

Manual book

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1. Operation Process

Welder Operation Process



Precautions:

- ◆ Complete the welder connection according to the User Manual;
- ◆ The Welder should be connected to the ground wire, and a leakage protection device should be provided at the power distribution side;
- ◆ Wear safety goggles during welding to avoid the damage caused by stray light.

Welder Shutdown Process



Precautions:

- ◆ Turn off the Welder and cut off the power supply when the Welder is not used for a long time;
- ◆ Disconnect and remove the equipment after cutting off the power supply.



2. Welder Installation

Step 1: Gas Connection



Connect the welding gas supply pipe to the GAS IN port with the $\Phi 12$ quick connector (GB);
The pressure of welding gas shall be maintained between 0.15Mpa and 0.3MPa.

Step 2: Connect Conducting Wire (lead) of the Workpiece Clamp



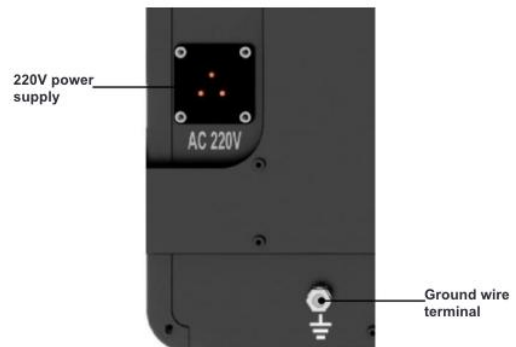
Connect conducting wire (lead) of the workpiece clamp to the CLAMP terminal.

Step 3: Connect the External Safety Interlock Device to EXTERNAL I/O port



Connect the external safety interlock device to EXTERNAL I/O port; the external interlock port receives the On/Off signals, which will protect the Welder and cannot emit laser when receiving Off signal.

Step 4: Connect the Welder with Power Supply



Connect the Welder with 220V mains power through power supply harness;
Connect the Welder with the ground wire.

Precautions:

- ◆ If there is no external safety interlock device, the safety interlock port shall be short circuited. Otherwise, the equipment will enter the protection state and will not be able to emit laser.
- ◆ To ensure the safety of the Welder, the grounding wire shall be connected, and the leakage protection device shall be installed at the distribution side.
- ◆ Check Welder for correct connection before switching on the power supply.
- ◆ The power supply shall be disconnected when the Welder is not used for a long time.



3. Welder Startup

Step 1: Welder Startup



After power supply is connected, press the STARTUP button on the top of the Welder to start it.

Step 2: Successful Startup



The startup process lasts about 30 ~ 60s; after startup, the LCD enters the working interface and the indicator light is on.



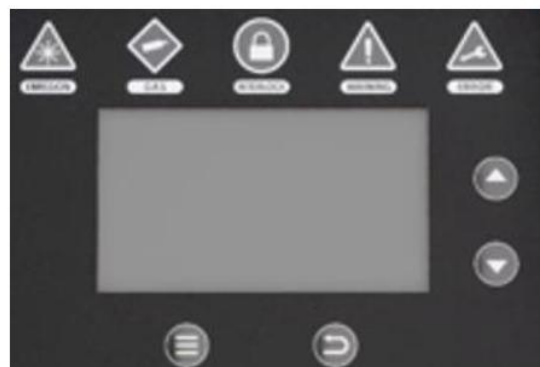
4. Welder Shutdown

Step 1: Welder Shutdown



Press the STARTUP button again and the Welder will be turned off after the STARTUP button pops up.

Step 2: Successful Shutdown



The shutdown process lasts about 10 ~ 20s; After the shutdown, the LCD goes out and the indicator light goes out.



5. Process Package Selection

Operation Interface

Package group display Process package name display

After successful startup, the process packages can be displayed by clicking the Previous/Next buttons.

Operational Logic

Operation	Function
Short press Previous button	Display the previous process package
Short press Next button	Display the next process package
Long press Previous button	Display the previous process package group
Long press Next button	Display the next process package group

STR-HW350 Process Package Information

Package Group	Package Name					
Aluminum	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding
Stainless steel	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding
Carbon steel	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding
Galvanized sheet	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding
User-defined	User-defined Process Package 0 ~ User-defined Process Package 19					

STR-HW450 Process Package Information

Package Group	Package Name							
Aluminum	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding	4mm	4mm - wire feed welding
Stainless steel	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding	4mm	4mm - wire feed welding
Carbon steel	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding	4mm	4mm - wire feed welding
Galvanized sheet	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding	-	-
User-defined	User-defined Process Package 0 ~ User-defined Process Package 19							

STR-HW550 Process Package Information

Package Group	Package Name											
Aluminum	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding	4mm	4mm - wire feed welding	5mm	5mm - wire feed welding	-	-
Stainless steel	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding	4mm	4mm - wire feed welding	5mm	5mm - wire feed welding	6mm	6mm - wire feed welding
Carbon steel	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding	4mm	4mm - wire feed welding	5mm	5mm - wire feed welding	6mm	6mm - wire feed welding
Galvanized sheet	1mm	1mm - wire feed welding	2mm	2mm - wire feed welding	3mm	3mm - wire feed welding	-	-	-	-	-	-
User-defined	User-defined Process Package 0 ~ User-defined Process Package 19											

STR-HW series handheld welders have four built-in preset process packages by default, which correspond to aluminum, stainless steel, carbon steel and galvanized steel respectively;

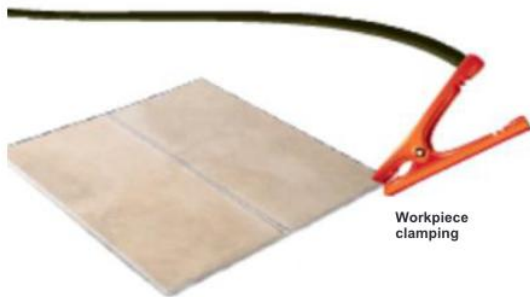
The process packages are distinguished from each other by thickness and wire feeding;

STR-HW series handheld welders are provided with a user-defined process package group, with a total of 20 process packages for users to define.

STR-HW series handheld welders are provided with various and accurate process packages. Operation can be started by selecting the corresponding process package.

6. Starting Welding Operation

Workpiece Clamping



Before welding, clamp the bench that is electrically connected to the workpiece.

STR-HW550 is provided with workpiece loop detection function, and laser emission is allowed only when the welding gun head and the workpiece form parts of an electrically conducting closed circuit.

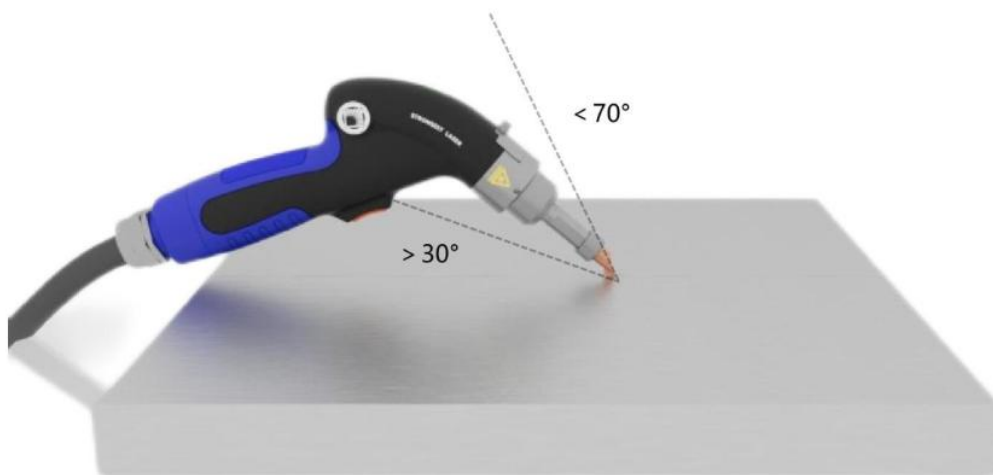
Hand Held Welding Gun



After the nozzle contacts the workpiece, the indicator light turns green, which means that laser emission is enabled.

The welding gun can send out indicating light. The indicating light is output only when the Welder is allowed to emit laser.

Conducting Welding Operation



Press the EMISSION ON button to start welding operation.

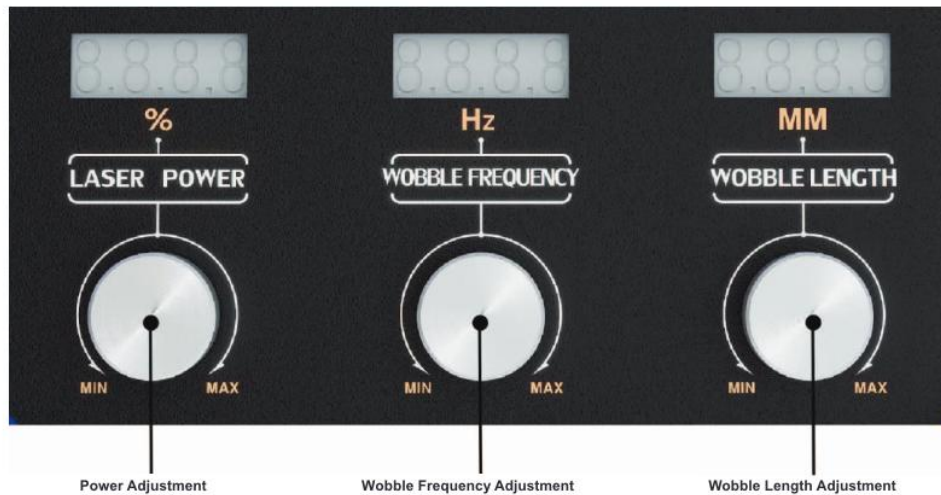
During welding, the included angle between the welding gun and the workpiece shall be controlled at 30° ~ 70°;

Safety goggles shall be worn during welding to avoid the harm caused by stray light.

Select the appropriate process package and press the **STARTUP** button to quickly complete the welding.

7. Adjusting Process Parameters

Adjusting Process Parameters



Rotate the knobs to adjust the power, wobble frequency and wobble length of the current process package. The process parameters will be displayed in the digital LCDs above the knobs.

Storing Parameters



STORE button

Press the STORE button to store the adjusted process parameters.

Resetting Parameters



RESET button

Press the RESET button to reset the factory set default process parameters.

Precautions:

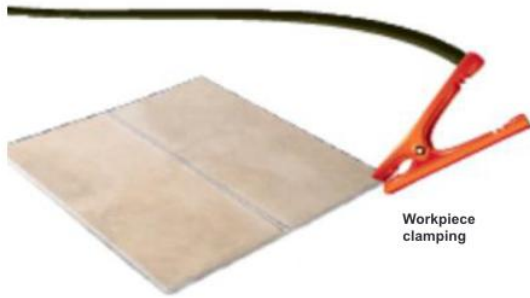
- ◆ For safe operation, the parameters are locked during laser emission and cannot be adjusted.
- ◆ The stored parameter will not be missed even when the welder is powered down.
- ◆ Scan Wechat QR code on the Welder body to launch operation APP in which the process parameters can be further set.

Use the process parameter adjustment function to quickly customize the process package!



8. Safety Interlock

Adjusting Process Parameters



Laser output is allowed only when welding gun head and the workpiece clamp lead are parts of an electrically conducting closed circuit.

Air Pressure Protection



Laser output is allowed only when the input gas pressure is $\geq 0.1\text{MPa}$.

External Safety Interlock Circuit



Only when the external safety interlock port is in the On state can the laser be emitted.

Mounting Protective Glass



The protective glass is provided with a mounting sensor, and only when the protective glass is mounted in place can laser be emitted.

Precautions:

- ◆ When welder is in unattended state for a long time, disconnect the workpiece interlock circuit and turn off the power supply.
- ◆ The fault will be triggered when the safety interlock is abnormal; reset any fault by normal installation before continuing operation.



9. Troubleshooting

Fault Indication



After a fault occurs, the LCD will pop up fault information prompt.

Fault Reset



After a fault occurs, press any key to reset the failure.

Fault Information and Handling

S/N	Abnormalities	Actions & Remarks
1	Abnormal gas pressure	The input gas pressure is insufficient. Please check the input gas pressure and reset the fault.
2	Abnormality occurs in fan system	After checking that the air inlet and outlet are not blocked, reset the fault.
3	Abnormal temperature and humidity	Ambient temperature and humidity exceed the safety range. Please reset the fault in an ambient with suitable temperature and humidity.
4	Abnormality occurs in remote interlock	Please check the remote interlock signal connection and reset the fault.
5	Abnormality occurs in welding gun system	Check protective glass of the welding gun for proper installation or any damage; Correct any improper installation or repair any damage to clear the fault.
6	Abnormality occurs in optical path	Restart the welder. If any fault occurs again during welding, please contact after-sales personnel.
7	Abnormal operating temperature	Check the air inlet and outlet for any blockage, clear the filter dust and reset any fault.
8	Abnormality occurs in driving power supply	Check wire feeder and remove any fault.
9	Abnormality occurs in wire feeder	Clear any fault after checking the wire feeder and proper corrections made to it.

In case of abnormality, check the Welder according to the prompt information and reset the fault before continuing operation.



10. Wire Feeding Function

Step 1: Remove Copper Nozzle Tip from the Welding Head



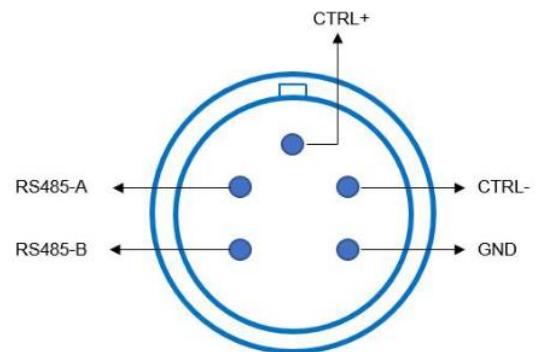
Step 2: Install the Wire Holder Assembly



Step 3: Reinstall the Copper Nozzle Tip



Step 4: Connect the Cable to Wire Feeding Unit



STR-HW series handheld laser welder is provided with 1.2mm-wire feeding nozzle and 1.6mm-wire feeding nozzle as standard configuration. Optional wire feeding nozzles can be selected based on the specific wire diameter to achieve better welding effect when working with [STR-WF00A intelligent wire feeder](#).



11. Operation and Maintenance

Replace Copper Nozzle



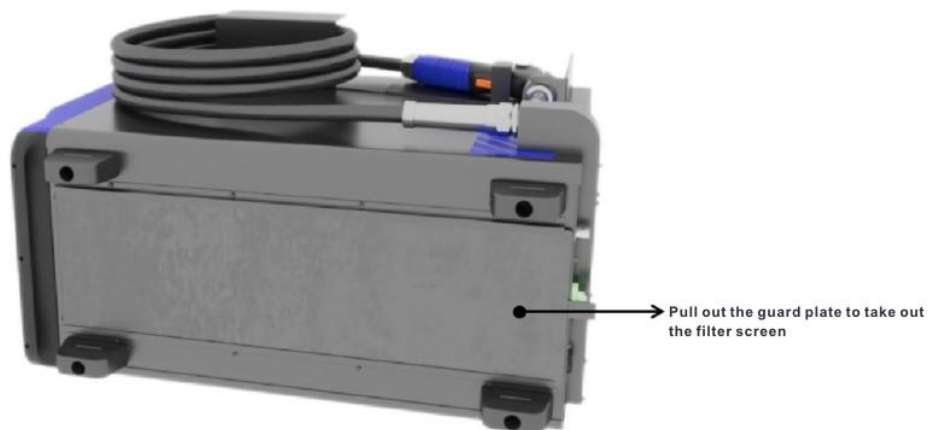
1. Insert the copper nozzle into the air tube;
2. Put on the locking cap;
3. Tighten up the locking cap.

Replace the Protective Glass



If the protective glass is damaged, the welding effect will be reduced; the long-term use of damaged protective glass will lead to temperature rise of the welding gun and affect the reliability of the welding gun.

Cleaning the Filter Screen



Clean and replace the filter screen at regular intervals. Otherwise cooling air volume of the Welder will be reduced, causing temperature fault to the Welder.

Follow the prompts to maintain the Welder at regular intervals to avoid affecting the performance of the Welder.