

i BrightCut Manual

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Chapter1 Software Introduction

1.1 Introduction

iBrightCut is the cutting software special for the advertisement industry. It can be combined with most of the graphics design software in the market. iBrightCut with its strong edition function and accurate graphics recognition it can protect the data, with its diversification registration cutting function, it can provide total solution for the advertisement industry. It can make the production to be continuously.

1.2 Software Installation

1.2.1 The Hardware Requirements

CPU: $\geq 2.0\text{GHz}$

RAM: 2GB

Hard dish: $>3\text{GB}$ (available)

Video card: 256MB

Screen Resolution: 1024×720

DSP: 2.2.02

FPGA: 1.3.7

1.2.2 The System and Software Environment

Operating system: Windows XP、Windows 7 (32bit\64bit)

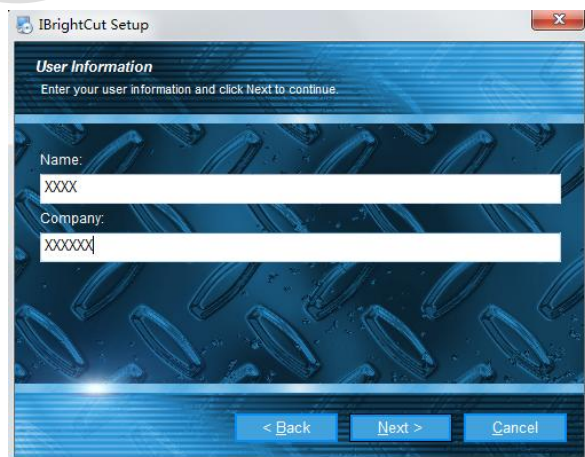
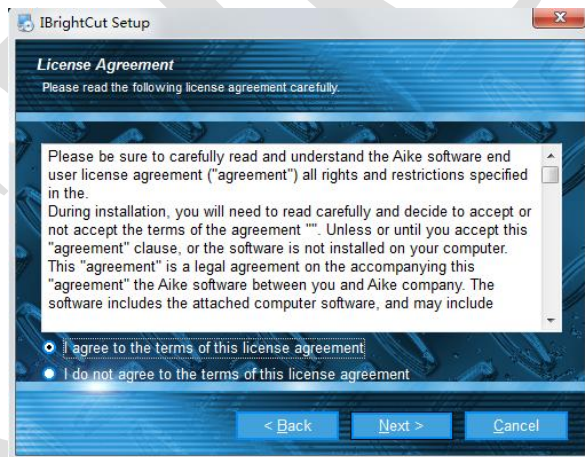
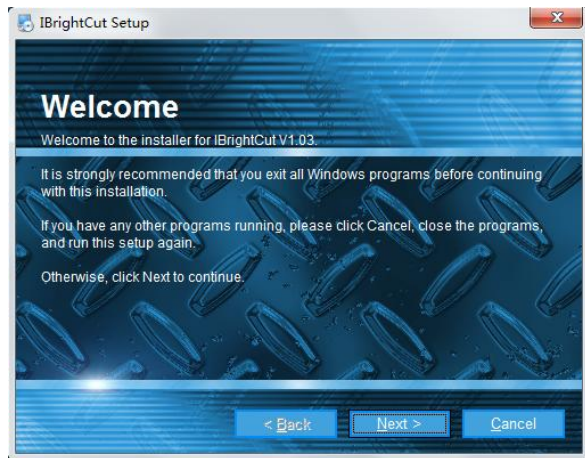
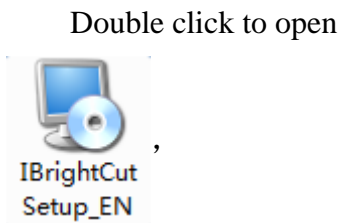
iBrightCut version: V1.0.0.2

iBrightCut document version: 2015.4.13.1

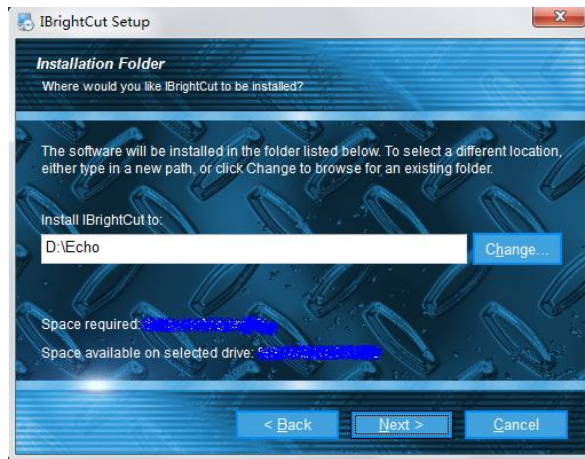
CutterServer version: 1-0-0-9

CutterServer document version: 2015.3.30.1

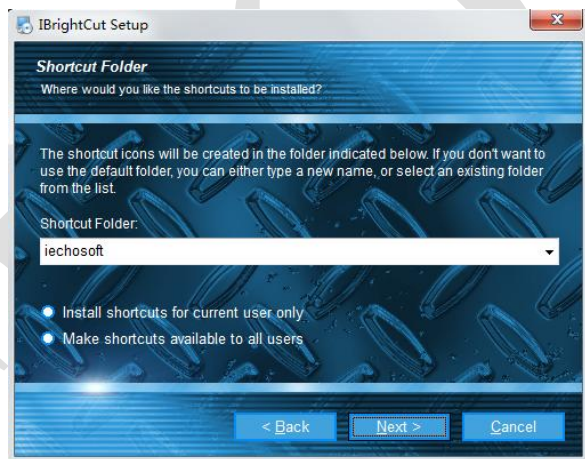
1.2.3 Software Installation



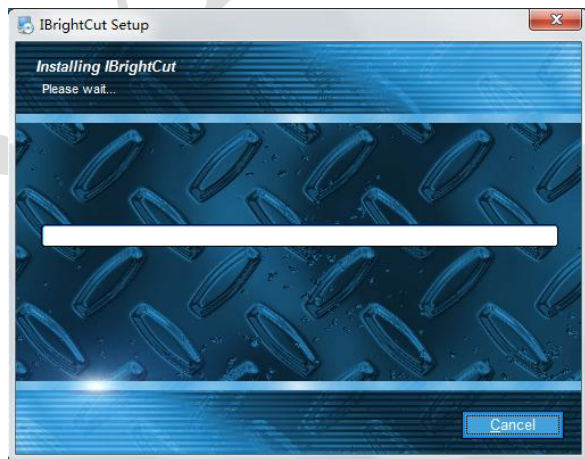
Do not install the IBrightCut in the system disc



Shortcut folder



Installation finished



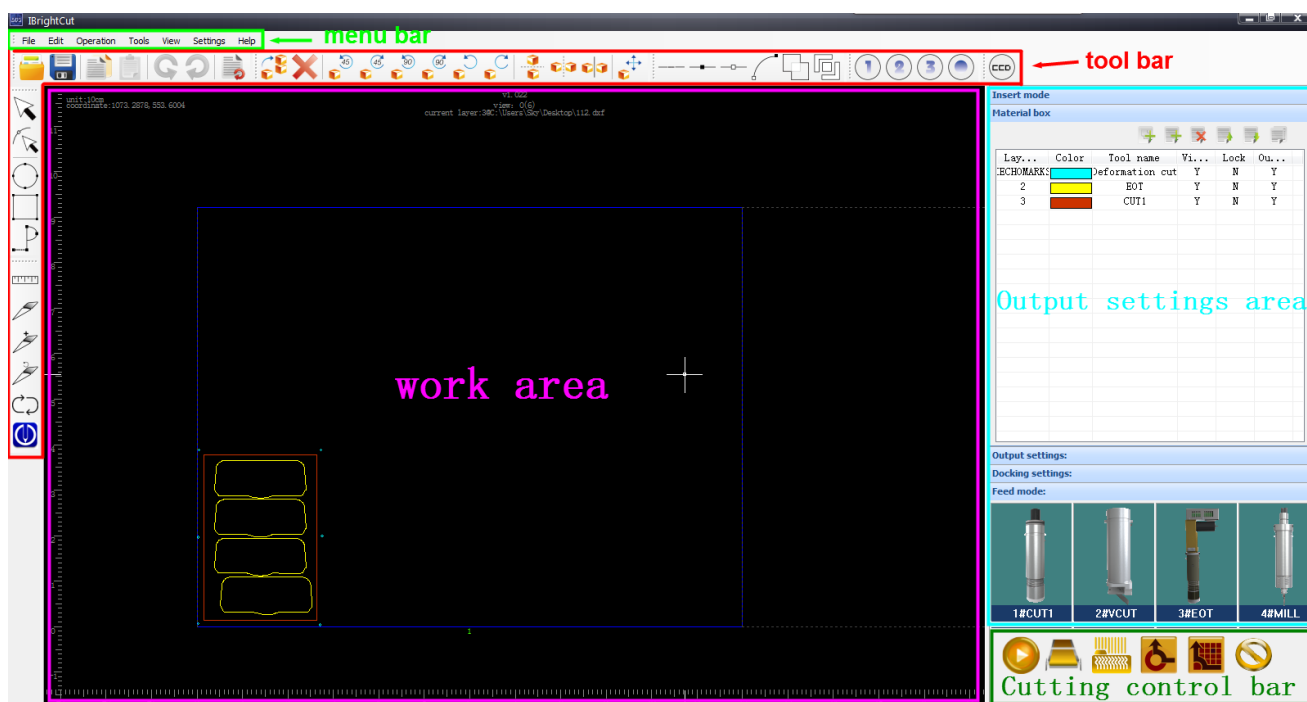
After installation there is iBrightCut



on the desktop, double click to open it.

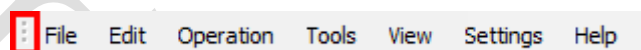
1.3 Software Interface

The home interface includes menu, tool, status, cutter control, output setting and working area.



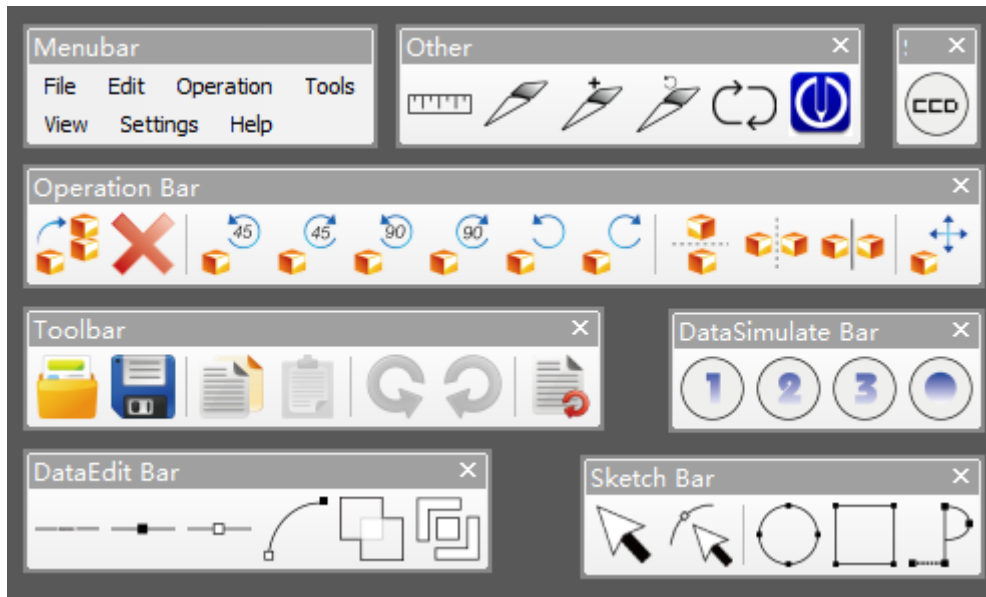
1.3.1 Menu


The menu contains 7 options: File, Edit, Operation, Tools, View, Settings and Help. these options nearly includes all the functions of the software. You can change the menu position by clicking the red area and dragging.

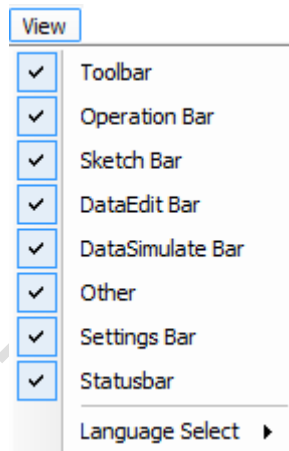


1.3.2 Tool Bar

All frequently used buttons are included in the tool bar. Simple and vivid icons make it easier for users to understand.

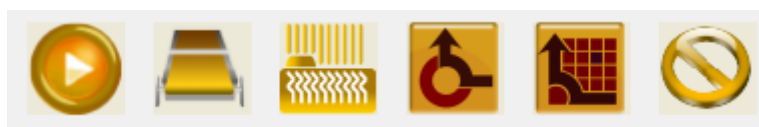


The menu bar includes Operation, Tools, Data simulation ,Data edit, Sketch etc. Drag the  to adjust the place. Under [Tools]/ [View],



Set Show/ Hide of all the bars.

1.3.3 Cutter Control



1.3.4 Output Setting

Material box

Material Thickness

Lay...	Color	Tool name	Vi...	Lock	Ou...
ECHOMARKS		Deformation cut	Y	N	Y
2		EOT	Y	N	Y
3		CUT1	Y	N	Y

Output settings:

Cut times

Page settings

Number X Number Y

Distance X mm Distance Y mm

Page size X mm Page size Y mm

Distance between pages mm

Docking settings:




Docking methods ▼

Feed mode:

Feed mode ▼

When do the registration cutting, click the CCD output parameter option to check parameters of the task.

Run Effect **Layer Info**

Lay...	Color	Tool name	V...	Lock	O...
ECHOMARKS		Deformation cut	Y	N	Y
2		EOT	Y	N	Y
3		CUT1	Y	N	Y

Output Settings Info

Cutting times Cut current page

Page break settings

Number X Number Y

Distance X mm Distance Y mm

Page size X mm Page size Y mm

Distance between pages mm

Dock Settings Info

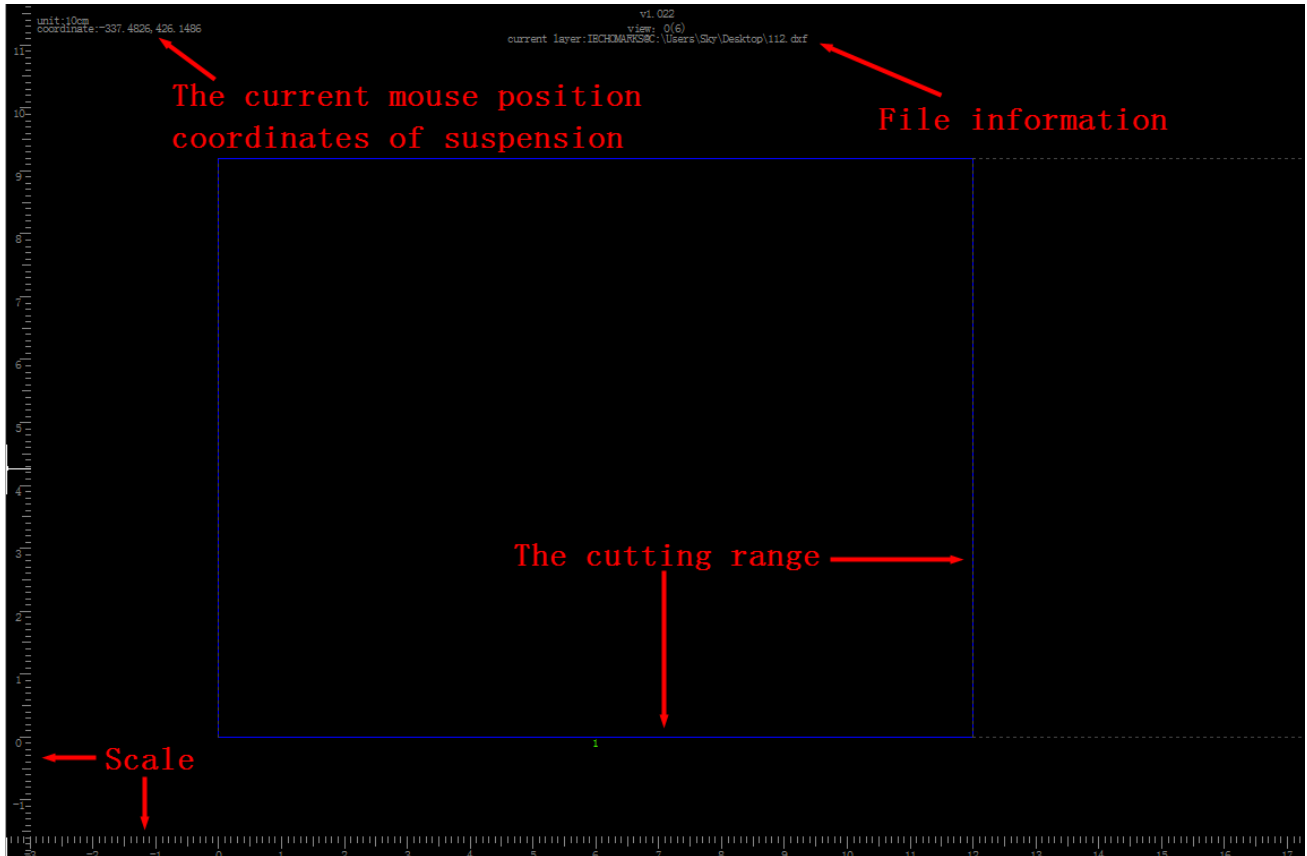
Docking methods

Feeding mode Info

Feed mode

1.3.5 Working Interface

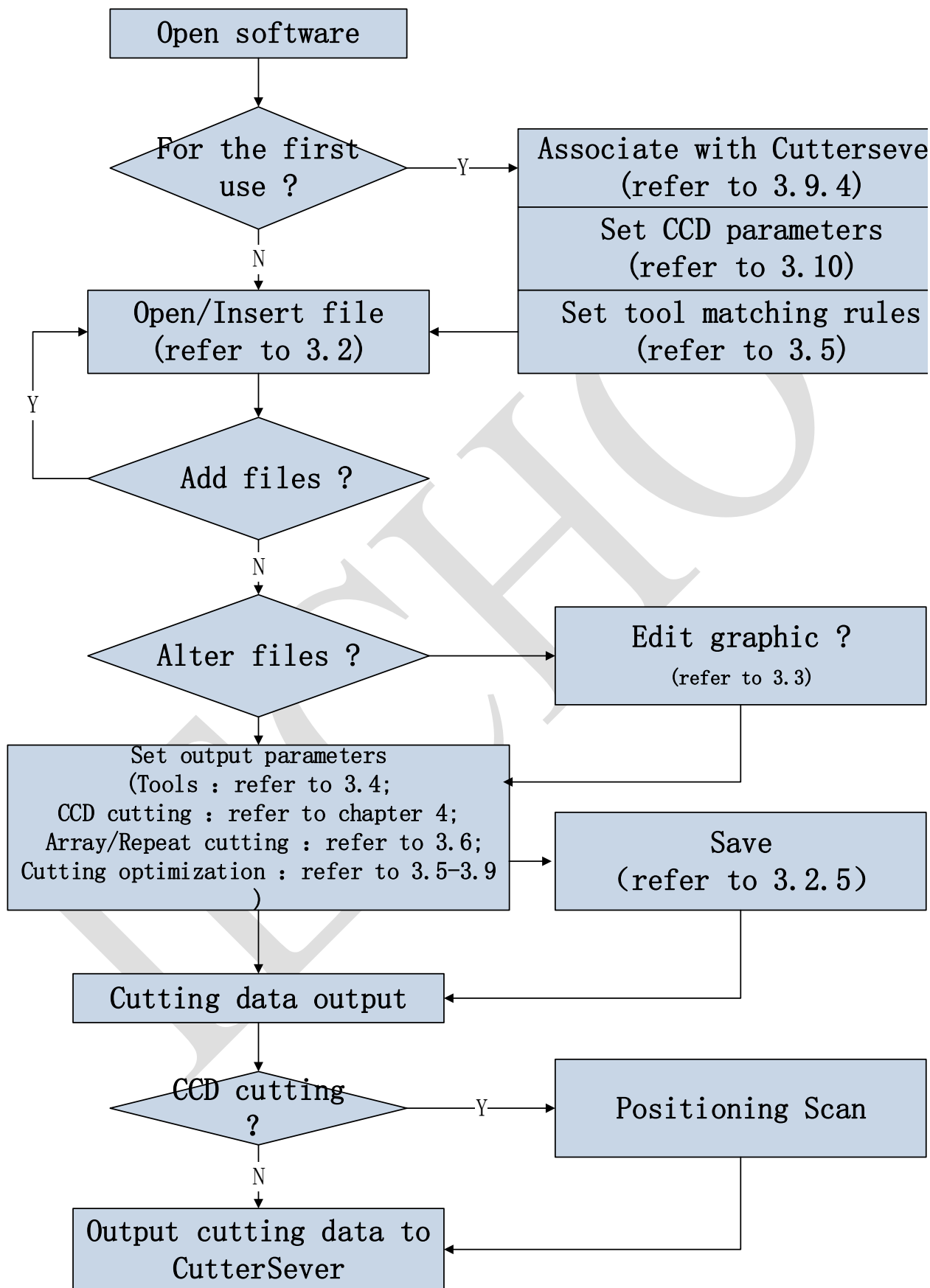
All the iBrightCut graphic edit operation is finished in the working interface. The blue square below is the valid cutting area got from CutterServer.



Chapter 2 Software Use Guide

This chapter introduces the common operations of iBrightCut with flow charts, providing an overall view of software using for new learners. General operations can be learnt quickly, and related details can be found by referring to the tips.

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Chapter 3 Software Function and Operation

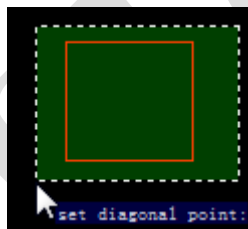
This chapter introduces all the functions and operations in detail, used as a guide to advanced learners to master iBrightCut operation.

3.1 Basic Operation

3.1.1 Select

Select is the basic operation in iBrightCut, including Click Select, Square Select and Layer Select. Most objects shall be selected before to be edited.

Click Select: Select by clicking the contour(or directly click within closed graph area)



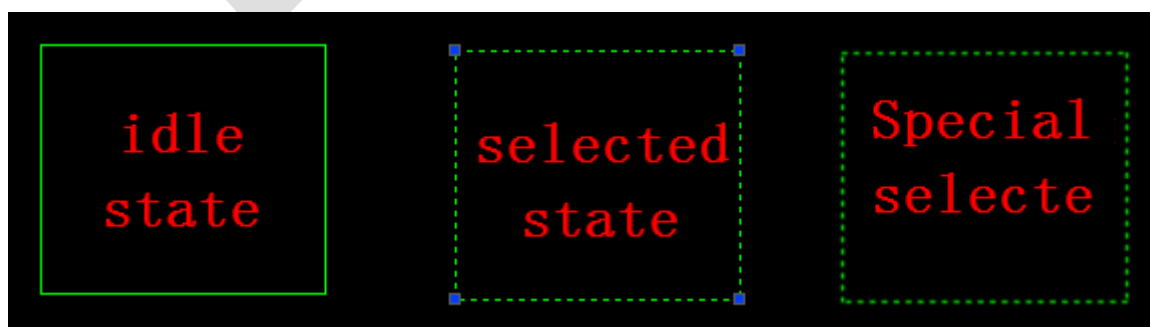
Square Select: Click and drag the mouse. All the objects within the square will be selected.

La...	Color	Tool name	Visible	Lock	Output
1		PEN	Y	N	Y
2		EOT	Y	N	Y
3		CUT	Y	N	Y

Layer Select: Click layer name and the background will turn blue, with all objects within it selected, Or click to select multi layers by pressing **Ctrl**. New graphs sketched in iBrightCut will be allotted to the current layer by default.

Square select and Layer Select can select multi graphs, any of them can be canceled by clicking **Shift**

Press **ESC** to cancel all selected objects.

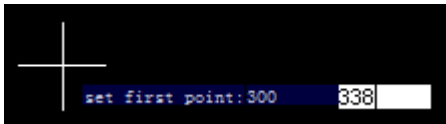


3.1.2 Input Coordinates

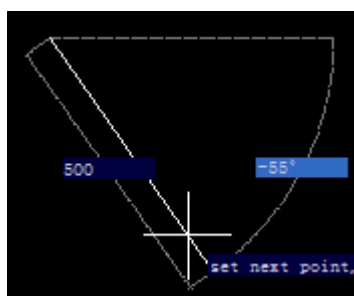
Sometime, user need to input coordinates of points. It contains two values: Length and Angle.

Input length value with and number keys. Click to change between two coordinates.

Click to end, or to cancel.

Eg:  Input → → → , to set one point with

absoulute coordinate(100,300),



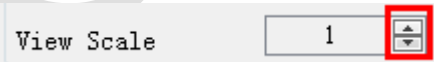
Input → →

→ , to set the relative coordinate of one point.

Length unit (mm), Angle uint (°)。

3.1.3 Adjust Working Interface View

To have a complete and clear working area view, we can adjust the view with the following four ways:

① Click tool bar[Setting]-[Option], , alter the scale value to change working area view.


② Roll the mouse wheel, forward to zoom out and backward to zoom in.

③ Press mouse right button and drag to adjust view quickly.

④ Click tool bar[back to zero] , working area view will back to zeropoint.

The above operation changes only the graph view without altering the actual size and absolute position.

3.1.4 Camera

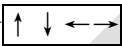
Click toolbar  Real-time image captured by camera can be seen in the CCD parameter

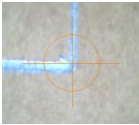
setting panel . Adjust camera position is a basic operation in CCD task.

Adjust camera position is actually to move cutting head.




Camera adjustment

Rough adjustment: direction key 

Fine adjustment: Directly click the point where to move in the CCD interface 

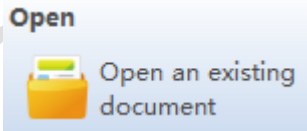
Advanced fine adjustment: Click the bottom right button in the CCD interface

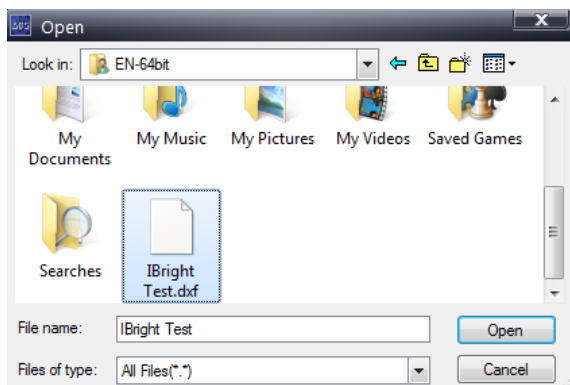


3.2 Files

iBrightCut can open file formats like PLT, DXF, PDF, XML, TSK, BRG. Three open modes are available: Direct open, Direct insert and Additional insert.

3.2.1 Direct Open

Click toolbar  , In the popup window,

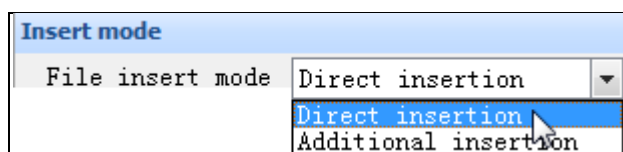


choose the file to open, click **Open**.

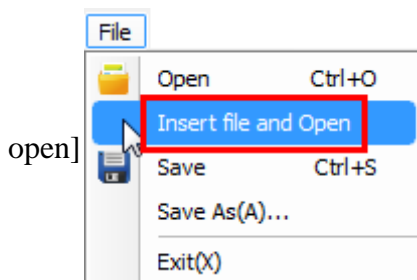
Direct open mode will clear all the data in the current working area before input new one.

3.2.2 Direct Insert

Click output parameter setting[File insert mode]



select[Direct insert]. Click menubar **File**-[Insert and

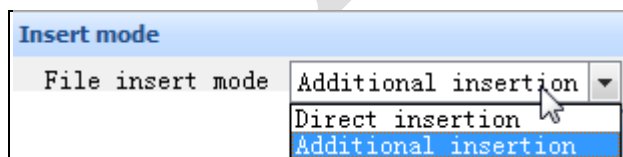


open], Select files to open, Click **Open**.

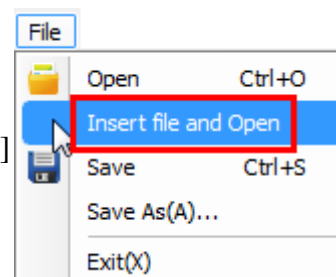
Direct insert mode will clear all data in the current working area before input a new one, and save new file' s original coordinates.

3.2.3 Additional Insert

Click output parameter setting[File insert mode]-[Additional insert]



. Click[Insert and open]



Select the file to open, click **Open**.

Additional insert mode save the last data in the working area first, and insert the new file at the right of the originals.

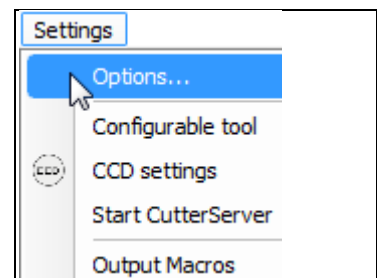


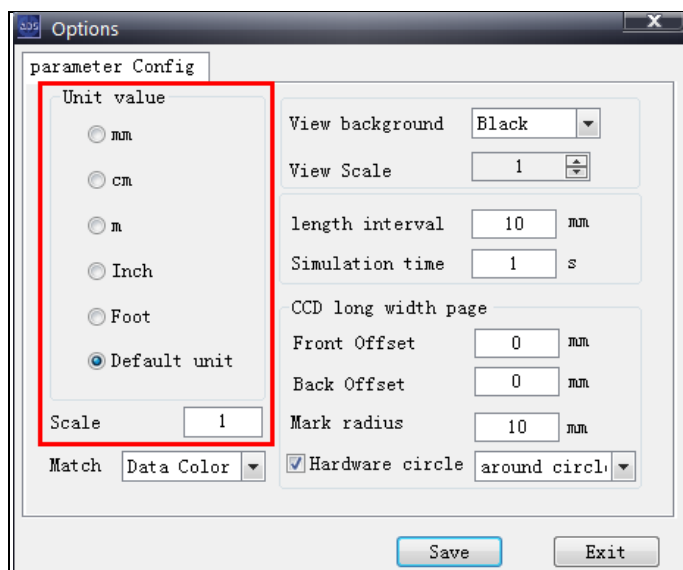
Open modes contrast

Original graph		new file	
Direct open:			
Direct insert:			
Additional insert:			

3.2.4 File Unit/Scale Factor

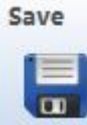
Click menu bar **Settings** [Options]


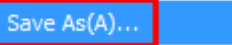




Alter length unit and scale factor of opened files with settings in the red square. The two setting is only valid when open files again.

3.2.5 File Save/Save as

Click toolbar  Saves the current to save the current data with *.brg format, with the same save

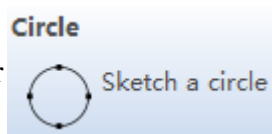
path of original files. Click menubar -[Save As]  to save the current data

with *.brg format to specified directory.
Files(*.brg) contain not only the graph data, but the related output settings, such as material thickness, layer info, cutting tool settings, repeat cutting parameters, array cutting parameters, stop mode and feeding mode. It can help to improve productivity.

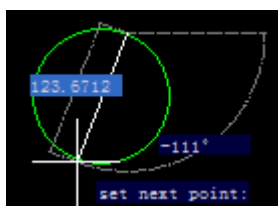
3.3 Graphic Edit

iBrightCut has powerful edit function. Users can directly edit graphics if the original one cannot meet cutting requirements or not exist. Edit functions are as below:

3.3.1 Sketch a Circle

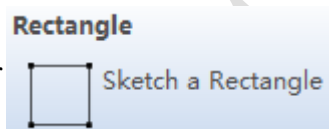


Click toolbar **Circle** turn to edit status, Click one point in the working area, Click at a different place to set the second point of circle diameter . Or input **X coordinate value** → **Tab** → **Y coordinate value** → **Enter** to set the first point of circle diameter, then input **interval of two points** → **Tab** → **Angle with X axis** → **Enter** to set the second point of circle diameter, System will display the real-time position, angle with X axis and interval of the two points when selecting the second point



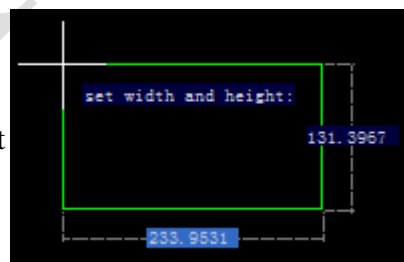
, System will exit the edit status automatically when finished.

3.3.2 Sketch a Rectangle



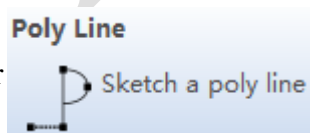
Click the toolbar **Rectangle**, Click to select the first point of rectangle diagonal,

then click at a different position to set the second diagonal point



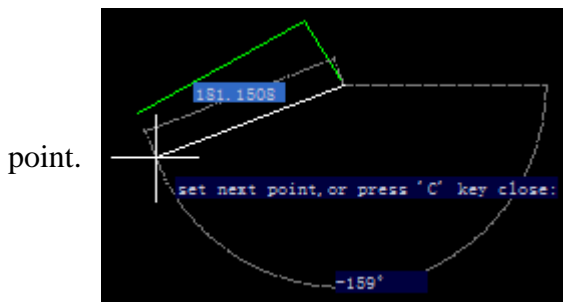
Or input coordinates: input **X coordinate value** → **Tab** → **Y coordinate value** → **Enter** for the first point, then input **Rectangle length** → **Tab** → **Rectangle width** → **Enter** to exit edit status. System will display the real-time length and width when selecting the second point.

3.3.3 Sketch a Pline



Click toolbar **Poly Line**, click to select the first point, continue to click to set the

second、 third、 etc. Or input coordinates: input **X coordinate value** → **Tab** → **Y coordinate value** → **Enter** to set the first poly line point, then input **interval** → **Tab** → **Angle with X axis** → **Enter** to set next

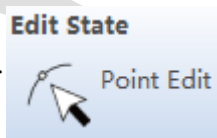


point.

Click **C** to close the curve or click **ESC** to exit.

3.3.4 Point Edit

Double click graphic to turn it into point edit status. Click toolbar



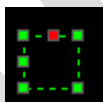
graphics into point edit status. (Notice: Non- discrete circle is not available)

In edit status, points turn green



,click any point to select,

the point selected will turn red.

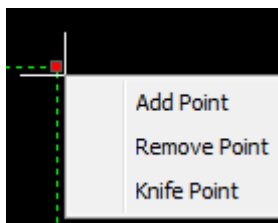


Operations available:

Add point: Double click any place of the graphic to add point.

Remove point: Double click to delete point.

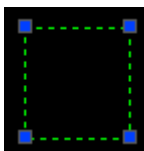
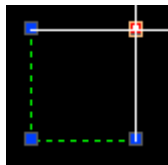
Alter knife point of closed contour: Select the point for knife point, right click,

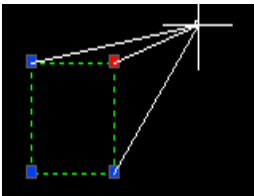
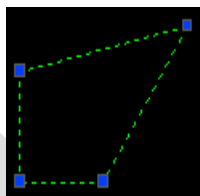


Select **【knife point】** in the popup menu.



How to move a point?

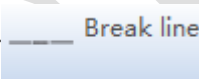
Select one point by click on it ; then selected point turns red, ,

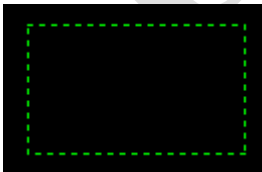
;move mouse to target place; click to complete and exit. .

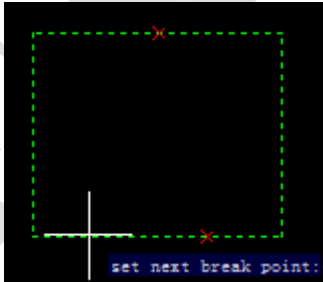
Notice: Point move is not included in the Point edit function. It is realized in general selected status.

3.3.5 Break Line

Break line is used to break closed contour.

Select object to break; click toolbar  (Or click **【Break line】** button, then click

object to break);graphic turn into selected status ;click the line to break, then red

cross will be displayed on the line ; Click **Enter** to complete and exit, or click

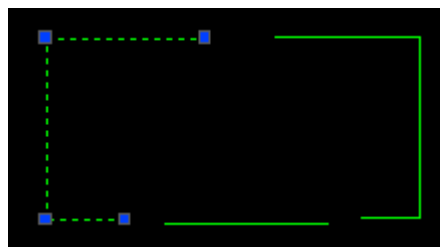
ESC to cancel.



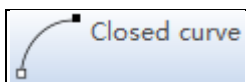
3.3.6 Close Curves

Close the open Pline

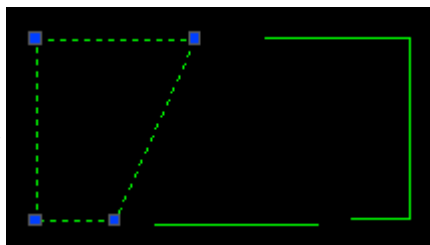
For example: Select the graphic to close



;click



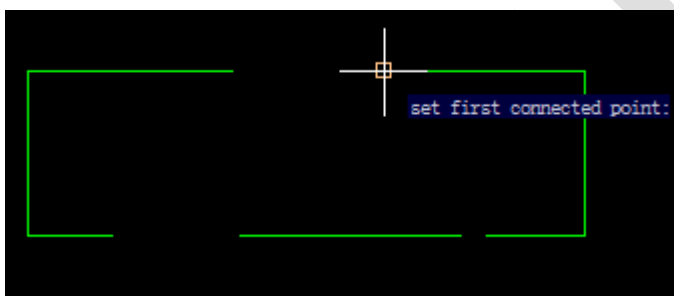
to close it.



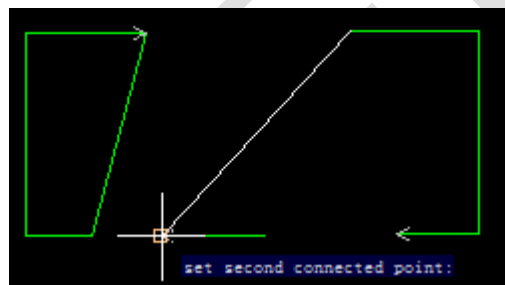
3.3.7 Connecting Line

Connect separated graphics to be a complete one.

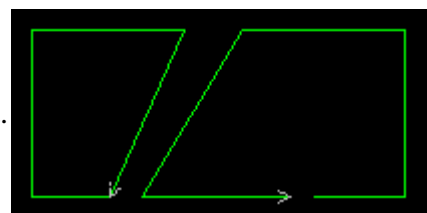
Click  , select the first connecting point



;move mouse to the second connecting point



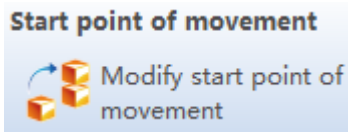
;click to complete and exit.



3.3.8 Move Graphics

Three ways available:

1: Press the left button of mouse and drag, to move objects to a approximate location.

2: Select object; Click  ; graphics turn into moving status, and the

leftcorner point of rectangle is the base point; Click or input → →

coordinate value → **Enter** to set target place of base point to move.



3: Click **Modify start point of movement**; select graphic to move; Click **Enter**; Click or input **X**

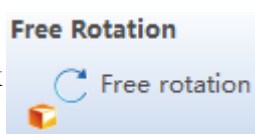
coordinate value → **Tab** → Y coordinate value → **Enter** to set target place of base point.

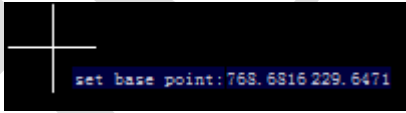
Click **ESC** to cancel; click **Enter** or **Space** back to moving status.

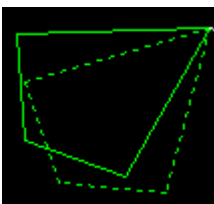
3.3.9 Rotate/Mirror

Free Rotation

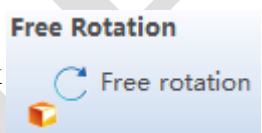
1): Select graphic to rotate; click **Free rotation**, Click or input X coordinate value → **Tab**



→ Y coordinate value → **Enter** to specify rotary base point ; move

mouse to preview  (dashed line is the original graphic), Click or input Rotary angle

→ **Enter** to set rotary angle °.

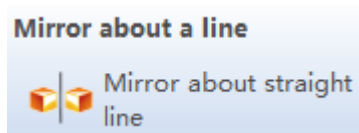



2): Click **Free rotation**; select graphics to rotate; click **Enter**; click or input X coordinate

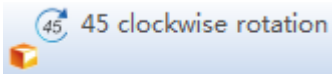
value → **Tab** → Y coordinate value → **Enter** to set rotary base point; move mouse to preview; click again or input rotary angle → **Enter** to set rotary angle.

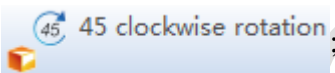
Clicking **Space** or **Enter** can back to rotary status (need to reset base point); clicking **ESC** can cancel rotation.

[Free mirror file]



;It`s operation is similar with 

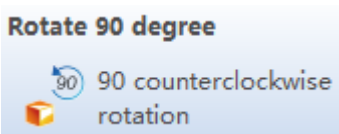
45° clockwise, Method 1: select the graphic and click ; rotation complete and exit. Ifreselect the graphic, click **Enter** or **Space**, it will roate the graphic by 45° clockwise again.

45° clockwise, Method 2: Click ; select the graphic; click **Enter**; rotation complete and exit.

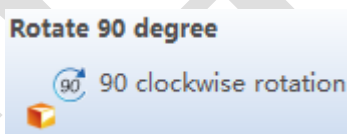
45° counterclockwise



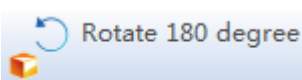
, 90° counterclockwise




, 90° clockwise

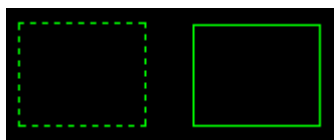


, 180° counterclockwise



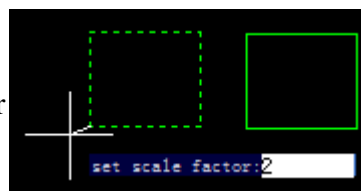
3.3.10 Zoom

Select the graphic, click 



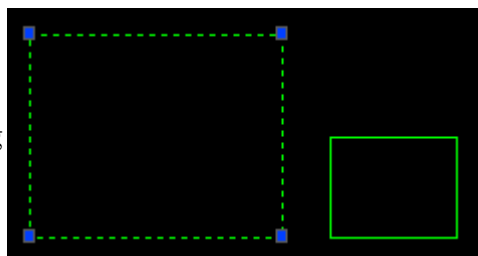
, Click the workspace or enter

coordinates to specify the scaling point, input scaling factor



, click **Enter**

to complete the scaling


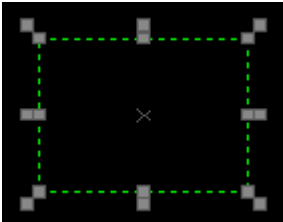


. Example: scaling factor is N, N>1 is

zoom in, 0<N<1 is narrow, 0>N>-1 is reverse zoom out, N<-1 is reverse zoom in.

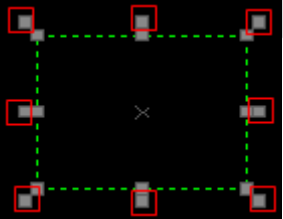
3.3.11 Transformation

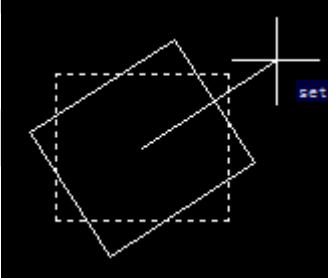
In graphic transformation state, user can move, rotate, zoom, non-proportionally stretch the

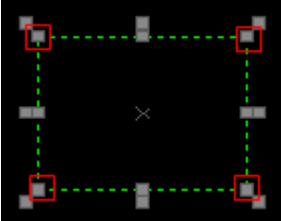
graphic. Select the graphic, click  , 

Move: Click “×”  , click the workplace or manually input coordinates to

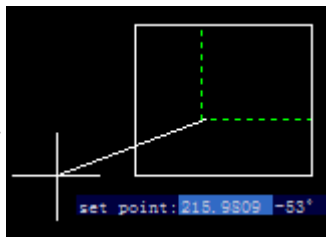
move the graphic to specified place 

Rotate : Click any rectangle  ; move the mouse or manually input

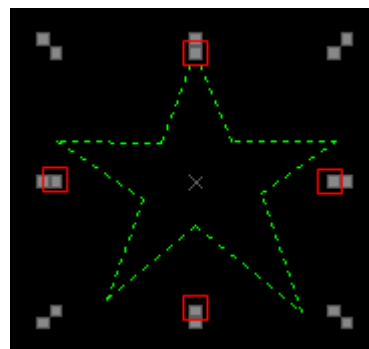
coordinates  to specify rotating angle.

Zoom: Click any rectangle  ; click the workplace or manually input

coordinates to specify scaling factor.

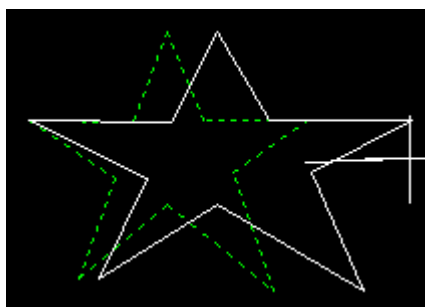


Non-proportionally stretch : Click any rectangle



; click the

workplace or manually input coordinates to specify stretching factor.



Click **ESC** to exit the graphic transformation state.

3.3.12 Delete


Select the graphic, click , or click **Delete** on keyboard.

3.3.13 Graphic combination and decomposition

3.4 Layer Settings

iBrightCut "Layer" concept provides convenient layers operation, to meet more customers` demands.

3.4.1 Layers Operation

 : Flip Material layers. When the program runs to material-flip layers, it will prompt the user to flip the material along the X-axis direction (back-side registration cutting), and execute flip

operation to the data of other layers.



: New layer



: Delete the selected layers



: Move up the selected layers(for layers sorting)



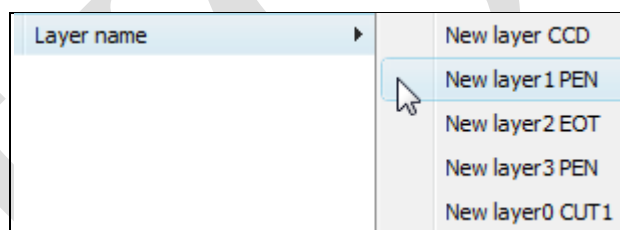
: Move down the selected layers(for layers sorting)



: Copy the selected layers

New graphics sketched by iBrightCut will be assigned to the current selected layer.

Select the graphic, right-click workplace,



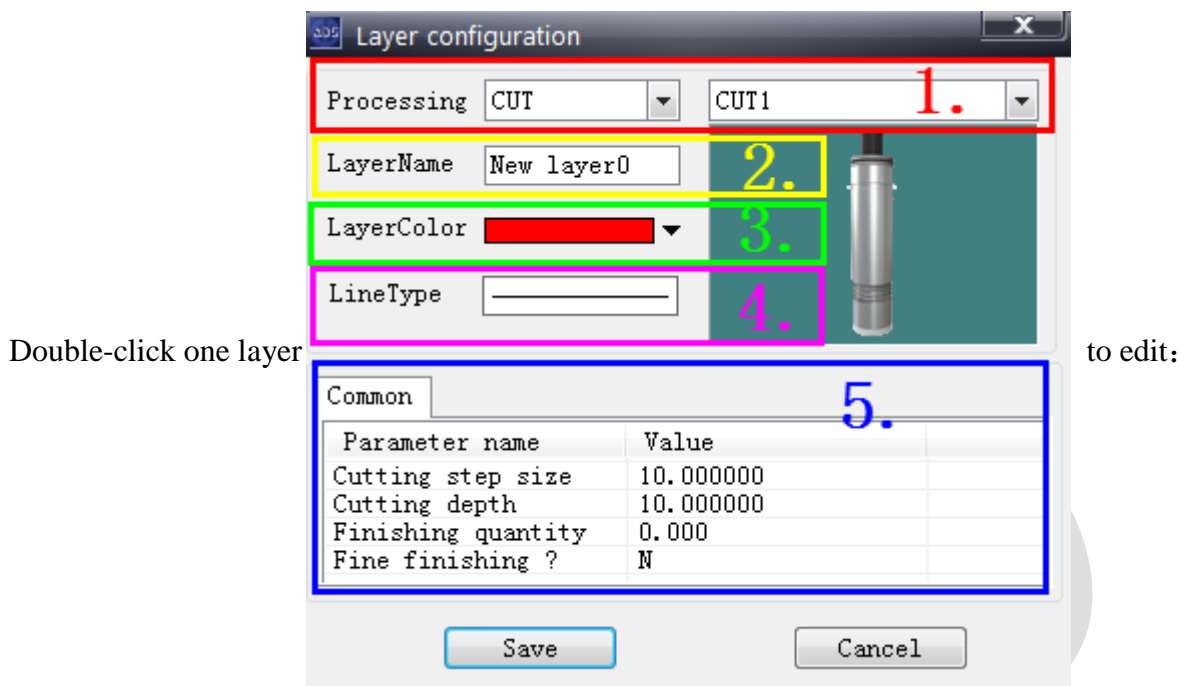
to

change the belonging layer.

3.4.2 Layers Properties Edit

Lay...	Color	Tool name	Vi...	Lock	Ou...
New layer	 	Deformation cut	[*]	[]	[*]
New layer1	 	PEN	[*]	[]	[*]
New layer2	 	EOT	[*]	[]	[*]

	√	×
Visible	Show layers content in work area	Hide layers content in work area
Lock	Allow layers content editing	Prohibit layers content edit
output	Allow layers content output to cutting	Prohibit layers content output to cutting



- ① Processing Method & Processing Tool (Knife/Pen/CCD);
- ② Layer Name;
- ③ Layer Color;
- ④ Cutting line (dashed line / solid line)
- ⑤ Knife/Pen/CCD Parameters; after modification, click **Save**.

Tools Parameters			
Processing Method	Processing Tool	Parameters	Explanation
CCD (Positioning)	CCD (Camera Registration system)	Manual edge detection	Detect the material edge manually
		Automatic edge detection	Detect the material edge automatically
		Scaling distortion	Identify marks automatically
		distortion cutting	Identify marks automatically
		Cutting marks	Cut the identified marks
MARK	PEN	No Para	
CUT	CUT EOT	Cutting Depth	The max cutting depth to the material. Less than the material thickness. (mm)

	POT DRT	Cutting step value	When [step value]=0 (Default) or =[cutting depth], knife goes down to the max cutting depth and complete the cutting in 1 time; When [step value]<[cutting depth], knife goes down several times and complete the cutting in several times (cutting times=cutting depth ÷ step value), the last knife down is [cutting depth]. Value range: 0~[cutting depth] (mm)
		Finishing amount	No effect currently
		Finishing or Not	No effect currently
MILL	MILL(Router)	Cutting Depth	The max cutting depth to the material. Less than the material thickness. (mm)
		Cutting step value	When [step value]=0 (Default) or =[cutting depth], knife goes down to the max cutting depth and complete the cutting in 1 time; When [step value]<[cutting depth], knife goes down several times and complete the cutting in several times (cutting times=cutting depth ÷ step value), the last knife down reaches to [cutting depth]. Value range: 0~[cutting depth] (mm)
		Finishing amount	No effect currently
		Finishing or Not	No effect currently
		Knife diameter	Spindle diameter, it affects the seam distance. Value range: >0 (mm)
		Compensation amount	Seam distance compensation. Seam distance=spindle diameter + compensation. Value range: rational number (mm)
		Compensation mode	Seam distance effectiveness and seam direction. Value range: No compensation; inward migration; outward migration
		Approaching mode	Knife's track when cutting corner. Value range: Polyline; Arc
		Cutting direction	Control cutting direction. Value range: clockwise; anticlockwise; the original line consistency

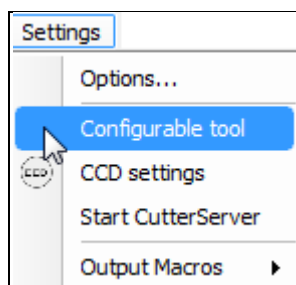
		Main spindle speed	No effect currently
BEVEL (V-Cut)	BEVEL (V-Cut)	Cutting step value	When [step value]=0 (Default) or =[cutting depth], knife goes down to the max cutting depth and complete the cutting in 1 time; When [step value]<[cutting depth], knife goes down several times and complete the cutting in several times (cutting times=cutting depth÷step value) , the last knife down reaches to [cutting depth]. Value range: 0~[cutting depth] (mm)
		Cutting Depth	The max cutting depth to the material. Less than the material thickness.(mm)
		Finishing amount	No effect currently
		Finishing or Not	No effect currently
		Width	
		V-Cut mode	Value range: positive position; opposite direction; both directions
		V-Cut correction value	
		V-Cut angle	



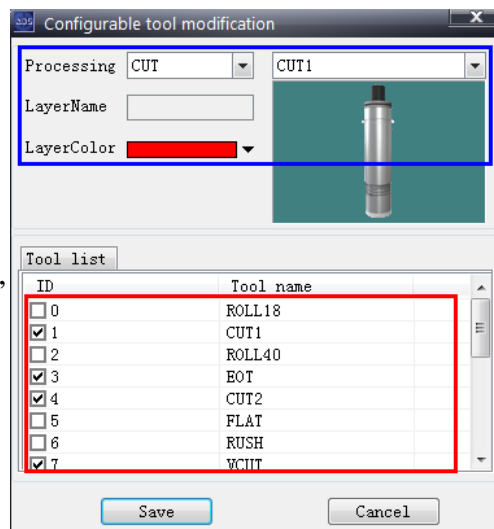
Put the cursor on any layer, you will see the path of the file. For example, put the cursor on CCD, you will see the file of CCD comes from F: \...*.dxf

3.5 Automatic Knife/Pen Matching with Layers

iBrightCut can automatically match the knife and pen for cutting files. Currently it has the following matching regulations: Match by file color; Match by layer color; Match by layer name. For the first use, we need to define the tools colors , click **Settings**- **【 Configurable tool 】**

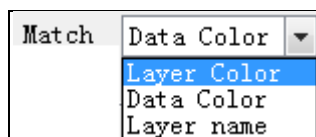


; select the tools in the tool list,



, then

define the colors for different tools. Click Settings- **【Options】** ; select the matching regulation.



① Match by layer color

Retain the original layer information, match the knife/pen according to the layers colors.

For example, set Cut1 in red color, the program will match Cut1 to the layers with red color.

② Match by file color

Ignoring the original layer information, iBrightCut will re-partition the layers according to file color, and match correspond knife/pen for the layers.

For example, set Cut1 in red color, the program will partition the red files in one layer, and match Cut1 to this layer.

③ Match by layer name

Ignore the information of file color and layer color, iBrightCut will match pen/knife and color according to the layers names.

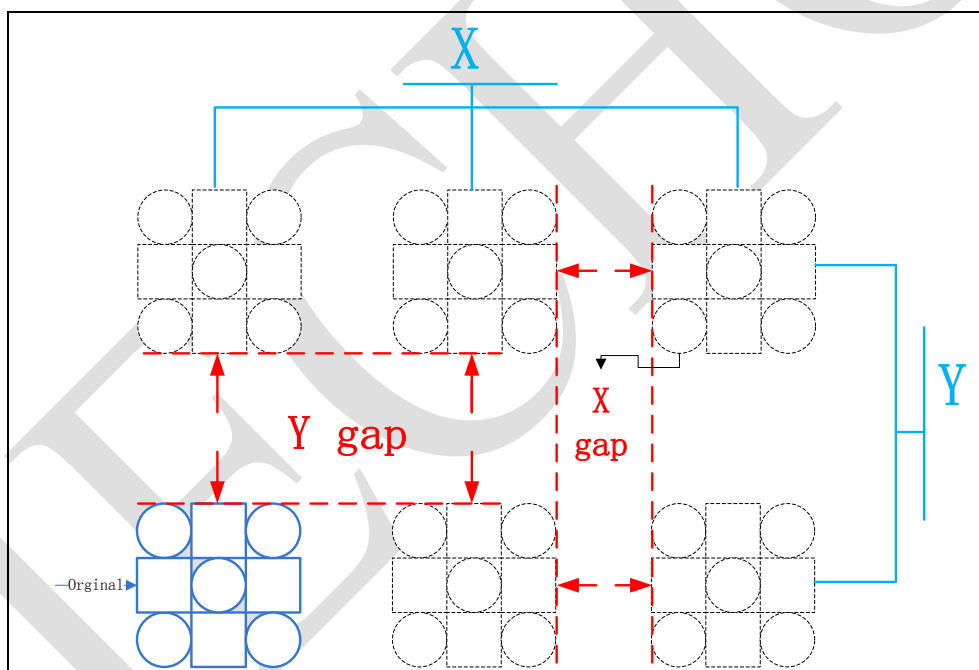
For example, Set Cut1 in red color, program will match Cut1 for the layers with name of Cut1, and set these layers in red color.

3.6 Arrays and Repeat Cutting Setting

Output settings:			
Cut times	<input type="text" value="0"/>		
Page settings			
Number X	<input type="text" value="1"/>	Number Y	<input type="text" value="1"/>
Distance X	<input type="text" value="50"/> mm	Distance Y	<input type="text" value="50"/> mm
Page size X	<input type="text" value="412.384"/> mm	Page size Y	<input type="text" value="171.632"/> mm
Distance between pages	<input type="text" value="40"/> mm		

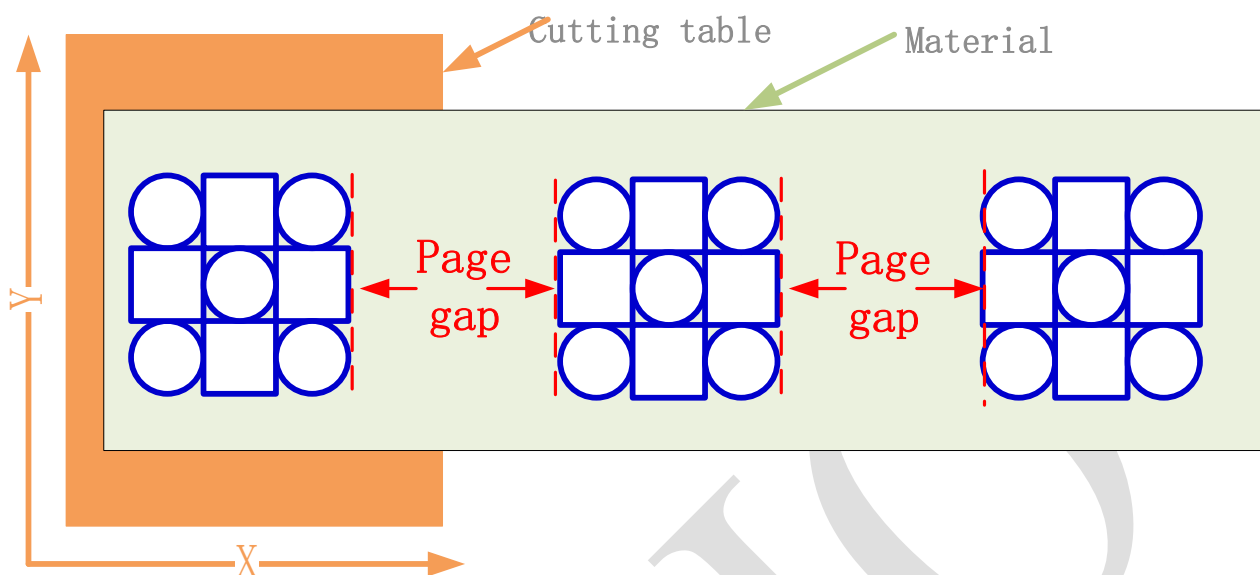
Repeat cutting times, “0” means none, “1” means repeat one time (two times cutting totally).

X direction number、Y direction number、X direction distance、Y direction distance are the relevant parameters of Arrays, please see the illustration below:



Page Size X、Page Size Y are the outline size(Rectangular size) of the cutting graphic. It is calculated by the program automatically.

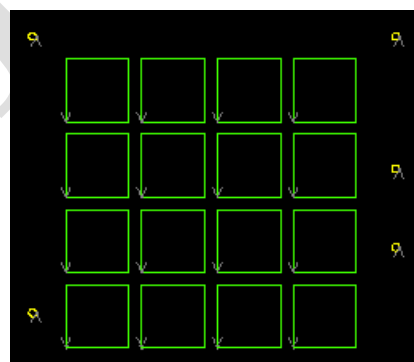
Page interval is a parameter that affect feeding distance. It works for repeating cutting of material rolls. The value is the distance between the two rectangles.



3.7 Cutting Starting Point / Cutting Direction Settings

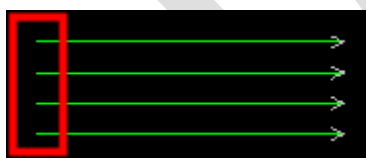
Click , show all the cutting starting points and cutting directions on the visible layers. For

closed graphics, the arrows are the starting points

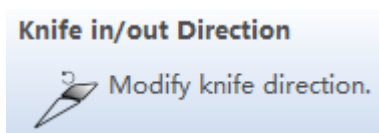


; For

non-closed graphics, the points without arrows are the starting points.



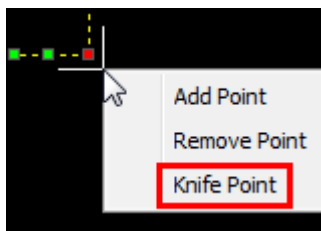
Change cutting direction: Select the graphic, click



Note: For non-closed graphic, the starting points will be changed after changing the cutting directions.

Change the cutting starting point for closed graphics(except circles): double click the graphic,

click on one point (the point will turn red)



, right click the red point, then

click [Knife Point], the point will be set as new cutting starting point.

Change the cutting starting point for circle graphics: double click the circle to select it,



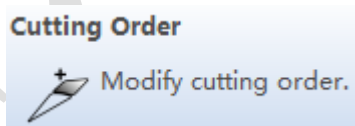
, then double click any point on the circle to complete and exit.



[Change cutting direction] It does not work to the layers who have router configuration. To change router cutting direction, please see [4.3.2](#)

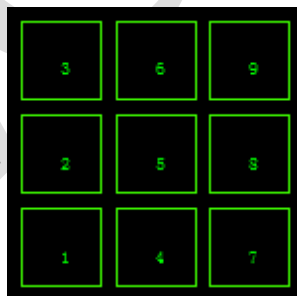
3.8 Cutting Order Settings

Click [Cutting order]



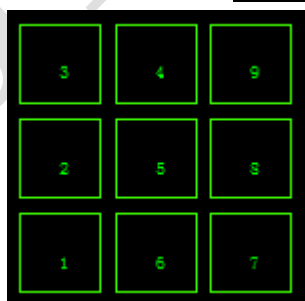
, the unlocked visible graphics with cutting

sequence will be shown at the workplace.

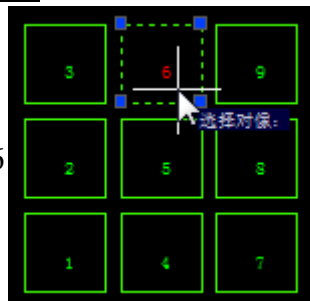


. For example, if we want to change

the cutting sequence to

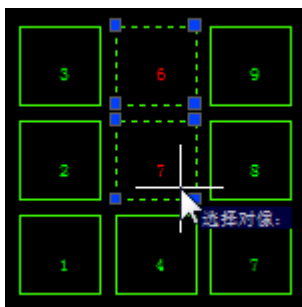


; firstly click 6

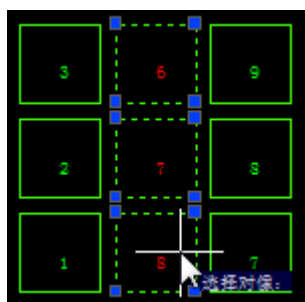


, then click 5,

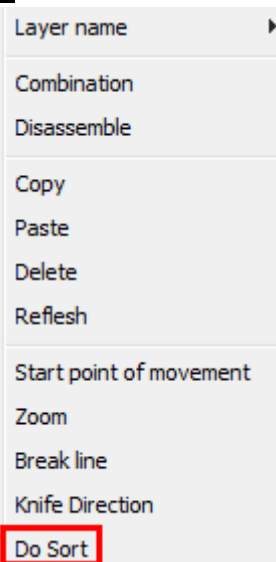
5 will be changed to 7



; then click 4, 4 will be changed to 8



; right click the workplace



, click "Do Sort"



In iBrightCut, order of layers has the first priority; [Do Sort] has second

priority. For example



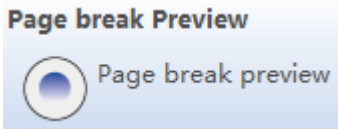
La...	Color	Tool name	Vis...	Lock	Output
1		CUT1	Y	N	Y
2		PEN	Y	N	Y

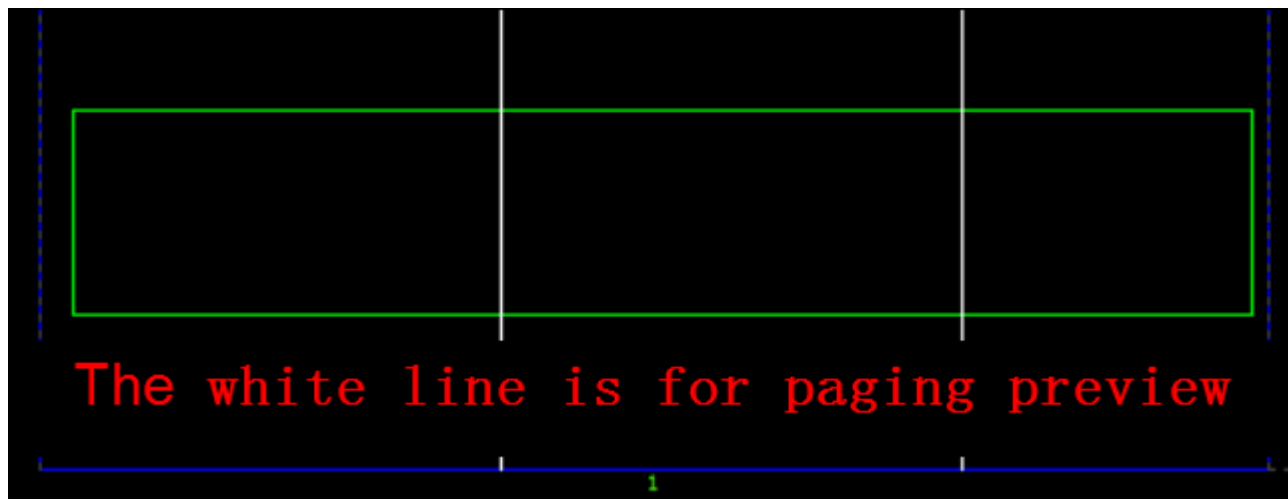
because the layer "0" is ranked at

the top, so the machine will cut red part 5~16, then cut green part 1~4.

3.9 Other Settings

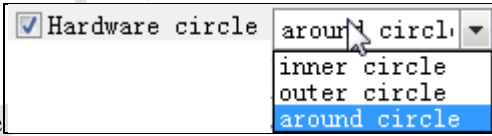
3.9.1 Manual Paging

Click  , enter paging length (mm) , click .



3.9.2 Hardware Circle

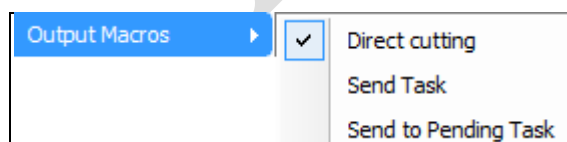
By default, iBrightCut outputs discrete circle.

【Settings】 - 【Options】 - Hardware circle  , iBrightCut

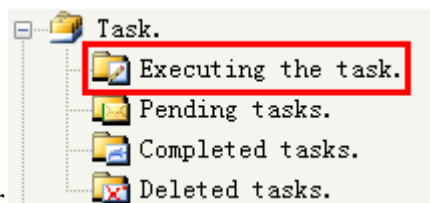
outputs continuous circle, reducing data amount, improving the cutting efficiency

3.9.3 Output Macro Commands

“Output macro commands” is the way of cutting tasks sending, [Manu]/[Setting]/[Output macros]



① Direct cutting



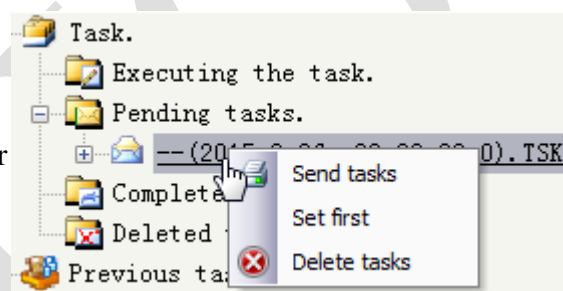
Send the file to “Executing the task” in CutterServer directly. to cut

② Manual start



Send the file to “Executing the task” in CutterServer, click to cut.

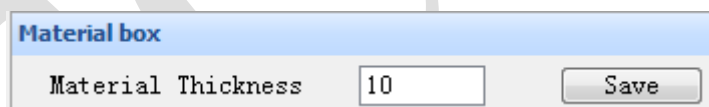
③ Send file to “Pending tasks” in CutterServer



Send file to “Pending tasks” in CutterServer

right-click the file name, send tasks.

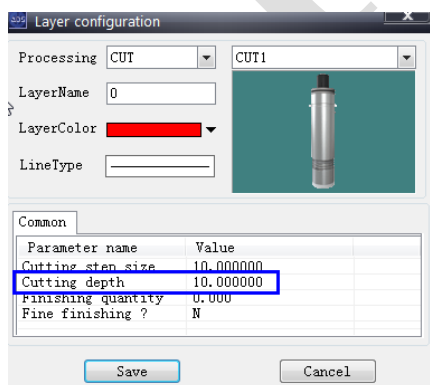
3.9.4 Material Thickness Settings



Set the material thickness according to actual situation, click **Save**.



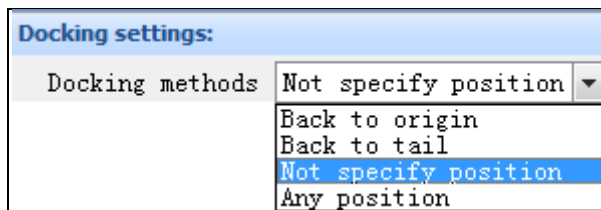
When modifying the material thickness, the cutting depth of knife will be changed correspondingly



For different depths cutting, firstly set the materials

thickness, then modify the cutting depths.

3.9.5 Docking Settings



Set the docking position after cutting completed.

Back to zero point: Heads come back to zero point after cutting completed.

IECHO

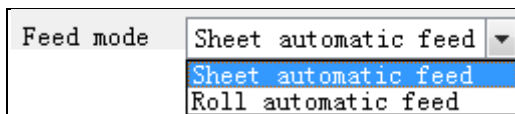
Back to the End: The head will move to the diagonal of original point after finishing the task.

No specify stop position :The head will stop after finish the task.

Specify stop position: The software will stop at the specified stop place after finishing the task.

IECHO

3.9.6 Feeding Mode Setting



Set the feeding mode as requirement and this configuration only become effective when do contour cutting. If no contour cutting, the feeding length depends on configuration of CutterServer.



Details of the feeding mode.

Roll Material feeding:


Feeding length=cutting length of present task-forward offset

Set forward/backward offset as 0 when do overlength contour task.

Forward/backward offset setting reference as (3.9.9)

Sheet material feeding:

Feeding length is same with length of cutting table.

Manual feeding: Click , the feeding length depends on configuration of CutterServer.

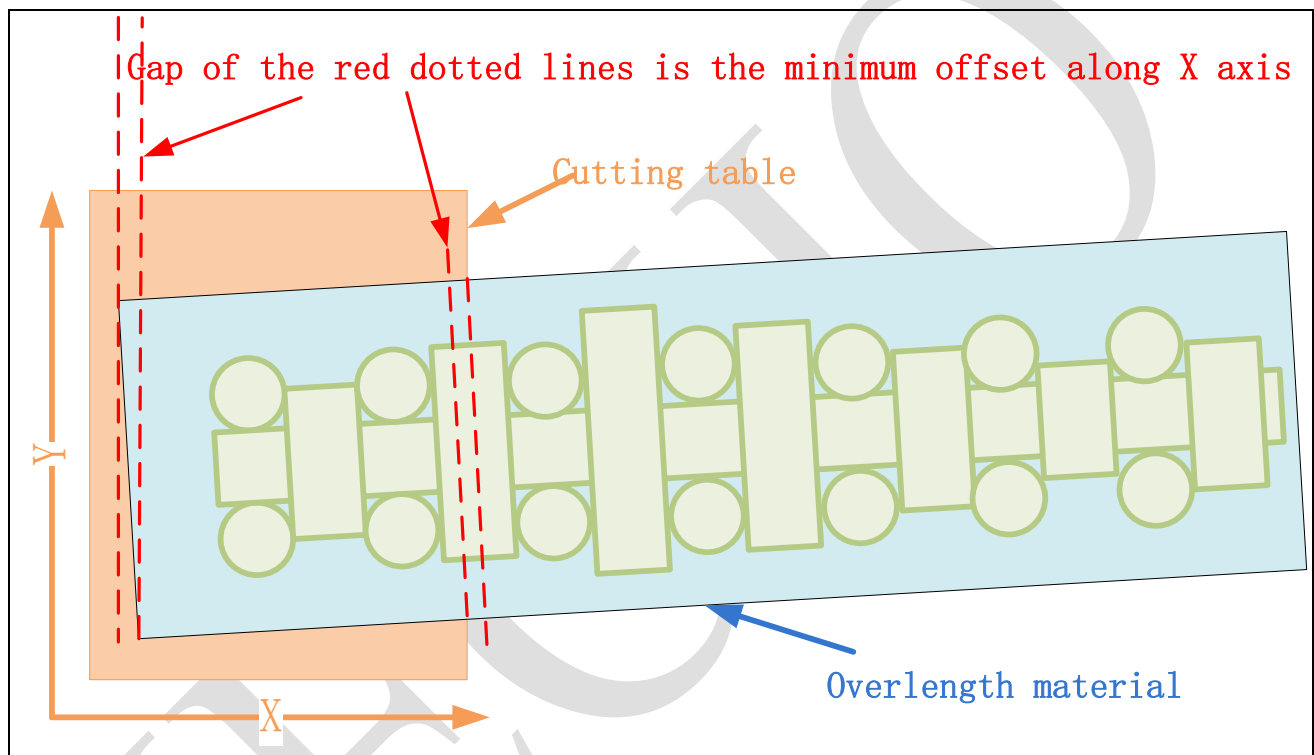
3.9.7 Forward/Backward Setting

If material tilt when do overlength contour cutting, may cause:

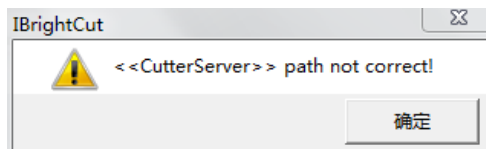
1. The front part-part of the pattern being feeding out of the effective cutting area.
2. The tail-part of pattern not reach the effective cutting area.

To avoid this problem we set forward/backward offset, click on Setting- **【option】**

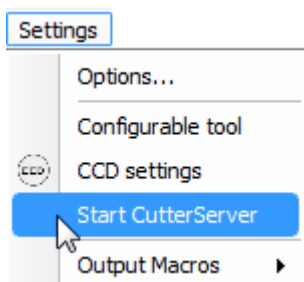
As shown below:The offset distance should be more than the distance between two red dotted line.



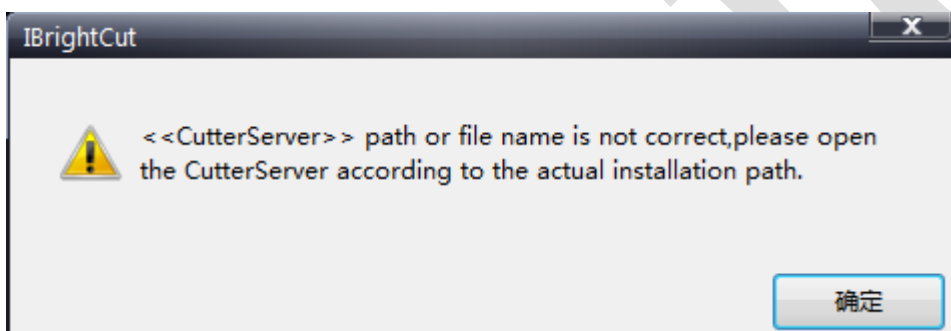
3.9.8 Association with CutterServer



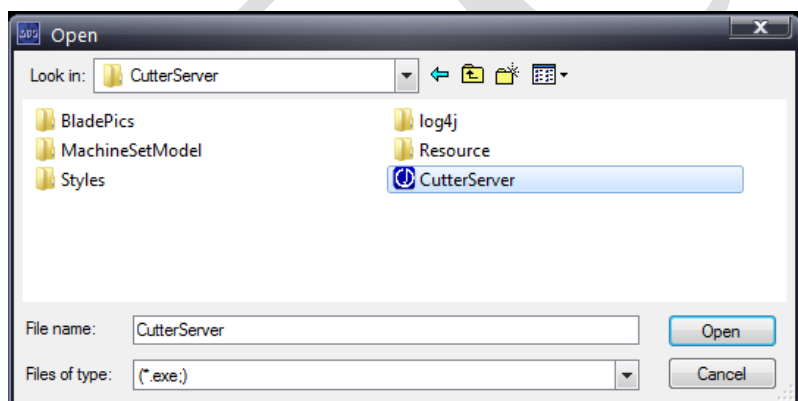
Start iBrightCut, the dialog box will shown when first time use iBrightCut, it means the path not correct,click OK. Then click[settings]-[start CutterServer]



, then click ok on the dialog box shown




box ask to specify the path of CutterServer

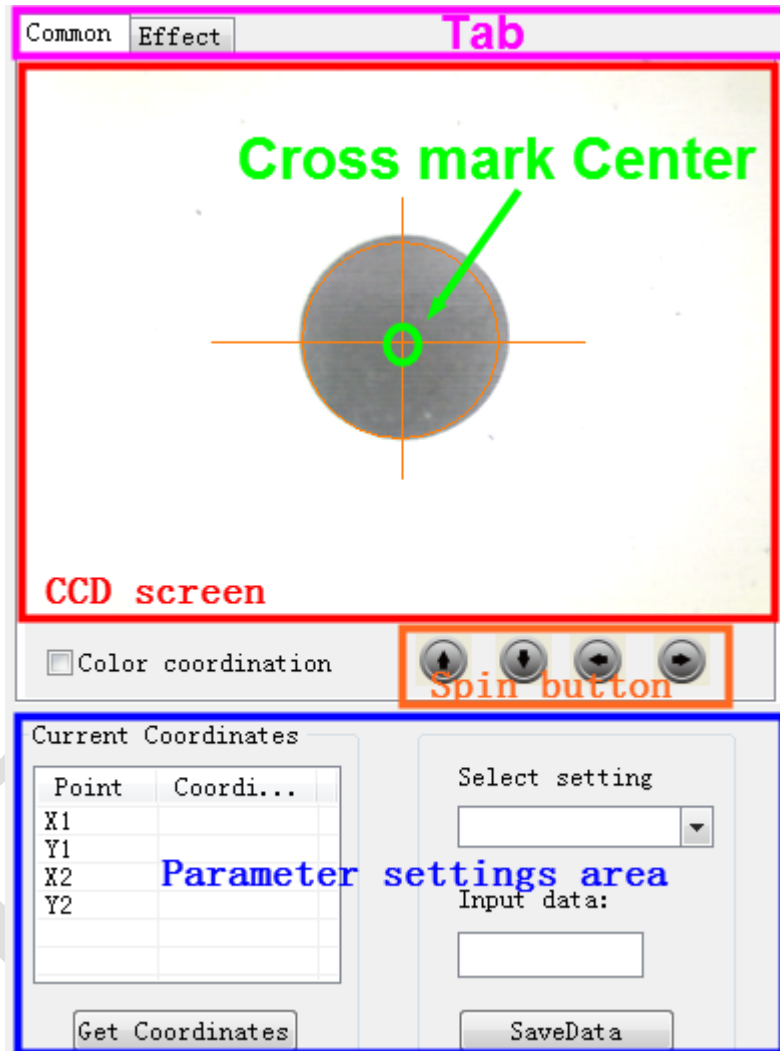


Find and select CutterServer.exe, then

click open to associate with iBrightCut. CutterServer will start automatically when use iBrightCut next time.

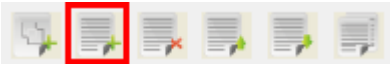
3. 10CCD Setting.

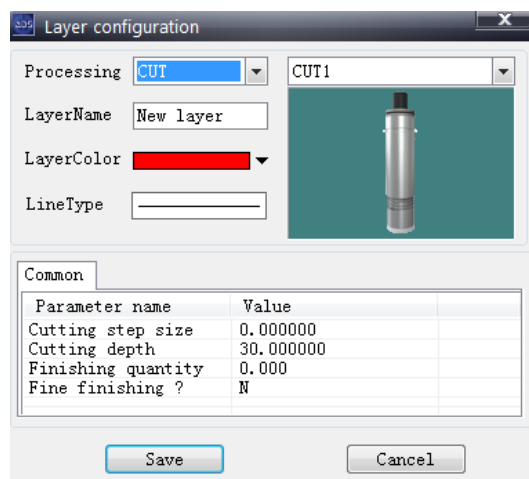
Click  to enter CCD configuration setting panel, click again exit to CCD configuration setting panel.



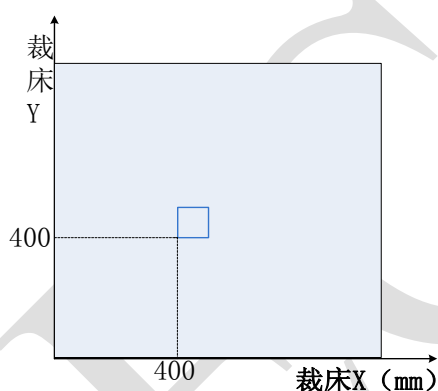
Make sure the focal distance and the height of camera is OK.

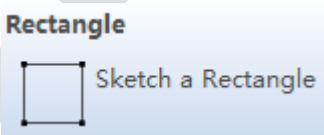
3.10.1 Camera X,Y Offset Setting


- 1 Create layer: Click  create a new layer, double click on this layer, set layer configuration as cut through and choose CUT1 tool, click “save”




- 2 Draw a 100x100mm rectangle at coordinate (400,400)mm:

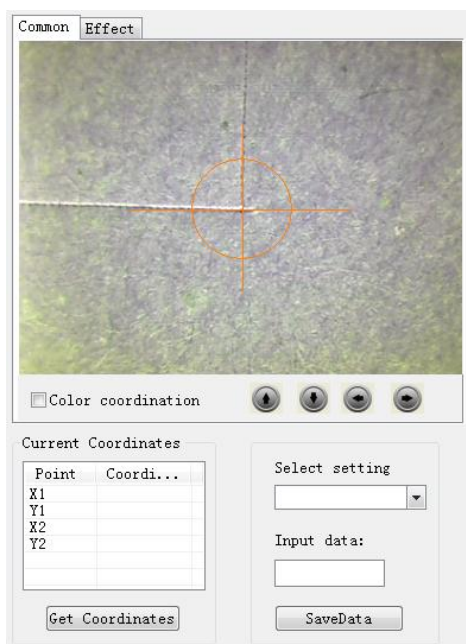


Click  the toolbar, input

400 → Tab → 400 → Enter (specify the first corner coordinate), 100 → Tab → 100 → Enter (specify the length and the width of the rectangle). Click  back to original

point, then click , iBrightCut will send the cutting date to CutterServer. CutterServer will make machine cut 100x100mm rectangle in coordinate (400,400)mm.

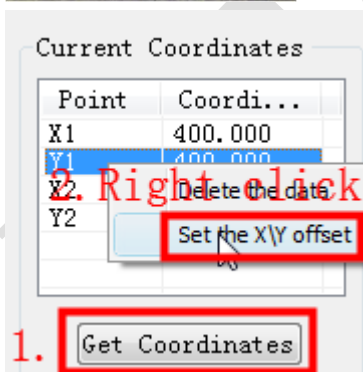
- 3 Click on , there will be a CCD configuration setting panel shown as below.



4 Make sure the center cross mark coincided with rectangle corner(400,400)

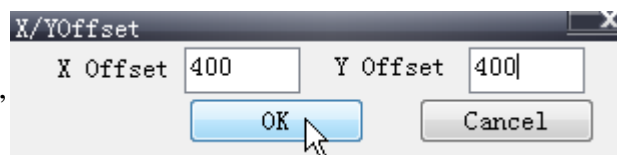


click on "get the coordinate" then get present coordinate(X1,Y1)



2. Right click, right click on X1 or Y1, choose [set x/y offset] from the dialog box,

then input 400 in both [X offset] and [Y offset],



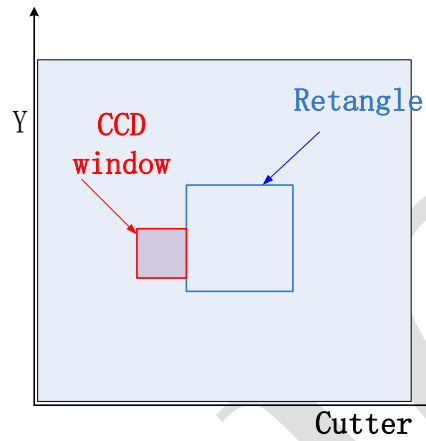
then click OK.



Generally, X,Y offset only need to be set for the first time and should set again when uninstall the camera or tool head.

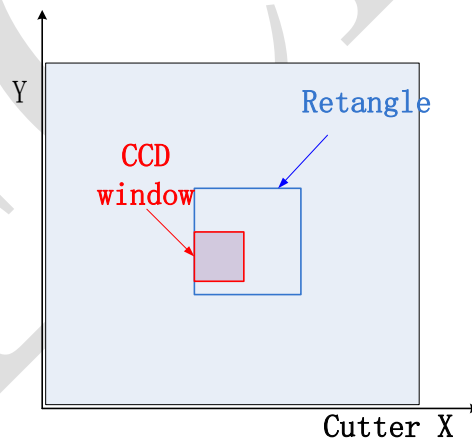
3.10.2 Camera Shooting Height and Width Setting

1. Draw a rectangle(could be same as the rectangle as last step).

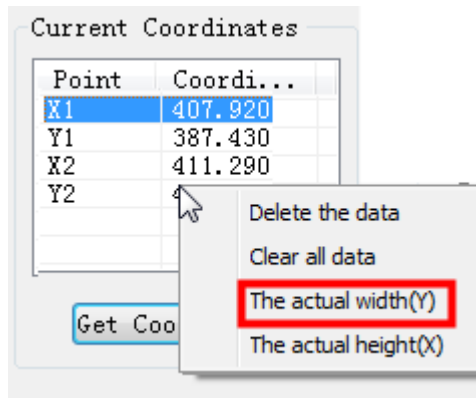


2. Move the camera to make the edge of CCD image coincided with Y edge of rectangle, click “get the coordinate” .

3. Move the camera to make the opposite edge of CCD image coincided with Y edge of rectangle, click “get the coordinate”



4. Right click on the coordinate data then choose “Calculate the width(Y)” .




5. Camera shooting height setting is same as above, just change edge of CCD image coincided with the X edge of the rectangle.

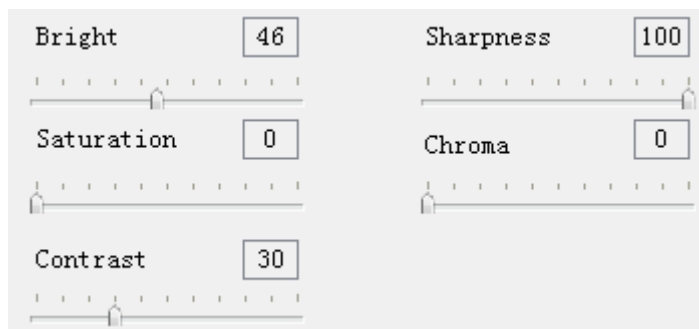


Generally, camera shooting width and height only need to be set when first time and should set again when uninstall the camera or tool head.

3.10.3 CCD Shooting Effect Adjustment

1. Put the material on the cutting table, click  to start the vacuum.

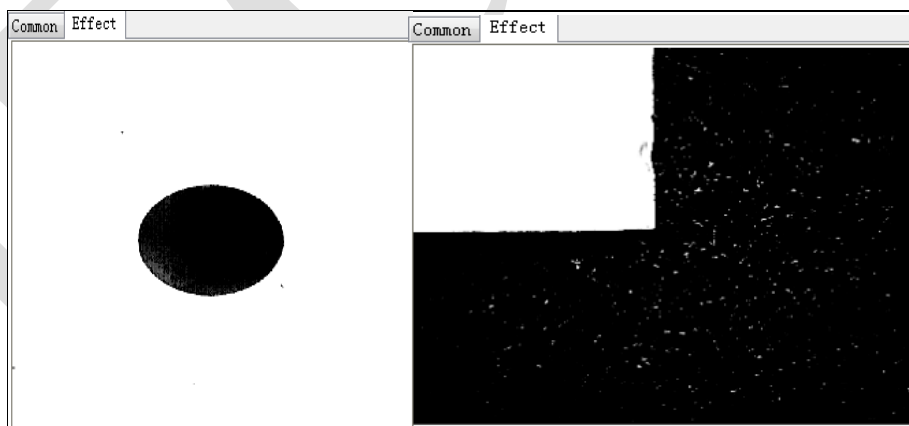
2. Choose 色彩调整 in the bottom of color option to show CCD color configuration panel.



3. If need deformed contour cutting, move camera to make sure one mark get into the shooting area; if need edge contour cutting, move the camera to make sure the edge of material get into the shooting area.

4. Edit the data in color configuration panel to adjust the shooting effect, just to make sure the mark (or edge of the material) have a striking contrast with the around thing.

5. Click the dialog box, check if the recognition is effect (good recognition is as below).



6. If the recognition is not good, click to show the color configuration panel to make some change again.

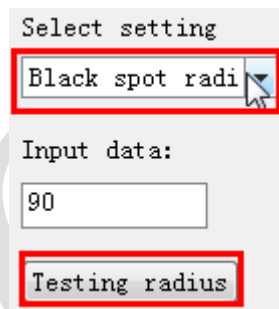


CCD configuration should be always changed according to the color and reflection of the material, the light condition etc.

3.10.4 Mark Radius Setting

Set radius of the spot before use the spot as marks in deformed contour cutting.

1. Move the camera to make sure any of the dot get into shooting area.
2. Choose [black spot radius] from the select setting in configuration adjust panel. Click [testing



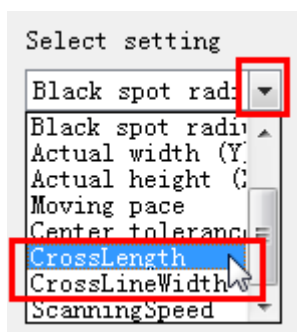
radius], the program will calculator the spot radius automatically.



Generally spot radius need to be set only at the first time, but should be changed if the printing spot is different or the height of the camera been changed.

3.10.5 Cross Configuration Setting

Input the length and width of the cross manually according to practical situation.

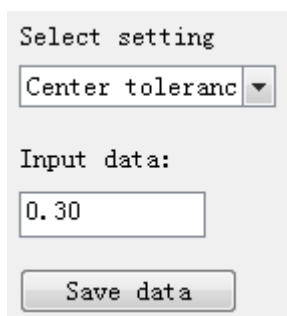


Notice: The unit of length and the width of the cross is pixel.

3.10.6 Scanning Accuracy and Speed Setting

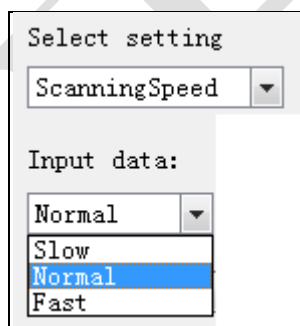
The program could calculate the position of the mark without making shooting center exactly coincided with marks. However, the accuracy is better if the shooting center get closer to the mark center. The center tolerance is the distance between CCD image center and the mark center, it should be 0.1-5mm, the program can get better accuracy when the distance become smaller, but the positioning speed will be slower.

Choose [center tolerance] in select setting, input the number




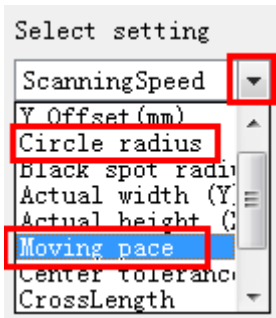
, then click [save data]

CCD image will display the recognized marks with green circle when scanning, you could see the green circle only when the result stayed long enough. The faster of scanning speed, the shorter time camera will stay on each mark. For example: User could hardly see the green circle when choose fast mode, if use slow mode, user could see the result clearly, but the time will be more.



3.10.7 CCD Other Settings

1.Stride. The stride is the moving pace when use  to edit the camera position. It should be:0.01-50mm. Default value is 0.05 and it cannot be altered casually.



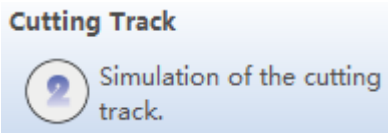
2.Circle radius

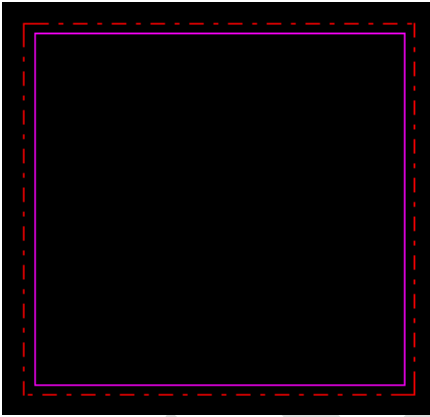


The circle radius could be set as per the actual.

3.11 Cutting Simulation

3.11.1 Milling Simulation of Cutting Track

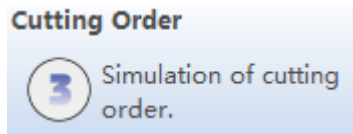
The button  in the toolbar is for milling simulation of the cutting

track, press ESC to exit, , the red dotted line is the simulation of

the milling tool, press ESC to exit.

3.11.2 Dynamic Cutting Simulation

Dynamic cutting simulation.



in the toolbar is to show the simulation of cutting order, press ESC to exit. The simulation time could be change, choose setting in the configuration

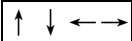
length interval	<input type="text" value="10"/>	mm
Simulation time	<input type="text" value="1"/>	s




, the bigger length interval, the shorter simulation, and the faster simulation.

IECHO

3.12 Interaction with CutterServer

iBrightCut could communicate with CutterServer after associate with it.

Press  could move the head, if it doesn't work, check if there is any popup warning from CutterServer.

The buttons  could control the machine directly. Press  to send present task to CutterServer, the interface will change from iBrightCut to CutterServer automatically, and will change back after task finished. Click  could change to CutterServer interface manually.







If the tool configuration is changed in CutterServer, the tools in iBrightCut will changed




automatically.


























The image shows three tool configurations in a row, each with a label below it: 1#CUT1, 2#EOT, and 3#EOT. The first tool is a long, thin, silver-colored tool. The second and third tools are shorter, thicker, and have a yellow and black handle.

3. 13Shortcut

	<p>Open: Clear present data and open a new data.</p> <p>Alternative : Menu [File]-[Open]</p>
	<p>Save: Save the data and output parameters as *.brg format, the saving path is same with present data.</p> <p>Alternative : Menu [File]-[Save]</p>
	<p>Copy: Copy selected pattern to pasted plate.</p> <p>Method: Selected the pattern, then click this button.</p> <p>Alternative : Menu [Edit]-[Copy]; Right click [Copy]</p>
	<p>Paste: Put the data into working zone from pasted plate.</p> <p>Use: Click this button after copy finished, click in the working zone or input the coordinate for paste.</p> <p>Alternative : Menu [Edit]-[Paste]; Right click [Paste]</p>
	<p>Revoke: cancel last step and back to the previous state.</p> <p>Alternative : Menu [Edit]-[revoke]</p>
	<p>Redo: Cancel last revoke, and reduction to previous state.</p> <p>Alternative: Menu [Edit]-[cancel]</p>

	Move
	counterclockwise rotate 45°
	counterclockwise rotate 90°

	Delete
	clockwise rotate 45°
	clockwise rotate 90°

	rotate 180°		rotate freely
	X Mirror		Y Mirror
	line Mirror		Zoom
	Point edit		Draw rectangle
	Draw circle)		Draw PLine(poly line)
	Graphic transform		Break line
	Add point on Pline		delete point from Pline
	Close selected Pline		Combination
	Resolve		Simulate cutting direction
	Milling simulation of cutting track		Dynamic cutting simulation



Preview by page



Alter cutting start point)



Measure



Change cutting order



Modify the cutting direction



Add points on Pline



Connection line



CCD parameter setting



Change to CutterServer

Open: **Ctrl**+**O**

Save: **Ctrl**+**S**

Select: **Ctrl**+**A**

Copy: **Ctrl**+**C**

Paste: **Ctrl**+**V**

Turn on/ off pump: **Ctrl**+**P**

Edit: Double-click the pattern

Pan: right click and drag

Zoom workspace view: the mouse wheel




IECHO

Chapter 4 CCD System

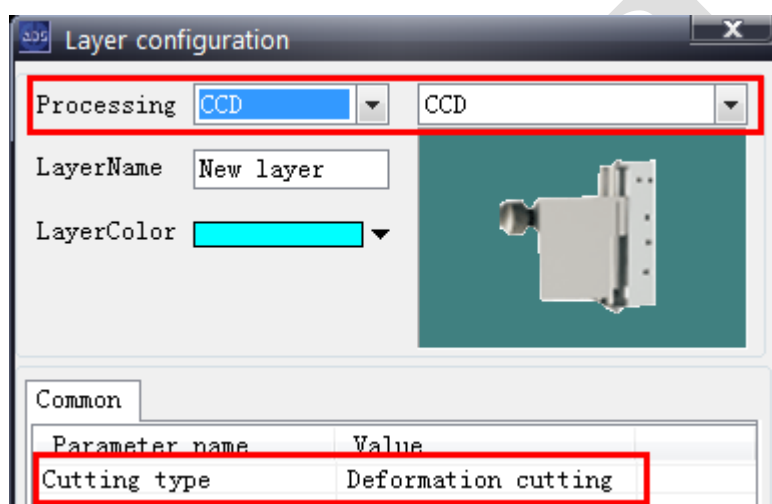
The last chapter introduced all kinds of output settings, which will directly effect the final cutting type. Here are several basis types of cutting.

4.1 Deformation Contour Cutting

Open the file,

Layer name	Color	Tool name
Mark		CCD-Deformation cutting
Data to cut		CUT1
Data to cut		CUT1

The layer will be marked points on the top. It will popup layer configuration dialog after double-click mark layer, set the cutting type as [contour cutting]

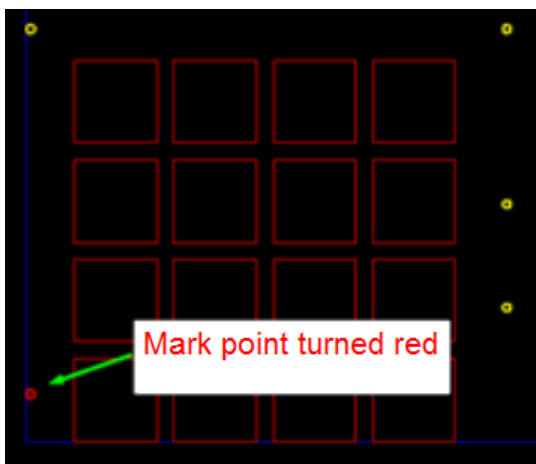


Set the parameters of knife and pen

for other layers.

Click the control button on the machine  contour cutting.

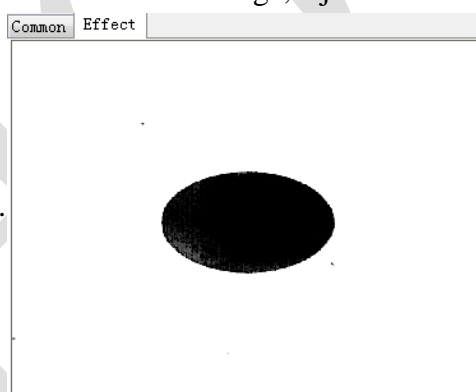
The program will be operated to find the points firstly, it will change to CCD control panel on output area automatically. At this time, the former yellow point will be changed to red.



this red point is the first point for deformation cutting.

Adjust the camera position, which makes the first point into the camera range,adjust CCD color


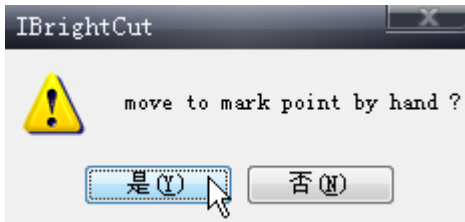
to make the effect much clear in the selected marking point.



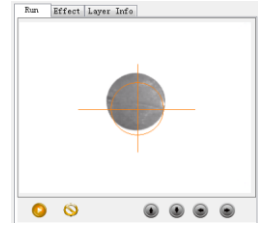
Click this button  on the bottom of CCD screen, then to recognize the marking point.


After recognizing the first point, the camera will move to the next point automatically. The recognized and being recognized points will be marked in green(except the first point), the un-recognized points cannot change the color.




It will appear a new graphics in a place on the working area after recognizing all the points, it is the final cutting file for contour cutting. Will be sent to CutterServer for cutting.

 **Tips** Sometimes, because of the angel of locating or light factors, the program cannot recognize the next point. It will popup  , click (Yes), adjust the

location of camera manually, make the cross center be same with circle center



click the button  below the screen to continue recognition.

If you cannot accept the recognition point, can click  below the CCD screen. This operation will clear all the information during this cutting. Camera will returns to the first marking point automatically waiting for next instructions. At this time, click  below the screen, recognize the points again, or click  to quit this cutting.




According to the points types, contour cutting can be divided into circle cutting and cross cutting. The difference is the different shapes of points, they have the same working principle and process.



Warning : At the contour cutting, CutterServer will set the red light as active status, please do not change the tools during contouring, otherwise it is not accurate.

4.2 Edge Contour Cutting

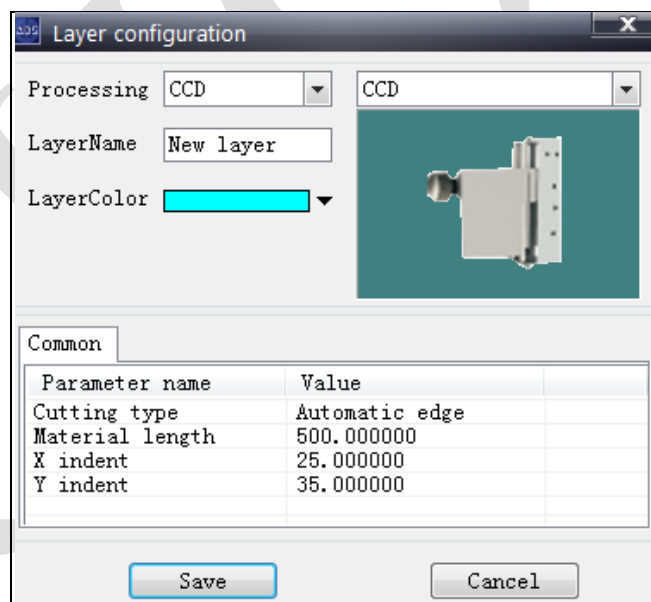
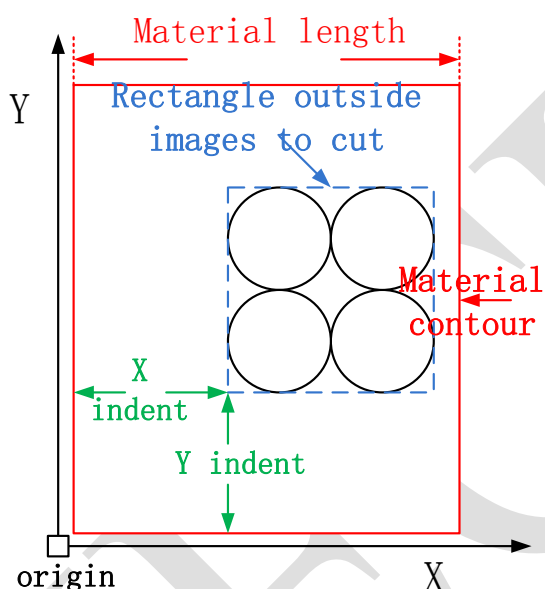
Open the edge contour cutting file, create a new layer then put it on the top.

Layer name	Color	Tool name
New countour layer		CCD-Automatic edge
Data to cut		CUT1
Data to cut		EOT

, Set the processing technology of layer

into CCD-CCD.

Choose the contour cutting type {Automatic Edge} or {Manual Edge}, according to the actual information to input length and intent of X/Y.



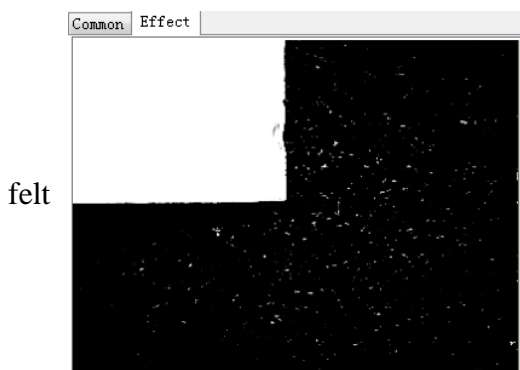
Compare to contour cutting, the difference is, the position layer of Edge contour cutting is empty(no data for marking points). Material length, X intent and Y intent are the main factors for edge contour position. The material length depends on the trips of camera for edge automatically. X and Y intent depends on the relative position between cutting pattern and material boundary.

After saving the above parameters, click the control button  to start edge cutting. When

contour cutting, the program can mark the first position point, while, no information for edge contour cutting. So, how can we know the first point on edge contour cutting? According to Ibrightcut




working area, put the cutting material on the cutting table, the nearest material to original of cutting table is the first point.

When automatic edge contour cutting, adjusting the camera position to make the first point into camera range, adjust the CCD color to make the material in the Effect contrasting with the color of



Click  on CCD screen, the cutting machine will


recognize the edge of material with X axis of machine.

When manual edge contour, adjust the camera position in the screen to make the cross center aligning to the first point, click  in CCD screen, the button will become , move the head along X axis, adjust the camera position to make the cross center in the screen aligning to any point of material edge, click  to find the second point(Only locate these two points for manual contour, the larger of distance between the second point and the first one, the higher of accuracy.

Similar with contour cutting, after finishing, it will create a new graphics in the working area as the final cutting.



During automatic edge contour, if the program cannot recognize the edge of material



automatically, please adjust the camera position and click , specify material edge. Compare with contour cutting, the difference is, after manual position, the program cannot continue to recognize the edge, it will create the final cutting data. So, if fail to automatic contour, please adjust it by hand, in order to improve the location accuracy, please try to locate the farthest point to the


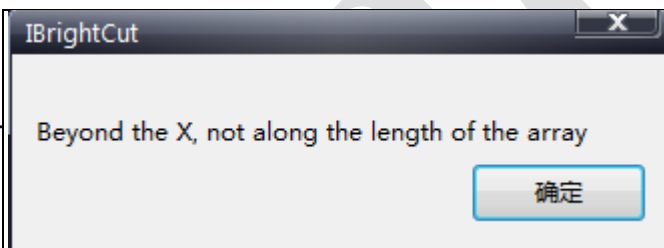
first point.

IECHO

4.3 Array Cutting

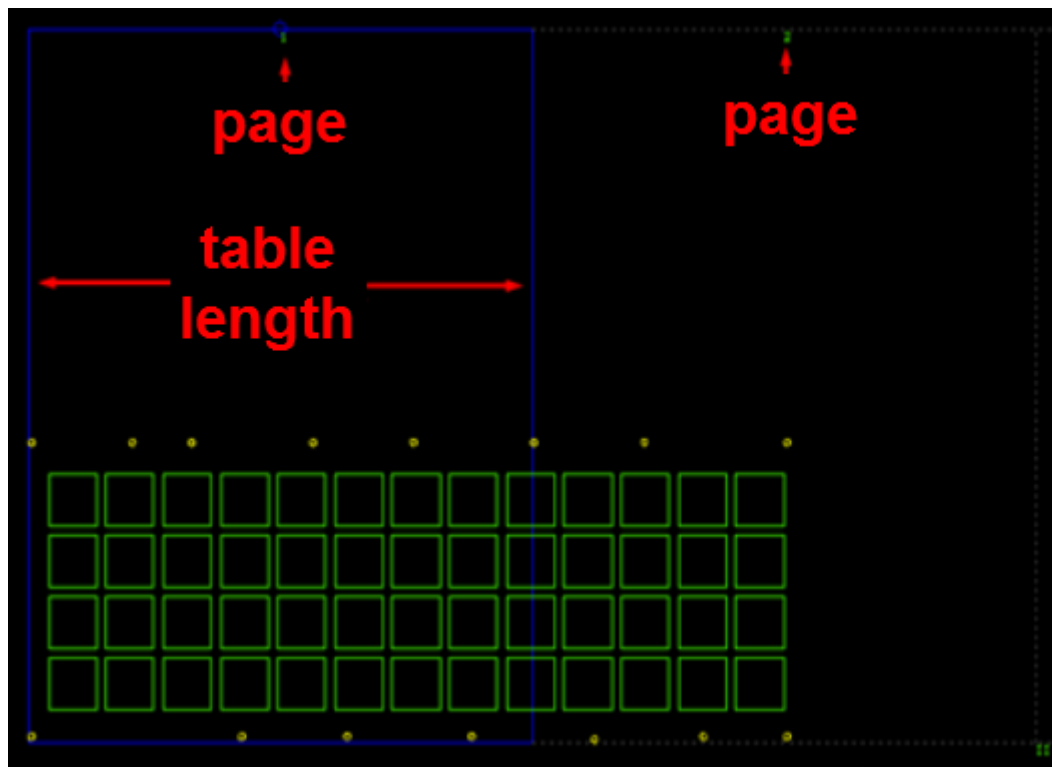
For array cutting output setting, please refer 3.6 array and repeating cut setting, Array cutting is ok when [Quantity X] or [Quantity X]is not 1.

After finishing setting, click  button, CCD screen will popup automatically, move the camera to make the first point enter into camera area, click  below CCD screen, according [Quantity X] [Quantity X][Distance X] and [Distance Y] , the software will find all the points on the material and create the scanning to array graphics, these graphics data will be sent to CutterServer for cutting.

 **Tips** If popup error  , it shows the array patten will beyond the cutting area, please modify the relevant parameter then test again.

4.4 Overlong Contour Cutting

If the cutting length beyond the length of cutting table, the program will be divided into pages automatically.




Please choose [Roll Automatic feed] when overlong cutting


Feed mode , and set the proper offset

CCD long width page

Front Offset mm

Back Offset mm

After finishing setting, click , CCD screen will appear automatically, move the camera

to make the first point enter the camera, click  below the CCD screen, according to the page length, software will scan all the position points on page 1, and send the cutting data of page 1 to CutterServer for cut. After finishing page 1, the machine will feed the material automatically; after finishing feeding, the software will scan the points of page 2 automatically (unnecessary to align the first point by manual on page 2); send the cutting data to CutterServer for cutting; repeat the above steps till all the pages cutting finished.

4.5 Other Cutting Types



① Repeat Cutting

Repeat cutting means cut the original tasks many times, it doesn't need re-send the tasks manually. It is often used for mass production. Cutting numbers for repeating, "0" is no repeating cutting, "1" is to repeat cutting number for one time(total cutting twice), and so on.

② Back cutting

For printed material, generally, we put the material with graphics on the side of cutting, back cutting is make the material with graphics reverse side of the cutting along X axis for rotation.

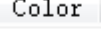

Click  to add [Encounter layer]

Layer ...	Color	Tool name
IECHOMARKS		CCD-Deformation cutting
Flip		
1		CUT1

The software will output the cutting data according to the layers, in the [Encounter layer], it will show the user to encounter the materials and will count the later data of other layers.

③ Cutting mark point

Set the cutting type of CCD layer as cutting mark point

Layer ...	Color	Tool name
1		CUT1
IECHOMARKS		CCD-Cutting mark point

. Create a blank layer, equip the tools of cutting

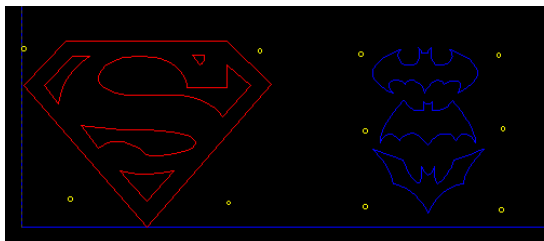
mark point you need for layer and put it on the upper of CCD layer.

As the above configuration, the program will recognize the position point(same processing with deformation contour cutting), after finishing, cut the circle of 3mm as radius at the position point. Cutting mark point usually will be used with back contour cutting.

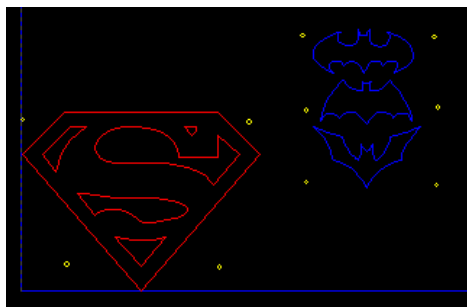
5 Multi-file contour cutting

Additional to open more contour files(unnecessary to sort off the relative position of all files, the location of files cannot be effected for the contour cutting result, for example , open file A and B



at the same time,




and



are equivalent). Click  in control bar, CCD screen

will popup automatically. Move the camera to make the first point of file A (the point with red color in the cutting area) enter into camera range, click  below CCD screen, The cutting head will stop movement after scanning all the points of file A, waiting for the first position point of file B which aligned by user (the point with red color in the cutting area). Move the camera to the aligned location; click  on the CCD screen, the program will scan the position points of file B automatically, after finishing scanning, it will cut for A and B.

 In the multi-file contour cutting, each layer must be adjacent to the same file

Layer name	Color	Tool name	Layer name	Color	Tool name
File A positioning		CCD-Deformation cutting	File A positioning		CCD-Deformation cutting
File A data to cut		CUT1	File B positioning		CCD-Deformation cutting
File A data to cut		CUT1	File A data to cut		CUT1
File B positioning		CCD-Deformation cutting	File A data to cut		CUT1
File B data to cut		EOT	File B data to cut		EOT

Right
Wrong

4.6 Combination Cutting

Combine the above cutting type, can get many combination cutting types.

There are combination cutting types of iBrightCut, as following:

	Array Cutting	Overlong Cutting	Repeat Cutting	Back Cutting
Deformation Contour Cutting	✓	✓	✓	✓
Edge Contour Cutting	✓		✓	✓

- 1 Deformation Contour Cutting array output
- 2 Overlong deformation contour cutting
- 3 Deformation Contour repeat output
- 4 Negative deformation contour cutting(Or say positive contour cutting mark point-negative deformation contour cutting)
- 5 Edge Contour Array output
- 6 Edge Contour Cutting Repeat Output
- 7Reverse Edge Contour Cutting

	Over-long Cutting	Repeat Cutting	Reverse Contour Cutting
Deformation Array	✓	✓	
Overlong deformation		✓	✓
Deformation Repeat			✓
Edge Array		✓	
			✓

- 8 Overlong deformation contour array output
- 9 Deformation Contour Cutting array repeat output

10 Over-long deformation contour repeat output

11 Over-long negative deformation cutting(Positive over-long cutting mark point+over-long negative deformation contour cutting)

12 Negative deformation contour cutting repeat output(Positive cutting mark point repeat output+negative deformation contour repeat output)

13 Edge contour array repeat output

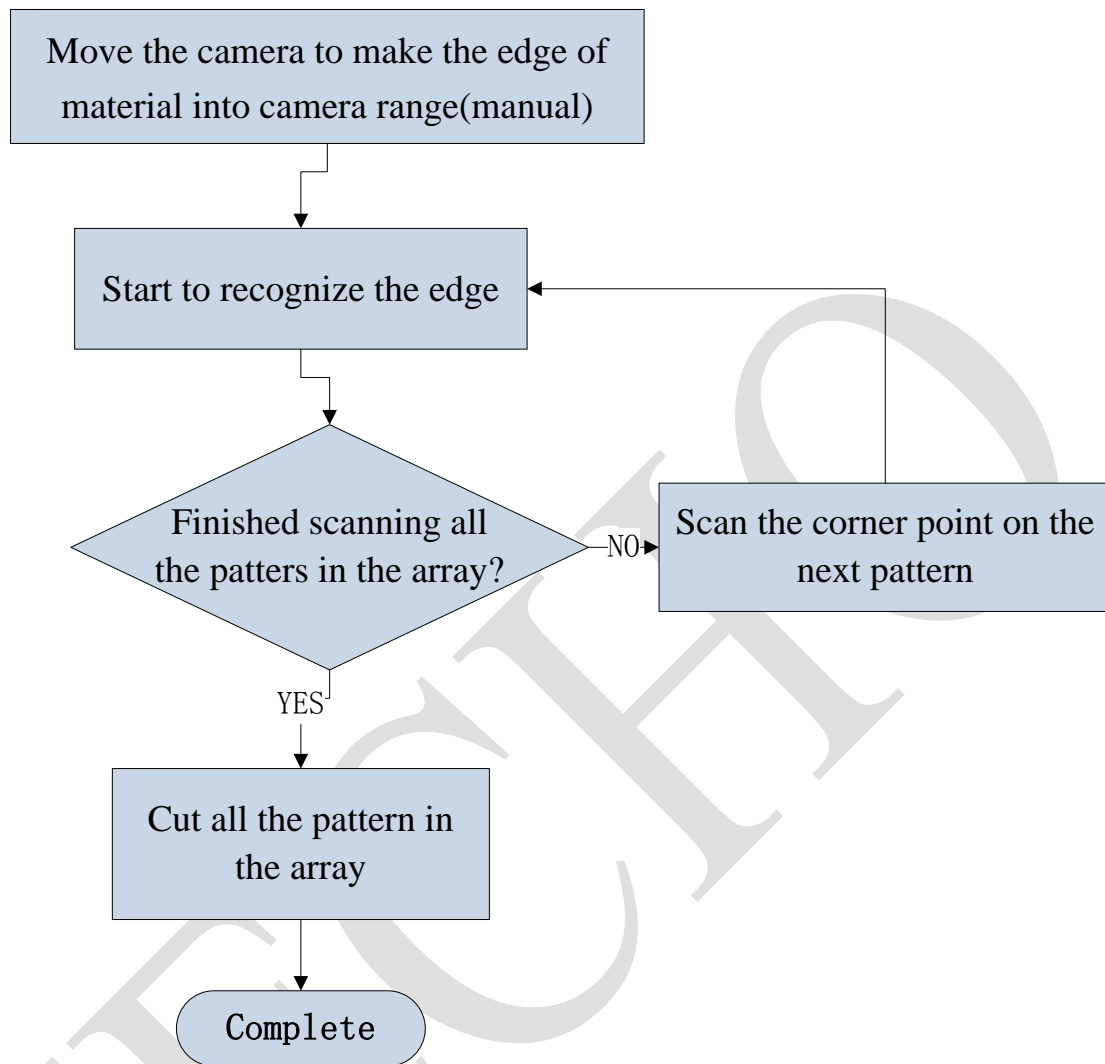
14 Negative edge contour repeat output

Except the above, there are other contour types for iBrightCut:

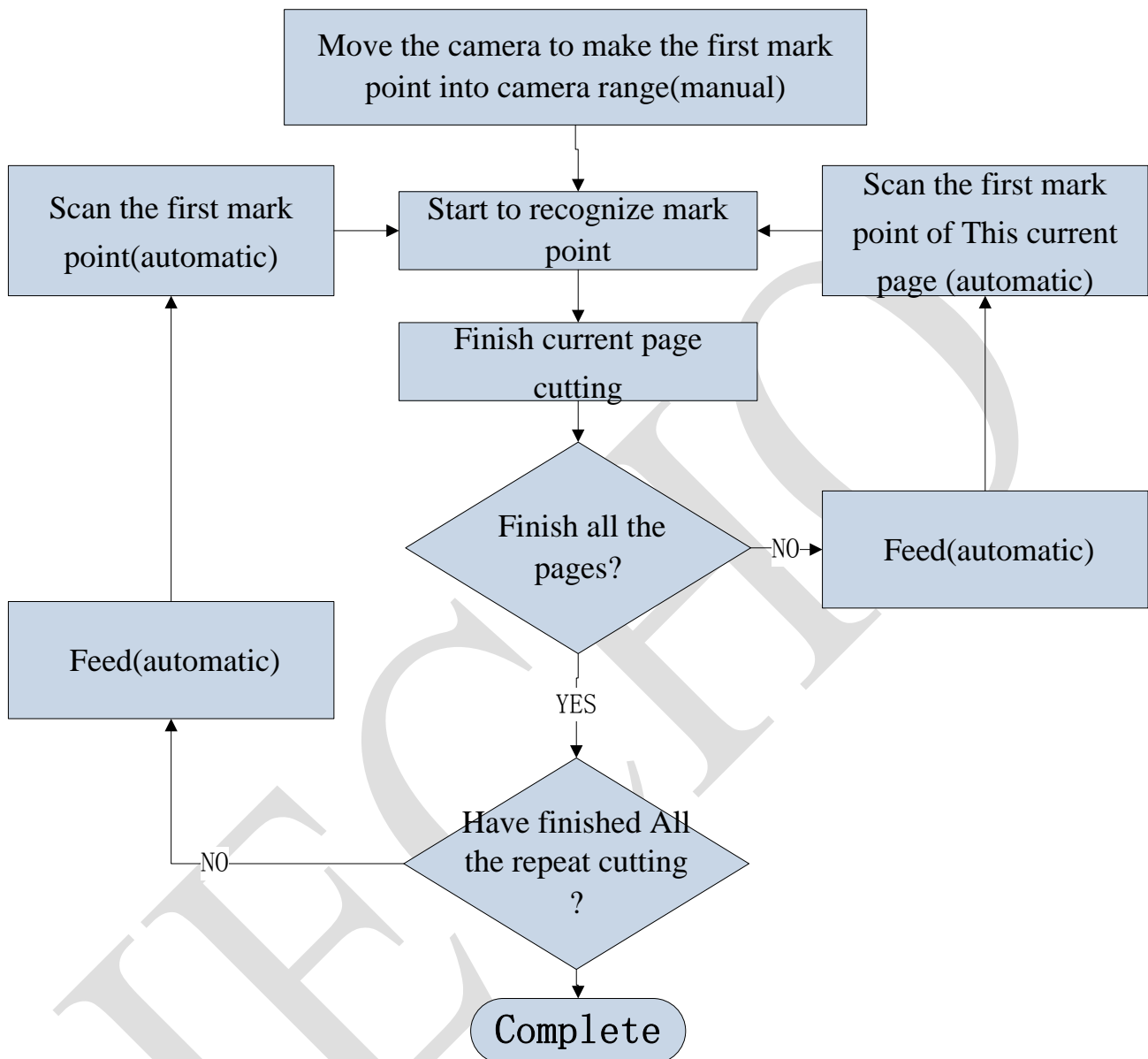
15 Positive Position marking point+ negative edge contour cutting

In order to understand clearly, below are normal examples for working process.

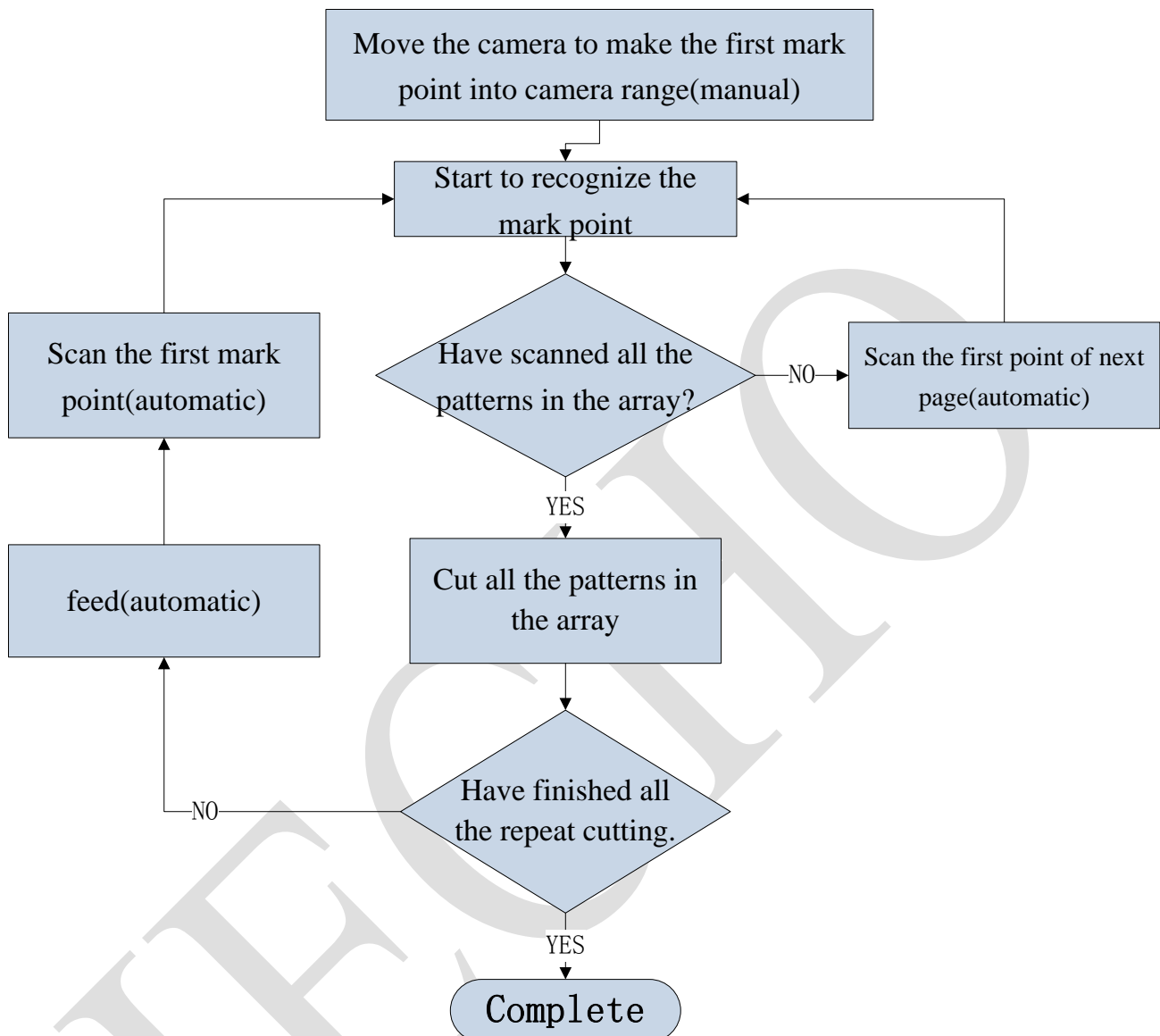
4.6.1 Edge Contour Cutting Array Output



4.6.2 Overlong Deformation Contour Cutting Repeat Output



4.6.3 Deformation Contour Array Repeat Output



Chapter 5 Common Problems and Solutions

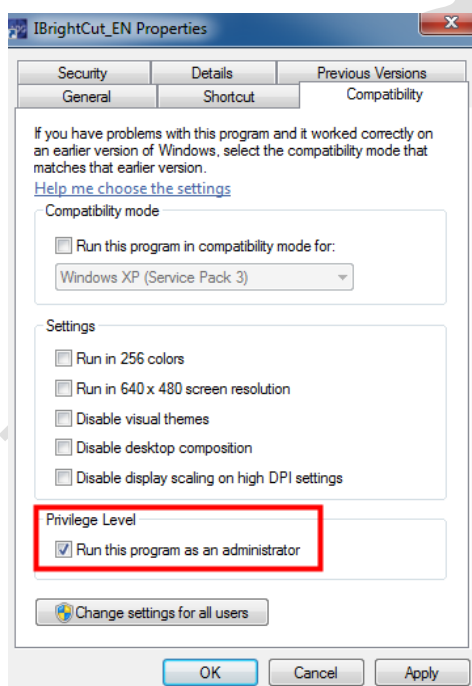
- ① During cutting, if shows “Fail to send the file on CutterServer status bar
- ② Please check whether DSP version is right with “Diagnostic function” of CutterServer
- ③ Cannot adjust the location of camera

If you cannot adjust the camera location with ↑ ↓ ←→ on the keyboard, pls click any place on CCD screen for re-resting. If fail to coarse and fine tune, please check whether popup the warning on CutterServer; Check the serial port whether is OK, if this problem always happen, please check the cables whether is loose that between PC and electric box of machine,

- ④ CutterServer error: Error on reading PLT file.

Please check whether exists any data of layer on workplace; Check whether the property of dotted cutting is set for circle.

- ⑤ No effect after modifying the program parameter or configuration



For Win 7 user, if you install iBrightCut on system disk. Please run the main program of iBrightCut as administrator.

- ⑥ Cannot open CutterServer after installing the program. Please re-start the computer
- ⑦ Cannot recognize, although the image effect is good

Please confirm have chosen the right contour type; measure the radius of black spot/ adjust the

parameter of cross.

- ⑧ When perform the task of overlong contour cutting, it often shows “Beyond the cutting area” on CutterServer.
- ⑨ Please adjust the offset value before and after in the [Option] of menu bar; Please check DSP version.
- ⑩ It shows “Beyond cutting area” when sending the task on iBrightCut.

If there is no graphics outside of blue square in the workplace on iBrightCut. Please check:

Array output setting; Cutting range setting in the parameter on CutterServer; Whether it is connected between iBrightCut and CutterServer.