一、 概述及用途

Part1. Overview and function

YZ-550ASF 型稀油站是循环供送稀油润滑介质的设备，该设备将介质供送到设备的润滑点（具有相对运动的磨檫副），对润滑点进行润滑和冷却后，再返回到该设备的油箱进行下一个循环。该设备主要用于冶金、矿山、建材、石化等成套机械设备中，同时，也适用于其它具有类似工况的机械设备。

YZ-550ASF type lubrication oil station for lubricating medium circular supply, the medium is delivered to lubricating point of equipment (friction pairs with relative motion) for lubrication and cooling, then return oil tank of this equipment for next cycle. This lubricating oil station is mainly used for whole set of mechanical equipment in metallurgy, mine, building materials, petrifaction etc., meanwhile fit for other mechanical equipments under similar working condition.

二、技术参数

Part2. Technical parameter

1 基本条件

1 General condition

YZ-550ASF 型稀油站工作介质粘度等级为 N22～N460，冷却水温度应不超过 32℃，冷却水压力 0.2～0.4Mpa，冷却器冷却能力是当进油温度为 50℃时，润滑油的温降不小于 8℃。

Working medium viscosity grade of YZ-550ASF type lubricating oil station is N22～N460, cooling water temperature shall be less than 32℃, and cooling water pressure in the range of 0.2～0.4Mpa,cooling capacity of cooler is that temperature drop for lubricant not less than 8 degree as oil intake temperature 50 degree.

2 技术参数：

2Technical Parameter

Normal flow（L/min ）	550	Normal pressure（MPa）	0.5
Medium temperature（℃）	40	Oil tank volume（m^3）	6.3
Filter precision（mm）	0.04	Filter area（m^2）	1.31
Oil outlet DN（mm）	80	Oil return opening DN（mm）	200
Water inlet DN（mm）	80	Water outlet DN（mm）	80
Cooling area（m^2）	45×2	Cooling water	50

		consumption（m^3/h）	
Motor （mode/KW）	Y160L-4/15×2	Electric heater（V/KW）	240V/4KW(3pieces)

三、设备组成及工作原理

Part3. Equipment configuration and working principle

1、设备组成

1. Equipment configuration

YZ-550ASF 型稀油站主要油箱、电加热器、油泵装置、双筒网式过滤器、油冷却器、回油磁网过滤装置、功能性阀门（单向阀、安全阀、开关阀门）及管道、控制元件（压力变送器、铂热电阻、液位讯号器）、显示仪表（压力表、温度计、液位计）、高位油箱、电控柜等组成。

YZ-550ASF is composed of oil tank, electric heater, oil pump, double cylinder meshing filter, oil cooler, oil return magnetic mesh filter, functional valve (non return valve, safety valve, switch valve) and pipeline, control elements (pressure transmitter, Pt thermal resistance, liquid level signal meter), indicating instrumentation (pressure gauge, thermometer and liquid level meter), high level oil tank, electrical control panel and so on.

2、工作原理

2 Working principle

工作时，油液由齿轮油泵从油箱吸出，经单向阀、油冷却器、双筒过滤器（一侧工作，一侧备用），通过管道被送到设备的润滑点，油液对润滑点进行润滑和冷却后，沿着系统的回油总管进入油箱，油液在油箱内经回油磁网过滤装置过滤后进行下一次循环。

While equipment under working condition, lubricant is extracted from oil tank by gear oil pump, through non return valve, oil cooler, double cylinder filter(one side working, the other backup),then delivered to equipment lubricating points via pipeline. Lubricant take the role of lubrication and cooling for the lubricating points, then enter oil tank along the system main oil return pipeline. Through oil return magnetic mesh filter in oil tank, lubricant is ready for next cycle.

3、元件功能

3 Element function

⑴油箱 Oil tank

油箱主要功能是蓄油，还兼作散热和沉淀油液中的杂质。

Main function of oil tank is storage, also for heat emission and impurity precipitation.

⑵加热器 Heater

加热器的功能是对油箱中的油液进行加热，当油箱中油液的温度低于下限设定值时，人工启动电加热器加热，当油箱中油液的温度达到正常设定值时，电加热器自动停止。

⑶螺杆泵装置

The purpose for heater is to heat up the lubricant in the oil tank. As temperature in the oil tank is below lower limit, start up the heating manually, and heater stop automatic while temperature of lubricant in oil tank is up to the normal set value

YZ-550ASFC 型稀油站有两台螺杆泵装置（互为备用），一台工作、一台备用，当系统压力低于下限设定值时，备用油泵自动投入工作，当达到正常设定值时，备用泵自动停止。

There are two sets of screw pump for YZ-550ASF type lubricating oil station (standby each other), one in operation and the other backup. As system pressure is below lower limit, backup oil pump put in operation automatically, and stop automatically while pressure is up to normal set value.

⑷双筒过滤器 Double cylinder filter

双筒过滤器有两组过滤滤芯（互为备用）和一个手动切换阀，一组滤芯工作时，一另组滤芯备用。当工作滤芯的压差达到设定值时，手动切换使备用滤芯工作，原工作滤芯可以拆卸进行清洗。

There are two suits of filter elements and one manual change over valve for double cylinder filter, one filter element working the other standby. While differential pressure for working filter element is up to set valve, changing over manual and making standby filet element into operation, disassembly the original working filter element for cleaning.

⑸油冷却器 Oil cooler

油冷却器的功能是对油液进行冷却，人工调整冷却水路阀门开口度，可对油液进行冷却。

Function of oil cooler is for lubricant cooling via adjusting valve opening degree of cooling water pipeline manually.

⑹回油磁网过滤装置 Oil return magnetic mesh filter

回油磁网过滤装置装在油箱回油腔，主要功能是对从润滑点返回的油液中的铁磁性和非铁磁性杂质进行过滤。

Oil return magnetic mesh filter is erected at oil returning chamber, main function is to remove ferromagnetism and non-ferromagnetism impurity from lubrication oil which is returning

from lubricating point.

⑺安全阀 Safety valve

安全阀的功能是保证系统的最高工作压力不超过其设定值，系统压力达到设定值时，安全阀打开，部分或全部油液经过该阀流回油箱。

Purpose of safety valve is to ensure the max system pressure not exceeding set valve. As system pressure reach set valve, open safety valve, partial or all lubrication oil return oil tank via this safety valve.

⑻仪表及控制元件 Instrumentation and control element

油站管路上安装了三只压力表用来直接观察油泵压力、滤后压力及供油压力，油站出口（风机进油口）管路上安装一只压力变送器（风机厂自备）、一只铂热电阻和一只温度计实现对出口油压和油温监控。油箱上装有一只铂热电阻和一只温度计，用来控制油箱油温的，在油站油箱上装有液位讯号器，用来监控油箱的液位。

Three units of pressure gauge erected on oil station pipeline for oil pump pressure, filtered pressure and oil supply pressure inspection. One piece of pressure transmitter (blower manufacture scope), one Pt thermocouple and one thermometer installation on pipeline of oil station outlet (blower oil intake opening) can achieve outlet oil pressure and temperature monitoring. One Pt thermal couple and one thermometer equipped on oil tank to control oil temperature in oil tank. Liquid level signal meter is installed on oil tank of lubricating station for oil tank liquid level supervision.

⑼控制部分（YZ-550ASF 型稀油站控制部分由主机厂设计、配套） Control section(YZ-550 ASF type lubricating oil station control section designed and assembled by blower manufacture)

电控柜随稀油站的工作制度实现自动控制。本油站正常工作时，一台油泵工作，一台备用，当系统油压不足，下降到设定的下限值时，通过压力变送器使备用油泵自动启动；压力恢复到调定值时，备用油泵自动停止，原工作油泵仍继续工作。如果备用油泵参加工作后，系统油压继续下降，降至设定的报警下极限值时，发出声光警报和联锁主机。出油口管路上安装一只铂热电阻，当供油温度高于设定值时，发出油温过高报警。通过安装在油箱上的铂热电阻可以检测油箱的油温，并且实现人工开启加热器对油温加热，当油温升至设定值时，自动停止加热器。

Electrical control panel can achieve automatic control along with lubricating station working system. As oil station under normal condition, one oil pump working, the other backup. When system oil pressure is not sufficient and fall to setting lower limit, backup oil pump can be

started automatically through pressure transmitter; standby oil pump stop automatically and original oil pump work continuously while system oil pressure restore setting valve.

四、YZ-550ASF 型稀油站系统原理图、外型图、高位油箱图(见附图)

Part4 YZ-550ASF type lubricating oil station system principle drawing, outline drawing and high level oil tank drawing (refer to attached drawing)

五、YZ-550ASF 型稀油站系统控制元件参数出厂设定值

Part5 YZ-550ASF type lubricating oil station system control element parameter factory default

1、油箱温度控制

1. Oil tank temperature control

正常温度设定值 40℃，下限温度设定值 35℃，下极限温度设定值 25℃，当油箱温度低于下极限值时，主泵不能启动。

Temperature set value: normal 40℃, lower limit 35℃ and lower limit inferior 25℃. As oil temperature of oil tank is below lower limit inferior, main pump can not be started.

2、供油温度控制

2. Oil supply temperature control

供油温度上限设定值为 50℃

Upper limit of oil supply temperature is 50℃

3、过滤器压差设定值

3. Filter differential pressure set value

过滤器压差设定值为 0.15MPa，系统过滤器前后安装有压力表，当过滤器压差超过 0.15MPa 时，应及时换并清洗过滤器。

Filter differential pressure set value is 0.15MPa and pressure gauge installation at both end of system filter. As differential pressure of filter is beyond 015MPa, replace and clean filter in time.

4、系统（出油口）压力设定

4. System pressure setting (oil outlet)

系统正常压力设定值一般为 0.20～0.4MPa（根据用户现场具体使用情况确定），下限设定值低于系统正常压力设定值 0.03～0.05MPa（出厂设定值为 0.15MPa），当系统压力低于下限值时，备泵启动；上限压力设定值为正常工作压力（出厂设定值为 0.2MPa），当系统压力高于上限压力设定值时，备泵停止工作。压力下极限设定值低于系统正常压力设定

值 0.08～0.1MPa（出厂设定值为 0.1MPa），当系统压力低于下极限值时，发出报警信号。

System normal pressure set value is about 0.20-0.4MPa (confirmed as per the actual operating conditions of customer), lower limit below system normal pressure set value 0.03-0.05MPa (factory default 0.15MPa). As system pressure below lower limit, standby pump start up; upper limit set value equal to normal working pressure(factory default 0.2MPa),while system pressure more than upper limit pressure set value, backup pump shut down. Pressure lower limit inferior is below system normal pressure set value 0.08-0.1MPa (factory default 0.1MPa). As system pressure below lower limit inferior, alarm signal send out.

5、安全阀压力

5. Safety valve pressure

安全阀压力出厂设定值为 0.45MPa。

Safety valve pressure factory default 0.45MPa

六、设备安装

Part6 Equipment installation

YZ-550ASFC 型稀油站必须安放在防雨、防水的环境中，平稳安放在平整的地面上即可，一般无须地脚紧固。在油箱底部两个放油口处，各挖一个深 0.3 米，长 0.5 米、宽 0.3 米的地坑，以使容纳盛油器。整体油站搬运时，应以绳索挂牢四个吊钩吊起移动和装卸。

YZ-550ASFC type lubricating oil station must be erected in rain proof and water protection atmosphere, setting on neat ground floor stable and anchor bolt fasten is not required. Excavating one pit with dimension D*L*W 0.3m*0.5m*0.3m for each oil discharging port at bottom of oil tank in order to contain oil storage device. While carrying oil station in the whole, four load hooks shall be fixed with rope for moving and handling.

本油站在出厂前经过全面性能检测合格，用户开箱检验无缺损即可。本油站在现场安放平稳后，即可连接出油管、回油管、水管、电控柜等，经试运转后即可投入工作。

Overall performance inspection has already been carried out before this oil station leave factory, customer open case and check, no defect is sufficient. While oil station laying at site stable, oil outlet tube, oil return tube, water tube and electrical control panel should be mounted. Oil station can be put into operation after trial run.

接管前，所有管子（如：出油管、回油管、水管等）均应进行酸洗除锈，在以石灰水中和，然后用清水冲净残液，并用压缩空气吹干。

Prior to pipeline connection, pickling and rust removal shall be executed for all pipeline

(such as oil outlet pipeline, oil return pipeline, water pipeline and so on),neutralization with lime water, flushing residue with cleaning water and drying with compressed air.

本稀油润滑站的电控柜，由用户自行决定安装位置和固定方式，连接稀油站和电控柜的电线由用户自备。

Mounting position and fixed mode of electrical control panel of this lubricating oil station will be decided by customer, wiring cable for connection of lubricating oil station and electrical control panel shall be in customer scope.

在油箱、电控柜上应接上可靠地线。

Reliable ground wire shall be connected for oil tank and electrical control panel.

试运结束后，在日常运行中，每次启动主机前，本稀油润滑装置都应进行油泵的自动转换试验，以确保备用泵处于备用状态。

When trial run is complete, oil pump automatic change over testing shall be done for lubricating element of this lubrication oil station prior to host machine start up under normal operation so as to ensure standby pump under backup status.

注意!：在主机正常工作时，转换开关必须放到 1#泵工作 2#泵备用或 2#泵工作 1#泵备用位置。

Note: while main machine is under normal working condition, put change-over switch into position of 1# pump working 2# pump backup or 2#pump working 1#pump backup.

七、系统调试（参见系统原理图）

Part7 System testing (refer to working principle drawing)

在安装好润滑系统，连接好电控柜的线电路后，即可进行润滑系统的调整。调整前将油箱清洗干净，注入 30＃机械油，启动油站清洗润滑系统，运行 3-5 小时后，将双筒网式过滤器的滤芯取出用煤油清洗干净，然后再换成主机所需润滑油，油液加至最高液位或略低于最高液位。把各润滑点的给油指示器开到最大位置。

When lubrication system installation and electric control panel wiring are complete, lubricating system testing can be started. Clean oil tank before testing, charge 30# mechanical oil, start up lubrication station and purge lubricating system. After running 3-5h, take out the filter element of double cylinder mesh filer and clean it with kerosene, then change lubricating oil for main machine required, oil charging up to highest level or slight less than highest level. Open oil charging indicator of each lubrication point to max position.

1、系统实际工作压力设定

1 System actual working pressure set

初次运行时，当油温低于 25℃时，应开启电加热器，对油液进行加热，当油温达到 35～40℃时，打开出油口阀门，关闭自循环口阀门，开停一号泵先起动，检查电气线路及油泵旋转方向，观察油压情况，双筒网式过滤器和冷却器阻力是否正常。如稀油站出口压力高于 0.4MPa，应适当打开自循环阀门，调定油站的供油压力低于 0.4MPa 以下。然后依次检查调定润滑点的油量，特别注意检查靠油站最远的润滑点是否有油或有充分供油量。根据各润滑点的需要，适当调节各润滑点前阀门，使各润滑点润滑油量分配合理。

During initial running, start up electrical heater for lubricant heating as lubrication oil temperature is below 25℃. When lubrication oil temperature is up to 35～40℃, open oil outlet valve, close self-circulation valve, start up 1# pump first, check electrical wiring and oil pump rotary direction, inspect oil pressure and resistance of double cylinder mesh filter and cooler whether under normal condition. If outlet pressure of lubrication oil station is higher than 0.4MPa, open self-circulation valve properly and adjust oil supply pressure less than 0.4MPa.Then check oil amount of each lubricating point one by one, checkup oil supply status for lubricating point which is far most away from lubrication oil station shall be taken into special consideration, adjust valve for each lubricating point properly and make oil amount distribution for each lubricating point reasonable.

一号泵调整好后，关闭一号泵，开启二号泵，检查压力情况是否与一号泵相同（一般相近）

When 1# pump adjust well, close 1# pump, start up 2# pump, check pressure of 2# pump whether identical with 1# pump'(general approximate)

确定出油口实际工作压力后，泵出口实际压力值也确定，参见电控说明书调整电控柜上的数显表。

When oil outlet actual pressure is confirmed, pump outlet actual pressure also confirmed, testing digital display meter on electrical control panel in line with electrical instruction manual.

2、系统实际安全压力整定

2 System actual safety pressure setting

系统实际安全压力整定值比泵出口实际工作压力值高 0.05MPa 左右，具体调整方法是：逐渐关闭出油口阀门后，逐渐打开安全阀开口度，使压力降至此值，打开出油口阀门，系统降至工作压力下循环。

System actual safety pressure setting valve is higher than pump actual working pressure

around 0.05MPa. Specific adjusting method: close oil outlet valve gradually, increase opening degree of safety valve gradually and make pressure drop to this value, open oil outlet valve, and make system circulation under working pressure.

3、系统压力变送器实际下限值整定（备泵启动）

3 System pressure transmitter actual lower limit setting (backup pump start up)

系统出口压力实际下限值比出油口实际工作压力低 0.03～0.05MPa 左右，具体调整方法参见电控说明书、

Actual lower limit value of system outlet pressure lower than oil outlet actual working pressure 0.03-0.05MPa,specific adjusting method refer to electrical instruction manual.

4、系统压力变送器实际上限值整定（备泵停止）

4 System pressure transmitter actual upper limit value setting (backup pump stop)

系统出口压力实际上限值设定为出油口实际（正常）工作压力，具体调整方法同上。System outlet pressure actual upper limit value setting as oil outlet actual (normal) working pressure, specific adjusting method as above mentioned.

5、压力变送器实际下极限值整定（报警压力）

5 Pressure transmitter actual lower limit setting (alarm pressure)

系统出口压力实际下极限值比出油口实际工作压力低 0.08～0.1MPa，具体调整方法同上。

System outlet pressure actual lower limit lower than oil outlet actual working pressure 0.08-0.1MPa, specific adjust method as before mentioned.

6、系统联调

6 System integrated testing

系统联调是指稀油润滑系统电控柜处于中控状态下与主机的联调，具体方法见电气说明书。

System integrated testing is lubricating oil system electrical control panel under center control mode, testing run with host machine machinery. Specific method refers to electrical instruction manual.

八、维护与保养

Part8 Maintenance

1 任何时候向系统加油，都应当采用滤油机，滤油机过滤精度不低于 0.12㎜，

1 Oil filter is required for system oil charging at any time, filter precision for oil filter not less

than 0.12mm.

2 每半年至一年化验一次油质。

2 Oil testing once each half to one year

3 定期清洗回油腔磁网一体化过滤装置，尤其在系统初期运行前半年，具体周期用户可自己摸索。

3 Cleaning oil return magnetic chamber mesh integrated filter regularly, specific period, special for system running initial half year shall be groped by customer.

4 每班次巡检时，应检查温度、压力、压差等参数并作好记录。

4 Routine inspection for each shift, check up parameter of temperature, pressure, difference pressure etc. and make record.

5 过滤器压差达到设定值后要及时清洗、更换滤芯。

5 As difference pressure of filter is up to setting value, replace and clean filter element in time.

6 列管式油冷却器必须根据冷却水的水质情况，每 5-10 个月进行一次检查与内部清洗。

6 Inspection and inside purging of tubular oil cooler should be executed each 5-10 month one time as per water quality of cooling water.

7 系统中的联接螺栓要定期检查，以免松动出现泄漏后损坏主机，影响生产。

7 Checkup system connection bolt regularly to prevent loosen, leakage and damage main machine, and further disturb normal production.

九. 常见故障分析及故障排除

Part9 Common fault analysis and solution

故障 Fault	故障原因 Reason	故障排除 Solution
泵不排油或排量与压力不足 Pump no oil discharging, or discharging amount and pressure not sufficient	1、电机旋转方向有误 2、过滤器堵塞，导致压差过大 3、泵吸油侧及油管段密封不良,导致泵连续进气. 1 motor rotary direction error 2 filter jamming introduce difference pressure overlarge 3 Pump oil suction side and oil pipeline sealing not well, cause pump air intake continuously	1、调整电机接 2、清洗过滤去或更换芯片 3.紧固有关联接件或更换密封件。 1 adjust motor wiring 2 clean filter or replace filter element 3 fasten related connection part or replace sealing element
油站一台泵工作，备泵反转 One pump	单向阀阀芯密封不良或夹渣。 Non return valve spool sealing not well or slag inclusion	清洗阀芯或研磨阀芯，使其与阀芯密封良好或更换单向阀 Clean or polish spool and make it sealing well with valve body or replace

working of oil station, backup pump reverse rotation		non return valve
供油温度过高 Oil supply temperature extra high	1. 冷却器堵塞,导致冷却效果下降。 2. 冷却器进水温度过高。 3. 主机发热量增大。 1 cooler blockage, induce cooling effect down 2 water intake temperature of cooler extra high 3 heat emission of host machine rise	1. 清洗冷却器管窜，并软化冷却水。 2. 降低冷却水温度. 3. 检查主机. 1 cleaning tube of cooler, and soften cooling water 2 reduce cooling water temperature 3 check host machine
油箱中油水混合 Oil and water mixing in oil tank	1. 油箱中各联接件处密封不良 2. 冷却器冷却管破裂 3. 冷却器 O 型密封圈破裂 4. 冷却器孔板与铜管胀接不牢，松动 1 each connecting unit of oil tank sealing defective 2 tube damage of cooler 3 O ring breakage of cooler 4 cooler orifice and copper expanded tube connecting not firmly and loosen	1. 更换密封件或紧固螺丝 2. 更换冷却器 3. 更换 O 型密封圈 4. 胀接冷却器 1 replace sealing element or fix screw 2 replace cooler 3 replace O ring 4 expanded tube jointing cooler