缝纫模板切铣机

Sewing Template Cutting and Milling Machine

使用说明和教程

User Instructions and Tutorials

售后服务卡

After-sales Service Card

请填写以下信息以备用：

Please fill in the following information for future reference:

型号：

Model:

序列号：（ ）

Serial Number:

购买日期：（ ）

Purchase Date:

购买单位：（ ）

Purchase Entity:

维护记录：

Maintenance Records:

第一次 1st Time：

日期 Date：

原因 Reason:

第二次 2nd Time：

日期 Date：

原因 Reason:

第三次 3rd Time:

日期 Date：

原因 Reason:

目录

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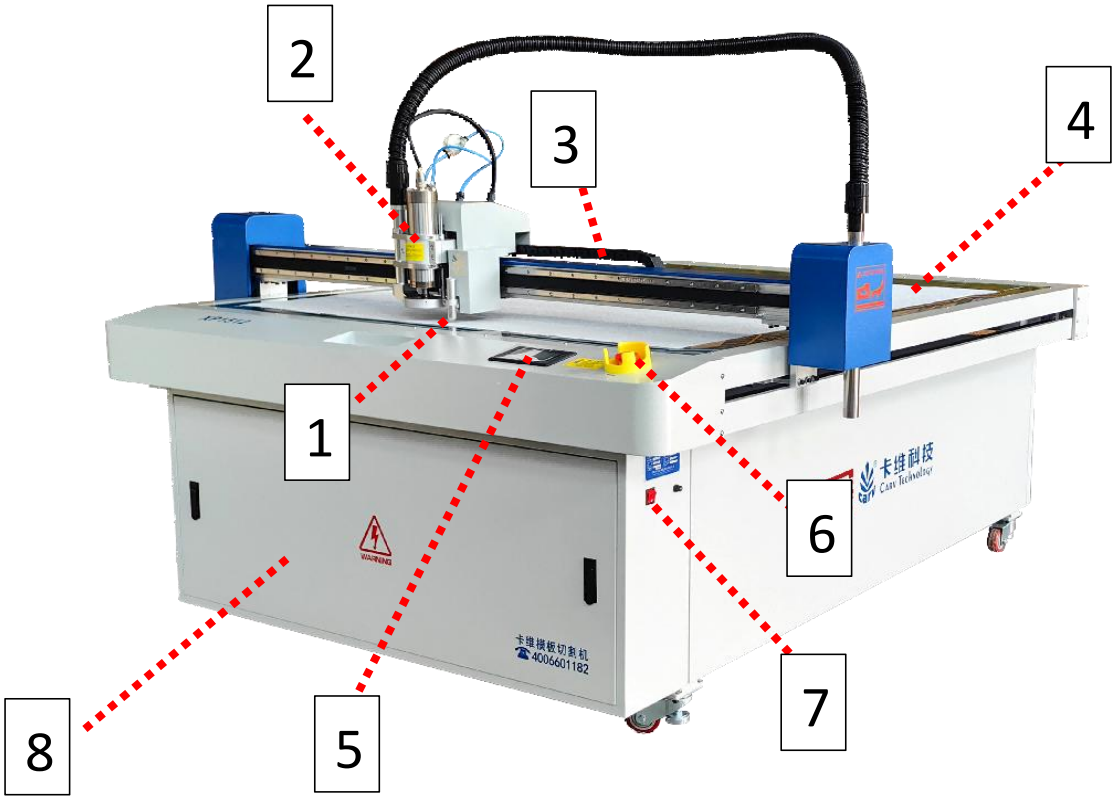
第一章 机器结构说明

Chapter 1 Machine Structure Description

产品图 Product Image



1. 切刀、笔座 Cutting Blade & Pen Holder	2. 铣刀电机 Milling Cutter Motor	3. Y 向横梁 Y-Axis Crossbeam
4. 切割台面 Cutting Tabletop	5. 触摸显示屏 Touch Screen Display	6. 电源急停按钮 Emergency Stop Button (Power-Related)
7. 电源开关、保险丝 Power Switch & Fuse	8. 电控箱 Electrical Control Box	

第二章 包装配件清单

Chapter 2 Packing and Accessory List

☐ 吸风气泵：2 个/1 个/0 个（根据机器配置）

Air Suction Pump: 2/1/0 units (depending on machine configuration)

☐ 吸尘器：1 个

Vacuum Cleaner: 1 unit

☐ 气泵管接头：2 个/1 个/0 个（根据机器配置）

Air Pump Pipe Fittings: 2/1/0 units (depending on machine configuration)

☐ 气管钢卡圈：4 只/2 个/0 个（根据机器配置）

Air Pipe Steel Clamps: 4/2/0 units (depending on machine configuration)

☐ 螺丝配件包：1 袋（仅限打包发货机器）

Screw Accessory Kit: 1 bag (for packaged shipping machines only)

☐ 毛毡垫: 1 片（3mm 白色）

Felt Pad: 1 piece (3mm, white)

☐ 切刀套: 1 个（仅限 M 系列）

Cutting Blade Cover:1 piece (M series only)

☐ 笔芯笔套: 1 个（仅限 M 系列）

Pen Refill Cover: 1 piece (M series only)

☐ 油性笔套：1 个

Oil-based Pen Cover: 1 piece

☐ 铣刀：5 把 (3.175 的 2 把/4.175 的 1 把单刃铣刀，3.175 的 2 把玉米铣刀配相应夹头)

Milling Cutters: 5 pieces (2 pieces of 3.175mm, 1 piece of 4.175mm single-flute milling cutter, 2 pieces of 3.175mm corn milling cutter with matching collets)

☐ 油性笔：1 根（配备相应弹簧）

Oil-based Pen: 1 piece(with matching spring)

☐ 电源线：1 根（16A）

Power Cable: 1 Piece(16A)

☐ 内六角扳手：1 套

Hexagon Allen Wrench Set: 1 set

☐ 开口扳手：2 个

Open-End Wrenches: 2 pieces

☐ 产品说明书和保修卡：各 1 本

Product Manual & Warranty Card: 1 copy each

☐ 吸尘器管：2 根

Vacuum Cleaner Pipes: 2 pieces

☐ 吸尘器管接头：2 只

Vacuum Cleaner Pipe Fittings: 2 pieces

☐ 加密狗：1 个

USB Dongle: 1 piece

☐ 软件 U 盘：1 个

Software USB Drive: 1 piece

☐ 整形锉：1 把

Shaping File: 1 piece

☐ 冷却水泵：1 个(风冷电机不含水泵)

Cooling Water Pump: 1 piece (air-cooled motors exclude water pump)

☐ 数据传输线：1 根(网线)

Data Transmission Cable: 1 piece(network cable)

第三章 设备安装与调试

Chapter 3 Equipment Installation and Commissioning

3.1 使用模板切铣机前准备工作

3.1 Preparations Before Using the Template Cutting and Milling Machine

【设备占用面积（长/宽/高）】【Equipment Footprint(Length/Width/Height】

1509 款 长 230cm * 宽 160cm * 高 110cm

Model 1509: Length 230cm, Width 160cm, Height 110cm

1809 款 长 260cm * 宽 160cm * 高 110cm

Model 1809: Length 260cm, Width 160cm, Height 110cm

1512 款 长 230cm * 宽 190cm * 高 110cm

Model 1512: Length 230cm, Width 190cm, Height 110cm

1812 款 长 260cm * 宽 190cm * 高 110cm

Model 1812: Length 260cm, Width 190cm, Height 110cm

（占地尺寸因机器升级会有所不同，以上数据仅供参考，具体以实样为准）

(Footprint subject to change with machine upgrades. Data above for reference only; actual product prevails.)

【用电及要求】【Power Supply Requirements】

单相交流 220V （±20） 标准地线接入

Single-phase AC 220V (±20V), with standard ground wire connection

16A 三孔插座 （总功率 4400W）

16A three-pin socket (total power: 4400W)

220V 接入线线径要求 4 平方毫米线

Wire gauge requirement for 220V input wire: 4 square millimeters

【电脑配置】【Computer Configuration Requirements】

台式办公电脑

Desktop office computer

运行内存 16GB 以上

RAM: 16GB or above

系统（Windows 10 以上）

Operating System: Windows 10 or above

连接外网保持网络正常

Internet connection: Stable external network required

【设备调试测试材料】（需客户提前自备）

【Equipment Commissioning & Testing Materials】（To be Prepared in Advance by the Customer）

PVC1.5mm 厚板 5 张

5 sheets of 1.5mm-thick PVC boards

模板粘贴专用胶带

Special adhesive tape for template pasting

及其它各种模板制作配件

Other various template-making accessories

3.2 设备安装与调试

3.2 Equipment Installation and Commissioning

3.2.1 设备拆箱组装

3.2.1 Equipment Unpacking and Assembly

检查设备外包装情况及附件箱是否齐全。（共 4 件，木箱*1、纸箱*3）

Check the condition of the equipment’s outer packaging and whether the accessory boxes are complete. (Total 4 pieces: 1 wooden box, 3 cartons)

详细机器安装请关注【卡维科技】公众号> 微平台> **整机安装视频】**

For detailed machine installation instructions, please follow this path on the CARV Technology’s official WeChat account: [WeChat Official Account] > [Micro Platform] > [Complete Machine Installation Video].

3.2.2 铣刀安装调试

3.2.2 Milling Cutter Installation and Commissioning

将配备的刀具按具体标准安装好（铣刀确保外露吸盘 2mm），通过操作触摸屏【参数设置】进入【自动对刀】 调试刀具切割深度。(具体参数值以实际调试对刀为准) 图 1

Install the provided cutting tools in accordance with specific standards (for the milling cutter, ensure 2mm of the suction cup is exposed). Operate the touch screen to access Parameter Settings, then enter Automatic Tool Setting to adjust the tool cutting depth. (Specific parameter values are subject to actual tool setting during commissioning.) Figure 1

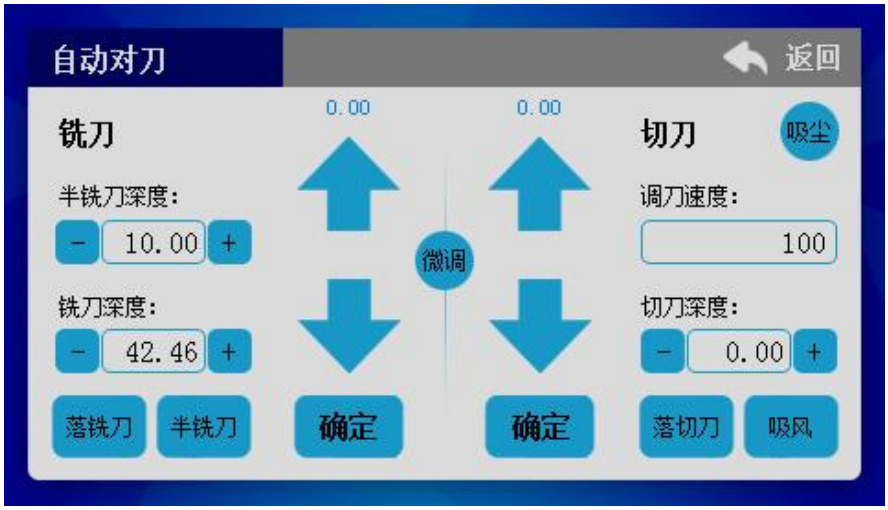


图 1

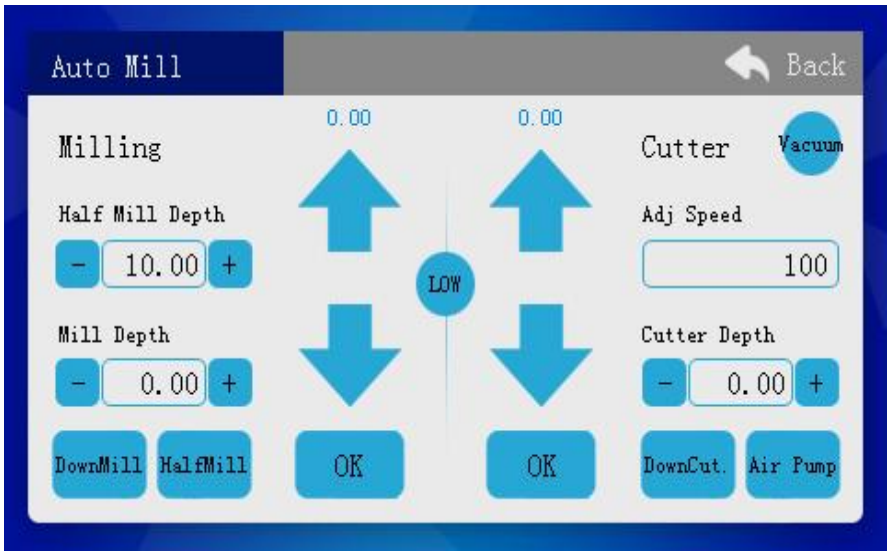


Figure 1

【具体请关注“卡维科技”公众号>微平台>整机安装视频>铣刀安装调试】

For details, please refer to the following path on the “CARV Technology” Official WeChat Account: [WeChat Official Account] > [Micro Platform] > [Complete Machine Installation Videos] > [Milling Cutter Installation and Commissioning].

3.2.3 刀、笔偏移精度调试

3.2.3 Offset Accuracy Adjustment for Cutters and Pens

1. 通过操作触摸屏【参数设置】进入【测试切割】选择“精度 10*10”内部储存文件进行刀笔偏移测试.（通过“刀笔设置”界面，切换指令分别对铣刀、笔、切刀偏移测试）图 2

Operate the touch screen to access Parameter Settings, then enter Test Cutting. Select the internally stored file labeled “Precision 10*10” to perform the tool-pen offset test. (Access the “Tool-Pen Settings” interface and switch commands to conduct offset tests for the milling cutter, pen, and cutting blade respectively.) Figure 2

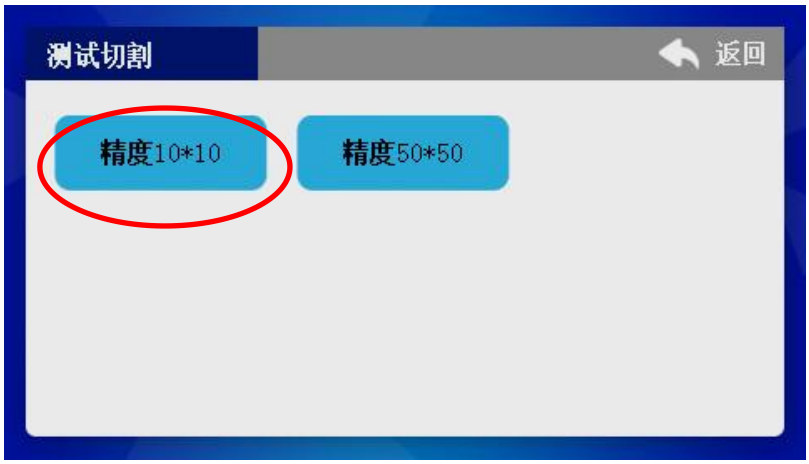


图 2

Figure 2

2. 检查测试图形“10*10”刀笔偏移量大小，通过操作触摸屏【参数设置】进入【机器参数】调试 X、Y 偏移参数。（参数值可以是正负数）图 3

Check the tool-pen offset of the test pattern “10*10”. Operate the touch screen to access Parameter Settings, then enter Machine Parameters to adjust the X and Y offset parameters. (Parameter values can be positive or negative.) Figure 3

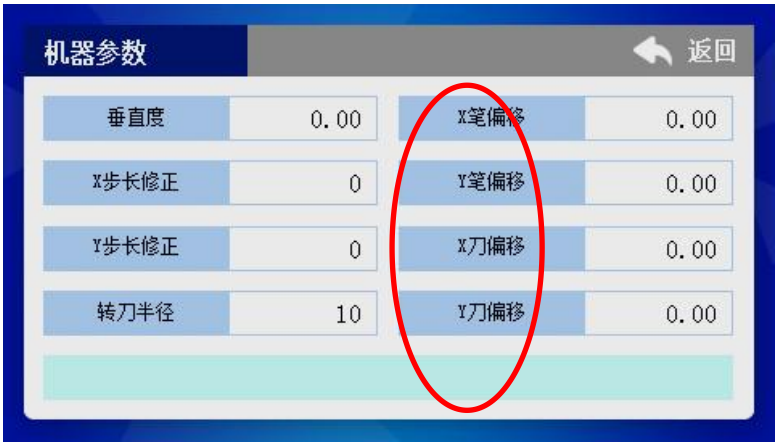


图 3

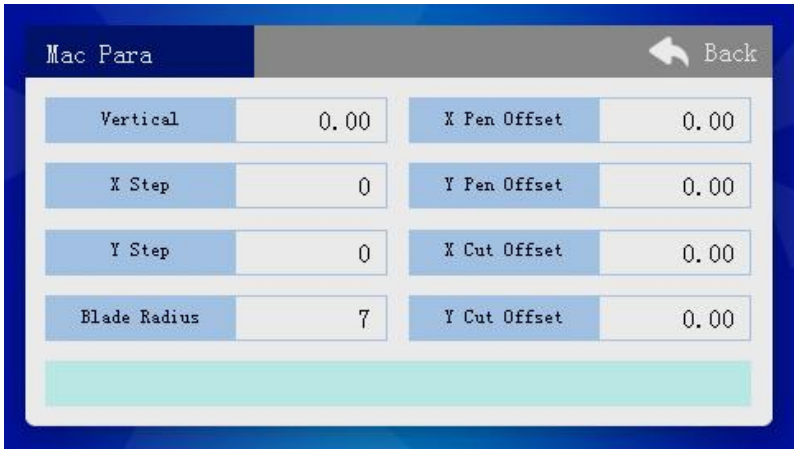


Figure 3

3.2.4 X、Y 方向与对角线尺寸误差调试

3.2.4 Calibration of Dimensional Errors in X, Y Directions and Diagonals

1. 通过操作触摸屏【参数设置】进入【测试切割】选择“精度 50*50”内部储存文件进行测试。图 4

Operate the touch screen to access Parameter Settings, then enter Test Cutting. Select the internally stored file labeled “Precision 50*50” to perform the test. Figure 4

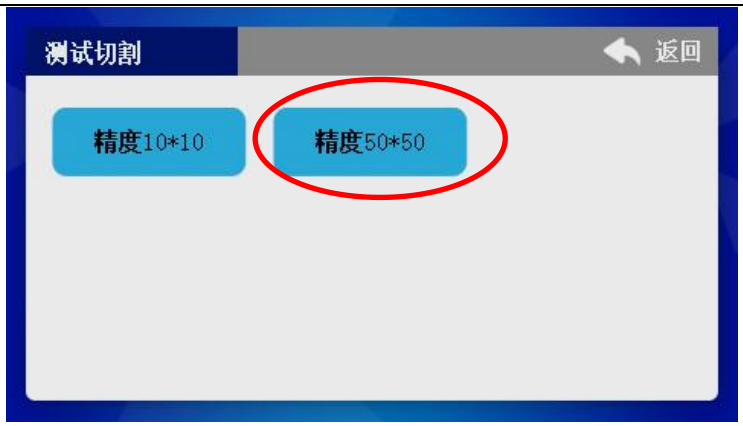


图 4

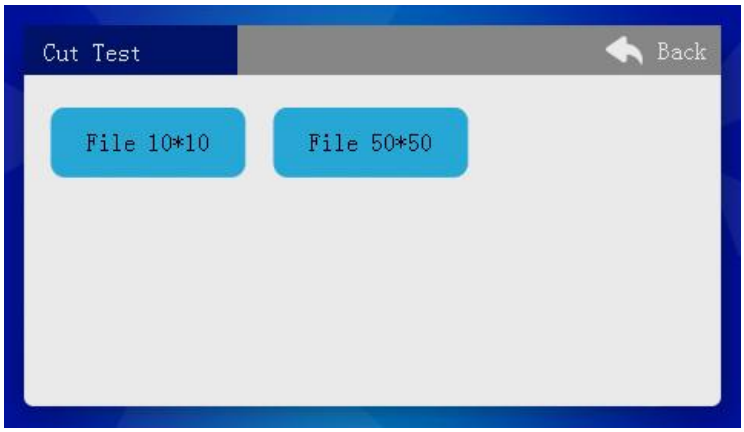


Figure 4

2. 检查测试图形“50*50”尺寸。用高精度钢直尺分别测量 X、Y 方向尺寸以及正方形左右两条对角线之间的误差。通过操作触摸屏【参数设置】进入【机器参数】调试 X、Y 步长修正参数以及垂直度参数。（参数值可以是正负数）图 5

Check the dimensions of the test pattern “50*50”. Use a high-precision steel ruler to measure the dimensional errors in the X and Y directions, as well as the error between the left and right diagonals of the square. Operate the touch screen to access Parameter Settings, then enter Machine Parameters to adjust the X and Y step correction parameters and perpendicularity parameters. (Parameter values can be positive or negative.) Figure 5

图 5

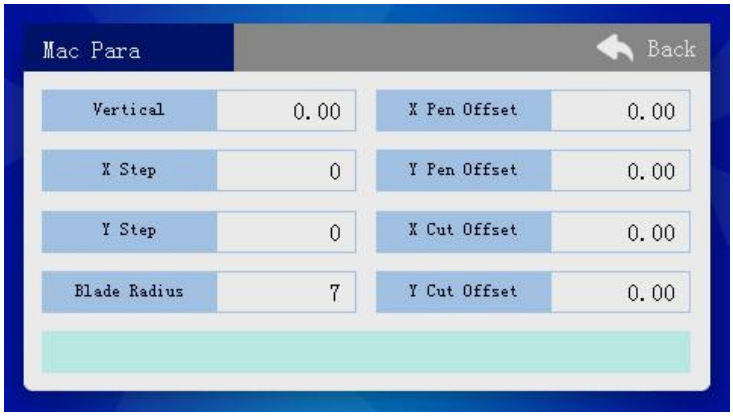


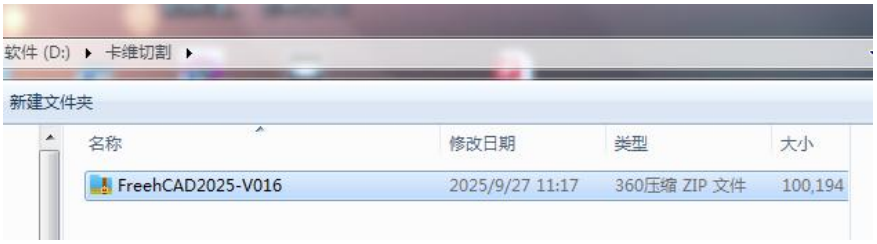
Figure 5

3.3 FREEHCAD 软件安装联机参数设置

3.3 Installation and Online Parameter Setting of FREEHCAD Software

1. 在机器的附件盒中，将 U 盘插入电脑的 USB 口，打开 U 盘找到软件的安装程序，在电脑 D 盘中新建一个“卡维切割”的文件夹，并右键复制软件程序到此文件夹

Locate the USB drive in the machine’ accessory box, insert it into a USB port on your computer. Open the USB drive to find the software installer, then create a new folder named “CARV Cutting” in the computer’s D drive. Right-click to copy the software program into this folder.



2. 在这个安装程序上右键解压，选择“解压到当前文件夹”

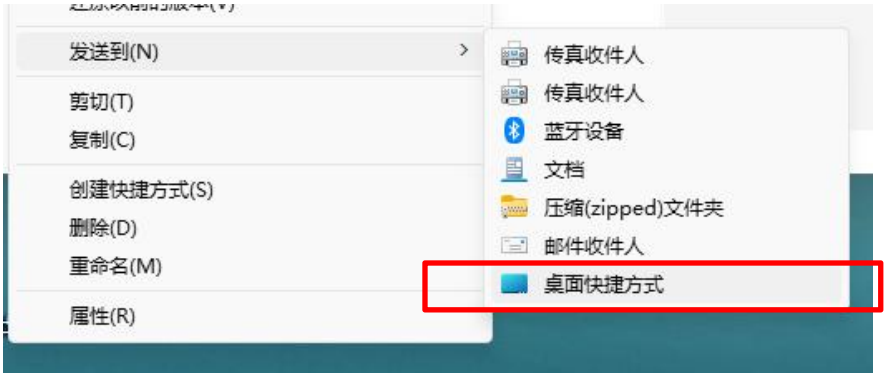
Right-click on the installer and select “Extract to Current Folder” to unzip the file.

3. 打开解压后的文件夹，找到软件图标 

，右键发送到桌面快捷方式。软件图标会出现在桌面上，这样软件就安装完成。

Open the unzipped folder, locate the software icon 

, then right-click it and select “Send to > Desktop (create shortcut)”. The software icon will appear on the desktop, indicating the completion of the software installation.



4. 安装后将软件的加密锁插入电脑的 USB 接口

After installation, insert the software’s encryption dongle into the computer’s USB port.

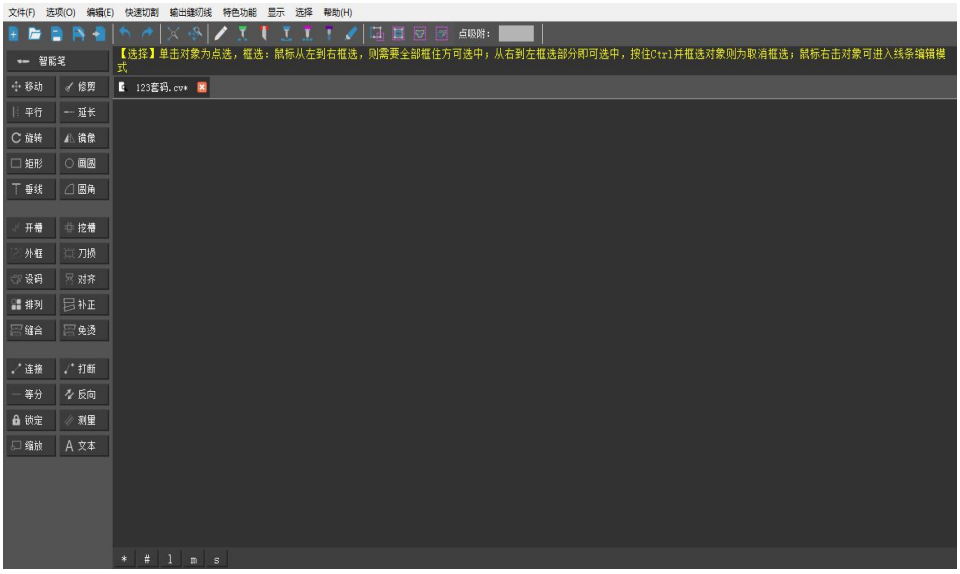
5. 最后在电脑桌面上找到卡维 Freeh CAD 软件图标 

双击打开，点击注册，输入用户名，密码，加密锁号（六位阿拉伯数字，手机号，验证码，注册成功后点击登录。

Finally, locate the CARV Freeh CAD software icon on the computer desktop, double-click to open it. Click “Register”, then enter the username, password, encryption dongle number (6-digit Arabic numerals), mobile phone number, and verification code. After successful registration, click “Login”.

6、进入软件使用界面。

Access the software’s user interface



文档：【X 系列新模板机网口设定方法 V1.2】

Document: [Network Port Configuration Method for X-Series New Template Machine V1.2]

3.4 FREEHCAD 软件工具使用介绍

3.4 Introduction to the Use of FREEHCAD Software Tools

鼠标功能 Mouse Functions

三键鼠标：左键、中键、右键

Three-button mouse: Left,Middle and Right Button

中键 Middle Button:

1. 弹出快捷键菜单：按中键，快捷键可在选项，鼠标中间设置中自行添加

Bring up the shortcut key menu: Press the Middle button. Shortcut keys can be added manually in the “Options” > “Mouse Middle Button Settings” (menu path).

2. 缩放图形：向前滚动放大图形，向后缩小图形

Zoom the graphic: Scroll forward to enlarge the graphic, and scroll backward to reduce it.

右键单击 Right-Click:

1. 线条编辑：右击需调整的线条，鼠标放在线上，按住左键拖拉点可进行调整，左键加点，右键删点，最后右键结束

Line editing: Right-click the line to be adjusted, position the mouse on the line, then press and hold the left button to drag points for adjustment. Use the left button to add points, the right button to delete points, and finally right-click to finish.

2. 旋转：移动图形时，图形挂在鼠标上，单击右键可顺时针旋转 90 度

Rotation: When moving the graphic, the graphic will “attach” to the mouse. Single-click the Right button

to rotate it 90 degrees clockwise.

3. 完成结束操作：单击右键

Complete and end the operation: Single-click the Right button.

右键双击 Right Double-Click:

绘图结束：在使用智能笔时，双击结束绘图

End of drawing: When using the Smart Pen, double-click to finish drawing.

左键双击 Left Double-Click:

工具切换：双击左键可智能笔与修剪工具切换

Tool switching: Double-click the Left button to switch between the Smart Pen and the Trimming Tool.

***除上述功能外，其余都是由左键完成**

Except for the above-mentioned functions, all other operations are performed using the Left button.

工具栏工具 Toolbar Tools

文件：打开，保存，另存为都是指软件本身的格式

导入可以打开 plt，dxf 格式

File operations (Open, Save, Save As): These functions all refer to the software's native file format.

Import: This function supports opening files in PLT and DXF formats.

选项 Options：

应用程序选项：可以修改单位，语言，机器 ip 修改，刀笔设置

Application Options: You can modify the following settings: Unit settings, Language settings, Machine IP address, Tool and pen settings.

自定义快捷键：可根据自己习惯设置快捷键

Custom Shortcut Keys: You can set shortcut keys according to your own usage habits.

鼠标中键设置：按鼠标中键会弹出快捷键，可自行添加需要的

Mouse Middle Button Settings: Pressing the Middle Button will bring up the shortcut key menu, and you can add the shortcut keys you need manually.

输出缝纫线：框选样片点击输出缝纫线即可保存 plt 格式

Output Sewing Lines: Frame-select the pattern pieces, click “Output Sewing Lines”, and the file will be saved in PLT format.

特色功能 Featured Functions：

虚线转实线：框选虚线部分，点击虚线转实线即可转为实线

Dashed Line to Solid Line: Frame-select the dashed line segment and click “Dashed Line to Solid Line” to convert it to a solid line.

内部线延长到边：框选裁片点击该功能可一键延长到边

Extend Inner Lines to Edges: Frame-select the pattern pieces and click this function to extend the inner lines to the edges with one click.

智能取片：框选需要取的裁片，点击取片即可取出裁片

Intelligent Pattern Extraction: Frame-select the pattern pieces to be extracted and click “Extract Pattern” to take them out.

删除多余点：可删除多余的点

Delete Redundant Points: Redundant points can be deleted.

删除重复线：可将重合线删除

Delete Duplicate Lines: Overlapping lines can be removed.

左右镜像：图形可在原地左右镜像

Horizontal Mirroring: Graphics can be horizontally mirrored in place.

上下镜像：图形可在原地上下镜像

Vertical Mirroring: Graphics can be vertically mirrored in place.

选择：点击选择可选择不同线型，例如：选择画笔，可以把这页面的所有笔画线选中

Selection Function: Click “Select” to choose different line types. For example, select “Brush” to select all brush-drawn lines on the current page.

线条属性 Line Properties

模板切割机专用的四种线型： 

Four dedicated line types for template cutting machines:

自动缝纫机专用的三种线性： 

Three dedicated line types for automatic sewing machines:

各种线型对应的颜色 

The colors corresponding to various line types

记号笔 Marking Pen

激光笔 Laser

缝纫线 Sewing Line

半铣刀 Half Milling Cutter

刻刀 Engraving Knife

铣刀 Milling Cutter

画笔 Drawing Pen

笔型定义 Pen Type Definitions:

画笔：绘图基本线，模板切割机的油性画笔。

Drawing Pen: Basic drawing lines; the oil-based drawing pen of the template cutting machine.

铣刀：模板切割机的切割线，如切割外框线，槽线。

Milling Cutter: Cutting lines for the template cutting machine, such as outer frame cutting lines and groove

lines.

刻刀：模板切割机用刻刀切割纸样线。

Engraving Knife: Paper pattern lines cut by the engraving knife of the template cutting machine.

半铣刀：模板切割机不切透模板材料。

Half-Milling Cutter: A tool for the template cutting machine that does not cut through the template material.

缝纫线：自动缝纫机的车缝线。

Sewing Line: Stitching lines for automatic sewing machines.

激光线：自动缝纫机激光切割线。

Laser Line: Laser cutting lines for automatic sewing machines.

记号笔：自动缝纫机点位或工艺辅助线。

Marking Pen: Dot positions or process auxiliary lines for automatic sewing machines.

线条选择 Selection of Lines

选中对象 **Selecting Objects:**

鼠标左键框选：选中的线条为紫色虚线，表示线条在选中状态。

Frame selection with the Left Mouse Button: Selected lines will appear as purple dashed lines, indicating they are in the selected state.

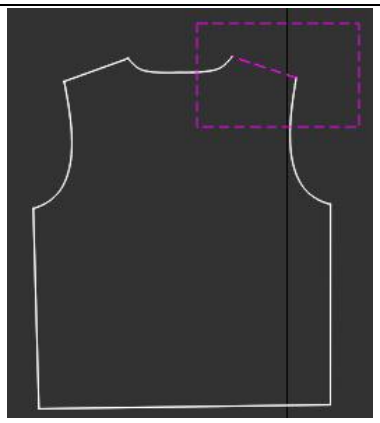
框　选 **Frame Selection Methods:**

1.按住左键**从左到右**框选，全部框选住的线条才会被选中。

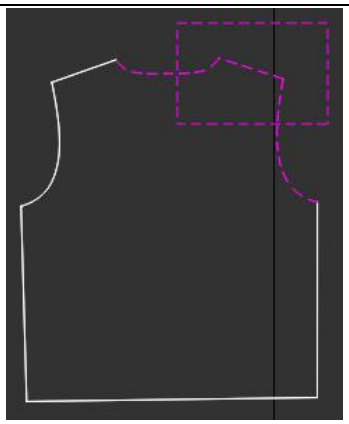
Press and hold the Left Button, then drag from left to right to draw a frame. Only lines that are completely enclosed by the frame will be selected.

2. 按住左键**从右到左**框选，只要框碰到的线条都会被选中。

Press and hold the Left Button, then drag from right to left to draw a frame. Any line that is touched by the frame will be selected.



从左往右框选，只选中整条线包含在内的



从右往左框选，碰到的线条都会被选中

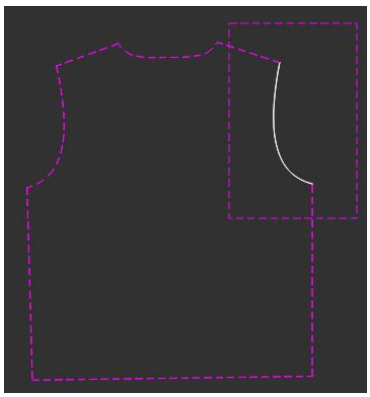
取消选中对象：按住键盘的 Ctrl 键，然后框选已选中的线条即可取消

Frame Selection Rules:

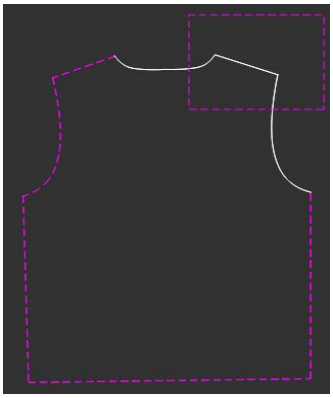
Drag from left to right to draw a frame: Only lines that are completely contained within the frame will be selected.

Drag from right to left to draw a frame: Any line that is touched by the frame will be selected.

Deselecting Objects: Press and hold the Ctrl key on the keyboard, then frame-select the already selected lines to deselect them.



从左往右框选，只取消整个框选住的线条



从右往左框选，碰到的线条都会被取消

Drag from left to right to draw a frame: Only the lines that are completely enclosed by the frame will be deselected.

Drag from right to left to draw a frame: Any line that is touched by the frame will be deselected.

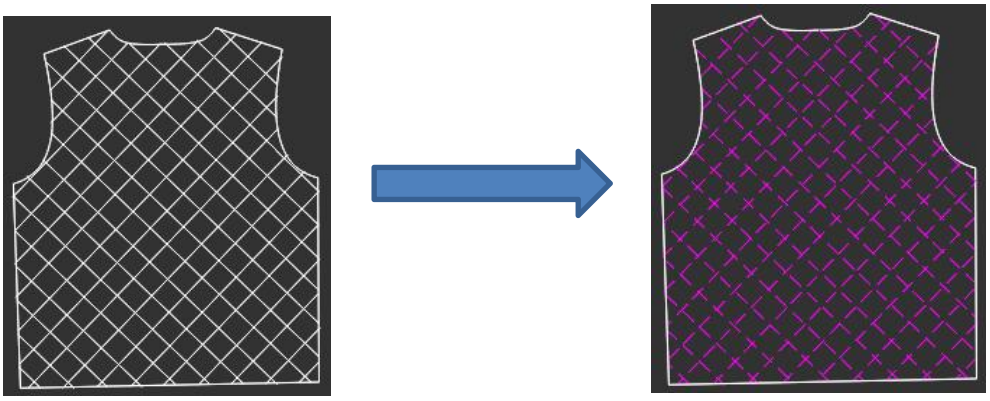
快速选择  Quick Selection

 选取相连线条：选取时将与已选线条相连的线条也选中（按下这个工具，只需要框选一条线，整个外框都会被框选）

Select Connected Lines: When selecting, lines connected to the already selected lines will also be selected. (After activating this tool, you only need to frame-select one line, and the entire outer frame will be selected.)

 忽略闭合线：选取时忽略掉闭合的线条（全部框选后，只会选中里面的线条，外框忽略）

Ignore Closed Lines: When selecting, closed lines will be ignored. (After framing all elements, only the inner lines will be selected, and the outer frame will be ignored.)



 连码模式：开启连码模式后，选择线条时，会选择和当前线条所属裁片的同款裁片中对应的线条。

Marker Mode: After enabling Marker Mode, when selecting a line, the corresponding lines in the same style of pattern pieces as the pattern piece to which the current line belongs will be selected automatically.

选择工具快速移动复制 Quick Move and Copy with Selection Tool

移动：快捷键（Ctrl+X）Move: Shortcut key (Ctrl+X)

将图形、文字从一个地方移动到另外一个地方，移动后信息只会在新的地方存在。

Move graphics or text from one location to another. After moving, the content will only exist in the new location.

复制：快捷键（Ctrl+C）Copy: Shortcut key (Ctrl+C)

将图形、文字从一个地方复制到另外一个地方，复制后原先地方的信息也会依然存在。

Copy graphics or text from one location to another. After copying, the content will still remain in the original location.

使用方法 Usage Methods:

移动图形：选择要移动的图形后，按键盘上的 Ctrl+X，也可框选图形在图形上单击左键移动，单击右键旋转，确定好后左键结束。

Moving Graphics: After selecting the graphics to be moved, press Ctrl+X on the keyboard. Alternatively, frame-select the graphics, click and hold the left mouse button on the graphics to move them, click the right mouse button to rotate them, and left-click to confirm and complete the operation.

复制图形：选择要移动的图形后，按键盘上的 Ctrl+C

Copying Graphics: After selecting the graphics to be copied, press Ctrl+C on the keyboard.

放下图形：移动到想要的位置后点击左键即可放下

Placing Graphics: Move the graphics to the desired position and left-click to place them.

设为连码 Set as Marker Mode：选择相同款式的多个裁片，点 

，开启连码模式，点  ，会自动选择和当前线条所属裁片的同款裁片中对应的线条。（按空格键可激活同款模式或关闭）

在连码模式下可进行角连接、智能笔做图、右键线条编辑的操作。

Select multiple pattern pieces of the same style, click 

to enable Marker Mode, then click  ; the system will automatically select the corresponding lines in the same-style pattern pieces as the pattern piece to which the current line belongs. (Press the Space key to activate or deactivate the Same-Style Mode.)

智能笔工具 Intelligent Pen Tool

作图 Drawing Functions:

1. **任意直线：**点击左键，移动鼠标左键确定第二个点，右键结束。

Arbitrary Straight Line: Click the left mouse button, move the mouse to determine the second point, and click the right mouse button to finish.

2. **指定直线：**点击左键，在长度输入框中输入数值，移动鼠标左键确定第二个点，右键结束。

Specified Straight Line: Click the left mouse button, enter a value in the length input box, move the mouse to determine the second point, and click the right mouse button to finish.

3. **指定长度角度直线：**点击左键，在长度，角度输入框中分别输入数值，移动鼠标左键确定第二个点，右键结束。

Straight Line with Specified Length and Angle: Click the left mouse button, enter values in the length and angle input boxes respectively, move the mouse to determine the second point, and click the right mouse button to finish.

4. **曲线：**点击左键，移动鼠标左键确定多个点，右键结束。

Curve: Click the left mouse button, move the mouse to determine multiple points, and click the right mouse button to finish.

5. **折线：**点击左键，移动鼠标左键确定第二个点，单击右键，移动鼠标左键确定第三个点，单击右键，最后右键结束。

Polyline:Click the left mouse button, move the mouse to determine the second point and click the right mouse button; move the mouse again to determine the third point and click the right mouse button; finally, click the right mouse button to finish.

6. **画矩形：**在智能笔工具下，按下 shift 键，在长度和宽度的输入框中输入数值，在屏幕中点击左键。

Drawing a Rectangle: Under the Intelligent Pen Tool, press and hold the Shift key, enter values in the length and width input boxes, then click the left mouse button on the screen.

7. **画圆：**在智能笔工具下，按两下 shift 键，在半径输入框中输入数值，在屏幕中点击左键。

Drawing a Circle: Under the Intelligent Pen Tool, press the Shift key twice, enter a value in the radius input box, then click the left mouse button on the screen.

8. **平行线：**框选线条，鼠标点击左键可进行线条平移。

Parallel Lines: Frame-select a line, then click the left mouse button to translate the line.

***智能笔在连绘状态下，双击右键即可结束操作。**

When the Intelligent Pen is in continuous drawing mode, double-click the right mouse button to end the operation.

智能笔修改 Intelligent Pen Modification

1.角连接 Conner Connection：

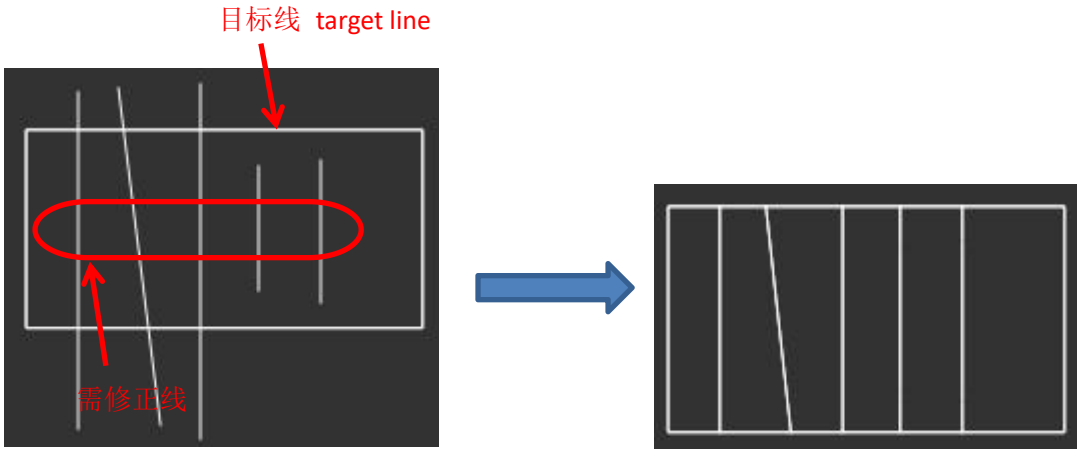
框选两条成角的线条，右键后移动鼠标，让保留的部分成黄色，点击右键结束。

Frame-select two lines that form an angle, right-click, then move the mouse to make the portion to be retained turn yellow. Click the right mouse button to finish.

2.端修正 End Correction：

框选需修正的线段，左键点击目标线，再右键确定结束。

Frame-select the line segment to be corrected, left-click the target line, then right-click to confirm and finish.



修正完成（长的缩短，短的延长）

3.转为曲线 Convert to Curve：

在曲线上单击右键，工具栏上会出现 转为曲线 ，显示此曲线是多个短直线组成，转为曲线后才成为真正的曲线。

Right-click on the curve, and a toolbar will appear 转为曲线 , showing that the curve is composed of multiple short straight lines. It will become a true curve only after being converted to a curve.

4.曲线编辑 Curve Editing：

在曲线上单击右键激活线条，移动鼠标左键对曲线上的点进行调整。（左键加点，右键删点）

Right-click on the curve to activate the line, then move the left mouse button to adjust the points on the curve. (Use the left button to add points and the right button to delete points.)

5.快速延长 Quick Extension:

鼠标左键框选线条，靠近哪端就延长哪端，在上面工具栏中输入数值可快速延长，并可勾选延长两端。

Drag the left mouse button to select the line; the line will extend from whichever end you approach. You can quickly extend it by entering a value in the top toolbar, and you can also check the option to extend both ends.

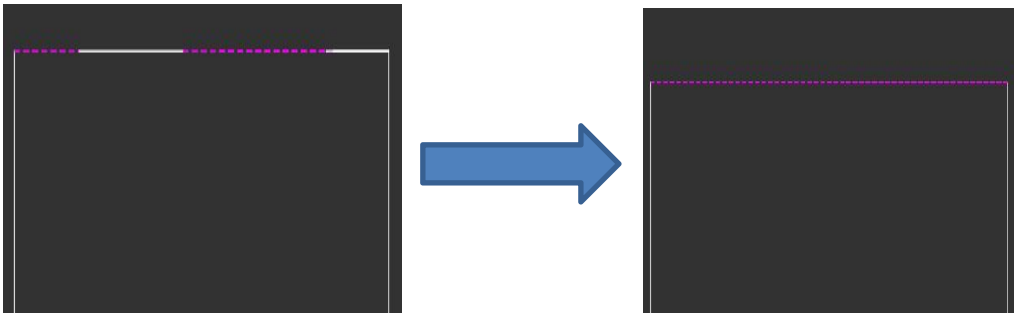
连接工具 Connect Tool

功能：连接断开的线条

Function: Connect broken lines

操作方法：选择工具，框选需要连接的线右键

Operation method: Select the tool, drag to select the lines to be connected, and then right-click



断线连接前

Before connecting broken lines

断线连接后

After connecting broken lines

打断工具 Break Tool

功能：连接线与之相交打断

Function: Break the connecting line at its intersection with it

1.任意打断：点击打断工具，框选打断的对象，在打断位置单击左键。

Arbitrary Break: Click the Break Tool, drag to select the object to be broken, and left-click at the break position.

2.框选要打断的对象，再去点击打断工具，会打断所相邻的线条。

Drag to select the object you want to break, then click the Break Tool; this will break the adjacent lines.

修剪与延长工具 Trim and Extend Tool

修剪 Trim：

把鼠标移动到需要修剪的地方单击左键，或框选要修剪的地方。

Move the mouse to the area you need to trim and left-click, or drag to select the area to be trimmed.

延长 Extend:

点击左键需要延长的对象，在 

输入延长值，右键确定。需要延长起点，点击距离起点更近的一侧，需要延长终点，则点击距离终点更近的一侧。勾选 

则可以两端延长。

Click the left mouse button on the object that needs to be extended, enter the extension value 

, and right-click to confirm. To extend the starting point, click the side closer to the starting point; to extend the end point, click the side closer to the end point.

Checking the option 

allows extension from both ends.

垂线与矩形工具 Perpendicular Line and Rectangle Tool

垂线 Perpendicular Line:

在需要做垂线的线条上单击左键，以确定起点，选择线条方向或输入角度、长度， 

在此输入，最后左击画出线条。

Left-click on the line where you need to draw a perpendicular line to set the starting point. Then select the line direction, or enter the angle and length 

, and finally left-click to draw the line.

矩形 Rectangle:

选择矩形工具，在屏幕上单击左键确定矩形的第一个点， 

在输入框中输入长、宽或直接拖动鼠标，单击左键确定。

Select the Rectangle Tool, left-click on the screen to set the first point of the rectangle, then either enter the

length and width in the input box 

or directly drag the mouse, and left-click to confirm.

画圆与旋转工具 Circle Drawing and Rotation Tool

画圆 Circle drawing:

选择画圆工具，在屏幕上单击左键以确定圆心，拖动鼠标单击左键画圆，或在 

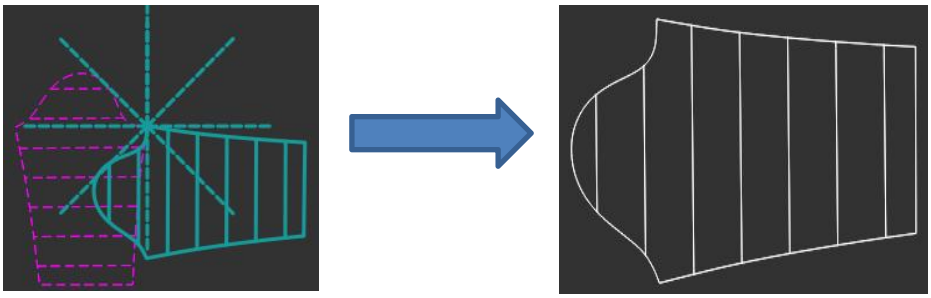
输入框中输入半径，单击左键画圆。

Select the circle drawing tool, left-click on the screen to set the center of the circle, then either drag the mouse and left-click to draw the circle, or enter the radius in the input box and left-click to draw the circle.

旋转 Rotation:

框选要旋转的对象，单击右键结束，鼠标左键确定旋转中心点，（也可以是图形上的点），再单击左键点旋转起点，最后移动鼠标旋转图形，左键点击确定。

Drag to select the object to be rotated, right-click to finish selection, left-click with the mouse to set the rotation center point (which can also be a point on the graphic), then left-click again to set the rotation starting point, finally move the mouse to rotate the graphic and left-click to confirm.



缩放工具 Scale Tool

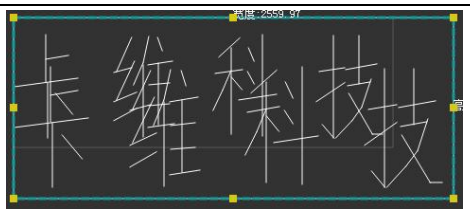
图形的比例放大缩小 Proportional Scaling of Graphics:

操作方法：左键框选要缩放的图形，右键确定，出现黄色的控制点。

Operation method: Left-click and drag to select the graphic to be scaled, right-click to confirm; yellow control points will appear.

自由缩放：鼠标放在黄色控制点上，按住左键移动进行缩放。

Free scaling: Place the mouse on the yellow control points, hold down the left mouse button and move to scale.



定值缩放：在工具栏里输入数值 

勾选等比例缩放后，在工具栏的宽度与高度任意一个输入框中输入数值，另外一个值自动计算，同时图形按同比例等比缩放。

Fixed-value scaling: Enter values in the toolbar 

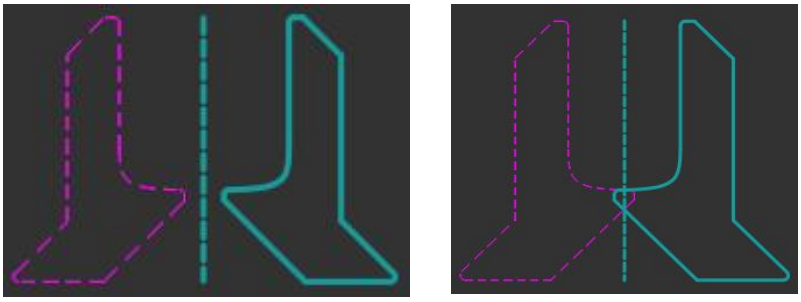
.

After checking the “Proportional Scaling” option, enter a value in either the width or height input box in the toolbar. The other value will be calculated automatically, and the graphic will scale proportionally at the same time.

镜像工具 Mirror Tool

操作方法：左键框选要镜像的图形，右键确定，移动鼠标确定镜像方向，单击鼠标左键完成操作。

Operation method: Left-click and drag to select the graphic to be mirrored, right-click to confirm. Move the mouse to determine the mirror direction, then left-click to complete the operation.



镜像距离的值可以是正数，也可以是负数

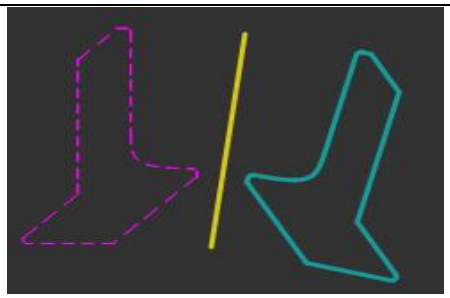
The value of the mirror distance can be either positive or negative.

勾选任意轴镜像 

，鼠标左键单击确定镜像轴，移动鼠标左键确定位置。

Check “Mirror Across Any Axis” 

, then left-click to set the mirror axis, and move the mouse while holding the left button to determine the position.



移动工具 Move Tool

操作方法：左键框选要移动的对象，按右键结束，左键单击这个图形可随意移动，点击右键旋转 90 度，按住 Shift 键单击右键顺时针旋转 5 度，按住 Alt 键单击右键逆时针旋转 5 度，按住 Ctrl 键单击右键完成镜像。

Operation Method: Left-click and drag to select the object to move, then right-click to finish selection. Left-click on the graphic to move it freely, Right-click to rotate it 90 degrees, Hold down the Shift key and right-click to rotate it 5 degrees clockwise, Hold down the Alt key and right-click to rotate it 5 degrees counterclockwise, Hold down the Ctrl key and right-click to complete mirroring.

勾选保留原始对象，移动后原图会保留。

Check “Keep Original Object”, and the original graphic will be retained after moving.

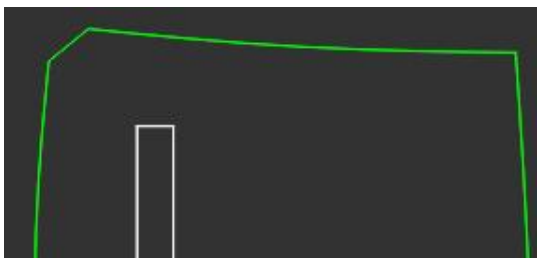
圆角工具 Round Corner Tool

操作方法：输入半径，框选需要倒圆角的部分

Operation Method: Enter the radius, then drag to select the part that needs to be rounded.

不勾选圆角，则倒出来的角是尖角

If “Round Corners” is not checked, the resulting corners will be sharp



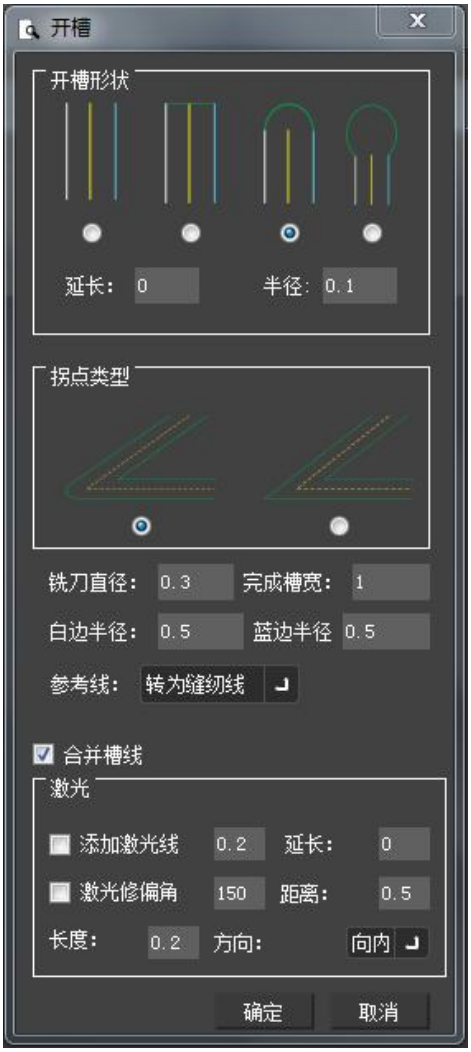
开槽工具 Grooving Tool

完成槽宽大于铣刀直径时，就需要用开槽工具

使用方法：选择开槽工具，选择需要开槽的线，再单击右键

When the completed groove width is larger than the milling cutter diameter, the grooving tool is required.

Usage Method: Select the Grooving Tool. Select the line where the groove needs to be made. Then right-click.



1.槽的两头形状可分别定义，有四种可选

The shapes of both ends of the groove can be defined separately, with four options available.

2.槽两头可分别延长，可合并槽线

Both ends of the groove can be extended separately, and the groove lines can be merged.

3. 参考线可选择模式，下拉框有四种模式可选

The reference line can be set to a selection mode, with four modes available in the drop-down box.

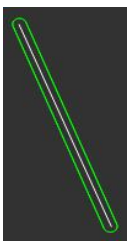
4. 根据铣刀直径与槽宽值，系统自动计算铣刀损耗

The system automatically calculates the milling cutter wear based on the milling cutter diameter and groove width values.

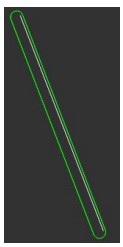
5. 通过参考线，红边，黄边来显示开槽结果

The grooving result is displayed through reference lines, red edges and yellow edges.

绿色为铣刀属性



居中开槽



偏位开槽

6. 可选择多条线条同时操作

Multiple lines can be selected for simultaneous operation.

7. 可选择开槽添加激光线

You can select to add a laser line when grooving.

铣刀属性：将线条定义为铣刀属性，开出的槽等于铣刀直径

Milling Cutter Property: Define the line as having milling cutter properties, and the resulting groove will match the milling cutter diameter.

居中开槽：黄边半径与红边半径数值相等，原线在槽的中间

Centered Grooving: The radius values of the yellow edge and red edge are equal, and the original line is in the middle of the groove.

偏位开槽：黄边半径与红边半径数值不同，槽与原线大小边

Offset Grooving: The radius values of the yellow edge and red edge are different, resulting in the groove having unequal sides relative to the original line.

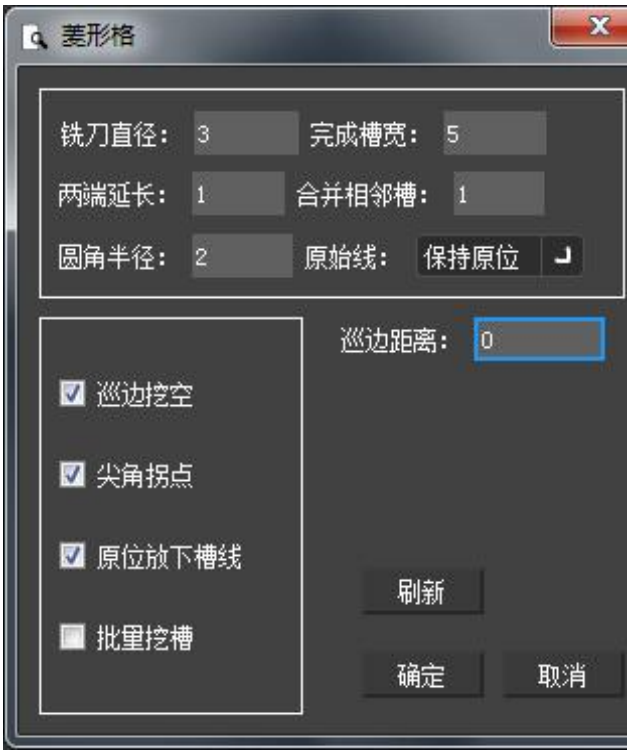
***模板切割机常用 3.175㎜ 和 4.0㎜ 两种铣刀**

Template cutting machines commonly use two types of milling cutters: 3.175mm and 4.0mm.

挖槽工具 Pocketing Tool

操作方法：选择挖槽工具，左键框选要挖槽的线条，单击右键弹出对话框

Operation Method: Select the Pocketing Tool; Left-click and drag to select the lines where the pocket needs to be created; Right-click to bring up the dialog box.



1. 圆角半径：修改拐角圆顺
2. 原始线：下拉三角可修改为其他线型
3. 两端延长：可延长槽线，避免扎到 PVC 板
4. 根据铣刀直径与槽宽值，系统自动计算铣刀损耗
5. 原位放下槽线：图形可在原位处理
6. 批量挖槽：可以多个裁片一起挖槽

***通过挖槽工具得到的槽线，系统已自动连接成一条线**

1.Fillet Radius: Adjust to smooth the corners.

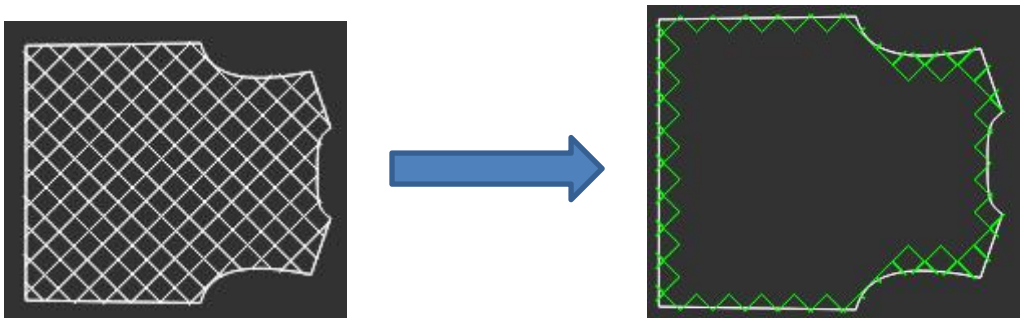
2.Original Line: Use the drop-down triangle to change it to another line type.

3.Extension at Both Ends: Extend the groove line to prevent it from piercing the PVC board.

4.Milling Cutter Wear Calculation: The system automatically calculates wear based on the milling cutter diameter and groove width.

5.Place Groove Line in Original Position: Process the graphic without moving it from its original location.

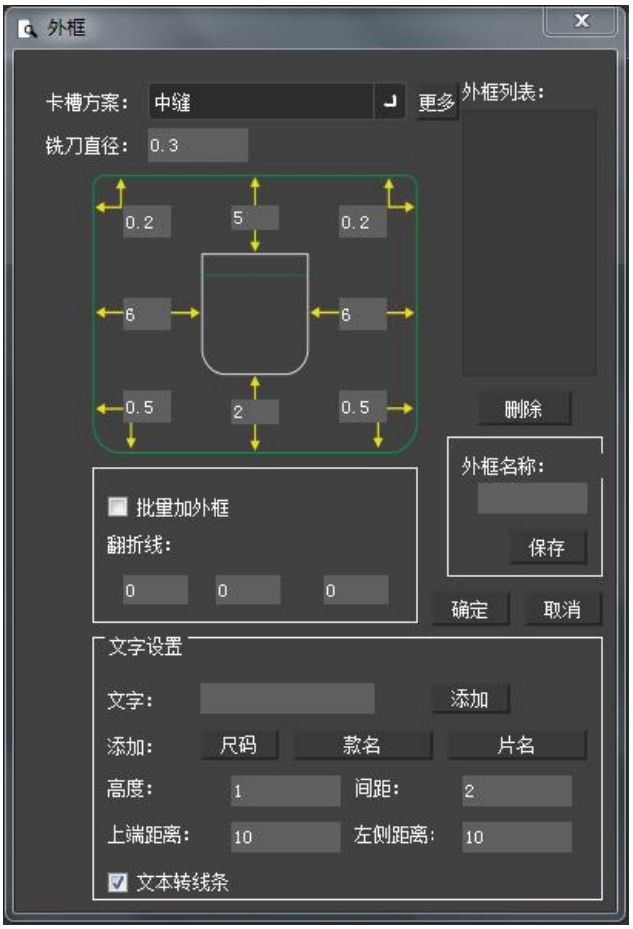
6.Batch Pocketing: Create pockets for multiple cut pieces simultaneously.



外框工具 Outer Frame Tool

操作方法：选择外框工具，框选需要添加外框的对象，右键结束

Operation Method: Select the Outer Frame Tool. Drag to select the objects that need an outer frame added. Right-click to finish.



1. 可选择卡槽方案，添加缝纫机的外框
2. 添加外框的同时，可以添加多条翻折线
3. 四个框角可以通过修改参数值来处理圆角
4. 四个方向的距离可以自由修改，并且允许负数
5. 可以多个裁片同时加外框
6. 保存外框以便于下次使用，提高效率
7. 可以直接添加文本，尺码，款名，片名

1.Select a card slot scheme to add an outer frame for the sewing machine.

2.When adding the outer frame, multiple fold lines can be added simultaneously.

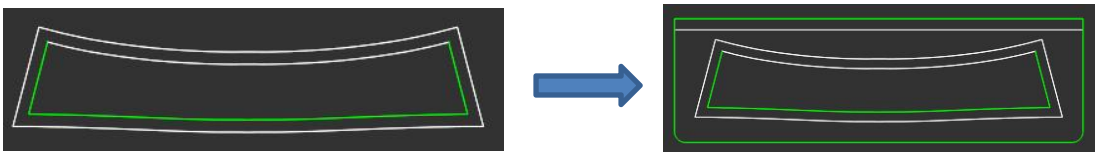
3.The four corners of the frame can be adjusted to rounded corners by modifying parameter values.

4.The distances in the four directions can be freely modified, and negative values are allowed.

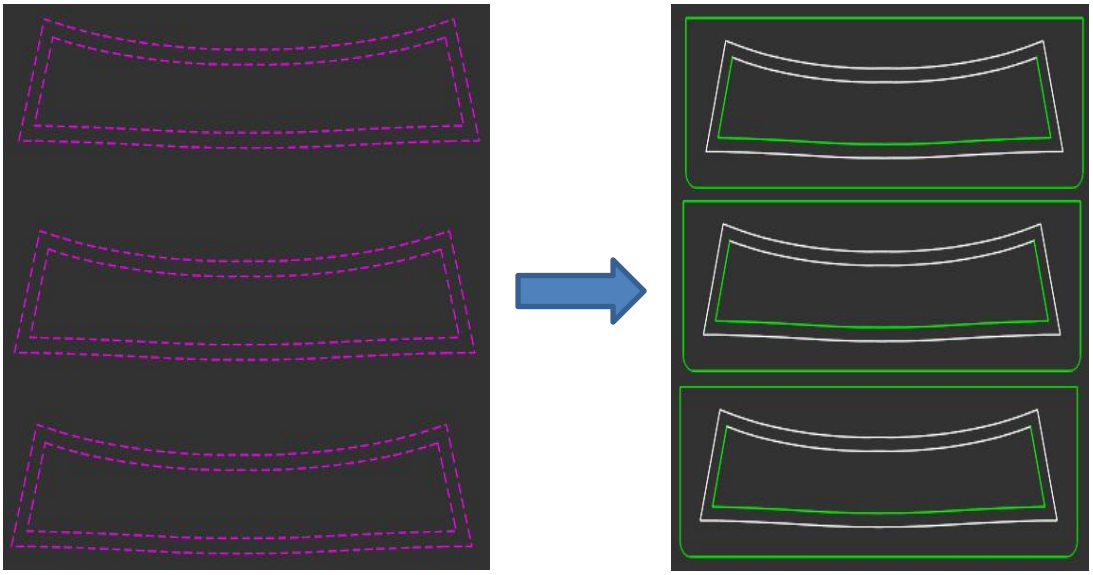
5.Outer frames can be added to multiple cut pieces at the same time.

6.Save the outer frame for future use to improve efficiency.

7. Text, size, style name, and piece name can be added directly.



批量加外框 Add Outer Frames in Batch



刀损工具 Tool Wear Tool

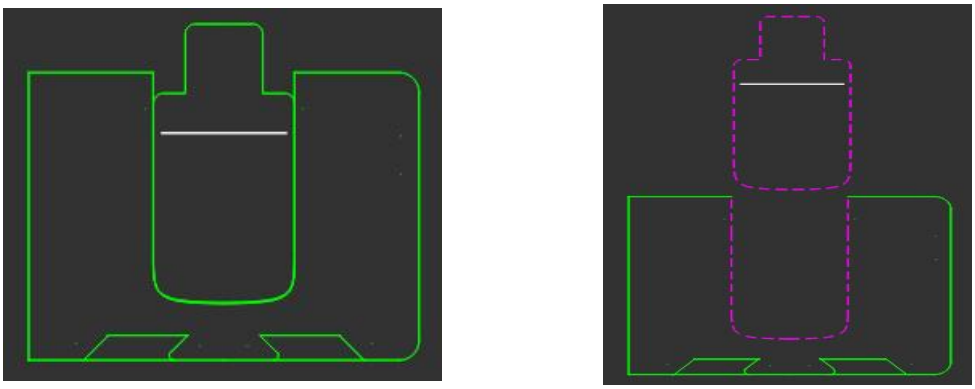
操作方法：选择要做刀损补偿的线条，按右键结束。

Operation Method: Select the lines that require tool wear compensation, then right-click to finish.

向外加刀损 Outward Tool Wear Compensation：

用于补偿铣刀的损耗，让切割完成后正好是设计的结果。

Used to compensate for the wear of the milling cutter, ensuring that the result after cutting exactly matches the design.

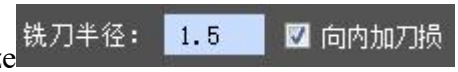


如果设计的图形是吻合的，由于铣刀有半径，切割后拼合，会出现大小问题，需要将这两处的线条添加刀损，切出来的模板才是设计的效果。

If the designed graphics are supposed to fit together, due to the radius of the milling cutter, there will be

size discrepancies when assembled after cutting. It is necessary to add tool wear compensation to the lines at these two positions to ensure the cut template achieves the designed effect.

向内加刀损 Inward Tool Wear Compensation:

改小尺寸 Reduce Size 

切割镂空的部分，切割完成后比实际要的尺寸大，这时候就需要添加刀损，选择刀损工具，勾选向内加刀损，选择线条，点击右键结束。

When cutting hollowed-out parts, if the finished cut is larger than the actual required size, it is necessary to add tool wear compensation.

Operation Steps: Select the Tool Wear Tool; Check “Inward Tool Wear Compensation”; Select the relevant lines; Right-click to finish.

平行工具 Parallel Tool

操作方法：选择平行工具，选择要作平行线的线条，在 

输入框中输入数值，或者移动鼠标，点击左键确定。

Operation Method: Select the Parallel Tool, Choose the line for which you want to create a parallel line, Either enter a value in the input box, or move the mouse, then click the left mouse button to confirm.

多条平行 Multiple Parallels：

平行数量默认为 1，如果改为 6 时，可同时拉出相同间距的 6 条平行线。

The default number of parallel lines is 1. If you change it to 6, you can draw 6 parallel lines with equal spacing at the same time.

重复平行 Multiple Parallels：

已操作了一次平行线功能，鼠标箭头还是显示平行线功能的情况下，点击线条仍可以做平行线，并且还是上次数值。

After using the parallel line function once, if the mouse cursor still shows the parallel line function icon, you can click on another line to create more parallel lines. These new lines will use the same value as the previous operation.

直接平移 Linear Displacement： 

勾选直接平移，图形在同一高度左右平移。

Check “Direct Pan” to pan the graphics left or right at the same height.

删除原始线 Delete Original Line： 

勾选删除原始线，在图形平移过后原先的线条会被删除。

Check “Delete Original Line” and the original line will be removed after the graphic is translated.

测量工具 Measuring Tool

操作方法：点击需要测量的起点，再点击需要测量的终点，会出现线条的距离。

Operation Method: Click the starting point you want to measure, Click the end point you want to measure, The distance of the line will be displayed.

设码功能 Sizing Function

操作方法：选择设码功能，跳出对话框，框选裁片选择对应的尺码，再将编好码的裁片全部框选，点击重合，在对象上左击以指定任意码的起始点，其他码自动出现起始点。如果符合要求右击鼠标确定，如果位置不对请修改后再右击确定。

Operation Method:

Select the Sizing Function; a dialog box will pop up.

Drag to select the cut piece and choose the corresponding size.

Drag to select all the sized cut pieces, then click “Align” (or “Overlap”, depending on software terminology).

Left-click on the object to specify the starting point for any size; starting points for other sizes will appear automatically.

各尺码对应的颜色

S 码：

M 码：

L 码：

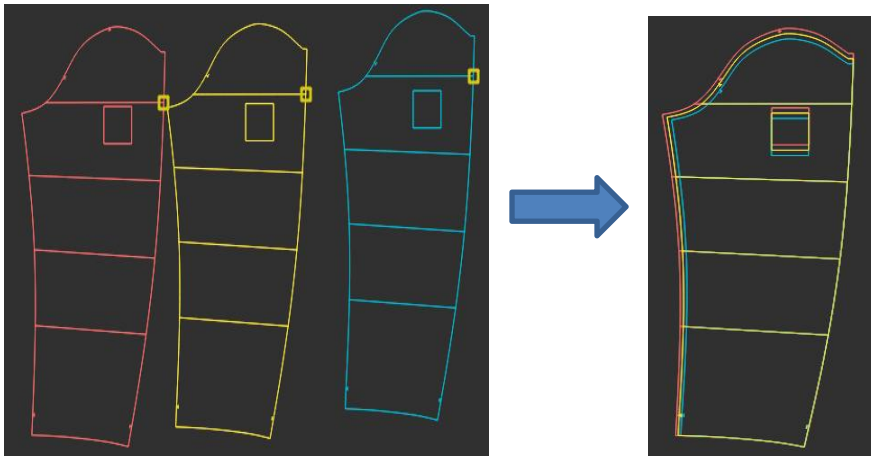
XL 码：

XXL 码：

临时码：可以输入尺码表上没有的尺寸，点击应用即可

重合：把编好码的裁片重合在一起

平铺：把重合在裁片平铺开来



锁定工具 Lock Tool

锁定 Lock Function：

锁定的线条颜色变成灰色，锁定的线条不能被框选或点选。

Lines that are locked will turn gray. Locked lines cannot be selected by dragging (frame selection) or clicking (point selection).

常用于：多个码线条重叠处理时，锁定不需要处理的线条，避免干扰。

选择一份作为底影，原位修改处理，实时显示修改的前后差别。

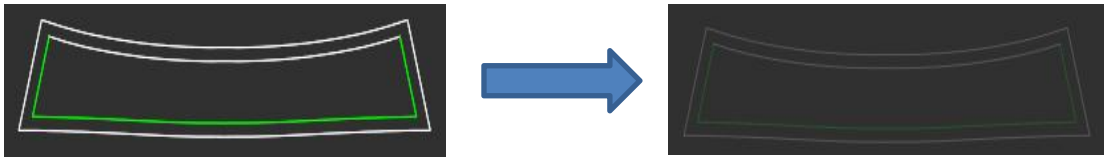
Common Use Cases: When handling overlapping lines of multiple sizes: Lock the lines that do not need adjustment to avoid interference.

Select one set of lines as a base (shadow reference), then modify other lines in the original position. This

allows real-time display of the difference between the original and modified versions.

操作方法：选择锁定工具，框选需要锁定的线条，颜色显示为灰色表示被锁定。

Operation method: Select the Lock Tool, drag to frame the lines that need to be locked. The lines will turn gray to indicate they are locked.



锁定后颜色变成灰色

Locked lines will turn gray.

解锁：将锁定的线条解除锁定

Unlock: Unlock the Locked Lines

操作方法：选择锁定工具，框选被锁定的线条即可解除锁定。

Operation Method: Select the Lock Tool, then drag to frame the locked lines to unlock them.

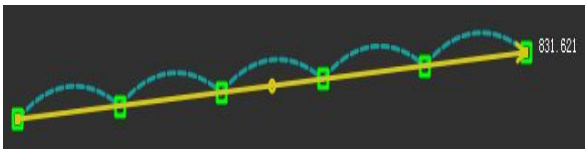
等分工具 Equal Division Tool

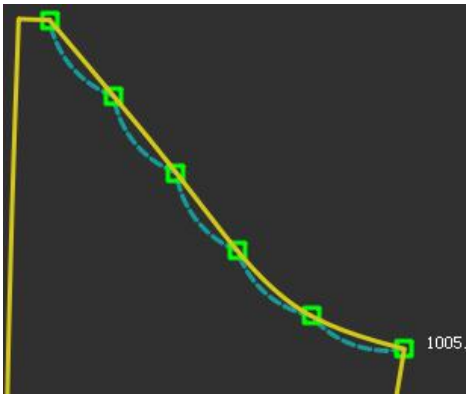
操作方法：选择等分工具，输入等分数量，点击等分线条的起点和终点。

Operation Method: Select the Equal Division Tool, Enter the number of divisions, Click the start point and end point of the line to be divided.

直线曲线都可等分

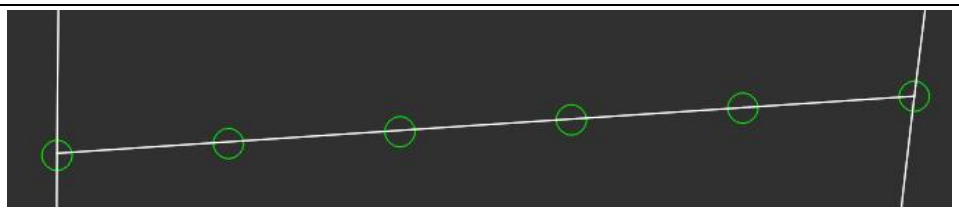
Both straight lines and curved lines can be equally divided.





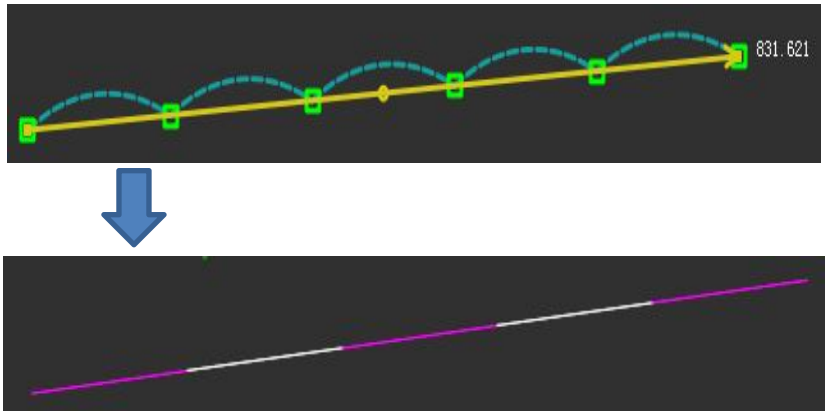
输入半径 

则可等分画圆 Enter the radius to divide a circle into equal parts.



勾选打断 

，在等分的同时将线条打断 Check “Break Apart” to split the line while dividing it into equal parts.



反向工具 Reverse Tool

操作方法 Operation Method：

对于封闭的图形，鼠标左击对象，即可改变起点为当前点击位置：对于未封闭的图形，鼠标点击对象为反向：框选对象也可实现反向。

Reverse Tool Operation Rules:

For closed shapes: Left-click on the shape to set the starting point to the current click position;

For unclosed shapes: Left-click on the shape to reverse its direction;

You can also reverse the direction by dragging to frame-select the shape.

文本工具 Text Tool

操作方法 Operation Method：

单击要添加文字的起点，拖动鼠标确定第二点，在对话框中输入文字，调节大小，点确定。

Click the starting point where you want to add text, drag the mouse to set the second point, enter the text in the dialog box, adjust the size, and click Confirm.

底下的文字转线条要勾选，以便机器识别

You need to check “Convert Text to Outlines” at the bottom to enable machine recognition.

对齐工具 Align Tool

操作方法 Operation Method：

选择对齐工具，框选要对齐的对象，右键结束

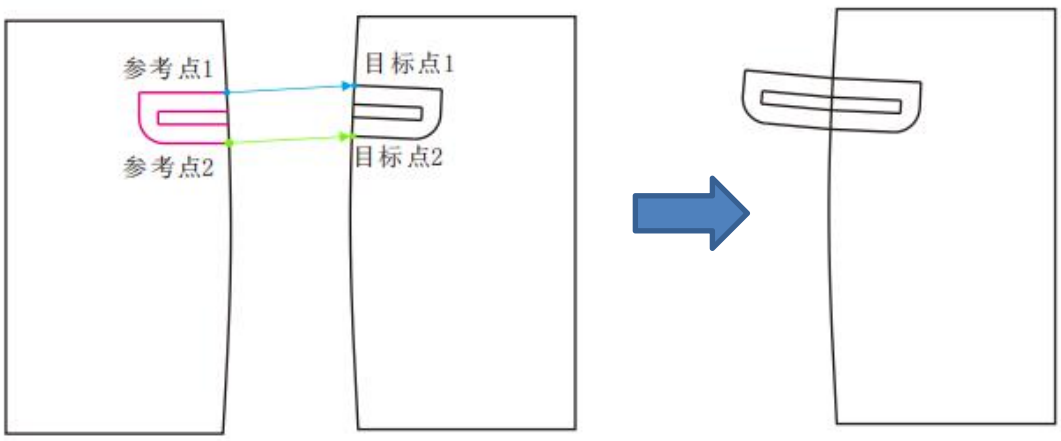
Select the Align Tool, drag to frame-select the objects you want to align, then right-click to finish the selection.

单击指定第一个参考点与第一个目标点

Click to specify the first reference point and the first target point.

再单击指定第二个参考点与第二个目标点

Click again to specify the second reference point and the second target point.



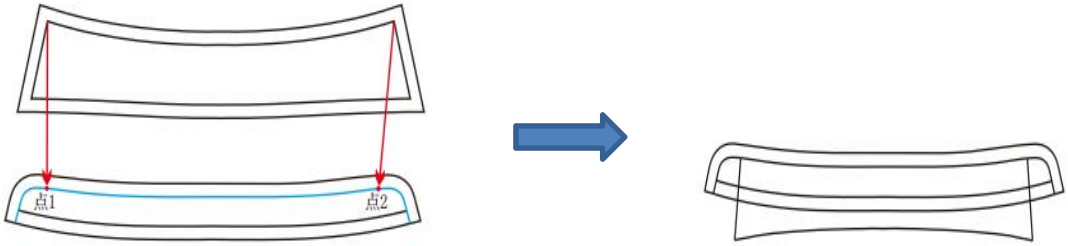
缝合工具 Sew Tool

功能：将两个图形拼接成一个图形（变形拼接）

Function: Combine two shapes into one (deformable stitching)

操作方法：选择要被缝合的线条，指定闭合位置 1，指定缝合位置 2，移动鼠标确定缝合的方向，单击左键确定。

Operation Method: Select the lines to be stitched.Specify the first closed position.Specify the second stitched position. Move the mouse to determine the stitching direction. Click the left mouse button to confirm.

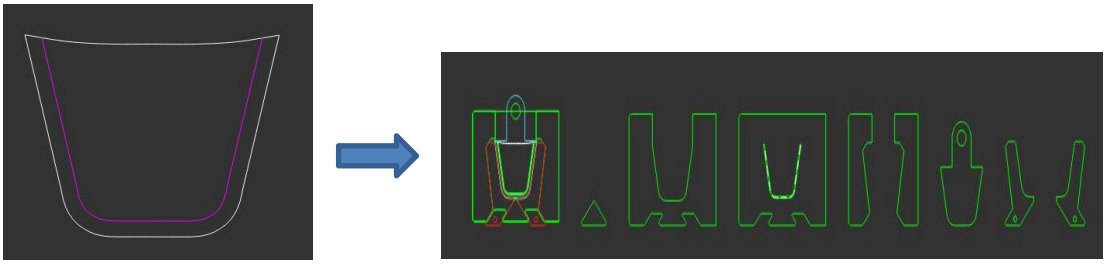


免烫工具 Anti-Iron Tool

操作方式：选择免烫的部分框选后点击免烫工具，即可生成免烫版

Operation Method: Select the part that needs anti-iron treatment and frame-select it.

Click the Anti-Iron Tool to generate the anti-iron version.



1. 铣刀直径：切割机上用的铣刀大小

Milling Cutter Diameter: The size of the milling cutter used on the cutting machine.

2. 完成槽框：切割完成后槽的大小

Finished Groove Frame: The size of the groove after the cutting process is completed.

3. 缝线边距：缝纫线到边的距离

Stitch Margin: The distance from the sewing thread to the edge (of the fabric).

4. 缝线延长：缝纫线槽线延长的距离

Stitch Extension: The extension distance of the sewing thread groove line.

5. 推压距离：推板盖住面料的距离

Pressing Distance: The distance that the pushing plate covers the fabric.

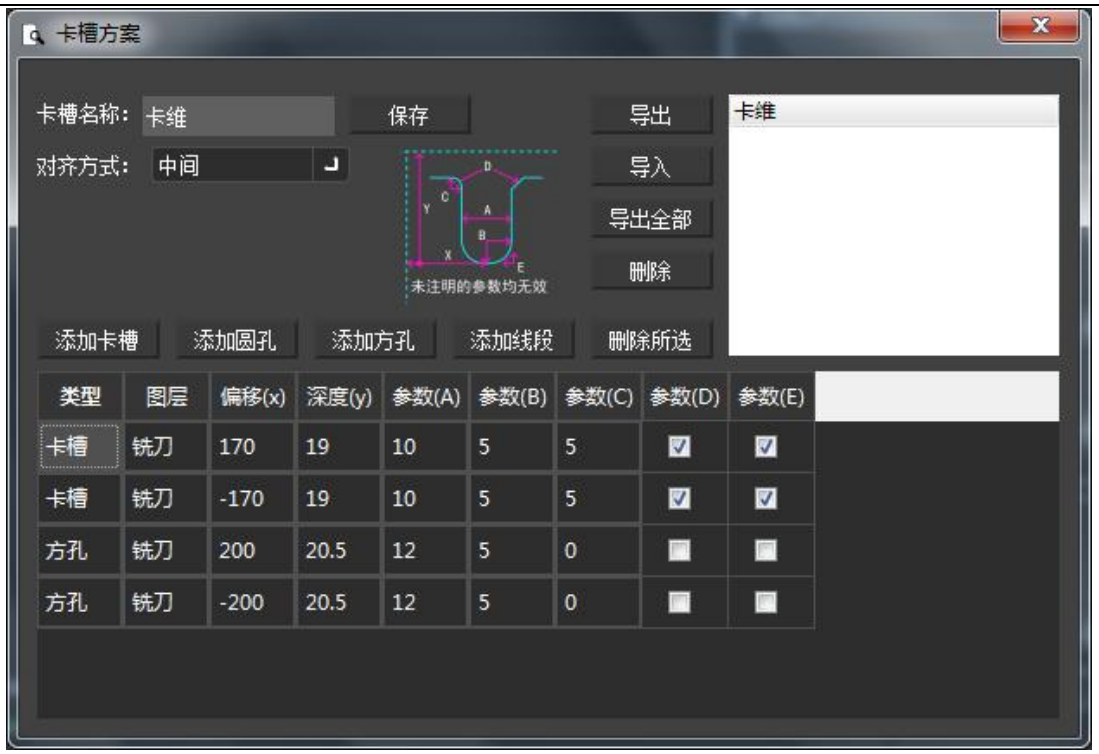
6. 角度：推板推动的角度

Angle: The angle at which the pushing plate moves.

新建卡槽流程 Procedures of Creating A New Card Slot

在制作外框的对话框中，点击更多，跳出卡槽方案对话框可开始新建：输入卡槽名称➡点添加配件（卡槽、圆孔、方孔、线段）➡点击表格里类型配件名称，根据参数说明输入参数值，添加所有配件后点击保存

In the dialog box for making the outer frame, click More—a card slot solution dialog box will pop up to start creating a new one: Enter the card slot name ➡Click Add Accessories (options include card slot, round hole, square hole, and line segment).➡Click the accessory name under the “Type” column in the table, then enter parameter values according to the parameter description. After adding all accessories, click Save.



双击表格里的数值可直接进行更改

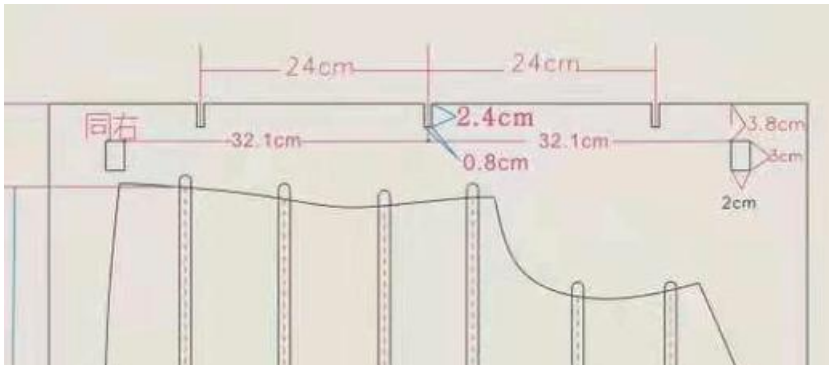
Double-click the values in the table to edit them directly.

双击线条属性可更改卡槽属性

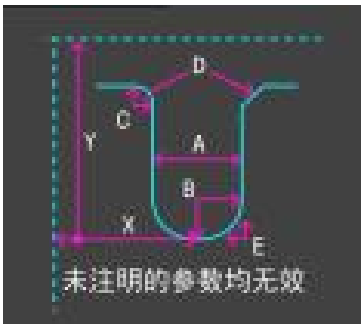
Double-click the line properties to modify the card slot properties.

槽头详解 Detailed Description of Slot Head

卡槽及方孔参数图纸 Parameter Drawing of Card Slots and Square Holes：



加卡槽的计算数值（毫米） Calculated Values for Adding Card Slots (in millimeters)



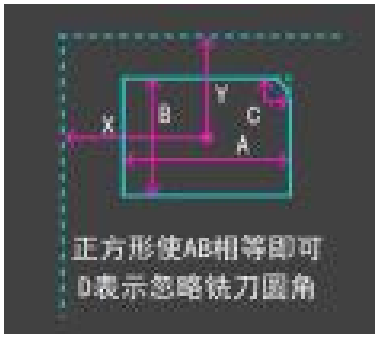
Y=槽深度=24 X=槽偏移=240 A=槽宽度=8

B=槽圆角=3 C=圆角=3

Y = Slot Depth = 24 X = Slot Offset = 240 A = Slot Width = 8

B = Slot Fillet Radius = 3 C = Fillet Radius = 3

加方孔的计算数值（毫米）Calculated Values for Adding Square Holes (in millimeters)



Y=边框距离+1/2 宽=53 X=偏移+1/2 长=331

A=长=8 B=宽=3 C=圆角

Y = Frame Distance + 1/2 Width = 53

X = Offset + 1/2 Length = 331

A = Length = 8

B = Width = 3 C = Fillet Radius

向左为负数，向右为正数，得以下数值:

Leftward values are negative, and rightward values are positive, resulting in the following figures.

快速切割 Quick Cutting

切割流程 Cutting Procedures：

框选要切割的图形，点击快速切割，弹出快速切割对话框

Frame-select the shape to be cut; Click Quick Cutting; A Quick Cutting dialog box will pop up.

设置参数定义 Parameter Setting Definitions:

1. 机台尺寸：当前切割机的切割范围

Machine Size: The Cutting range of the current cutting machine.

2. 工作区偏移：限制 4 个方向排料避让

Workspace Offset: Limits nesting avoidance in 4 directions.

3. 模板间距：限制样片之间排料间隔

1. Template Spacing: Limits the nesting interval between patterns.

4. 自动排序设置：样片切割排序

Auto-sorting Setting: Sorting of pattern cutting.

5. 调整模板切割顺序 

Adjust the template cutting sequence 

6. 调整线条加工顺序 

Adjust the line processing sequence 

7. 调整线条切割的方向和起点 

Adjust the direction and starting point of line cutting 

8. 显示线条切割顺序  ，点击即可

Display the line cutting sequence  , just click to do so.

9.分版排料：可以选择多个样片进行自动分版排料

Nesting by Plates: Multiple patterns can be selected for automatic nesting by plates.

10.保存排版结果：关闭快速切割页面后可保留排版时的结果

Save Nesting Result: The nesting result can be retained after closing the quick cutting page.

手动排料操作 Manual Nesting Operations

鼠标左击样片，移动鼠标排料，左键放下

Left-click a pattern, move the mouse to nest, and left-click to place it.

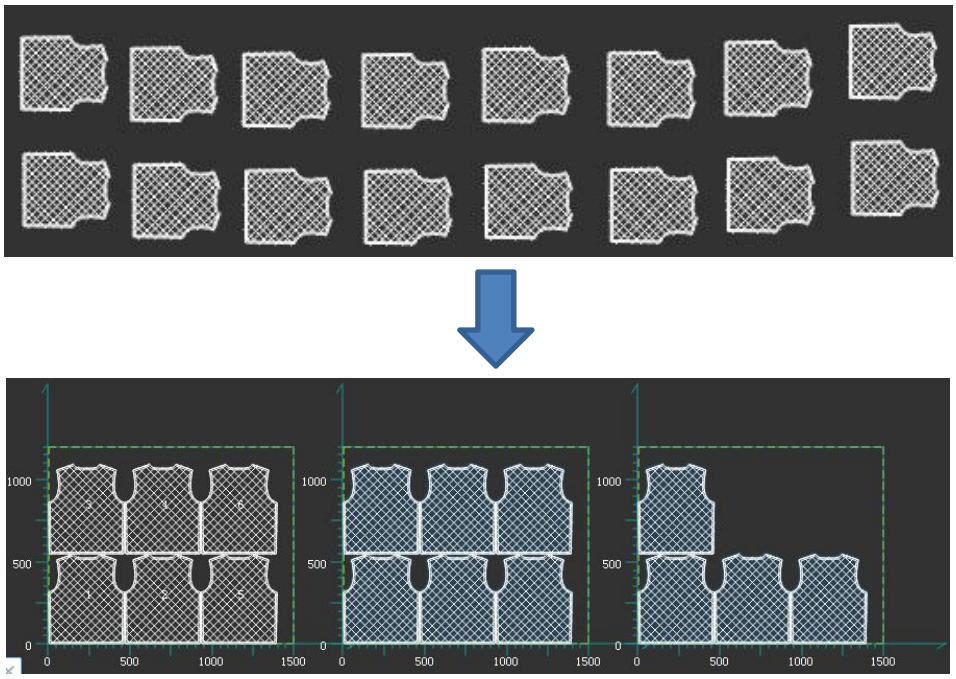
鼠标左击样片，右击样片可顺时针选转 90 度

Left-click a pattern, then right-click it to rotate 90 degrees clockwise.

分版排料 Nesting by Plates

勾选分版排料，框选所有要切割的样片，点击快速切割，会自动排成好几块版，可以选择版号来确定切割

Check the Nesting by Plates option; Frame-select all the patterns to be cut; Click Quick Cutting—the system will automatically arrange the patterns into multiple plates; Select a plate number to confirm the cutting process.



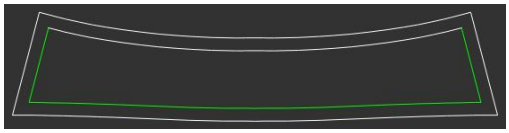
保存排版结果 Save Nesting Result

勾选保存排版结果，关闭快速切割对话框，裁片会显示排版时候的样子，不勾选保存排版结果，裁片还是原样。

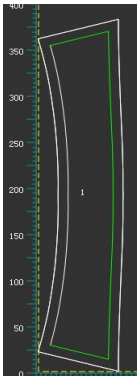
If you check the Save Nesting Result option, the cutting pieces will display as they were during nesting when you close the Quick Cutting dialog box.If you do not check the Save Nesting Result option, the cutting pieces will remain in their original state.

勾选保存排版结果

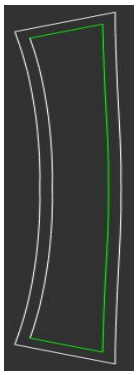
Check the Save Nesting Result Option



排版前 Before Nesting



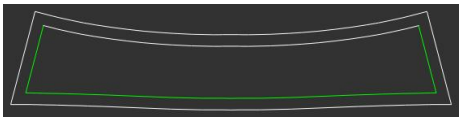
排版时 During Nesting



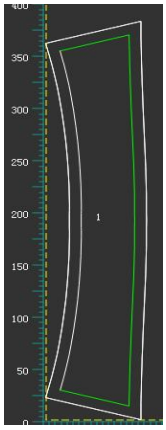
关闭切割页面显示还是排料时的 When you close the cutting page, the display will remain as it was during nesting.

不勾选保存排版结果

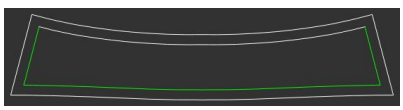
Do not Check to Save the Typesetting Result



排版前 Before Nesting



排版时 During Nesting



关闭切割页面不会保存排版时的结果 Closing the Cutting Page will not Save the Typesetting Results.

第四章 触摸屏使用说明

Chapter 4 Touchscreen Operation Instructions

卡维 X 高速模板切铣机全新升级，使用 4.3 寸 HMI 人机界面触摸屏作为输入和操作使用，均选用国际大厂品牌，千万家工业企业品质证明，保证了工业场合稳定性，高可靠性，并兼顾灵敏性和易操作性。

The CARV X High-Speed Template Cutting and Milling Machine has been fully upgraded. It adopts a 4.3-inch HMI (Human-Machine Interface) touchscreen for input and operation, with all core components sourced from international leading brands. Verified by the quality standards of thousands of industrial enterprises, it ensures stability and high reliability in industrial environments, while balancing sensitivity and ease of operation.

4.1 启动界面 Startup Interface

设备开机后经过初始化后进入的第一个界面就是【启动界面】，图 6

After the device is powered on and completes initialization, the first interface it enters is the [Startup Interface], as shown in Figure 6.

图 6

Figure 6

★ 开机后在此界面，需点击一下屏幕，使机器复位后才能正常工作。图 7

After the device is powered on and completes initialization, the first interface it enters is the [Startup Interface], as shown in Figure 7.

图 7

点击后则机器复位，然后进入首页。

After tapping, the machine will reset and then enter the Home Screen.

4.2 首页 Homepage

【首页】是复位后默认进入的页面，也是最主要的待机就绪界面：图 8

The [Home Screen] is the default interface entered after resetting, and it is also the primary standby ready interface. (See Figure 8)

图 8

Figure 8

【首页】下方共有 3 个大按钮，

There are 3 large buttons at the bottom of the [Home Screen].

参数设置：可以切换到其他页面，机器状态会自动切换成脱机，无法联机切割。

Parameter Setting: This button allows switching to other pages. When this happens, the machine status will automatically switch to Offline, and online cutting will not be possible.

机器复位：点击按钮机器复位到默认原始起点。

Machine Reset: Clicking this button resets the machine to the default original starting point.

重复切割： 再次切割最后一次的工作 PLT 文档。

Repeat Cutting: Cuts the last working PLT file again.

【首页】右侧有 2 个小按钮，

There are 2 small buttons on the right side of the [Home Screen]

吸风；手动开启或关闭吸风气泵。

Air Suction: Manually turn the air suction pump on or off.

吸尘；手动开启或关闭吸尘筒。

Dust Suction: Manually turn the dust suction drum on or off.

已联机：已联机状态下，电脑才能向模板机发送数据。

Online Status: Only when the machine is in the online status can the computer send data to the template machine.

★ 重要提示 Important Note：

要在线联机切割，触摸屏一定得在首页，停留在其他界面，电脑发送数据则无法切割。

To perform online cutting, the touch screen must be on the Home Screen. If it says on any other interface, the computer will be not be able to send date for cutting.

4.3 参数设置 Parameters Setting

图 9

Figure 9

进入参数设置界面后，自动切换成了脱机状态，防止在修改参数的时候，电脑发送数据后自动切割引起人身安全。

After entering the Parameter Setting Interface, the machine will automatically switch to the Offline status. This prevents automatic cutting triggered by data sent from the computer while parameters are being modified, thus avoiding personal safety hazards.

参数设置共有 7 个大按钮，右上角的只有一个按钮：

There are 7 large buttons in the Parameter Setting interface, with only one button located at the top-right

corner:

返回首页，点击后可以切换到首页，机器状态自动切换为已联机。

Back to Homepage: Clicking this will navigate to the homepage, and the device status will automatically switch to “Online”.

下方有并列 6 个按钮，分别为

There are 6 side-by-side buttons below, which are respectively

机器设置，机器运行最重要的参数均在此设置

Machine Settings: All the most critical parameters for machine operation are set here.

用户设置，和用户习惯相关的参数

User Settings: Parameters related to user habits and preferences.

手动测试，可以分别测试切铣机的各项硬件功能是否正常，

Manual Test: Tests each hardware function of the cutting and milling machine individually to check if they are working properly.

测试切割，分别有 10*10 和 50*50 的文件输出，一般用来校准机器精度。

Test Cutting: Outputs 1010 and 5050 files respectively, and is generally used to calibrate machine precision.

自动对刀，切刀和铣刀提供傻瓜式对刀，所见即所得。

Auto Tool Setting: Provides foolproof tool setting for cutting tools and milling cutters, with a WYSIWYG (What You See Is What You Get) experience.

帮助中心，主要提供卡维售后的公众号，以及当前的版本号。

Help Center: Mainly provides CARV After-sales WeChat Official Account and the current version number.

4. 3. 1 机器设置 Machine Setting

图 10

Figure 10

1. **机器参数 Machine Parameters**

进入此页需要密码，密码为 123456，

主要是和机器精度有关的一些参数，出厂已经校准，非专业人员不得随意调整，图 11

A password is required to access this page, and the password is 123456. This page mainly contains parameters related to machine precision, which have been calibrated at the factory. Non-professionals are not allowed to adjust them arbitrarily. (See Figure 11)

图 11

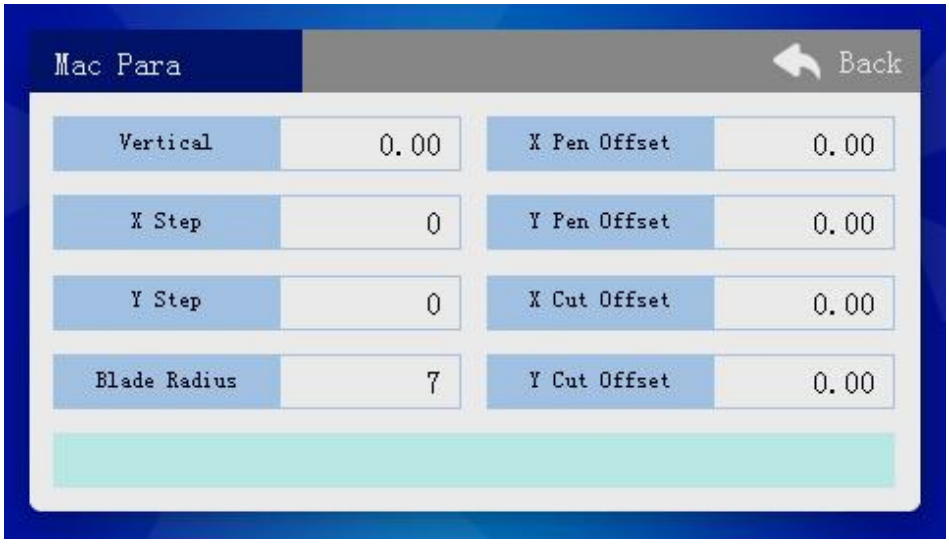


Figure 11

1.垂直度：调整机器的垂直度，有正负值

Perpendicularity: Adjusts the machine's perpendicularity, with positive and negative values available.

2. X 步长修正，Y 步长修正：精度校准用，有正负值。**1 个数值为 1 丝，如果 X 偏差 2mm 则输入 200 来修正**

X Step Correction, Y Step Correction: Used for precision calibration, with positive and negative values available. 1 unit equals 0.01 mm (1 silk). If the X-axis deviation is 2 mm, enter 200 for correction.

3. 转刀半径：切刀走直角的刀具补偿

Tool Radius (for Corner Turning): Tool compensation for the cutting tool when moving at right angles.

4. X 笔补偿，Y 笔补偿，X 刀补偿，Y 刀补偿：刀笔重合，**以铣刀为基准**，有正负值。**1 个数值为 1mm，**

有两位小数，如果铣刀和笔重合相差 3.52mm，则输入 3.52 来补偿

X Pen Compensation, Y Pen Compensation, X Tool Compensation, Y Tool Compensation: Ensures alignment between the pen and the tool, with the milling cutter as the reference. Positive and negative values are available. 1 unit equals 1 mm, with two decimal places. If the alignment deviation between the milling cutter and the pen is 3.52 mm, enter 3.52 for compensation.

2. 刀笔设置 Tool-Pen Settings

刀笔设置主要是根据上位机软件 SP 指令和刀笔对应，根据实际需要进行调整，如图 12 所示

直接点击选择框，会在 6 个刀具之间循环切换。

Tool-Pen Settings mainly correspond to the SP commands of the host computer software and the tool-pen itself; adjustments can be made based on actual needs, as shown in Figure 12. Click the selection box directly to cycle through the 6 tools.

图 12

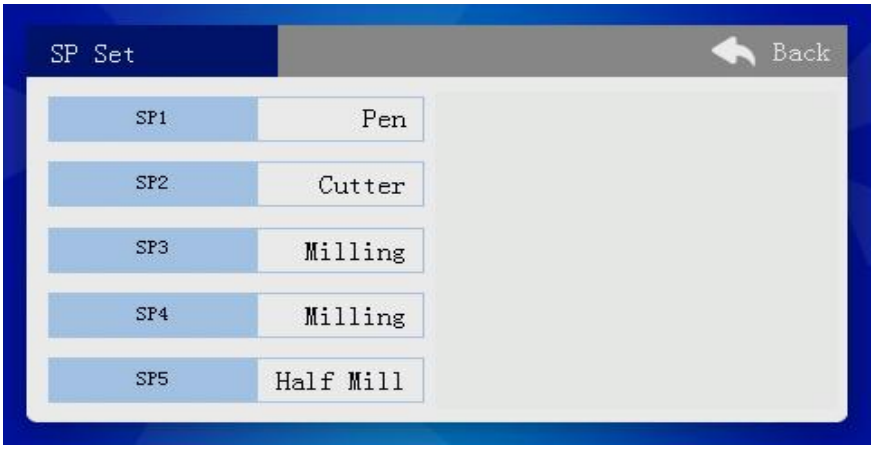


Figure 12

3. 切割速度 Cutting Speed

可以灵活调整各项速度，如图 13 所示

Various speeds can be adjusted flexibly, as shown in Figure 13.

图 13

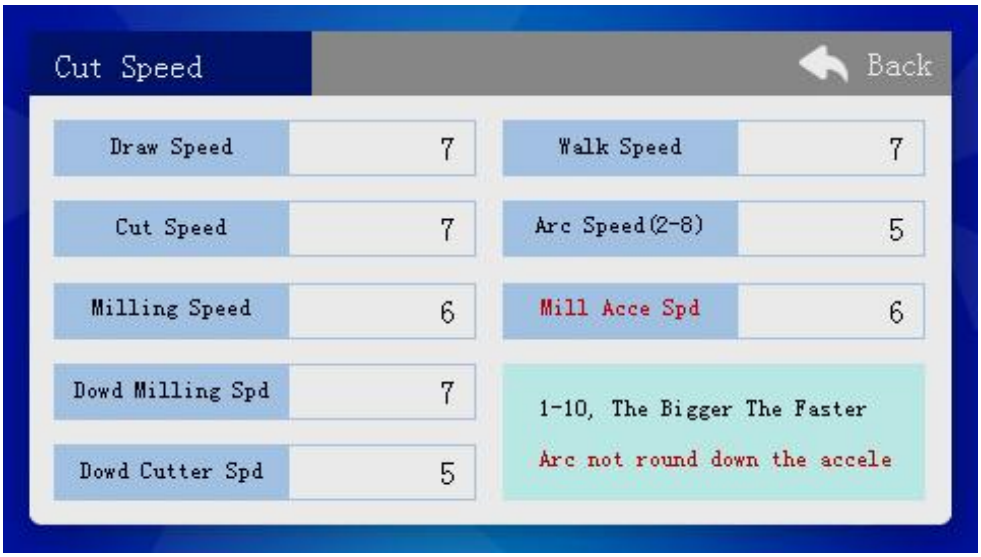


Figure 13

速度可调范围 1-10，建议最高调整至 8，再高可能会出现略微抖动。

The adjustable speed range is 1-10. It is recommended to set the maximum speed to 8; setting it higher may cause slight vibration.

如果铣刀圆弧切割出来有波浪，可以适当降低铣刀加速度，是的拐角圆弧走的更慢更圆顺。

If the arc cut by the milling cutter has a wavy pattern, you can appropriately reduce the milling cutter acceleration to make the corner arcs move slower and smoother.

4. 网络地址 Internet Address

切铣机的 IP 地址，默认为 192.168.0.68，如图 14 所示

The IP address of the cutting and milling machine is 192.168.0.68 by default, as shown in Figure 14.

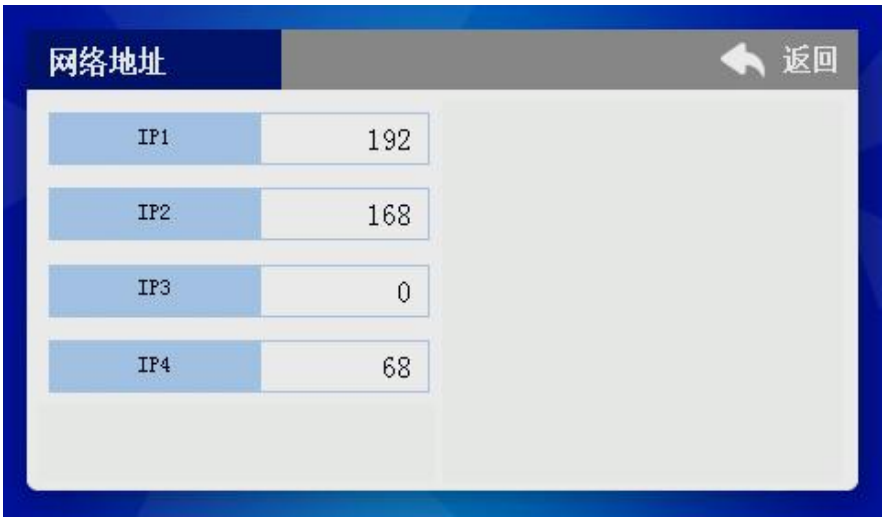


图 14

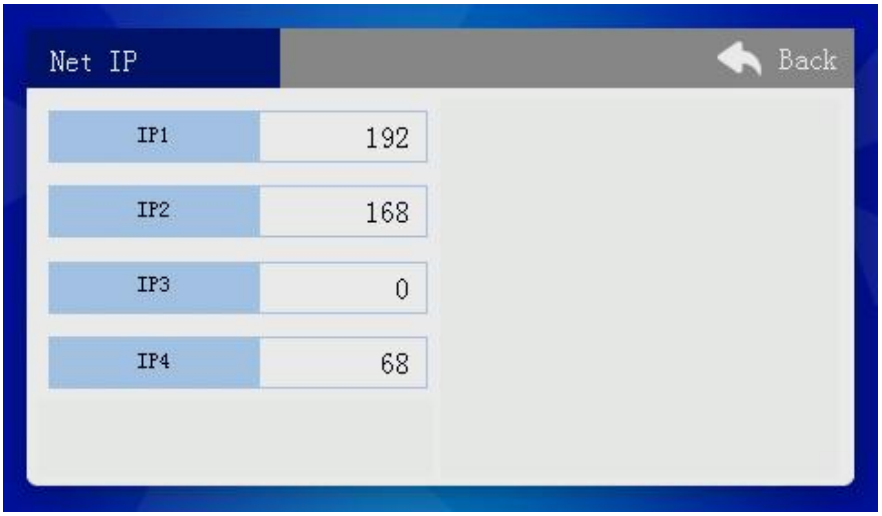


Figure 14

可以根据当前的网络环境或路由器默认 DHCP 分配的网段灵活更改，更多详情可参阅

It can be flexibly changed according to the current network environment or the network segment assigned by the router's default DHCP. For more details, please refer to the following documents:

【X 系列新模板机网口设定方法 V1.2】

【X Series New Template Machine Network Port Setting Method V1.2】

【X 系列新模板机 路由器 网口设定方法 V1.2】

【X Series New Template Machine_Router_Network Port Setting Method V1.2】

上述文档可以咨询卡维售后获取。

The above documents can be obtained by consulting CARV After-sales Service.

5. 工程参数 Engineering Parameters

为机器重要参数，出厂已经标定，一般无需修改。

These are critical machine parameters, which have been calibrated at the factory and generally do not require modification.

进入需密码，参数设置不当会影响机器使用。

A password is required to access this section. Improper parameter settings may affect the machine's normal operation.

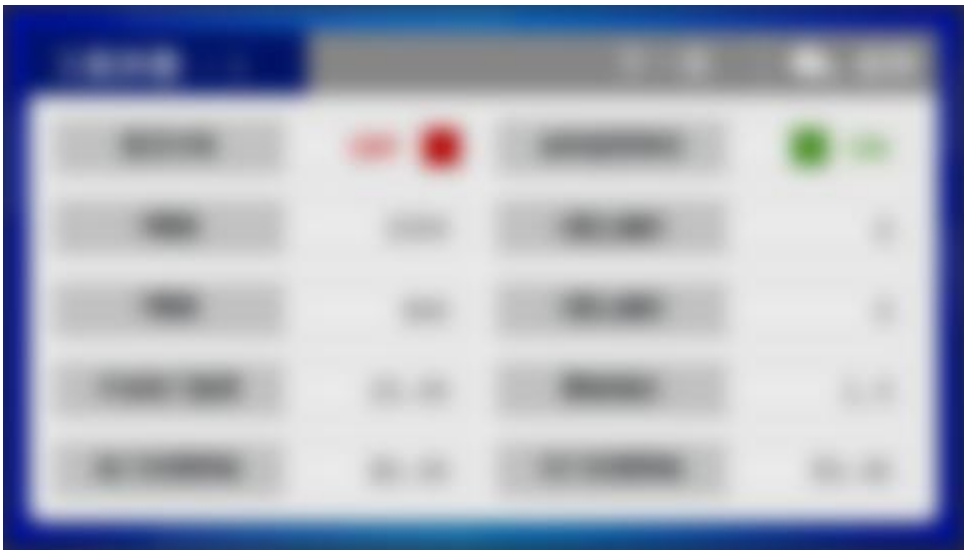


Figure 15

4. 3. 2 用户设置 User Settings

主要是用户使用习惯的几个参数。如图 16 所示

It mainly includes several parameters related to user habits, as shown in Figure 16.

图 16

Figure 16

切完退刀：如果开启了，每一版切割完毕后会按照**退刀位置**的设置进行退刀停靠。

Retract and Park: If enabled, the tool will retract and park according to the “Retract Position” settings after each sheet is cut.

退刀位置：开机复位后，机头的停靠位置，可以设置为左上，左下，右上，右下 4 个位置。

Retract Position: It refers to the parking position of the machine head after power-on reset. Four positions are available for setting: top-left, bottom-left, top-right, and bottom-right.

语言：可以进行中英文切换

Language: Supports switching between Chinese and English.

4.3.3 手动测试 Manual Test

常用刀具的测试，XY 轴的手动测试等，如图 17 所示

It includes tests for commonly used tools, manual tests for the X and Y axes, etc., as shown in Figure 17.

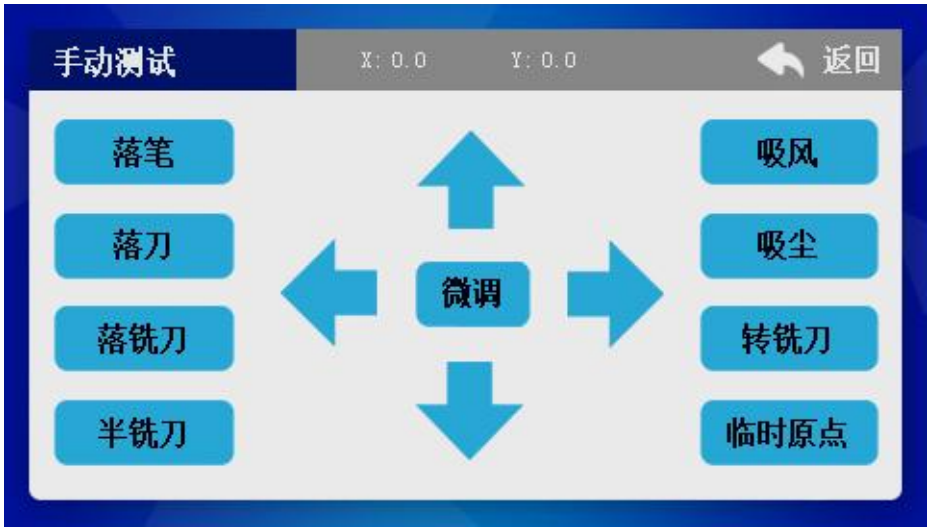


图 17

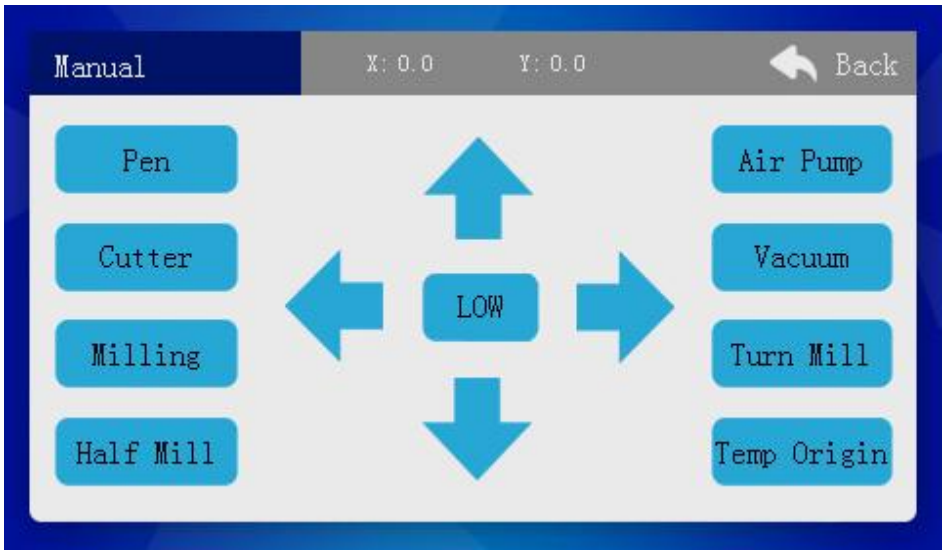


Figure 17

临时原点：XY 轴移动到某一个位置，然后点击临时原点，则按此原点为基础进行切割。

Temporary Origin: Move the X and Y axes to a certain position, then click “Temporary Origin” to perform cutting based on this origin.

微调：XY 轴移动速度过快，可以点击微调进行降速移动

Fine Adjustment: If the moving speed of the X and Y axes is too fast, click “Fine Adjustment” to reduce the speed for movement.

4.3.4 测试切割 Test Cutting

内置两个 PLT 文件，用来精度校准。

There are two built-in PLT files for precision calibration.

图 18

Figure 18

4.3.5 自动对刀 Automatic Tool Setting

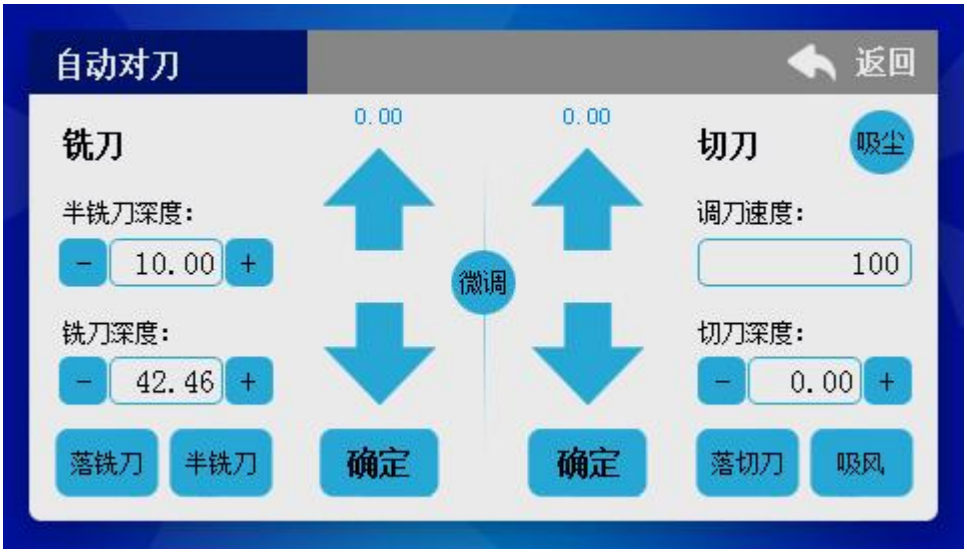


图 19

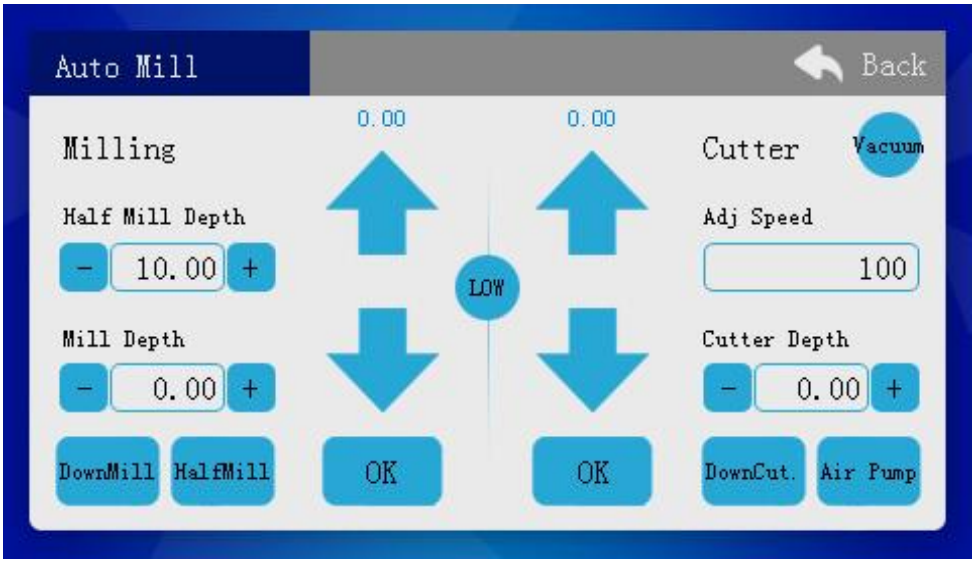


Figure 19

铣刀对刀 Milling Cutter Tool Setting：

点击左侧的**下箭头**，铣刀轴会缓慢下降，铣刀尖刚好切穿 PVC 板的位置点**确定**，当前深度则自动保存到铣刀深度里，对刀完成，也可以在铣刀深度输入框里直接输入数值，或者按 － ＋ 进行微调。

Click the downward arrow on the left, and the milling cutter axis will lower slowly. Confirm the position where the tip of the milling cutter just cuts through the PVC board; the current depth will then be automatically saved to the “Milling Cutter Depth” setting, and the tool setting is completed. You can also directly enter a value in the “Milling Cutter Depth” input box or use the “-” and “+” buttons for fine adjustment.

切刀对刀 Cutter Tool Setting:

点击右侧的**下箭头**，切刀轴会缓慢下降，注意别让偏心轴转过头，点击**确定**，当前深度自动保存到切刀深度里。对刀完成，也可以在切刀深度输入框里直接输入数值，或者按 － ＋ 进行微调。

Click the downward arrow on the right, and the cutter axis will lower slowly. Be careful not to let the eccentric shaft turn too far. Click “Confirm,” and the current depth will be automatically saved to the “Cutter Depth” setting. Once tool setting is completed, you can also directly enter a value in the “Cutter Depth” input box or use the “-” and “+” buttons for fine adjustment.

4.3.6 帮助中心 Help Center

帮助中心里的左侧二维码为卡维科技的微信公众号，右侧则显示了 HMI 版本，ARM 版本等信息。

In the Help Center, the QR code on the left links to CARV Technology’s WeChat official account, while the right side displays information such as HMI version and ARM version.

图 20

4.3.7 切割运行中 Cutting in Progress

在首页已联机状态，电脑发送数据，机器自动切割，触摸屏自动切换至运行中界面，如图 21 所示：

When the homepage shows the “Online” status, the computer sends data, and the machine starts automatic cutting. The touch screen will then switch to the “In Progress” interface automatically, as shown in Figure 21.

图 21

Figure 21

下方的三个按钮 Three Buttons Below:

【继续】在暂停状态，点击此按钮则继续切割。

【Continue】In the paused state, click this button to resume cutting.

【暂停】在运行状态，点击此按钮机器暂停，可以点**继续**按钮继续切割。

【Pause】In the running state, click this button to pause the machine; you can click the Continue button to resume cutting afterward.

【取消】在运行状态，点击此按钮暂停，在暂停状态，点击此按钮去当前工作取消，返回到首页。上方右侧的 **吸风，吸尘** 按钮，可以在运行中开启关闭气泵和吸尘桶。

【Cancel】In the running state, click this button to pause the machine. In the paused state, click this button to cancel the current task and return to the home page.Buttons on the Top Right, the Air Suction and Dust Collection buttons on the top right allow you to turn the air pump and dust collection bucket on or off during operation.

第五章 注意事项

Chapter 5 Precautions

序号 NO.	注 意 事 项 内 容 Contents of Precautions
1	切割台面不允许放置重物和其它物品、淋水等。 Do not place heavy objects, other items on the cutting table, or allow water to splash on it.
2	本机必须使用三芯接地插头，使用良好接地的电源供电,可有效减少对切割机的故障。插拔插头应握住插头，不能直接抓住电缆就插拔，更不能带电插拔。 This machine must use a three-core earthed plug and be powered by a well-earthed power supply, which can effectively reduce faults of the cutting machine. When plugging or unplugging, hold the plug instead of directly grabbing the cable. Moreover, do not plug or unplug with power on.
3	数据传输线不支持热拔插,您在将模板机和计算机连接断开的时候请先断开模板机和计算机的电源。 The data transmission cable does not support hot swapping. When disconnecting the template machine from the computer, please turn off the power of both the template machine and the computer first.
4	为了您的模板机和计算机不受其它用电干扰而造成的损害,请将模板机、计算机单独供电；将真空泵插入模板机上面的专用插孔,这样切割机才能控制真空泵。请勿把气泵和洗尘器插反。 To prevent damage to your template machine and computer caused by interference from other electrical devices, please supply power to the template machine and computer separately. Plug the vacuum pump into the dedicated socket on the template machine; this allows the cutting machine to control the vacuum pump. Do not reverse the plugs of the air pump and dust collector.
5	模板机刀刃锋利，不要随意触碰，以免受伤。触碰过的铣刀、刀片请重新更换，避免切割效果不美观。 The blades of the template machine are sharp. Do not touch them casually to avoid injury. Replace any milling cutters or blades that have been touched to prevent poor cutting results.
6	保持模板机台面的清洁。机器避免与酸碱等腐蚀性物品接触。 Keep the tabletop of the template machine clean. Avoid contact between the machine and corrosive substances such as acids and alkalis.
7	不要将本产品安装在灰尘多，湿度高和通风差的地方。

	Do not install this product in areas with heavy dust, high humidity, or poor ventilation.
8	本机采用的是真空吸附方式。为保证良好的吸附效果,模板或者纸张放置时，要保持平整并且不能受潮,没有被模板纸张遮住的台面最好要用纸张遮住,避免漏风，以便增加吸附力。 This machine adopts a vacuum adsorption method. To ensure good adsorption performance, templates or paper must be placed flat and kept dry. It is recommended to cover any parts of the tabletop not shielded by the template or paper with additional paper. This prevents air leakage and helps enhance adsorption force.
9	若机器出现异常情况，请使用取消按钮或急停按钮，检查机器是否正常，再重新启动机器。若还有问题，请与售后服务工作人员联系。 If the machine malfunctions, use the Cancel button or Emergency Stop button. Check if the machine is functioning normally before restarting it. If the problem persists, contact the after-sales service staff.
10	若出现运动受阻等紧急情况，请立即切断电源，与供应商联系。 In case of emergencies such as movement obstruction, cut off the power supply immediately and contact the supplier.
11	模板机在工作过程中应避免较强的振动、碰撞和挤压。 Avoid strong vibration, collision, and extrusion of the template machine during its operation.
12	操作时，不要把手放在工作台板和导轨上。注意使用安全。 Do not place your hands on the worktable or guide rails during operation. Always pay attention to safety.

第六章 技术参数规格

Chapter 6 Technical Specifications

型号 Model Number	XM1509 XM1809 XM1512 XM1812 高速水冷双用
	M1509 M1809 M1512 M1812 经典风冷双用
	XP1509 XP1809 XP1512 XP1812 高速水冷单用
	P1509 P1809 P1512 P1812 经典风冷单用
笔/刀的数量 Number of Pens/Cutters	笔：油性笔 圆珠笔 Pen:Oil-based Pen, Ballpoint Pen 刀：铣刀 刻刀 Cutter: Milling Cutter, Engraving Knife
有效工作区域 Effective Working Area	1500mmX900mm、1800mmX900mm、1500mmX1200mm、1800mmX1200mm
文件记忆功能 File Memory Function	可以重复上次的切割裁片 It can repeat the previous cutting piece
材料固定方式 Material Fixing Method	真空泵吸附固定 Vacuum Pump Adsorption Fixing
机械精度 Mechanical Precision	0.02mm
软件精度 Software Precision	HP-GL 仿真模式：3：0.02mm HP-GL Simulation Mode: 3: 0.02mm
最大切割速度 Maximum Cutting Speed	豪华风冷 50-500mm/s 高速水冷 50-800mm/s Luxury Air-Cooled (50-500mm/s) High-Speed Water-Cooled (50-800mm/s)
最大切割厚度 Maximum Cutting Thickness	豪华风冷≤6MM 高速水冷≤10mm Luxury Air-Cooled ≤ 6mm High-Speed Water-Cooled ≤ 10mm
切割材料 Cutting Materials	铜板纸、PET 板、PVC 板、亚克力板纤维中底板以及高分子复合材料等 Coated Art Paper,PET Sheet, PVC Sheet,Acrylic Sheet, Fiber Midsole Board,Polymer Composite Material
数据通讯接口 Data Communication Interface	SD 卡/网口 SD Card/Ethernet Port
使用语言 Language Used	HP-GL、plt 或 DXF HP-GL、plt or DXF
加工原点 Machining Origin	可自由指定 Can be freely specified
位移精度 Displacement Precision	±0.1mm
重复精度 Repeatability Precision	±0.1mm
电 压 Voltage	220V±10%，50Hz
功 率 Power	最大 4400W Max 4400W
环境要求 Environmental Requirements	温度：-25℃到 40℃，湿度：35%到 75%RH(无结露) Temperature: -25℃ to 40℃ Humidity: 35% to 75% RH (No Condensation)

表 1

出厂调试参数 Factory Debugging Parameters

参数项 Parameter Entry	参数值 Parameter Value
垂直度： Vertical degree：	
X 步长修正： X step correction：	
Y 步长修正： Y step correction	
X 刀具补偿： X cutting tool compensation：	
Y 刀具补偿： Y cutting tool compensation：	
转刀半径： Rotary blade radius：	
X 铣刀补偿： X cutter compensation：	
Y 铣刀补偿： Y cutter compensation：	
落刀刀压： The cutting knife pressure：	
落刀深度： The cutting depth：	

表 2

注：以上参数值只做参考，最终参数以现场调试为准，请做好相关记录（表 1）（表 2）

Note: The above parameter values are for reference only. The final parameters shall be subject to on-site commissioning. Please keep relevant records (see Table 1 and Table 2).

第七章 常见故障排查

Chapter 7 Common Troubleshooting

编号 NO.	故障现象	原因	修理方法
1	打开电源开关切割机不复位 The cutting machine does not reset when the power switch is turned on.	切割机和电源连接不良 Poor connection between the cutting machine and the power supply.	检查电源是否可靠连接 Check whether the power supply is reliably connected.
		电源保险丝烧断 The power supply fuse is blown.	更换保险丝 Replace the fuse
2	接通电源开关熔丝即断 The fuse blows immediately when the power switch is turned on.	熔丝不符要求 The fuse does not meet the requirements.	更换熔丝（6A） Replace the fuse (6A)
3	开机不正常 Abnormal Startup	电源工作电压低于 220V 导致不能正常工作 The power supply operating voltage is lower than 220V, causing it to not work properly.	加装稳压器 Install a voltage stabilizer
4	数据发完后切割机不动 The cutting machine remains stationary after data transmission is completed.	通讯线缆没连接或接触不良 The communication cable is not connected or is poorly connected.	查看通讯线缆是否可靠连接 Check whether the communication cable is reliably connected.
		发送的数据丢失 The transmitted data is lost.	重发数据 Resend the data

5	割出样板边缘不平滑 The edges of the cut sample are not smooth.	刀是否钝了 Is the blade blunt	换切割刀 Replace the cutting blade
		刀座螺帽是否太紧 Is the tool holder nut too tight	查看刀是否转动灵活 Check if the blade rotates flexibly.
6	样版有规则变形 The template has regular deformation.	数据传送错误 Data transmission error	重新传送 Resend
7	笔划线过深或不清晰 The pen lines are too deep or unclear.	落笔压力过大或过小 The pen pressure is too high or too low.	调整笔压 Adjust the pen pressure
		笔螺母拧得过紧或过松 The pen nut is screwed too tight or too loose.	调整笔螺母 Adjust the pen nut
		笔芯油墨用尽 The pen refill has run out of ink.	更换笔芯 Replace the pen refill
8	切不透 Cannot cut through	刀压过小 The blade pressure is too low.	调整刀压 Adjust the blade pressure
		刀已变钝 The blade has become blunt.	更换割刀 Replace the cutting knife
		刀尖伸出过短 The tip of the blade protrudes too short.	调整刀尖 Adjust the blade tip

第八章 售后和联系方式

Chapter 8 After-sales Service & Contact Information

卡维科技微信公众号

CARV Technology Official WeChat Account

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