IKIER K1 Pro Max 70W

IKIER K1 Pro Max 70W Laser Engraving Machine User Manual

Model: K1 Pro Max 70W

1. Introduction

Welcome to the user manual for your IKIER K1 Pro Max 70W Laser Engraving Machine. This powerful and versatile machine is designed for high-precision engraving and cutting across a wide range of materials, including wood, acrylic, metal, and leather. This manual provides essential information for safe operation, setup, maintenance, and troubleshooting to ensure you get the most out of your device.
Please read this manual thoroughly before operating the machine and keep it for future reference.

2. Safety Information

WARNING: Laser radiation can cause eye damage and skin burns. Always wear appropriate laser safety goggles when operating the machine. Never look directly into the laser beam.

- **Eye Protection:** Always wear certified laser safety goggles (OD6+) when the machine is in operation.
- **Ventilation:** Ensure adequate ventilation in your workspace to dissipate fumes and smoke produced during engraving and cutting. Some materials can produce toxic fumes.
- **Fire Hazard:** Laser processing can ignite flammable materials. Always have a fire extinguisher readily available. Never leave the machine unattended during operation.
- **Material Safety:** Only process materials suitable for laser engraving/cutting. Avoid materials that produce hazardous gases or can easily ignite.
- **Emergency Stop:** Familiarize yourself with the physical emergency stop switch.
- **Child Lock:** Utilize the child lock feature to prevent unauthorized use.
- **Flame Detection:** The machine is equipped with flame detection. If a flame is detected, the machine will

automatically stop.

- **Tilt Detection:** The machine features tilt detection for added safety. If the machine is tilted during operation, it will stop.

Figure 2.1: Comprehensive safety features of the IKIER K1 Pro Max, including child lock, flame detection, and tilt detection, designed to ensure secure operation.

3. Product Overview

The IKIER K1 Pro Max is a state-of-the-art 70W laser engraving and cutting machine, engineered for precision and efficiency. It features a robust design with advanced functionalities to enhance your creative and production capabilities.

Figure 3.1: The IKIER K1 Pro Max 70W Laser Engraving Machine, showcasing its main components including the laser module and external air assist unit.

Key Features:

- **Powerful 70W Laser Output:** Equipped with 14x6W laser diodes, providing exceptional cutting and engraving power, capable of cutting 25mm plywood in a single pass.
- **Intelligent Z-Axis:** Features both electric and manual settings, enabling automatic focus adjustment in approximately 8 seconds for precise laser positioning.
- **Intelligent Air Assist:** Integrated double-layer design ensures continuous airflow, preventing blockages and improving cutting performance.
- **Sinking Cut Technology:** Optimized laser algorithm and intelligent motherboard control automatic laser origin, increasing cutting depth by 30-50%.
- **4.3-inch LCD Touch Screen:** Allows for convenient offline operation, freeing the machine from constant computer connection.
- **Robust Construction:** Utilizes an optical axis and linear guide structure for enhanced stability, precision, and speed.
- **Cross Positioning System:** Provides precise and horizontal output for accurate engraving alignment and observable framing.

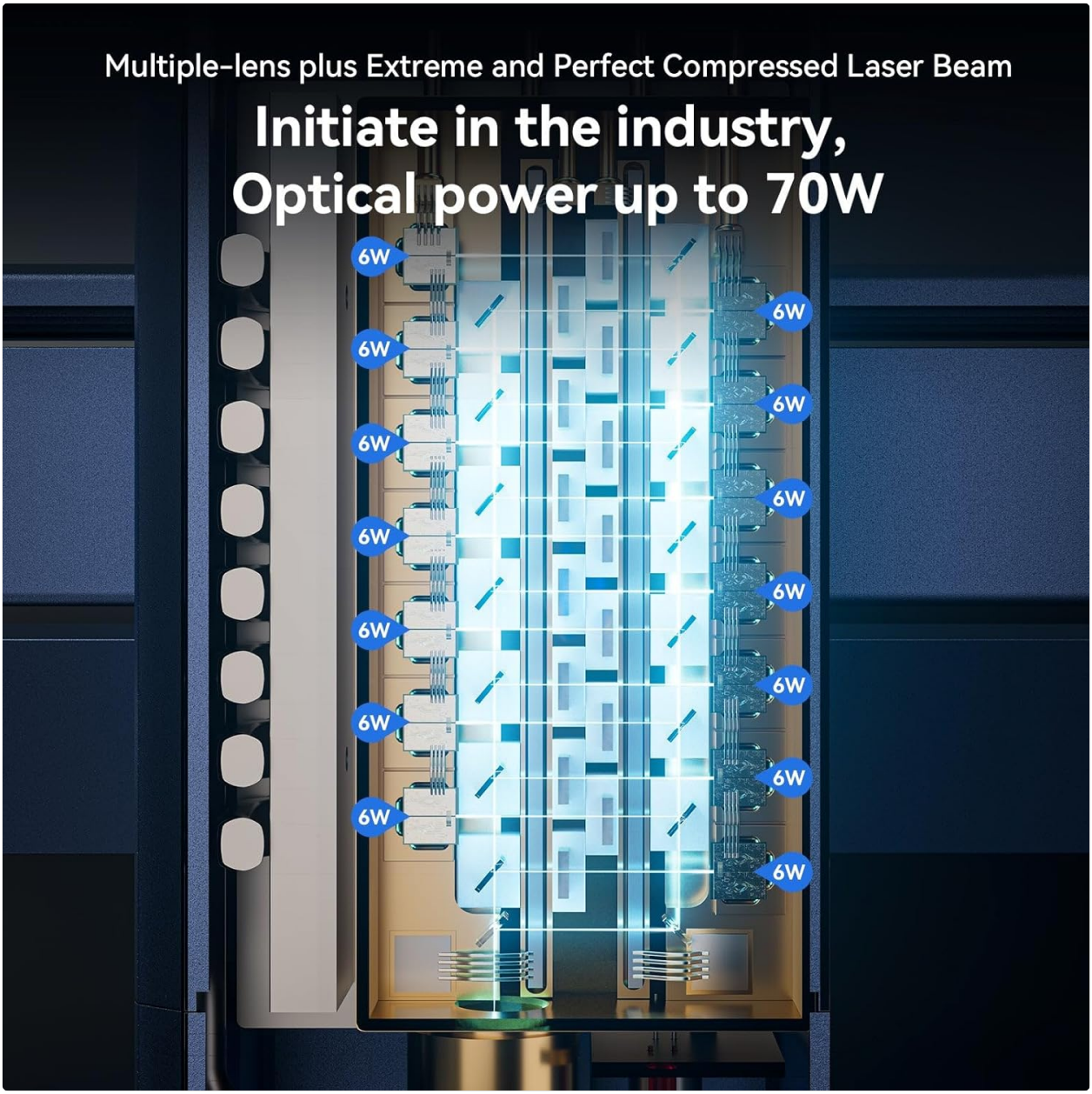


Figure 3.2: Detailed view of the laser module, illustrating the arrangement of multiple 6W laser diodes that combine to achieve 70W optical power.

Figure 3.3: Close-up of the linear guide rail and reinforced shaft, highlighting the sturdy and stable mechanical design for precise movement.

4. Setup

The IKIER K1 Pro Max features a modular design for quick and easy assembly, typically within 15 minutes.

4.1 Unpacking and Assembly

1. Carefully remove all components from the packaging.
2. Follow the included quick assembly guide to connect the main frame components. Ensure all screws are tightened securely.
3. Install the laser module onto the gantry.
4. Connect the air assist unit to the designated port on the machine.

4.2 Power Connection

Connect the provided DC power adapter to the machine's power input port and then to a suitable power outlet.

4.3 Software Installation

The IKIER K1 Pro Max is compatible with popular laser control software such as LightBurn and LaserGRBL. Download the latest version of your preferred software from the official websites.

- **LightBurn:** Recommended for advanced users, offering comprehensive control and design features.
- **LaserGRBL:** A free and open-source option, suitable for basic engraving tasks.

4.4 Connection Methods

The machine supports multiple connection interfaces:

- **USB:** Connect directly to your computer via a USB cable.
- **WLAN (Wi-Fi):** Connect wirelessly to your network for convenient control.
- **TF Card:** Load design files directly onto a TF card for offline operation using the 4.3-inch touch screen.

5. Operating Instructions

5.1 Powering On/Off

To power on the machine, flip the physical switch located on the control panel. To power off, flip the switch back to the OFF position.

5.2 Material Preparation

Place your chosen material flat on the engraving bed. Ensure it is securely positioned to prevent movement during operation. The machine can engrave and cut a variety of materials, including:

- **Engraving Materials:** Wood, bamboo, cardboard, plastic, leather, PCB plate, oxidized aluminum, non-dazzling electroplating and lacquered metal, 304 mirror stainless steel, glass, ceramic, cotton, slate.
- **Cutting Materials:** Cardboard, non-woven fabric, wood, acrylic, thin plastic plates, sponges.

Figure 5.1: Demonstrations of the cutting capability on Paulownia wood and black acrylic, showcasing the machine's ability to cut thick materials in a single pass.

5.3 Focusing the Laser

The IKIER K1 Pro Max features an intelligent Z-axis for automatic focusing:

- **Automatic Focus:** Press the auto-focus button on the control panel or via the software. The laser will automatically adjust its height to achieve optimal focus on the material surface. This process takes approximately 8 seconds.
- **Manual Focus:** For fine adjustments or specific applications, the Z-axis can also be adjusted manually.

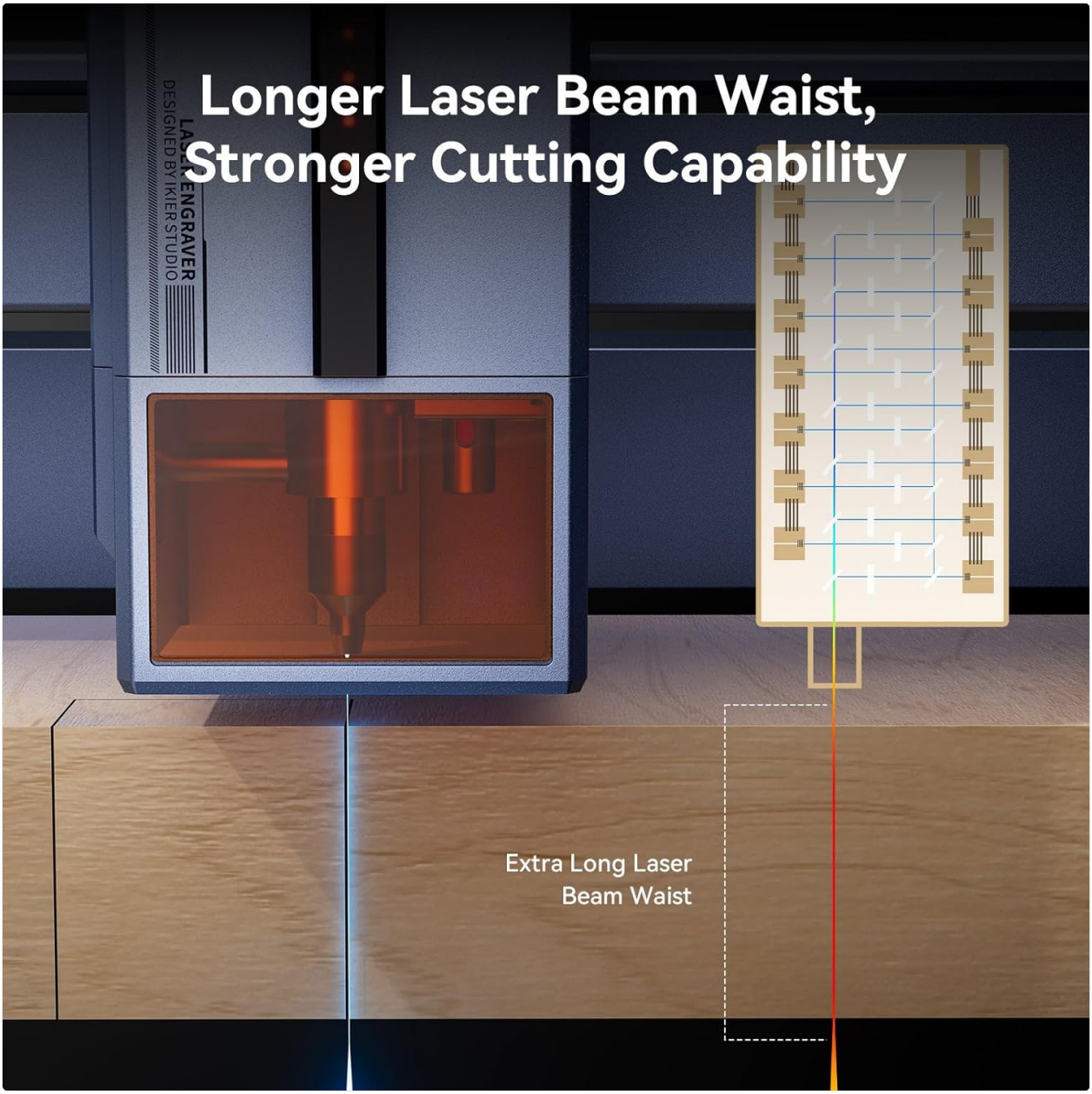


Figure 5.2: Illustration of the extended laser beam waist, which contributes to the machine's enhanced cutting capabilities and deeper penetration.

5.4 Loading Designs and Framing

Prepare your design file using compatible software (LightBurn, LaserGRBL). The machine supports various file types including SVG, DXF, JPG, JPEG, PNG, BMP, TIF, CR2, etc.

- **Software Control:** Load your design into the software and use the framing function to preview the engraving area on your material using the laser's cross positioning system.
- **Offline Operation:** Save your design to a TF card and insert it into the machine. Use the 4.3-inch LCD touch screen to select and initiate the job.

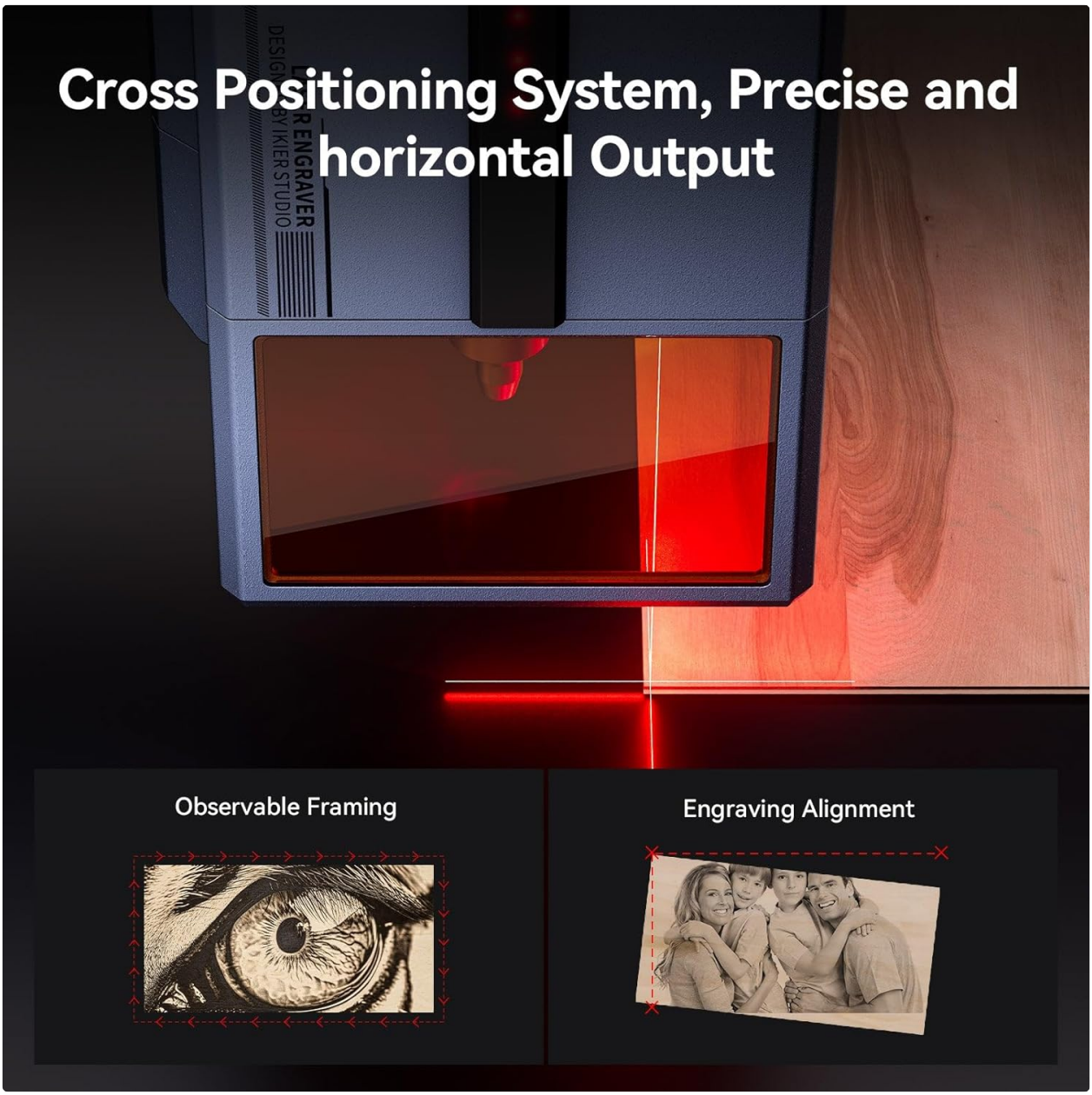


Figure 5.3: The cross positioning system in action, demonstrating its utility for precise alignment and visual framing of the engraving area.

5.5 Adjusting Air Assist

The intelligent air assist system can be adjusted from 0-60 l/min. Adjust the airflow based on the material and desired cutting/engraving effect. Higher airflow generally helps with cleaner cuts and reduces charring.

5.6 Starting Operation

Once the material is placed, laser is focused, and design is loaded and framed, you can start the engraving or cutting process from your software or the touch screen. Monitor the operation closely, especially for new materials or settings.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your IKIER K1 Pro Max.

- **Cleaning the Laser Lens:** Periodically inspect and clean the laser lens using a lint-free cloth and lens cleaning solution. A dirty lens can significantly reduce laser power and engraving quality.
- **Cleaning Air Assist Channels:** The intelligent air assist has a double-layer design to prevent blockages, but occasional inspection and cleaning of the air channels are recommended to ensure continuous flow.
- **Cleaning the Machine Body:** Wipe down the machine's exterior and engraving bed regularly to remove dust and debris.
- **Linear Rail Inspection:** Check the linear guide rails for any debris or wear. Keep them clean and lightly lubricated if necessary, following manufacturer recommendations.
- **Firmware Updates:** Check the official IKIER website for any available firmware updates to ensure your machine has the latest features and performance improvements.

7. Troubleshooting

This section addresses common issues you might encounter. For more complex problems, please contact customer support.

- **Machine Not Powering On:**
  - Check if the power cable is securely connected to both the machine and the power outlet.
  - Ensure the physical power switch is in the 'ON' position.
- **Laser Not Firing or Weak Output:**
  - Verify that the laser module is properly connected.
  - Clean the laser lens as described in the Maintenance section.
  - Ensure the laser is correctly focused on the material surface.
  - Check laser power settings in your control software.
- **Poor Engraving/Cutting Quality:**
  - Adjust laser power and speed settings for the specific material.
  - Ensure the material is flat and securely placed.
  - Verify laser focus.
  - Clean the laser lens.
  - Check if the air assist is functioning correctly and adjusted appropriately.
- **Machine Not Connecting to Computer/Software:**
  - Check USB cable connection or Wi-Fi settings.
  - Ensure correct drivers are installed for your operating system.
  - Restart both the machine and your computer.
- **Machine Stops Unexpectedly:**
  - Check for safety feature activation (flame detection, tilt detection). Address the cause (e.g., extinguish flame, ensure stable surface).
  - Ensure proper ventilation to prevent overheating.
- **Air Assist Not Functioning:**
  - Check the connection of the air assist unit.
  - Ensure the air assist current is set correctly (0-60 l/min).
  - Inspect air assist channels for blockages.

8. Specifications

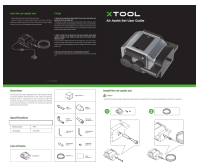
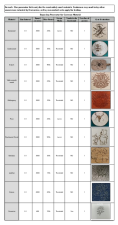
Feature	Specification
Brand	IKIER
Model	K1 Pro Max 70W
Engraving Size	410mm x 410mm
Machine Power	360W
Laser Power	70-77W (Output), 35-39W (Diode Power)
Maximum Movement Rate	900mm/s
Spot Size	0.15 mm x 0.2 mm (70W), 0.10 mm x 0.15 mm (35W)
Engraving Accuracy	0mm (as per manufacturer specification)
Laser Wave	455 ± 5 nm
Focusing Method	Automatic or Manual Focus with Infrared Positioning
Operating System Compatibility	Windows, MacOS, Android, iOS
Control Software	LightBurn, LaserGRBL
Supported File Types	SVG, DXF, JPG, JPEG, PNG, BMP, TIF, CR2, etc.
Connection Interface	USB, WLAN, TF card
Motherboard	32-bit control card with Wi-Fi
Handlebar Terminal	4.3" LCD Touch Screen
End Switches	5 (X-axis 2, Y-axis 2, Z-axis 1)
Air Support Current	0-60 l/min (infinitely adjustable)
Included Components	1 x IKIER K1 Pro Max 70W Machine

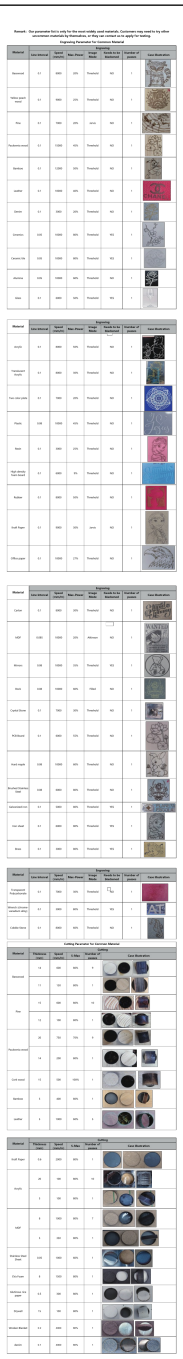
Figure 8.1: Comparative specifications between the IKIER K1 Pro Max 70W semiconductor laser and a typical 180W CO2 laser, highlighting differences in laser type, weight, cutting capacity, and dimensions.

9. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the official IKIER website or contact your authorized dealer. Keep your purchase receipt as proof of purchase for warranty claims.
For the latest drivers, software updates, and additional resources, please visit the official IKIER support page.

Related Documents - K1 Pro Max 70W

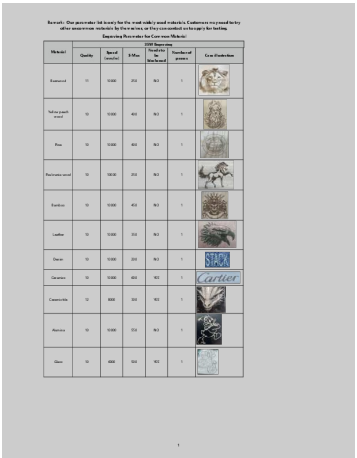
	[Engraving and Cutting Parameters for K70 MAX Laser Module] A comprehensive guide to engraving and cutting parameters for various materials using the K70 MAX laser module with LightBurn software. Includes settings for speed, power, line interval, and passes for different wood types, plastics, metals, and more.
	[ATOMSTACK K40 MAX-20W Laser Engraving and Cutting Parameter Guide] A comprehensive guide detailing engraving and cutting parameters for the ATOMSTACK K40 MAX-20W laser module across a variety of common materials. Includes settings for speed, power, line interval, and image modes.
	[xTool P2 FAQs: Your Guide to the Smart Desktop Laser Cutter] Frequently Asked Questions about the xTool P2 laser cutter and engraver, covering compatibility, operation, features, materials, and maintenance.
	[XTOOL Air Assist Set User Guide: Installation and Operation] Comprehensive user guide for the XTOOL Air Assist Set, detailing installation, specifications, and FAQs for enhanced laser cutting and engraving performance with machines like the XTOOL D1.
	[Laser Engraving and Cutting Parameters for Common Materials] A comprehensive guide detailing optimal laser engraving and cutting parameters for a wide range of materials, including wood, leather, acrylic, glass, metal, and more. Parameters cover line interval, speed, power, image mode, and passes, with visual examples.



[iKier 48W Laser Module Parameter Table for LightBurn]

Comprehensive parameter table for the iKier 48W laser module, optimized for use with LightBurn software in standard mode. Includes technical specifications and operational guidance.

Documents - IKIER – K1 Pro Max 70W



[pdf] User Manual

Lenovo Parameter Table of 70W Laser Module for LaserGRBL User Manual iKier EU of K1 PRO MAX 70W Software Standard Mode v 1706089378 cdn shopify s files 1 0677 4646 4064 |||

RemarkOur parameter list is only for the most widely used materials. Customers may need to try other uncommon materials by themselves, or they can contact us to apply for testing. Engraving Parameter for Common Material Material Quality Speed mm/m S-Max 35W Engraving Needs to be blackened Nu...

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