

HIGH QUALITY **CE** CERTIFIED  
DIGITAL PRESS FINISHING EQUIPMENTS



- Thermal Lamination
- Hydraulic Paper Cutter
- Digital Label Die Cutter
- Perfect Binder & Corner Cutter
- Digital Creaser & Perforator





# *FLATBED PLOTTER CUTTER: MHC - 4560*

Paper Size : 18.5" X 24.5"

Cutting Size : 17.5" x 23.5"



1. Introduction of Product
2. Tool Description
3. Operation
4. Software
5. Fault and Maintenance
6. Performance Parameter

# **CHAPTER 1**

## ***Introduction of product***

*1.1 Type and Specification*

*1.2 Standard Parts*

*1.3 Parts Names*

*1.4 Control Panel*

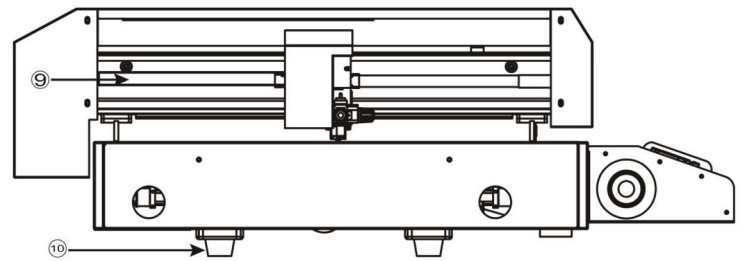
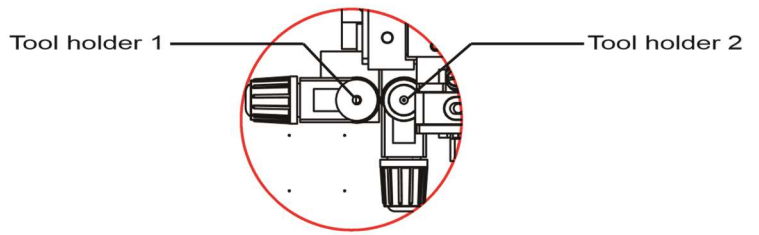
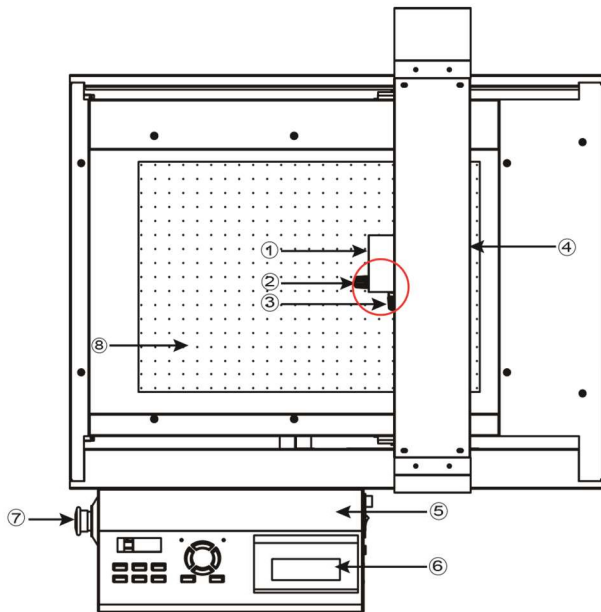
## 1.1 Type and Specification

Model	Effective Cutting Area	Effective Contour Cutting Area	Stand
SG-FCA3+	350×510mm	330×488mm	No
MHC 4560	470×630mm	450×600mm	No

Item	Qty	Specription
Air pump	1	Vacuum suction
Hose	1	Vacuum suction
Software	1	DragonCut Cutting software
Creasing Blade	1	Crease tool
Blade Holder	1	Loading knife
Pen Holder	1	Calibration sensor tool
Blade	3 sets	Cutting tool
Circlip Knife	6 sets	Cutting tool
M3 Six Angle Wrench	1	Backup tool
M2 Six Angle Wrench	1	Adjust the height of the creasing knife
10 A Fuse Wire	1	/
USB Cable	1	/
Power Cable	1	/
Shock Pad	4	Footing for stand (6090/76106 only )

SG-FC6090	620×930mm	600×900mm	Yes
SG-FC76106	780×1080mm	760×1060mm	Yes

# 1.3 Parts Names



silence device	1	Reduce noise for air pump
Pump Box	1	SG-FC76106 ( only)
Plastic cutting pad	1	Mainly used for cutting
Felt pad	1	For creasing effect is better, (cutting and creasing)

**1** Carriage.....Drives the cutter blade/pen/creasing tool to the forward/backward.

**2** Tool holder 1.....Holds the pen/creasing tool and drives it up/down

**3** Tool holder 2.....Holds the cutter blade tool and drives it up/down.

**4** Beam.....Holds the tool carriage ;moves left/right.

**5** Control panel.....Used to set and use the plotter's various functions.

**6** Tool Box.....Box for holding tools.

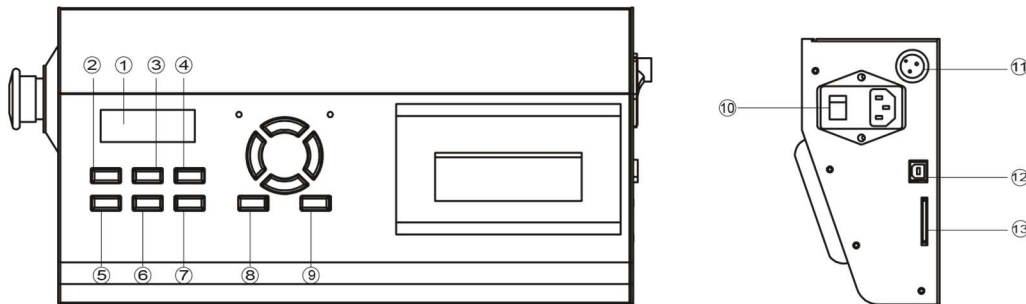
**7** Emergency switch...In case of emergency, turn off the power.

**8** Cutting area.....Effective Contour Cutting Area.

**9** Belt.....Holds the carriage to moving.

**10** Shock Pad.....Footing for machine.

# 1.4 Control Panel



- 1 LED Display.....Display various parameters.
- 2 Fun1.....The switch for vacuum adsorption function.
- 3 Fun2.....Return to the main interface, when you set the parameters. Press this key to return to the original interface.  
( Original interface display: speed and Force )
- 4 Fun3.....The switch for sensor.(the carriage sensor,scan mark)
- 5 Reset.....Resrt Key,The carriage will return to the mechanical origin,LED display speed and force.
- 6 Set.....Setting machine parameters.
  - SPEED / FORCE: Control the speed and force of a tool holder 1, generally hold the pen and creasing tool.
  - SPEED1 / FORCE1: Control the speed and force of a tool holder 2, generally hold the blade.
  - CAR X/Y : Distance between tool holder 1 and tool holder 2, the offset value of the two tools.  
generally do not need to change.
  - Work Mode: Cut Plotter --Control tool holder 1and tool holder 2 work together.
  - Draw Plotter--Control tool holder 2 work only.
  - BaudRate: 38400,Computer and motherboard transmission parameters, generally do not need to change.
  - XP/YP: Scaling X direction and Y direction,generally do not need to change.
  - Clear Pare: Restore factory settings.

VER: The version for firmware.
- 7 Test.....Runs a cutting test to check whether the currently selected cutting conditions are compatible with the medium loaded. Usually tool 1 draws a square, and tool 2 cuts a triangle.
- 8 Off.....When the speed and Force is displayed, press the off key you can move the carriage and the beam.



9 Enter.....After setting a function or condition at the control panel, press the [ENTER] key to register your setting.

10 Power switch.....Controls the on/off status of the power supply to the cutter.

11 Air pump jack.....The jack for connecting main board and air pump

12 USB interface connector.....Used to connect the cutter to a computer via the USB interface.

13 SDcard interface connector.....At present this feature is unavailable.

# CHAPTER 2

## ***Tool Description***


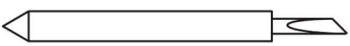
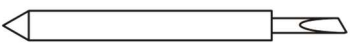
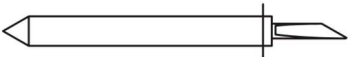
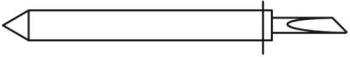


*2.1 Types of cutter blades*

*2.2 Blade holder introduction*

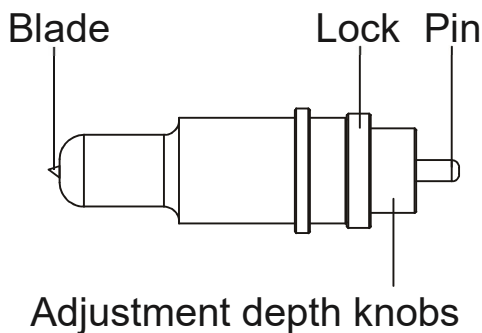
*2.3 replacing the blade*

*2.4 Adjust the blade length*

## 2.1 Types of cutter blade

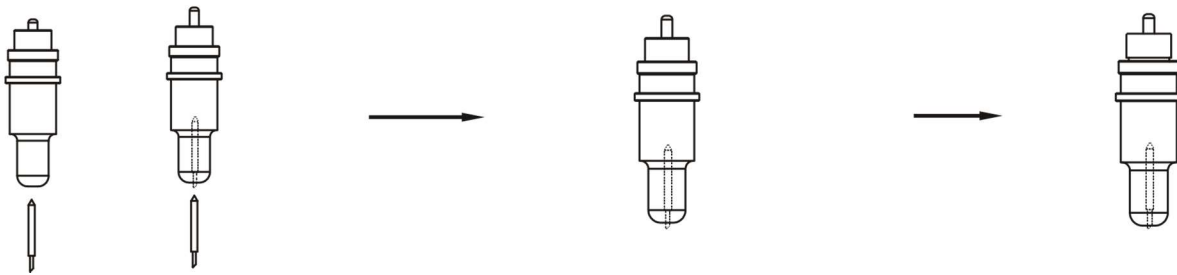
Name and pic		Angle	Blade diameter	Applications and
Blade		60°	0.1mm	For thick media. The sharply angled tip provides a longer cutting edge. Suitable for cutting media from 0.5 to 1.5 mm thick.
		45°	0.1mm	For adhesive stickers, instant paste
		30°	0.1mm	For Film , very soft material
Circlip Knife		60°	0.1mm	For cutting high-intensity reflective film. For cutting sandblast rubber.
		45°	0.1mm	For cutting media which are too thick for the uitable for cutting media from 0.25 to 0.5 mm thick
Creasing Blade		/	/	≤500g Cardboard, corrugated paper
Pen Holder		/	/	Calibration sensor

## 2.2 Blade holder introduction



**WARNING**

## 2.3 Replacing the blade



When handling cutter blades, be careful to avoid cutting your fingers or other parts of your body.

Step1

Step2

Step3

Step1/Step2/Step3

1. Push the blade to the bottom of the blade holder.
2. Adjust the blade tip to suitable length by rotating “Adjustment depth knobs” and then tighten the lock.
3. Press the push-pin to remove the blade from the blade holder when replacing blade.

### Notice

The blade is a consumable item, and you’ll always get the best quality cut with a newer blade. Please replace with a new blade when:

1. The tip of blade is broken.
2. The cutting traces are not as good as they were.
3. The blade will not cut cleanly even though the blade force has been raised significantly.

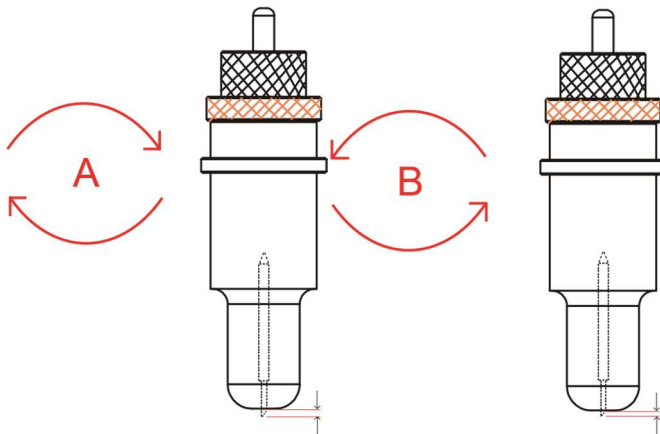


Do not touch the tip of the blade with your fingers.

## 2.4 Adjust the blade length

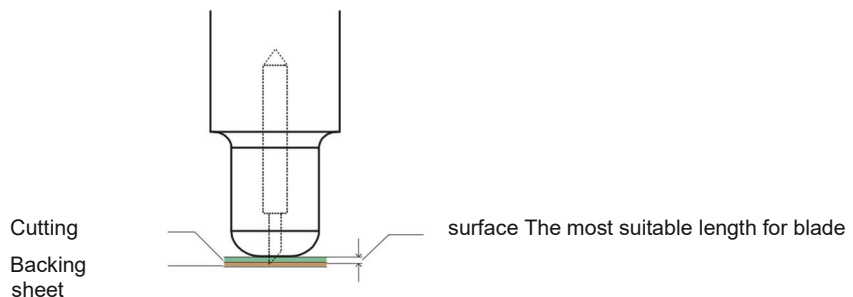
The blade length is adjusted by turning the blade adjustment knob.

- To extend the cutter blade, turn the knob in the A direction.
- To retract the cutter blade, turn the knob in the B direction.



### How to confirm the right height

Gradually increase the blade length to suit the thickness of the medium being used. The ideal blade length is a length that is slightly less than the combined thickness of the film and its backing sheet, but greater than the thickness of the film itself. Adjust the blade length so that only traces of the blade appear on the backing sheet when a cutting test is performed. If the blade cuts right through the backing sheet, decrease the blade length. If the blade does not cut the film cleanly, increase the blade length.



Be sure to correctly adjust the blade length. If the blade length is too long for the thickness of the medium being used, you may damage the writing panel and/or the cutter blade.

# CHAPTER 3

## ***Operation***

*3.1 Basic Operational Steps*

*3.2 Connecting to a Computer*

*3.3 Installing Tools*

*3.4 Turning on the cutter*

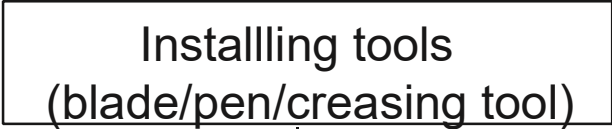
*3.5 Calibration the sensor*

*3.6 Loading the Media*

*3.7 Running a Cutting Test*



Connecting to a Computer



Turn on the cutter

Calibration the sensor

Loading the media

Cutting Test

Working



Only install the software, don't need to install any driver.

Operation cannot be guaranteed in the following cases:

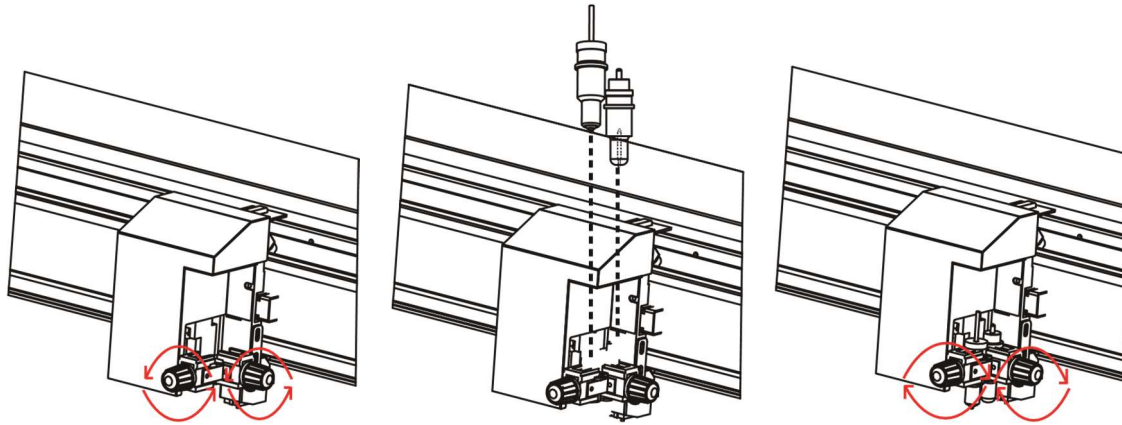
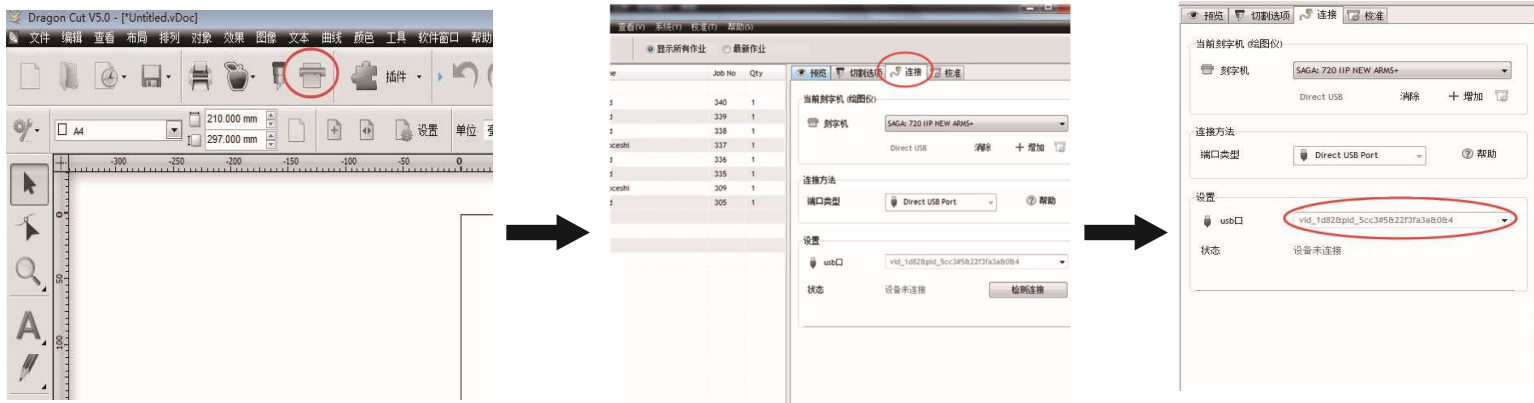
- When connection has been made to a USB hub or an add-on USB board
- When you are using a custom-built computer or one that you have modified

Be sure to observe the following:

- Do not connect or disconnect the USB cable while you are installing the USB driver
- Do not connect or disconnect the USB cable while starting up the computer or the plotter
- Do not disconnect the USB cable within a 5-second period of connecting it
- Do not connect or disconnect the USB cable while data is being transferred
- Do not connect multiple plotters to a single computer

Use a USB cable or an RS-232C cable in accordance with the interface chosen. After the connection is successful, the software

will show whether the normal connection.



Step2 Step3

Step1.....Loosen the tool holder screw sufficiently to enable a cutter pen to be inserted up to its flange.

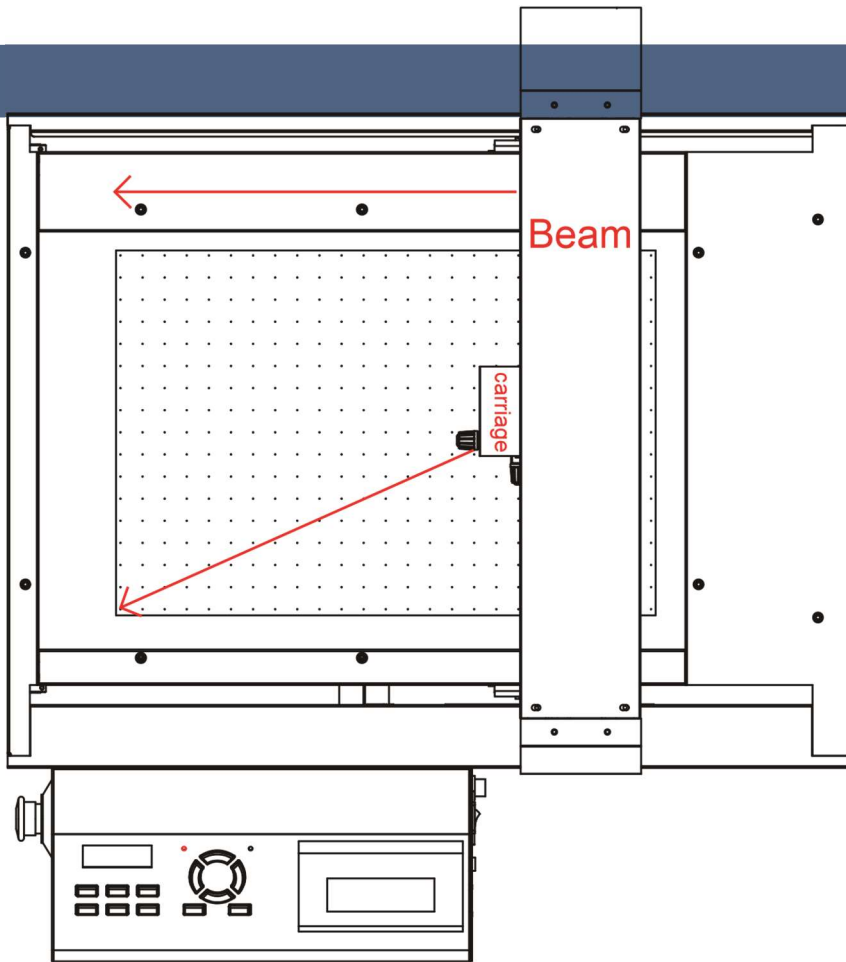
Step2.....Push the cutter pen all the way into the holder until it contacts the upper part of the tool holder.

Step3.....Tighten screw.

**WARNING**

When you push the tool holder up with your fingers,take care not to touch the cutter blade.

### 3.4 Turning on the



1. Securely plug the other end of the power cord into an electrical outlet of the specified voltage.

2. Turn on the power.

3. The green power lamp on the control panel will light, and the Y bar and carriage will start to move as shown in the figure below. These operations are part of the initialization process. The figure below shows what the plotter does when the power is turned on. The tool carriage returns to the Home position.

### 3.5 Calibration the sensor

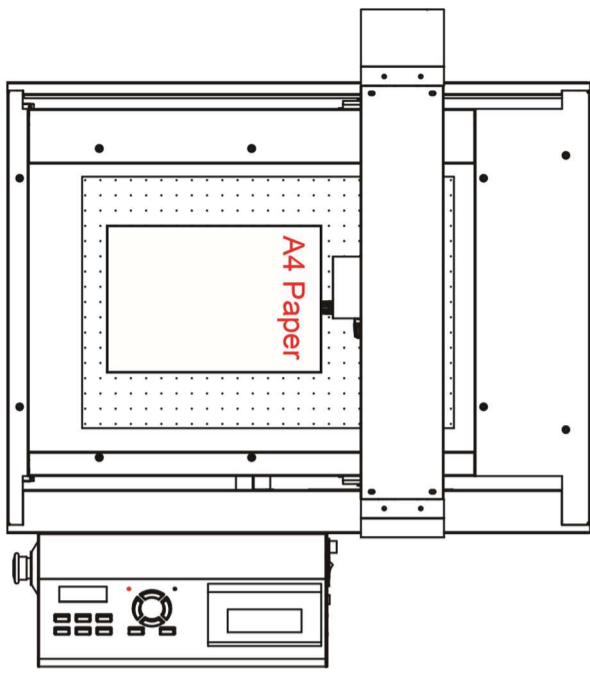
Step1.....Put a blank A4 paper on the flatbed.

Step2.....Move the car to the middle of the paper.

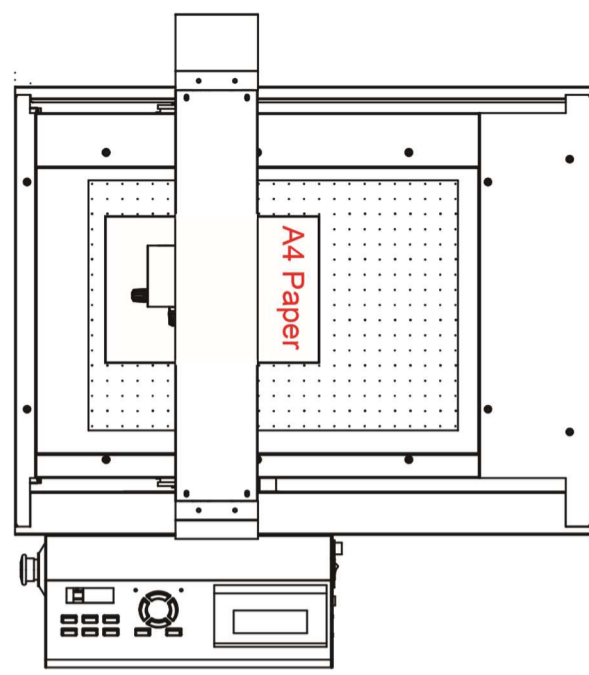
Step3.....Install the pen holder in hold2 and select the appropriate pen pressure.

Step4.....Open the software to find the calibration interface

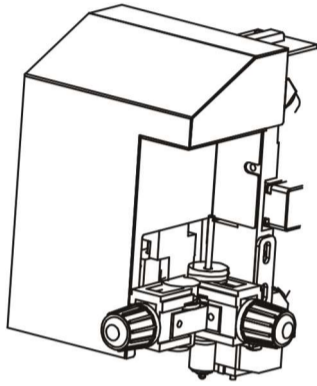
Step5.....Direct calibration, calibration is successful, the interface appears a correct XY parameters, click ok.



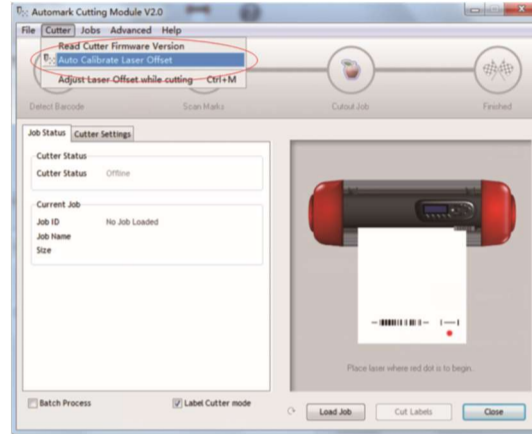
Step1



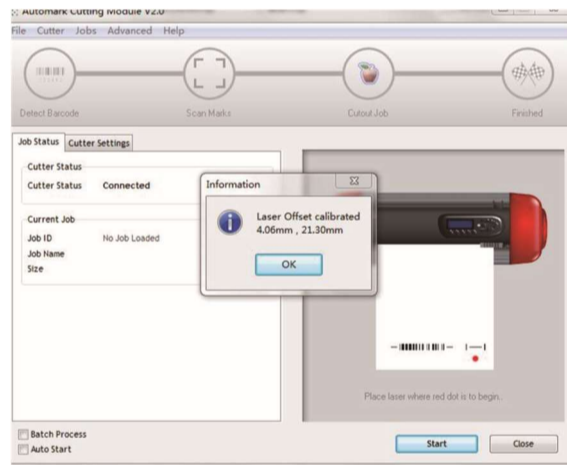
Step2



Step3



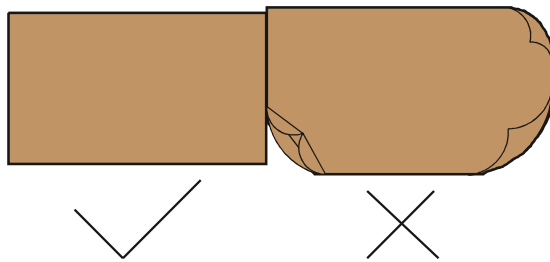
Step4



Step5

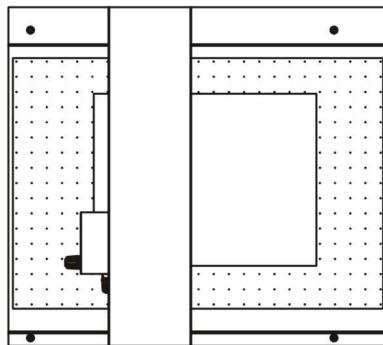
## 3.6 Loading the media

Make sure the material is flat.



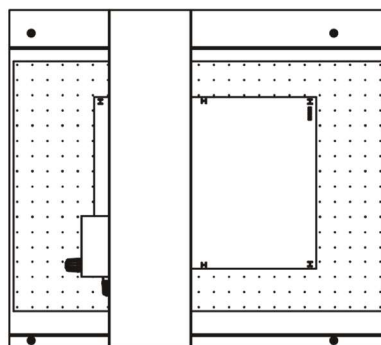
## Blank cutting

Place the paper on the platform and move the carriage to the starting point of the cutting



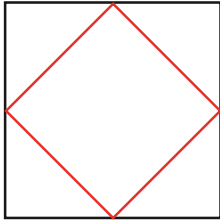
## ARMS cutting

Place the paper on the platform and move the carriage to the starting point of the mark



## 3.5 Running a cutting test

- Moving the carriage to a blank area (no marks and pictures)
- Installing a pen in tool holder1, installing a blade in tool holder 2.



“TEST” and then tool 1 draws a square, and tool 2 cuts a

triangle. Tool1 painted a blank box, tool2 painted a red box, which can test the force of blade/pen/creasing

Cutting medium	Media height or gram weight	Blade height	Creasing Force	Blade Force	Speed
Stickers	160g	0.15mm	↘	50g	500 mm/s
Adhesive stickers	90g	0.2mm	↘	50g	600 mm/s
Thick paper	300g	0.76mm	400g	210g	500 mm/s
Magnetic stickers	0.5mm	2.5mm	↘	500g	75 mm/s
Reflective film	0.24mm	0.6mm	↘	450g	150 mm/s
Masking rubber for sandblasting	0.5 mm	0.30mm	↘	120g	300 mm/s

# **CHAPTER 4**

## ***Software***

*4.1 Install and activate*

*4.2 Common parameters of software*

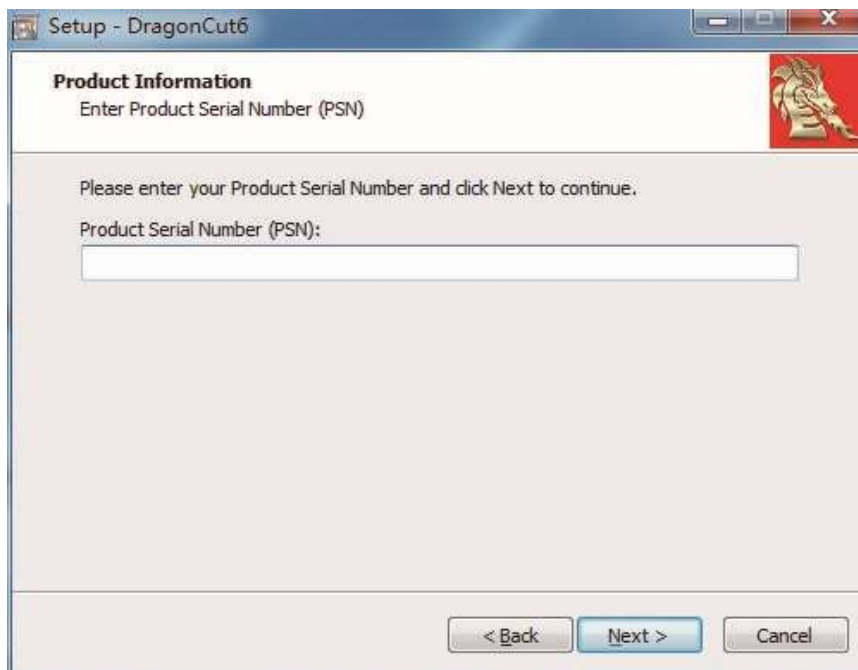
*4.3 How to use DragonCut  
Cutting and Creasing*



## 4.1 Install and activate

Please install CD first and check your 20 bits license.

Please pay attention to a few points as follows



1  
.Enter your license (Each license can be used 3 times only)

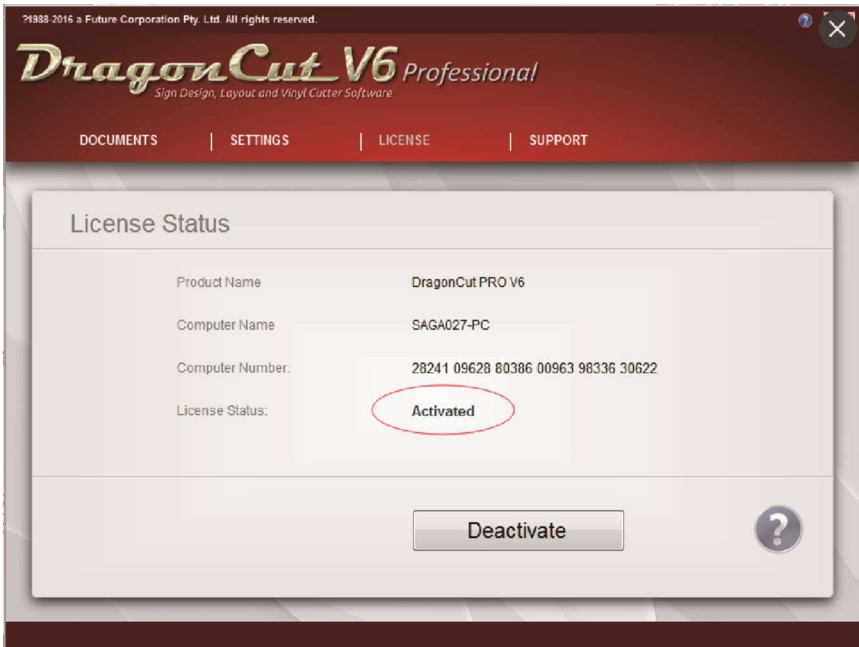


2. Pay attention to your machine model  
SG-FCA3+ choice 720IIP  
SG-FC4560 choice 720IIP  
SG-FC6090 choice 720IIP  
SG-FC76106 choice 1350IIP  
3. This network connection is normal and then activation software directly



4 .Activation success

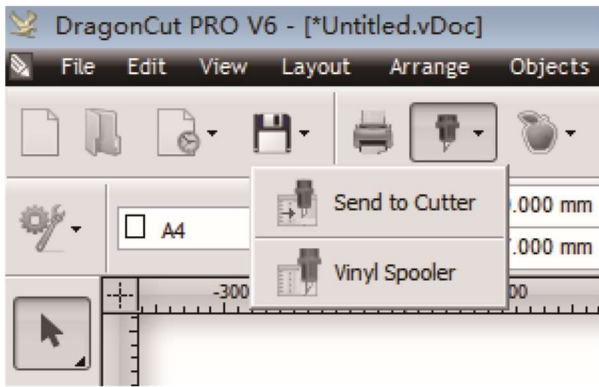
## 4.2 Common



1 .Create Cut Contour  
Contour lines can be generated  
automatically

2 .contour cut Wizard

Automatically generate contour lines and add markers

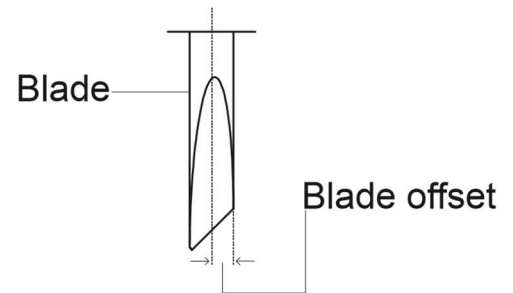
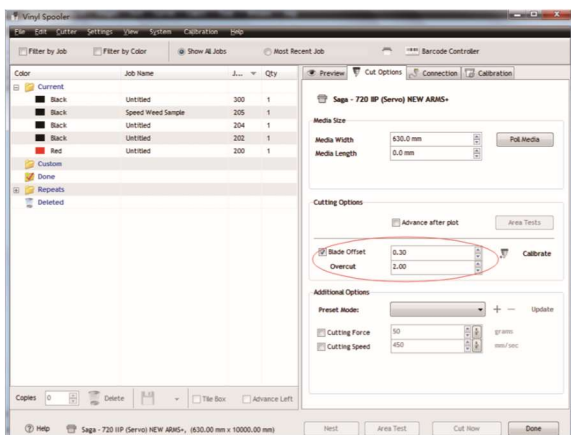


### 3. Send to cutter

Direct cutting, mainly used for cutting blank materials

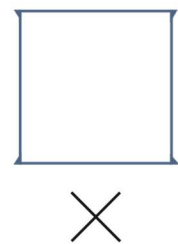
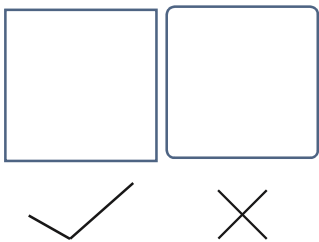
### 4. Vinyl Spooler

ARMS cutting, mainly used for file with marks. (open Barcode Controller after, you will find ARMS cutting interface)



### 5. Blade offset

Machine default is 0.3mm, but sometimes depending on the thickness of the material, need to test and adjust.



If the corners of the squares are rounded, the offset setting is too low. Conversely, if the corners are too pointed, the offset setting is too high.

### 6. Overcut

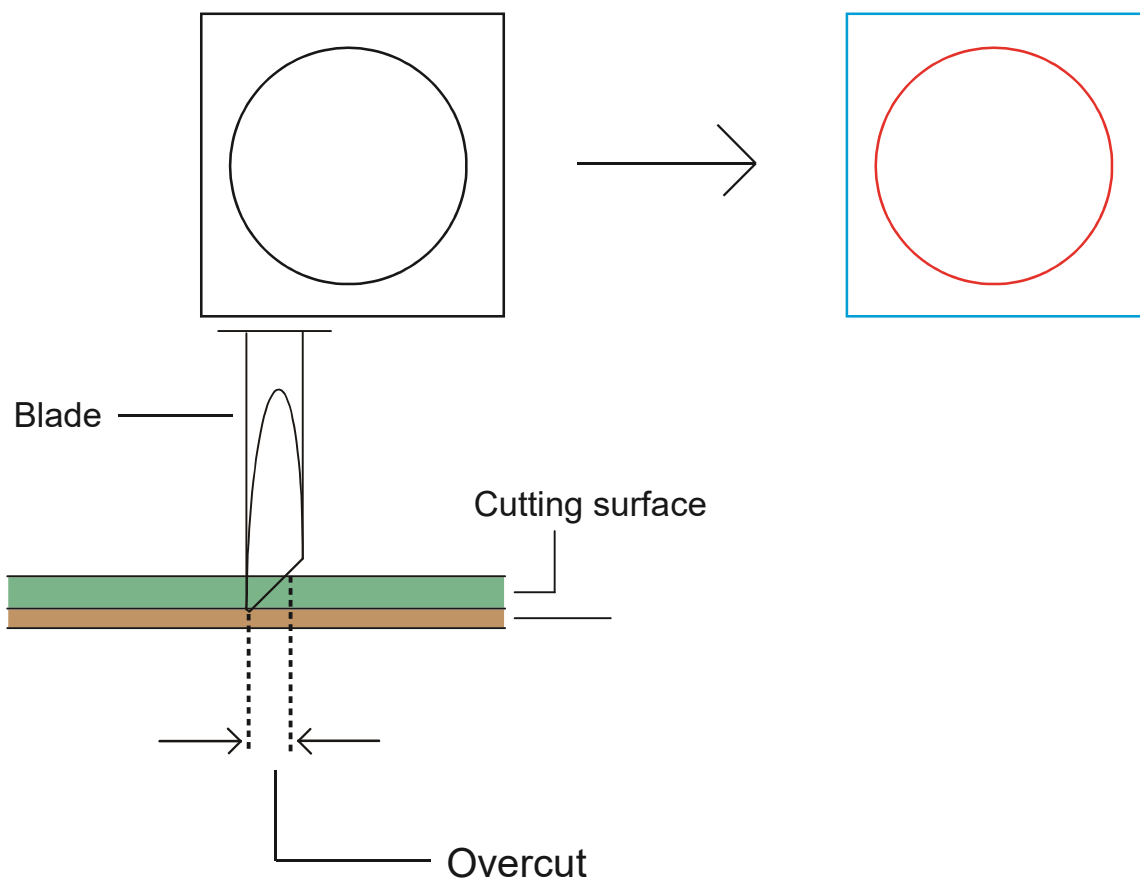
Machine default is 2 mm, but sometimes depending on the thickness of the material, need to test and adjust.

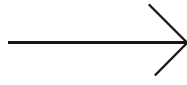
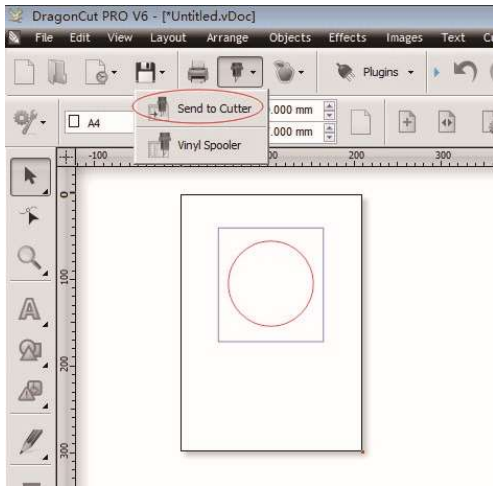
, need to change the parameters,

## 4.3 How to use DragonCut

### Blank file

- Import your file with cutting line and creasing line.
  - Use your cutting line and creasing line with different colors.
  - Click send to cutter.
  - Select the color of the cutting line and creasing line.
- cut now







## ARMS file

• Import your label file.

• Click create cut contour make outline for label.

Through the hand-printed, making the creasing line.

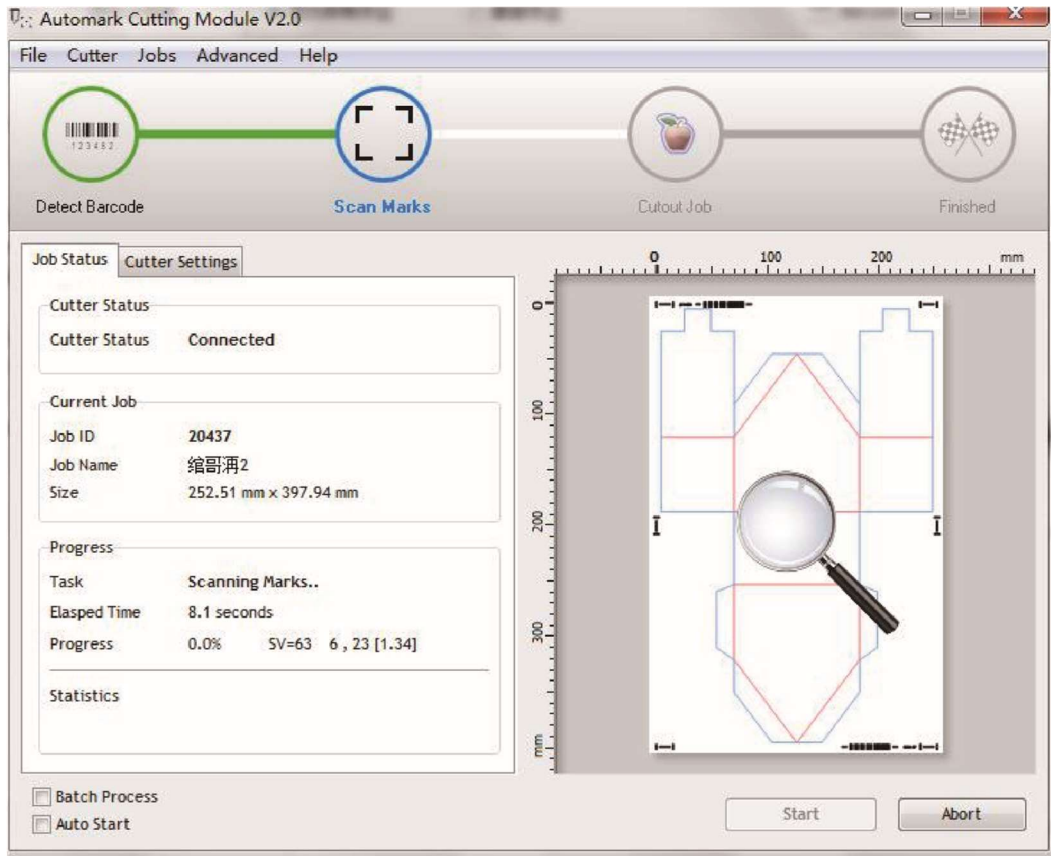
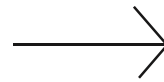
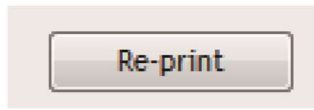
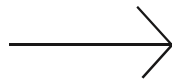
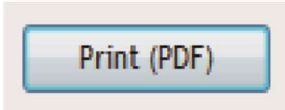
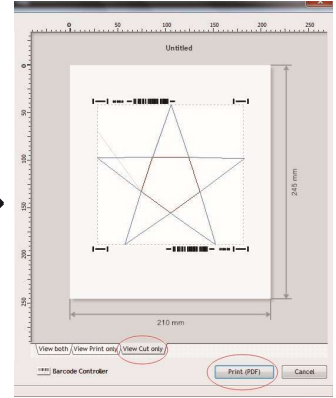
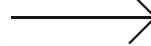
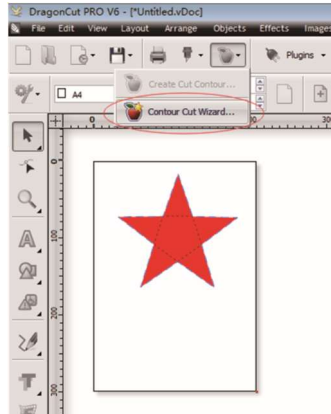
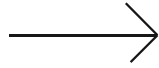
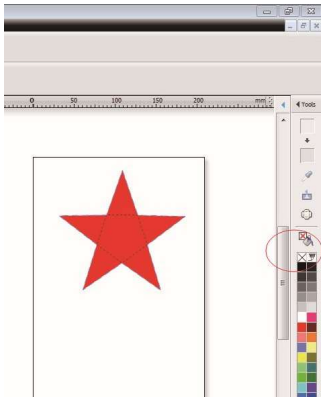
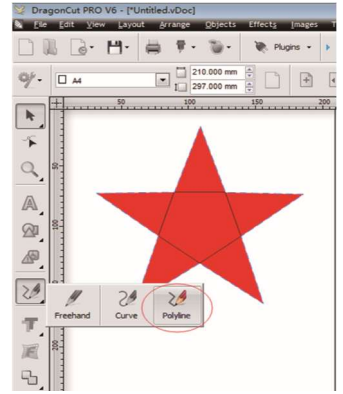
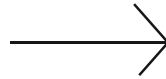
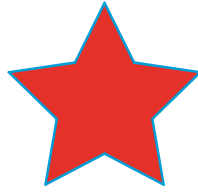
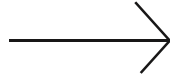
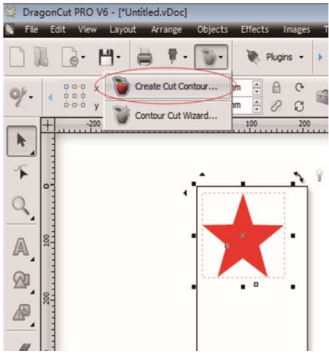
• Select the cutting line,  press the button use left mouse  
 press the button use left mouse.

Select creasing line,  press the button use right mouse  
 press the button use right mouse.

• Click contour cut wizard add marks for label

• Printer PDF and re-print (if you want printer it directly) than add cut job

.Click start the flatbed will be working,  
( if USB connection is ok, and the material is placed good  
)



# **CHAPTER 5**

## ***Fault and Maintenance***

*5.1 Scan Problem*

*5.2 Cutting Effect Problem*

*5.5 Error Messages*



## 5.1 Scan Problem

Phenomenon	Cause	Solution
Scan Failed	The sensor cannt scan first mark or secnd read failed.	Check the print size, print size must the same size as the original file
	Sensor not bright	First check the cable, if the line not problem so need to replace the sensor
	Sensor brightness problem	First check the cable, if the line not problem so need to replace the sensor
	The sensor is normal, the size is normal, but can not sweep point	Please check the height of the inductor, usually the height of the sensor is 2.5mmdistance from the paper material

	<p>Normal size, sensor is normal, high normal, still can not scan</p>	<p>1 .Maybe sensor cannot scan the material.now please try use the material to test for corrected offset 2.The medium is not flat.</p>
--	---	--

## 5.2 Cutting effect problem

Phenomenon	Cause	Solution
The Cutting Results are Unsatisfactory	The starting and end points do not match.	<p>1 .check your data 2 .The offset is too low 3 .The medium is too flimsy. 4.Knife holder rotation insensitive</p>
	The cut corners are rounded or too pointed.	<p>Adjust the OFFSET value.</p> <ul style="list-style-type: none"> <li>• If it is too low, the corners become rounded.</li> <li>• If it is too high, the corners are too pointed.</li> </ul>

<p>The cut line starts out crooked.</p>	<ol style="list-style-type: none"> <li>1.Knife holder rotation insensitive</li> <li>2 .The force is too low</li> <li>3.Replace the cutter blade with a new one</li> <li>4.Grease the cutter blade and holder.</li> </ol>
<p>The blade skips and does not completely cut lines</p>	<ol style="list-style-type: none"> <li>1 .Lower the SPEED setting.</li> <li>2 .Adjust the blade length.</li> </ol>
<p>The specified length is not plotted or cut. ( slight distance error )</p>	<p>Specify the appropriate distance correction value.</p>
<p>Cutting deviation from normal cut line</p>	<p>Corrected offset value again</p>

Phenomenon	Cause	Solution
The Cutting Results are Unsatisfactory	Some parts of the medium cannot be cut.	1 .Set the effective cutting area to a larger area. 2 .Reduce the size of the data.
	The medium is discolored where the cutter blade has passed.	Adjust the blade length and the cutting FORCE setting.
	The cut medium cannot be picked up using a transfer sheet.	Reduce the blade length. Lower the cutting FORCE.

### 5.3 Error Messages

Error:OVER SIZE PLEASE RESET.

Solution:Check your data

Check your starting point position

# CHAPTER 6

## Performance Parameter

	SG-FCA3+	SG-FC4560P	SG-FC6090	SG-FC76106
Max Force	510g(3 g/step )			
Max Speed	600 mm/s			
Max Cutting Depth	0.60 mm			
Max Cutting Weight ( Paper )	450 g			
Machincial Resolution	0.01			
Number of tools	2			
Programmable Resolution	HPGL 0.025mm			
Contorl System	Servo Motor			
Interface	USB Cable			
Software	DragonCut			

Working Environment	5 °— 35°			
Power Supply	100 to 120 VAC/200 to 240 VAC, 50/60 Hz			
Cutting Media	Marking film (vinyl, fluorescent, reflective) Paper up to 0.5 mm thick (pattern paper, oil board)*4 Compressed foam sheets up to 0.8 mm thick *5 Sandblast rubber sheets up to 1.0 mm thick *5 F and G flute Sheets for creating clear packages High-intensity reflective film*6			
Power	575W/50HZ		925W/50HZ	
Media hold-down method	Vacuum suction			Vacuum suction (silence device)
Machine Size	760*768*299mm	875*885*295mm	1175*1133*1000.5mm	1283*1268*971 mm
Packing Size	111*886*452mm	1231*1001*437mm	1210*1290*450mm	1573*1406*586mm
GW/NW	68kg/35.6kg	83kg/50kg	100kg/70kg	180kg/140kg

