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**北奕创展**  
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北奕机械  
BeiYi Machinery

# 振动打桩机

VIBRATORY PILE DRIVER

使用说明书  
Operation Instruction



# 前言 Introduction

感谢您选择使用北奕V系列高频液压振动打桩机！

北奕V系列高频液压振动打桩机是采用高新技术设计研发并生产制造而成，是新一代桩工利器，具有操作简单、控制灵活，作业安静、保养容易，设计精密、性能可靠，速度快捷、节省工时等四大优越性能。

为了使打桩机在各种工况下能获得良好的性能，并较大幅度的提高打桩机的使用特性，及时让您对产品有全面的了解，我们编辑了这本操作手册。

本手册详细说明并阐述了如何对打桩机正确安装、安全使用、保养及检修知识。日常检查及按规定进行保养对延长产品的使用寿命是很有必要的。

请用户务必仔细阅读本手册，以防因错误操作造成打桩机的损坏。我们保证依照此手册的内容对用户进行技术培训，指导用户正确操作，使得打桩机始终充分安全的发挥其优越性能，获得其最佳工作状态，产生最大经济效益。对用户因不依照此手册要求操作而造成的任何损失，我公司不负任何责任。

Thank you choose BEIYI V series hydraulic vibro pile driver BEIYI V series hydraulic vibro pile driver is a new generation piling machine which designed and manufactured by high new technology.Simple operation, flexible control, working quiet, easy maintenance, precision design, performance reliable,quick speed and save time

In order to gain good performance in various operating conditions and improve pile driver features.Allows you to have a comprehensive understanding of our product in time.We compile the operation.











This operation intruse how to correct installation, safety use, maintenance and repair knowledge in detail.It is necessary for extending product life to make daily check and maintenance

Please read this file carefully,in case wrong operation damage the pile driver.

To insure pile driver always fully exert its superior safety performance,obtain the best working state, and get the maximum economic benefit.We guarantee our users technical training is according to the contents of this manual, guide the user operation right.Due to not in accordance with the manual operation for any loss, our company disclaim all responsibility.

**请记录以下产品资料及信息： Please record the product information as follows:**

本打桩机的出厂序列号 Factory serial number	
本打桩机的型号 Module NO.:	BY-VH250 BY-VH330 BY-VH350 BY-VH400 BY-VH450
液压动力装置型号 Hydraulic motor moduleNO.:	
产品出厂日期 Production date	年 月 日

-  **声明** 产品的技术更新在不断进行中，若有需要，生产商有权修改此说明书所列的数据参数，而不一定要提前或之后向客户或最终用户予以通知。
-  **注意** 为保证操作安全，在任何运行前请务必先检查本打桩机，短暂不使用也要定期给予检查。
-  **注意** 在安装、操作、维护本打桩机前，请您注意仔细阅读本手册。
-  **注意** 请您注意正确理解及遵守各项规定。
-  **警告** 为避免人员伤害和设备损伤的发生，请务必遵守有关的法律、规定和安全作业事项。
-  **Declaration:** Product technology updates is in ongoing, The manufacturer shall have the right to modify the specification listed in the reference data Number if necessary, Won't notice customer or the end user in advance or after that.
-  **Attention:** In order to ensure safety operation, please be sure to check the pile driver before any operation, Even not use for a short-term should give on a regular basis check.
-  **Attention:** Please read this manual carefully before installation, operation and maintenance.
-  **Attention:** Please understand and comply with the provisions correct.
-  **Warning:** Please be sure to comply with the relevant laws, regulations and safety operatio to avoid personal injury and equipment damage occurs.

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# 第一章 产品概述

## 1.1 综合简介

北奕V系列高频液压振动打桩机是与挖掘机搭配使用，安装于挖机前端，用于打拔各式钢板桩、钢管桩及混凝土预制桩，具有操作简单、控制灵活、设计精密、性能可靠、作业安静、保养容易、速度快捷、节省工时等诸多优点，可谓新时代的工程利器，拓展事业的得力助手！北奕V系列高频液压振动打桩机是利用挖掘机本身的动力源驱动，无须另行安装动力。搭配挖掘机使用，充分展现灵活、多任务、速度快的特质。每分钟产生2400次至3000次以上的高频振动，每次振动力高达三十吨至五十吨以上，能够瞬间穿透土壤密合力，辅以挖掘机自身大臂力量，顺利将各式板桩、方桩打入土中，完成使命！

北奕结合多年业界经验，与台湾知名大学机械研究所合作，研发出新一代油路系统，不仅效能加倍，业内最重视的安全度与机械可靠度更是大幅提升！北奕公司一向秉持兢兢业业的精神，诚信为本，矢志专业，不断的琢磨、研发出高效、安全、可靠的产品以响应广大客户的热切需求。并将陆续推出各式机型，齐备全系列机种。相信必能助您的事业蒸蒸日上，蓬勃发展！

BEIYI V series hydraulic vibro pile driver is mounted on excavator big arm. It is widely used to drive sheet pile, round pile and precast concrete pile. It operates simply, control is flexible, working is quiet, maintenance is easy, design is precise, performance is reliable, speed is quick and saves time.

BEIYI pile driver uses excavator hydraulic system as its power source, doesn't need to add power motor. BEIYI excavator pile driver vibrating frequency is 2400-3000 per minute, vibrating force 30-50 ton. So much force could instantly breakdown soil close strength and push the pile into earth by excavator big arm force.

BEIYI cooperates with Taiwan well-known university institute of machinery and combined with many years of experience in the industry research. Develop a new generation hydraulic system, not only double efficiency but also improve the safety and mechanical reliability. BEIYI always upholds the spirit of dedication, honesty, commitment to professional. Constantly research development more efficient, safe and reliable products in response to the broad masses of customers' warm demand. And to launch all kinds of models, complete the full series models. Believe that will help your career progress day by day, vigorous development.



## 1.2 特色介绍

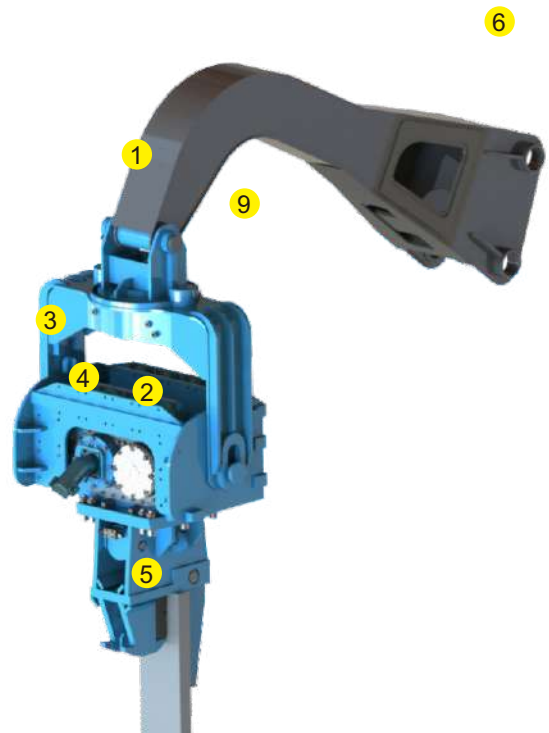
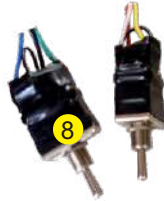
- (1) 具有振动打桩、夹嘴夹持、左右旋转的功能，各动作皆为独立操控，动作灵活。
- (2) 两段式合流振动动力输出，能巧妙配合施工状况。第二段出力为特强激振，应付艰难地层游刃有余（选购）。
- (3) 全系列使用意大利原装进口油压马达，功效加倍、品质加倍！
- (4) 精密设计双重油路保压装置，确保夹嘴夹桩力道，
- (5) 准确计算器械性能，部件使用寿命长、可靠度高。
- (6) 能安装于各种厂牌的挖掘机，而且仅需更换不同的夹头即可应用于不同的工作要求。可适应各种作业环境，机动性超强！
- (7) 施工作业由挖掘机驾驶员在驾驶室操控，工期短，人力需求少，效益十足！
- (8) 作业安静，对周遭环境影响小，适合城市作业。

### Characteristics

- (1)Vibratory pile driving, clip mouth clamping, rotation function, independent action control and flexible motion
- (2)Two sections of confluence vibration power output, can clever cooperate with construction conditions. The second output for strong vibration, handle hard layer(choosen)
- (3)Italian imported hydraulic motor, double efficacy, double quality!
- (4)Precision designed dual oil pressure device, to ensure the clamp mouth clamp strength of pile,
- (5)Accurate calculation of equipment performance, parts long service life and high reliability.
- (6)Can be installed on all brand excavators, and only needs to replace different clip can be applied to different work requirements. Adapt to various working environment, mobility strong!
- (7)Excavator driver in the cab control, short time limit, less human needs and ten percent benefits!
- (8)Quiet, small impact on the surrounding environment, suitable for the city working.

## 1.4 主要部件名称

1-2.控制夹咀Control clip mouth;  
3-4.转盘旋转Rotation;



- 1、转盘：最新齿轮内藏设计，有效避免脏污及碰撞，内齿皆可更换，配合紧密，平稳耐用。
- 2、齿轮箱：打桩机的核心部件，动力源泉。
- 3、侧托座：采用高性能进口减震胶块，质量稳定，寿命长。
- 4、液压马达：原装进口，效能加倍，品质超群。
- 5、夹嘴：规格多样，适用于各类桩体；强力油压缸，超耐磨齿块；铸件本体，坚如磐石。
- 6、油路系统：特殊针对打桩机功能及特性设计制造，有效提升打桩机的使用效果。
- 6、副手臂：根据挖机的伸展范围及桩体要求，设计生产不同规格的高质量产品。
- 7、电路控制盒：采用安全可靠的铝合金盒，设有总电源开及保险，充分保护电路安全稳定性。
- 8、复位开关：一个控制旋转，一个控制张合。
- 9、吊臂及翻转轴：配合间隙小，维护方便，无后顾之忧。

- 1.Turnplate: the latest inside gear design, avoid the dirt and effectively collision, internal is replaceable, cooperate closely, smooth and durable.
- 2.Gear box, Power source and core parts of the pile driver
- 3.Side bracket: using high-performance imported damping rubber block, stable quality,long life
- 4.Hydraulic motor: imported, doubling efficiency, superior quality.
- 5.Clip mouth: varied specifications, applicable to all kinds of pile;Powerful hydraulic cylinder, super wear-resistant teeth;casting body like rock solid.
- 6.Oil system: Special design and manufacture features in view of the driver, Improve using effectively of pile driver.
- 7.Deputy arms: according to the requirements of the drivers extend scope and pile, design and production of different specifications of the high quality product.
8. Reset switch: one controls rotation, the other controls opening and closing.
9. Control handle: imported, multi-function integrated, beautiful and practical, easy installation, high reliability.



### 1.4.1 产品规格及技术参数： Product specifications and technical parameters：

型号	Model	Unit	BY-VH250	BY-VH330	BY-VH350	BY-VH450
偏心力矩	Eccentric moment	Nm	40	50	65	85
振频	Frequency	Rpm	2800	2800	2800	2800
激振力	Excitation Force	Ton	36	45	58	75
主机重量	Weight of main body	Kg	3000	3200	3500	3500
液压系统操作压力	Operating Pressure of oil system	Bar	280	280	300	300
液压系统流量需求	Flow Demand for Hydraulic oil system	Lpm	155	168	210	255
适合挖掘机重量	Excavator	Ton	18-22	23-30	33-40	40-65
加长臂可打桩长度	Max pile length	M	9	13	16	18
标准臂打桩长度	the driving length of standard boom	M	6-7	7-8	8-9	8-9

我们的产品一直在改进中，由于技术原因的变更不做另行通知。

### 1.5 工作原理及应用范围

北奕V系列高频液压振动打桩机是运用振动式沉桩打拔桩，特别适用于市政、桥梁、围堰、建筑地基等中短桩工程。

工作原理：

- (1)北奕V系列高频液压振动打桩机内置四只或两只偏心，采用液压马达驱动，产生高速旋转及垂直激振力，透过减震胶块后，维持一定的振幅，能够应付各种类型的土质及打桩要求。
- (2)激振力是与偏心力矩和振动次数平方成正比，北奕研发制作的偏心均经过详细计算与测试，能够兼顾强大的激振力和材料特性，不但能满足工作要求，同时保证了机械可靠度。

施工原理：

振动式沉拔桩锤是利用其高频振动，以高加速度振动桩身，将机械产生的垂直振动传给桩体，导致桩周围的土地结构因振动发生变化，强度降低。桩身周围土地液化，减少桩侧与土地的摩擦阻力，然后以挖机的下压力及桩身自重将桩沉入土中。拔桩时，在一边振动的情况下，以挖机上提力将桩拔起。打桩机所需要的激振力要根据场地土层、土质、含水量及桩的种类、构造而综合确定。

## Vibratory Pile Driver working principle and engineering application scope

BEIYI Machinery. V series high frequency hydraulic vibratory pile driver is using vibrating pile-sinking to drive or extract piles. It is especially suitable for municipal, bridges, cofferdam, building foundation etc. such short pile projects.

### Operating principle:

(1)V series high frequency hydraulic vibratory pile driver internally installed two eccentric shaft. It adopts hydraulic motor to drive and produce high-speed revolution and vertical vibration force. Through the damping rubber block to maintain a certain amplitude to cope with various types of soil and pile driving.

(2)Exciting force is proportional to the eccentric shaft size and the vibration times square. BEIYI eccentric shafts are all made after a detailed calculation and test which can combine strong vibration force and material properties, not only can meet the needs of the work but also guarantee the mechanical reliability.

### The construction principle :

Vibrating pile hammer is using its high frequency vibration to vibrate pile body with high acceleration to pass the vertical vibration of mechanical produce to pile which leading to changes in the soil structure around the pile, strength decrease. Soil around the piles become liquefaction to reduce frictional resistance between side of the pile and the soil. Then using the excavator down force, vibrating pile hammer and pile body weight to sink pile into the soil. When extracting piles, in the condition of vibration to pull out the pile by using excavator lift force. Excitation force needed by pile driving machinery are comprehensive determined by site soil, soil condition, moisture content and type of pile, construction.

## 第二章 安全守则


### 2.1 概要说明

- ★请不要改装本机，如果需要改装请与本公司联系。若因本说明书记载以外的操作或改装而引起事故与故障，本公司不承担任何责任。
- ★请勿使用未经本公司认证、推荐的零配件，相似的替代品或别的制造厂之合格标准件替代品应在使用前与维修人员联络。任何使用非认可之零配件所造成的损坏、受伤或成本增加等产品问题将不在保固的承诺之列。
- ★本桩机购入后，若要将打桩机及已有的油管配置移装到其它液压挖掘机时，请事前与本公司或代理商联络。否则因移装而引起事故与故障，本公司不承担任何责任。
- ★关于液压挖掘机的操作，请阅读液压挖掘机公司发行的操作说明书。
- ★本书所述的振动打桩机，是使用液压挖掘机已有的自动油路管道。(即自动油路共享管道类型)
- ★所谓在打桩机上专用管道(打桩机专用管道类型)，由于搭配不同液压挖掘机而有所不同，请注意。
- ★本说明书使用的桩，是以拉伸桩和H型钢作为标准。关于木桩、混凝土桩、水泥桩等，必须使用专用夹嘴。
- ★操作安装在液压挖掘机上的振动打桩机的操作手，必须有如下的资格：
  - 1、车辆系统建筑机械(基础工程用)的技术训练班毕业生。在建筑业施事法规定的建筑机械施工技术审定合格者。
  - 2、振动打桩机的操作负责人：车辆系统建筑机械(基础工程用)的担任作业装置特别教育合格者。
  - 3、液压机械装置驾驶员：液压机械装置技能训练班毕业生。

### 2.2 安全注意事项

请熟读本说明书，为了安全地使用本机，请务必遵守以下记载的事项。往往重大的事故与不遵守规范密切相关，例如各部分的连接螺栓、紧固螺母、销轴销钉等的脱落，都会有可能造成打桩机部件及桩体的脱落。

 **警告** 一旦发现异常部位，请立即停机检查，

 **警告** 电路系统发现异常时，请及时断开控制盒上开关，如有需要必须断电瓶时，请先断开电瓶负极电缆，然后进行检查。

 **注意** 打桩机停机后某些部位处于非常高温状态，直接触摸会导致烫伤或严重受伤，请特别注意。

## Chapter 2 Safety Regulations

### 2.1 Outline

★Please don't modified the machine, if you need, please contact with our company. We will not undertake any responsibility for any accident and fault caused by the operation or modification out of our instruction.

★Please don't use the spare parts without the company certification or not recommended by us. Any similar substitutes and other manufacturers of qualified standard parts replacement should contact maintenance personnel before use. Any damage and injury caused by the recognition spare parts or increase of the cost will be out of our warranty commitment.

★If you want to move our pile driver and existing tubing to the other hydraulic excavator, please contact our company or agent in advance. Otherwise, we will not be responsible for the fault caused or accident caused by remove.

★About the operation of the hydraulic excavator, please read the hydraulic excavator operation instructions issued by the company.

★The vibration pile driver mentioned in this instruction use excavator automatic hydraulic oil pipeline. (That is, automatic oil share pipe type)

★Please note that so called the dedicated pipeline on the driver machine( our driver machine dedicated pipe type) will be different due to match different model hydraulic excavators.

★The pile mentioned in this instruction is using tension piles and h-beam steel piles as standard. Special custom-made clips will be request for the wood piles, concrete piles, cement column piles etc.

★The operator must have the following qualifications when install the hydraulic pile driver on the excavator:

- 1.Technical training of Vehicle system construction machinery graduates(foundation). Those who are approved by the examination of the construction machinery ruled by construction industry illocutionary act.
- 2.Vibration pile driver operation director: Those eligible who attend the special education operation device of construction machinery vehicle system( foundation).
- 3.Hydraulic mechanical device drivers: Graduates of the hydraulic mechanical skills training.

### 2.2 Safety note

In order to safely operate this machine, please read this manual carefully and be sure to comply with the items recorded in the following items. Major accident is closely related to not comply with the specifications, such as connecting bolts of each part, shedding of fastening nut, pin shaft pin, etc. which will possibly cause pile and pile driver parts fall off.



**Warning** Please stop the machine immediately to check once found abnormal.



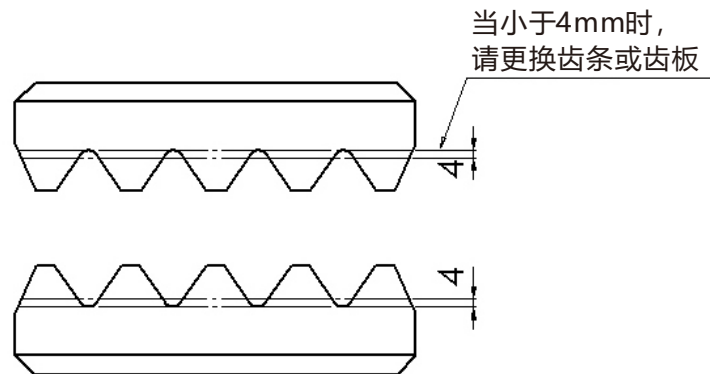
**Warning** When the circuit system appears found abnormal, please disconnect the switch on the control box and must break the battery if necessary. Please disconnect the battery negative cable at first, and then check.



**Attention** Some parts of the hydraulic pile driver will keep in a very high temperature state after stopping, please pay special attention that don't touch it as it will cause burns or injury directly.

### 2.2.1 安装使用之前的注意事项

- 1、打桩机及副手臂的安装与拆卸作业，请在平坦而坚硬的地面上进行。
- 2、二人以上或有导向员共同作业时，请按规定的联络信号作业。
- 3、打桩机进行装卸时，请使用吊车。吊钩必须具有防止脱钩的装置。
- 4、请每日检查马达刹车、液压管、以及各部分螺栓、螺母、轴销等是否松脱。打桩机的机油(润滑油)的容量和泄漏检查。
- 5、副手臂的安装及拆卸，按液压挖掘机铲斗的安装与卸下的要领进行。
- 6、请检查夹嘴齿块是否磨损过度。如下图所示：



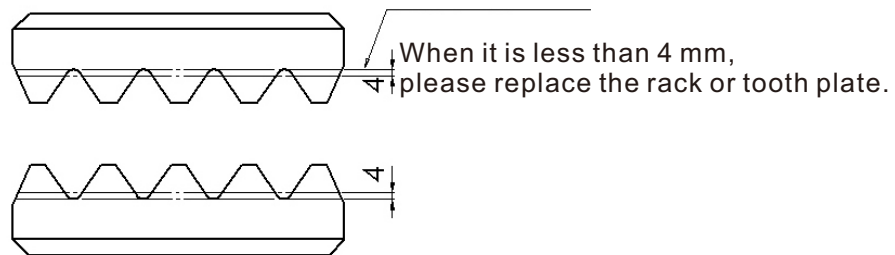
- 7、请定期清除桩头部的积土等，如果桩头部变形，请切勿除掉。
- 8、装卸液压管、连接器时请注意关掉液压挖掘机的发动机，待液压系统的内压消除之后进行。如果仍然有内压则会喷油。关于消除内压的方法，请看液压挖掘机公司发行的“操作说明书”。
- 9、关于液压管的操作，当高压运转漏油接触到皮肤或进眼睛时，将对人体引起极大的危险，因此请戴保护眼镜和厚手套。当高压油喷出时，在喷口用塞头阻挡，并采取停喷的措施。
- 10、当减振橡胶发生龟裂时，在未更换新的减振橡胶前，请不要开机使用。

### 2.2.2 操作使用时的注意事项

- 11、高频液压振动打桩机及挂钩作业的操作，请由有认证、熟练的驾驶员进行操作。
- 12、在打桩及拔桩作业时，请在桩上安装辅助钢丝绳后再进行作业。
- 13、当发生液压管断裂时，请立即停止打桩，把桩调整到不至于倒下或者脱落状态之后，关断液压挖掘机的发动机。
- 14、打桩、拔桩作业时，请不要超过打桩机最大拉伸负荷，有损坏减振橡胶，打桩机脱落的危险。（请留意您所使用打桩机的型号之最大伸拉负荷。）
- 15、请绝对不要勉强打桩拔桩作业。（请不要在车体浮动的状况下作业，具有危险性。）
- 16、除了连接桩的作业之外，请不要在打桩机的正下面站立。（请不要在螺母、轴销等脱落时可能造成危害的地方进行作业。）
- 17、打桩机运转的时候，请务必把齿块夹紧。而且确认液压系统正常使用。
- 18、请不要在没有夹住桩的状态下长时间作业(称冲击打)，因为会直接伤害打桩机。
- 19、齿块夹桩时，齿块与桩头不应有间隙，请完全卡紧。（因为夹不紧则容易发生桩倒及脱落等非常危险，请绝对要夹紧。）（如下图所示）

### 2.2.1 Before install and operation

1. Please proceed on the flat and hard ground when install and remove the pile driver and assistant arm.
2. When two or more persons with a guide member work together, please contact according to the signal assignment rules.
3. Please use the crane for loading and unloading the pile driver. Hook must have the device to prevent unhook connections.
4. Please check the motor brake, hydraulic pipe, as well as the loose of daily parts such as bolts, nuts, shaft pin. Check the engine oil(lubricating oil) capacity and leak condition.
5. Deputy arm installation and removal, according to the installation of the hydraulic excavator bucket and unload the essentials.

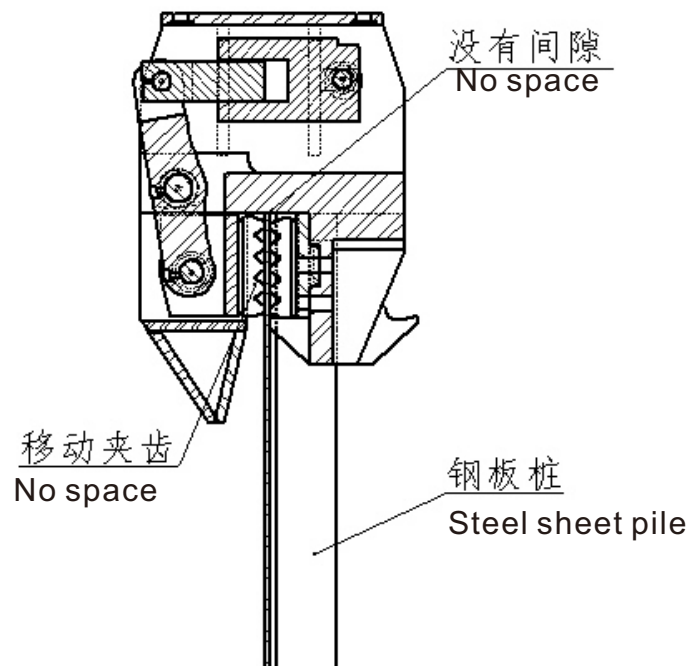


6. Please check whether the clip and tooth piece is totally worn out . As shown in the figure below:
7. Please remove the soil and other things on the pile head regularly and don't get rid of it if the pile head is out of shape.
8. When handing the hydraulic pipes and connectors, please pay attention to turn off the excavator engine and begin after the internal pressure of hydraulic system to eliminate. Oil will spray out if there is still have internal pressure. Regarding to the way of eliminating the internal pressure, please refer to excavator's instruction.
9. Regarding to the operation of hydraulic pipe, when the high pressure running oil contact with the skin or into the eyes, will cause great danger to human body, so please wear protective glasses and thick gloves. When the high pressure oil jet, block with the plug in the head and adopt measures of stop spray.
10. When the damping rubber cracking occurs, please don't run the machine . before replacing new damping rubber. When it is less than 4 mm, please replace the rack or tooth plate.

### 2.2.2 Operation attention point

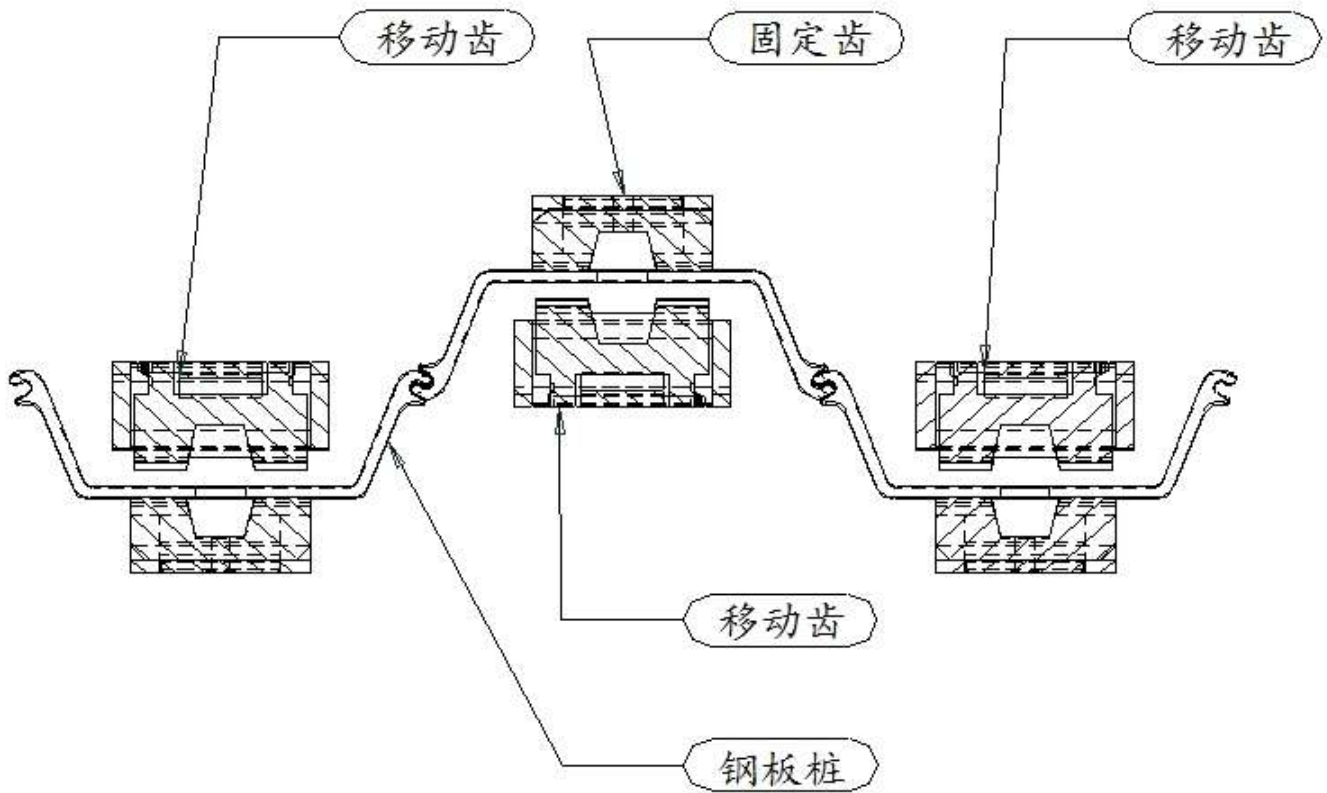
11. It request skilled driver with certificated to operate high frequency hydraulic vibration pile driver and its related works.
12. When drive or pull out the piles, please install auxiliary steel wire rope first before operating.
13. Stop working when the hydraulic oil pipe broken and adjust the pile to avoid it fall off, also need to shut off the excavator engine.
14. When drive or pull piles, please don't exceed the maximum tensile lad of pile driver. It will damage the damping rubbers and the machine have the risk of fall off.(Please pay attention to the maximum tensile load of the model you buy.)
15. Please don't make the driver work barely.(There will be dangerous if you work under the condition of machine shaking)
16. Don't stand under the pile driver except connect the piles.( Please don't work when the nuts or pins loss.)
17. Please clamp the clips tightly when the driver runs and confirm the hydraulic system under normal use.
18. Please don't operate long time under the condition of no clamp pile (called shock drive) because this will damage the driver directly.
19. Please clamp the pile tightly and with no gap between the clip and piles.( If you don't clamp tightly, the pile maybe fall off and have dangerous, please make sure to clamp tightly) (As shown below)





- 20、在打桩与拔桩时，液压挖掘机的操作要平均承载于减振橡胶上。同时确认桩的垂直。
- 21、请绝对不要在打桩情况下，任意移动液压挖掘机臂，容易产生危险。
- 22、拔桩时请不要横拽。
- 23、请确认打桩机完全停止之后，再打开夹嘴。
- 24、打桩机的连续运转，请按平均每一个桩，十分钟左右为标准，每一小时休息5-10分钟。  
(打桩机长时间运转，导致齿轮箱温度增高，会缩短轴承、油马达、密封垫片的寿命。)
- 25、强风暴雨时，请不要操作打桩机。
- 26、钢板桩的拔除时，可移动齿块要夹在钢板桩中间。

20. When drive and pull the piles, the operation of the hydraulic excavator need to average load on the damping rubber. At the same time confirm the vertical of the pile.
21. Please don't move the excavator arm in pile driving situation, this will result in dangerous.
22. Please don't pull the pile horizontally.
23. Please make sure to open the clip after the driver fully stop.
24. Please rest 5 to 10 minutes every hour and operate according to the standard of average 10 minutes for each pile. (Long time of working will result in a higher gear box temperature, will shorten the life of bearing, oil motor, sealing gasket)
25. Please do not operate the pile driver in strong wind storm days.
26. When pull the steel sheet pile, the move teeth piece need to clip in the middle of the steel sheet pile.



- 27、板桩的打桩与拔桩时，若需旋转打桩机，请注意液压管不要绞入或者扭住。
- 28、在拔桩作业时，请务必使用挂吊钢索进行。
- 29、休息和作业中断时，请关闭液压挖掘机的发动机。

- 27. When drive or pull out the sheet piles, if need to rotate pile driver, please pay attention to don't haul in or twist the hydraulic pipes.
- 28. When draw the piles, please make sure to use the hang rope.
- 29. When rest or stop of the work, please shut off the excavator engine.

### 2.2.3 工作结束时的注意事项

30、作业结束后，请把旋转吊臂提起，使马达在上方位置停放。  
如下图所示：



- 31、作业结束后，应盖上毡布，使打桩机不着风雨。
- 32、关于平时检查、定期检查等维修管理，请按第四章内容执行。

### 2.3 紧急状态下的操作处理

当出现下列紧急状态时：

A 运转中液压动力装置发生故障时：

此时夹嘴的压力下降，可能发生桩脱落的危险。  
为防止桩的脱落，请务必在施工时使用辅助钢丝绳。

B 错误的操作或液压管切断时：

此时，有桩脱落的危险，  
请务必使用辅助钢丝绳。

C 打桩机及液压动力装置等发生异常的物件脱落、声音或现象时，停止工作。

D 减振橡胶发生龟裂时停止工作。

请按下列操作步骤执行：

- (1) 请立即停止打桩机，注意人员安全；
- (2) 请做好桩与打桩机稳固不脱离的安全状态；
- (3) 请采取安全措施之后，调查原因。

### 2.2.3 At the end of operation

30、 After the operation, please lift the rotate arm to make the motor parked in the above position.

As shown below:



31.After the operation, should cover the felt cloth to avoid the rain.

32.About the inspection, regular inspection and maintenance management at ordinary times, please operate according to the fourth chapter.

### 2.3 Emergency treatment

**When the following emergency conditions occur:**

A:Hydraulic power device failure occurs during operation:

The clamp mouth pressure will drop and will possible result the risk of pile fall off. In order to prevent the shedding of pile, please be sure to use auxiliary steel wire rope in the construction.

B:Wrong operation or hydraulic tube cut off:

Will result the risk of pile fall off, please be sure to use auxiliary steel wire rope.

C:When the pile driver and hydraulic power device and other objects fall off, appear voice or phenomenon, stop working.

D:Stop working when damping rubber cracking occurs.

**Please proceed as the following steps:**

(1)Please stop the driver immediately and pay attention to personnel safety.

(2)Please make the piles and the pile driver firmly fixed together.

(3)Please investigate the reason and then adopt the safety measures.



## 第三章 操作规范

### 3.1 操作前的准备工作

- (1) 检查打桩机是否已按照要领装好在挖掘机的副手臂。
- (2) 控制器电源开关现可拨至“开”。
- (3) 测试振动控制器是否正常。
- (4) 测试夹嘴控制器是否正常。
- (5) 测试旋转控制器是否正常。
- (6) 测试第二段振动控制器是否正常（有加装）。

#### 3.1.1 振动操作：

- (1) 启动发动机，缓慢加大油门。
- (2) 按液压挖掘机本身指示灯，检查挖掘机是否正常运行。
- (3) 踩动“脚踏先导阀”，此时挖机多路阀开始供油，这时按下振动控制器按钮，打桩机会以第一段振动力起振，在振动马达加速的同时，打桩机的振动也相应增加，而后达到约2400~3000 振动次数/每分钟。
- (4) 当打桩机在震动时，为防止滑桩或脱桩，夹嘴具有自动夹紧功能设计，确保打桩时的安全。
- (5) 踩下“第二段振动合流开关”，然后按下振动控制器按钮，此时打桩机的振动次数会增加，提升至约2800~3200振动次数/每分钟（不可长时间运行）。
- (6) 驾驶员可依照现场工作实际需求来调整打桩机振动次数，提高激振力。
- (7) 第一段振动力：适用于泥浆地、松软砂质地、粉土地等，属于正常负荷，可减少挖掘机油耗，能长时间操作。
- (8) 第二段振动力：适用于较坚实的砂质地与黏土层等，属于重型负荷，作为第一段振动遭受阻碍时提升力道，提供最大激振力。若长时间连续使用，需每小时让打桩机休息5~10分钟。

#### 3.1.2 夹嘴操作：

- (1) 踩动“脚踏先导阀”，此时挖机多路阀开始供油。
- (2) 夹紧桩体：按夹嘴控制器的夹紧钮，油压缸伸出，夹嘴齿块移动，完成夹持动作。
- (3) 放松桩体：按夹嘴控制器的放松钮，油压缸收回，夹嘴齿块移动，完成放松动作。
- (4) 夹桩时必须在桩体与夹嘴之间挂上保险钢丝绳。
- (5) 可使用夹嘴顶端的倒钩拖动垒压住的板桩。
- (6) 夹嘴油路系统设定为300bar压力，装有双重保压装置，能够确保夹齿不会因为振动而松开。

# Chapter 3 operation regulation

## 3.1 preparing work

- (1) Please check whether the hammer have installed on excavator arm according to the main point.
- (2) The power switch controller can now set to "on".
- (3) Test whether vibration controller is normal
- (4) Test whether clamp mouth controller is normal.
- (5) Testing the rotary controller whether is normal.
- (6) Test whether the second period of controller vibration is normal (retrofitting).

### 3.1.1 Vibration operation

- (1) Start the engine, the slow step on the gas.
- (2) According to excavator's light, check whether the excavator is normal operation.
- (3) Pedaled "the foot valve", then multi-way valve of excavator start to provide the oil, presee the button vibration controller, pile driver will vibrate at the first period of vibration, at the same time of vibration motor speed, the vibration of the pile driver increases accordingly, and then reach about 2400 ~ 3000 vibrations per minute.
- (4) When the pile driver is in vibration, to prevent sliding pile or taking off the pile, the clip mouth with automatic clamping function, to ensure the safety.
- (5) Press "the second period of vibration combined switcher", and then press the vibrating controller' buttons, the vibration frequency will increase at this time, up to about 2800 ~ 3200 vibrations per minute (not longer running)
- (6) The driver can adjust the vibration frequency to work according to the actual demand, to improve the vibration force.
- (7) The first period of vibration force: apply to soft mud, sand, powder soil texture etc, belong to the normal load, and can reduce the excavators fuel consumption, long time operation.
- (8) The second period of vibration force: apply to a solid sand and clay layer texture etc, belong to the heavy load, as the first period of vibration to suffer hinder the promotion strength, provide maximum vibration force. If use continuously for a long tome, make the pile driver rest 5 to 10 minutes every hour.

### 3.1.2 Clip mouth operation

1. Pedaled "the foot valve", then multi-way valve start digging machine oil.
2. Clamp the pile: Press the clamp mouth's clamping button, hydraulic cylinder is extended, clip mouth block is moved, then finish the clamping action.
3. Loosen the pile: Press the clamp mouth's loosen button, hydraulic cylinder is extended, clip mouth block is moved, then finish the loosen action.
4. Must hang up the insurance rope between the pile and clamp mouth when clamping the pile.
5. Use the hook at the top of the clamp mouth drag the sheet pile.
6. Clamp mouth's oil system is 300 bar presure, equipped with a dual pressure device, to ensure that the clip will not loosen due to vibration.



### 3.1.3 旋转操作： Rotation operation

- (1) 踩动“脚踏先导阀”，此时挖机多路阀开始供油。
- (2) 按下旋转控制器的左旋钮和右旋钮，打桩机即可左转与右转。
- (3) 操作旋转时请注意不要拉扯到外挂的油压软管，会有断裂的可能。
- (4) 旋转速度在交机时已经设定，约10转/每分钟，请勿随意调动旋转速度，过快的转速容易造成板桩夹持不稳，产生危险事件。

1. Pedaled "the foot valve", then multi-way valve start digging machine oil.
2. Press the rotate controller's left button and right button, the pile driver can turn left and turn right.
3. Please do not pull the hydraulic oil hose when operating the rotation, or it will have a risk of fracture.
4. Rotational speed is 10 rotation/min, please don't arbitrary rotation speed, too fast speed would cause instability of sheet pile clamping.

### 3.2 操作步骤及技巧（以钢板桩为例） operating steps and skills

(1) 整理：  
将板桩堆放置适当的位置以方便取用。一次抽出两支板桩，一支用于打桩，一支以备下次使用。

(1) Preparation:  
The sheet pile in the appropriate position for easy access. Take out two pieces sheet pile, one piece uses for driving pile, another is for next time.

(2) 夹桩：  
将欲使用的板桩夹紧，提起后稍加振动以除去上方积土

(2) Clamping pile:  
Please clamp the pile, then speed up the vibration when lifting, to remove the soil.



(3) 提桩到位:

缓慢地将板桩提起，尽量避免晃动，  
然后将板桩移至欲打桩处。  
需注意旋转范围内是否有障碍物或  
人员活动

(3) Making the pile in a suitable place  
Lifting the pile slowly, try to avoid shaking,  
then move the pile in a suitable place.  
Please pay attention to the obstacles and  
people within rotating scope.



(4) 对位调整:

稍微下移板桩，与地面人员配合，  
确定板桩确实接卡至定位，并注  
意板桩是否垂直。

(4) Adjusting the position  
Down the sheet pile, cooperate the people  
on the ground, ensure the pile is in a right  
position, and note whether the pile is  
vertical.



(5) 振动:

一切确认无误后，确实将板桩夹紧，  
不可稍有松动，按下振动开关开始  
打桩。绝不可在振动打桩的情况  
下横向移动大臂

(5) Vibration  
When everything is ready well, clamping  
the sheet pile, don't make it loosen,  
press the vibration switch. Do not move  
laterally the boom cylinder when driving  
the pile.





(6) 大臂加压：

当感觉板桩下土石松动后，操作大臂向下施压。

(6) Increase the boom cylinder's pressure  
When feeling earth-rock loose, operating the boom cylinder push down pressure.

(7) 使用第二段振动：

当发觉打桩机效能不足或挖掘机出力不够时，踩下第二段振动以增加振动力道。当板桩打至定位后才可放松夹嘴。


(7) Using the second period of vibration force  
When you find the pile driver's efficiency or excavator's power is insufficient, please pedaled the second period of vibration force to increase the vibration strength. When the pile is driving in a right position, then loosen clamp mouth.

(8) 调整位置：


如遇卡桩、无法将板桩打至底端或两并邻板桩接合不顺的状况，可将两并邻板桩拨起重新打桩或微调挖掘机位置。


(8) Adjust the position  
If stuck the pile, can not drive the pile to the bottom or it's not smooth for adjacent sheet pile, please push up the adjacent sheet pile, then driving the pile again, or adjust your excavator's postion.



 **注意** 请注意打每一桩的平均时间，基本上以十分钟以内为标准，并注意不要让打桩机连续运转过久，如此会增加振动马达的负担，致使温度升高、缩短轴承、油封、马达的寿命。

 **警告** 当打桩机施力困难或无法负担工作量时，请不要硬打或超负荷，如此会造成部件的损坏甚至发生危险。

 **Attention** Please note the average time to drive the pile ,basically within ten minutes is standard. Also please don't operate the driver machine too long time, it would increase the burden of vibration motor,cause temperature rise,reduce the service life of bearing, oil seal and motor.

 **Caution** When pile driver is difficult to force or can not afford the workload,please stop driving. If not,it would cause the damage of components or even dangerous.

# 第四章 定期检查及保养

## Chapter 4 regular inspection and maintenance

### 4.1 副手臂 Deputy arm

(1) 因为液压挖掘机尺寸及式样不同，因此在充分确认基础上，应按液压挖掘机安装铲斗的要领安装辅助副手臂。

(2) 液压管的连接，由接头和连接器组成。请完全清除泥土与尘埃之后固定。

(3) 请确认液压管、接头、旋转接头是否松动，管道没有漏油。

(4) 请一定装上防止副手臂脱落的销钉螺栓后才可使用，并且安装上副手臂与主机吊臂相连的保险钢丝绳。

(5) 请在各销钉处加注润滑油!

1) Because hydraulic excavator size and style is different, so on the basis of fully confirmed, should be installed according to the hydraulic excavator bucket essentials of auxiliary arm

2) Hydraulic pipe connections, consists of connector and connector. Please completely fixed after removing dirt and dust

3) Please make sure the hydraulic pipe, joints, rotary joint is loose, pipeline without leakage.

4) Please must be installed to prevent vice arm fall off just can use after the pin bolt, and fitted pair of arms are connected to the host boom insurance rope.

5) At each pin filling lubricating oil, please

#### 4.1.1 主机 Host

(1) 请务必确认马达、减振橡胶、液压管、各处螺栓没有松动，以及不漏油。

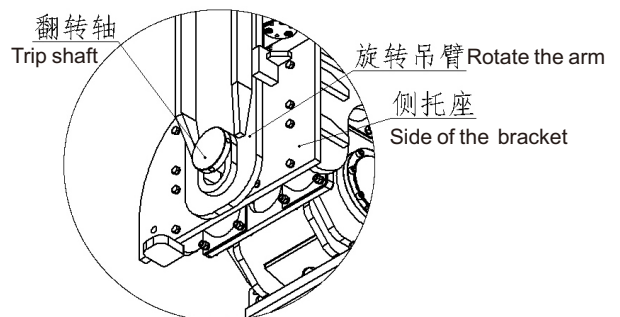
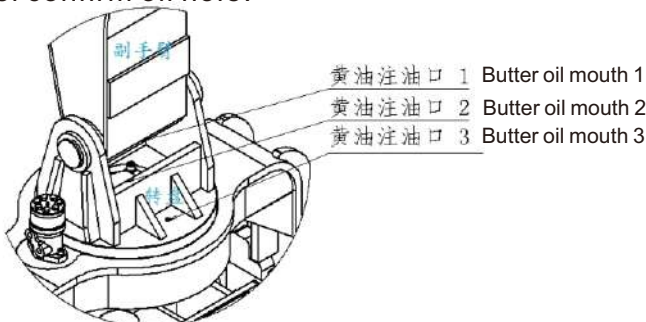
(2) 请检查上臂吊架、各处轴销、螺母没有松动，请一定装上副手臂与主机吊臂相连的保险钢丝绳。此外，请在悬吊轴销加注润滑油。润滑油酯的补充 (请参考附图建议位置)

(3) 定期检查齿轮箱内机油，由于过多或变质油的黏性及阻力，会使马达超负荷，使其达不到规定的振动量而且会造成过热，因此，请把打桩机放置在垂直直立的状态，松开油位孔确认油量。

1) Please confirm the motor, vibration damping rubber, hydraulic pipe, bolt looseness is not everywhere, and not leak

2) Please check the upper arm hanger, around the shaft pin, the nut loose, please install deputy insurance rope connected to the host crane jib arm. In addition, please in suspension shaft pin filling lubricating oil. Lubricating oil ester supplement (please refer to the attached figure suggested location)

3) Regularly check the gear oil contents, due to too much or metamorphic oil viscosity and the resistance, can make the motor overload, make its reach regulation of vibration and can cause overheating, therefore, please place your driver in the vertical position of the state, loosen the oil level confirm oil hole.



- ★可使用发动机机油，请配合当地气候条件选用机油，以免损坏部件。
- ★油量应在中心点为正常
- ★不可低于最低油位线（即机油应从油孔流出）
- ★如低于油位线则表示存油不足需添加至油位线才可
- ★在连续使用150小时后或每周应定期检查，每月应该更换。

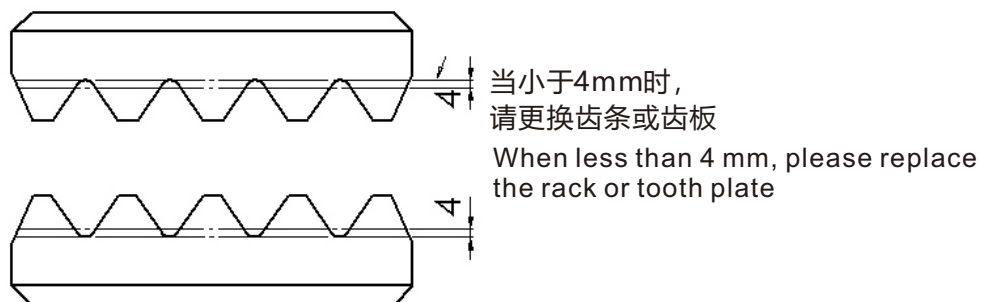
- ★Can be used engine oil, please cooperate with the local climate conditions to choose oil, so as not to damage parts
- ★Oil should be in the center as normal
- ★Not less than the minimum oil level line (i.e., the oil from the oil hole outflow)
- ★If it is lower than the oil level line said oil shortage need to add to the oil level line
- ★After 150 hours of continuous use or should be check regularly every week, every month should be replaced.

- (4) 请检查齿轮箱的承压盖和侧盖等是否漏油。
- (5) 请确认减振橡胶是否损坏及龟裂。
- (6) 请确认通气装置没有漏油。
- (7) 若螺栓丢失，请立即更换。

- 4) Please check the bearing cover of gear box and side cover leaks oil.
- 5) Please confirm whether damping rubber damage and crack
- 6) Please make sure the ventilation device without oil
- 7) If the bolt is missing, please change immediately

#### 4.1.2 夹嘴 Clip mouth

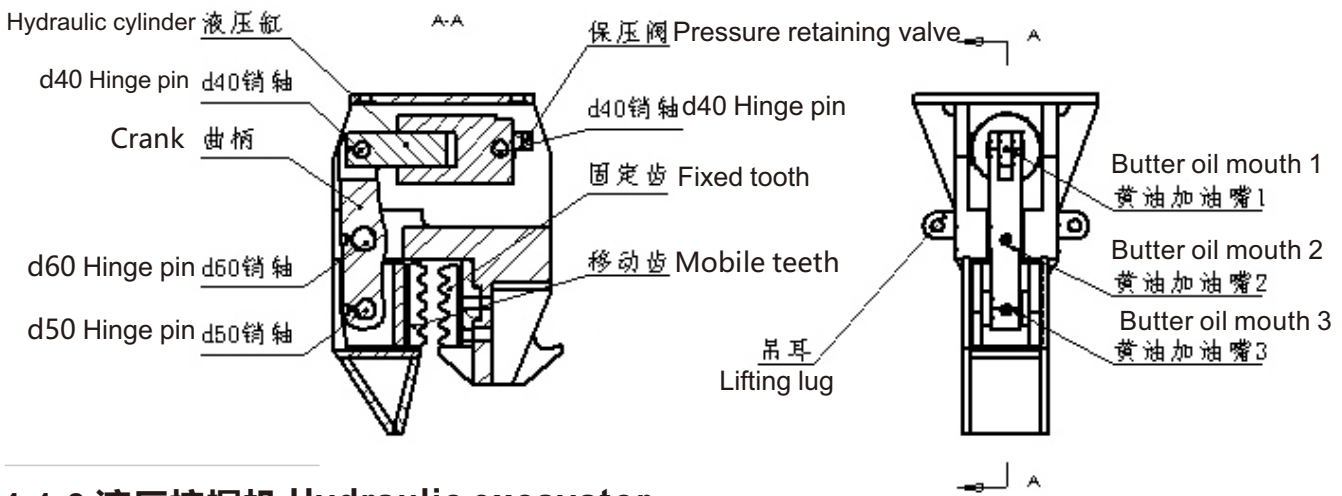
- (1) 请确认安装夹嘴本体的螺栓是否松动及脱落，液压缸必须不漏油。
- (2) 请检查夹嘴齿块是否磨损。超过下图尺寸以上则应更换。



- (3) 经常清除并清洁夹嘴接地部位的泥土、小石。
- (4) 请检查夹嘴在各轴销端部的固定环是否脱开，以及轴销是否折弯，当固定环脱开，则轴销有松脱的危险。
- (5) 请确认液压缸连结销,中心轴销等部分没有偏斜或变形。
- (6) 请在各个轴销处加注润滑油。
- (7) 当更换了夹嘴上的液压管、液压缸后，必须随即操作液压缸，进行夹嘴夹放5-6次，排放内存空气并确认各关节的活动没有异常的声音。



- 1) Please confirm whether installation clip mouth ontology of bolt is loose and fall off, the hydraulic cylinder must not leak
- 2) Please check whether the clamp mouth tooth piece of wear and tear. More than below size should be replaced
- 3) Often clear and clean the clamp mouth ground parts of the earth, a small stone
- 4) Please check the clamp mouth at the end of the shaft pin of the retaining ring is off, and whether the shaft pin bent, while retaining ring off, the shaft pin is in danger of loose.
- 5) Please make sure the hydraulic cylinder connecting pin, center shaft pin part no deflection or deformation
- 6) Please filling in the shaft pin lubricating oil
- 7) In the clip mouth after hydraulic tube, hydraulic cylinder, must then operating hydraulic cylinder, mouth clip to put 5 or 6 times, air emissions memory and confirm no abnormal sound of each joint activities



#### 4.1.3 液压挖掘机 Hydraulic excavator

因为液压挖掘机尺寸及式样不同，在充分确认的基础上，应按液压挖掘机保养的要领。大部分挖掘机皆可配合，请阅读液压挖掘机公司发行的有关说明。

Because of different hydraulic excavator sizes and styles, on the basis of fully recognized, it should be according to the hydraulic excavator maintenance essentials. Most of the excavator are available, please read the relevant instructions issued by hydraulic excavator company.

#### 4.1.4 控制手柄及电路盒 Control handle and circuit box

- (1) 请您注意确定电源已安全接上挖掘机电瓶。
- (2) 请您确定没有电线松脱、断裂，保险丝没有熔断。
- (3) 非经本公司授权的技术人员不可任意拆卸或改变电路原始设计，否则不予保修。
- (4) 请经常检查打桩机过来的线束有无碰撞或损坏。

- (1) Please pay attention to determine the power is safely in excavator battery.
- (2) Please make sure no loose wires, fracture, the fuse not fuse.
- (3) Not the technical personnel authorized by the company shall not arbitrarily remove or change the original circuit design, otherwise no warranty.
- (4) Please check the wiring harness of the pile driver any collision or damaged.

### 4.1.5 液压管路与油路控制阀 Oil control valve and oil pipe

(1) 请您注意并仔细检查油管是否有变形漏油情况，使用一段时间后应予以清理，清除黏着的油、泥和尘埃。

(2) 各管道接口是否有漏油或裂纹。

(3) 请确定各接口是否紧固。

(4) 液压管需要更换时，请遵照原管长度，注意垂度，不可过紧。

(5) 油路控制阀上的各项调整旋钮在出厂时已经经过严密调校，并且经过现场安装人员调试。非本公司授权的技术人员严禁任意调动油路设定值，若因调动造成机械负荷改变而损坏，本公司不予保修。

(1) Attention please, carefully check the deformation of the pipeline leak if use after a period of time should be clean and transparent plastic oil, dirt and dust.

(2) The pipeline interface if there is a leak or crack.

(3) Please make sure all interfaces are in fastening.

(4) When hydraulic tube need to be replaced, please follow the original pipe length, pay attention to sag, do not overtighten.

(5) The adjustment knobs on hydraulic control valve has rigorous adjustment in the factory, and after debugging personnel on-site installation.

Not the company authorized technical personnel strictly prohibit transferring the oil set data arbitrarily, if the mechanical load change and damage caused by the transfer, the company will not be warranty.

### 4.2 检查项目及检查时间表 Inspection items and timetable

序号 NO	检查项目 Inspection items	Inspection timetable 检查周期			
		每天 Every day	每周 Every week	每月 Every month	每年 Every year
1	各螺栓、螺母的松动、脱落及各部分的龟裂。 Loose and fall off of each bolt and nut, and the crack of each part.	√			
2	各销钉及旋转轴承的龟裂磨损。 Crack and wear of each pin and rotary bearing.	√			
3	打桩机的油量，以及排气栓塞的清洁。 The oil of pile driver, and the cleanness of exhaust gas embolism.	√			
4	减震橡胶的损伤龟裂。 Damage cracks of shock-reducing rubber.	√			
5	打桩机液压管、各部件的漏油。 The pile driver hydraulic pipes and parts oil leak.	√			
6	液压缸的漏油，以及安全保护装置的目测。 The visual inspection of hydraulic cylinder oil leak, and safety protection device.	√			
7	夹嘴齿磨损。 Clip mouth tooth wear.	√			
8	夹嘴咬合的测试。 Clip mouth bite test.	√			
9	液压管的损伤、漏油、拧紧。 Hydraulic pipe damage, oil leak, and tighten.	√			
10	油压正常指示灯，开关的损伤，运转。 Oil pressure normal indicator light, switch damage, operation.	√			

序号 NO	检查项目 Inspection items	Inspection timetable 检查周期					
		每天 Every day	每周 Every week	每月 Every month	每3月 Every 3month	每6月 Every 6month	每年 Every year
11	从油压装置管道的漏油。 From oil pressure unit pipeline oil leak.	√					
12	操作手柄的损伤、断线。 Operating handle damage, break line.	√					
13	齿轮箱内异响。 Abnormal sound in gear box.		√				
14	各销钉及旋转轴的黏稠润滑剂缺少。 The pin and rotary bearing viscous lubricant lack.		√				
15	打桩机的油量、污垢、马达排量。 Oil mass, dirt, motor displacement of the pile driver.			√			
16	打桩机的机油更换。 Engine oil replacement of the pile driver.				√		
17	液压马达轴承的磨损。 Hydraulic motor bearing wear.						√
18	液压马达安装部分的密封。 The seal of hydraulic motor installation part.						√
19	打桩机内部的清理。 Internal cleaning of the pile driver.						√
20	综合性能试运转检查。 Comprehensive performance test run check.						

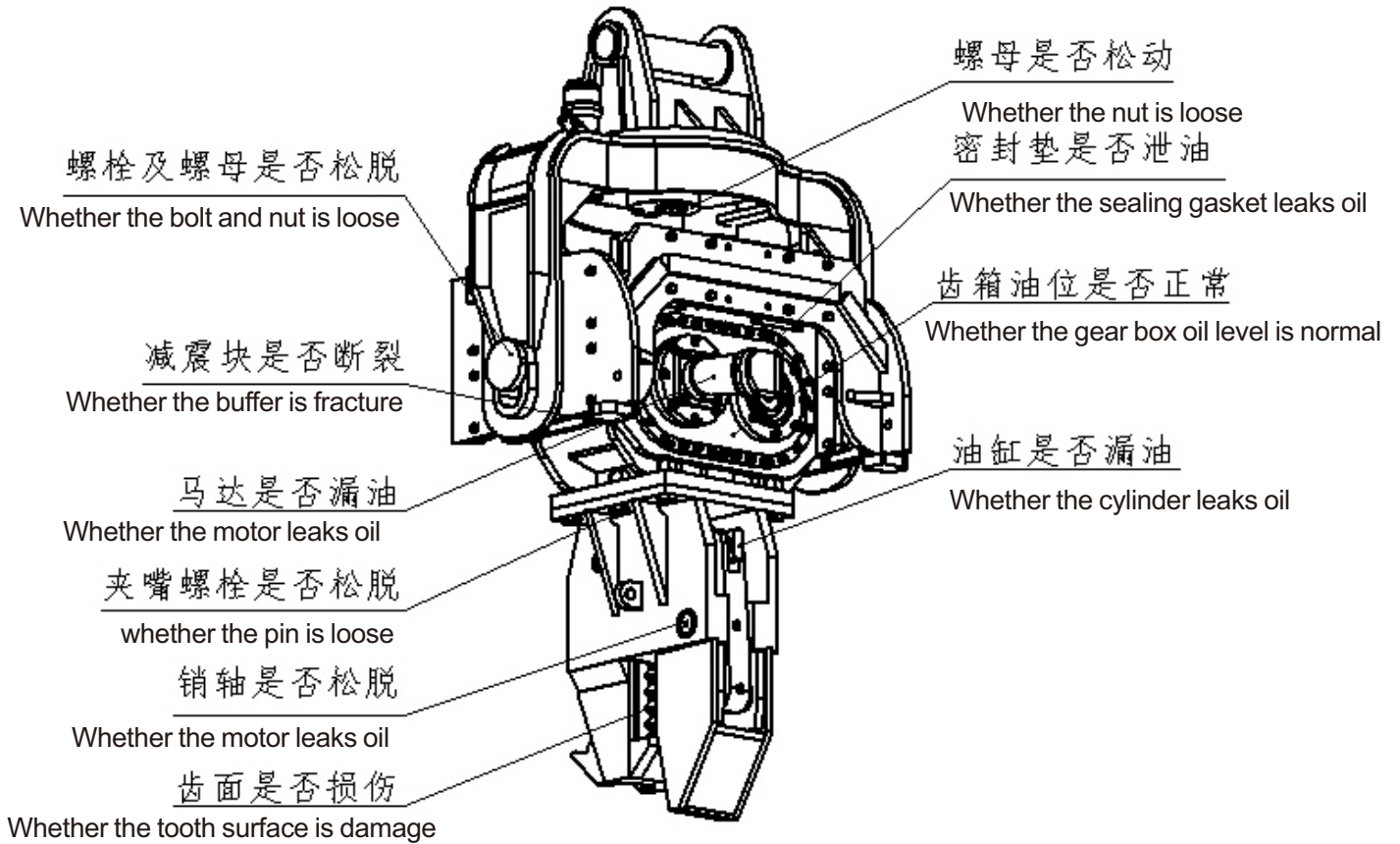
- ★正确的检查保养，能够充分的发挥打桩机的性能在检查和运转中，
- ★认为异常时，请立即确定原因，进行维修。
- ★请必须每依各月进行依次定期自行检查。(定期自行检查)
- ★请必须每一年进行一次定期自行检查。(特定自行检查)
- ★进行上述特定自行检查时，纪录其结果，并且妥为保存。
- ★必须由具有特定自行检查资格的检查员，或授权的检查人员进行。

- ★ The correct inspection and maintenance, can give full play of the performance of the pile driver.
- ★In the inspection and operation, when you think it is abnormal, please immediately determine reasons, then repair.
- ★Please must take regular inspection every month. (Regular inspection)
- ★Please must take regular inspection every year. (Specific inspection)
- ★While conducting the specific inspection, record the result, and preserve.
- ★It must be inspected by a inspector has specific qualifications, or authorized.

### 4.3 自行检查对策 Proper countermeasures

自行检查主要部位如下图所示：

To check the main parts as shown in the figure below:



# 第五章 故障问题解答与排除

## Chapter 5 fault problem solving

**主要故障与对策表：** The main fault and countermeasures table :

序号	检查项目	检查要领	判定标准	处理
1	各螺栓螺丝帽的松紧脱落, 以及各部的龟裂	螺栓螺帽松动, 脱落状态目视之外, 可用检查修用的扳手检查	应该是正常的状态	拧紧螺栓或更换
		焊接部的开裂, 除了目视之外可比色检查	无龟裂	充分的表面切割之后, 焊接修理或更换
2	各轴销及旋转轴承的龟裂	目视或比色检查	无显著的磨损、龟裂	更换
3	齿轮箱的油量	松开油位孔, 应有机油流出	无显著的污垢	补给或更换
			规定量以上许多, 则液压马达密封破损	修理或更换
4	减震橡胶的损伤或龟裂	目视检查	没有损伤龟裂	更换
5	打桩机、液压管各部件的漏油	目视检查	没有漏油	修理或更换
6	液压缸的漏油	目视检查	没有漏油无显著损伤	修理或更换
7	夹嘴齿块的磨损	目视检查	低于平面时	更换
8	夹嘴咬合测试	测试夹嘴开时, 在齿部夹上6mm以上钢板, 检查间隙与咬合状态	应该无显著的间隙, 应该是适合的咬合	咬合状态不佳时会损伤轴销, 需要修理或更换
9	液压管的损伤、漏油	目视检查有无损伤	没有损伤	更换
		漏油时擦净接合部的污垢, 加压检查	不应该漏油	拧紧螺栓或更换
10	控制器, 软线的损伤或断线	目视有无损伤	没有显著损伤	修理或更换
		用电工表测量, 确认有无断线	应该没有断线	修理或更换
11	各轴销, 旋转轴承的润滑	目视确认润滑状态	应该不缺润滑油	加注润滑油
12	齿轮箱的油量、污垢、 马达排量	用检查油位孔目视确认油量、污垢	没有显著污垢	补给或交换, 更换时清洗内部
		检查马达排量	300小时进行交换 排量200L/min	
13	齿轮轴承的机油交换		每300小时交换	更换
14	齿轮轴承的磨损	关于性能试运转, 检查是否发生异常	应该没有显著磨损	更换
		定期打开轴承盖, 目视磨损状态, 或用厚薄规检查		
15	液压马达轴承的磨损	目视检查马达排油量	排油量定在200L/min以下	更换
		关于性能试运转, 检查是否发生异常	应该没有显著磨损	更换
16	油压机安装部位的O型环		每一年进行交换	更换
17	总和性能试运转检查	打桩机、夹嘴、减振橡胶、液压缸等是否异常, 可以在吊起的状态或测试运转台进行测试检查	应该没有异常	有了异常即拆卸分解或修理更换

# Chapter 5 fault problem solving

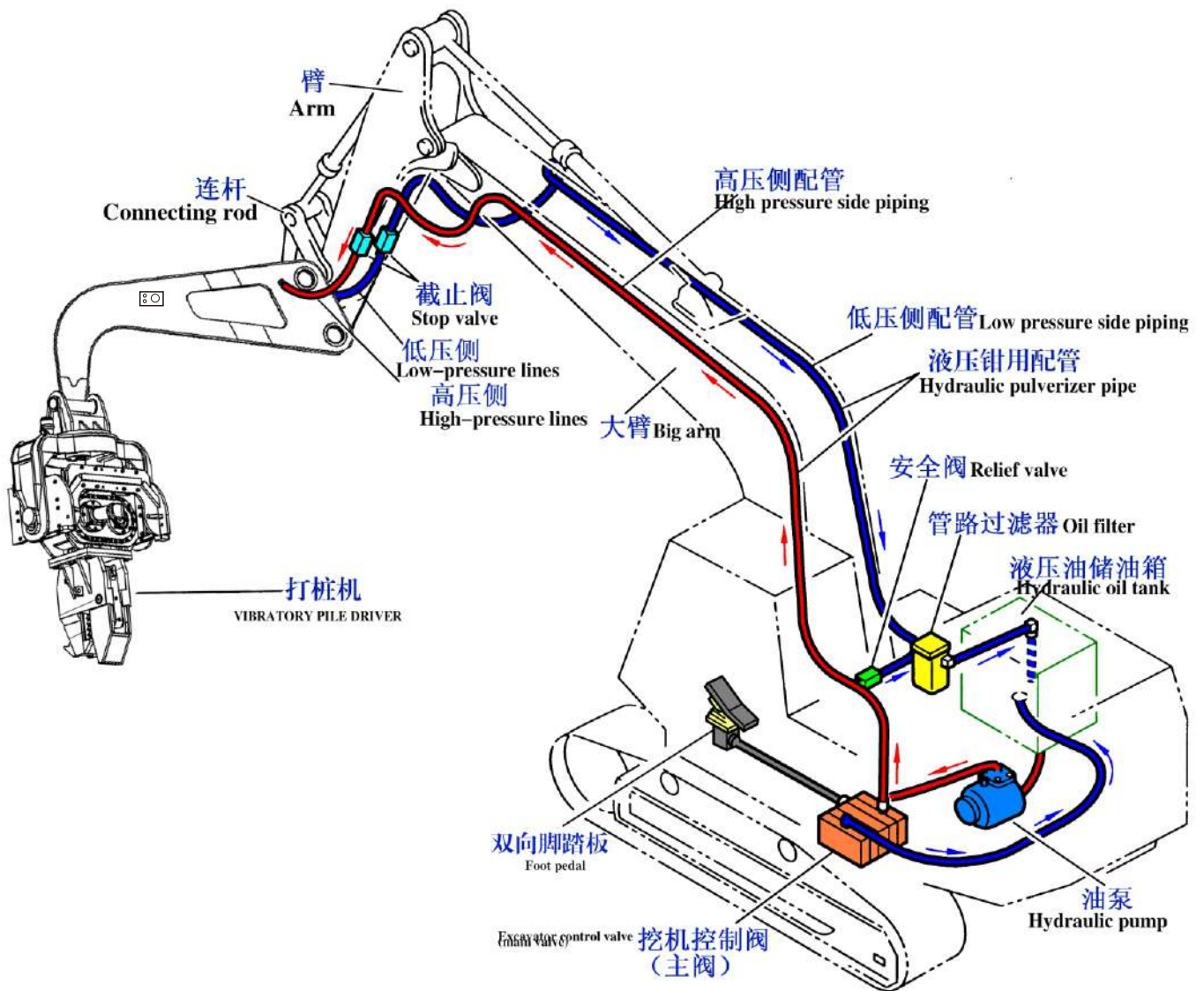
The main fault and countermeasures table :

Number	Project check	The way check	Normal standard	Solution
1	The bolt nut of slack off as well, and The ministries of the crack	Bolt and nut loose, fall off state of the visual With wrench to check, can be used to check	Should be the normal state	Tighten bolts or replacement
		Welding crack, in addition to the visual than color inspection	There is no crack	Adequate surface after cutting, welding repair or replacement
2	The shaft pin and crack of rotary bearing	Visual or color inspection	No significant wear, cracks	replace
3	The amount of oil gear box	Loosen the oil hole, oil outflow	No significant in the dirt	Supply or replacement
			More than specified amount many hydraulic motor Seal the damage	Repair or replace
4	Damage or crack of damping rubber	Visual inspection	No damage cracks	replace
5	Hammer, hydraulic oil tube parts	Visual inspection	No oil spill	Repair or replace
6	The hydraulic cylinder oil leak	Visual inspection	No oil no significant damage	Repair or replace
7	Clip mouth tooth wear	Visual inspection	Is lower than the plane	replace
8	Clip mouth bite test	Test clamp mouth switch, on the teeth of clip 6 mm More than steel check clearance and bite	Should be no significant gap, should be suitable The bite	Poor state of occlusion will damage the shaft pin, needs to be repaired or replaced
9	Hydraulic pipe damage, oil spill	Visual inspection for damage	There is no damage	replace
		The oil dirt rub-up joints when, pressure check	Should not leak	Tighten bolts or replacement
10	Controller, cord damage or break	Visual presence of damage	No significant damage	Repair or replace
		Electrician table was used to measure and confirm presence of disconnection	There should be no break	Repair or replace
11	The shaft pin, rotating bearing lubrication	Visual confirmation lubrication state	Should be no shortage of lubricating oil	Filling of lubricating oil
12	Gear box of oil, dirt, motor displacement	With visual check the oil level confirmation of oil and dirt	Did not show the dirt	Cleaning the internal supply or exchange, replacement
		Check the motor displacement	300 hours 200 l/min	
13	Gear bearing oil exchange		To exchange every 300 hours	replace
14	Gear bearing wear	About the performance test run, check whether an exception occurs	There should be no significant wear and tear	replace
		On a regular basis to open the bearing cover, visual wear state, or use the thickness gauge to check		replace
15	Hydraulic motor bearing wear	Visual check the motor oil discharge volume	Oil discharge measurement under 200 l/min	replace
		About the performance test run, check whether an exception occurs	There should be no significant wear and tear	replace
16	Hydraulic press installation position of O-rings		Change Every year	replace
17	Combined the performance test run check	Driver, clamp mouth, damping rubber, the hydraulic cylinder is abnormal, can lift the state of the test inspection or test run	There should be no abnormal	In an unusually dismantling or repair or replacement



# 第六章：油路、电气安装示意图

## Chapter 6 electrical installation schematic diagram



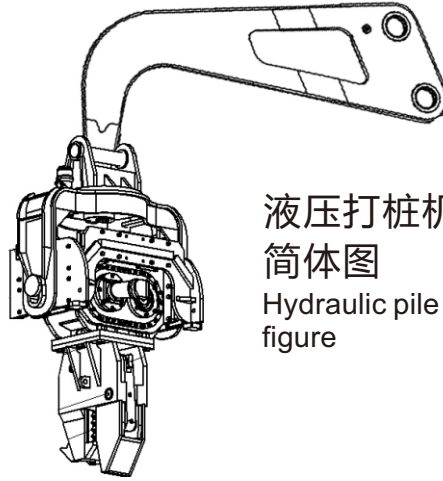
# 第七章：打桩机安装步骤图解

## Chapter 7 Diagram of pile driver installation steps



液压打桩机  
实体效果图

Hydraulic pile driver entity  
rendering



液压打桩机  
简体图

Hydraulic pile driver simplified  
figure



1 装夹嘴  
Settle the clamp.

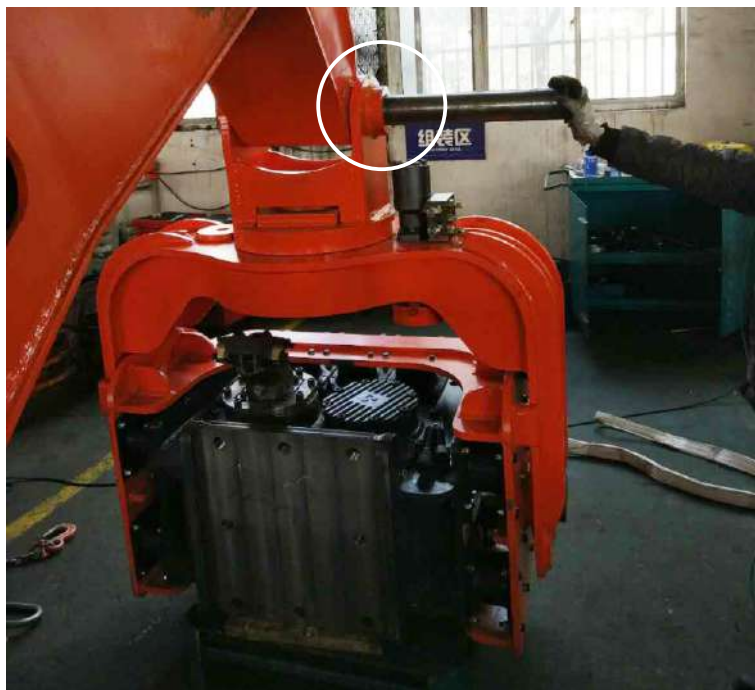
对螺丝孔 2  
Match the holes





3 上螺丝  
Tighten the screws

连接 4  
Connect the clamp  
onto the vice arm and  
fix by pins



5 斗销连接  
Pin connection





- 电箱  
Electric box
- 指示灯 Indicator light
- 电源开关 Power switch
- 震动夹紧的开关方向不知道左右，自己调  
Vibrating and clamp button, you can adjust left or right to see if the action is correct.
- 电磁阀线，接到电磁阀  
These two electromagnetic valve lines (black and red) connect onto the electromagnetic valve
- 总电源线，接到挖机电瓶上，24V  
The total power line connect onto the excavator battery, 24V
- 震动脚踏阀  
Vibration feet valve
- 复位开关（一个控制旋转，一个控制张合）  
Reset switch: one controls rotation, the other controls opening and closing.





