

Twotrees TTC450 Ultra

Twotrees TTC450 Ultra 500W CNC Milling Machine User Manual

Model: TTC450 Ultra

1. INTRODUCTION

Thank you for choosing the Twotrees TTC450 Ultra 500W CNC Milling Machine. This manual provides essential information for the safe and effective operation, setup, and maintenance of your new machine. Please read this manual thoroughly before operating the device to ensure optimal performance and safety.

2. SAFETY INFORMATION

Operating a CNC machine involves potential hazards. Always prioritize safety to prevent injury or damage to the equipment.

- **Emergency Stop:** The machine is equipped with an emergency stop button. Press it immediately in case of any malfunction or unsafe condition.
- **Spindle Power Off Protection:** The tool changer automatically stops the spindle when necessary, enhancing operational safety.
- **Eye Protection:** Always wear appropriate eye protection when operating the machine.
- **Work Area:** Ensure your work area is clean, well-lit, and free from obstructions.
- **Ventilation:** Ensure adequate ventilation, especially when working with materials that produce dust or fumes.
- **Read Instructions:** Familiarize yourself with all operating procedures before starting any project.

3. PRODUCT FEATURES

The Twotrees TTC450 Ultra is designed for high performance and versatility in CNC milling and engraving applications.

3.1 Key Performance

- **High Efficiency:** Features a powerful 500W spindle, enabling effortless metal machining and increasing productivity

by 40%.

- **Precision:** Achieves a precision of 0.05mm, resulting in smooth, burr-free surfaces for high-quality finishes.

3.2 Material Compatibility

The machine supports over 10 different materials, catering to a wide range of creative and industrial needs.

- Supported materials include: Aluminum, Wood, Acrylic, Copper, Carbon Fiber, Stainless Steel, Leather, and more.
- Equipped with a 4-axis rotary mechanism, it allows for precise machining of cylindrical materials.

Multi-Material Compatibility

Support 10+ Materials to Meet Diverse Needs

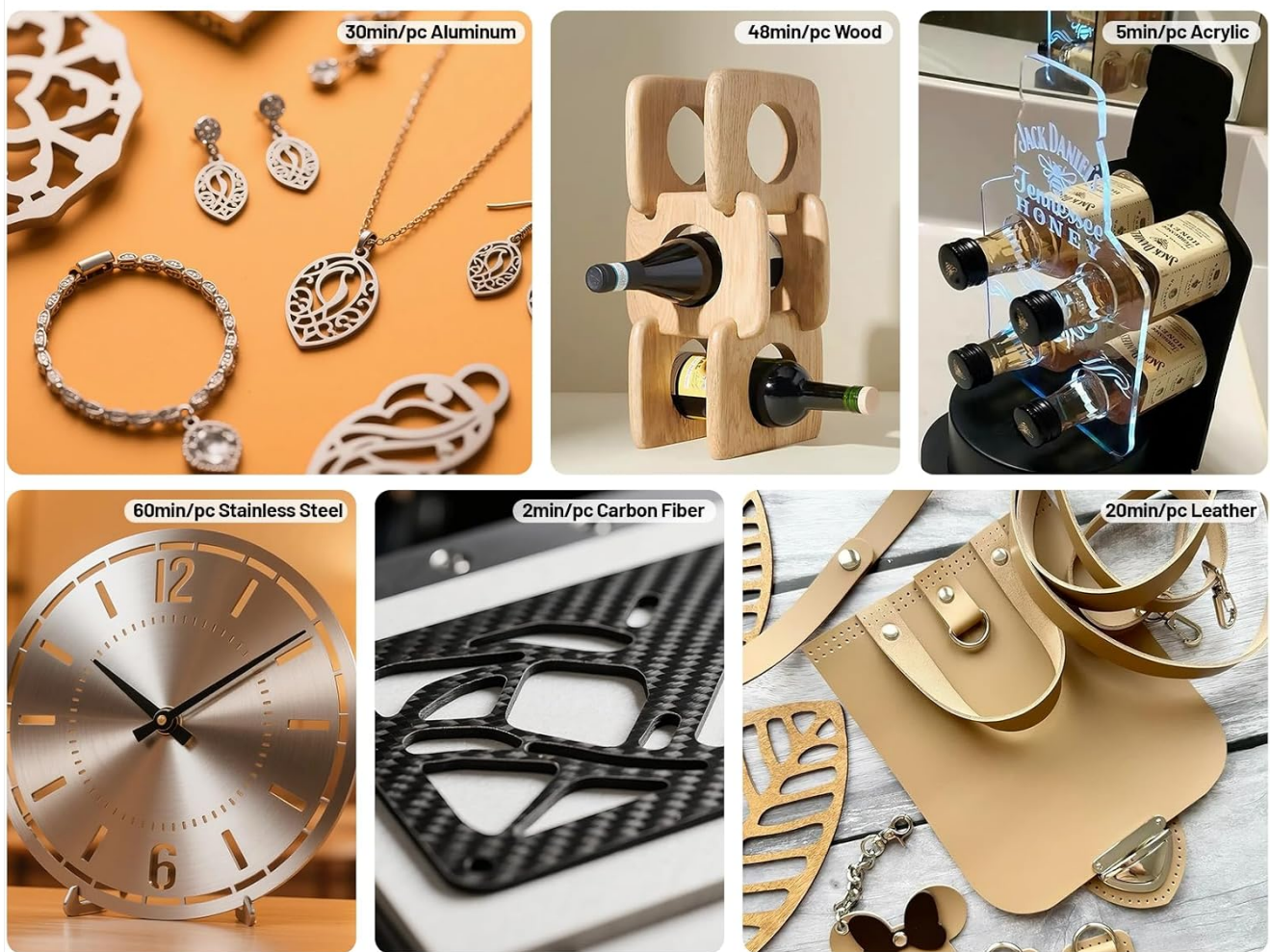


Figure 3.2.1: Multi-material compatibility of the TTC450 Ultra, demonstrating its ability to process diverse materials including metals, wood, and acrylic.

3.3 Robust Construction

- Features 12H linear guides on the X, Y, and Z axes, providing a high-strength structure that enables engraving on hard materials such as aluminum, copper, and carbon fiber.

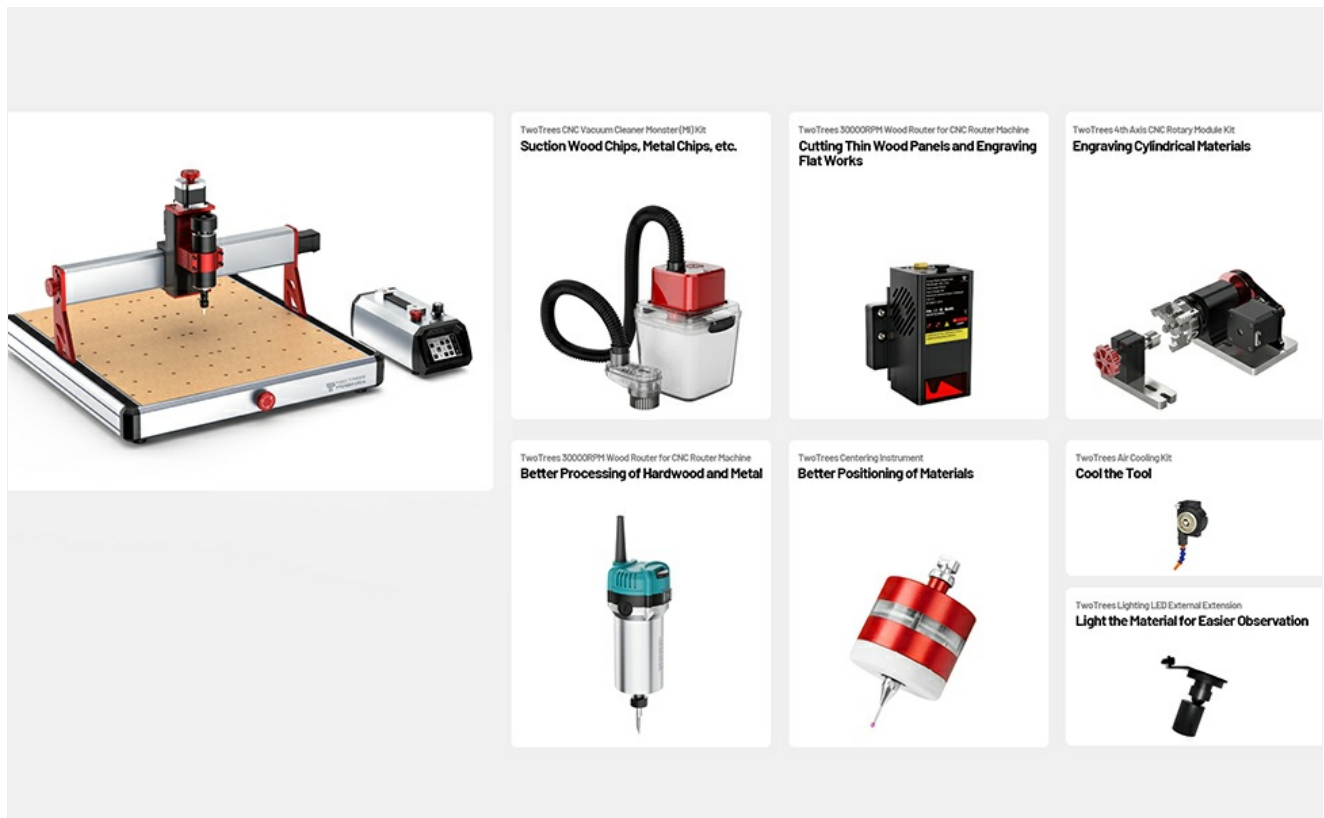


Figure 3.3.1: Illustration of the machine's tough rail structure with 12H linear guides on all axes, designed for engraving hard materials.

3.4 User-Friendly Design

- **3.5-inch IPS Touchscreen:** Provides a simple and intuitive interface for easy operation.
- **Mode Switching:** Easily switch between CNC and laser modes for various engraving applications. Note: The laser module is sold separately.
- **90% Pre-assembled:** The machine comes 90% pre-assembled for quick and straightforward installation.

Safe and Easy to Use

Easy to Operate, Safe and Worry-free



Figure 3.4.1: The user-friendly interface and safety features, including one-step mode switching and spindle power-off protection.

3.5 Dustproof Design

- Features dustproof guide rails and Z/Y axis guide rails.
- Axial brushes effectively prevent dust penetration, extending the machine's lifespan.
- Includes an M1 vacuum for quick and efficient dust removal.

Dustproof Design

Machine is Easy to Maintain and Has a Longer Life



Figure 3.5.1: Details of the dustproof design, including sealed guides and axial brushes for enhanced durability and reduced maintenance.

4. SETUP

The Twotrees TTC450 Ultra comes 90% pre-assembled, making the setup process quick and straightforward.

4.1 Unpacking and Inspection

1. Carefully remove all components from the packaging.
2. Inspect all parts for any signs of damage during transit. Contact customer support immediately if any damage is found.
3. Verify that all included components are present according to the packing list.

4.2 Assembly

Follow the detailed assembly instructions provided in the separate assembly guide for the remaining 10% of the setup. This typically involves attaching the gantry to the base and connecting the control unit.



Figure 4.2.1: Overview of quick installation features and key specifications.

4.3 Workspace Preparation

- Place the machine on a stable, level surface. The adjustable feet allow for convenient leveling.
- Ensure sufficient space around the machine for safe operation and material handling.
- Connect the power supply to a suitable electrical outlet.

5. OPERATING INSTRUCTIONS

The TTC450 Ultra offers intuitive controls for various milling and engraving tasks.

5.1 Powering On and Initializing

1. Ensure all connections are secure.
2. Turn on the main power switch.
3. The 3.5-inch IPS touchscreen will display the main interface.

5.2 Navigating the Touchscreen Interface

The touchscreen allows for easy control and monitoring of the machine. Use the intuitive icons to navigate through menus, load files, set parameters, and initiate operations.

5.3 Mode Switching (CNC / Laser)

The machine supports both CNC milling and laser engraving modes. You can switch between these modes with a single step from the control interface.

- To switch to **CNC Mode**, ensure the milling spindle is correctly installed.
- To switch to **Laser Mode**, install the optional laser module (sold separately) and select the laser mode from the touchscreen.

5.4 Loading and Securing Materials

- Place your material onto the workbed.
- Use appropriate clamps or fixtures to securely hold the material in place. Ensure there is no movement during operation.

5.5 Using the 4-Axis Rotary Module

For engraving cylindrical objects, attach the 4-axis rotary module. This module allows for precise rotation of the workpiece during the engraving process.

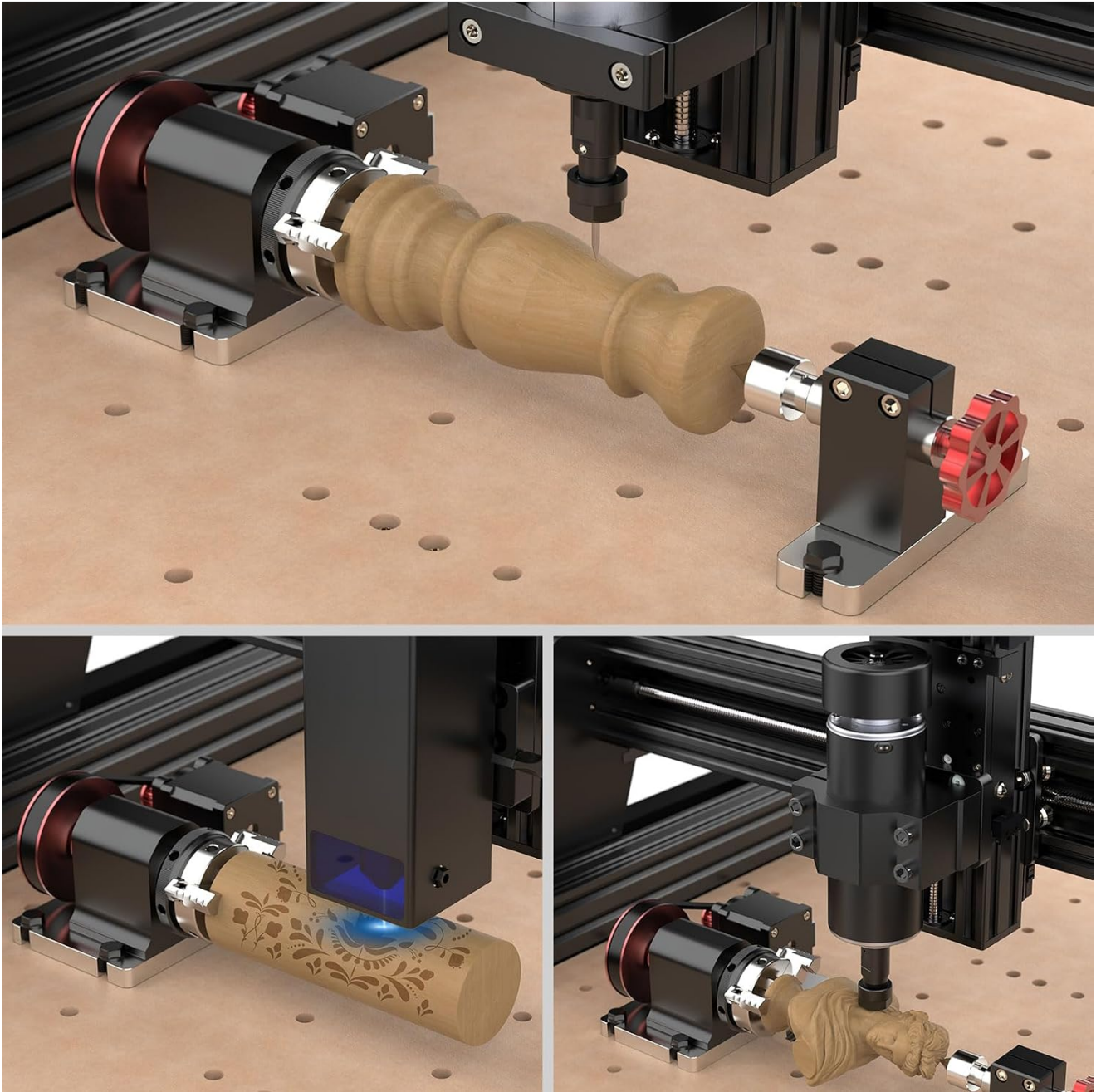


Figure 5.5.1: The 4-axis rotary module in operation, demonstrating its capability for cylindrical material processing.

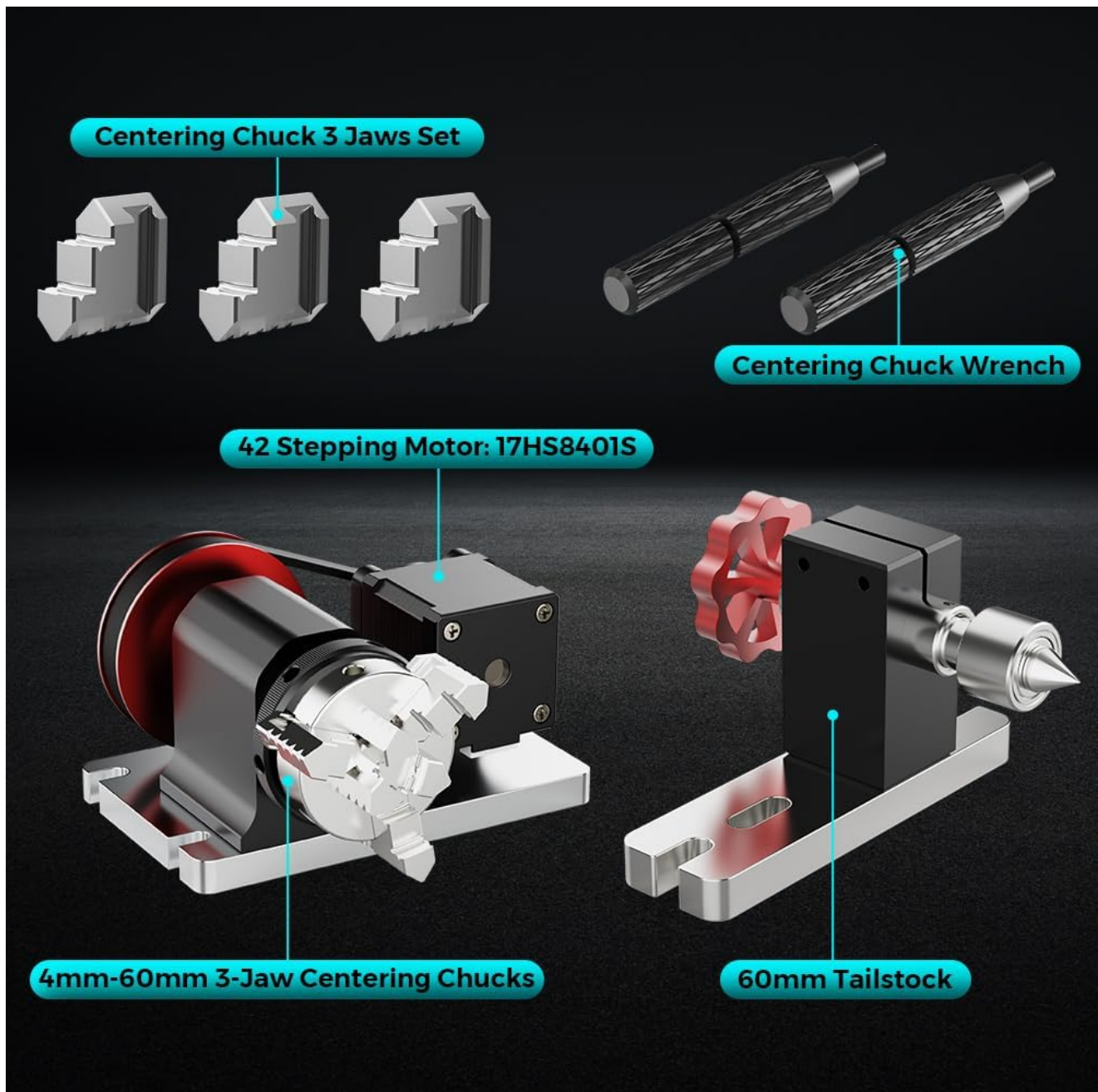


Figure 5.5.2: Detailed view of the 4-axis rotary module components, including the 3-jaw centering chucks and 60mm tailstock.

5.6 Starting an Operation

1. Load your G-code file via USB or network connection (if applicable).
2. Set the origin point (zero point) for your material.
3. Perform a dry run (air cut) to verify the tool path without engaging the material.
4. Once satisfied, initiate the milling or engraving process. Monitor the machine closely during operation.

5.7 Control Options

- **Offline Operation:** Run projects directly from the machine's control unit.
- **Wireless Module:** Connect wirelessly for remote control and file transfer.
- **APP Operation:** Control the machine via a dedicated mobile application.
- **XYZ Axis Hand Wheel:** Manual transmission provides more convenient and precise control over axis movements.
- **Controllable Speed:** Adjust engraving speed as needed for different materials and desired finishes.

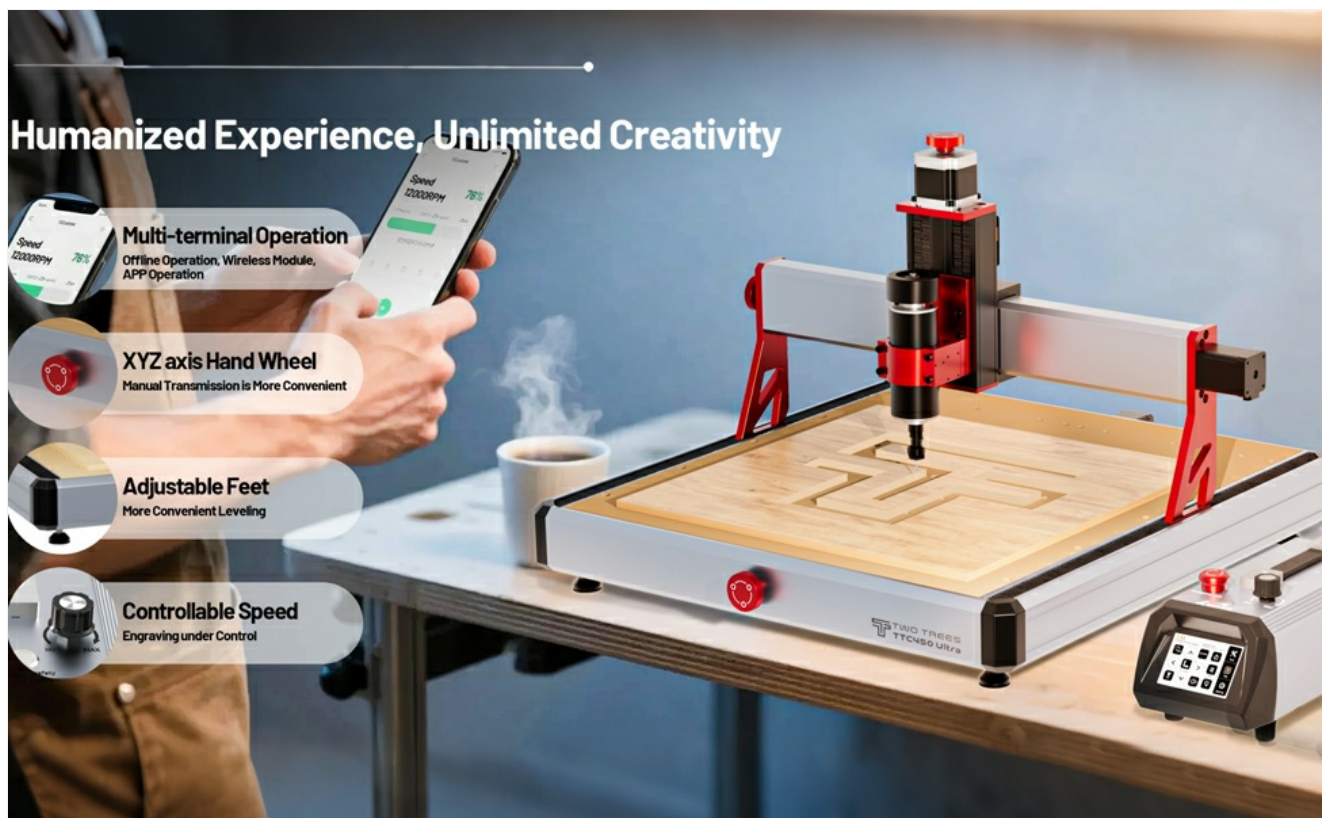


Figure 5.7.1: Various control options for the TTC450 Ultra, including app control and manual hand wheel.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Twotrees TTC450 Ultra.

6.1 Cleaning

- After each use, clean the work area and machine components to remove dust, chips, and debris.
- Utilize the included M1 vacuum for quick dust removal.
- The dustproof guide rails and axial brushes help prevent dust accumulation, but regular cleaning is still recommended.

6.2 Lubrication

- Periodically lubricate the linear guides and lead screws according to the recommendations in the separate maintenance guide.

6.3 Tool Inspection

- Regularly inspect milling bits and laser modules for wear or damage. Replace worn tools to maintain precision and prevent damage to the machine or workpiece.

7. TROUBLESHOOTING

This section provides general guidance for common issues. For more complex problems, please refer to the comprehensive troubleshooting guide or contact customer support.

7.1 Machine Not Powering On

- Check if the power cable is securely connected to both the machine and the power outlet.

- Ensure the main power switch is in the 'ON' position.
- Verify that the power outlet is functional.

7.2 Poor Engraving/Milling Quality

- **Check Tool Condition:** Ensure the milling bit or laser module is not worn or damaged.
- **Material Secureness:** Verify that the material is firmly clamped and not moving during operation.
- **Settings:** Review your cutting/engraving parameters (speed, depth, power) to ensure they are appropriate for the material.
- **Calibration:** Ensure the machine's axes are properly calibrated.

High Precision, Low Error 0.05mm , Less Burrs, Smoother Processing

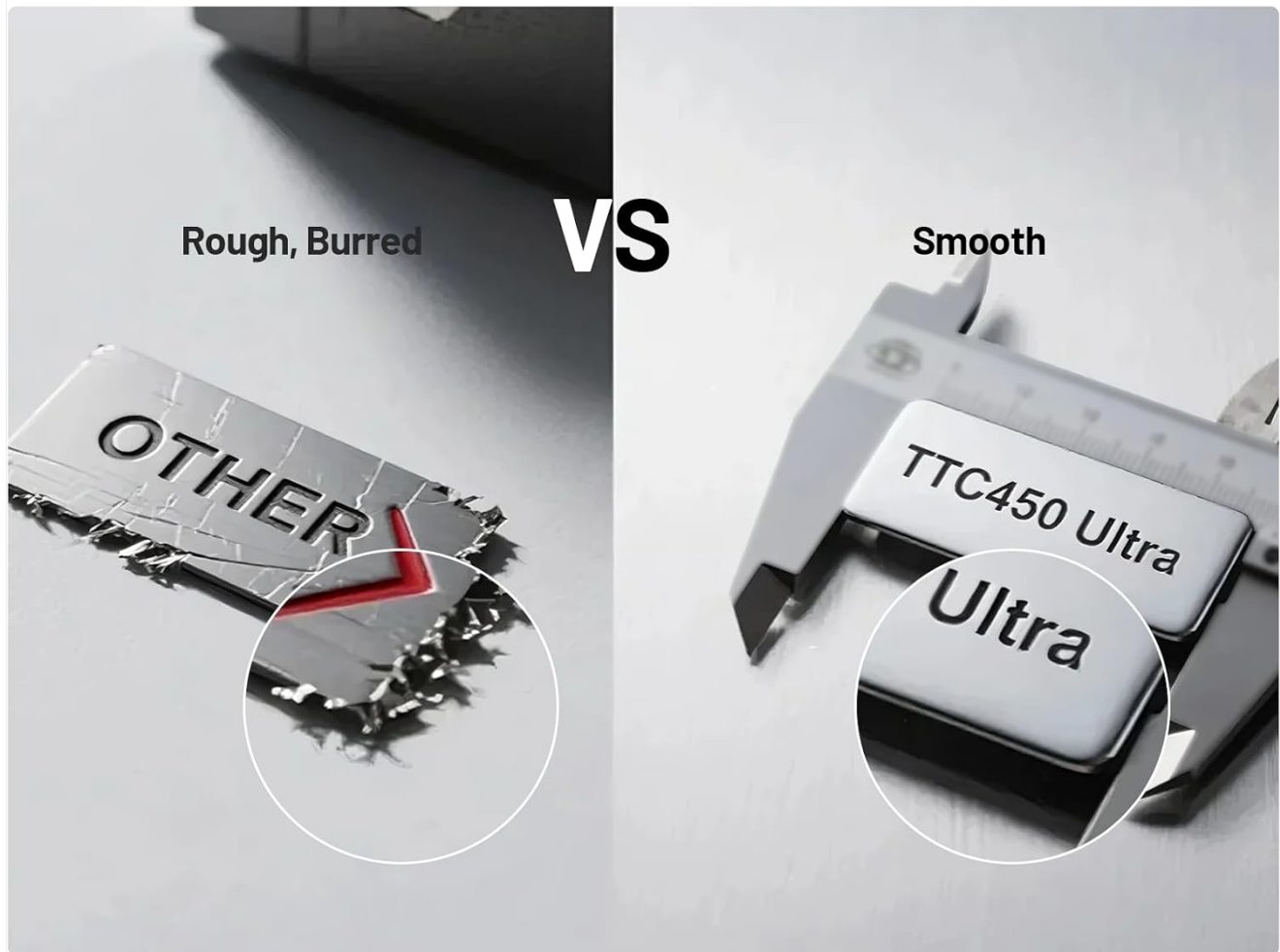


Figure 7.2.1: Visual comparison demonstrating the high precision and smooth finish achievable with the TTC450 Ultra.

7.3 Machine Stops Unexpectedly

- Check for any error messages on the touchscreen.
- Ensure the emergency stop button is not engaged.
- Verify that there are no obstructions preventing axis movement.
- Check for overheating. Allow the machine to cool down if necessary.

8. SPECIFICATIONS

Feature	Specification
Brand	Twotrees
Model Number	T-TTC450U+4Z
Material	Metal
Power Source	AC (Corded electric)
Product Dimensions (L x H)	46l x 10H centimeters
Spindle Power	500W
Precision	0.05mm
Axes	4-axis (with rotary module)
Control Interface	3.5-inch IPS Touchscreen
Linear Guides	12H on X, Y, Z axes
Pre-assembly Level	90%
Included Components	TTC 450 Ultra, 4Z Rotary Module
Country of Origin	China

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the documentation included with your purchase or visit the official Twotrees website. Keep your purchase receipt as proof of purchase for warranty claims.