CALCA Automatic CNC Channel Letter Bender

CALCA Automatic CNC Channel Letter Bender User Manual

Model: Automatic CNC Channel Letter Bender

1. Introduction

This manual provides essential instructions for the setup, operation, and maintenance of your CALCA Automatic CNC Channel Letter Bender. This machine is designed for the precise fabrication of channel letters using various materials, including stainless steel and aluminum. It features integrated cutting and bending systems to streamline the production process.

Please read this manual thoroughly before operating the machine to ensure safe and efficient use, and to achieve optimal results.

2. Key Features

- **Dual Material Processing:** Equipped with two distinct cutting and bending systems, one for stainless steel and iron, and another for aluminum. This allows for material switching without tool exchange for cutters, and quick bender changes.
- **Integrated Software Control:** User-friendly software for easy operation and precise control over the bending process.
- **Precision Angle Cutting:** Capable of cutting angles from 45 to 135 degrees with controlled depth precision, utilizing CNC axis technology.
- **Intelligent Collision Avoidance:** Software includes intelligent inspection to prevent collisions during character bending.
- **Telescopic Bending Mode:** Unique bilaterally symmetrical bending mode minimizes interference and enhances bending strength.
- **Versatile Gouging:** Features a unique single-slotted mode profile milling groove for stainless steel, with arbitrary switching based on material characteristics.
- **File Compatibility:** Supports multi-vector file formats such as AI and DXF, ensuring seamless integration with engraving files.
- **Adjustable Feed Depth:** Rotary handwheel for simple and convenient adjustment of feed depth.

- **High-Quality Components:** Utilizes intelligent imported square guide rails and high-precision ball screws for accurate groove depth adjustment.



Figure 1: Overview of the CALCA Automatic CNC Channel Letter Bender. This image displays the complete machine setup, including the main bending unit, control monitor, and material feed tables.

3. Setup

3.1 Unpacking and Placement

1. Carefully unpack the machine, ensuring all components are accounted for. Refer to the packing list.
2. Place the machine on a stable, level surface capable of supporting its weight (approximately 968 pounds). Ensure adequate space around the machine for operation and maintenance.
3. Connect the power supply according to local electrical standards.

3.2 Cutter and Bender Configuration

The machine is equipped with two cutters (one for stainless steel, one for aluminum) that remain on the machine. The two benders (one for stainless steel, one for aluminum) are separate and require manual changeover depending on the material being processed.

1. **Cutter Selection:** The appropriate cutter is automatically engaged by the system based on the material selected in the software. No physical change is required for cutters.
2. **Bender Installation:** To change benders, follow the instructions in the software interface. This process typically takes 2-3 minutes. Ensure the correct bender is securely installed for the material you intend to use.

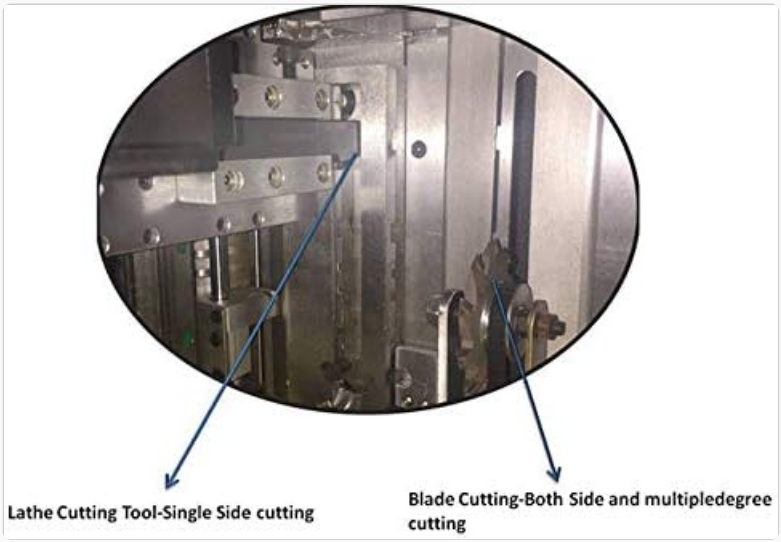


Figure 2: Close-up view of the machine's cutting tools. This image highlights the lathe cutting tool for single-side cutting and the blade cutting tool for both-side and multi-degree cutting.



Figure 3: Close-up view of the bending rollers. This image shows the mechanism responsible for shaping the material during the bending process.

3.3 Software Installation and Configuration

The machine operates with dedicated software. Install the software on the control computer following the provided instructions. The software is designed to be user-friendly and easy to operate.

1. Follow the on-screen prompts for software installation.
2. Configure material types and job parameters within the software interface.
3. Perform initial calibration as guided by the software or separate calibration manual.

4. Operating Instructions

4.1 Material Preparation

The machine is compatible with various materials, including stainless steel, galvanized steel, aluminum rolls, and

aluminum profiles. Ensure your material meets the specifications outlined in Section 7.



Figure 4: The channel letter bender shown with various rolls of aluminum tape, illustrating the range of materials it can process.



Figure 5: A close-up of a roll of red aluminum tape, a common material used with this machine for channel letter fabrication.

4.2 Loading Material

1. Select the appropriate material type in the software.
2. Load the material into the machine's feed mechanism, ensuring it is properly aligned and secured.
3. Verify that the correct bender is installed for the material being used.

4.3 Software Operation

1. Import your design file (AI, DXF, etc.) into the software.
2. Adjust parameters such as cutting angles, bending radii, and feed depth as required for your design.
3. The software will perform intelligent inspection to prevent potential collisions.
4. Initiate the cutting and bending process through the software interface.

4.4 Bending Process

The machine will automatically execute the programmed cutting and bending operations. Monitor the process to ensure smooth operation and material flow.

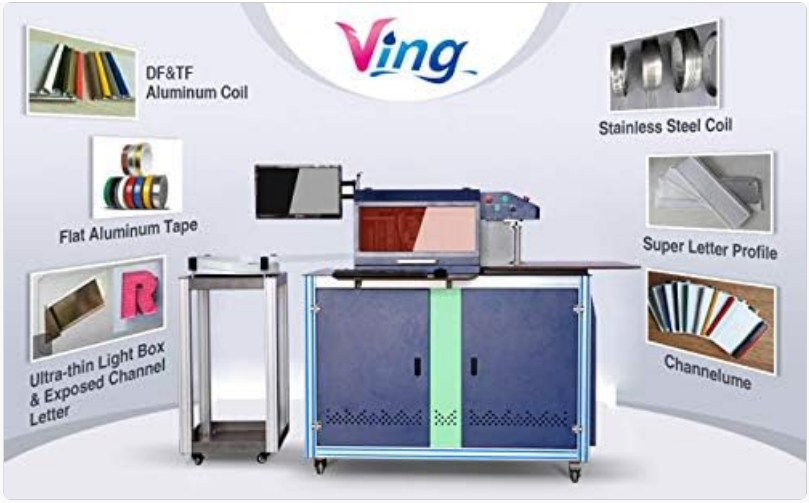


Figure 6: The channel letter bender in operation, demonstrating its capability to produce various types of channel letters and profiles.



Figure 7: Examples of finished channel letters and a diagram illustrating the cross-section of a channel letter with different components.

5. Maintenance

Regular maintenance is crucial for the longevity and optimal performance of your CALCA Automatic CNC Channel Letter Bender.

- **Daily Cleaning:** Clean the machine surfaces, especially around the cutting and bending areas, to remove dust and material debris.
- **Tool Inspection:** Regularly inspect cutters and benders for wear and tear. Replace worn tools promptly to maintain cutting and bending precision.
- **Lubrication:** Apply lubricant to moving parts, such as guide rails and ball screws, according to the manufacturer's recommendations in the detailed service manual.
- **Software Updates:** Keep the operating software updated to benefit from performance improvements and new features.
- **Electrical Check:** Periodically inspect all electrical connections and cables for any signs of damage.

6. Troubleshooting

This section provides general guidance for common issues. For detailed troubleshooting, refer to the software's help

documentation or contact customer support.

- **Machine Not Starting:** Check power connections, emergency stop button status, and software error messages.
- **Poor Cut/Bend Quality:** Inspect cutters and benders for wear. Verify material settings in the software. Ensure material is loaded correctly.
- **Software Errors:** Restart the software and the machine. Consult the software manual for specific error codes.
- **Material Jam:** Power off the machine immediately. Carefully remove the jammed material, ensuring no damage to components.

7. Specifications

Specification	Value
Manufacturer	TOP123
Item Weight	968 pounds
Product Dimensions (L x W x H)	64.96 x 33.46 x 62.99 inches (1650x850x1600mm)
ASIN	B082ZZ3MJN
Date First Available	December 22, 2019

7.1 Economical Single-Function Bending System Compatibility

Economical Single-Function Bending System								
Model	MBM-JH-6120	Aluminum roll	Aluminum profile	Galvanized steel	Stainless	Motor	Notching	Flanging
Compatible with machine		NO	NO	YES	YES	2pcs Servo Motor	NO	NO
Minimum Thickness		——	——	0.4mm (0.016in)	0.4mm (0.016in)	2pcs Stepper motor		
Maximum Thickness		——	——	1.2mm (0.047in)	1.2mm (0.047in)	——		
Minimum Height		——	——	20mm (0.79in)	20mm (0.79in)	——		
Maximum Height		——	——	120mm (4.72in)	120mm (4.72in)	——		
Model	MBM-JH-5150	Aluminum roll	Aluminum profile	Galvanized steel	Stainless	Motor	Notching	Flanging
Compatible with machine		YES	YES	NO	NO	——		
Minimum Thickness		0.2mm (0.0078in)	0.2mm (0.0078in)	——	——	4pcs Stepper motor		
Maximum Thickness		1.2mm (0.047in)	1.2mm (0.047in)	——	——	1pc DC motor	NO	NO
Minimum Height		20mm (0.79in)	20mm (0.79in)	——	——	——		
Maximum Height		150mm (5.9in)	150mm (5.9in)	——	——	——		

Figure 8: This table details the compatibility and specifications for different bending system models (MBM-JH-6120 and MBM-JH-5150) with various materials and their respective minimum/maximum thicknesses and heights.

The machine supports different bending systems with varying capabilities:

- **Model MBM-JH-6120:** Compatible with Galvanized steel and Stainless steel. Minimum thickness 0.4mm (0.016in), maximum thickness 1.2mm (0.047in). Minimum height 20mm (0.79in), maximum height 120mm (4.72in). Uses 2pcs

Servo Motor and 2pcs Stepper motor.

- **Model MBM-JH-5150:** Compatible with Aluminum roll and Aluminum profile. Minimum thickness 0.2mm (0.0078in), maximum thickness 1.2mm (0.047in). Minimum height 20mm (0.79in), maximum height 150mm (5.9in). Uses 4pcs Stepper motor and 1pc DC motor.

8. Warranty and Support

CALCA is committed to customer satisfaction. If you encounter any issues or have questions regarding your Automatic CNC Channel Letter Bender, please refer to the following:

- **After-Sales Support:** If you are not satisfied with your item, please contact us. We offer return or exchange options.
- **Contact Us:** For any questions or problems, please reach out to us via the Amazon message system. Our goal is to ensure you are a happy and satisfied customer.
- **Bulk Orders:** For large quantity or recurring bulk orders, please contact us for competitive pricing.

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Question

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Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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