

Operation Manual

MODEL: STP-30 / 50

NAME: *HYDRAULIC PRESS*



THE PEOPLE'S REPUBLIC OF CHINA
ANYANG ST FORGING MACHINERY CO.,LTD

CATALOGUE

| | |
|--------------------------------|----|
| SAFE OPERATION OF PRESS | 3 |
| SPECIFICATIONS OF PRESS | 4 |
| INSTALLATION AND LIFTING | 5 |
| CONSTRUCTION OF PRESS | 11 |
| COMMISSIONING NOTES | 12 |
| INSPECTION & MAINTENANCE | 12 |
| FAULTS AND SOLUTIONS | 14 |

SAFE OPERATION OF PRESS

The following points must be strictly observed when using the press.

- Never, under any circumstances put hands on or around the die area of the press whilst it is running. Forging scale must be removed with a long handled brush.

-The press must be subject to your own risk assessment, including the use of personal protective equipment. Forging causes ejection of scale and hot material, so as a minimum approved eye & hearing protection must be worn.

-The press is designed for the forging of hot metal. Forging material which is not at full heat will greatly reduce the life of the press.

-Loose tooling should not be used under the press, as an offset blow will cause the tooling & work piece to be violently ejected.

-The press must be situated on level ground in a well ventilated workshop. There area around the press must be kept clear and the floor in good condition to minimise the chances of tripping / slipping near the press.

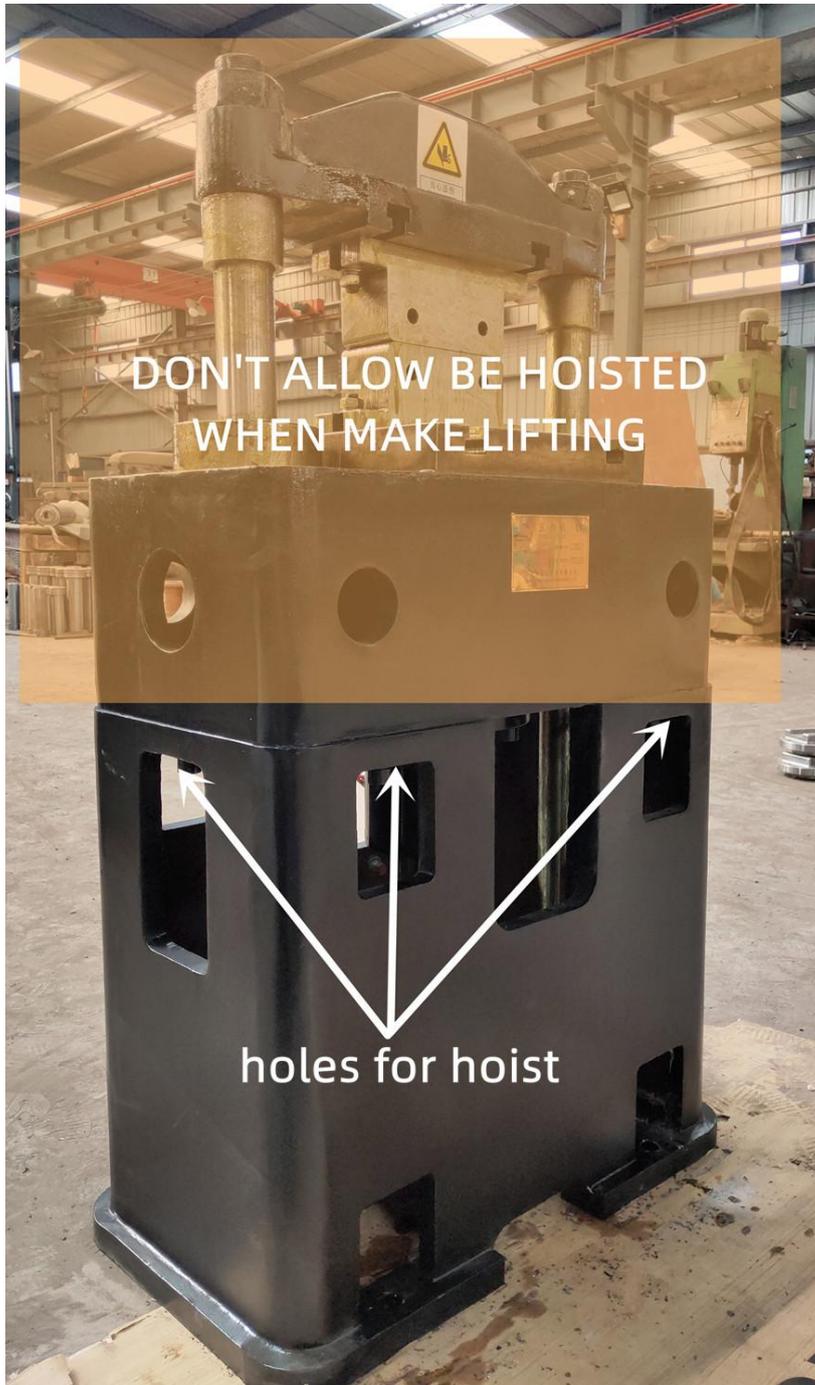
SPECIFICATIONS OF PRESS

| ITEMS | STP-30 | STP-50 |
|--------------------------------|---------------|---------------|
| NOMINAL PRESSURE (KN) | 300 | 500 |
| OIL PRESSURE (MPa) | 25 | 25 |
| STROKE (MM) | 210 | 300 |
| DOWN SPEED (MM/S) | 55 | 50 |
| FORGING SPEED (MM/S) | 10 | 8 |
| RETURN SPEED (MM/S) | 105 | 100 |
| WORKING AREA (H*W, MM) | 210x250 | 300x250 |
| DIE TABLE (L*W, MM) | 330x250 | 330x250 |
| HEIGHT OF WOKRING SURFACE (MM) | 915 | 1040 |
| HYDRAULIC OIL | HM-46 | HM-46 |
| HYDRAULIC OIL VOLUME (L) | 240 | 300 |
| MOTOR (THREE PHASE, KW) | 5.5 | 7.5 |
| OVERALL DIMENSIONS (LxWxH, MM) | 550x700x1400 | 790x1420x1490 |
| TOTAL WEIGHT (KG) | 1500 | 2000 |

INSTALLATION AND LIFTING

Please use soft wire rope to lift the press or by fork lift, take care don't destroy the painting and parts.

PLEASE DON'T HOOK THE BEAM OR COLUMNS WHEN MAKE LIFTING, IT WILL DAMAGE THE CYLINDER!!!



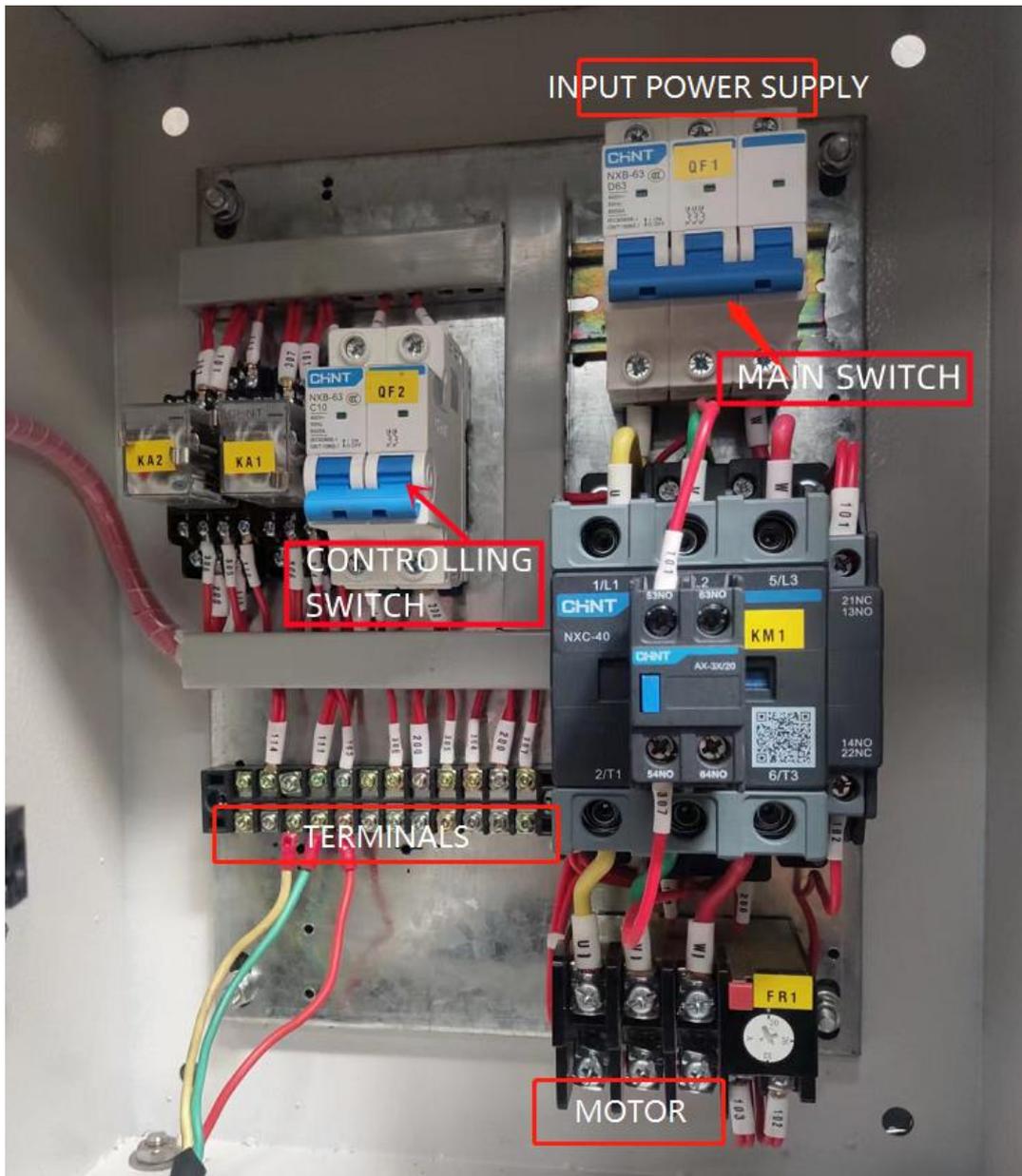
The press should be fully checked if be damaged during transportation. The press should be installed and bolted on flat concrete foundation.

CONNECTION

Please make connecting when you unpack the crates:

Connect the piston cylinder to hydraulic station via two pipes.

Connect cabinet to the hydraulic station and proximity switch via cables according to the label mark and loop drawing.



OPERATING INSTRUCTIONS

PLEASE MAKE SURE ALL THE CONNECTING IS GOOD BEFORE TURN ON THE ELECTRIC POWER!!!

STP series hydraulic press press and lifting function is controlled via the food pedal.

The sliding block will down and press when food press the pedal, it will return when foot release the pedal.

Adjusting the proximity switch can change the press top dead center position.

| PICTURE | NOTE |
|---|--|
|  | If the light is on mean electric supply is on otherwise please check if all switch are turned on. |
|  | Manual position: the press can be controlled by buttons on the cabinet to operate up or down. In auto position: the press will be controlled by pedal. NOTE: if the pedal don't control please check the position. |



The press will down when in manual position.



The press will up when in manual position.



The button to start the pump.



Emergency button can stop the pump at once when happen any accident.



The press allow to adjust the stroke according to working requirement.

There are 3 holes to install the proximity switch which is decide the top dead center.

TOP is 210mm stroke.

MIDDLE is 150mm stroke.

MIN.is 100mm stroke.



Oil pressure gauge to show system pressure should be 25MPa.

Rotary knob B can close or open the connecting between gauge and hydraulic system.

Rotary knob A can adjust the system pressure higher or lower.

CONSTRUCTION OF PRESS

STH Hydraulic press is composed of Frame moving part, Hydraulic power station, Electrical system.



1, FRAME MOVING PART

Frame moving part includes: *frame, upper beam, lower beam, worktable, column, guide sleeve, hydraulic cylinder.*

The frame, upper and lower beams, and worktable are cast steel to ensure the rigidity and strength of the equipment.

The columns material is high-strength alloy forging steel, use special heat treatment process to ensure the hardness and increase the wear resistance.

The guide sleeve is cast iron, which can supply guiding role and protect columns.

2, HYDRAULIC POWER STATION

The hydraulic system adopts stack valve method. The control voltage is DC24V. The system pressure is displayed on the pressure gauge.

The hydraulic system is equipped with a overflow valve, which can continuously variable adjust the pressing force within the specified range.

Under the instruction of the electronic control system, the electromagnetic directional valve realizes

reversing and changing the hydraulic oil circuit to drive the cylinder piston to move up and down. The hydraulic valves are superimposed and installed on a self-made integrated oil circuit block without pipes connecting, can improve leaking and easy maintenance and adjustment.

2.1 Oil Pump

Oil pumps connected to motors via Internal meshing elastic coupling to reduce noise when running.

2.2 Hydraulic cylinder

single rod piston structure installed good quality oil seal, the cylinder is processed by finished honing, and the piston rod is processed through tempering, rough and fine turning, grinding, hard chrome plating, polishing and other processes to improve the surface finish and hardness. What above done can ensure the long life of the oil cylinder without leakage.

3. ELECTRICAL SYSTEM

The Electronic control system of the hydraulic apparatus is placed beside, there are running button, emergency stop button on it, very concise and safety. There are PLC, contactor etc electronic installed inside it.

COMMISSIONING NOTES

1. After the press is installed correctly, check if oil tank is clean, draining oil screw is tighten, and clean the hole cover screw.
2. Pour clean **YB-N46 hydraulic oil** until the red scale of the level gauge.
3. Check if all the cables wiring are tighten without any loosening.
3. Check whether the motor direction of rotation is correct as marked.
4. Please don't make press in high pressure for long time, it will make oil temperature rising quickly and reduce hydraulic system working life.

INSPECTION & MAINTENANCE

The proper use of equipment, maintenance and earnestly implement strict compliance with safety rules is a necessary condition to extend the working life of equipment and ensure working safety. Thus, in addition to the operator should be familiar with structural and operating procedures, the following points should be noted:

- 1, Regularly inspect and clean the filters and oil tanks of the hydraulic station, and replace the filter elements in time to keep the hydraulic fluid clean. Dirty oil will influence press proper performance and will damage hydraulic parts. (Cleanliness: ISO4406 Class 18/14, NAS1638 Class 7)
- 2, Make sure oil volume in allowed range, oil temperature should be 15-60 Degrees Celsius.
- 3, The hydraulic oil should be replaced after the first 1000 hours of running the equipment, and the

recommended replacement period is about 2000~3000 hours in the future.

4, Overflow valve (relief vale) should be calibrated regularly, and the pressure should not be increased arbitrarily to avoid damage to related institutions.

5, Pressure parts such as hydraulic oil pump, hydraulic cylinder, motor and pressure valve should not be disassembled at will. If it is necessary to disassemble, the return hydraulic oil should be connected to the atmosphere and the system pressure should be released to zero before proceeding.

6, When the machine is out of service for a long time, all exposed processing surfaces should be scrubbed clean and coated with anti-rust oil.

| Periods | Maintenance |
|---------------------|--|
| Current maintenance | <ol style="list-style-type: none"> 1. Check the key parts to see if the bolts are loose; 2. If the pipeline or hydraulic cylinder has hydraulic oil leakage or leakage, it should be shut down immediately for maintenance and replacement; 3. When the hydraulic press is working, if abnormal noise occurs, it should be shut down for maintenance immediately, and the operation can be continued after removal; 4. When working, the hydraulic oil temperature should not exceed 60°C; 5. Whether the hydraulic system meets the requirements (the maximum working pressure is 25MPa); 6. Whether the bolts and nuts in the hydraulic connection pipeline are well tighten; 7. Whether the hydraulic pressure gauge is working well; 8. Check the lubrication of the columns are good,make sure columns surface is clean; 9. The emergency stop button working well; 10. All bolts of the dies on the workbench are fastened reliably, dies is fine without any crack; |
| Weekly maintenance | <ol style="list-style-type: none"> 1. Check whether the position of hydraulic oil is within the allowable range; 2. Check whether all connecting bolts are tighten well; 3. The main pressure valve (overflow valve) should be calibrated regularly. If the pressure gauge should be replaced in time if does not work, and the pressure should not be increased at will to avoid damage to related parts; 4. Whether the motor vibrates or the temperature is excessively high during operation; |
| Monthly maintenance | <ol style="list-style-type: none"> 1. Check the quality of the hydraulic and replace or supplement regularly to ensure that the hydraulic oil added to the oil tank is strictly filtered; 2. Regularly check and clean filters, fuel tank filters, etc., and replace the filter element in time to keep the hydraulic fluid clean; 3. Check the operation of the oil cylinder, and repair it in time if scratches or oil are found; |

4. The high-pressure hose (including the pressure gauge hose) can be replaced in time according to the working conditions;

FAULTS AND SOLUTIONS

| Faults | Reason | Solution |
|---------------------------------|--|--|
| No pressure | 1. Motor reverse 2. The oil pump does not suck oil 3. The oil level is too low 4. The solenoid valve does not change direction | 1. Change the three-phase power supply of the motor. 2. Check pump if with noisy or heat. 3. Increase the liquid level. 4. Check the electrical lines, purge valve spool. |
| Not enough pressure, slow speed | 1. The overflow valve is not adjusted properly. 2. The viscosity of the oil is too large or the oil temperature is too low. 3. The seal ring is worn | 1, Adjust the overflow valve handle. 2, Replace with lower viscosity oil or heat the tank. 3. Replace new seal ring. |
| Especially noisy | 1. The viscosity of the oil is too high. 2. The drain port of the hydraulic pump is not draining smoothly 3. Oil not enough in the tank or clogged pump suction pipe filter, causing the pump to empty and cause noise. 4. Worn of motor and pump coupling. 5. Motor bearing worn cause noisy. | 1. Change oil. 2. Check drain port and clean up. 3. Add oil to be permissible interval. 4. Replace new coupling. 5. Replace new bearing. |
| The motor does not start | 1, Emergency stop is pressed, the power is not connected 2, Thermal relay has been activated and alarmed 3, Start signal don't out put. | 1, Turn on the power supply, unscrew the emergency stop 2, Check whether the load is overloaded, reset the thermal relay 3, Check whether the DC power supply is supplied and restore the power supply |