User's Manual

Ultrasonic Wire Harness Welder

KM-HMS-X02 Series

Content

I. Safety requirements and Warnings

This section explains the meaning of the various "safety precautions" symbols and logos in the manual and provides a super routine safety precaution for ultrasonic welding systems.

The following two signs appear in the manual. Please pay special attention to them:

Attention

"Attention" is used to identify possible dangers and give hints. Some key information that is used correctly is easily ignored

The omitted sections give special hints. Users should have some understanding of it.

Warning

Warning signs are used to warn of possible hazards and possible damage to equipment. Failure to comply will result in penalty

Personal injury or equipment damage of different degrees may occur.

Attention

The following precautions should be taken when using ultrasonic generator:

The manual will introduce the correct way to use the ultrasonic generator in detail. Please follow it strictly:

Operators should be properly trained before using the ultrasonic welder.

The power switch is in the OFF state before switching to the power supply.

Please replace the welding mould in the off state. There is a risk of damage to the instrument after replacing the welding mould in the on state.

Use power outlets with ground terminals to prevent electric shocks.

Ultrasonic welder in some cases will produce tens of thousands of volts of high voltage, do not open the casing without authorization.

Please do not touch the welding joint when working. Ultrasonic vibration may cause serious skin burns.

The default must ensure that the emergency stop switch is always in effect.

Before the maintenance and overhaul of the ultrasonic welder, the power supply should be cut off first.

Do not disassemble and adjust the machine without the permission of the manufacturer, otherwise all warranties of the manufacturer will be automatically invalid.

Tools, equipment or other objects that are no longer used or needed should be moved from the workplace to another place. Keep the workplace

Clean and tidy.

The operating parts and display parts of ultrasonic welding system should be kept clean at all times.

Try to ensure that the ultrasonic welder workplace has good ventilation conditions.

The noise level and frequency in ultrasonic operation are directly related to many factors.

Attention!

Large noise may be generated in the welding process. If the equipment is found to have a large noise, you can install a separator sound hood, it is necessary for the operator to wear protective devices (common headphones, soundproof cotton, etc.).

Warning!

When the ultrasonic welding parts heat will produce gas, be sure to ensure good air circulation.

Attention!

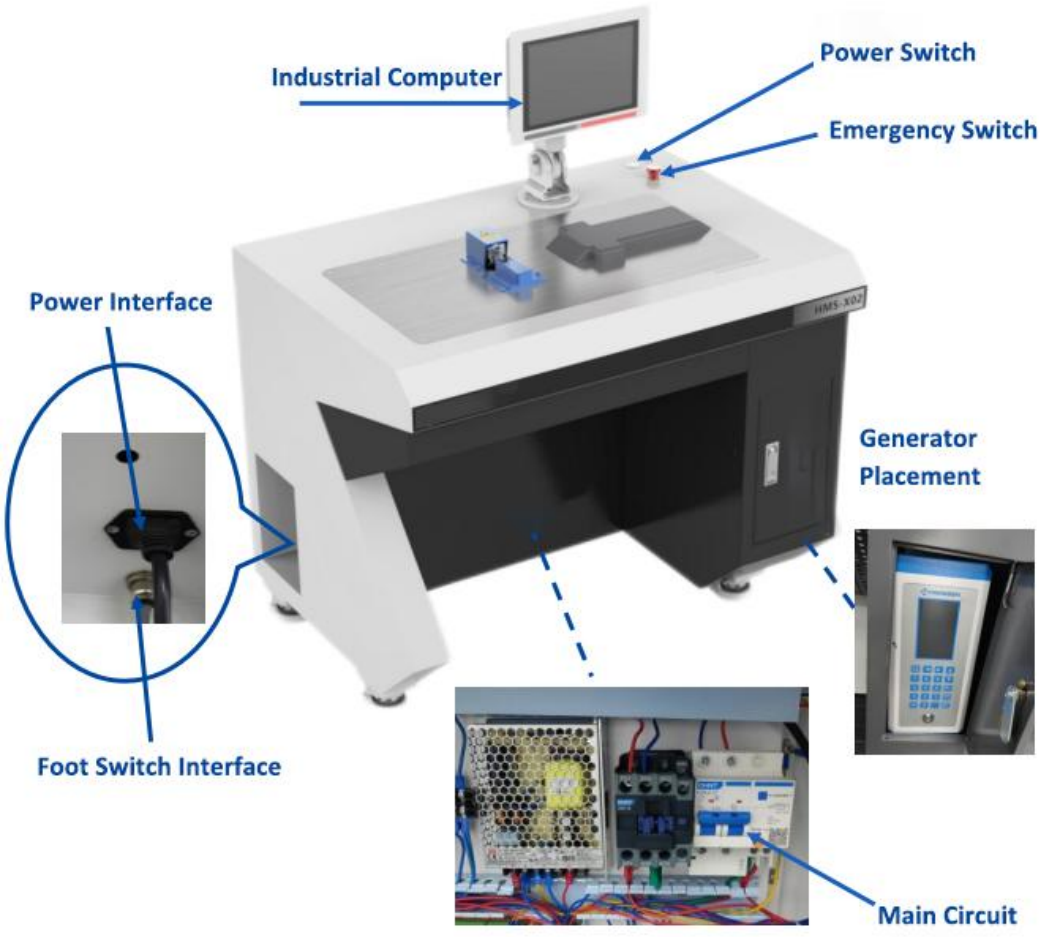
Various safety considerations are taken into account when designing and manufacturing ultrasonic welding systems.

Modifications or changes to the system may affect the safety of the machine running. Therefore, when a machine is modified or altered, the following things have to be kept in mind:

- Before using the parts provided by other manufacturers to modify the ultrasonic welding system, the original production of the ultrasonic welding system must be obtained Contact the manufacturer to determine whether the parts are suitable for modification of the machine.
- If the customer makes such modifications or changes to the ultrasonic welding system without the permission of our company, it will automatically void all warranties of the manufacturer.

II. Electrical connection description

2.1 Equipment introduction



2.2 Precautions

- The electrical connection process must ensure that the equipment is in the state of power failure;
- When the equipment is in working condition, it is strictly prohibited to touch or adjust the relevant parts of the welding area directly by hand;
- It is recommended that the operation be performed by a single operator to avoid human errors.
- The equipment should be used in a dry and cool environment;

III. Operation Instructions

3.1 Welding operation procedure

- Connect the external power supply to the device;
- Switch on the Main Power of the equipment;
- Select the login account and enter the password;
- Select the welding template according to the welding square size,;
- Set welding productivity;
- Put the wire into the welding port, step on the pedal to start welding;
- After the welding is completed, take out the welded wire.

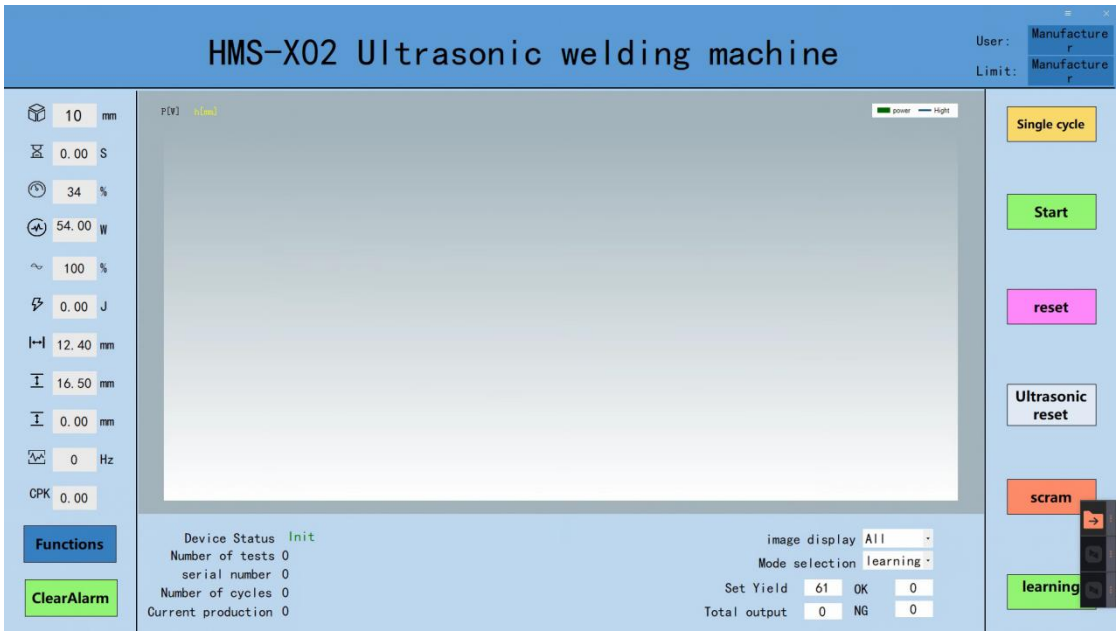
3.2 Operation interfaces

Log in the system, （OP1, default password is “2222”, ENG1, default password is “1111”, Manufacturer no need to enter）

Select the account（take ENG1 as example) ➡ input password ➡ click “Submit” ➡ click “Log in”.

Select Template on Main Menu:

Input square number and select template ➡ use learning mode ➡ set yield ➡ reset(now everything is ready, just put the wire to be welded) ➡ Start(foot pedal)



Click function menu, enter into manual mode:

Manual mode: can test each step of the single-step welding mechanism:

Translation: adjust the left slider to move forward and backward;

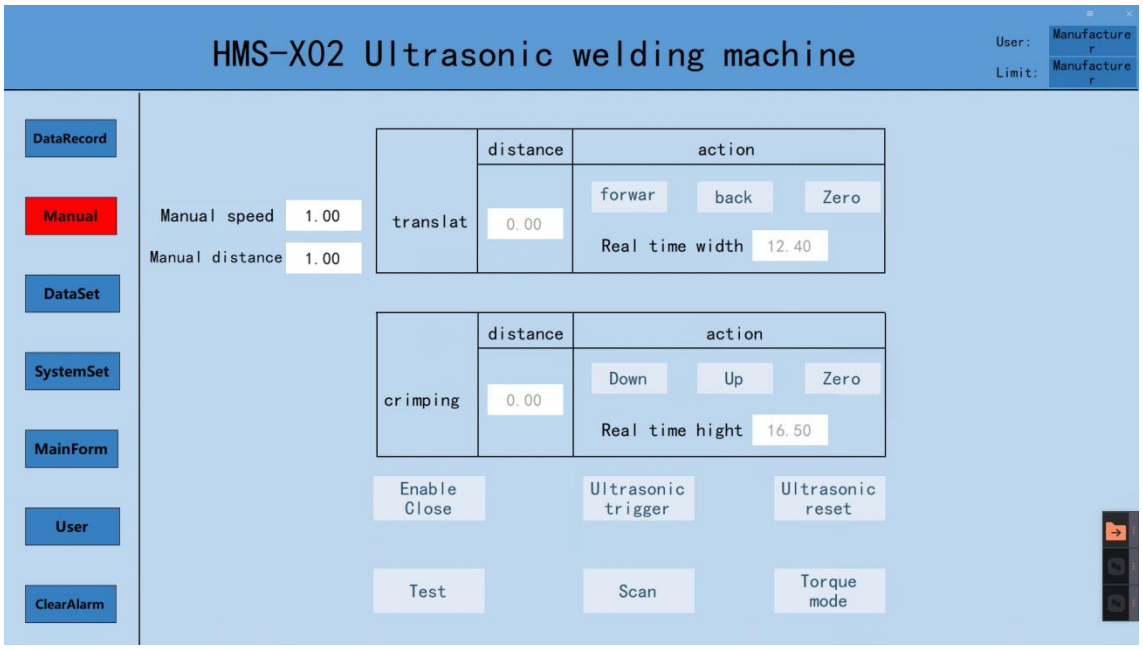
Crimping: adjust the pressing down of the pressing slider;

Test: send wave to detect whether the mould is contacted;

Frequency sweep: send long wave scan to detect ultrasonic frequency;

Reset: return to normal operation.

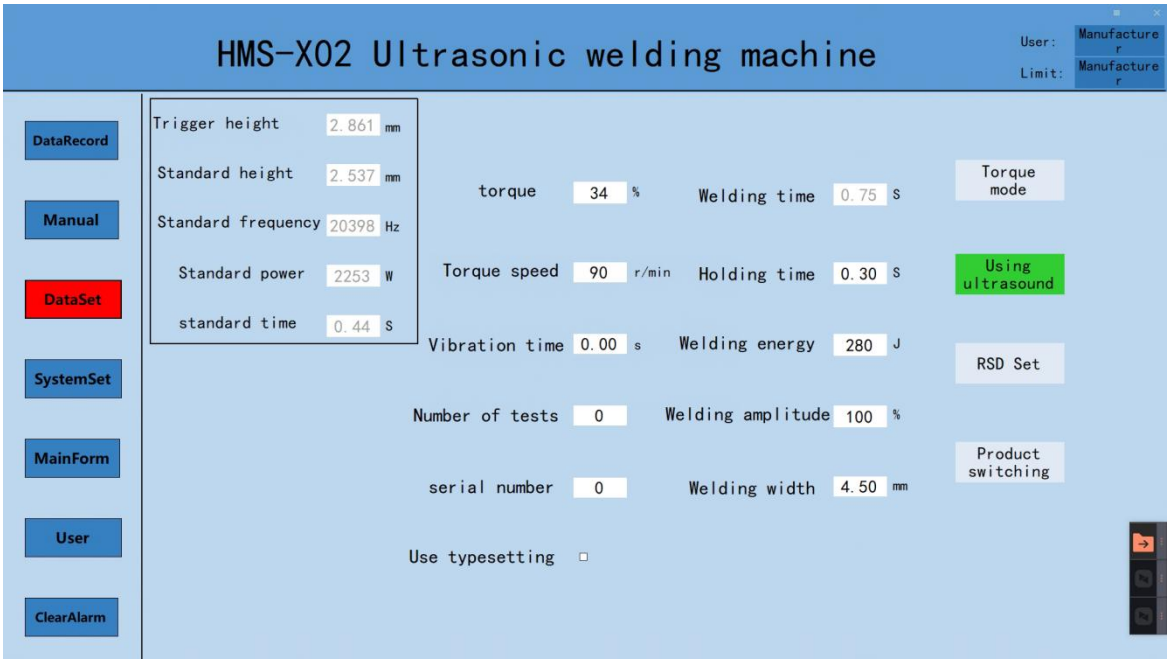
Ultrasound trigger: send wave manually



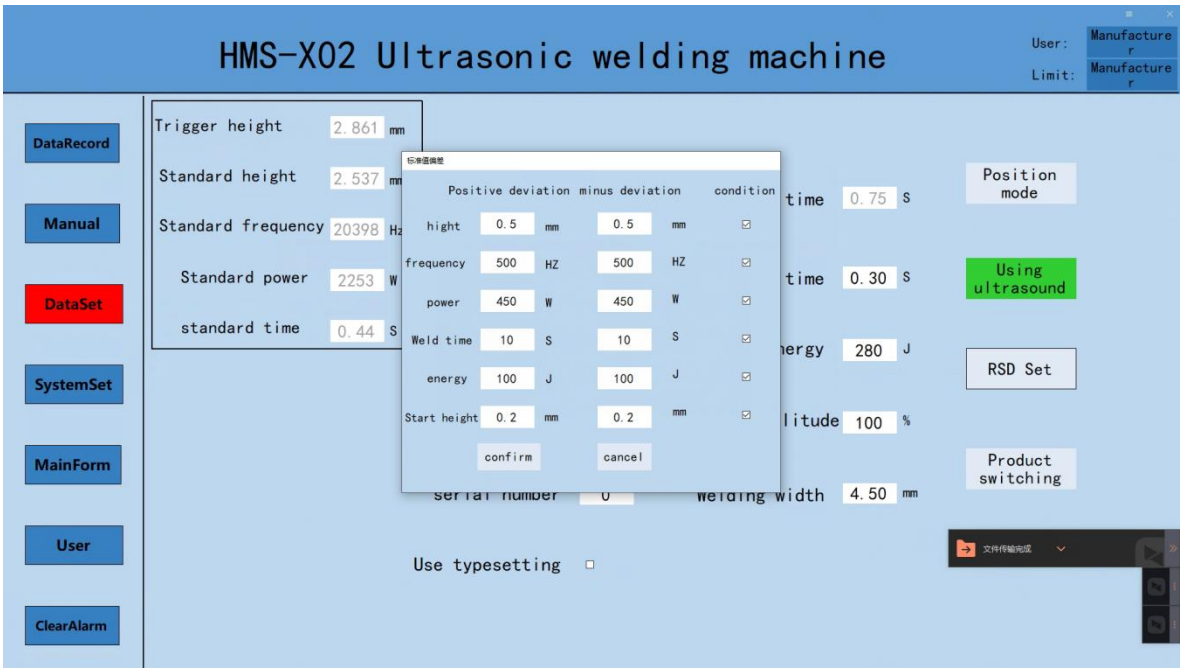
Use torque mode, use ultrasonic, adjust welding parameters.

In the torque mode, only need to set the welding energy, welding width, holding time, torque, welding amplitude;

The above parameters refer to the template parameters and make fine-tuning according to the actual effect.



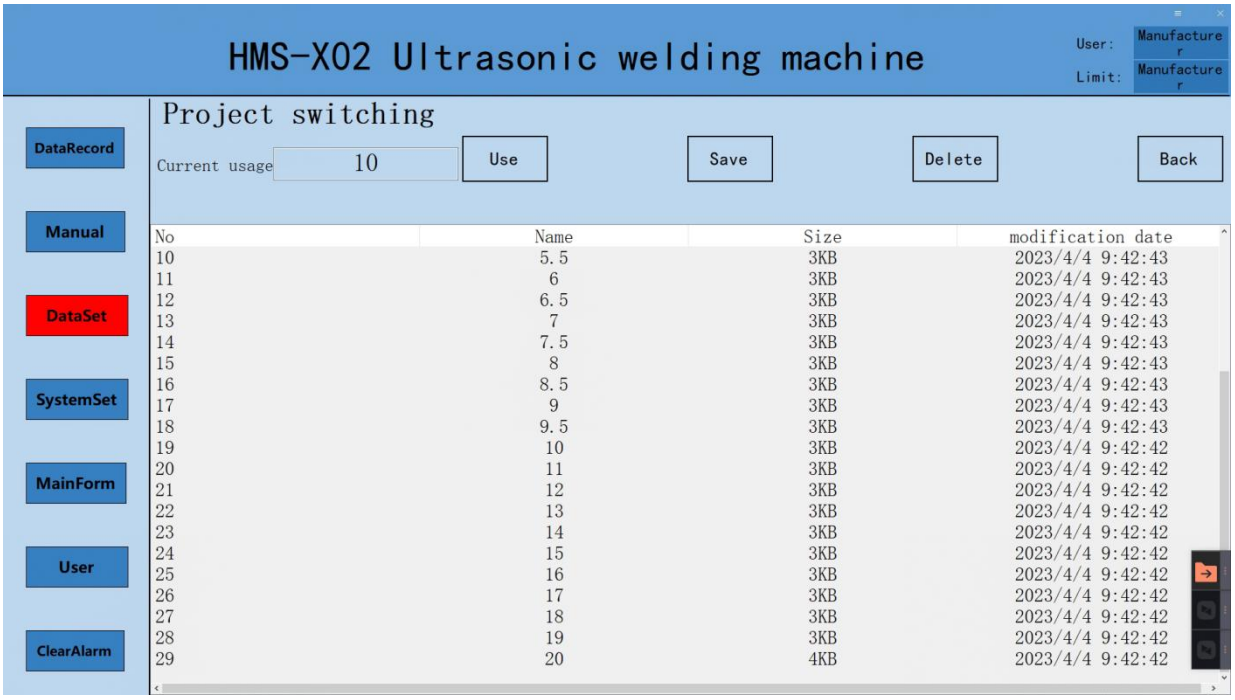
Click the standard deviation setting to set the deviation of relevant parameters such as height in the production mode, which is used to judge the welding effect.



New template

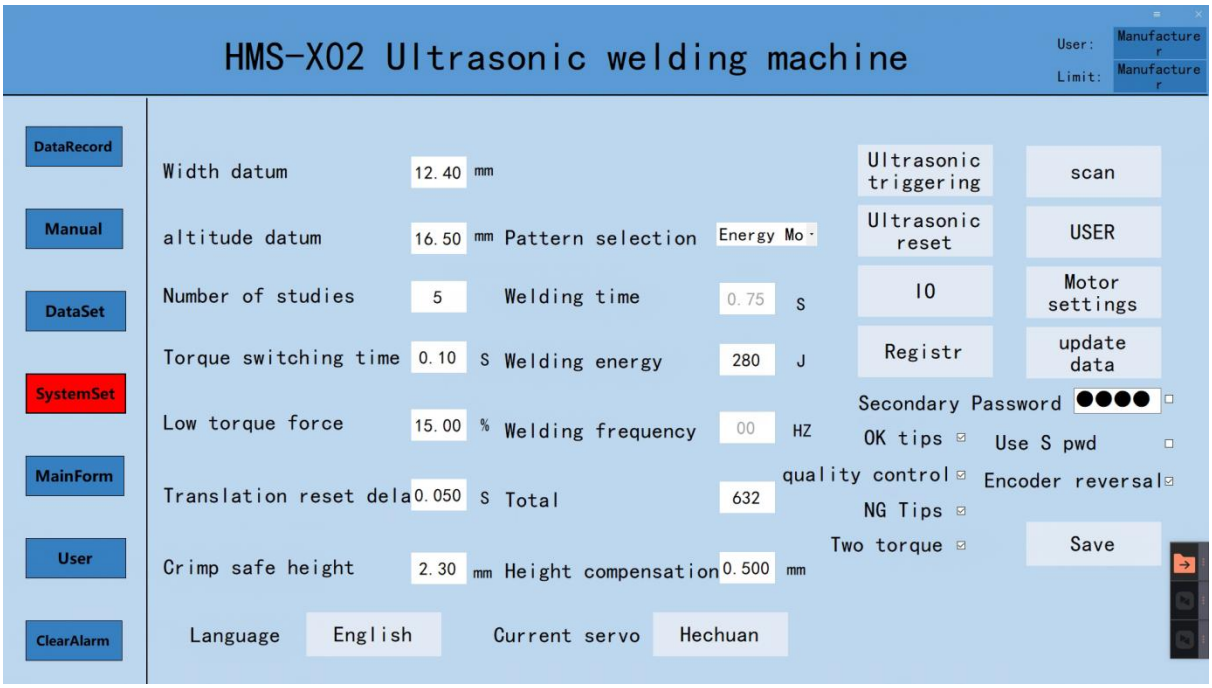
Enter the corresponding square number in the "Current use" column, and click “Save” to save the parameters set in the parameter setting to the template.

If the entered square number already exists in the template, clicking Save will overwrite the original template.



System settings

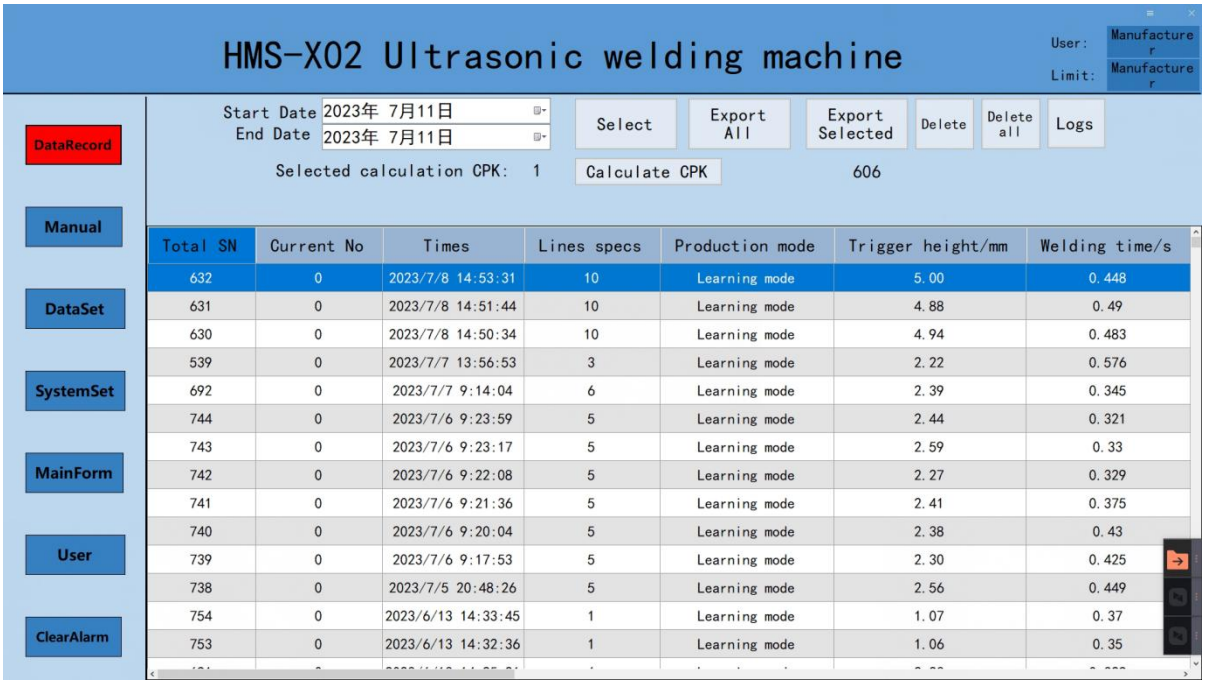
Click to enter the system mode, and you can set the parameters related to the template.



Historical data query

In the historical data, click “Data Query”, enter the start and end time to query the historical data of welding.

(The function of using historical data in the parameter setting needs to be turned on).



IV. Welding mold replace and commissioning

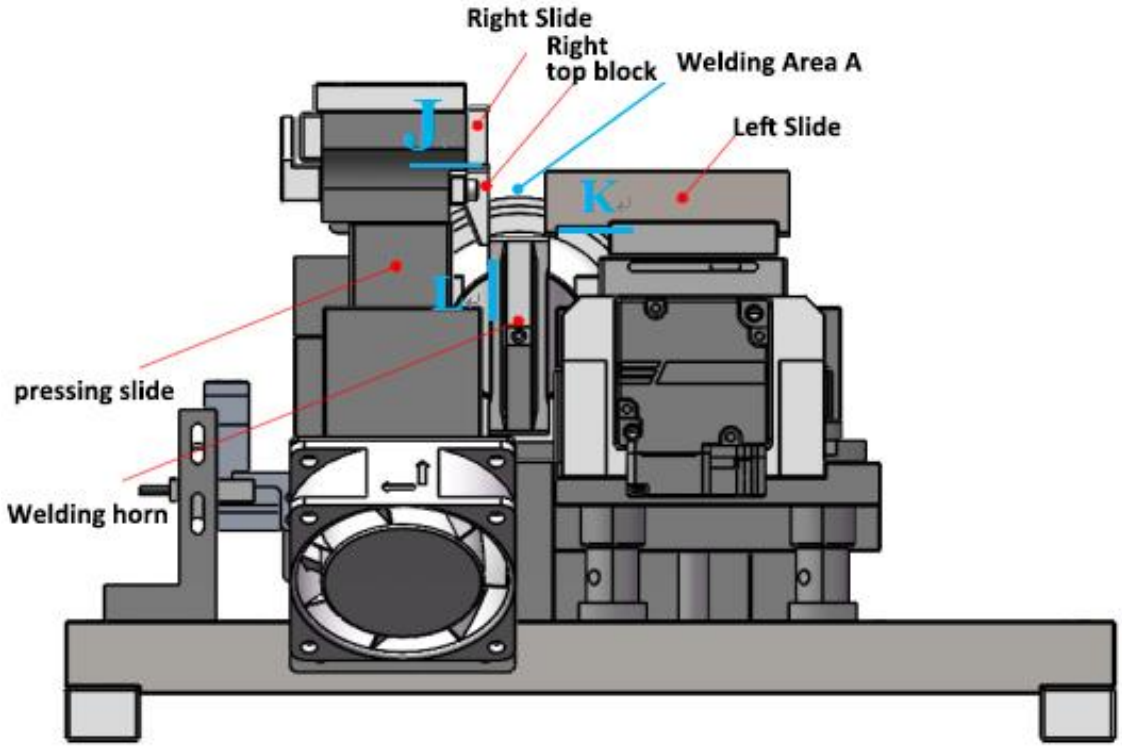


Figure 1

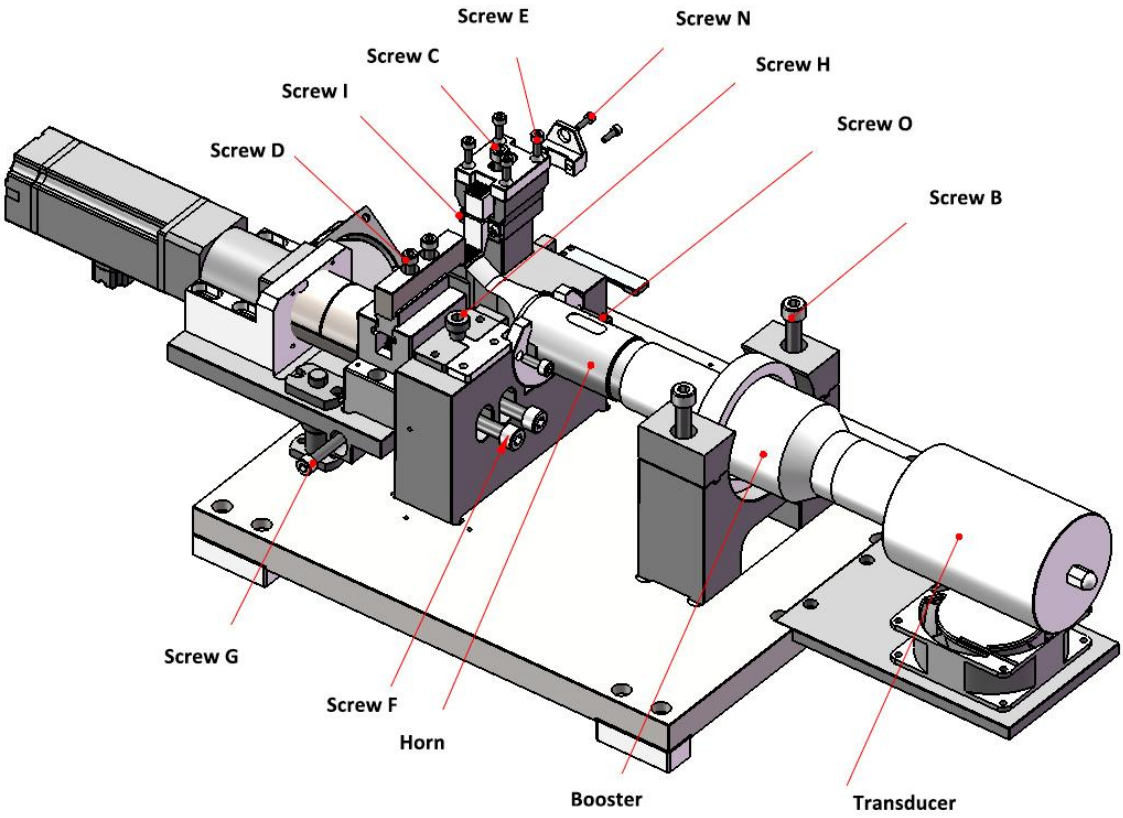


Figure 2

4.1 Mold Replacement

Warning

When replacing the mold, please stop the machine.

The replaced mold includes four parts: **left slider, right slider, right top block and welding horn**.

Left slider—remove screw D to replace;

Right slider - after removing screw E and screw N, remove the screw connected to the right slider to replace;

Right top block - after removing screw C, remove screw I to replace;

Welding horn——Remove screw B and screw O, and move the transducer module (including transducer,booster, horn) to the Move in direction 1 in Figure 2 to disassemble the transducer module as a whole, and use a clamp to unscrew the horn to replace it.

4.2 Mold Debugging

For mold debugging, it is necessary to ensure that the gap J, the gap K, and the gap L in Figure 1 are all 0.02mm.

Gap J——the gap between the right slider and the right top block; after tightening the screw E, ensure that the gap space between the right slider and the right top block is 0.02mm, just tighten the screw I;

Gap K——the gap between the left slider and the welding horn; tighten the screw D to fix the left slider, loosen the screw F, screw G,Use the screw H to adjust the module M to move up and down slightly to ensure that the gap between the left slider and the welding horn is 0.02mm.Tighten screw F and screw G;

Gap L——that is, the gap between the right top block and the welding horn; after adjusting the gap J, loosen the screw C to ensure that the gap between the right top block and the welding horn is 0.02mm, just tighten the screw C;

V. Common Troubleshooting

Description	Solution
There is a wire caught in the gap on the mold during welding	Click frequency test on the screen sweep (manual mode) to artificially shake off, if it still cannot be taken out, you need to re-adjust the mold.
Generator Alarm	After eliminating the problem, click Test Reset.
Screen Alarm	After eliminating the problem, click Clear Alarm Reset (main interface)
Screen Turn to White	Click anywhere on the screen
Motor Alarm	Reboot after shutdown

If there is a situation other than the above exception, please contact our service hotline (+86 0512-57403727) in time.

VI. Maintenance

6.1 Maintenance

The requirements for equipment maintenance mainly include the following four items:

- Cleaning: The inside and outside of the equipment should be neat and tidy, no oil or air leaks in all parts, and the chips, sundries and dirt around the equipment should be cleaned up;
- Neat: tools, accessories, workpieces (products) should be placed neatly;
- Good lubrication: continuous oil, no dry friction phenomenon;
- Safety: follow the safety operation rules, do not overload the equipment, the safety protection devices of the equipment are complete and reliable, and eliminate unsafe factors in a timely manner.

6.2 Routine Maintenance

No	Item	Cycle	Safeguard
1	Clean dust	Everyday	Clean the device with a lint-free cloth and alcohol
2	Add lubricating oil	Everyday	Add lubricating oil
3	Rustproof	Everyday	Clean and spray anti-rust oil
4	Work Normal	Everyday	Power on to check the running status
5	Work Sound	Everyday	Pay attention when the equipment is running
6	Screw Loose	Everyday	Check and lock

VII. Installation, Adjusting, Training

- Installation conditions: The purchaser needs to provide AC 220V three-hole power socket. The installation and debugging of the equipment are the responsibility of the supplier, give the supplier some cooperation.
- Training: The supplier is responsible for the technical personnel, maintenance personnel and operators designated by the buyer in the operation, maintenance and testing aspects, face to face training, special personnel are responsible for the implementation of the training plan, and are responsible for instructing the training participants of the supplier to understand the characteristics and special features of the equipment, and master the comprehensive knowledge of safety regulations that should be followed in operation, maintenance and use management.