WAINLUX JL3-5W

WAINLUX 40W CNC Laser Engraver User Manual

Model: JL3-5W

1. Introduction

This manual provides detailed instructions for the safe and efficient operation, setup, maintenance, and troubleshooting of your WAINLUX 40W CNC Laser Engraver. Please read this manual thoroughly before using the device to ensure optimal performance and safety.

Product Features:

- **Powerful Laser Module:** 40W fixed-focus laser module with lifting frame for flexible engraving distance adjustment. Compressed spot laser technology for a more concentrated and energetic beam, resulting in higher precision (0.05 mm² spot size).
- **Wide Material Compatibility:** Engrave on bamboo, wood, leather, PCB, aluminum oxide, metal, glass, and more.
- **Advanced Firmware:** Optimized motion algorithm for smarter, faster, and more precise operation. Supports offline engraving. Motor speed up to 300 mm/s (without considering engraving effect).
- **Solid Structure & Easy Installation:** Robust and lightweight body made of stainless steel and acrylic. Maximum engraving area of 16.14"x15.74" (410mm x 370mm). Modular design for easy assembly, repair, and upgrades.
- **Broad Software Compatibility:** Compatible with LaserGRBL, LightBurn, and a self-developed app (available on the included USB drive). Supports Win7/Win8/Win10/MAC/IOS/Android systems.
- **Wireless Connectivity:** Supports USB and Bluetooth (BT) data transmission methods for convenience and stability.

2. Safety Instructions

Always prioritize safety when operating the laser engraver. Failure to follow these instructions may result in injury or damage to the equipment.

- Wear appropriate laser safety glasses at all times during operation. The laser filter cover can filter 98% of UV light, but additional eye protection is crucial.
- Ensure proper ventilation in the work area to dissipate fumes and smoke generated during engraving.
- Do not leave the machine unattended while operating.
- Keep flammable materials away from the engraving area.
- Do not touch the laser module or the engraving area during operation.
- Ensure the machine is placed on a stable, level surface.
- Disconnect power before performing any maintenance or adjustments.

3. Product Components and Assembly

The WAINLUX JL3-5W laser engraver features a modular design for straightforward assembly.

Figure 3.1: Assembled WAINLUX JL3-5W Laser Engraver. This image shows the full machine with a sample engraving on a wooden board, demonstrating its capability.

Figure 3.2: Full Metal Body Structure. This image highlights the robust construction of the engraver, showing the sturdy frame and components.

Figure 3.3: Key Components. This image illustrates the power motor, the flexible movement system for the laser head, and the overall full metal body structure, emphasizing the machine's design for stability and precision.

Assembly Steps:

1. Unpack all components and verify against the packing list.
2. Assemble the main frame using the provided screws and tools. The modular design allows for intuitive connection of the stainless steel and acrylic parts.
3. Install the laser module onto the gantry. Ensure it is securely fastened.
4. Connect all necessary cables (power, USB) as indicated in the quick start guide (not provided here, but implied).
5. Place the laser filter cover over the laser module.

4. Operating Instructions

4.1 Software Installation and Connectivity

The JL3-5W supports various software and connectivity options:

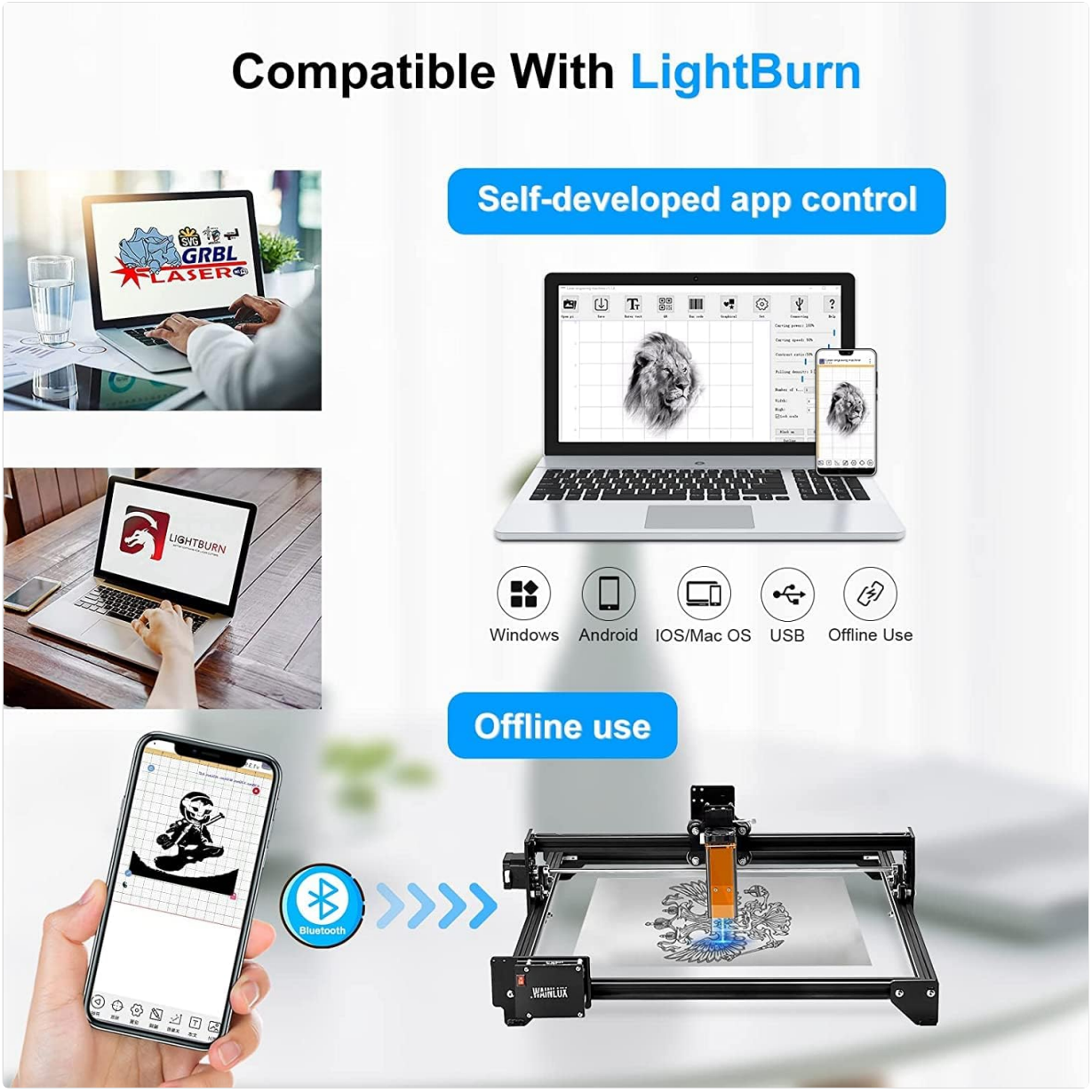


Figure 4.1: Software and Connectivity Options. This image illustrates the engraver's compatibility with LightBurn and its own self-developed app, highlighting support for various operating systems (Windows, Android, iOS/Mac OS) and connection methods (USB, Bluetooth, offline use).

- **Software:** Compatible with LaserGRBL and LightBurn. A self-developed app for beginners is included on the USB drive.
- **Operating Systems:** Supports Win7/Win8/Win10/MAC/IOS/Android.
- **Connectivity:** USB and Bluetooth (BT) for convenient and stable data transmission.

4.2 Preparing for Engraving

1. **Material Placement:** Place the material to be engraved flat on the work surface. The maximum engraving area is 16.14"x15.74" (410mm x 370mm).
2. **Focus Adjustment:** The 40W fixed-focus laser module is equipped with a lifting frame. Adjust the height of the laser module to achieve the optimal focus for your material.
3. **Design Preparation:** Create or import your design into the chosen software (e.g., LightBurn, LaserGRBL).

Figure 4.2: Advanced Compressed Spot Laser Technology. This diagram illustrates the fixed-focus laser head with its flexible lifting frame design, highlighting the high energy 5.5W output power, 0.05mm higher accuracy, and 0.05mm² ultra-fine compression spot for precise engraving.

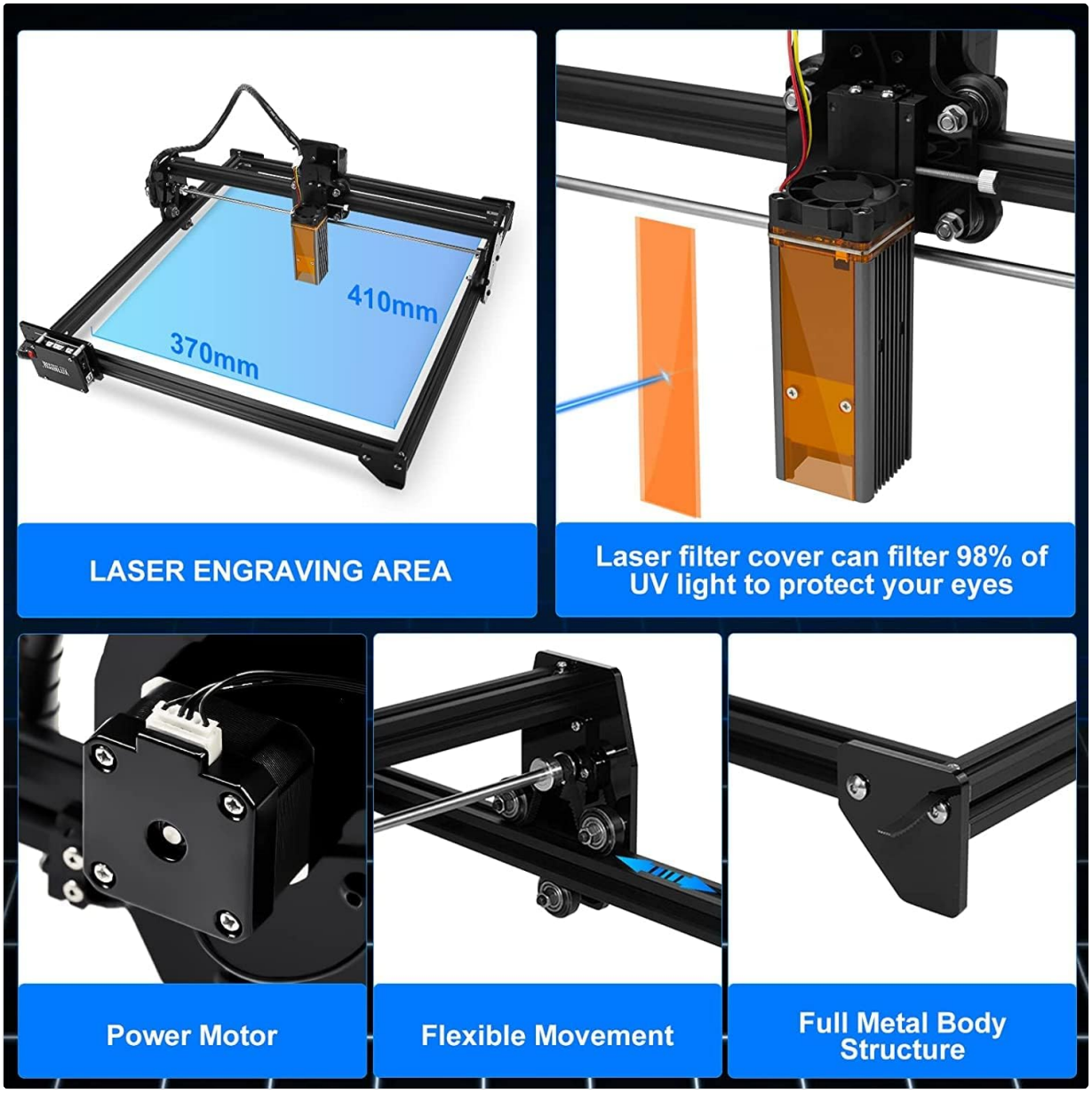


Figure 4.3: Engraving Area and Eye Protection. This image displays the laser engraving area dimensions (370mm x 410mm) and emphasizes the importance of the laser filter cover, which filters 98% of UV light to protect the user's eyes.

4.3 Engraving Process

1. **Parameter Settings:** Adjust laser power and speed settings based on the material. Refer to the "Engraving Parameter Table" in the Specifications section for reference.
2. **Start Engraving:** Initiate the engraving process through your software.
3. **Monitoring:** Supervise the engraving process. The machine can engrave on various materials, including cutting up to 9mm wood with fewer burnt edges and direct engraving on stainless steel/metal.

Figure 4.4: Material Processing Capabilities. This image illustrates the engraver's ability to cut 9mm wood with minimal burnt edges and directly engrave on stainless steel and other metals.

Figure 4.5: Versatile Engraving Applications. This image showcases the wide range of materials that can be engraved, including leather, wood (for cutting and carving), plastic, paper, and ceramics, demonstrating the machine's versatility.

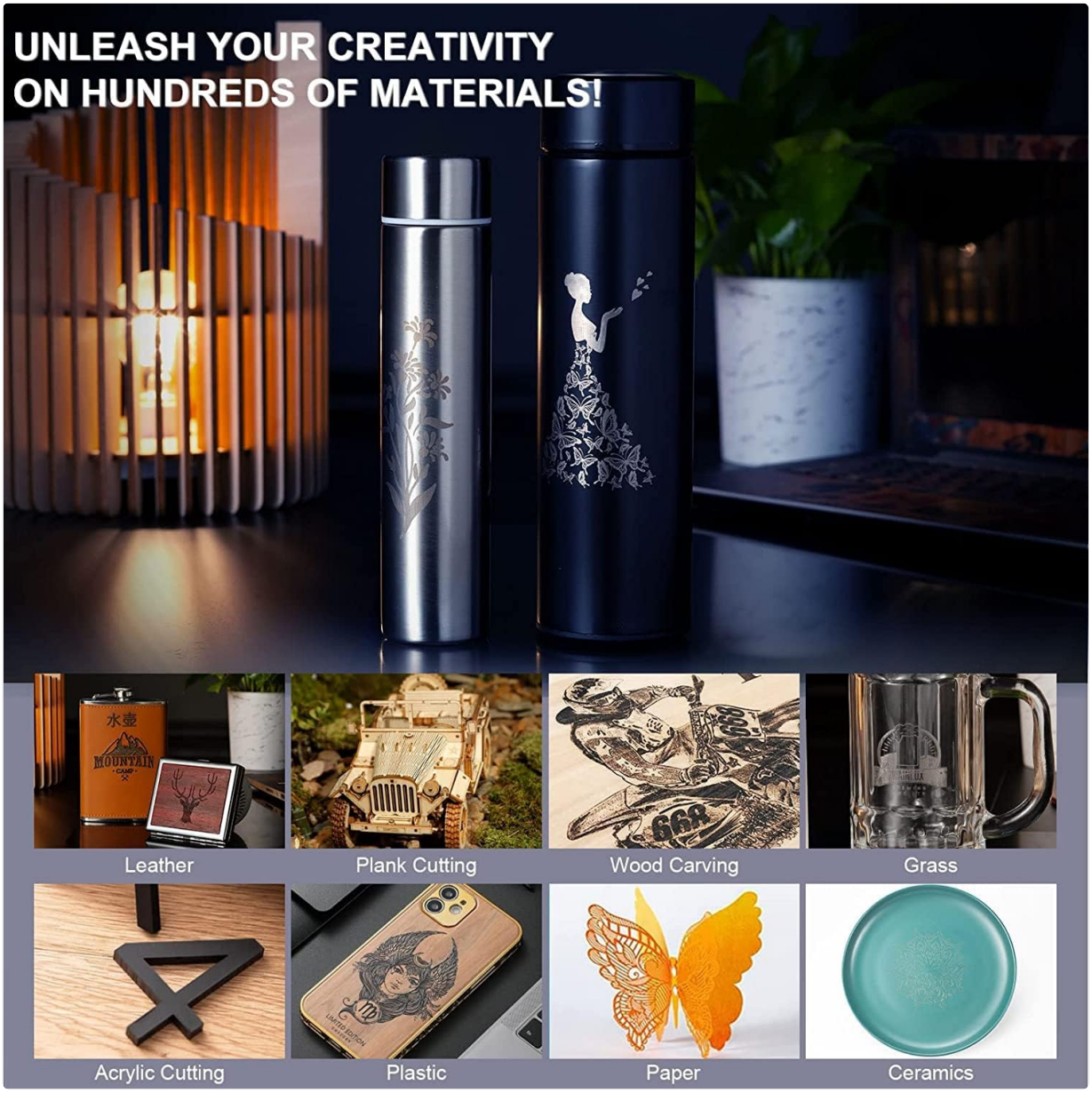


Figure 4.6: Cylinder Engraving with Rotary Roller. This image demonstrates the capability to engrave cylindrical objects using a rotary roller (sold separately), showcasing engraved bottles, tumblers, and pens.

5. Maintenance

Regular maintenance ensures the longevity and optimal performance of your laser engraver.

- **Cleaning:** Regularly clean the laser lens and the work area to remove dust and debris. Use a soft, lint-free cloth.
- **Lubrication:** Periodically lubricate the guide rails and moving parts to ensure smooth operation.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates to ensure your machine is running with the latest optimizations.
- **Component Inspection:** Inspect cables and connections for any signs of wear or damage.

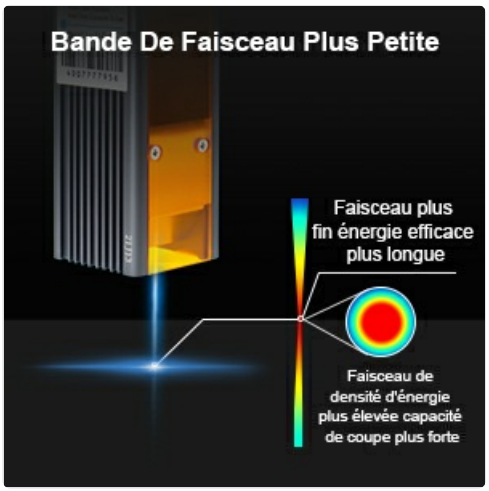


Figure 5.1: Optimized Beam. This image illustrates the smaller beam band, indicating a finer, more effective energy beam for higher energy density and stronger cutting capability.

Figure 5.2: 32-bit Motherboard. This image highlights the upgraded 32-bit motherboard, which contributes to the machine's intelligent, faster, and more precise operation.

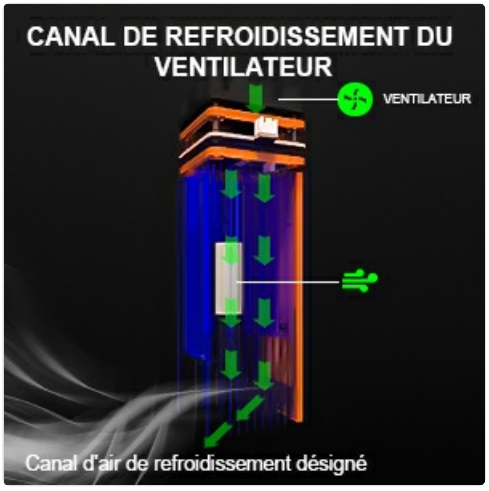


Figure 5.3: Fan Cooling Channel. This diagram illustrates the designed air cooling channel with a fan, ensuring efficient heat dissipation for the laser module.

Figure 5.4: Precise Engraving. This image demonstrates the machine's capability for precise engraving, as shown on intricate wooden gears.

Figure 5.5: Long-lasting Performance. This image highlights the laser module's durability, indicating a powerful and long-lasting operational life of 1500 hours.

6. Troubleshooting

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
Laser not firing or weak output.	Incorrect focus, dirty lens, low power setting, laser module issue.	Adjust focus, clean laser lens, increase power setting in software, contact support if module is faulty.
Machine not connecting to computer/app.	Incorrect cable connection, driver issue, Bluetooth not paired.	Check USB cable, reinstall drivers, ensure Bluetooth is enabled and paired correctly.
Engraving quality is poor (blurry, uneven).	Incorrect focus, material not flat, speed too high/low, power too high/low.	Re-adjust focus, ensure material is flat, fine-tune speed and power settings based on material.

Problem	Possible Cause	Solution
Machine stops mid-engraving.	Loose connection, software crash, power interruption.	Check all connections, restart software, ensure stable power supply.

7. Specifications

- **Model:** JL3-5W
- **Laser Power:** 40W (Fixed Focus)
- **Spot Size:** 0.05 mm²
- **Engraving Area:** 16.14" x 15.74" (410mm x 370mm)
- **Max Engraving Speed:** Up to 300 mm/s
- **Supported Operating Systems:** Win7/Win8/Win10/MAC/IOS/Android
- **Connectivity:** USB, Bluetooth (BT)
- **Supported Software:** LaserGRBL, LightBurn, WAINLUX self-developed app
- **Body Material:** Stainless Steel, Acrylic
- **Package Dimensions:** 59.1 x 26 x 15.4 cm
- **Weight:** 3.79 kg
- **Color:** Black
- **UPC:** 749269358391

Recommended Engraving Parameters (Reference Only):

Figure 7.1: Engraving Parameter Reference Table. This table provides suggested power and speed settings for different materials such as stainless steel, bamboo, glass, leather, wood, plastic, and ceramic. These parameters are for reference only and may require fine-tuning.

Material	Power	Speed
Stainless Steel Plate	100%	10%
Bamboo Chips	50%	90%

Material	Power	Speed
Glass Bottle	100%	20%
Leather	100%	60%
Wood Board	100%	90%
Plastic	100%	70%
Ceramic	100%	20%

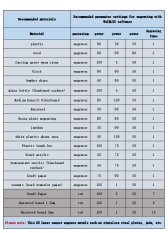
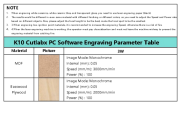
8. Warranty and Support

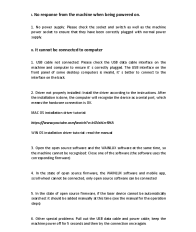
WAINLUX provides comprehensive support for its products:

- **Warranty:** 2-year warranty from the date of purchase.
- **Technical Support:** Lifetime technical support available. Our after-sales team will respond to emails within 24 hours.
- **Returns:** 30-day unconditional returns supported, including replacement of wearing parts and new machines (for non-human caused failures).

For assistance, please contact WAINLUX customer service.

Related Documents - JL3-5W

	WAINLUX K6 Laser Engraver User Manual A comprehensive user manual for the WAINLUX K6 laser engraver, covering setup, software download for mobile and desktop, and troubleshooting.
	WAINLUX K6 Pro Laser Engraver: Material Engraving Settings Guide Detailed parameter settings for engraving various materials like wood, leather, acrylic, and paper using the WAINLUX K6 Pro laser engraver with WAINLUX software.
	WAINLUX K10 3W Laser Engraver Software Engraving Parameter Table A comprehensive guide to software engraving parameters for the WAINLUX K10 3W Laser Engraver, detailing settings for various materials including wood, paper, leather, acrylic, glass, ceramics, and metals.

	[Wainlux Laser Engraving Machine User Manual] Comprehensive user manual for the Wainlux laser engraving machine, covering specifications, accessories, operation modes, software settings, photo and text engraving, and mobile app usage. Includes instructions for both desktop software and smartphone app control.
	[WAINLUX JL7 Laser Engraver Troubleshooting Guide] Troubleshooting common issues with the WAINLUX JL7 Laser Engraver, including power, computer connection, app connection, and engraving quality.
	[Wainlux K6 Laser Engraving Machine User Manual and Operating Instructions] This user manual provides detailed operating instructions for the Wainlux K6 laser engraving machine, covering installation, software usage, engraving techniques, and safety guidelines.