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› WTTTOOLS Jewelry Laser Welder 200W with CCD - Instruction Manual

WTTTOOLS LJW-200

WTTTOOLS Jewelry Laser Welder 200W with CCD - Instruction Manual

Model: LJW-200 | Brand: WTTTOOLS

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your WTTTOOLS 200W Jewelry Laser Welder with CCD. This machine is designed for precision welding of various precious metals and small components, offering high efficiency and accuracy.



Figure 1: WTTTOOLS 200W Jewelry Laser Welder with CCD. This image shows the complete laser welding machine, highlighting its compact design and integrated CCD observation system.

2. SAFETY INFORMATION

This laser welder is a Class 2 laser product. Adherence to safety guidelines is crucial to prevent injury and damage to the equipment. Always read and understand all safety warnings before operation.

- **Eye Protection:** Always wear appropriate laser safety goggles that block 1064nm wavelength during operation. Never look directly into the laser beam or its reflection.
- **Electrical Safety:** Ensure the machine is connected to a proper 220V/380V power supply. If using 110V, a voltage transformer is required. Do not operate with damaged cables or plugs.
- **Ventilation:** Ensure adequate ventilation in the work area to dissipate fumes and heat generated during welding.

- **Flammable Materials:** Keep flammable materials away from the welding area.
- **Emergency Stop:** Familiarize yourself with the location and operation of the emergency stop button.
- **Authorized Personnel:** Only trained and authorized personnel should operate this equipment.



Figure 2: Safety features including the emergency stop button and the adjustable blowpipe for gas flow, which helps prevent oxidation during welding.

3. PRODUCT FEATURES

The WTTTOOLS Jewelry Laser Welder is equipped with advanced features for precise and efficient operation:

- **High Quality YAG Laser Source:** Ensures fast welding with minimal deformation, small solder joints, and a small heat-affected zone.
- **CCD Observation System:** Allows clear viewing of the welding workpiece and joints, enhancing accuracy for micro-size processing.
- **Color Touch Screen:** Provides an intuitive interface for easy operation and parameter adjustment.
- **Multiple Welding Modes:** Offers flexibility to adjust laser single pulse energy, pulse width, frequency, and spot size to suit various welding demands.
- **Water Cooling System:** Integrated for efficient heat dissipation, ensuring stable performance during extended operation.
- **Ergonomic Design:** Reduces operator fatigue during long working hours.
- **Consumable Friendly:** Designed for minimal consumable usage.

MICROSCOPE WITH CCD CONFIGURATION

The movement trajectory of the welding joints is observed by a microscope and a CCD observation system, so that the actual welding scene can be observed on the screen, which is convenient for micro-size processing. The binocular pupil distance of the high-definition microscope is adjustable, and the direction can be rotated for observation.



CCD image sensor



Partial enlargement



HC90211

Figure 3: Close-up view of the microscope with CCD configuration. The binocular pupil distance is adjustable, and the direction can be rotated for optimal observation of welding joints and micro-size processing.

DIGITAL CONTROL SYSTEM

The sensitive color capacitive touch screen makes it easy and convenient to operate.



Figure 4: The sensitive color capacitive touch screen of the digital control system, which simplifies operation and parameter changes.

MULTIPLE WELDING MODES

The laser single pulse energy, pulse width, frequency, spot size and other parameters can be adjusted to achieve different welding process modes and strong applicability.



Figure 5: The display showing multiple welding modes, allowing adjustment of laser single pulse energy, pulse width, frequency, and spot size for diverse welding applications.

4. SPECIFICATIONS

Attribute	Value
Model	LJW-200
Maximum Laser Power	200W
Laser Wavelength	1064nm
Laser Frequency	0-50Hz
Energy	60J
Voltage	220V/380V (Voltage transformer needed for 110V)
Pulse Width	0-20ms

Attribute	Value
Cooling Method	Water Cooling (Built-in water cooler 1P)
Gross Weight	457.2 lbs (180 kg)
Laser Level	Class 2
Output Power	0.874mW
Spot Adjustment Range	0.3-2.5mm
Rated Power	6.5KW
Packaging Size (mm)	1100*700*1300
Usage Environment	10-30°C

LASER WELDER
PRODUCT ADVANTAGES



PRODUCT INFORMATION

MODEL	LJW-200
Laser wavelength	1064nm
Laser frequency	0-50Hz
Condenser reflector	Imported ceramic condensing cavity
Maximum laser power	200W
Energy	60J
Voltage	220V 1 phase / 380V 3 phase (voltage transformer is needed if for 110v)
pulse width	0-20ms
Spot adjustment range	0.3-2.5mm
Cooling system	Built-in water cooler 1P
Rated Power	6.5KW
Packaging size (mm)	1100*700*1300
Gross weight (kg)	180
Usage environment	10-30°C

Figure 6: A visual representation of the product specifications, including model, laser parameters, and physical dimensions.

5. SETUP

Follow these steps to set up your laser welder:

1. **Unpacking:** Carefully unpack the machine from its shipping crate. Retain all packaging materials for future transport or storage.
2. **Placement:** Place the machine on a stable, level surface in a well-ventilated area, away from direct sunlight and excessive dust. Ensure sufficient space around the machine for operation and maintenance.
3. **Power Connection:** Connect the machine to a compatible 220V/380V power outlet. If your power supply is 110V, use a suitable voltage transformer (not included).
4. **Water Cooling System:** The machine features a built-in water cooling system. Ensure the water tank is filled with distilled or deionized water to the appropriate level before first use and regularly check the water level.
5. **CCD and Microscope Setup:** Adjust the microscope and CCD observation system for comfortable viewing. Ensure the CCD image is clear on the display screen.
6. **Gas Connection (Optional):** If using an inert gas (e.g., Argon) for welding, connect the gas supply to the designated inlet on the machine and adjust the flow rate as needed to prevent oxidation.

PRODUCT INFORMATION



Figure 7: Key components of the laser welder, including the control switch, display screen, microscope, CCD, observation port, working capsule, and temperature control, essential for proper setup and operation.

6. OPERATING INSTRUCTIONS

Before operating, ensure all safety precautions are followed and the machine is properly set up.

- 1. Power On:** Turn on the main power switch. The system will initiate self-checks.
- 2. Access Control Panel:** Use the color touch screen to navigate the control panel.
- 3. Parameter Adjustment:**
 - Adjust laser parameters such as pulse energy, pulse width, frequency, and spot size according to the material and desired weld. Refer to the material-specific guidelines for optimal settings.
 - The CCD observation system will display the workpiece, allowing for precise positioning and focus adjustment.
- 4. Workpiece Placement:** Place the jewelry or workpiece securely within the working capsule.
- 5. Initiate Welding:** Once parameters are set and the workpiece is positioned, press the welding trigger or foot pedal to initiate the laser welding process.

- 6. **Monitoring:** Continuously monitor the welding process through the CCD observation system.
- 7. **Power Off:** After use, turn off the laser and then the main power switch.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your laser welder:

- **Water Cooling System:**
 - Check the water level daily and refill with distilled or deionized water as needed.
 - Change the cooling water every 3-6 months, or more frequently with heavy use.
 - Clean the water filter regularly to prevent blockages.
- **Optical Components:**
 - Regularly inspect and clean the protective lens, microscope lenses, and CCD camera lens using specialized optical cleaning solutions and lint-free wipes.
 - Avoid touching optical surfaces with bare hands.
- **General Cleaning:** Keep the exterior of the machine clean and free of dust and debris. Use a soft, dry cloth.
- **Electrical Connections:** Periodically check all electrical connections for tightness and signs of wear.

8. TROUBLESHOOTING

This section addresses common issues you might encounter. For problems not listed here, contact customer support.

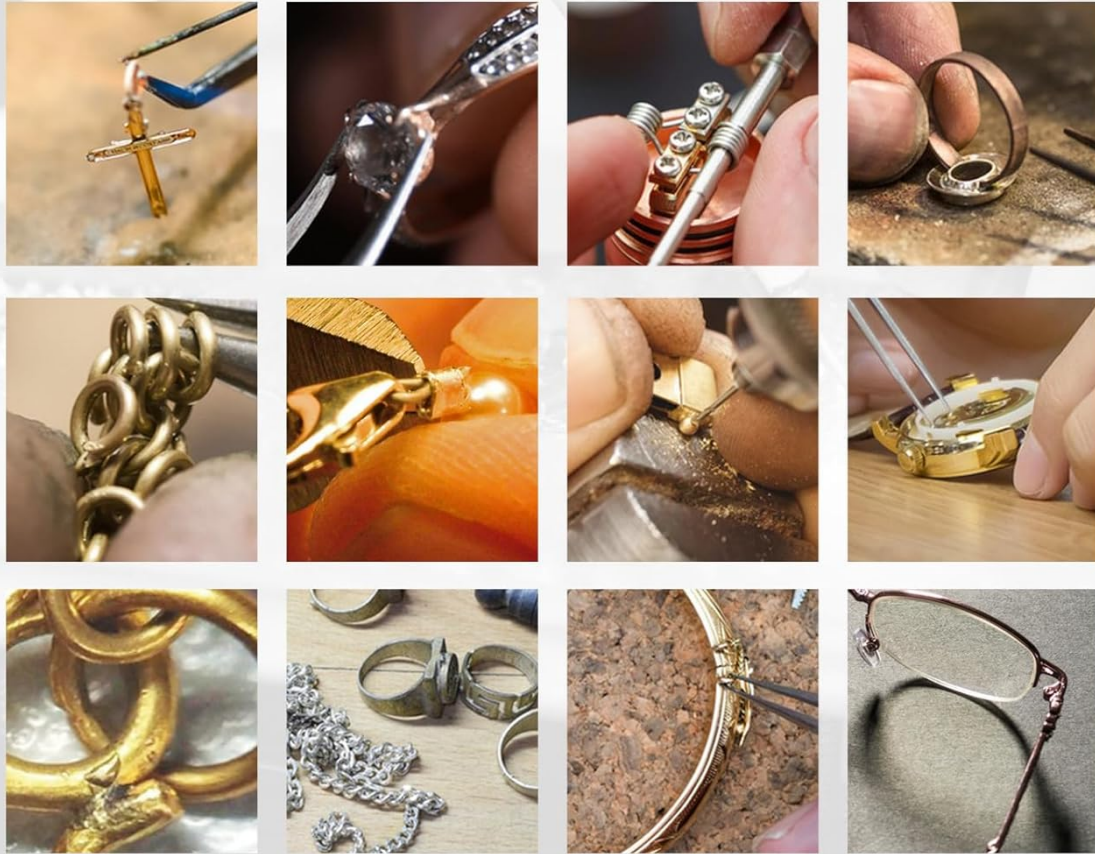
Problem	Possible Cause	Solution
Machine does not power on	No power supply; main switch off; fuse blown	Check power cable, wall outlet, main switch. Inspect and replace fuse if necessary.
No laser output	Emergency stop engaged; laser enable switch off; low water level; parameter error	Disengage emergency stop. Ensure laser enable switch is on. Check water level. Verify welding parameters on screen.
Poor weld quality	Incorrect parameters; dirty lens; improper focus; insufficient gas flow	Adjust welding parameters. Clean protective lens. Re-focus the laser. Check gas supply and flow rate.
Overheating alarm	Insufficient cooling water; blocked water filter; high ambient temperature	Check water level and refill. Clean water filter. Ensure proper ventilation in the work area.

9. APPLICATIONS

This laser soldering machine is versatile and widely used in various fields, particularly for precision work:

- **Jewelry Repair:** Ideal for patching holes, spot welding grit holes, repairing seams, and spot welding inlaid parts in gold, silver, and platinum jewelry.
- **Small Parts Welding:** Suitable for delicate components in electronics, hardware, watches, and sporting goods.
- **Dental Industry:** Used for welding dentures and other dental appliances.
- **Medical Equipment:** Precision welding for various medical instruments.
- **Arts & Crafts:** For intricate welding tasks in artistic creations.

CLASSIC CASE



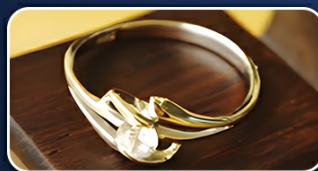
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Figure 8: Examples of welding applications, including delicate jewelry repairs, demonstrating the machine's precision and versatility.

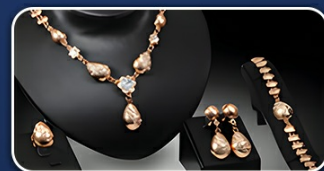
SUITABLE FOR VARIOUS MATERIALS



Gold and Silver Welding



Rings Welding



Titanium Alloy Welding



Dentures Welding



Small Parts Welding



Precision Mechanical Welding

Figure 9: Visual examples of materials and items suitable for welding, such as gold, silver, rings, titanium alloy, dentures, and small precision mechanical parts.

10. WARRANTY AND SUPPORT

WTTTOOLS provides a 1-year guarantee for the entire machine and lifetime online support. As a subsidiary company of laser products since 2004, we are committed to customer satisfaction.

For any questions, problems, or technical assistance, please contact us via Amazon. Our customer support team will endeavor to provide a satisfactory resolution.

Seller: Machine&Tools Supply