Horizontal Type Baling Press Machine

Model SFU150

卧式液压打包机 SFU150

INSTRUCTION MANUAL

产品说明书

江阴市格林艾尔环境科技有限公司

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目　　录

Catalogue

1 设备说明: Product Application

1.1 产品用途： Application

本机主要用于棉纺厂车肚棉、斩刀花等下脚棉的打包。捆绑处理，它既可单机工作，也能与多台纤维分离器或废棉处理机配合使用，实现自动化打包处理。本机具有体积小、重量轻、安装使用方便，操作环境好，劳动强度低等优点。

It is mainly used to bale cotton waste in a cotton mill such as card sweeps and flat strips. It can not only work singly, but also cooperate with a few fiber separators or waste cleaners on auto-baling operations. This machine,small in size, light in weight, easy in mounting and operating, with better working conditions and reduced labor intensity.

1.2 主要技术参数：Main Technical Parameters

项　目　Item	内 容 Content	备　注　Note
包型尺寸（长×宽×高） Baling size（L×W×H）	600×650×855（mm）	
成包重量（棉花） Bale weight（cotton）	120 kg	
全机外形尺寸（长×宽×高） Equipment outer size（L×W×H	4650×950×2300(mm)	不含凝棉器及斗型棉箱 Condenser and Bucker Hopper not included
全机功率 Overall Power	11kw	不含凝棉器或纤维分离器 Condenser and Fiber Separator not included
全机重量 Total Weight	约 2600kg	
最大推力 Max. Thrust force	约 15000kg	

打包额定工作压力 Rated baling Pressure	13MPa	

1.3 机器结构与作用 Sructure and function

本机由机械、液压、电气等三部分组成，自动化程度高，安装使用方便。

This machine is combined by mechanical, hydraulic and electrical parts; with high automation and easy operation.

1.3.1 打包箱: baling room

打包室体积为 1000×650×855（mm），打包室两侧墙板上有空槽，以穿打包带用，打包室上方装有上刀片。

The size of the baling chamber is 1000×650×855（mm）,with two slots at both side walls, in the purpose for baling belts to pass through. There is knife mounted at the top inside of the chamber.

1.3.2 落棉箱：Cotton Dropping Box

落棉箱尺寸：686×686×750(mm)。落棉箱上配有观察窗，便于操作者观看落棉箱内贮棉量，以决定是否可以开动机器开始打包，观察窗外装有光电管以控制打包动作。

Size of the Cotton Dropping Box：686×686×750(mm), which has Viewing Window, for operators to see the amount of cotton inside the box, to decide if it's the right time to bale or not, there is photoelectrico device mounted outside the window to control the baling act.

进棉方式：清花和梳棉机落棉经滤尘设备处理后用输送管道经凝棉器或纤维压紧器喂入落棉箱，经废棉处理机处理的棉花和落杂分别通过管道输入到各自的打包落棉箱，也可由人工喂入。输送管道由用户自制。

Cotton feeding: After being conducted by drum filter, the dropping cotton from blowing system and cards is transported by conveyer to feed into the Cotton Dropping Box through condenser or fiber presser. The noils and impurities from Cotton Waste Processing System are fed to each baling trunk respectively, and can also be fed manually. Conveying pipe system should be prepared by user.

1.3.3 压棉小车：Cotton Press Cart

压棉小车由钢板、角钢、槽钢和其它一些零件焊接而成，上有四组滚轮机构，当压棉小车运行时，滚轮始终在导轨上滚动，运行阻力小，左右下滚轮可调节。小车装有下刀片，上下刀片之间的间隙不大于 2 毫米左右。

Cotton Press Cart is welded by steel plates, angle steel, channel steel and other parts together, with 4 sets of roller mechanisms. When Cotton Press Cart works, rollers always roll on the guide ways, with low resistance or friction, the lower two rollers at both sides can be adjusted .The cart has lower-knife, the gap distance between the upper and lower knives can be no larger than 2mm.

1.3.4 机架：Frame

机架采用优质钢板焊接而成，外形线条直畅，且具有足够的强度和钢度，工作时振动噪音较小。机架中间两侧装有挡棉板，当压棉小车后退时，挡棉板在弹簧作用下旋转到打包室内，以挡住压紧的棉花向后反弹。

Frame is welded by high-quality steel plates, with sleek outer lines, also with enough strength and rigid, vibration and noise is low during work. Cotton Block Plate is placed at both ends inside the frame. When the cart goes backward, the Cotton Block Plate can be rotated into the baling room under the effort of spring, to block the pressed cottons from springing back.

1.3.5 油泵：Oil Pump

油泵选用车辆用叶片泵，装有一个压力测板（浮动式配油盘），可自动补偿轴向间隙，因此压力均较一般叶片泵高，泵的工作压力为 105kgf/cm^2,额定流量 36.9L/min，输入功率 7.03kw,现配备电机 11kw，该油泵维修方便。

The oil pump is Vane Pump used for vehicles, with a pressure measuring plate (floating oil pan), which can compensate the axial gap automatically, so the oil pressure can be higher than normal Vane Pumps. The rated pressure can be 105kgf/cm^2, rated flow 36.9L/min, power input 7.03kw, with a 11kw motor, the maintenance is easy.

1.3.6 用户若需大量打包，则电机可连续工作，若需打包的棉花不多，可断续打包，间隙时电机可停止运行，一则可减轻电机负荷，节约能源，二则可限制液压油的温升。

If mass baling activities needed, the motor can wok continuously. But if not, it can work intermittently, motor can stop at idle times, in one hand it can reduce the load of motor to save the power, on the other hand, it can limit the temperature rise of the oil.

1.3.7 油缸：Hydraulic Cylinder

油缸主要参数见下表 Hydraulic Cylinder Main Parameter

油缸参数 Parameter	压棉油缸 Cotton Press Cylinder	挡板油缸 Block Plate Cylinder
最大行程（mm）Max. travel（mm）	1800	1000
工作行程（mm）Work Travel（mm）	1700	805
油缸直径（mm）Cylinder Diameter（mm）	φ 125	φ 80
活塞直径（mm）Piston Diameter（mm）	φ 75	φ 45
连接形式 Connecting type	拉杆式 Pillar type	法兰式 Flange type

1.3.8 阀：Valve

各种阀全部采用通用阀，具有联接，维护方便之优点，各阀由集成块加以联接，从而压力损失小，漏油现象减少。各阀的作用和调节说明如下：

Every valve is universal, so the connection and maintenance is easy. Each valve is connected by integration blocks, so oil pressure loss is low, oil leakage significantly reduced. The function and adjustment of each valve is listed below:

1.3.8.1 电液换向阀：Solenoid Valve

本机共有 2 只，分别控制压棉油缸，挡板油缸和的进退换向，该阀换向平稳，流通量大，换向时回路上要有＞3Mpa 的背压力，背压力可由背压阀调节。

In total there are two, control Cotton Press Oil Cylinder and Block Plate Oil Cylinder respectively. This kind of valve can work smoothly, with high flow, which also has a back pressure larger than 3 MPa at the back loop; the back pressure can be adjusted by back pressure valve.

1.3.8.2 电磁溢流阀：Electro-magnetic Overflow Valve

该阀主要起压棉油缸快速回油之用，由压力继电器控制。

This valve is used to quicken oil retreat of Cotton Pressure Oil Cylinder, controlled by Pressure Relay.

1.3.8.3 溢流阀：Overflow Valve

本机装有大小各 1 只普通溢流阀，调整压力分别为 12Mpa 和 6Mpa，主要起到主油路及挡板油缸的安全，调节手柄顺时针为增压，逆时针为减压。

This machine has one big and one small Overflow Valve, pressure adjusted to be 12Mpa and 6Mpa, main purpose is to make sure the safety of the main oil loop and Block Plate Oil Cylinder. The adjustment handle can be turned clockwise to increase the pressure, while counter-clockwise to decrease the pressure.

1.3.8.4 单向阀：Check Valve

本机装有 2 只单向阀，主要起到使压棉油缸产生差动快速工进作用。

There are two in this machine, main purpose is to let the Cotton Press Oil Cylinder generate pressure to work and maintain the oil pressure.

1.3.8.5 压力继电器：Pressure Relay

本机装 1 只压力继电器，调至 12Mpa,用控制压棉油缸棉包成形。

In total only one，adjusted to 12Mpa to control and maintain the pressure of the Cotton Press Oil Cylinder for a while, which is necessary for the baling.

1.3.8.6 背压阀： Back Pressure Valve

背压阀主要起到使回油路上产生一定背压力，便于各电液换向阀平稳换向。背压阀的调节压力为＞3Mpa.

Main purpose is to generate one certain pressure in the oil back-loop, thus the working of each valve can be smooth. The pressure should be adjusted to be＞3Mpa.

1.3.9 挡板上下，压棉油缸进退均有行程开关控制。

The up and down of Block Plate, and the in and out of Cotton Press Oil Cylinder are both controlled by travel switch.

1.3.10 各顺序控制均有电器控制柜集中控制，简单明了，操作方便，迅速可靠。

Every sequence of different activities is controlled by electric components inside the

Electric Cupboard, simple and easy to operate, quick and safe.

1.4 工作原理：Work principles

棉花经处理机处理后，落入棉箱，当棉层达到下棉箱光电管位置时，打包机压棉油缸开始自动打包，成形后进行捆绑处理，若棉层达到斗型棉箱光电位置，则停止前方给棉。

Cotton drops to the trunk after being processed, when the cotton level meets the heightof the photoelectric detector, the Cotton Press Oil Cylinder of baling machine begins to bale the package automatically, then bundle the package. If the cotton level meets the position of the photoelectric detector inside the hopper box, the feeding of cotton stops.

1.5 易损零件：Easy Wear parts

所有液压元件均配用优质产品，故性能可靠，质量稳定，且液压元件具有自润滑性，在正常情况下，不会轻易损坏。

整机中，上下切棉刀片为易磨损零件，由于刀口磨钝，压棉小车工进时切棉阻力赠大，这时，凭液压系统中的噪音可判断刀口是否磨钝，一旦发现磨钝，即拆下刃磨，随后安装使用，刀片材料为 T10，硬度为 HRC55-60。

All the hydraulic components are high quality products, so performance is reliable, quality is stable, and the hydraulic components have self-lubrication ability, so in normal situations, it’s not easily to be damaged.

The upper and lower knives are easy wear parts, because the knife edge is easy worn to be blunt, at this time, there will be more resistance for cotton press cast to go forward, the noise in the hydraulic system will be high, if it happens, please disassemble the knife, and grind it before assemble it again. The material of the blade is T10, hardness HRC 55-60.

1.6 液压系统动作说明 Hydraulic System Operation Instruction

动作名称 Action Name	D	1Yv	2Yv	3Yv	4Yv	5Yv
电机启动泵卸荷 Discharge load of Motor Start Pump						
压棉油缸工进 Cotton Press Oil Cylinder advance						
压棉油缸工退 Cotton Press Oil Cylinder backing						
挡板油缸下降 Block Plate Oil Cylinder down						
挡板油缸上升 Block Plate Oil Cylinder up						
电磁溢流阀卸荷 Discharge load of Overflow Valve						
停止 Stop						

按下供油起动按钮，油泵开始供油。在落棉箱光电管作用下 3YV 动作，压棉油缸 10 开始工进，此时压棉油缸前腔回油通过单向阀 7 流到主油路上，形成差动进油，使压棉油缸快速工进。当工进压到 9SQ 行程开关， 5YV 动作，电磁溢流阀 8 打开，快速回油，差动进油停止，压棉油缸工进速度减慢，当压棉小车达到预定位置，行程开关控制 4YV 动作，电液换向阀 9 换向，电磁溢流阀关闭，压棉油缸工退。当光电管再次作用，就再次重复以上过程。这样反复多次，当压棉小车达到预定位置，同时主油路压力达到 9Mpa 时，棉包成形，压棉油缸停止，此时即可捆扎棉包。捆扎结束，手按“推包”按钮，压棉油缸工进将棉包推出打包室，再按“复位”按钮，压棉油缸工退，压棉油缸退到底，即一打包过程结束。

When push the oil start button, the pump starts to provide oil. With the effort of photoelectric sensor in the Cotton Dropping Trunk 3YV can work, Cotton Press Oil Cylinder advance forward, now the oil in the front portion of the Cotton Press Oil Cylinder flows to main oil circuit, thus the pressure difference can make the Cotton Press Oil Cylinder to advance quickly. When the advance touches the 9SQ travel switch, 5YV then acts, Overflow Valve 8 opens, oil can retreat quickly, thus the oil provision stops, the Cotton Press Oil

Cylinder advances slowly, then the Cotton Press Cart arrives the destination, touches travel switch 4YV, Electro-hydraulic Reverse Valve 9 acts, Overflow Valve shuts off, thus Cotton Press Oil Cylinder retreats. When the Photoelectric Sensor acts again, the above course can repeat. With many times of repeats, finally Cotton Press Cart arrives the destination, also when pressure of the main oil circuit arrives to 9Mpa, the baling package is finished, Cotton Press Oil Cylinder stops, and now the baling package can be bundled. When finishing the bundle, push the “push” button, Cotton Press Oil Cylinder will act to push the cotton bale outside the chamber, then push the “Reposition”, the Cotton Press Oil Cylinder retreats, the whole baling procedure is finished.

2 操作说明：Operation Instruction

2.1 操作使用: Operation Manual

2.1.1 首先打开电源 SA，再按下油泵启动按钮 3ST，油泵开始供油，并将“手、自动按钮拨至自动位置。

First, open the power SA, then push the oil pump button 3ST, the pump will start to work, also please turn the “ Manual/Auto” button to the position “Auto”.

2.1.2 当由纤维分离器落下的棉层达到下棉箱光电管位置时，光电管动作，压棉油缸工作。由压棉小车将纤维推进打包室，达到一定位置，行程开关发出电信号，使压棉油缸工退，至最后停止。

When the height of the cotton falls from the Fiber Separator accumulates to a level where the photoelectric sensor inside the lower trunk can detect, the Cotton Press Oil Cylinder will work. The Cotton Press Cart then push fibers into the baling chamber, when the pressed fibers meet the position to let the travel switcher detect, which will give a signal to retreat the Cotton Press Oil Cylinder.

2.1.3 待光电管再次动作，压棉油缸工进，这样反复多次，当棉包成形后，压棉小车自动停止，即可进行捆绑，捆绑结束，手按“推包”按钮，即可自动将包推出打包室。

When the photoelectric sensor works again, the Cotton Press Oil Cylinder also works again, this circular can work again and again until the bale package finished, and then the cart stops. Afterward the bale can be bundled, and then push the “Push” button, the bale package can be pushed out of the chamber.

2.1.4 推出棉包后，在小车和挡板上挂好包布，再按“复位”按钮，小车便自动后退至终点，挡板下降，在手动位置时，只有当小车退至终点，挡板才能上下工作。

When the bale package is pushed out, the package cloth should be put onto the cart and block plate, then push the “Reposition” button, the cart can be retreated to the end point, and

block plate goes down. When in the manual type, the block plate can work up and down only when cart retreats to the end point.

2.1.5 落棉箱小门处装有保安开关，若将小门打开，各油缸就不能动作，故开车时应将小门关好。

A protective switch is mounted at the small door of the cotton dropping trunk; each oil cylinder can't work if this door opens. So the door should be shut during the work.

2.1.6 为使操作维修安全方便，电气控制系统既能自动，又能手动，手动时各按钮是点动。

For better operation and maintenance, electric control system can be automatic and also manual, which is step by step manual control.

2.1.7 在液压油温度 50℃时，油液的运动粘度应在 25~32 厘沲之间，推荐使用 N46 号抗磨液压油，在环境温度较底时，应选用粘度较底的液压油。油液应清洁，无有害物质。应定期检查液压油性能，更换油液并保持油面高度。

When the oil temperature is 50℃,kinematic viscosity of the oil is between 25~32 centistokes, N46# anti-wear oil is recommended. When the environment temperature is low, lower viscosity oil should be used. Oil should be clean, non-toxic, and without harmful substances. Oil performance should be periodically checked and changed, and the oil height should be maintained.

2.2 常见故障排除：Normal disfunctions solve

故障现象 Phenomenon	故障原因 Reason	排除方法 Solving methods
严重噪音 Serious	吸入滤油器堵塞 Oil influx filter is blocked	清洁或更换新的滤油器
	在吸入管道中有局部（截面）缩小，阀门部关闭或堵塞，油管损坏或软管损坏。There is small section in the inlet pipe contracts, valves shut off or being blocked, oil pipes damaged.	打开，修理或更换油阀，修复或换油管及软管。Open, repair or change the valve, oil pipes.

noise	油泵磨损或损坏 Oil pump worn or damaged.	修理或更换新的油泵 Repair or change a new one.
	油生泡沫，排除空气不良 Froth in the oil, difficult for air to vent	整个系统排除空气 Remove the froths and air in the system.
系统压力不足或安全无压力 Less system oil pressure or totally without pressure	油泵转向不对，油管吸入空气 Oil pump runs in wrong direction, air is inhaled into the pipe.	改正油泵旋转方向，排除空气 Correct the pump running direction and remove the air.
	油泵发热过度，磨损或损坏 Temperature of oil pump is too high, which can be worn or damaged	修理或换新 Repair or change a new one.
	从高压侧到回油侧的漏损，压力调整错误。 Oil leakage from high pressure side to low pressure side, incorrect adjustment.	调整正常 Correct the adjustment.
	油缸内壁，活塞杆或密封环损坏 Inside surface of Oil cylinder, piston-rod or seal ring damaged.	修理或将损坏元件换新 Repair or change new components.
	电液换向阀换向失灵，吸铁动作紊乱，线圈损坏 Electro-hydraulic valve doesn’t function well, iron attracting activities in turmoil, wirings damaged.	更换线圈 Change the wiring.
	溢流阀阻尼堵塞，弹簧失灵 Overflow Valve damp is blocked, springs disfunction;	清洗，修理或更换 Clean, repair or just change a new one.

3 图纸：Attached Drawing

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