Maanshan Tranyond Intelligent Equipment Technology Co., Ltd.

Tranyond

Hand-held Laser welding model:

- Tranyond - 1000 w
- Tranyond - 1500 w
- Tranyond - 2000 w

Directory

Tranyond

Chapter 1: Product introduction and display

1. Overview, application and functional features

Laser welding is a new welding method, and also one of the important aspects of the application of laser material processing technology. Laser welding is mainly aimed at the welding of thin-walled materials and precision parts. The welding process belongs to the heat conduction type, that is, the laser radiation heats the workpiece surface, and the surface heat diffuses internally through heat conduction. By controlling the laser pulse width, energy, peak power and repetition frequency and other parameters, the workpiece is melted to form a specific molten pool.

Hand-held laser welding machine, with a new generation of hand-held welding head to replace the traditional fixed light path, flexible and convenient, overcome the limitation of work table space, work size is not unified when the situation can not automatically welding.

Mainly for large workpiece fixed position such as inside right Angle, outside right Angle, plane weld welding.

Small heat affected area, small deformation, and welding depth, welding firm, it is a new welding technology for long-distance welding large parts.

Laser welding can weld hard to reach parts, non-contact remote welding, with great flexibility.

It is mainly used for laser welding of pulling metal, chassis and water tank.
Laser welding of all kinds of metal lighting frame;
Laser welding of stainless steel doors and Windows, aluminum doors and Windows;
Stainless steel bathroom, kitchen cabinet laser welding;
Billboard, advertising word laser welding.

Tranyond

2.Product structure diagram

Transcond

① Handheld welding head
②consumable accessory package
③ control panel
④laser
⑤ wire feeder
⑥consumable accessory kit
⑦ emergency stop switch, key switch, power button
⑧ conductor wire

Chapter 2:Installation instructions of hand-held welding machine

1. Water tank water injection

Open the front cover of the cabinet, inject pure water into the water injection nozzle of the water tank, and increase the water level to the green line for initial use to ensure device safety. The laser cooling system must meet the following requirements:

(1) The cooling water shall be distilled or purified water, and distilled water is recommended;

(2) When starting the cooling system of the chiller for the first time, check whether there is water leakage in the whole waterway system and joint. External water pipes must be installed and connected as identified by the laser at a water entrance and outlet.

(3) In order to prevent the growth of microorganisms and molds in the water of the chiller from blocking the pipeline, it is recommended to replace the cooling water once every 3-4 months to ensure the water quality of the cooling water.

(4) When the ambient temperature of the equipment is in the range of TOP ~0*€, antifreeze must be used (please consult the after-sales department for specific models), and be replaced every 1~2 months, and ensure that the chiller runs continuously for 24 hours to prevent cooling water from freezing.

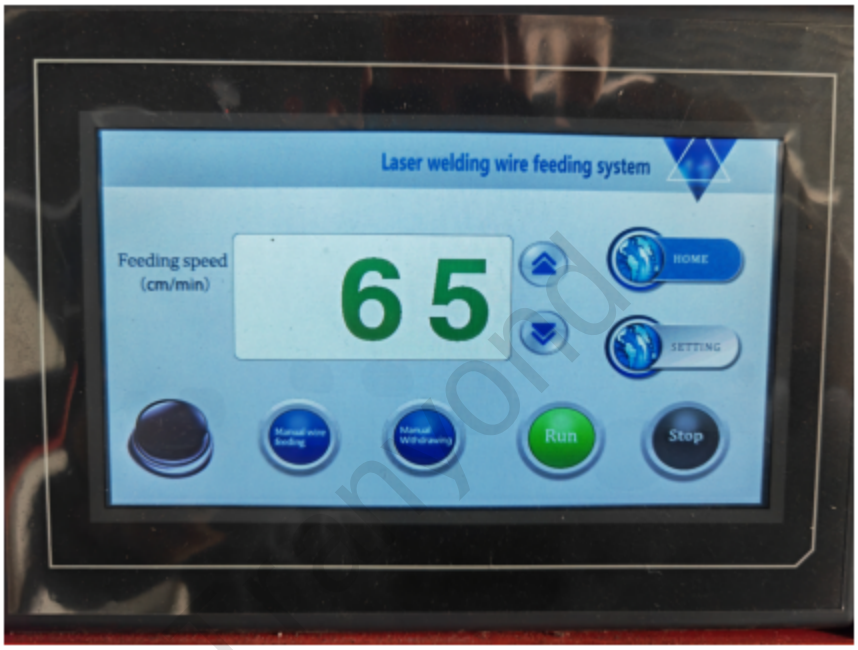
(5) If the laser is not used for a long time, the cooling water inside the cooling system and the laser should be emptied, otherwise it will cause damage to the laser equipment; Empty the water cooling system with a pressure of less than To 3MPa. Otherwise, damage will be caused To the water cooling system.

TrailWorld

2. Connect wires,insert argon gas tube, connecting wire feeding device
Connect one neutral wire and one live wire to the electric box. After connecting, connect the main power cable to the lower right side of the rear cover of the device. Connect the PE wire to the ground wire, the N wire to the neutral wire, and the L wire to the live wire.
(Please refer to actual laser power cord for details)

Connect the connection of the gas pipe connector at the lower right of the rear cover of the equipment to the gas pipe of the argon cylinder flowmeter to ensure no air leakage.

Insert the power cord of the wire feeding device into the dragline board or distribution box, connect the interface of the reserved line at the lower left of the rear cover of the equipment



with the wire feeding device, and assemble the wire feeding machine.
Fix the wire feed head on the II sequence holder welding head.

3. Boot sequence

① First turn on the machine air switch, in the upper left of the rear side of the machine.

Tranyond

②Press the power button and laser switch

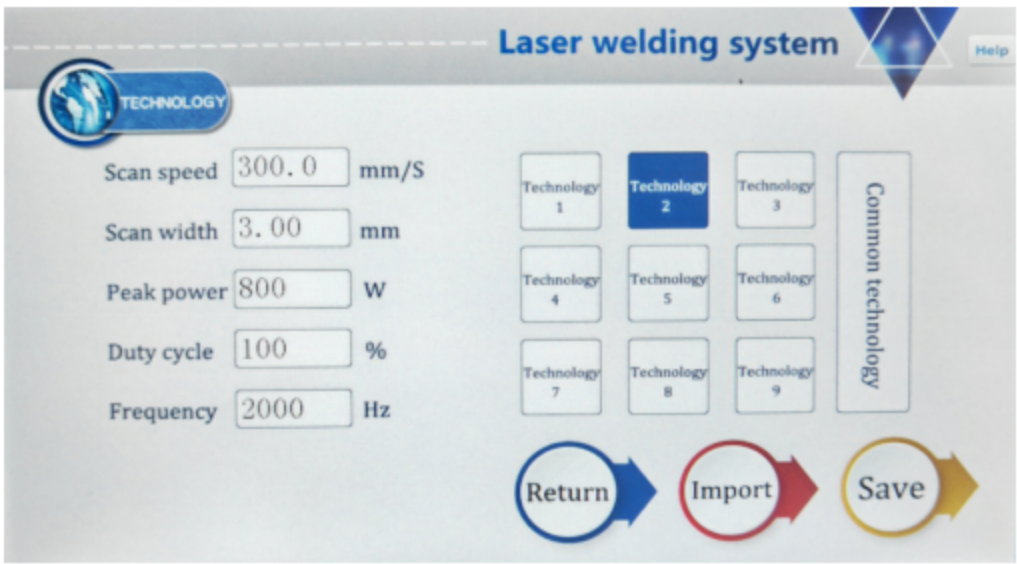
Note: the red button on the left is the emergency stop button (when an emergency occurs, you can quickly press this button to achieve protection measures).

4. Adjust the parameter

Click the menu "Process Interface" at the bottom of the main interface, click the parameter box after setting the project according to welding product requirements, then enter a number in the setting table of the interface and click 0K to confirm. When all Settings are complete, click Save and import and return.

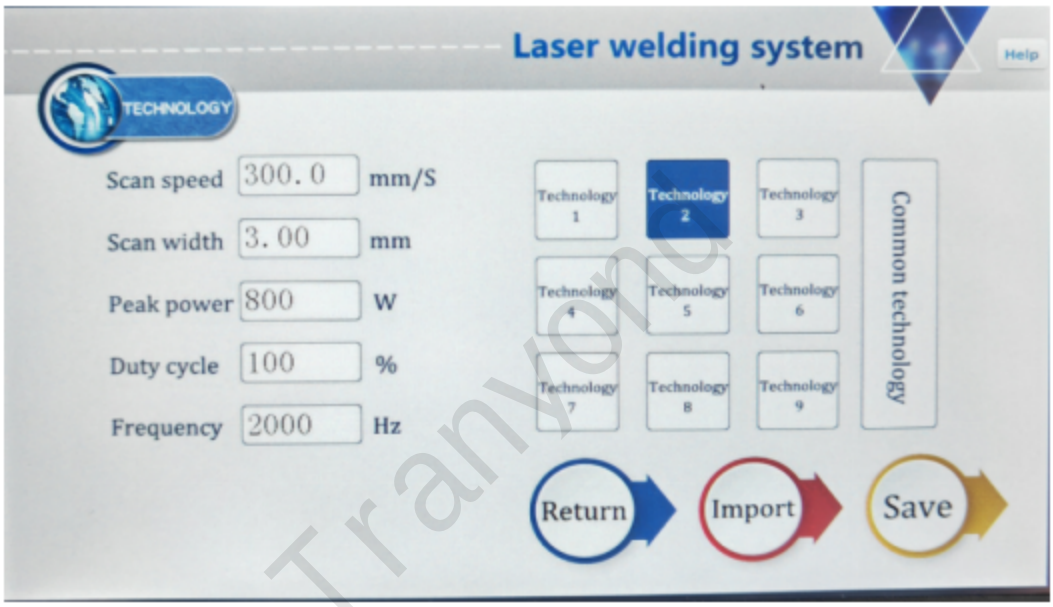
(The parameters should be adjusted according to the material, welding depth, speed and process requirements)

Note: Welding mode is divided into continuous welding mode and spot welding mode. In continuous mode, start the device and press the start button, the laser will emit light continuously



Until the button is released; The light time is calculated in milliseconds (1 second =1000

milliseconds). Press the button and the light output time is the pulse time, and then stop the light output. The blowing time before the light and the blowing time after the light should be set according to the process requirements. It is recommended that the opening of the blowing time is not less than 50 milliseconds. The blowing time in advance and delay is beneficial to protect the welding head, the lens and the welding seam.
Press the startup item in the interface, pick up the hand-held welding head, and the red light indicator will appear. The welding position can be observed according to the position indicated by the red light. Press the opening key of the hand-held welding joint to complete the installation.



Note: the red clip is connected to the ground wire to prevent accidental light, so it must be clamped on the metal workpiece.

5. Shutdown sequence

① After the work stops, press the laser switch on the control panel first

② Turn off the power button, emergency stop button, air switch and gas tank valve in turn
③ Place the hand-held welding head at the bracket on the top of the equipment.

6. Laser focus position and process control instructions

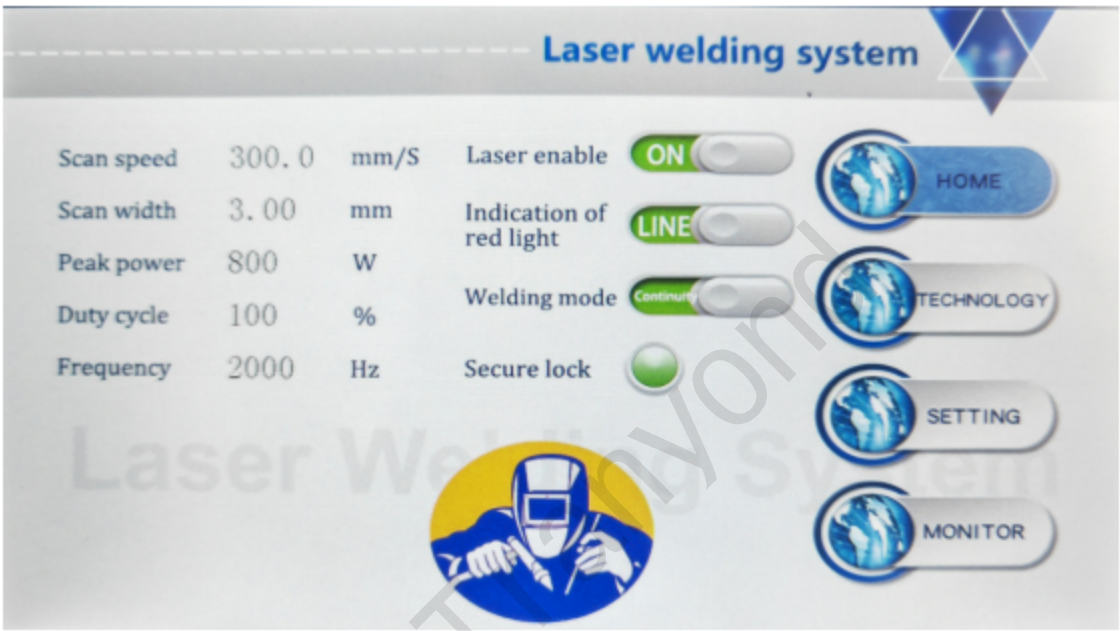
Focus position: minimum diameter and maximum energy of prem
It can be used for spot welding, or for low energy and minimum point requirements
Negative defocussing position: The spot diameter is slightly larger, and the farther away from the focal point the spot becomes larger
Suitable for continuous welding and deep melting point welding
Positive defocussing position: The spot diameter is slightly larger, and the farther away from the focal point the spot becomes larger
Suitable for continuous welding of surface sealing welding or where the depth of fusion is not high
Note: the positive focal length is the position where the laser flame is the largest and the sound is the clearest.
General process control of continuous penetration welding: if the trace of slight discoloration can be seen on the back of a single point, then better penetration welding can be achieved in continuous welding; If the back to see obvious marks, and even can feel that has been through, then, in continuous welding will splash, or even a deep pit. Specific to the actual sample to adjust the focal length and energy size and waveform.
The thinner the material, the smaller the required light spot, otherwise there will be welding through the situation.

Chapter 3: Introduction to the controller of hand-held welding machine

1. Controller main page description
Home page: the welding process is displayed on the left. If you need to change it, click the process interface
Process: modify process parameters, save, import and return
Settings: Password 123456, background Settings
Monitoring: signal detection related
Process parameters explanation:
Scanning speed: default 350, motor swing speed
Scanning width: welding spot width, maximum 5.5
Peak power: the power required by the process
Duty cycle: 100%
Pulse frequency: 1000
Home page: the welding process is displayed on the left. If you need to change it, click the process interface

Process: modify process parameters, save, import and return
Settings: Password 123456, background Settings
Monitoring: signal detection related

2. Background setting page functions
Set the interface as required after the connection is normal
Enter 123456 and you can see the following options



Chapter 4、 Practical application parameters

The laser frequency is usually set to 1000 and does not need to be changed. For example, taking 1000 as an example, if welding 2mm stainless steel , the power is set to 70%; If the welding is 1mm, the power is set to 30 or 40%.
Note:
1. If welding 1mm stainless steel 30% of the power can be set according to the welding speed. If the speed is fast, the weldability is good. If the welding is slow, perforation will occur. Therefore, if the material is thin, the power should be set smaller.
2. Can not weld pure copper, no reaction, high light reflectivity, can not reach the melting point.

material	material thickness mm	Wire feeding speed mm/s	Scanning speed mm/s	scanning width mm	power w	Duty ratio %	Pulse frequency Hz	Welding wire mm
Stainless steel	1mm	90mm/s	300mm	2.5mm	400W	100%	1000hz	1.0mm
Stainless steel	2mm	75mm/s	300mm	3.0mm	700W	100%	1000hz	1.2mm
Stainless steel	3mm	60mm/s	300mm	3.5mm	900W	100%	1000hz	1.6mm
Carbon steel	1mm	90mm/s	300mm	2.5mm	400w	100%	1000hz	1.0mm
Carbon steel	2mm	75mm/s	300mm	3.0mm	650w	100%	1000hz	1.2mm
Carbon steel	3mm	60mm/s	300mm	3.5mm	900w	100%	1000hz	1.6mm
Alumi-num	2mm	60mm/s	300mm	2.5mm	700w	100%	1000hz	1.0mm
Alumi-num	3mm	60mm/s	300mm	3.0mm	900w	100%	1000hz	1.2mm

Tranyond

Common faults and troubleshooting measures

Common faults	Fault description and solution measures	Handler
The whole machine cannot be powered on	1. If the device fails to be powered on, check whether the power supply cable is normal, and then check whether the circuit breaker, emergency stop, and power button are pressed. 2. Check whether the latching relay is normal or not. If it is damaged, it can be replaced by itself or reported after sale.	Trained personnel
	1. If the enable light is not on, the enable button is damaged and can be replaced for testing. 2. The wiring contact of the enable button is poor	
Laser alarm	1. Check whether the cooling water alarm causes the machine before the laser alarm, and check whether the water tank is turned on or gives an alarm. 2. Qbhfth alarm, which is caused by loose installation of optical fiber head and collimation. It needs to be reported to the after-sales personnel for handling. 3. The laser water circulation is blocked and there is gas in the cooling water pipe. Check the water circulation and discharge the air in the water pipe.	After-sales personnel
Not light	1. When the laser does not emit light, first check whether the laser is turned on. When the red light is emitted from the gun head, whether the laser gives an alarm and whether the enable light on the laser panel is on. 2. The red light is not emitted from the gun head, the laser does not give an alarm, and the enabling lamp is normal. It may be that the swing lens is damaged and needs to be replaced by after-sales personnel. 3. The red light is emitted from the gun head normally, and the laser does not give an alarm. If the enable light is pressed, the enable light on the laser panel does not light up, it may be that the laser expires. You need to connect the laser with a computer to check whether the laser control is in the external control mode, and then enter the password. All the above are normal. Check whether the safety lock of the touch screen is opened and whether there is a connection between the gun head and the grounding wire when it is opened.	After-sales personnel

Tronworld

Laser weakening	1. When the laser becomes weak, first confirm whether the red light is emitted in the middle of the gun. 2. Whether the protective lens is damaged and whether the protective gas is turned on. 3. Whether to weld on the focus. 4. If the above are normal, connect the laser with the computer to monitor whether the current laser power is consistent with the set power in real time. 5. If the power setting is normal, it is necessary to check whether the focusing lens and optical fiber head are damaged, which needs to be handled by after-sales personnel.	After-sales personnel
Protective lenses are vulnerable	1. When the protective lens is damaged frequently during welding, check whether the gas is turned on. 2. Whether the current power is adjusted to the maximum. When the laser power increases to more than 90%, it is recommended to use defocus welding to avoid damage to the protective lens caused by excessive spatter. 3. During welding, the gun head and the working surface shall be welded between 0-65 degrees ， avoid 90 degrees between the laser and the working surface (special attention shall be paid when welding aluminum alloy materials).	Trained personnel
Water tank alarm	1. High temperature causes an alarm. When it occurs, first turn off the power supply of the whole machine and check whether the exhaust outlet behind the cabinet is blocked, resulting in excessive temperature of the water tank. 2. The abnormal water flow causes the alarm. The water flow alarm is generally the bending of the water pipe. You can check whether the water pipe is bent.	Trained personnel

Tranyond