

250KN 电动系泊绞车
250KN Electric Mooring Winch

机械说明书
Mechanical instruction

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一、技术参数 Technical parameter

绞车用途：本绞车由电机驱动，用于船舶上系泊之用。

Purpose of winch: the winch is driven by motor and used for mooring on ship.

1.卷筒 Drum	
工作负载 Working load	250kN×10m/min（第一层,1st layer）
容绳量 Capacity	Φ32mm×500m （钢丝绳，共7层,totally7 layers）
支持负载 Holding load	500kN（静态，第一层）（Static, 1st layer）
离合方式 Type of clutch	Manual operated
刹车方式 Type of brake	Manual operated
2.副卷筒 Warping head	
副卷筒直径 Dia. Of warping head	Φ400mm
3.电动机 Electric motor	
电动机规格 Spec of motor	YVFF315S-8-H
电动机参数 Motor parameter	440V/60Hz, 55KW

二、机械组成 Mechanical construction

本绞车由电机驱动，其机械部分由减速箱、卷筒装置、拨叉装置、刹车、主轴、公共底座等组成。

This winch driven by electric motor consists of gear box, drum, shifting fork, brake, main shaft, base, and so on.

其主要部件简述如下：

Its main components are summarized below:

1. 减速装置 Gear box

本绞车由电机驱动，经过减速箱内的四级减速传动，至输出轴端，改变其转速至实际工作所需输出速度。由于电机的工作转速较高，需要浸油润滑，减速箱有良好的密封性能，减速箱上配有油窗、透气孔和放油口。新机使用前，必须从上盖板注入清洁的润滑油至油窗中位，通常采用 GB 5903 中的中负荷工业齿轮油 L-CKC220、L-CKC320。下表给出减速机在不同环境温度时，推荐采用的润

滑油（矿物油）粘度牌号。

Winch driven by a motor through gear box of the four stage gear drive, to output shaft, change its speed to output speed required for practical work. Since the work of the motor speed is high, you need to dip lubrication; gearbox has a good sealing performance, gearbox is equipped with the oil window, vents and oil drain port. Before using the new machines, injection of clean oil to the middle of dipstick in the place, generally adopts middle load industrial gear oil L-CKC220, L-CKC320 in GB 5903. Lubricating oil (mineral oil) viscosity and brand recommended for reducers under different environment temperatures as follows:

环境温度 °C Environment temperatures	推荐中负荷工业齿轮油 Recommendatory middle load EP gear oil	
	国 产 Homemade	ISO
-10~5	L-CKC68	EP68
0~35	L-CKC100	EP100
	L-CKC150	EP150
30~50	L-CKC220	EP220
	L-CKC320	EP320
	L-CKC460	EP460

注：本机减速箱加油量约为 190L。

Note: The filling capacity of the reducer is about 190L.

2. 卷筒装置 Drum

此为绞车的输出实现装置。卷筒装置是由钢板焊接而成，在轴承支承处通过铜套与减速箱输出轴相连，其刹车为手动操作，离合为手动操作。

This is the winch unit of output device to achieve. Drum unit is welded by steel plate, through the copper bearing in the bearing sleeve and connected to the output shaft in gear box; the brake is manual operated, and the clutch is manual operated .

3. 底座 Base

本机底座为整体型的公共底座，为型钢焊接结构。安装时，将其与客户底座

螺栓连接。

The machine base as a whole type of common base for the shape steel plate welding structure. Installation, the base will be bolted to customer' s base.

4. 电液制动器 Electro-hydraulic brake

型号 Model: YWP-500/301

制动轮直径 Brake wheel diameter: 500mm

制动力矩 Braking torque: 2000~3600N.m

当电动机工作时，电液制动器驱动装置通电，打开制动器，绞车运转。当电动机停止工作时，电液制动器驱动装置也同时断电，制动器刹车，起制动作用。

When electric motor running, the electro-hydraulic brake driving device is powered on, the brake is opened, and the winch running. When electric motor stops working, the driving device of the electro-hydraulic brake will also be powered off, at the same time, and the brake braking.

三、操作方法 Operating method

1、工作前的准备 Preparation:

本绞车每次工作前应做好下述检查，确定无误后方可进行工作。

Please check the following and be sure that all parts are in order before operation.

(1) 检查齿轮、轴承及其它各处的润滑是否正常。检查各进出绳方向，本绞车为上出绳。

Check whether the reducers, bearings are well lubricated or not. And then check the rope direction, the rope direction of this winch is up side.

(2) 检查机器的各部分连接螺栓是否松动。

Check whether the bolts are loosening or not.

(3) 检查机器周围是否有障碍物。

Check whether is there any obstacle around the winch.

(4) 检查带式制动器的制动带的磨损（磨损量 $\Delta S \leq 2\text{mm}$ ），制动带及刹车轮表面是否沾有油脂及刹车的可靠性。

Checking the abrasion of brake band ($\Delta S \leq 2\text{mm}$). Making sure there is no oil or grease on the surface of brake band and brake hub. And examining the reliability of brake.

2、卷筒 Running of drum:

(1) 卷筒工作 Running of drum

此时，合上卷筒离合器，松开刹车。

Now, close the clutch of the drum , open its brake.

(2) 绞车的收放缆和速度是通过主令上的操作手柄或遥控器来控制的，从而实现绞车的收放缆和速度控制，达到客户需要的工况。

To realize pull in and pay out cable and speed is controlled by the operating handle on the main order or remote control, so as to achieve the hoisting and speed control of the winch and achieve the conditions required by the customer.

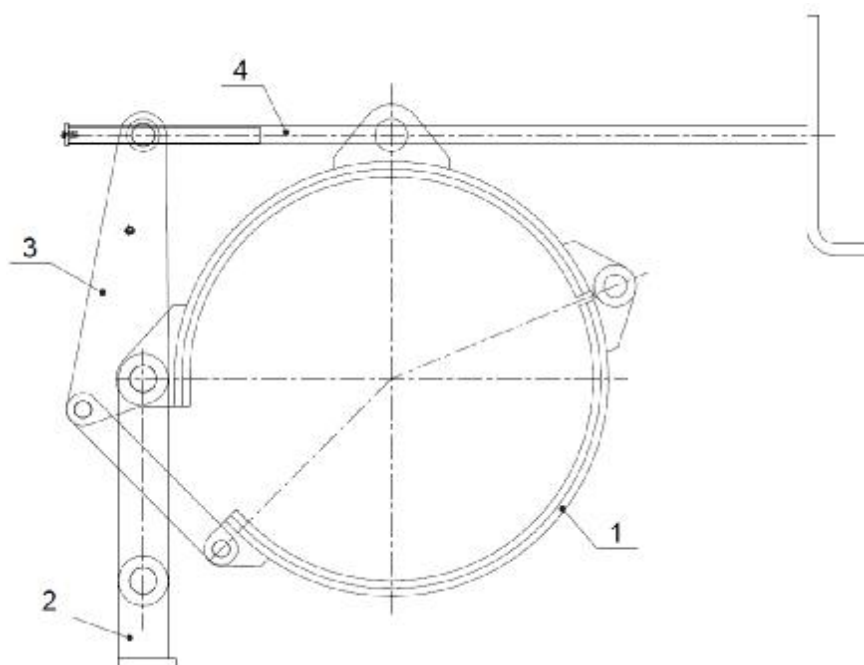
详细操作说明请见电气说明书。

Please refer to the electrical instruction manual for detailed operation instructions.

3、刹车 Brake:

刹车为手动操作。

The brake is manual operated.



1. 刹车带 2. 支座 3. 杠杆板 4. 锁紧螺杆

Brake band. Adjustor. Lever plate Lock screwt.

刹车工作原理 Working principle of brake:

a) 刹车 当系统进行刹车操作时，锁紧螺杆通过杠杆板拉动刹车带，使卷筒停止转动。

Braking: while braking, the brake band will be tightened by level plate through tightening of locking screw. So the gypsy(drum) stops.

b) 松闸 当进行松闸操作时，锁紧螺杆通过杠杆板推动刹车带，使刹车带松开。

Releasing of brake: loose the locking screw, the brake band will be loose.

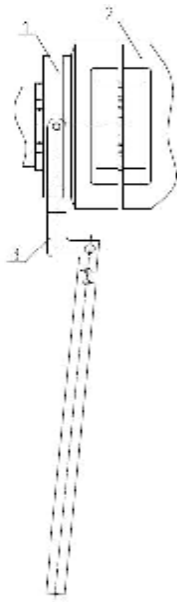
维护 Maintenance

如需更换刹车带，则需松开与刹车带相联的所有销轴，刹车带即可分成两半，从刹车盘上取出，然后更换刹车带。

If the brake band should be replaced, remove all the pins and bolts on the brake band. The brake band will be divided into two parts and can be taken off from the upper side of hub. And at last replace the old bands.

4、手动离合装置 Manual clutch

离合装置示意图 Sketch of manual clutch



1. 牙嵌离合器 Jaw clutch

2. 离合卷筒 Clutch drum

3. 拨叉 Shifting fork

a) 啮合: 如图所示，推动拨叉转动，牙嵌离合器与离合卷筒啮合，即可传递转矩。

a) Engagement: When rotate the shifting fork. So the clutches have meshed, to transfer torque.

b) 分离：拉动拨叉转动，使离合器与离合卷筒分离。

b) Separating: When rotate the shifting fork to separate 'Jaw 1' from 'Clutch drum 2' .

c) 注意：上述啮合与分离操作应当在停止转动无负载的情况下进行。

c) Attention: Such operations listed above should be operated under the conditions of no-load and state of rest.

5、其它： Others

本机安装时，先将船体底座上平面找平后与甲板焊接好,然后将船体底座与本机连接妥当，并在船体底座上本机底座前后安装止推块，以防本机工作时移动。

Before installation, make sure that the upper surface of foundation should be plain and on the level, then the foundation can be welded on the deck. And connect the backing of the ship to our machine. Stopping blocks should be welded in the front and the behind side of winch in case of movement.

四、维修保养 Maintenance

1、绞车的管理人员必须熟悉机器的使用要求和操作顺序。

The operator should know clearly the operation preparation and operation order.

2、绞车转动部位应经常涂以油脂，以作保护。

All rotation parts should be coated with grease.

3、每次加油后应使绞车空车运转片刻，使油脂均匀地分布在各摩擦面上。

Each time after lubrication, the winch should run at idle for a few seconds so that all parts can be lubricated well.

4、机器不工作表面应保持整洁，外露表面应经常涂以油脂，以防生锈。

The surface should be clean. The exposed surface should be greased at regular intervals to prevent rusting.

5、经常检查系缆索磨损情况，不合格的应立即更新。

Check the wire rope at regular intervals. Defected rope should be replaced immediately.

6、经常检查绞车受力构件是否变形和裂痕，安装螺栓是否松动，如有则消除后再使用。

Check whether there is deformation or cracks on the structure and check the bolts

loose or not. If there were any defects, get rid of it.

7、机器不工作时，应加盖防护罩。

Cover it with casing when it is in idle condition.

8、润滑脂牌号：钙基润滑脂 ZG-3（GB491-87）

Lubrication:ZG-3（GB491-87） Calcium grease.