ACMER P2-10W

ACMER P2-10W Laser Engraver User Manual

Model: P2-10W | Brand: ACMER

1. Introduction

The ACMER P2-10W Laser Engraver is a high-precision, high-speed laser cutting and engraving machine designed for a wide range of materials. Equipped with advanced laser coupling technology, it offers powerful 10W output for efficient processing. This manual provides essential information for safe and effective operation, setup, maintenance, and troubleshooting.

2. Safety Information

Operating a laser engraver requires strict adherence to safety protocols to prevent injury and damage. Always read and understand all safety warnings before use.

- **Eye Protection:** Always wear the provided laser safety goggles during operation to protect your eyes from laser radiation.
- **Emergency Stop:** Familiarize yourself with the emergency stop button for immediate shutdown in case of an accident.
- **Safety Lock:** Ensure the safety lock is engaged before initiating any operation.
- **Movement/Tilt Sensor:** The machine is equipped with sensors that automatically stop operation if moved or tilted at a 15° angle, enhancing safety.
- **Flame Detection:** A built-in flame sensor detects flames and triggers an alarm, providing peace of mind during cutting.
- **Ventilation:** Operate the machine in a well-ventilated area to dissipate fumes and smoke generated during engraving and cutting.
- **Material Safety:** Only engrave or cut materials specified as safe for laser processing. Avoid highly flammable or toxic materials.

Figure 2.1: All-around safety protection features of the ACMER P2 Laser Engraver.

3. Product Overview and Components

The ACMER P2-10W comes 95% pre-assembled for quick setup. Below are the main components included in the package:

- ACMER-P2 Laser Engraver & Laser Module
- Material pack & Adapter & Roller Adapter Wire
- Tool Kits & Air Assist & Laser Goggle
- Instruction manuals & Machine Key
- Card Reader & TF Card & Laser Lens & USB Cable

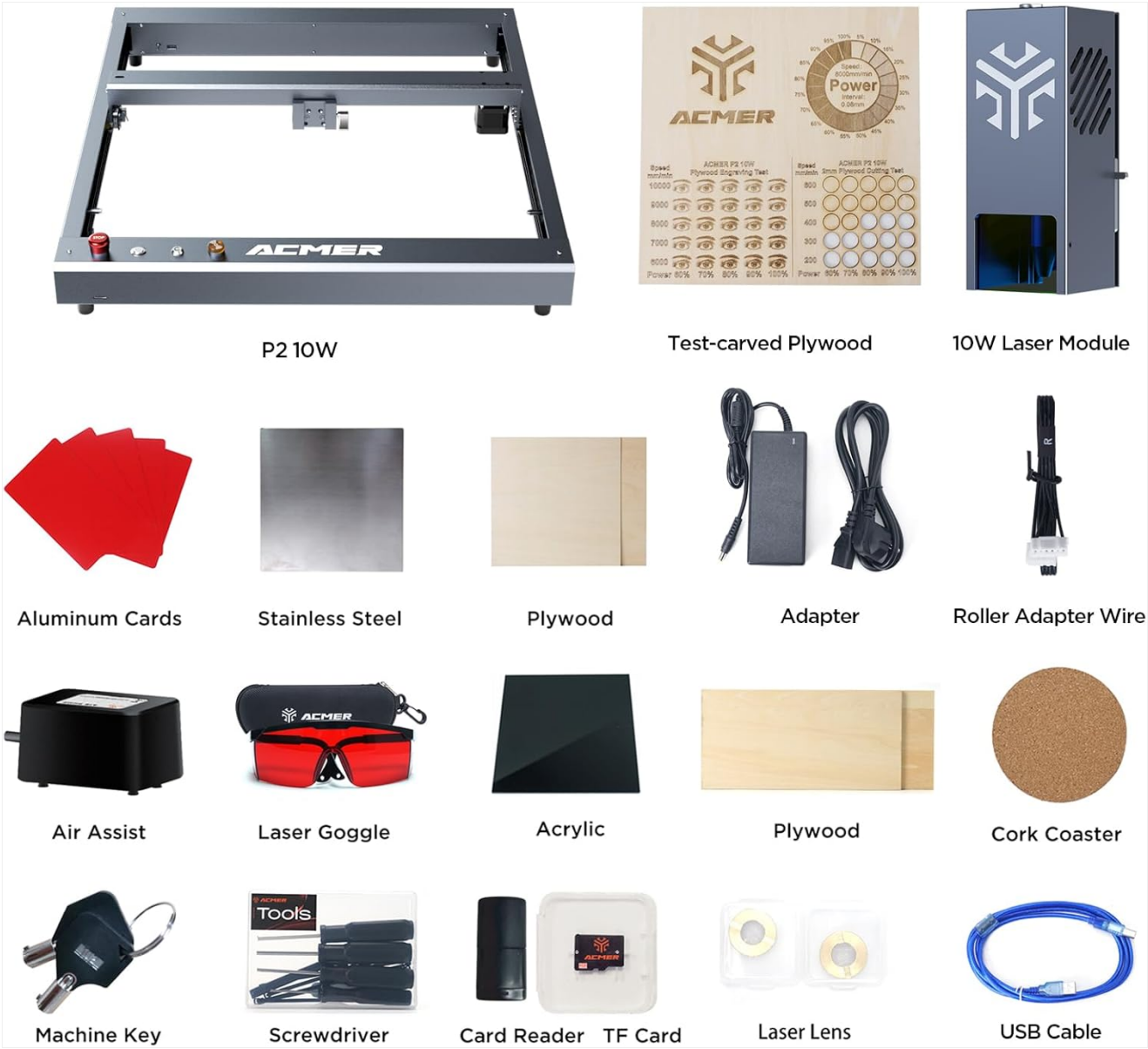

Figure 3.1: Components included with the ACMER P2 Laser Engraver.

4. Setup Instructions

The ACMER P2-10W is designed for super easy installation, with 95% of the machine pre-assembled. Follow these steps for initial setup:

1. **Unpacking:** Carefully remove all components from the packaging. The main frame is largely assembled.
2. **Laser Module Installation:** Attach the laser module to the gantry. Ensure it is securely fastened.
3. **Connect Cables:** Connect the necessary power and data cables to the laser engraver and the laser module.
4. **Air Assist Connection:** If using the air assist, connect it to the designated port on the laser module.
5. **Power On:** Insert the machine key into the safety lock and turn it to the ON position. Press the power button to turn on the engraver.

Figure 4.1: Fully assembled ACMER P2 Laser Engraver.

5. Operating Instructions

The ACMER P2-10W offers versatile operating modes and broad material compatibility.

5.1 Software Compatibility

The engraver is compatible with professional engraving software:

- **LaserGRBL:** Free software, compatible with Windows.
- **LightBurn:** Paid software, compatible with Windows and MacOS.
- **ACMER APP:** Mobile application for convenient control.

Data transfer can be done via Wi-Fi, USB cable, or TF card, enabling offline use.

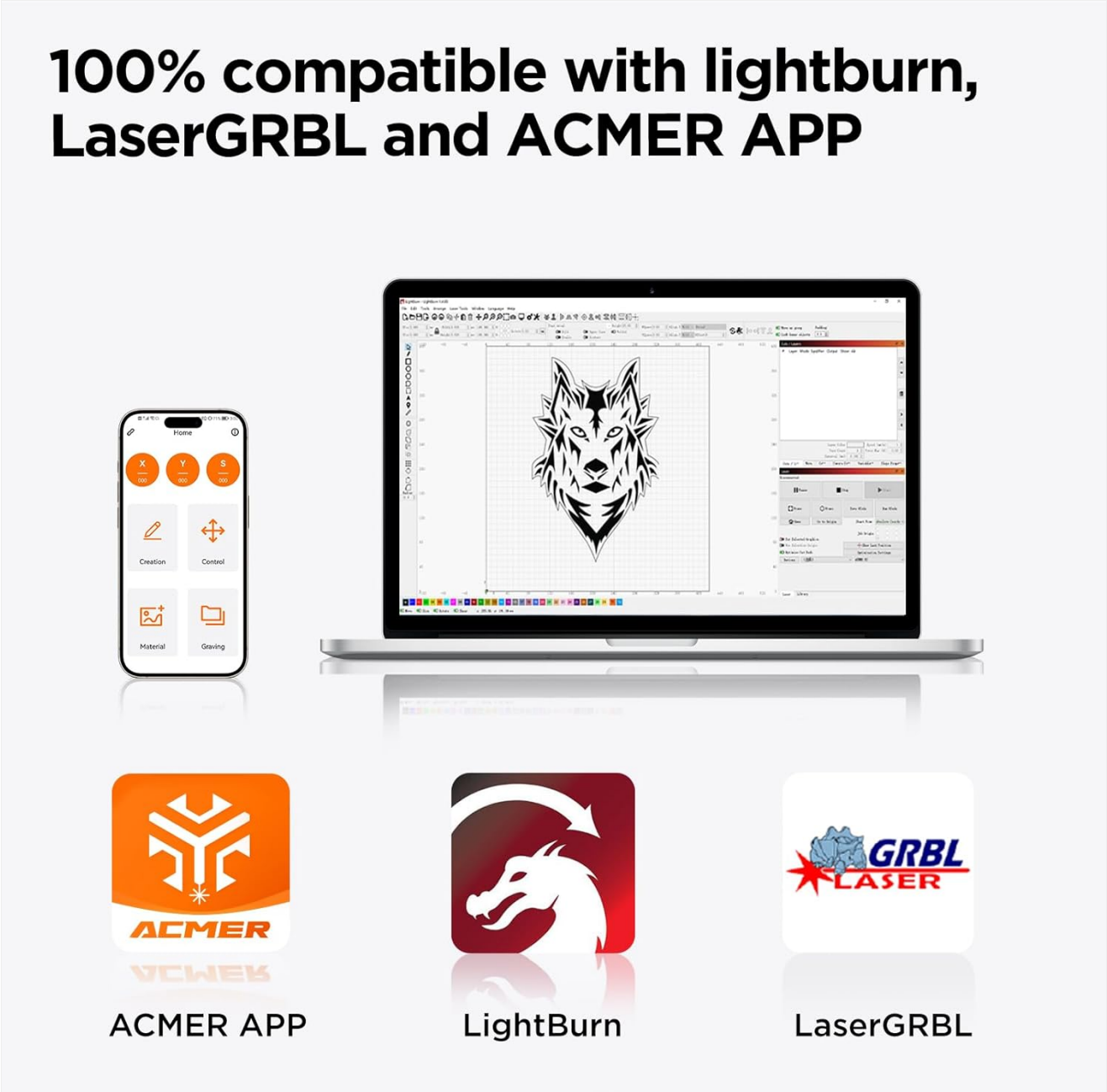

Figure 5.1: Software compatibility for the ACMER P2 Laser Engraver.

5.2 Material Compatibility and Capabilities

The P2-10W can engrave or cut a variety of materials:

- **Engraving:** Wood, bamboo, paper, acrylic, leather, PCB board, anodized aluminum, metal, cork, rock, glass.
- **Cutting:** Effortlessly cuts through 8mm wood and 5mm acrylic board in a single pass. Max cutting capabilities include Plywood 15mm, Acrylic 12mm, MDF 8mm.

Figure 5.2: 10W fine engraving and cutting capabilities.

5.3 Precision and Speed

Utilizing industrial guide rails, the engraver ensures stability and motion precision with an accuracy of 0.01mm and repeatable positioning accuracy of 0.001mm. The 10W laser head provides an ultra-fine compressed spot of 0.08mm x 0.06mm. Maximum engraving speed is up to 30000mm/min.

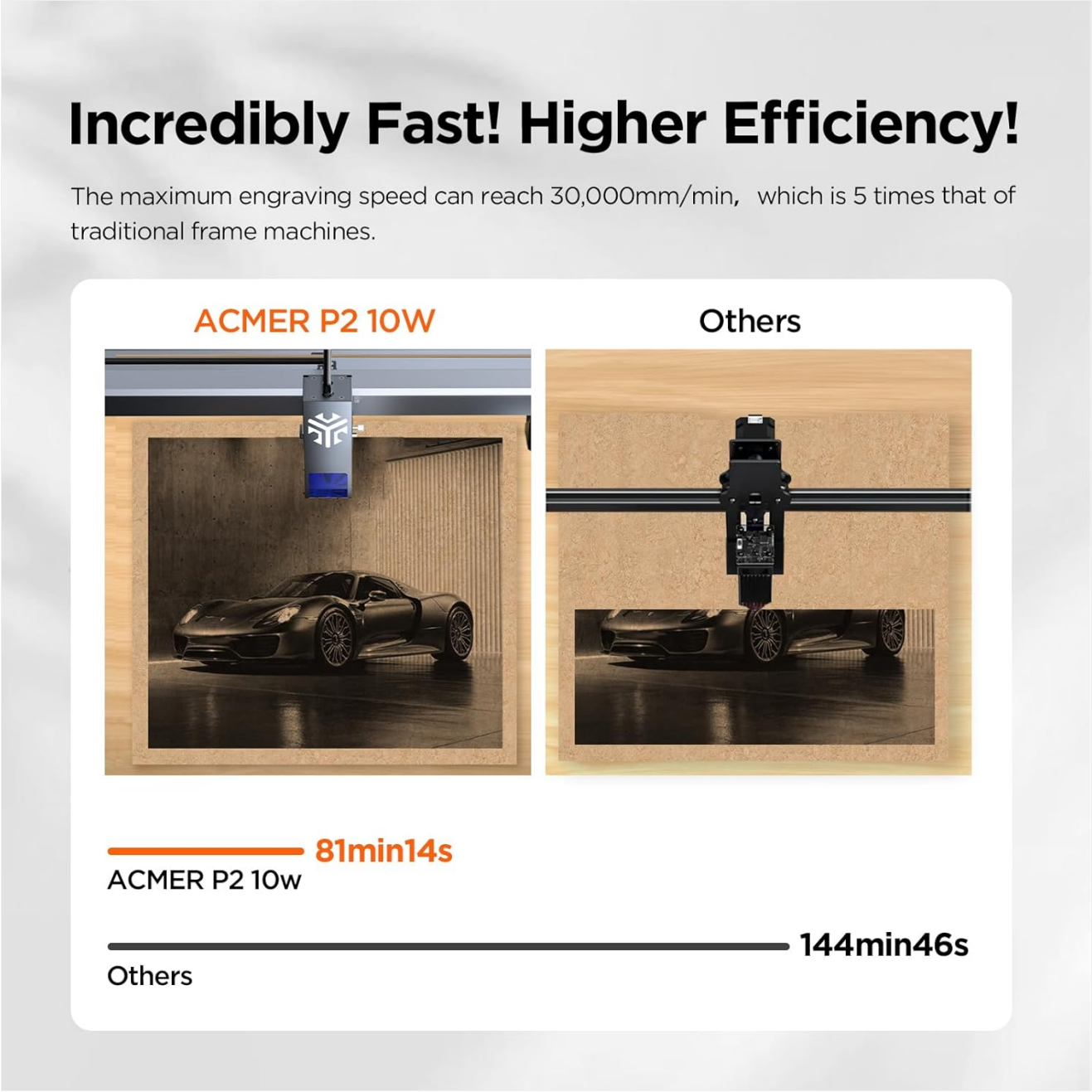

Figure 5.3: Speed comparison of ACMER P2 10W.

5.4 Rotary Engraving

The ACMER P2 Laser Engraver supports rotary engraving for cylindrical objects. This feature expands capabilities for curved surface engraving.

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Video 5.1: Demonstration of rotary engraving on the ACMER P2 Laser Engraver. This video shows the process of engraving a tiger image onto a cylindrical wooden object using the rotary attachment.

5.5 Cutting Demonstration

The machine's cutting ability allows for intricate designs and precise cuts on various materials.

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Video 5.2: Demonstration of cutting operations with the ACMER P2 Laser Engraver. This video illustrates the machine cutting intricate patterns from wood, showcasing its precision and efficiency.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your ACMER P2-10W Laser Engraver.

- **Cleaning the Laser Lens:** Periodically clean the laser lens with a soft, lint-free cloth and a suitable lens cleaning solution to maintain engraving quality.
- **Rail Lubrication:** Apply a small amount of lubricant to the industrial guide rails to ensure smooth movement of the laser head.
- **Work Area Cleanliness:** Keep the honeycomb work area clean from debris and residue to prevent fire hazards and ensure proper material support.
- **Air Assist Nozzle:** Check and clean the air assist nozzle regularly to ensure unobstructed airflow during cutting.

7. Troubleshooting

This section addresses common issues you might encounter during operation.

Problem	Possible Cause	Solution
Laser not firing	Safety lock not engaged, power off, software issue.	Ensure key is turned and power button is on. Check software connection and laser settings.
Poor engraving quality	Incorrect focus, dirty lens, wrong power/speed settings.	Adjust laser focus. Clean the laser lens. Optimize power and speed settings for the material.
Machine stops unexpectedly	Tilt sensor activated, emergency stop pressed, power interruption.	Ensure machine is on a stable, level surface. Check power connection. Reset emergency stop if pressed.
Software connection issues	Incorrect port selection, driver issues, Wi-Fi interference.	Verify correct COM port. Reinstall drivers. Check Wi-Fi signal or use USB/TF card.

8. Specifications

Detailed technical specifications for the ACMER P2-10W Laser Engraver.

Feature	Specification
Brand	ACMER
Model	P2-10W
Laser Output Power	10W
Machine Power	120W
Engraving Area	420*400mm
Engraving Accuracy	0.01mm
Repeatable Positioning Accuracy	0.001mm
Ultra-fine Compressed Spot	0.08mm x 0.06mm
Max Engraving Speed	30000mm/min
Structure Material	All-metal structural frame (Aluminum)
Connectivity	Wi-Fi, USB cable, TF card
Item Weight	24.3 pounds

Feature	Specification
Package Dimensions	28.19 x 26.54 x 7.48 inches

9. Warranty and Support

ACMER offers a 12-month warranty for the P2-10W Laser Engraver, providing assurance and support. For any inquiries or technical assistance, please refer to the official ACMER support channels or visit their brand store on Amazon.
Online Support: Visit the ACMER Store