



TY 型电动润滑泵  
TY Electric Lubrication Pump

使用说明书  
Operation Instruction



河谷  
HERG

中外  
合资 河谷（佛山）智能装备股份有限公司  
HERG (FOSHAN) INTELLIGENT EQUIPMENT CO., LTD.

Sino-foreign  
Joint venture HERG (FOSHAN) INTELLIGENT EQUIPMENT CO., LTD.

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## 一、概述

### I. Overview

TY 型电动润滑泵是一款由齿轮泵进行供油的电动润滑泵，可以用于容积式集中润滑系统或抵抗式集中润滑系统。该泵由电机、齿轮泵、溢流阀、卸压阀、油箱等部件组成，设有液位开关与压力开关，使润滑泵低油位与系统失压得以监控，当润滑系统出现压力过低、润滑油不足等情况时皆可提供报警信号。

TY electric lubrication pump applies gear pump to supply oil. It can be applied to the volumetric centralized lubrication system or resistance-type centralized lubrication system. The pump comprises the motor, gear pump, overflow valve, pressure relief valve and oil tank. It is provided with a liquid level switch and pressure switch to monitor low liquid level of the lubrication pump and low pressure of the system. When low pressure or insufficient lubricating oil happens to the lubricating system, alarm signals will be provided.

该电动润滑泵可广泛应用于数控机械、加工中心、生产线、轻纺、印刷、化工、木工、食品等机械行业，确保各类机械产品得到充分润滑，延长机械设备使用寿命。

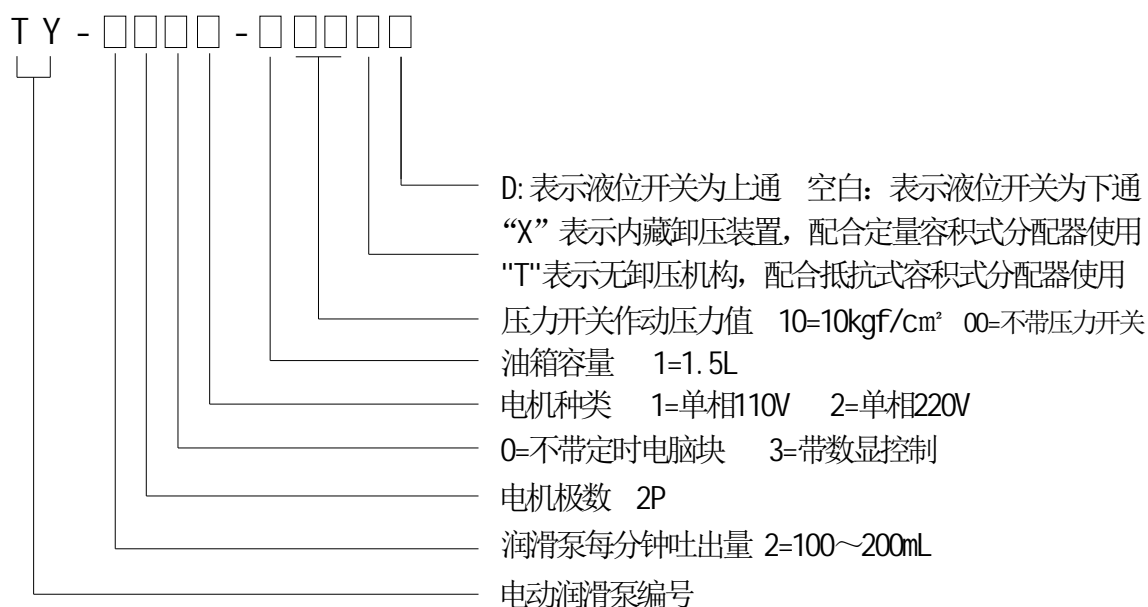
The electric lubrication pump can be widely applied to machinery industries, such as CNC machine, machining center, production line, light textile, printing, chemical engineering, woodworking, food, etc. It can guarantee that mechanical products can be lubricated sufficiently, extending the service life of machinery.

## 二、型号说明、规格型号及技术参数

### II. Descriptions of Models, Specifications and Technical Parameters

#### 1、型号说明

##### 1. Model description



D:表示液位开关为上通	D: It indicates that the liquid level switch allows water to flow upward.
空白: 表示液位开关为下通	Blank: It indicates that the liquid level switch allows water to flow downward.
“X”表示内藏卸压装置, 配合定量容积式分配器使用	"X" indicates that the equipment is equipped with a concealed pressure relief device, and the equipment should be used together with the quantitative volumetric distributor.
"T"表示无卸压机构, 配合抵抗式容积式分配器使用	"T" indicates that there is not a pressure relief device, and the equipment should be used together with the resistance-type volumetric distributor.
压力开关作动压力值 10=10kgf/c m <sup>2</sup> 00=不带压力开关	The pressure switch's working pressure value 10=10kgf/c m <sup>2</sup> 00 = without a pressure switch
油箱容量 1=1.5L	Oil tank capacity: 1=1.5L
电机种类 1=单相 110V 2=单相 220V	Motor type 1 = single phase 110V 2 = single phase 220V
0=不带定时电脑块	0= without a timing computer module
3=带数显控制	3= with digital display control
电机极数 2P	Motor Poles 2P
润滑泵每分钟吐出量 2=100~200mL	Throughput / min of the lubrication pump 2=100~200mL
电动润滑泵编号	Electric lubrication pump SN

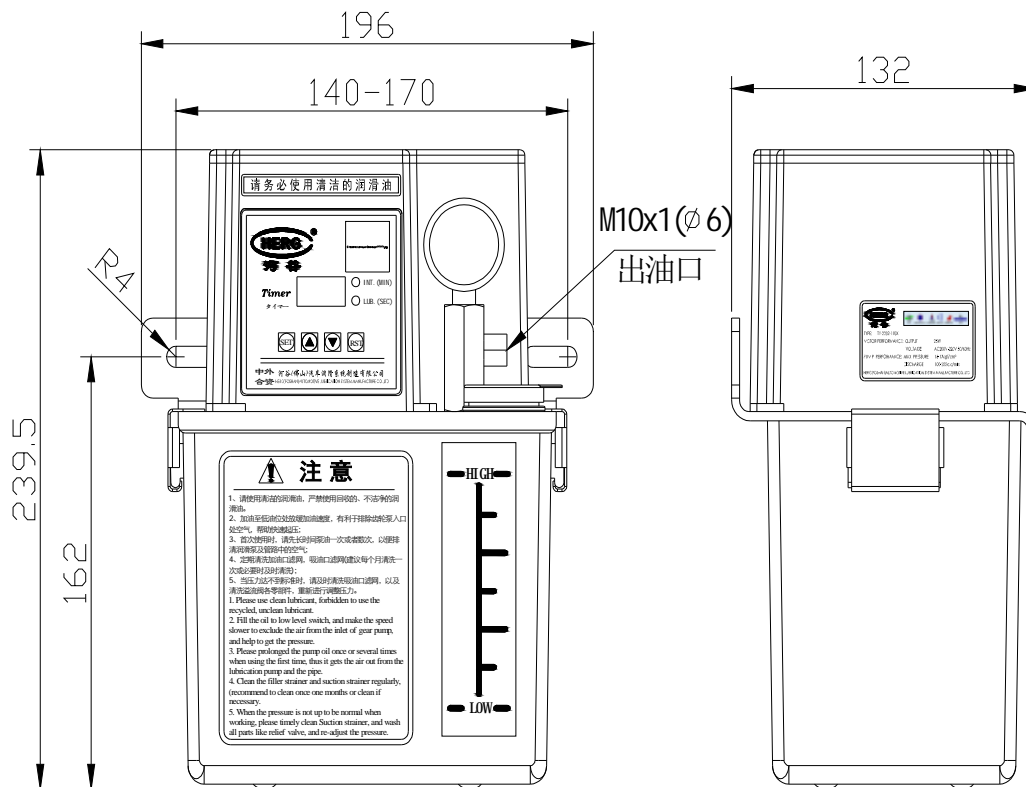
## 2、规格型号及技术参数

### 2. Specifications, models and technical parameters

规格型号 Specification and model	项目 Item	公称 Nominal 排量 Displacement ml/min	公称 Nominal 压力 MPa Pressure MPa	油箱 Oil tank 容积 Volume L	电子控制器 Electronic controller	压力 Pressure 开关 Switch	液位开关 Liquid level switch	电 机 Motor			油剂 Medicinal oil 牌号 Trademark
								电压 (AC) Voltage (AC) V	功率 W Power (W)	频率 Hz Frequency (Hz)	
TY-2201-110X		100 ~ 200	1.5~ 1.7MPa	1.5	无 None	常开 Normally open DC24V/2A	常开 DC24V/0.2A Normally open, DC24V/0.2A	110	25	50 或 or 60	N22 ~N68
TY-2202-110X					无 None			220			
TY-2231-110X					有 Yes			110			
TY-2232-110X					有 Yes			220			
TY-2201-100T					无 None			110			
TY-2202-100T					无 None			220			
TY-2231-100T					有 Yes			110			
TY-2232-100T					有 Yes			220			

## 三、外形尺寸:

### III. Overall Dimensions:



#### 四、使用注意事项

#### IV. Precautions for Use

1 润滑泵的额定工作压力为 1.5~1.7MPa，非特殊原因严禁调整(产品出厂前已调至 1.5~1.7MPa)。

1. The rated working pressure of the lubrication pump is 1.5~1.7MPa. It is strictly prohibited that the working pressure is adjusted, unless there are special reasons (the ex-factory working pressure is 1.5~1.7MPa).

2 使用油剂为 N22-N68 机械油(严禁使用含有杂质的油品)。

2. N22-N68 machine oil is applied (it is strictly prohibited that oil products containing impurities are used).

(推荐：环境温度  $-5^{\circ}\text{C} \sim 0^{\circ}\text{C}$ ，采用 N22<sup>#</sup>机械油；环境温度  $1^{\circ}\text{C} \sim 20^{\circ}\text{C}$ ，采用 N32<sup>#</sup>-N46<sup>#</sup>机械油；环境温度  $21^{\circ}\text{C} \sim 40^{\circ}\text{C}$ ，采用 N46<sup>#</sup>-N68<sup>#</sup>机械油。)(Recommendation: N22<sup>#</sup> machine oil for ambient temperature  $-5^{\circ}\text{C} \sim 0^{\circ}\text{C}$ ; N32<sup>#</sup>-N46<sup>#</sup> machine oil for ambient temperature  $1^{\circ}\text{C} \sim 20^{\circ}\text{C}$ ; N46<sup>#</sup>-N68<sup>#</sup> machine oil for ambient temperature  $21^{\circ}\text{C} \sim 40^{\circ}\text{C}$ )

3 首次使用：启动油泵运作，油剂充满主油管→拧下系统末端联接体的闭口螺丝→让油剂从闭口螺丝螺孔排出→观察排出的油剂，当无气穴(气泡)后，按原装配，紧固闭口螺丝→系统压力升至 1.5MPa~1.7 MPa(观察压力表)，持续 5~10 秒→切断电源，泵停止工作→系统压力卸压至 0 位→然后再次启动油泵运作给油剂→泵工作压力上升至 1.5~1.7MPa→观察各计量件，排油正常→循环操作数次，使全部支油管末端均出油，无气穴(气泡)→设定供油周期进行自动供油。

3 First use: Start the lubrication pump, fill the main oil pipe with oil → unscrew the closed screw of the connection body at the end of the system → discharge oil from the bolt hole of the closed screw → observe the oil discharged, after there is no cavitation (bubble), fasten the closed screw according to the original

assembly → the system pressure rises to 1.5MPa~1.7 MPa (observe the pressure gauge), last for 5~10s→ cut off the power, pump stops working → system pressure is relieved to 0 position → and then start the pump and apply oil → working pressure of the pump rises to 1.5~1.7MPa→ observe measuring part, oil discharge is normal→ repeat the procedure for times to make oil be discharged from all the ends of oil pipe branches, there is no cavitation (bubble) → set the oil supply cycle for automatic oil supply.

4 检查各部件连接处, 绝对不能有渗油现象, 如发现渗油必须紧固, 严防渗漏。(采用目测或手指触摸各部件连接处)

4. Inspect the connection of parts and confirm whether there is oil leakage. If there is oil leakage, parts must be fastened. (Check oil leakage by visual inspection or by touching parts with fingers.)

## 五、程控器设置方法

### V. Setting Method of Program Controller

润滑系统供油周期: 即润滑泵供油时间与间歇时间。适用电源为 AC220±V10%, AC110±V10% 两种规格。具体接线方式请参照电机保护盖内壁的电气接线图。

Oil supply cycle of the lubricating system: the oil supply time and interval of the lubrication pump. There are two applicable power specifications: AC220±V10% and AC110±V10%. Please refer to the electric wiring diagram of the inner wall of the protective cover of the motor for the wiring mode.

(一) TY2232 型电动润滑泵接线后按如下方式进行设置:

(I) TY2232 electric lubrication pump is set as follows after wiring:

#### 1、油泵工作程序设定

##### 1. Setting of the working procedure of the lubrication pump

NK-3S 型数显双定时器为数码显示, 具有设定方便、定时精度高及可靠等优良特性。

NK-3S digital display dual timer applies digital display and has good characteristics, such as convenient setting, high precision of timing and high reliability.

(1)、通断时间可自行设定, 设定范围为: LUB 动作时间: 1-999S(秒), INT 休止时间: 1-999Min(分)  
(1) Connection / disconnection time can be set by the user. The setting scope is: LUB action time: 1-999S, INT off time: 1-999Min

(2)、系统如下情况报警、报警时字体闪烁(显示异常), 并蜂鸣:

(2) Under the following cases, the system will give an alarm, words will flicker while sending an alarm (display the abnormal situation), and the beep sound will be sent:

a、压力不足显示 Erp(当油泵不配压力开关时, 无此报警功能);

a. Erp is displayed when the pressure is insufficient (the alarm function will not work when the lubrication pump is not equipped with a pressure switch);

b、液位不足显示 Ero;

b. Ero is displayed when the liquid level is low;

c、系统超时运行显示 Ers。

c. Ers is displayed when running timeout happens to the system.

- (3)、 定时器在任何一种状态下均可用 RST 键或外键复位按钮系统执行复位；  
 (3) The timer can be reset with the RST key or the external reset button system under any status;
- (4)、 工作电压：AC110V  $\pm 10\%$  /50Hz； AC220V  $\pm 10\%$  /50Hz。  
 (4) Working voltage: AC110V  $\pm 10\%$  /50Hz; AC220V  $\pm 10\%$  /50Hz.

NK-3S 型数显双定时器的使用方法：  
 Use method of NK-3S digital display dual timer:

①、接入额定电源，进行通断时间的设定。按住 SET 键 2 秒后，则进入 LUB 设定状态，此时显示原来 LUB 动作时间值，并且 LUB 动作时间值个位闪烁，按 ▲ 键为增加，▼ 键为减少，可对个位进行设置，按 SET 可对 LUB 动作时间值个、十、百位进行位选，随后可进行十、百位的设置，设置完毕按 SET 键 2 秒，确定当前设置值并进入 INT 休止时间设定状态，用同 LUB 动作时间的设置方法可对 INT 休止时间进行设置，设置完毕按 SET 键 2 秒确认设定值并退出，数据被写入内存，数码管正常显示 LUB 动作时间值和 INT 休止时间值。此时系统按新的设定时间自动进入工作。

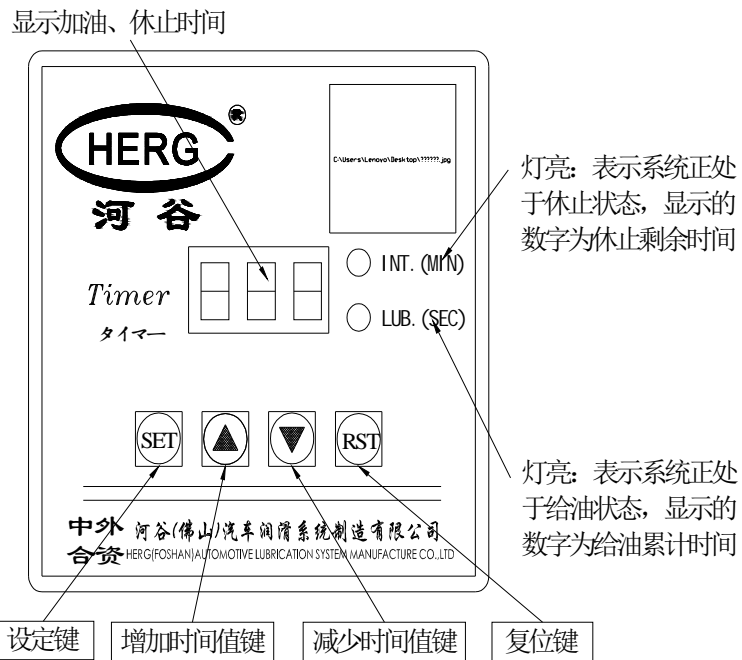
① Make the timer access to the rated power and set the connection / disconnection time. By pressing the SET key for 2s, you can enter the LUB setting status where the original LUB action time value is displayed, and the single place flickers. Pressing ▲ key will increase the value, and pressing ▼ key will decrease the value. The single place can be set. By pressing SET, you can select the single unit, tens place and hundreds place of LUB action time value. And then you can set the ten's place and the hundred's place. After setting, by pressing SET key for 2s, the current value set will be confirmed, and the timer will enter the INT off time setting status. INT off time can be set with the same setting method as used in setting LUB action time. After setting, you can press the SET key for 2s to confirm the value set and exit the setting mode. Data will be written into the memory, the digital display will normally display the LUB action time value and INT off time value. In such a case, the system will work automatically in accordance with the new setting time.

②、上述设置完毕后，即进入工作，由 LUB INT 状态按设定时间循环。

② After the above setting is completed, formal work can be started, and switch from LUB status to INT status will cycle as the setting time.

③、当系统出现故障报警，在异常处理后按 RST 键将回到设定值开始运行。

③ If a fault happens to the system and an alarm is sent, after the abnormal problem is solved, by pressing the RST key, the system will return to the setting vale and start to run again.



附： NK-3S 型数显双定时器面板说明(右图)

Attached: Descriptions about the Panel of NK-3S Digital Display Dual Timer (See the Right Figure)

显示加油、休止时间	Display oil addition / off time
灯亮: 表示系统正处于休止状态, 显示的数字为休止剩余时间	Light on It indicates that the system is under the off time, and the digits displayed is the remaining off time.
灯亮: 表示系统正处于给油状态, 显示的数字为给油累计时间	Light on It indicates that the system is under the oil supply status, and the digit displayed is the accumulative oil supply time.
设定键	Setting key
增加时间值键	Time increase key
减少时间值键	Time decrease key
复位键	Reset key

## 2、手动按钮 RST 功能与作用

### 2. Functions and role of manual button RST

2.1 手动按钮 RST 是润滑泵供油周期设定确认按钮。

2.1 Manual button RST is used for confirming setting of the oil supply cycle of the lubrication pump.

更改润滑泵的供油周期后, 按动手动按钮 RST, 使控制器按设定的时间运行(当按下 RST 键后, 润滑泵会进入工作状态, 按新设定的工作时间运行一次后定时器将重新按设定的时间计时);

After changing the oil supply cycle of the lubrication pump, you can press the manual button RST to make the controller run as the setting time (after pressing the RST button, the lubrication pump will enter the working status, and after the system runs for one time as the new setting time, the timer will carry out timing according to the new setting time);

2.2 手动按钮 RST 又是低油位发讯与压力控制器发讯异常解除确认按钮。

2.2 The manual button RST is also the button used for confirming the removal of abnormal signal transmission of low oil level and pressure controller.

2.3 润滑泵电机装有内藏式发热保护器, 过载异常发热时断开, 温度恢复正常时自动复位接通。

2.3 The lubrication pump's motor is equipped with a concealed heating protector which will disconnect the



circuit in the case of abnormal heating arising from overload and automatically reconnect the circuit after the temperature is normal.

(二)TY-2202 型电动润滑泵无数显双定时器及其功能，具体控制方式由主机 PLC 设置。

(II) TY-2202 electric lubrication pump is not equipped with a digital display dual timer and corresponding functions. Its control mode is set via PLC of the host.

## 六、常见故障排除操作方法

### VI. Common Troubleshooting Methods

序号 S/N	现 象 Phenomenon	原 因 Reason	排 除 方 法 Elimination methods
1	油泵不出油，电机运转有噪声或排出油剂含气泡 The oil pump cannot discharge oil, there are noises when the motor runs or oil discharged contains bubbles	使用电压不对 Voltage is incorrect	使用正确电压电源 Use the correct voltage
		接线错误 Wiring error	按正确的电气接线图接线 Conduct wiring as per the correct electric wiring diagram
		吸入微细砂粒困死齿轮 Fine sand particles are inhaled, and the gears are stuck	拆除底部齿轮泵清洗 Remove the bottom gear pump and clean it <b>此项必须由专业人士操作</b> <b>This item must be operated by professionals</b>
		热保护器因电机温升过高而断开 The thermal protector is disconnected for too high temperature rise of the motor	温度下降将自动复通不属故障 It will reconnect automatically after the temperature is normal. It's not a fault
		热保护器烧毁 The thermal protector burns out	更换热保护器 Replace a new protector
2	压力不足 Insufficient pressure	使用油剂粘度过高或者过低 The viscosity of lubricating oil used is too high or low	更换合适的润滑油 Replace suitable lubricating oil
		油泵设定给油时间不准确(过短) The setting oil supply time of the lubrication pump is inaccurate (too short)	重新确认设定工作时间 Reconfirm the setting working time
		压力表已损坏 The pressure gauge has broken down	更换压力表 Replace the pressure gauge
		主油管泄露 Leakage happens to the main oil pipe	检查主油管，吸油口处滤网 Inspect the main oil pipe and filter screen at the oil inlet
		油泵加压时，有支油管严重出油 Oil leakage of the branch oil tube has severe leakage when the pressure of the oil pump is increased	检查更换出油支管的分配器内换向阀 Inspect and replace the interior reversing valve of the distributor of the branch oil tube

		油泵溢流阀密封不好 The hermetic sealing of the overflow valve of the oil pump is not favorable	拆下清洗，调整溢流阀 Remove the overflow valve for cleanout, and adjust the overflow valve
		吸油口处堵塞 The oil suction is blocked	清洗油箱和吸油口处滤网 Clean the oil tank and the filter screen on the oil suction
3	不出油 No oil off	泵内空气未排清 The oil within the pump has not completely removed	多次泵油，或松开出油口再泵油 Oil is pumped for times or oil is pumped again after loosening the oil outlet
		电机不转 The motor stops operating	见序号 1 项 See Item 1
4	出油量少 The oil pump capacity is low	吸油口处堵塞 The oil suction is blocked	清洗油箱和吸油口处滤网 Clean the oil tank and the filter screen on the oil suction
		溢流阀密封不好 The hermetic sealing of the overflow valve is not favorable	取下溢流阀清洗 Remove the overflow valve for cleanout
5	压力开关失灵 The pressure switch does not work properly	系统压力不足 The system pressure is insufficient	检查管路系统压力 Inspect the pressure of the pipeline 必须大于 10kgf/ c m <sup>2</sup> Must be more than 10kgf/ c m <sup>2</sup>
		接线错误 Wiring error	按电气接线图正确接线 Connect the wires according to the electrical wiring diagram
6	液位开关失灵 The liquid level switch does not work properly	接线错误 Wiring error	按电气接线图正确接线 Connect the wires according to the electrical wiring diagram
		浮球卡住 The floating ball is stuck	设法将液位开关位置纠正 Try to correct the position of the liquid level switch

#### 附：溢流阀与卸压阀故障排除具体方法

#### Attached: Specific Method for Troubleshooting of Overflow Valve and Pressure Relief Valve

1、溢流阀：当润滑泵未能达到 1.5~1.7MPa 时调整此溢流阀。调整压力时堵住润滑泵出油口，接通电源，使润滑泵运行。按示图 1 所示，松开锁紧螺母 2，旋转调压螺钉 1 进行调整压力(顺时针往里拧为调高压力，反之则调低)，如压力不能上升，则可能为柱塞 5 与阀体 3、之间有脏物卡住，卸下清洗，按原装配，再度进行调整，压力调整完毕后，拧紧锁紧螺母。

1. Overflow valve: When the pressure of the lubrication pump cannot reach 1.5~1.7MPa, please adjust the overflow valve. When adjusting pressure, please plug the oil outlet of the lubrication pump and connect the power to make the lubrication pump run. Loose locking nut 2 as shown in Figure 1, rotate pressure regulating screw 1 to adjust the pressure (pressure will rise by screwing clockwise, otherwise pressure will lower). If the pressure cannot rise, there may be dirty matters stuck between plunger piston 5 and valve 3. The user can remove them for cleanout, assemble them again according to the original assembly and adjust pressure again. After the pressure is proper, please fasten the locking nut.

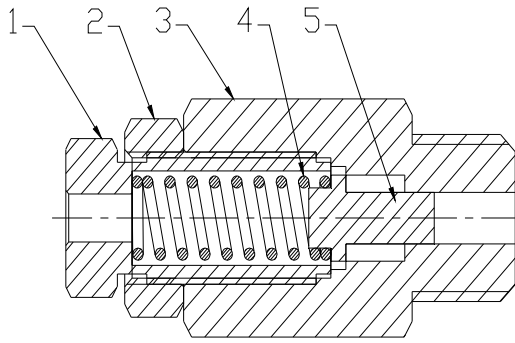


图 1 溢流阀  
Figure 1 Overflow Valve

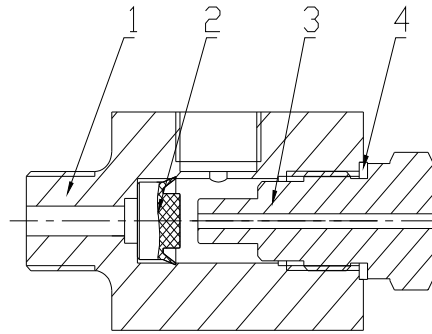


图 2 卸压阀  
Figure 2 Pressure Relief Valve

2、卸压阀：如上图 2 所示被脏物卡死，取出伞型阀 2 清洗，并清洗 1 卸压阀本体，清洗完毕后，按原装配。

2. Pressure relief valve: If there are stuck dirty matters as shown in Figure 2, the user should take our the umbrella valve 2 for cleanout and clean the pressure relief valve 1. After cleanout, please assemble them according to the original assembly.

## 七、维护与保养

### VII. Maintenance and servicing

1 必须按使用说明书有关规定操作，不得违规操作，以免造成润滑泵故障。

1. Please operate in accordance with the operating manual, in case of faults of the lubrication pump.

2 经常检查润滑装置动作状况(油位发讯器、压力控制器工作情况)与各管接件连接的密封状况(连接处漏油、渗油现象)发现异常状况或故障，参照使用说明书进行排除。

2. Please frequently inspect actions of the lubricating device (working condition of the oil level transmitter and pressure controller) and sealing condition of pipe fittings (oil leakage and seepage occurring to joints). Abnormal conditions or faults should be solved referring to the operating manual.

3 保持定期加注油剂，严禁油箱储油量低于低油位，以免造成泵体装置机件损坏及空气进入管道而造成润滑系统供油故障。

3. Please add oil regularly. It is strictly prohibited that the oil level of the oil tank is lower than the low limit, in case of damage to pump and air flowing into pipeline which may result in oil supply faults of the lubricating system.

4 加油时严禁将加油口滤网取出。

4. It is strictly prohibited that the filter screen at the oil inlet is taken out when adding oil.

5 定期清(建议每个月以及必要时)洗润滑泵吸油滤网，若滤网已破损，应予以更换。

5. Please clean the oil suction filter screen of the lubrication pump regularly (every month is suggested and when it is necessary). If the filter screen breaks down, please replace it.

6 油泵接通电源后，禁止打开泵顶罩壳，以防发生电击伤人、火灾事故。

6. After the oil pump is electrified, it is prohibited that the housing on top of the pump is opened, in case of electric shock or fire accident.

附：装箱清单

Attached: Packing list

序 号 S/N	名 称 Name	规 格 Specification	数 量 Quantity	备 注 Remarks
1	电动润滑泵 Electric lubrication pump		1 台 1 set	
2	螺栓 Bolt	M8X16	2 个 2	
3	垫圈 Gasket	8	2 个 2	
4	产品说明书 Product Specification		1 本 1 piece	
5	用户意见征求表 User Feedback Form		1 份 1 copy	附说明书后 Attached to the specification

## 用户意见征求表

### User Feedback Form

年 月 日  
MM/DD/YY

用户名称 User Name		联系地址 Contact Address		产品型号 Product Model	
供货单位 Supply Unit		制造编号 Manufacturing No.		购买日期 Purchase Date	
用户意见 User Feedback	您在使用本公司“河谷”(HERG)牌产品的过程中存在那些问题？性能如何？有何改进意见及要求？请列举出来： Which problems have happened to you during your using our HERG products? How about their performance? What are your advices for improvement and requirements? Please list them out:				
说明 Notes:	本意见表请寄：河谷(佛山)智能装备股份有限公司客户服务部 Please send the form to: Customer Service Department of HERG (FOSHAN) INTELLIGENT EQUIPMENT CO., LTD. 地址：广东省佛山市禅城区国家高新技术开发区罗格围工业区禅秀路 18 号 Address: No. 18 Chanxiu Road, Luogewei Industrial Area, Chancheng National High-tech Development Zone, Foshan City, Guangdong Province 电话(0757) 82011888 Tel.: (0757) 82011888 传真：(0757)82817096 Fax: (0757) 82817096 邮编：528061 Postal code: 528061				

## 河谷(佛山)智能装备股份有限公司

### HERG (FOSHAN) INTELLIGENT EQUIPMENT CO., LTD.

总公司: 广东省佛山市禅城区国家高新技术产业开发区罗格围工业区禅秀路 18 号(季华大桥西 500 米、一环西季华出口东 300 米处)

Headquarters: No. 18 Chanxiu Road, Luogewei Industrial Area, Chancheng National High-tech Development Zone, Foshan City, Guangdong Province (500m in west of Jihua Bridge, 300m in east of exist of Jihua in west of the First Ring Road)

电话: 0757-(总机)820 11888

Tel.: (0757) 82011888 (switchboard)

传真: 828 17096

邮编: 528061

Fax: 828 17096

Postal code: 528061

E-mail: [info@herg.com.cn](mailto:info@herg.com.cn)

<http://www.herg.com.cn>

北京直销联络处: Tel: 18029268601

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Direct sales office of Changsha City: Tel: 18029268613 0731-82222421

东莞直销联络处: Tel: 13392235329 0757-82828796

Direct sales office of Dongguan City: Tel: 13392235329 0757-82828796

昆明直销联络处: Tel: 18029268603 0877-2796256

Direct sales office of Kunming City: Tel: 18029268603 0877-2796256

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