕迹。Check the pump casing for cracks, corrosion, or signs of leakage. 2、确认进出口法兰、螺栓紧固状态。Verify the tightness of inlet/outlet flanges and bolts. 3、拆卸部件：依次拆解电机、磁力联轴器、泵转子单元。Sequentially disassemble the motor, magnetic coupling, and pump rotor assembly. 4、重点拆卸磁力驱动部分 Key Disassembly of Magnetic Drive Section: 4.1 分离外磁环和内磁环，检查磁体有无退磁、破损、铁磁杂质、硬质颗粒； Separate the outer and inner magnetic ring; inspect for demagnetization, damage, ferromagnetic impurities, or hard particles. 4.2 检查隔离套有无外部磁场干扰。Check the isolation sleeve for external magnetic interference.		5、关键部件检查: 5.1 滑动轴承：检查磨损、润滑情况，必要时更换； Sliding Bearings: Inspect for wear and lubrication; replace if necessary. 5.2 轴和轴套：测量轴跳动，检查磨损或划痕； Shaft and Sleeve: Measure shaft runout; check for wear or scratches. 5.3 密封系统：检查O型圈、垫片是否老化或变形； Sealing System: Inspect O-rings and gaskets for aging or deformation. 5.4 叶轮：检查平衡性、腐蚀或气蚀现象。Impeller: Check balance, corrosion, or cavitation marks.										
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DL-CM船用磁力泵日常操作维护作业指导书		Standard operating manual of DL-CM Marine Magnetic Drive Pump Maintenance	
产品图号 Product drawing No.	DL-CM	零件图号 Part drawing No.	/
产品名称 Product name	磁力联轴器多级船用离心泵 Magnetic couplings multistage centrifugal pumps in ships	零件名称 Part name	/
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张家港市太平洋泵业制造有限公司

ZhangJiagang Pacific Pump MFG CO., LTD

三、维护与更换Maintenance and Replacement

1、清洁部件Component Cleaning:
1.1用无尘布PET或PA材质清洁磁转子表面，避免磁性杂质吸附；Wipe magnetic rotor surfaces with lint-free PET or PA cloth to avoid magnetic particle adhesion.
1.2清洗止推轴承座、流道内的沉积物。Clean deposits from thrust bearing seats and flow channels.
2、更换损坏件：Replacement of Damaged Parts
2.1更换隔离套（若厚度磨损超过10%需更换）；Replace the isolation sleeve if wear exceeds 10% of its thickness.
2.2更换退磁的磁转子（用高斯计检测磁通量）；Replace demagnetized rotors (test flux density with a Gauss meter).
2.3更新所有密封件。Renew all sealing components .

四、测试与验收 Testing and Acceptance

1、机械测试： Mechanical Testing
1.1手动盘车，确认转动灵活无卡阻。Manually rotate the pump to confirm smooth operation without jamming.
2、运行测试：Operational Testing
2.1点动试车，观察电流、振动是否正常；Perform a trial start; observe current and vibration for abnormalities.
2.2负载运行1~2小时，监测温度、噪音和泄漏情况。Conduct 1 - 2 hours of load operation; monitor temperature, noise, and leakage.
3、性能记录：Performance Documentation
3.1记录流量、扬程等参数，对比设计值。Record parameters such as flow rate and head; compare with design values.

五、注意事项Precautions

1、磁力泵严禁干运转。Never run the magnetic pump dry .
2、避免磁性部件靠近强磁场或高温环境。Avoid exposing magnetic components to strong magnetic fields or high temperatures.

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张家港市太平洋泵业制造有限公司
Zhangjiagang Pacific Pump MFG CO., LTD

磁力泵的维护是确保其长期稳定运行、防止泄漏和故障的关键。以下是磁力泵日常维护、定期检查及关键注意事项。
Maintaining magnetic pumps is essential for ensuring long-term stable operation, preventing leaks, and avoiding failures. Below is a systematic maintenance protocol covering daily monitoring, periodic inspections, annual overhauls, and safety guidelines.

一、日常维护Routine Maintenance

1、运行监控Operational Monitoring

1.1 电流与功率：检查电机电流是否正常（异常升高可能表示过载或摩擦）。Current & Power: Monitor motor current; abnormal increases may indicate overload or friction.

1.2 振动与噪音：异常振动可能由止推轴承磨损、气蚀或对中不良引起。Vibration & Noise: Excessive vibration may signal thrust bearing wear, cavitation, or misalignment.

1.3 温度监测：轴承、隔离套和电机温度应低于70℃（过高可能润滑不良或磁涡流损耗）。Temperature Checks: Bearing, isolation sleeve, and motor temperatures should remain below 70° C (higher temperatures suggest poor lubrication or eddy current losses).

1.4 泄漏检查：确认泵体、法兰、自润滑毛细管接口密封处无渗漏。Leak Inspection: Verify no leaks at the pump body, flanges, or self-lubricating capillary interfaces.

2、介质管理Medium Management

2.1 避免空转：磁力泵严禁干运转。Dry Run Prohibition: Magnetic pumps must not run dry.

2.2 防止颗粒物：介质含固体颗粒时需加装过滤器（防止叶轮或止推轴承磨损）。Particle Prevention: Install filters if the medium contains solids (to avoid impeller or thrust bearing wear).

2.3 气蚀预防：确保进口压力足够（NPSHr > NPSHa）。Cavitation Avoidance: Ensure sufficient inlet pressure (NPSHr > NPSHa).

二、定期检查（月度/季度）Periodic Inspections (Monthly/Quarterly)

1、机械部件检查Mechanical Component Checks

1.1 轴承状态：检查磨损、润滑情况，必要时更换。Bearing Condition: Inspect for wear and lubrication; replace if necessary.

1.2 轴与轴套：测量轴跳动（应 ≤ 0.05mm），检查磨损或划痕。Shaft & Sleeve: Measure shaft runout (should be ≤ 0.05mm); check for wear/scratches.

2、磁力驱动部分检查Magnetic Drive Inspection

2.1 磁转子退磁检测：用高斯计测量磁通量（若下降>10%需更换）。Rotor Demagnetization: Use a Gauss meter to measure flux density (replace if >10% drop).

2.2 隔离套（屏蔽套）：检查磨损、腐蚀或穿孔（关键防漏部件）。Isolation Sleeve: Inspect for wear, corrosion, or perforation (critical leak-proof component).

2.3 密封件：O型圈、垫片是否老化。Seals: Check O-rings/gaskets for aging .

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DL-CM船用磁力泵日常操作维护作业指导书 Standard operating manual of DL-CM Marine Magnetic Drive Pump Maintenance		产品图号 Product drawing No.	零件图号 Part drawing No.	共 4 页 第 4 页 Total page of
		产品名称 Product name	零件名称 Part name	
		磁力联轴器多级船用离心泵 Magnetic couplings multistage centrifugal pumps in ships		
3、性能测试Performance Testing				
3.1流量与扬程：对比设计参数，下降>10%需排查原因（如叶轮磨损、气蚀）。Flow & Head: Compare with design specs; investigate if performance drops >10% (e.g., impeller wear/cavitation).				
3.2振动分析：使用振动仪检测（GB/T 29531-2013标准）。Vibration Analysis: Use a vibrometer per GB/T 29531-2013 standards.				
三、年度大修Annual Overhaul				
1、全面拆解检查Comprehensive Disassembly & Inspection				
1.1叶轮：检查腐蚀、气蚀或平衡性。Impeller: Check for corrosion, cavitation, or imbalance.				
1.2泵体与流道：清理沉积物，检查腐蚀情况。Pump Casing & Flow Path: Clean deposits; inspect for corrosion.				
2、关键部件更换Critical Component Replacement				
2.1隔离套：若厚度磨损>10%必须更换。Isolation Sleeve: Replace if thickness wear exceeds 10%.				
2.2磁转子：退磁严重时成对更换（内外磁转子需匹配）。Magnetic Rotors: Replace as a matched pair if severely demagnetized.				
2.3密封系统：所有O型圈、垫片建议每年更换。Seal System: Replace all O-rings/gaskets (recommended annually).				
3、重新装配与测试Reassembly & Testing				
3.1试运行：空载运行30分钟，再带载运行2小时，监测温度、振动和电流。Test Run: Operate unloaded for 30 minutes, then under load for 2 hours; monitor temperature, vibration, and current.				
四、维护注意事项Key Maintenance Notes				
1、严禁反转运行（会导致叶轮松动或磁转子退磁）。Reverse Rotation Prohibited: May loosen the impeller or demagnetize rotors.				
2、停机时排空腐蚀性介质（防止结晶或腐蚀）。Drain Corrosive Media During Downtime: Prevents crystallization/corrosion.				
3、定期备份运行数据（电流、温度、振动趋势分析）。Back Up Operational Data: Log current, temperature, and vibration trends for analysis.				
五、维护安全防护措施Safety Precautions（MSDS 要求 MSDS Requirements）				
1、呼吸防护：在通风不良时佩戴酸性气体防毒面具。Respiratory Protection: Wear acid-gas respirators in poorly ventilated areas.				
2、皮肤防护：穿戴耐酸手套和防护服。Skin Protection: Use acid-resistant gloves and chemical protective clothing.				
3、眼睛防护：化学护目镜 + 面罩。Eye Protection: Chemical goggles + face shield.				
4、存储要求：存放于耐酸容器，远离碱类金属。Storage Requirements: Store in acid-resistant containers away from alkali metals.				
5、泄漏处理：用碳酸钠中和，再用大量水冲洗。Spill Handling: Neutralize with sodium carbonate, then rinse thoroughly with water.				

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10.1.21 DL-CM 系列磁力联轴器多级船用离心泵拆除、安装指导视频图片

The dismantle/installation video of DL-CM series magnetic coupling centrifugal multistage marine pump

拆除 The dismantle



DL-CM 磁力联轴器多级离心泵拆除
/安装视频

The dismantle/installation video for
DL-CM series magnetic couplings
multistage marine centrifugal pump



拆除电机连接螺栓
Dismantle the motor base bolts



拆除电机
Take off the motor



拆除冷却/排气管
Dismantle the cooling and exhaust
air pipe



拆除微量调节阀
Dismantle the micro regulation valve



拆除电机座连接螺母
Dismantle the motor base nuts



拆除防爆传感器安装板
Dismantle the pressure and temperature gauge panel

拆除防爆传感器安装板
Dismantle the pressure and temperature gauge panel



拆除电机座
Take off the motor base

拆除电机座
Take off the motor base



拆除长螺丝杆
Take off long screw rods

拆除长螺丝杆
Take off long screw rods



使用专用法兰工具
Use to flange special tools

使用专用法兰工具
Use to flange special tools



拆除磁力联轴器螺栓
Dismantle the magnetic coupling bolts

拆除磁力联轴器螺栓
Dismantle the magnetic coupling bolts



拆除磁力联轴器
Dismantle the magnetic coupling

拆除磁力联轴器
Dismantle the magnetic coupling



轻敲止退垫片
Dismantle the locking gasket



使用皮带钳和月牙扳手拆除锁紧螺母
Dismantle the locking nut with the belt pliers and crescent wrench



拆除内磁环
Take off the inner magnetic ring



拆除内磁环平键和轴套
Take the flat key of inner magnetic Ring and shaft sleeve



拆除止推轴承单元压盖螺栓
Take off the bolts of thrust bearing unit and cover



拆除专用法兰工具
Take off the flange of special tools



拆除泵盖
Take off the pump cover

拆除泵盖
Take off the pump cover



拆除止推轴承合金内圈
Take the alloy inner ring of thrust bearing unit

拆除止推轴承合金内圈
Take the alloy inner ring of thrust bearing unit

安装 The installation



安装止推单元推力盘平键
Installation the flat key of thrust disc of thrust bearing unit

安装止推单元推力盘平键
Installation the fat key of thrust disc of thrust bearing unit



安装止推单元导轴承
Installation the guide bearing of thrust bearing unit

安装止推单元导轴承
Installation the guide bearing of thrust bearing unit



安装止推单元下轴承
Installation the lower bearing of thrust bearing unit

安装止推单元下轴承
installation the lower bearing of thrust bearing unit



安装泵盖
Installation the pump cover

安装泵盖
Installation the pump cover



安装磁力联轴器内磁环平键
Installation the flat key of inner magnetic ring

安装磁力联轴器内磁环平键
Installation the flat key of inner magnetic ring



安装推力盘
Installation the thrust disc

安装推力盘
Installation the thrust disc



安装止推单元上轴承
Installation the upper bearing of thrust bearing unit

安装止推单元上轴承
Installation the upper bearing of
Thrust bearing unit



安装止推单元合金内圈
Installation the alloy inner ring of thrust bearing unit

安装止推单元合金内圈
Installation the alloy inner ring of
thrust bearing unit



安装止推单元合金外圈
Installation the alloy outer ring of thrust bearing unit

安装止推单元合金外圈
Installation the alloy outer ring
of thrust bearing unit



安装泵盖O型圈
Installation in the pump cover O-ring

安装泵盖 O 型圈
Installation in the pump cover o-ring



安装止推轴承单元压盖
Installation the cover of thrust bearing unit

安装止推轴承单元压盖
Installation the cover of thrust bearing unit



使用专用法兰工具
Use the flange special tools

使用专用法兰工具
Use the flange special tools



安装轴套
Installation the shaft sleeve

安装轴套
Installation the shaft sleeve



安装磁力联轴器内磁环平键
Installation the flat key of inner magnetic ring

安装磁力联轴器内磁环平键
Installation the flat key of inner magnetic ring



安装内磁钢
Installation the inner magnetic ring

安装内磁钢
Installation the inner magnetic ring



安装止退垫片
Installation the locking gasket

安装止退垫片
Installation the locking gasket



使用皮带钳和月牙扳手安装锁紧螺母
Tighten the locking nuts with the belt pliers and crescent wrench

使用皮带钳和月牙扳手安装锁紧螺母
Tighten the locking nuts with the belt pliers and crescent wrench



轻敲止退垫片
Installation the locking gasket

轻敲止退垫片
Installation the locking gasket



安装止推单元O型圈
Installation O-ring of thrust bearing unit

安装止推单元O型圈
Installation O-ring of thrust bearing unit



安装磁力联轴器外磁环
Installation the outer magnetic ring

安装磁力联轴器外磁环
Installation the outer magnetic ring



安装磁力联轴器螺栓
Installation the bolts of magnetic coupling

安装磁力联轴器螺栓
Installation the bolts of magnetic coupling



拆除专用法兰工具
Take off the flange special tools

拆除专用法兰工具
Take off the flange special tools



安装长螺丝杆
Installation the pump long screw rods

安装长螺丝杆
Installation the pump long screw rods



安装电机座
Installation the motor base

安装电机座
Installation the motor base



安装压力和温度防爆传感器背板
Installation the panel of temperature and pressure

安装压力和温度防爆传感器背板
installation the panel of temperature and pressure



紧固电机座螺母
Tighten the nuts of motor base

紧固电机座螺母
Tighten the nuts of motor base



安装微量调节阀
Installation the micro regulation valve

安装微量调节阀
Installation the micro regulation valve



安装冷却/排气管
Installation the cooling and
exhaust-air pipe

安装冷却/排气管
Installation the cooling
and exhaust-air pipe



安装电机
Installation the motor

安装电机
Installation the motor



紧固电机螺栓
Tighten the bolts of motor

紧固电机螺栓
Tighten the bolts of motor



结束
The end

结束
The end

10.2 CISG 系列管道泵常见故障及解决方法

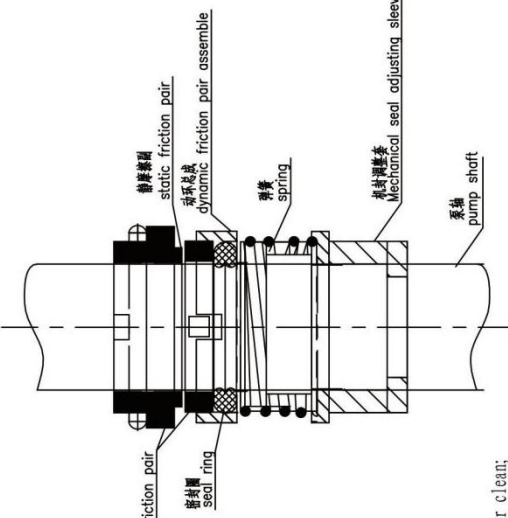
Common faults and solutions of pipeline of CISG series pump

问题 Problem	可能原因 Possible cause	解决方法 Possible solution	检查点 Check points
水泵不出水 Pump out of water	进出口阀门未打开 Inlet and outlet valves are not open	检查开启阀 Check opening valve	
	电机运动方向不对, 电机缺相, 转数很慢 The motor movement direction is wrong, the motor phase is missing, and the revolution is very slow	调整电机方向 Adjust motor direction	
	泵没灌满液体, 泵腔内有空气 The pump is not filled with liquid. There is air in the pump chamber	打开泵上排气阀, 排尽空气 Open the exhaust valve to exhaust the air	
	进口供水不足, 吸程过高 Imported water supply is insufficient and suction is too high		
水泵流量不足 Insufficient pump flow	转数太低 The revolution is too low	增加水泵轴转数 Increase the pump shaft revolution	
	出口阀开度过大 The outlet valve is too wide open	调小出口阀 Turn down the outlet valve	
出口压力不足 Insufficient outlet pressure	液体中空气 Liquid air	排除液体中空气 Expel air from the liquid	
	出口阀开度过大 The outlet valve is too wide open	调小出口阀 Turn down the outlet valve	
电机发热 Electric heating	环境温度过高, 电动机散热不良 Ambient temperature is too high, motor heat dissipation is poor 电机负荷太重 dissipation is poor 电压过高或过低或缺相 Too high or too low voltage or phase loss	保证泵在额定流量和扬程附近工作 Ensure that the pump works near the rated flow and head Inspect the motor	

问题 Problem	可能原因 Possible cause	解决方法 Possible solution	检查点 Check points
水泵振动或有杂音 Pump vibration or noise	吸水管漏气或吸水管口淹没 深度不够,使泵内吸入空气 Water suction pipe leakage or water suction pipe mouth submerged depth is not enough,so that the pump inhaled air 叶轮产生汽蚀 The impeller make the “NPSH”	堵塞漏气处或加长吸入管淹没深度 Block off the air leak or extend the inundation depth of the suction pipe 降低泵安装高度或加大吸入管径或增加进口压力 Lower pump mounting height or increase suction pipe diameter or increase inlet pressure 尽可能调至高效区 (额 定 点) 运 行 , 避 免泵在大流量点运行 As far as possible to adjust to the high efficiency area(rated point)operation,to avoid the pump in the large flow point operation	
水泵漏水 Water pump leaking	密封面不平整 The sealing surface is not smooth	更换 Replacement	
	安装螺栓松懈 Loose mounting bolts	紧固 fastening	
水泵噪音过重 pump noise	轴承过热缺油 Bearing overheating and lack of oil	轴承处加油 Oiling at bearing	
	水泵负荷过重 Overloading of pump	保证泵在规定的工况点工作 Should the pump working near the rated flow and head	
功率过大 Power is too large	超过额定流量使用 Use in excess of rated flow rate	调整流量,关小出口阀门 Adjust the flow and turn down the outlet valve	
	吸程过高 The practical high absorpition	降低安装面 Lower mounting surface	

10.2.1 CISC 系列 B101P-I 内装机械密封更换作业指导书

B101P-I Standard operating manual replacement of inside mechanical seal
of CIGS series pump

张家港市太平洋泵业制造有限公司 Zhangjiagang Pacific Pump Manufacturing Co., Ltd.		JCISC 系列/B101P-I 内装机械密封更换作业指导书 JCISC series /B101P-I Standard operating manual replacement of inside mechanical seal of pump			
		产品图号 Product drawing No	CISC7.2-25	零件图号 Part drawing No	CISC7.2-25-DN32-0002
		产品名称 Product name	CISC 管道离心泵 CISC pipeline centrifugal pump		机械密封 mechanical seal
		工 序 内 容 Step content	安 装 简 图 及 注 意 Installation diagram and notes		
1		拆除联轴器, 电机座上端螺栓, 移走电机。 Dismantle the coupling bolts, and motor stool bolts, then remove the motor.			
2		拆除管道泵盖螺栓, 移走泵盖。 Dismantle the bolts of the pump cover of the pipeline pump, then remove the pump cover.			
3		3.1 拆除旧的机械密封, 在轴端安装新的机械密封。 Dismantle the old mechanical seal, then install new dynamic friction pair of mechanical seal on shaft. 3.2 在管道泵盖内安装新机械密封静摩擦副。 Installing new static friction pair of mechanical seal in the pump cover of pipeline pump.			
3		活络扳手 Adjustable spanner 内六角扳手 Hexagon wrench 橡胶榔头 Rubber hammer 多功能撬棒 Multifunctional crowbar			
活络扳手 Adjustable spanner 内六角扳手 Hexagon wrench 橡胶榔头 Rubber hammer 多功能撬棒 Multifunctional crowbar					
梅花扳手 Ring spanner					
十字形螺丝起 Cross head driver					
描述 Tracing					
校 对 Proofread					
底图号 Drawing No					
装订号 Binding No					
标记 Tab		处数 Number of place	更改文件号 Change document number	签字 sign	日期 date
		设计 Design	审核 Examine	标准化 Standardization	会签 sign
		黄春花 Huang Chunhua	刘竹君 Liu zhu jun		刘竹君 Liu zhu jun
					版本号 Version number
					VI.0

10.2.2 CISG 系列管道离心泵安装指导图片

The installation guide pictures of CISG Series Pipeline Centrifugal Pump



机械密封、泵轴处用润滑脂润滑
Installation the mechanical seal,
should be use lubrication for shaft
and seal.



安装机械密封, 机械密封镜面朝上
Installation the mechanical
seal, the dynamic friction pair seal
to up.



安装电机座处O型圈
Installation the O rubber ring at
motor base.



紧固电机座六颗螺栓
Tightening motor nuts.



安装电机
Installation the motor.



安装四颗螺栓并上紧
Installation motor nuts.



安装联轴器定位销
Installation coupling dowel.



安装联轴器
Installation the coupling.



微紧螺栓，用撬棒使联轴器上下位移，
保持联轴器处于中间位置后，确保泵轴
有1-2毫米自由轴向位移间隙。
When installing the coupling, micro-tightening
bolts, using a crowbar to move the coupling
up and down, keep the coupling in the middle
position (ensure the shaft have 1-2mm free
axial displacement clearance) lock bolts



安装结束
The end
安装结束
The end.

微紧螺栓，用撬棒使联轴器上下位移，
保持联轴器处于中间位置后，确保泵轴
有1-2毫米自由轴向位移间隙。
When installing the coupling, micro
tightening bolts, using a crowbar to
move the coupling up and down, keep
the coupling in the middle position
(ensure the shaft have 1-2mm free
axial displacement clearance) lock
bolts.

10.3 CISG 系列自吸泵常见故障及解决方法

Common faults and solutions of CISG series Self-priming pump

问题 Problem	可能原因 Possible cause	解决方法 Possible solution	检查点 Check points
通电源后无反应 No response after power supply	电源引出线和电机绕组断路 Power lead and motor windings are broken	检查更换 Check the replacement	
发热 heating	轴承损坏 Bearing damage	更换轴承 Replace the bearing	
	滚动轴承或托架 盖间隙过小 The clearance of rolling bearing or bracket cover is too small	拆除后盖，在托架与轴承座之间加装垫片 Remove the back cover and install a gasket between the bracket and the bearing seat	
	泵轴弯曲或两轴不同心 ump shaft bent or two shafts different center	调查泵轴或调整两轴的同心度 Investigate the pump shaft or adjust the concentricity of both shafts	
泵内产生杂音 或振动 Noise or vibration in the pump	吸程高度超过规定值 The suction height exceeds the specified value	降低吸程 Reduce the suction	
	泵轴弯曲 Pump shaft bending	修理或更换 Repair or replacement	
不出水 Not out of the water	检查泵体的储水室启动前是否加足水(至少水面超过叶轮中心线) Check whether the water storage chamber of the pump body is filled with sufficient water before starting(at least the water level exceeds the center line of the impeller)	加足水 Add enough water	
	旋转方向不一致 The direction of rotation is inconsistent	调整使其与泵的旋转方向一致 Adjust it in line with the direction of rotation of the pump	
	叶轮口堵死 The impeller mouth is blocked	疏通叶轮口 Immediately ruled out	
	吸水管漏气或堵塞 Leakage or blockage of suction pipe 检查机械密封和骨架油封 Inspect mechanical seals and skeleton oil seals	更换 replace	

问题 Problem	可能原因 Possible cause	解决方法 Possible solution	检查点 Check points
不出水 Not out of the water	泵体内的回流孔不畅通 The back flow hole in the pump body is not smooth.	清洗回流孔，清除堵塞 Clean the back flow hole to remove blockage	
	水泵转速过低 The pump speed is too low	应使其达到正常转速 It should be allowed to reach the normal speed	
自吸时间过长 The self-priming time is too long		提高回流孔的位置 Improve the position of back flow orifice 控制叶轮外径与泵体隔舌的间隙 Control the clearance between the impeller outer diameter and the pump body tongue 保证叶轮中心线与涡壳中心线重合 Ensure that the center line of the impeller and the center line of the vortex case coincide 适当加大回流孔的面积(但不能过大) Appropriately increase the area of the reflux hole (but not too large)	
扬程达不到最大的自吸高度 The head does not reach the maximum self-priming height	泵体扩散管斜切过多或太低 Too much or too low oblique cut of pump body diffusion pipe	适当将回流孔面积缩小 Appropriately reduce the area of the reflux hole 适当提高扩散管的高度 Increase the height of the diffusion tube appropriately	
自吸泵运转吐水后不能完成自吸过程 The self-priming pump can not complete the self-priming process after running and spitting water	回流孔增大 Increase of return orifice	适当堵补回流孔 Appropriately plug and fill the back flow hole	
	泵的出口高度低 Pump outlet height outlet height is low	适当提高泵的出口高度 Raise the outlet height of the pump appropriately	

11、附录 Annexes

11.1 声明 Declaration of the conformity

生产制造商责任声明

Hereby declares as manufacturer entirely on his own responsibility, that the products.

DL 船用和磁力立式多级离心泵系列

DL series Vertical multistage centrifugal pumps for marine and chemical

一、如果只是提供泵端（不提供电机）

In case the pump is delivered without motor

本声明符合以下标准 GB/T10832-2008

To which this declaration refers, is in accordance with the following standard: GB/T10832-2008

二、如果提供泵端和电机

In case the pump is delivered with motor

本声明符合以下标准/To which this declaration refers, is in accordance with the following standard:

中国船级社《钢质海船入级规范》2024

CCS《Rules for classification of sea-going steel ships》2024

GB/T 10832-2008 《船用离心泵、旋涡泵通用技术条件》

GB/T 10832-2008 General specification for centrifugal and vortex pumps of ship

GB/T 5656-2008 《离心泵 技术条件（II类）》

GB/T 5656-2008 Technical specifications for centrifugal pumps (Class II)

GB/T 2501-2010 《船用法兰连接尺寸和密封面》

GB/T 2501-2010 Connection dimensions and mating face of marine flanges

Q/ZJGTPY-QB 001-2023《船用磁力驱动多级立式离心泵技术要求》

Q/ZJGTPY-QB 001-2023《General specifications for magnetic driven multistage vertical centrifugal pumps in ships》

三、如果水泵提供防爆电机

In case the pump is delivered with an ATEX classified motor

本声明符合以下标准/To which this declaration refers, is in accordance with the following standard:

GB/T 10832-2008 GB/T 3836-2021

JB/T 7565.6-2015《隔爆型三相异步电动机技术条件第6部分:YB3-H系列船用隔爆型三相异步电动机(机座号63~355)

JB/T 7565.6-2015 Specification of flameproof three-phase asynchronous motors Part 6: YB3-H series flame proof three-phase asynchronous motors for ships (frame size 63 to 355)

该泵受宣言约束，作为一个独立的产品。

The pump is subject to this declaration of conformity as a stand alone product.

确保水泵生产过程中严格遵守上列声明，保证质量。

Make sure the appliance or installation in which the pump is built in, has got a declaration of compliance with the directives listed above, for its complete assembly.



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