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ATEZR ATEZR P5 laser engraving machine

ATEZR P5 Laser Engraving Machine User Manual

Model: ATEZR P5

1. Important Safety Information

Please read all safety instructions carefully before operating the ATEZR P5 Laser Engraving Machine. Failure to follow these instructions may result in injury, damage to the machine, or property damage.

- **Eye Protection:** Always wear the provided safety goggles or equivalent laser protective eyewear when the machine is in operation. The laser beam can cause severe eye damage.
- **Ventilation:** Operate the machine in a well-ventilated area. Laser engraving and cutting can produce smoke, fumes, and odors that may be harmful if inhaled. Consider using an exhaust fan or air purifier.
- **Fire Hazard:** The laser can ignite flammable materials. Never leave the machine unattended during operation. Keep a fire extinguisher nearby. Ensure the work area is clear of combustible materials.
- **Material Compatibility:** Only engrave or cut materials specified as safe for laser processing. Avoid materials that produce toxic fumes (e.g., PVC) or are highly reflective.
- **Emergency Stop:** Familiarize yourself with the location and function of the emergency stop button. Press it immediately in case of any malfunction or emergency.
- **Children and Pets:** Keep children and pets away from the machine during operation.
- **Power Supply:** Use only the power adapter supplied with the machine. Ensure the power outlet meets the required specifications.

2. Product Overview

The ATEZR P5 is a high-performance laser engraving and cutting machine designed for precision work on various materials such as wood, metal, and leather. It features advanced laser technology and a robust aluminum alloy structure for stability and accuracy.



Figure 2.1: Overview of the ATEZR P5 Laser Engraving Machine.

Key Features:

- **Powerful Laser Technology:** Equipped with a 5-7W laser module utilizing ultra-fine compression technology, reducing the laser spot to 0.06mm*0.06mm for highly detailed and clear engravings.
- **Efficient Cutting Capability:** Capable of cutting 1/4 inch (6mm) wood board and 1/2 inch (4mm) black acrylic in a single pass.
- **Large Engraving Area:** Offers a generous working space of 430mm x 430mm (approximately 17" x 17").
- **High Speed and Accuracy:** Achieves engraving speeds up to 24,800mm/min with a movement accuracy of 0.01mm, significantly reducing working time.
- **Durable Laser Module:** Features a cooling fan and heat sink, extending the laser module's lifespan to over 30,000 hours. Includes a built-in air duct for compatibility with air-assist systems.

- **Robust Construction:** Built with an all-aluminum alloy industrial-grade structure for enhanced stability and durability.
- **Multiple Connection Options:** Supports PC, mobile phone/tablet connections via USB, WiFi, and offline work. Compatible with LaserGRBL (Windows), LightBurn (Windows, Mac OS, Linux), and the ATEZR App.
- **Enhanced Safety:** Includes smart limit switches and an easily accessible emergency stop button for user safety.



Figure 2.2: Illustration of the ATEZR P5's cutting capabilities for wood and acrylic.

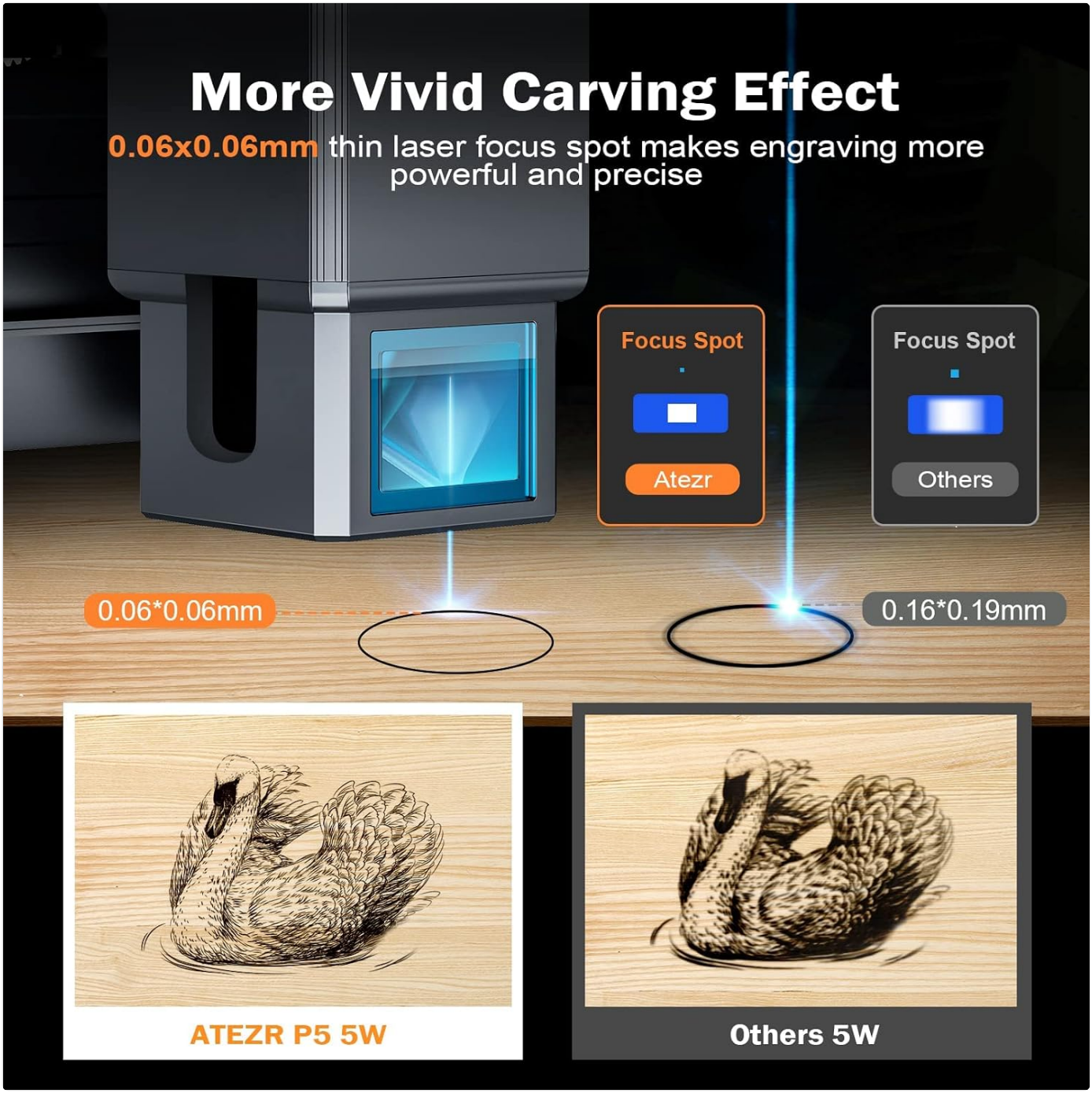


Figure 2.3: Comparison of laser spot size and engraving detail.

3. Setup and Assembly

This section guides you through the unboxing, assembly, and initial setup of your ATEZR P5 Laser Engraving Machine.

3.1 Unboxing and Component Check

Carefully unpack all components from the box and verify that all parts are present according to the packing list. Refer to the diagram below for a visual representation of the included parts.

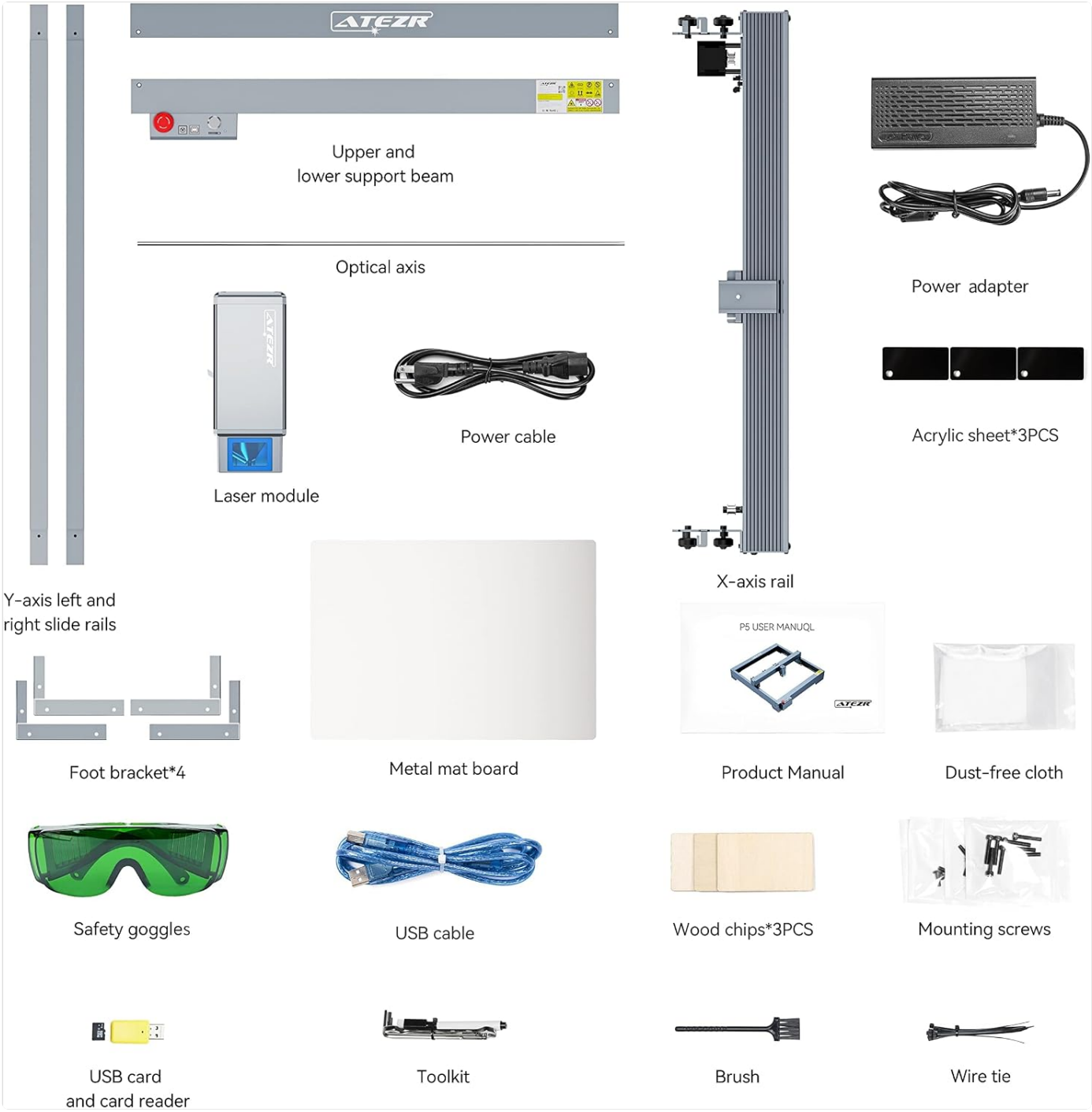


Figure 3.1: Included Components of the ATEZR P5.

3.2 Assembly Instructions

Follow these steps to assemble your ATEZR P5 machine. It is recommended to perform assembly on a flat, stable surface.

1. **Assemble the Frame:** Connect the Y-axis left and right slide rails to the upper and lower support beams using the provided mounting screws. Ensure all connections are secure.
2. **Install Foot Brackets:** Attach the four foot brackets to the base of the assembled frame.
3. **Mount the X-axis Rail:** Secure the X-axis rail to the main frame structure.
4. **Install Laser Module:** Carefully slide the laser module onto the X-axis rail. Ensure it moves smoothly along the rail.
5. **Connect Cables:** Connect the power cable and USB cable to the appropriate ports on the machine and the laser module.
6. **Place Metal Mat Board:** Position the metal mat board within the engraving area.



Figure 3.2: Structural details and assembly points.

3.3 Software Installation and Connectivity

The ATEZR P5 is compatible with various software for design and control.

- **Software Options:** The machine supports LaserGRBL (free, Windows compatible) and LightBurn (paid, compatible with Windows, Mac OS, and Linux). An official ATEZR App is also available for mobile devices (Apple App Store/Google Play Store).
- **Installation:** Download and install your preferred software from the official websites or app stores. Follow the software-specific installation guides.
- **Connection:**
  - **USB Connection:** Connect the machine to your computer using the provided USB cable.
  - **WiFi Connection:** Follow the instructions in the ATEZR App to connect your machine to your local WiFi network for wireless control.
  - **Offline Work:** The machine supports offline display (though it does not come with a built-in screen), allowing for operations without a constant computer connection once a project is loaded.



Figure 3.3: Compatible systems and connection methods.

4. Operating Instructions

This section provides a general guide on how to operate your ATEZR P5 for engraving and cutting tasks.

4.1 Preparing Your Material

- **Placement:** Place the material to be engraved or cut flat on the metal mat board within the working area. Ensure it is stable and does not move during operation.
- **Securing:** For lighter materials, use clamps or tape to secure them to prevent shifting.
- **Cleanliness:** Ensure the material surface is clean and free of dust or debris.

4.2 Focusing the Laser

Accurate focusing is crucial for optimal engraving and cutting results. Refer to your software's specific instructions for

focusing procedures. Generally, this involves adjusting the laser module's height until the laser spot is at its smallest and most intense point on the material surface.

4.3 Software Usage and Project Setup

- **Import Design:** Open your chosen software (LaserGRBL, LightBurn, or ATEZR App) and import your design (image, vector graphic, text).
- **Adjust Parameters:** Set the appropriate laser power, speed, and number of passes based on the material type and desired effect. Consult material settings guides provided by the software or ATEZR.
- **Preview and Position:** Use the software's preview function to ensure the design is correctly positioned on your material. You may use the laser's low-power framing function to outline the engraving area before starting.

4.4 Starting and Monitoring Operation

- **Start:** Once all settings are confirmed and safety precautions are in place, initiate the engraving/cutting process from the software.
- **Monitor:** Always supervise the machine during operation. Watch for any signs of fire, excessive smoke, or unusual sounds. Be ready to press the emergency stop button if necessary.
- **Completion:** The machine will stop automatically upon completion of the task. Wait for any smoke to clear before removing the engraved or cut material.

5. Maintenance

Regular maintenance ensures the longevity and optimal performance of your ATEZR P5 Laser Engraving Machine.

5.1 Cleaning the Laser Lens

The laser lens can accumulate dust and debris, affecting laser performance. Clean it regularly using a lint-free cloth and lens cleaning solution (specifically designed for optical lenses). Do not use abrasive materials.

5.2 General Machine Cleaning

- **Dust Removal:** Use a soft brush or compressed air to remove dust and debris from the machine's rails, motors, and other components.
- **Wipe Surfaces:** Wipe down the machine's exterior surfaces with a damp cloth. Avoid using harsh chemicals.
- **Work Area:** Keep your work area clean to prevent debris from entering the machine.

5.3 Cooling System Maintenance

The ATEZR P5 features a cooling fan and heat sink to maintain optimal laser module temperature. Ensure the cooling vents are not obstructed to allow for proper airflow.

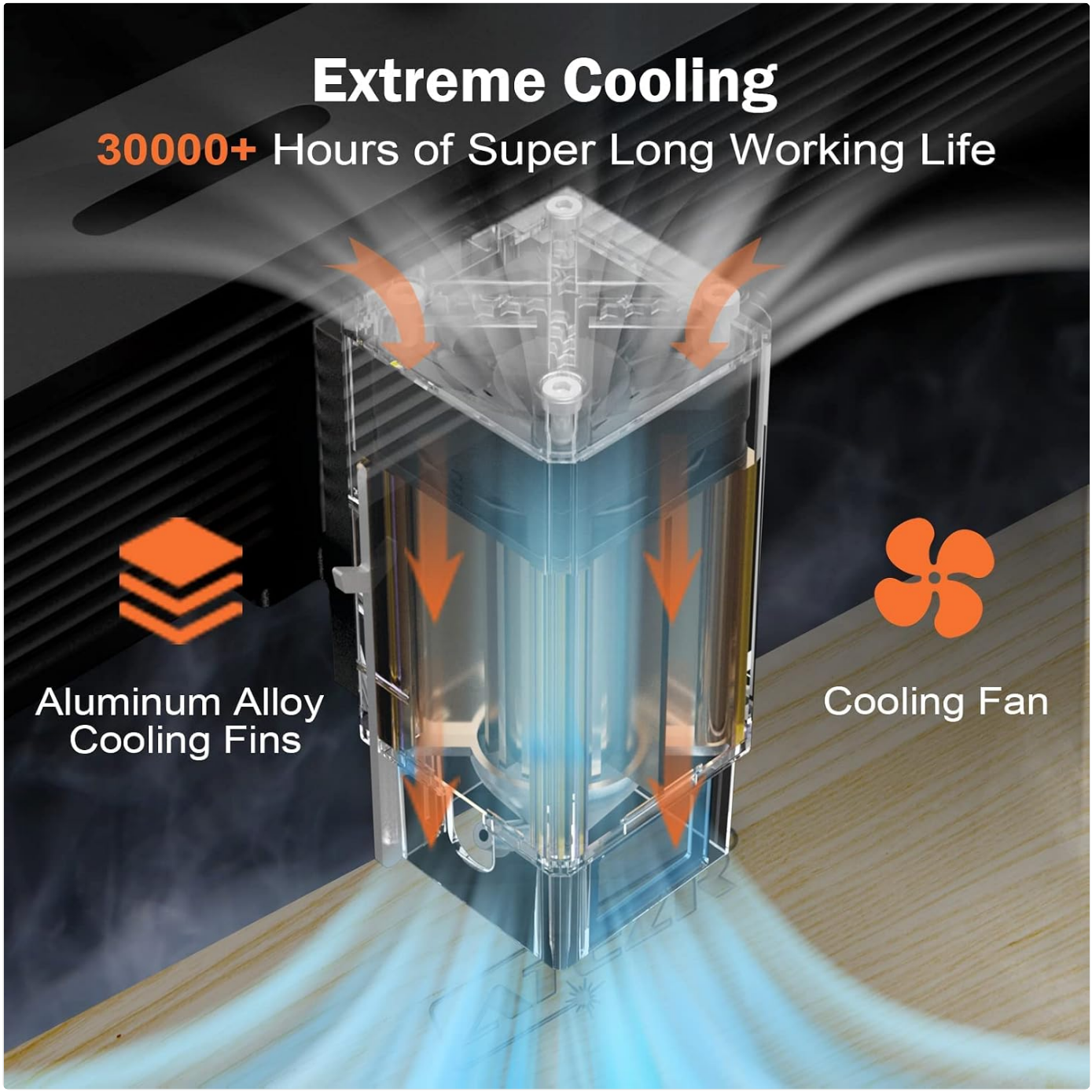


Figure 5.1: Laser module cooling system.



Figure 5.2: Laser module with built-in air duct and UV filters.

6. Troubleshooting

This section addresses common issues you might encounter and provides potential solutions.

Problem	Possible Cause	Solution
Machine not powering on	Power cable loose; Power adapter faulty; Power outlet issue	Check power cable connections; Try a different power outlet; Contact support if adapter is suspected faulty.
Laser not firing or weak output	Laser lens dirty; Incorrect focus; Incorrect power settings in software; Laser module faulty	Clean the laser lens; Re-focus the laser; Adjust power settings in software; Contact support if module is suspected faulty.

Problem	Possible Cause	Solution
Engraving/Cutting quality is poor	Incorrect speed/power settings; Material not flat; Laser out of focus; Dirty lens	Adjust speed and power settings; Ensure material is flat and secured; Re-focus the laser; Clean the laser lens.
Machine not connecting to computer/app	USB cable faulty; Driver not installed; Software not recognizing device; WiFi connection issue	Try a different USB cable; Install necessary drivers; Restart software and machine; Check WiFi connection settings.
Machine making unusual noises	Loose components; Obstruction on rails; Motor issue	Check for loose screws; Clear any obstructions from rails; Contact support if motor issue is suspected.

If you encounter an issue not listed here or if the suggested solutions do not resolve the problem, please contact ATEZR customer support for further assistance.

7. Specifications

Detailed technical specifications for the ATEZR P5 Laser Engraving Machine.

Feature	Specification
Brand	ATEZR
Model Number	ATEZR P5 laser engraving machine
Laser Power	5-7W
Laser Spot Size	0.06mm x 0.06mm (Compressed Spot)
Engraving Area	430mm x 430mm (17" x 17")
Engraving Speed	Up to 24,800mm/min
Movement Accuracy	0.01mm
Laser Module Lifespan	Over 30,000 hours
Material	Aluminum Metal
Color	Gray
Product Dimensions	63.5 x 66.04 x 15.24 cm
Item Weight	9.44 Kilograms
Operation Mode	Automatic
Connectivity	USB, WiFi, Offline
Compatible Software	LaserGRBL, LightBurn, ATEZR App

8. Warranty and Support

For warranty information, technical support, or any inquiries regarding your ATEZR P5 Laser Engraving Machine, please

contact ATEZR customer service through their official website or the contact information provided with your purchase. Please have your model number and purchase details ready when contacting support.

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Details

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