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Irfora M1 Pro

Irfora M1 Pro Laser Engraver User Manual

Model: M1 Pro

Introduction Safety Instructions Package
Contents Setup Operation Maintenance Troubleshooting Specifications Warranty & Support

1. Introduction

Thank you for choosing the Irfora M1 Pro Laser Engraver. This portable desktop laser marking machine is designed for precise engraving on a wide range of materials, including metals and non-metals. Its infrared laser technology allows for strong control and adjustable power and speed settings to achieve ideal marking precision. The M1 Pro is suitable for both DIY creation and industrial production, offering a compact and lightweight design for easy portability.



Figure 1: Irfora M1 Pro Laser Engraver. This image shows the compact design of the main laser engraving unit.

2. Safety Instructions

WARNING: This device uses a laser. Improper use can cause serious injury, including eye damage and burns. Always follow these safety guidelines.

- **Eye Protection:** Always wear appropriate laser safety goggles when operating the machine. Never look directly into the laser beam or at its reflection.
- **Ventilation:** Operate the engraver in a well-ventilated area to avoid inhaling fumes produced during engraving, especially when working with plastics or leather.
- **Flammable Materials:** Do not engrave highly flammable materials. Keep a fire extinguisher nearby.
- **Supervision:** Never leave the machine unattended during operation.
- **Children and Pets:** Keep children and pets away from the operating area.
- **Power Off:** Disconnect power before performing any maintenance or when the machine is not in use.
- **Authorized Personnel:** Only trained individuals should operate or service this equipment.

3. Package Contents

Upon unpacking, please verify that all items listed below are present and in good condition.

- 1 x M1 Pro Laser Marking Machine Kit
- 1 x Rotary Attachment (if included in your specific package)
- 1 x Power Adapter (US Plug)
- 1 x USB Cable
- User Manual (this document)

4. Setup

4.1 Unpacking and Placement

Carefully remove all components from the packaging. Place the M1 Pro on a stable, level surface in a well-ventilated area, away from flammable materials.

4.2 Connecting Power and Data

1. Connect the power adapter to the machine's power input and then to a suitable power outlet.
2. Connect the USB cable from the machine to your computer.

4.3 Software Installation

The M1 Pro requires dedicated engraving software to operate. Please refer to the included software CD or download the latest version from the official Irfora website. The software supports Windows 7/8/10/11/XP.

4.4 Adjusting Engraving Height

The laser module's height needs to be adjusted based on the thickness of the material being engraved to ensure proper focus.



Figure 2: Height Adjustment. This image illustrates how to adjust the laser module's vertical position using the 'Up' and 'Down' buttons on the control panel.

Use the 'Up' and 'Down' buttons on the machine's control panel to raise or lower the laser module. Ensure the laser's focal point is correctly set on the material surface for optimal engraving results.

5. Operation

5.1 Basic Engraving Process

1. **Prepare Material:** Place the material to be engraved on the positioning plate.
2. **Design in Software:** Open the engraving software on your computer and import or create your design.
3. **Adjust Parameters:** Set engraving parameters such as power, speed, and resolution according to the material type. The infrared laser allows for strong control to achieve ideal marking precision.
4. **Positioning:** Use the dual red light positioning feature to accurately preview the engraving area on your material.
5. **Start Engraving:** Initiate the engraving process from the software. Monitor the process closely.

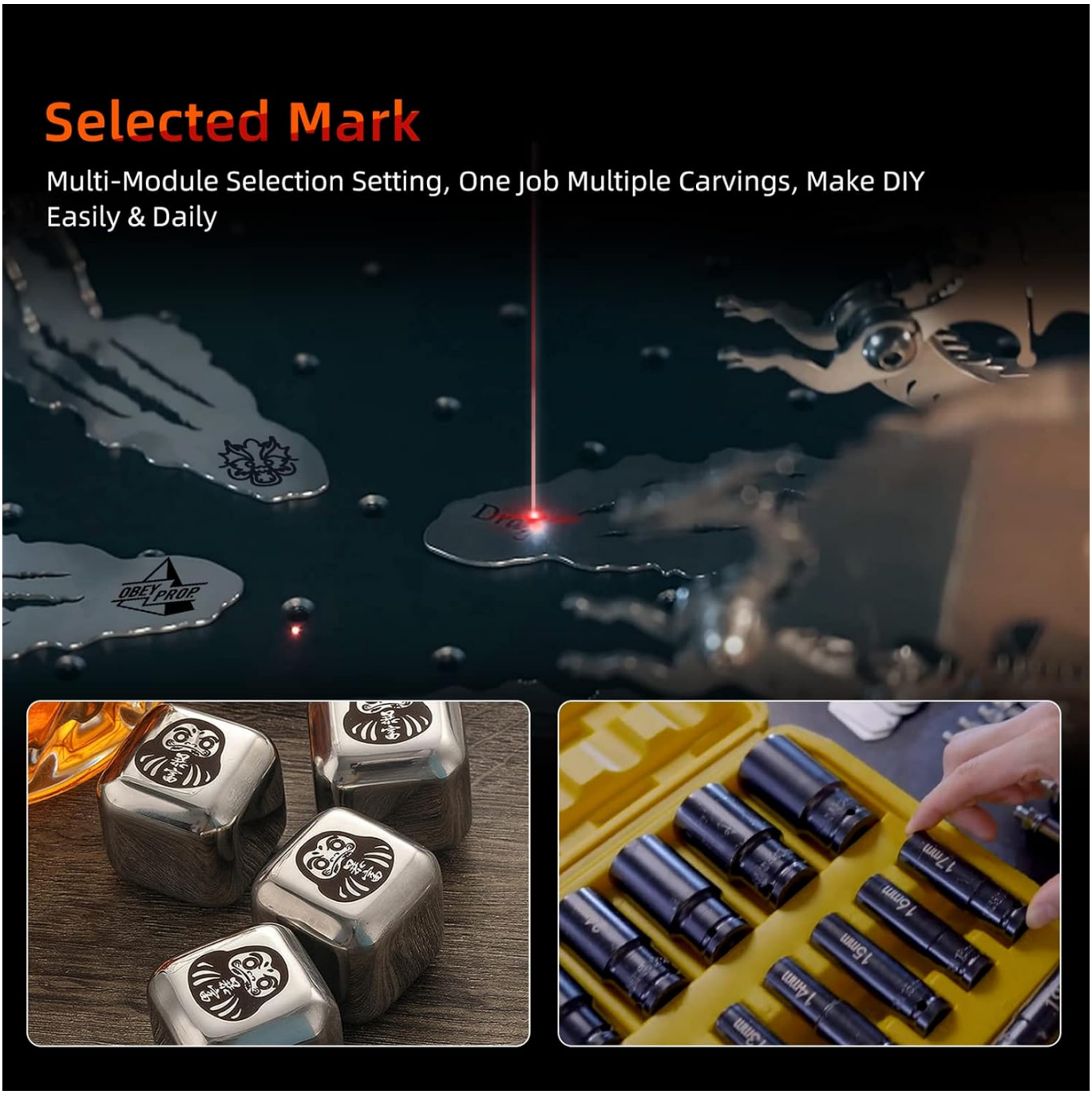


Figure 3: Batch Engraving. This image demonstrates the dual red light positioning for efficient batch engraving, allowing multiple items to be marked with a single parameter setup.

5.2 Supported Materials

The M1 Pro supports engraving on a wide variety of materials, including both metals and certain non-metals.

- **Metals:** Gold, Silver, Copper, Aluminum, Titanium, Stainless Steel, Galvanized Metal, Most Alloys.
- **Non-Metals:** Plastic, Iron (surface marking), Leather, PVC Pipe, Acrylic Plate.



Figure 4: Multiple Material Marking. This image displays various materials such as gold, silver, copper, aluminum, titanium, stainless steel, plastic, iron, leather, and other alloys that can be marked by the M1 Pro.

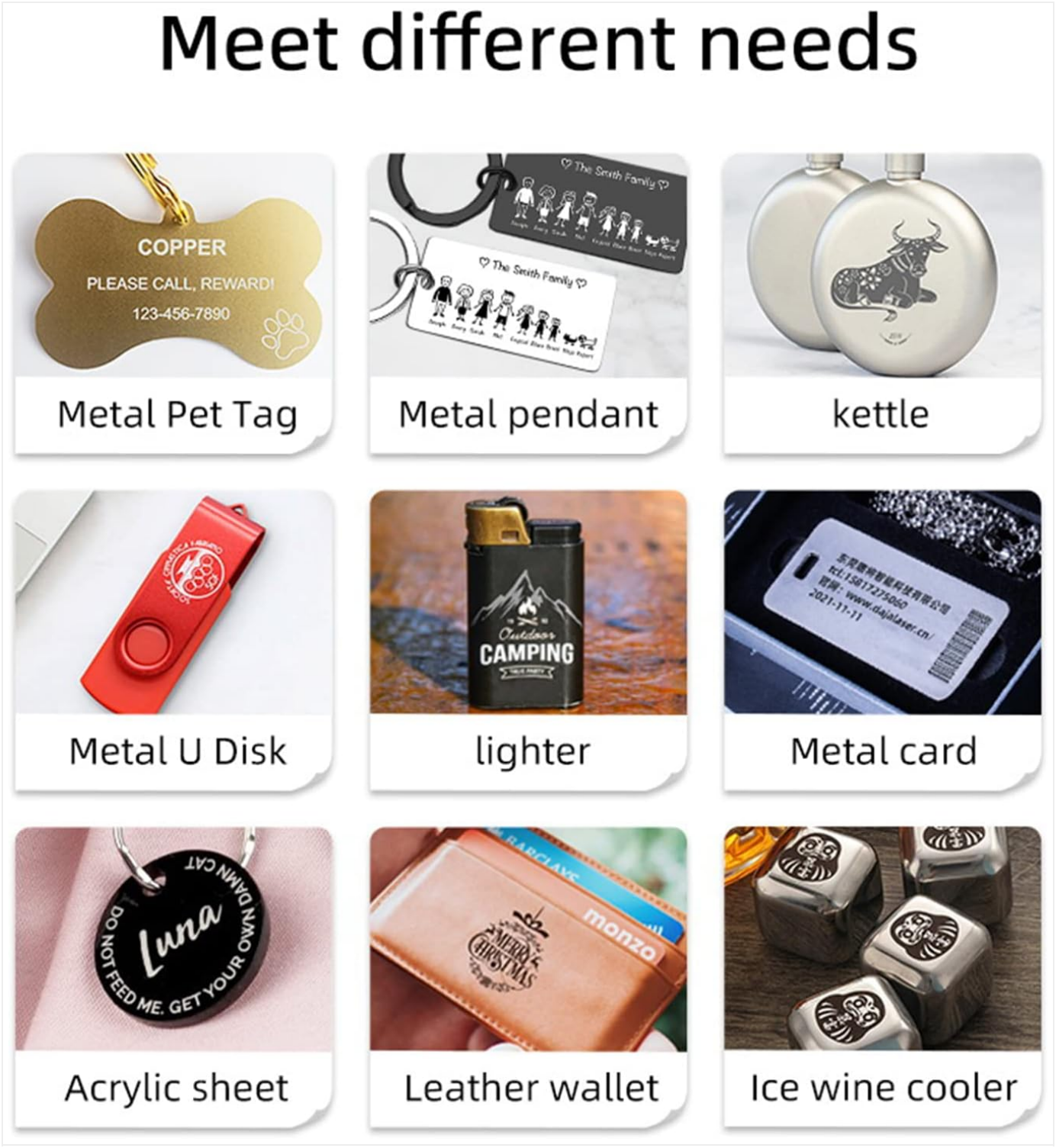


Figure 5: Engraving Examples. This image showcases various items engraved with the M1 Pro, including metal pet tags, pendants, kettles, USB drives, lighters, metal cards, acrylic sheets, leather wallets, and ice wine coolers.

5.3 Rotary Engraving (with optional attachment)

For cylindrical objects such as tumblers, rings, or cups, the optional rotary attachment can be used.

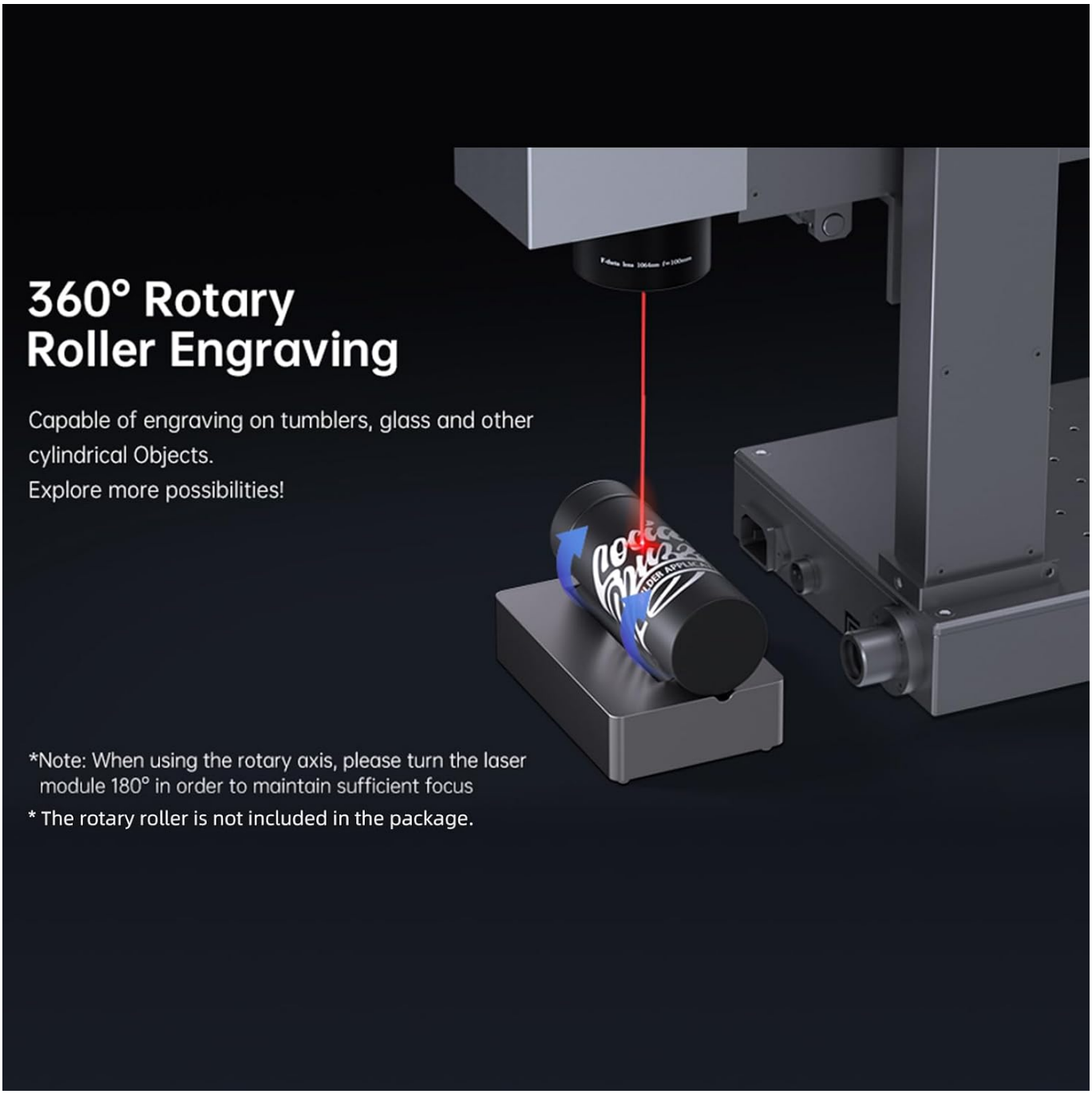


Figure 6: Rotary Engraving. This image illustrates the use of a rotary roller attachment for engraving cylindrical objects like tumblers. Note: The rotary roller is typically sold separately.

When using the rotary axis, it is important to turn the laser module 180 degrees to maintain sufficient focus.



Figure 7: 180-Degree Rotation. This image shows the laser module rotated 180 degrees, allowing the machine to engrave larger objects such as luggage, extending its operational range.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your Irfora M1 Pro Laser Engraver.

- **Cleaning the Lens:** Periodically clean the laser lens with a soft, lint-free cloth and lens cleaning solution to prevent dust and debris from affecting laser performance.
- **Dust Removal:** Use compressed air to remove dust from the machine's interior and ventilation ports. Ensure the built-in fan is clear of obstructions.
- **Power Off When Not in Use:** Always power off and unplug the machine when not in use for extended periods.
- **Storage:** Store the engraver in a dry, clean environment, away from extreme temperatures and direct sunlight.

7. Troubleshooting

If you encounter issues with your M1 Pro, refer to the following common problems and solutions.

Problem	Possible Cause	Solution
Laser not firing or weak output.	Incorrect focus, dirty lens, low power setting, software error.	Adjust focus, clean lens, increase power setting in software, restart software and machine.
Engraving is blurry or inconsistent.	Incorrect focus, material movement, unstable surface, high speed setting.	Ensure correct focus, secure material, place machine on stable surface, reduce engraving speed.
Machine not connecting to computer.	USB cable issue, driver not installed, software not recognizing device.	Check USB cable connection, reinstall USB drivers, ensure software is up-to-date.
Machine powers on but does not respond.	Software not running, emergency stop engaged (if applicable), internal error.	Ensure software is running and connected. Power cycle the machine.

8. Specifications

Technical specifications for the Irfora M1 Pro Laser Engraver.

Feature	Detail
Model	M1 Pro
Product Dimensions	L 300mm x W 200mm x H 320mm (approx. 11.8 x 7.9 x 12.6 inches)
Engraving Speed	Up to 10000 mm/s
Wavelength	1064nm (Infrared Laser)
Operating Temperature	-10°C to 65°C (14°F to 149°F)
Cooling Method	Built-in Fan
Precision	≤0.001mm
Standard Engraving Area	70x70 mm
Supported Operating Systems	Win7/Win8/Win10/WIN11/XP
Application Software	Computer-operated engraving software
Power Consumption	Below 300W
Line Width	0.001-0.05 mm
Package Weight	8.25 kg (approx. 18.1 lbs)

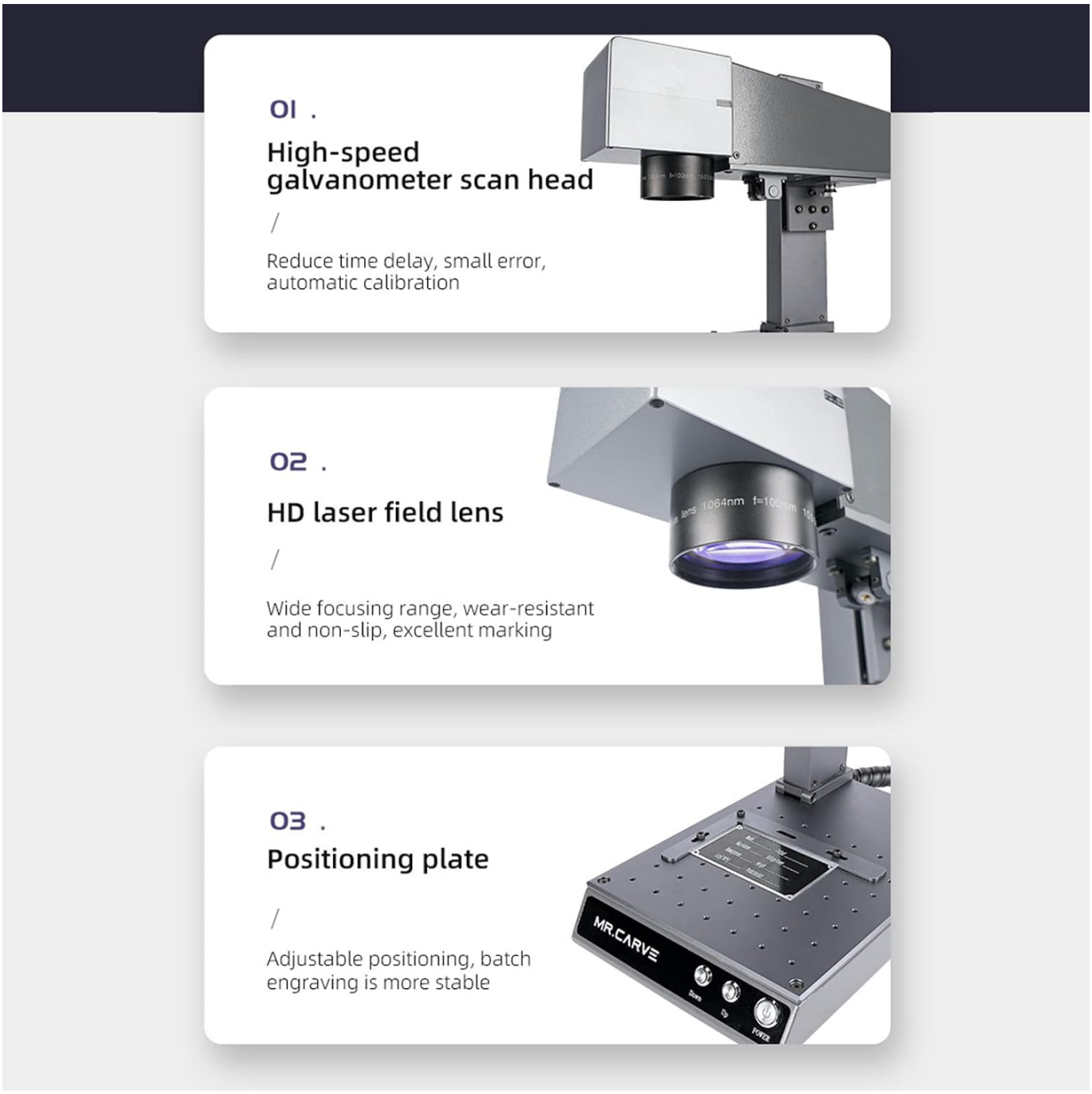


Figure 8: Key Components. This image highlights the high-speed galvanometer scan head, HD laser field lens, and positioning plate, which are crucial for the engraver's precision and functionality.

9. Warranty & Support

For detailed warranty information, please refer to the warranty card included with your purchase or visit the official Irfora website.

If you require technical assistance, troubleshooting beyond this manual, or have questions regarding your product, please contact Irfora customer support through their official channels.

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