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Twotrees TTS-55 Pro

Twotrees TTS-55 Pro Laser Engraver and Cutter User Manual

Model: TTS-55 Pro

1. Important Safety Information

Please read all safety instructions carefully before operating the Twotrees TTS-55 Pro laser engraver. Failure to follow these instructions may result in injury or damage to the device.

- **Eye Protection:** The laser filter cover can filter 98% of UV light, protecting your eyes. While direct viewing of the laser is mitigated, it is always recommended to avoid staring directly at the laser beam during operation.
- **Ventilation:** Operate the machine in a well-ventilated area to dissipate fumes and smoke produced during engraving and cutting.
- **Fire Hazard:** Laser engraving and cutting can ignite flammable materials. Always supervise the machine during operation and have a fire extinguisher nearby.
- **Material Safety:** Do not engrave or cut materials that produce toxic fumes or are highly flammable.
- **Children and Pets:** Keep children and pets away from the machine during operation.
- **Emergency Stop:** The machine is equipped with a power switch for easy on/off in case of emergency. Familiarize yourself with its location.

2. Product Overview

The Twotrees TTS-55 Pro is a high-precision laser engraving and cutting machine designed for a wide range of materials. It features advanced technology for enhanced performance and user safety.

Key Features:

- **High Precision:** Ultrafine compressed spot of 0.08 * 0.08 mm and 0.01 mm engraving precision.
- **Powerful Laser:** 5.5W optical laser output (20W electrical power) for efficient engraving and cutting.
- **Versatile Material Compatibility:** Suitable for wood, bamboo, acrylic, paper, leather, plastic, metal, ceramic, and more.
- **Wide Software Compatibility:** Supports LaserGRBL (Windows), LightBurn, Benbox, GrblController, LiteFire. Compatible with MAC and Windows XP/7/8/10.
- **Connectivity:** Integrated ESP32 module with WiFi and Bluetooth functionality, supporting APP connection.
- **Expandable Engraving Area:** Standard 300x300mm, expandable to 430x400mm by extending the frame axis.
- **Safety Design:** Magnetic filter hood for UV light filtration and easy removal.

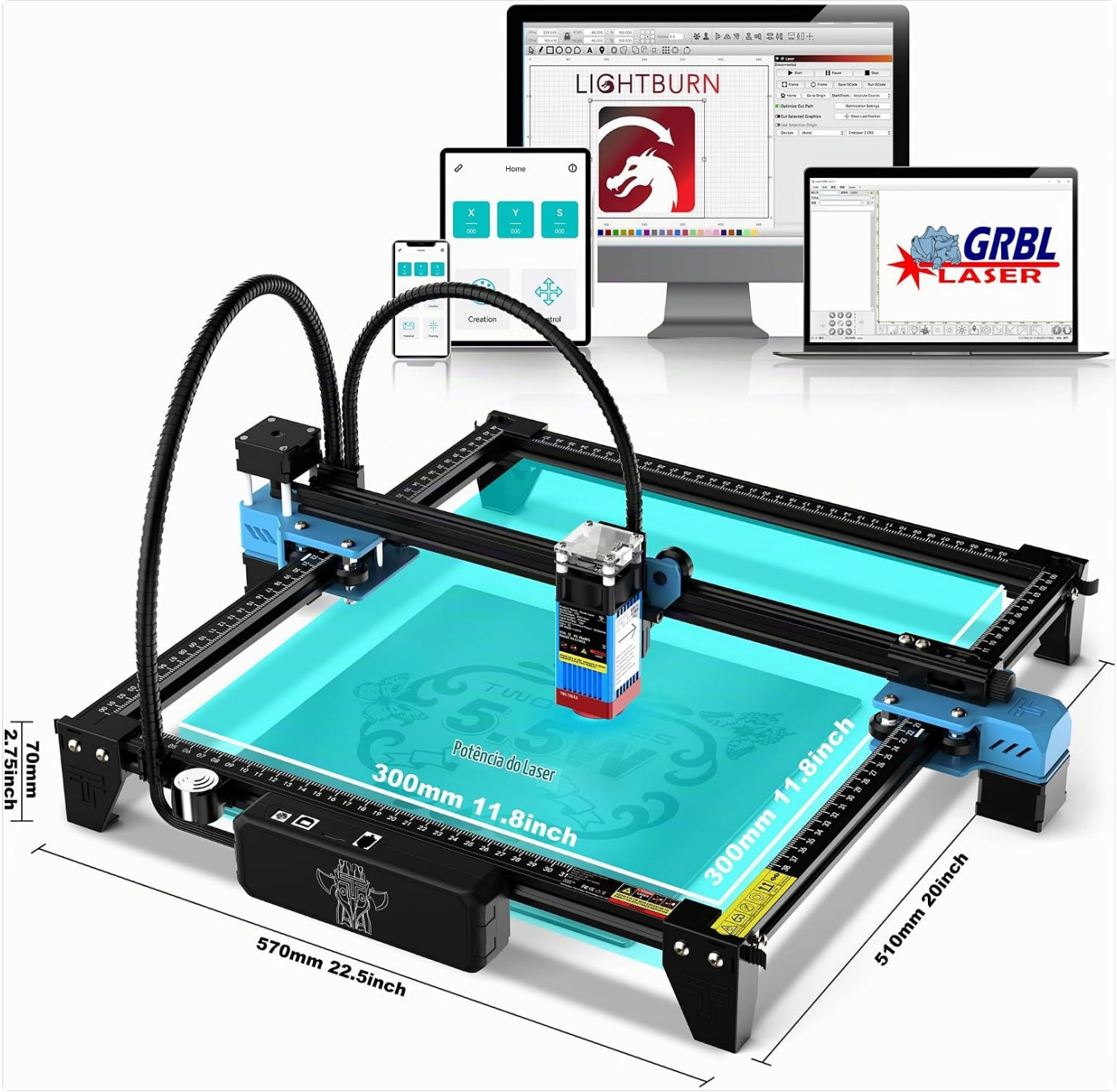


Figure 2.1: Overview of the Twotrees TTS-55 Pro laser engraver, showing its main components and dimensions (570mm x 510mm, 300x300mm engraving area).

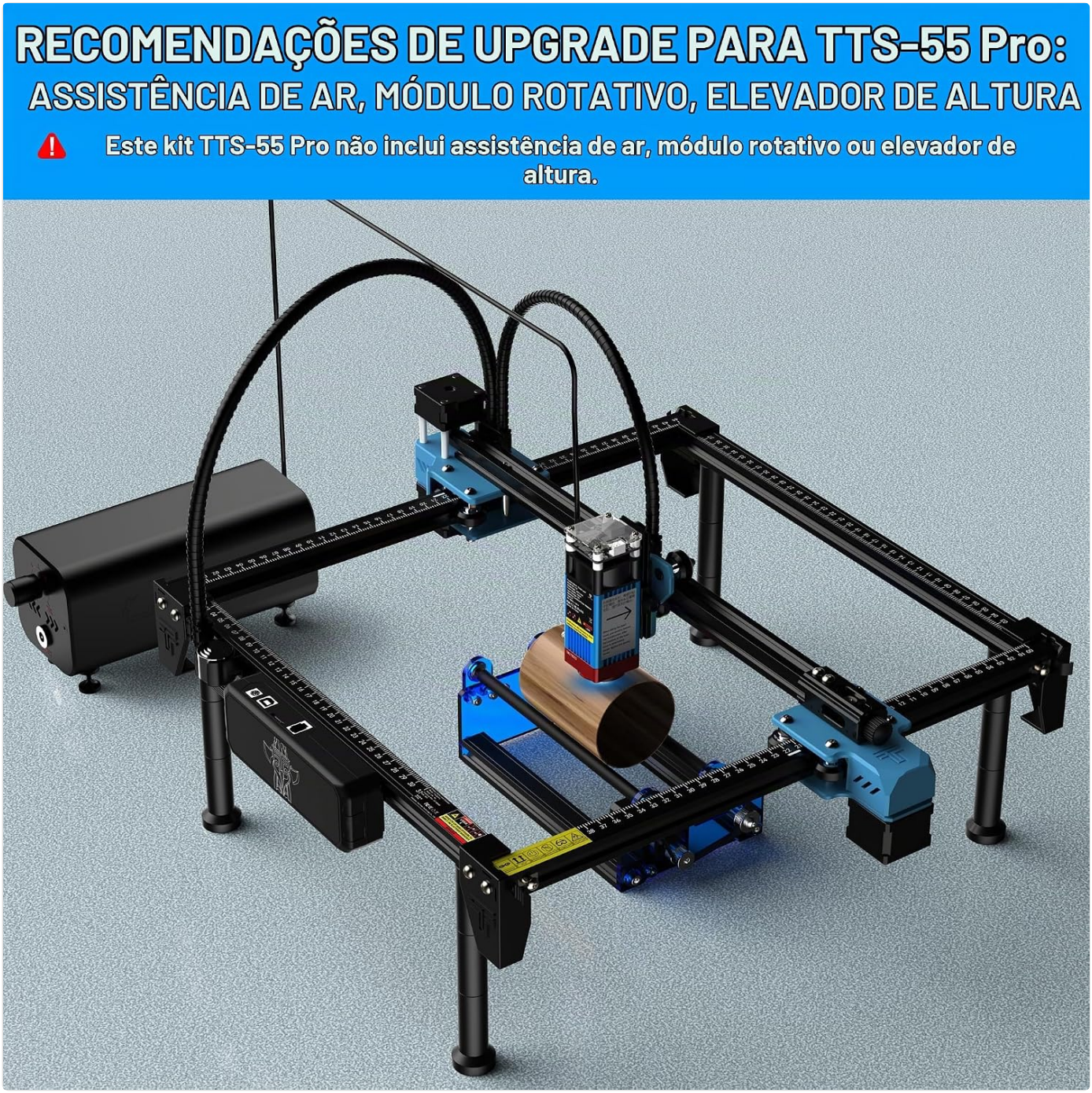


Figure 2.2: The TTS-55 Pro demonstrating potential upgrades such as air assist, a rotary module for cylindrical objects, and a height elevator. Note: These accessories are sold separately.

3. Package Contents

Upon unpacking, please verify that all the following components are present:

- Twotrees TTS-55 Pro Laser Engraving Machine (pre-assembled frame and laser module)
- Power Adapter and Cable
- USB Cable
- Safety Goggles (recommended for additional protection)
- Sample Materials (e.g., small wood piece)
- User Manual (this document)
- Tools for assembly/maintenance (e.g., Allen wrenches)

4. Setup Guide

4.1 Assembly

The TTS-55 Pro comes largely pre-assembled. Follow these general steps:

1. Place the machine on a stable, level surface in a well-ventilated area.
2. Ensure all frame components are securely fastened. Tighten any loose screws if necessary.
3. Connect the laser module cable to the control board.
4. Connect the limit switch cables to their respective ports on the control board.

4.2 Software Installation

The TTS-55 Pro is compatible with several engraving software packages. We recommend LaserGRBL (for Windows) or LightBurn (cross-platform, paid software with a trial).

1. Download the latest version of your preferred software from its official website.
2. Install the software by following the on-screen instructions.
3. Install any necessary USB drivers if prompted by the software or your operating system.

4.3 Connecting the Machine

You can connect your TTS-55 Pro via USB, WiFi, or Bluetooth.

- **USB Connection:** Connect the provided USB cable from the machine to your computer. Open your engraving software and select the correct COM port.
- **WiFi/Bluetooth Connection:** Refer to your software's documentation or the Twotrees official website for detailed instructions on setting up wireless connectivity via the integrated ESP32 module and companion APP.

5. Operating Instructions

5.1 Powering On and Material Placement

1. Place your material (e.g., wood, acrylic) flat on the engraving bed. Ensure it is stable and does not move.
2. Connect the power adapter to the machine and plug it into a power outlet.
3. Flip the main power switch to the 'ON' position.

5.2 Focus Adjustment

Accurate focus is crucial for optimal engraving and cutting results.



Figure 5.1: The laser module showing the thumb screw for focus adjustment. Loosen the screw, adjust the laser head height until the focal point is determined, then tighten the screw. The image also highlights the fine 0.08mm laser spot of the TTS-55 Pro compared to others, and the integrated eye protection.

1. Loosen the thumb screw on the side of the laser module.
2. Carefully move the laser module up or down until the laser dot on your material is at its smallest and sharpest point. This is your focal point.
3. Tighten the thumb screw to secure the laser module in place.

5.3 Preparing and Starting an Engraving/Cutting Job

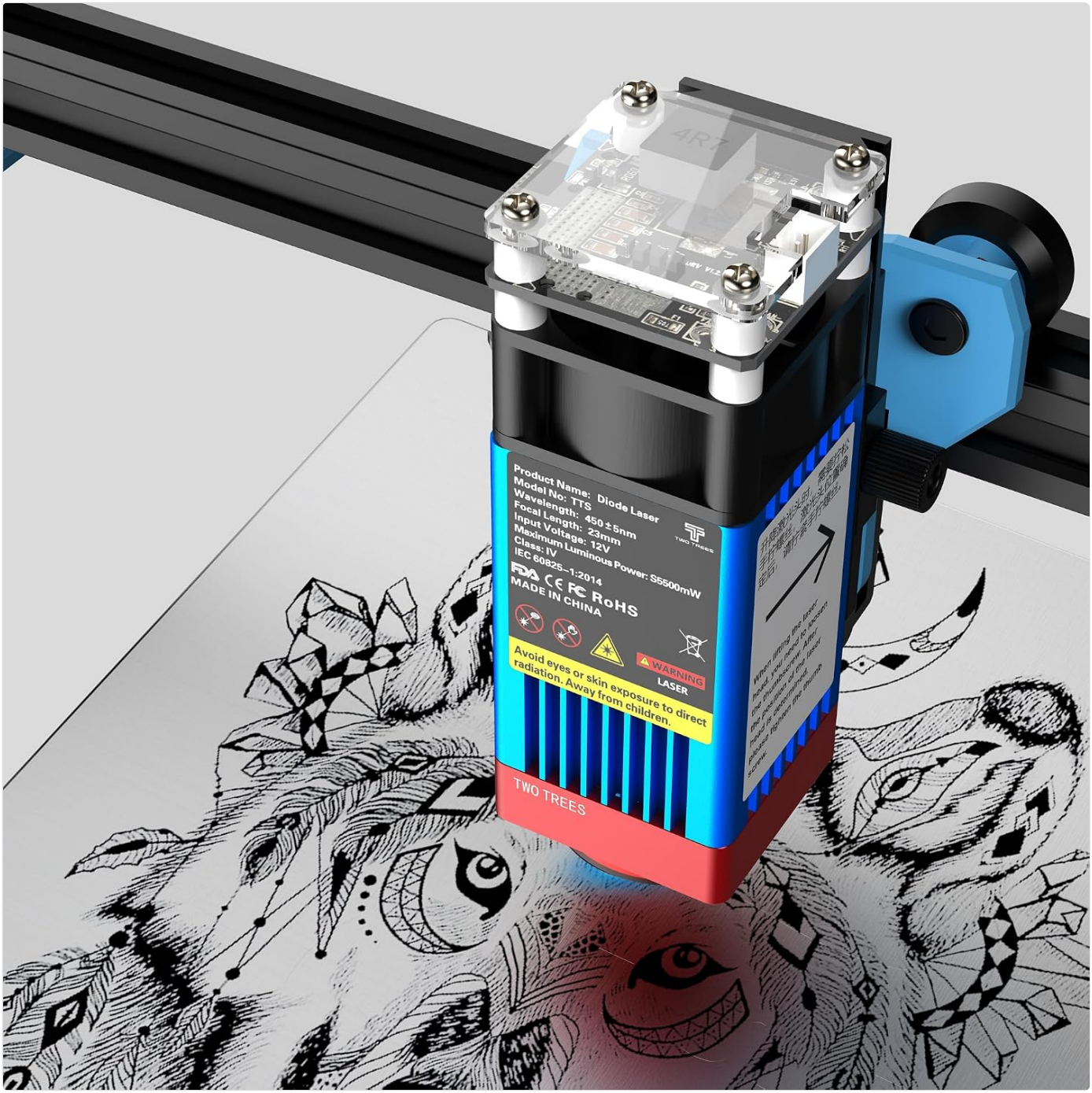


Figure 5.2: The TTS-55 Pro laser module actively engraving a detailed design onto a material surface, showcasing its precision.

1. Open your engraving software (e.g., LightBurn, LaserGRBL).
2. Import or create your design. The machine supports NC, BMP, JPG, PNG, DXF, GCODE formats.
3. Set the appropriate laser power, speed, and passes for your material. (Refer to online resources or test cuts for optimal settings).
4. Position your design within the software to match the material placement on the machine. Use the 'Frame' function in your software to preview the engraving area with the laser (at low power).
5. Ensure all safety precautions are in place (ventilation, supervision).
6. Click 'Start' or 'Run' in your software to begin the engraving/cutting process.

5.4 Engraving Quality and Applications

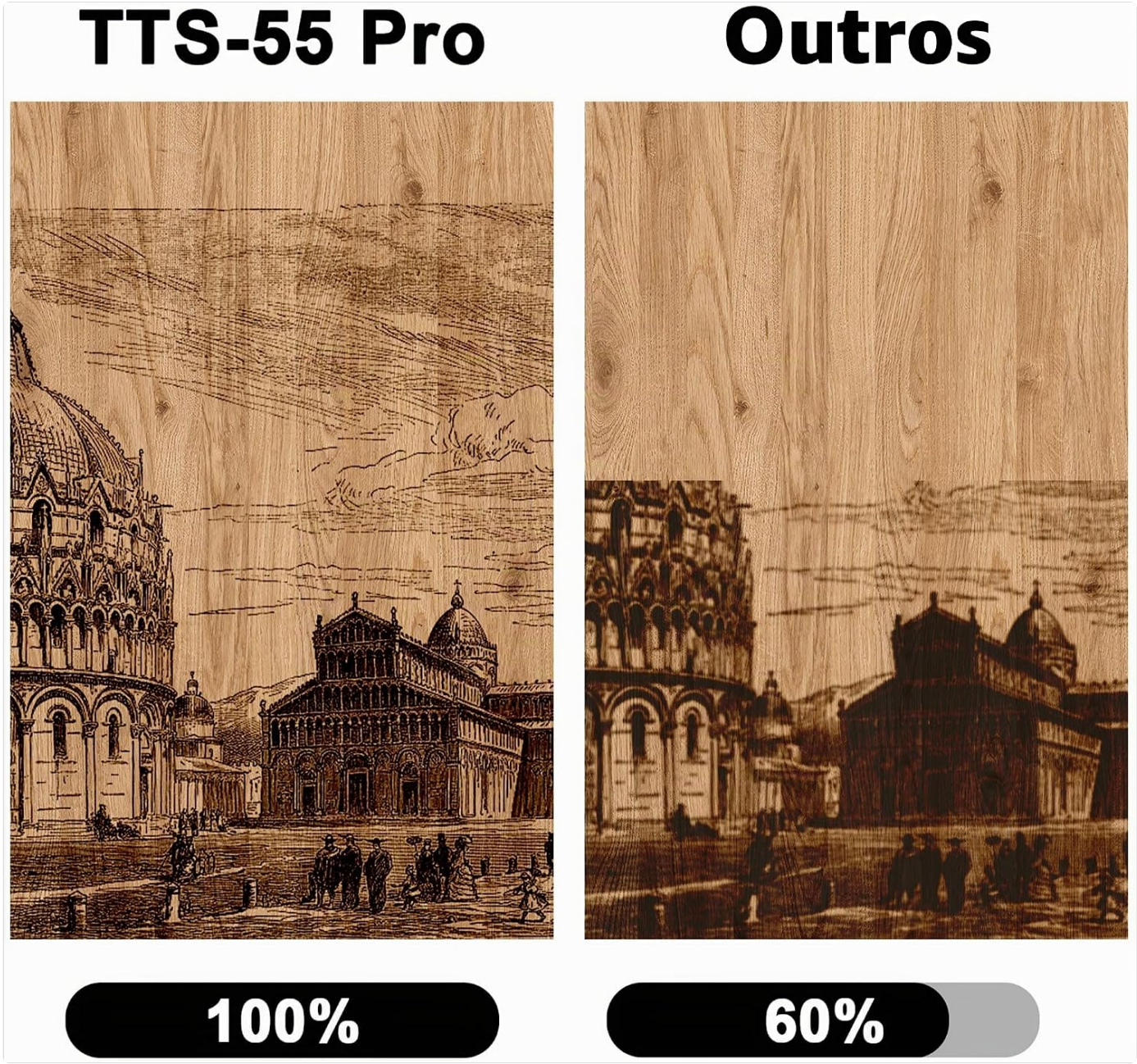


Figure 5.3: A visual comparison demonstrating the superior engraving quality and detail achieved by the TTS-55 Pro (100%) versus other laser engravers (60%).



Figure 5.4: An example of a detailed photograph successfully engraved onto a material using the Twotrees TTS-55 Pro, highlighting its capability for intricate designs.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your TTS-55 Pro.

- **Laser Lens Cleaning:** Periodically clean the laser lens with a soft, lint-free cloth and isopropyl alcohol. Ensure the machine is powered off before cleaning.
- **Machine Cleaning:** Keep the engraving bed and frame free of dust, debris, and material residue. Use a brush or vacuum cleaner.
- **Belt Tension:** Check the tension of the X and Y axis belts. They should be taut but not overly tight. Adjust if necessary.
- **Lubrication:** Occasionally apply a small amount of light machine oil to the guide rails to ensure smooth movement of the laser module.

7. Troubleshooting

Here are some common issues and their potential solutions:

Problem	Possible Cause	Solution
Machine does not power on	Power cable loose; power outlet issue; machine fault	Check power connections; try a different outlet; contact support
Laser not firing	Laser cable loose; laser module fault; software settings	Check laser cable connection; verify laser power in software; contact support
Poor engraving/cutting quality	Incorrect focus; wrong power/speed settings; dirty lens; material issue	Adjust focus; optimize power/speed; clean laser lens; test on different material
Machine not connecting to PC	USB cable issue; driver not installed; incorrect COM port selected	Try different USB port/cable; install drivers; select correct COM port in software
Machine moves erratically	Loose belts; debris on rails; motor issue	Check and tighten belts; clean rails; contact support

8. Specifications

Feature	Detail
Brand	Twotrees
Model Number	TTS-55 Pro
Laser Power (Optical)	5.5W
Electrical Power	20W
Engraving Precision	0.01 mm
Laser Spot Size	0.08 * 0.08 mm
Engraving Area	300x300mm (Expandable to 430x400mm)
Connectivity	USB, WiFi, Bluetooth
Supported OS	Windows XP/7/8/10, MAC
Supported File Formats	NC, BMP, JPG, PNG, DXF, GCODE
Power Supply	AC/DC
Color	Black
Item Dimensions (L x W x H)	18.5 x 53 x 21.5 cm
Manufacturer	Twotrees
UPC	717024308288
ASIN	B0CFY56TV3

9. Warranty Information

The Twotrees TTS-55 Pro comes with a **1-year warranty** from the date of purchase. This warranty covers manufacturing defects and malfunctions under normal use. It does not cover damage caused by misuse, accidents, unauthorized modifications, or improper maintenance. Please retain your proof of purchase for warranty claims.

10. Customer Support

If you encounter any issues not covered in this manual or require further assistance, please contact Twotrees customer support through their official website or the retailer where you purchased the product. Provide your model number (TTS-55 Pro) and a detailed description of the issue for faster service.

Note: No official product videos were found in the provided data to embed.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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