Weldo Automatic PVC Dispenser Machine Instruction Manual

DONGGUAN WELDO

Dongguan Weldo Automatic Equipment Technology Co.,LTD

- Tel: 86 769 23157006
- Fax: 0769 23150800
- Web: www.weldo.com.cn

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CHAPTER 1 、THE INSTALLATION OF THE MACHINE

1.1 Installation of Internet data link and Power link

Internet Date Link (1)

POWER CABLE (2)

The well connected USB date link, insert USB of the female link to compt ure, put the power plug to plug base , insert one head of male link to "COM"of the machine.

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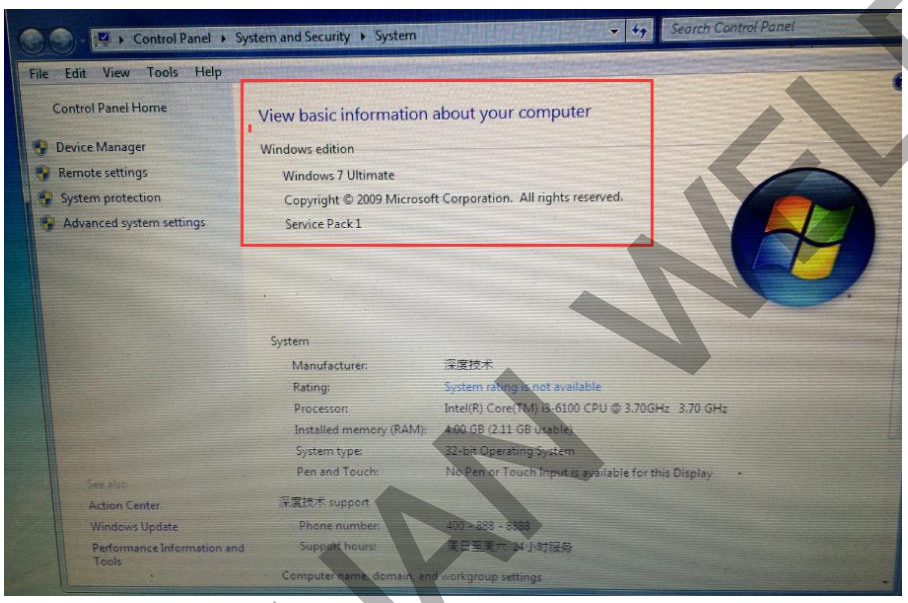
Put one head of power link to " POWER ",
put the plug to the plug base .

1.2 Installation of software

[1]Installation of the software

Put the USB to computer , find and open the folder DrawTools-V 3.0.0.2 , send DrawTools.exe 微射绘图系统 维度自动化设备有... to desktop as shortcut.

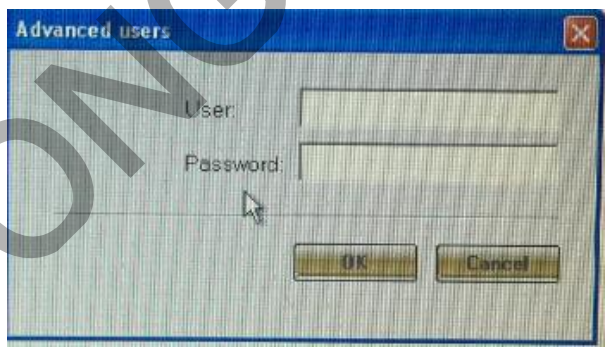
Notice : the software is suitable for XP compeuter system and window 7 Ultimate.



[2]Put soft dog to computer COM port.

[3] Register machine .

Click “ Controller’ and request fill in the unser name and passwords .



The user name is : Weldo-Soft ; Passwords is : 123

Click Registered Machine info to get machine ID and send to Weldo .Weldo will provide a passwords for the machine

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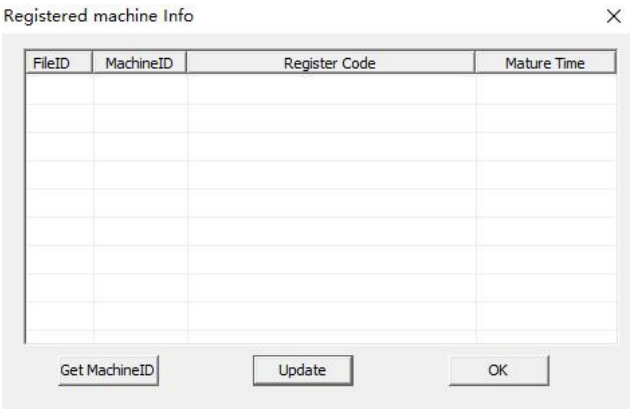
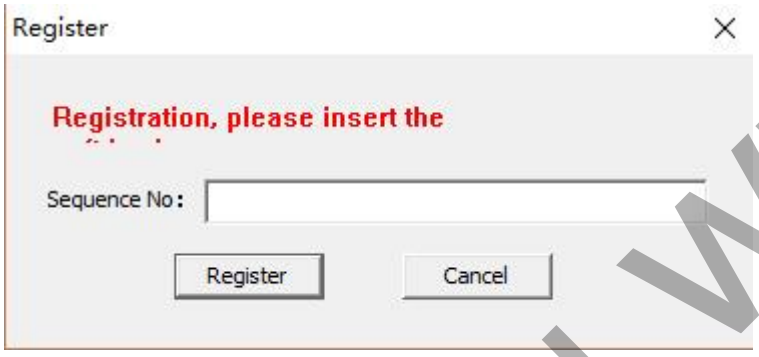


Fill in the passwords to Register , the registration is finished .



Notice: If you do not know how to register the machine ,kindly contact Weldo .

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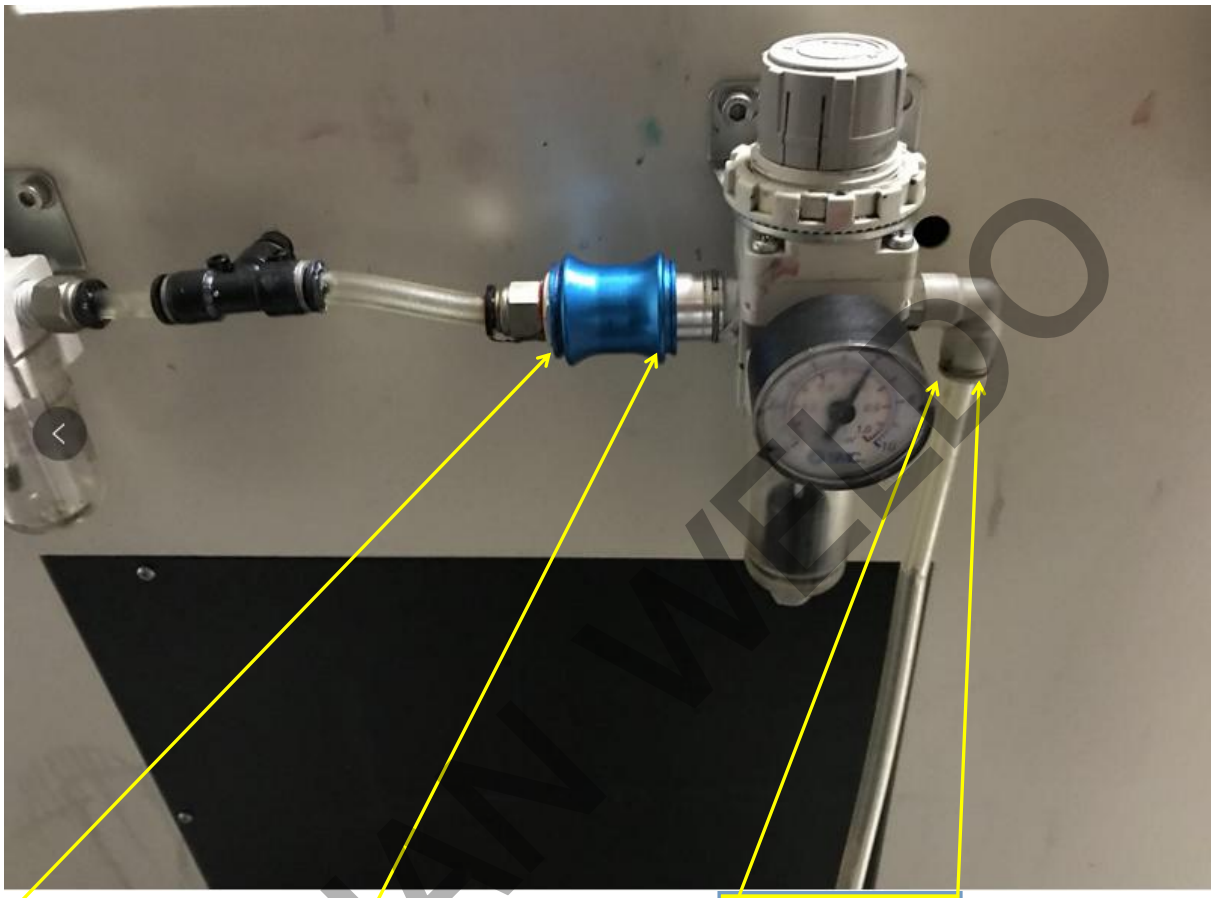
Air contact and Contact PVC Material Tube

(1) Air Contact



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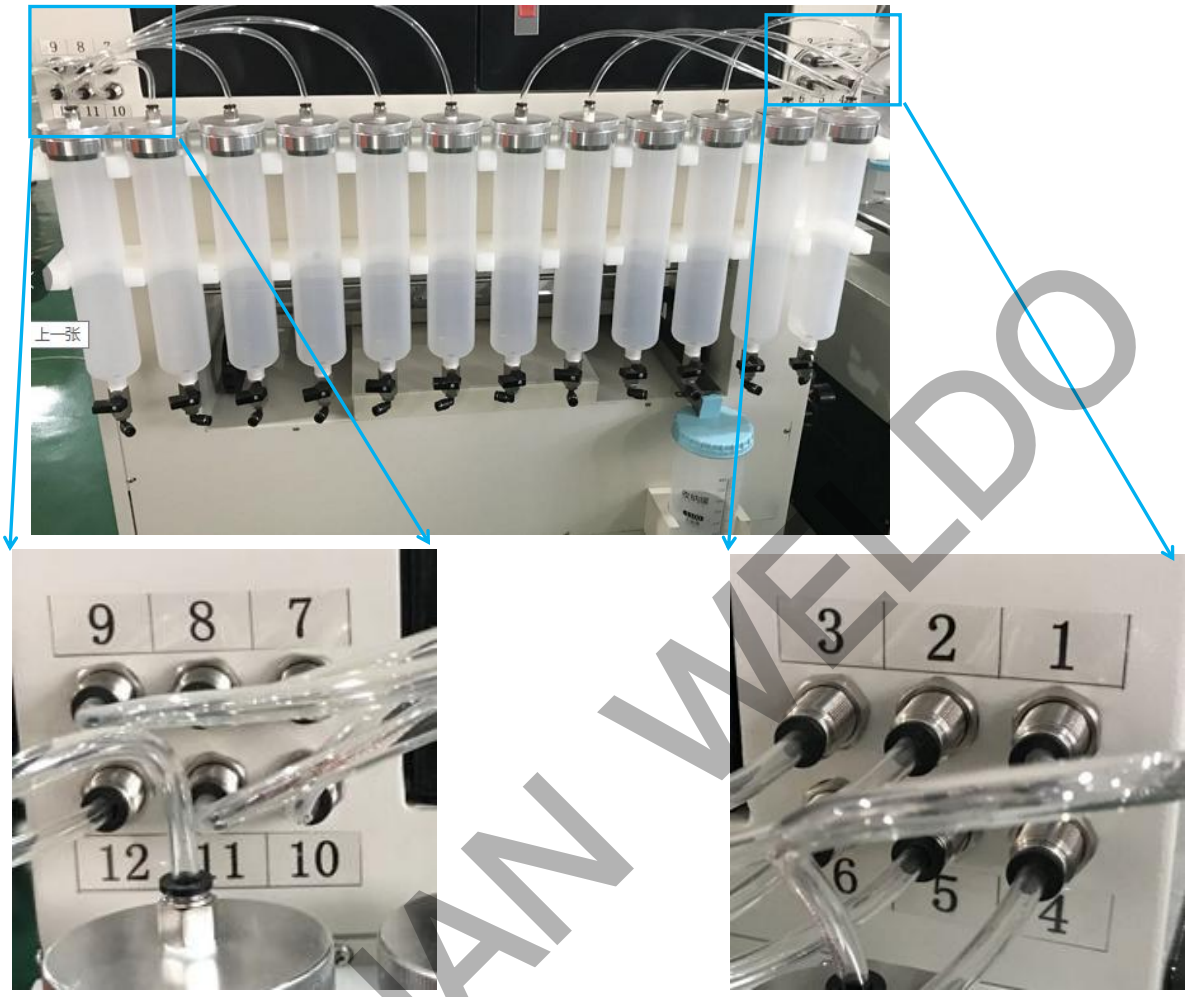
(2) **Images for each tube port and regulator Valve**



C1: cylinder 1, supply air pressure to P#1;

C2: cylinder 2, supply air pressure to P#2;

C3: cylinder 3, supply air pressure to P#3;

C4: cylinder 4, supply air pressure to P#4;

C5:cylinder 5, supply air pressure to P#5;

C6: cylinder 6, supply air pressure to P#6;

C7:cylinder7, supply air pressure to P#7;

C8:cylinder 8, supply air pressure to P#8.

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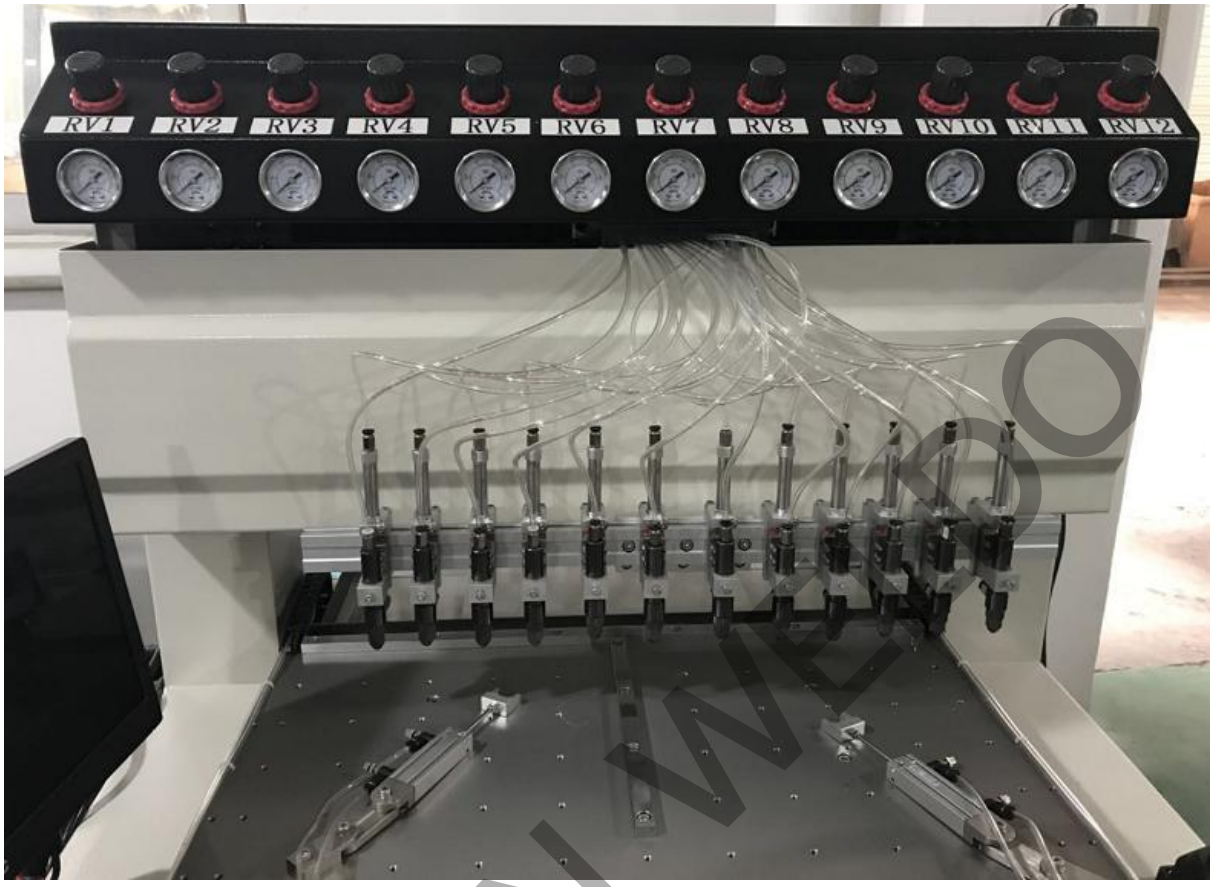

RV 1: regulate the air pressure for P1

RV2: regulate the air pressure for P2

RV3: regulate the air pressure for P3

RV4: regulate the air pressure for V4

RV5: regulate the air pressure forV5

RV6: regulate the air pressure for V6

RV7: regulate the air pressure for V7

RV8: regulate the air pressure for V8

RV9: regulate the air pressure for V8

RV10: regulate the air pressure for V8

RV11: regulate the air pressure for V8

RV12: regulate the air pressure for V8

Note: RV1-RV12 the air pressure should be within 4kgs .

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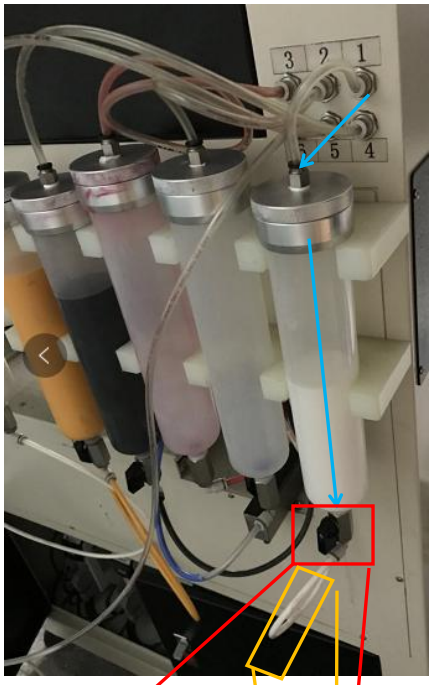
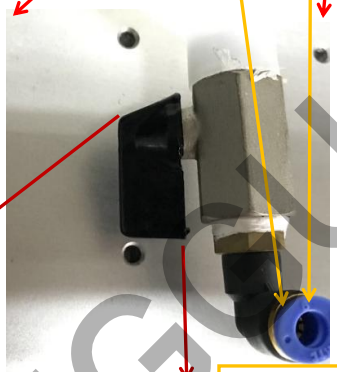
(3) Tube Contact

BACK FRONT





Switch to open and close PVC

Tube to dispensing gun

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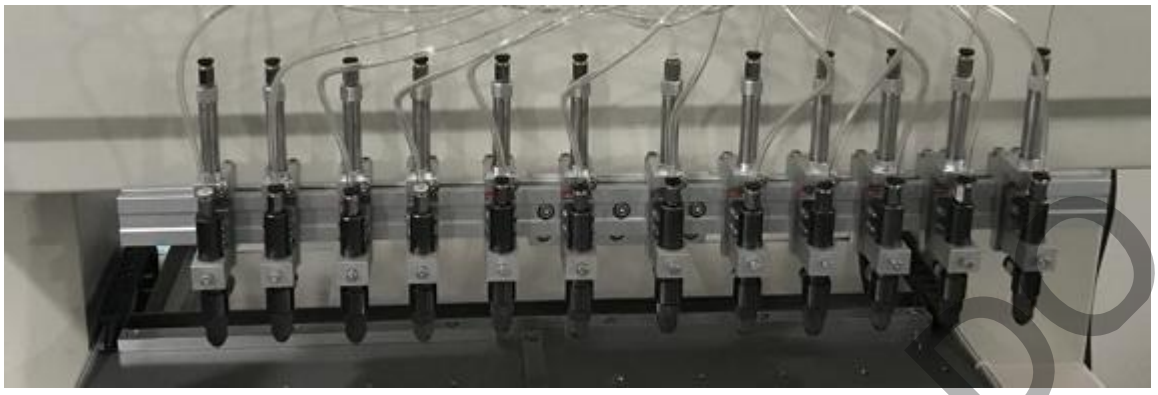
CHAPTER 3 THE INSTALLATION OF THE MACHINE

3.1 THE INSTALLATION OF LONG RAIL AND NEEDLE（PIN）SHELVE ,



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PVC Needle(pin) Shelve Construction	**Function**
EPC4-M5	Connect with 4 mm pipe
Cylinder	Drive the current needle (pin) moving up and down
PVC tank	Store PVC liquid, connect material pipe and needles (pin).
Short screw 1	Fix the needle(pin) shelve on the rail, and regulate shelve position
Short screw 2	Fix PVC tank and regulate the height of needles(pin)
Needles	Size: #0.4,#0.5,#0.6,#0.7,#0.8,#0.9,#1.0,#1.2,#1.4 .to inject the PVC materials .According to design"s different letters and space using different size of needles.
Notice	A、 When install the needle(pin)shelves , please make sure the shelves in the middle of the rail .especially install more needle(pin) shelves ,the shelves must be within X axis working distance. B、 According to the product required colors and the size of the mold to confirm the needle (pin) shelves quantity .If need the parallel needles (pin), every needle (pin) should aim at the mold cross firstly, and then fix the shelves on the rail tightly.

Needles : #0.4,#0.5,#0.6,#0.7,#0.8,#0.9,#1.0,#1.2,#1.4

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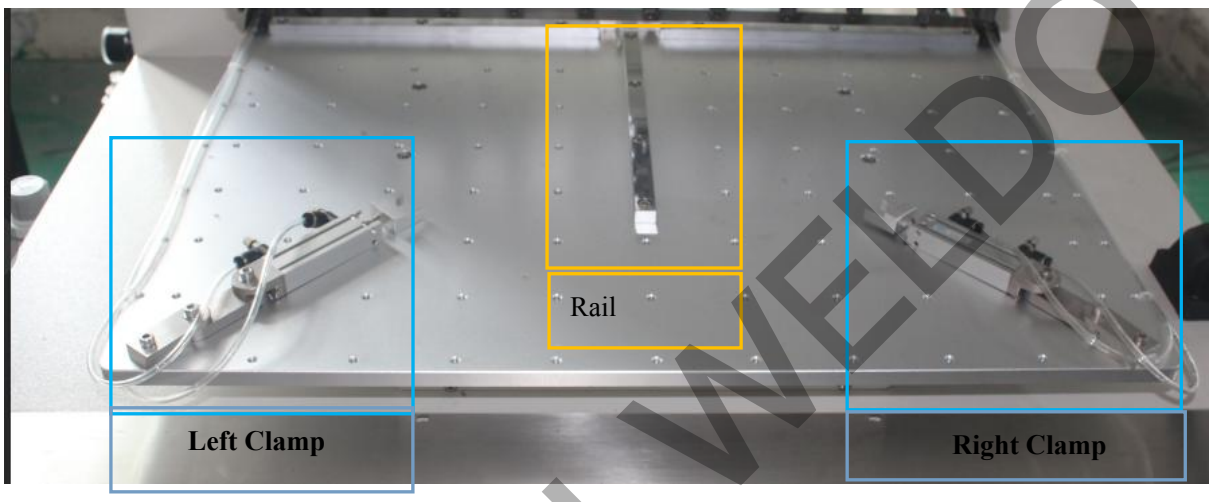
3.2、THE INSTALLATION OF SHORT RAIL

Short Rail: To fix the mold, ensure the mold at proper location.

Clamp: For fixing mold, the clamp consists of fixtures and reeds. There are many tapped holes on the worktable for operator to fix the clamp at proper location according to the size of mold.



PROCEDURE: fix the short rails in X axis direction and Y axis direction.Machine is already installed, no need to move.

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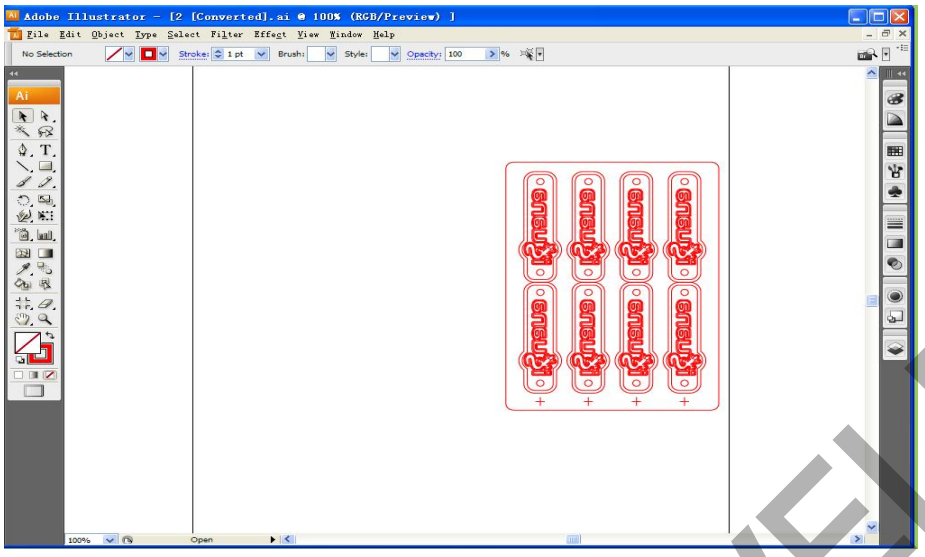
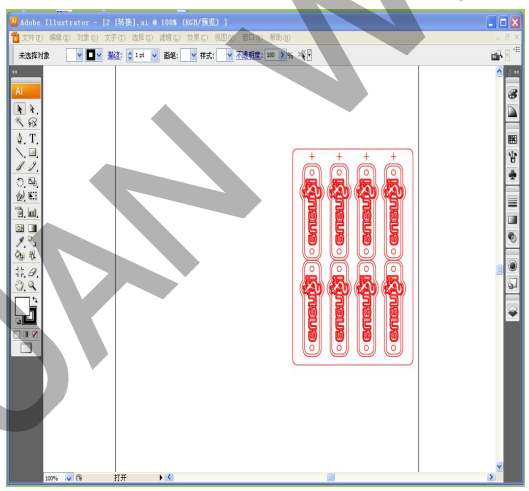
CHAPTER 4、CONVERT THE MOLD GRAPH FROM AI (CAD)FORMAT TO JPG FORMAT

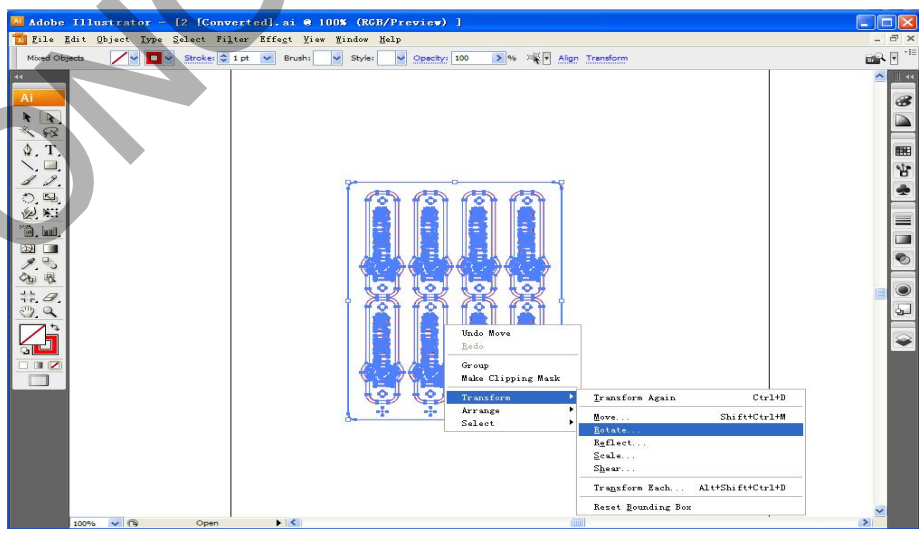
Get a AI graph ,example as below



4.1、Transform :to change the graph direction as same as the mold direction ,example as below:



4.2、change the position ,select the graph , click right mouse ,choose transform, choose rotate



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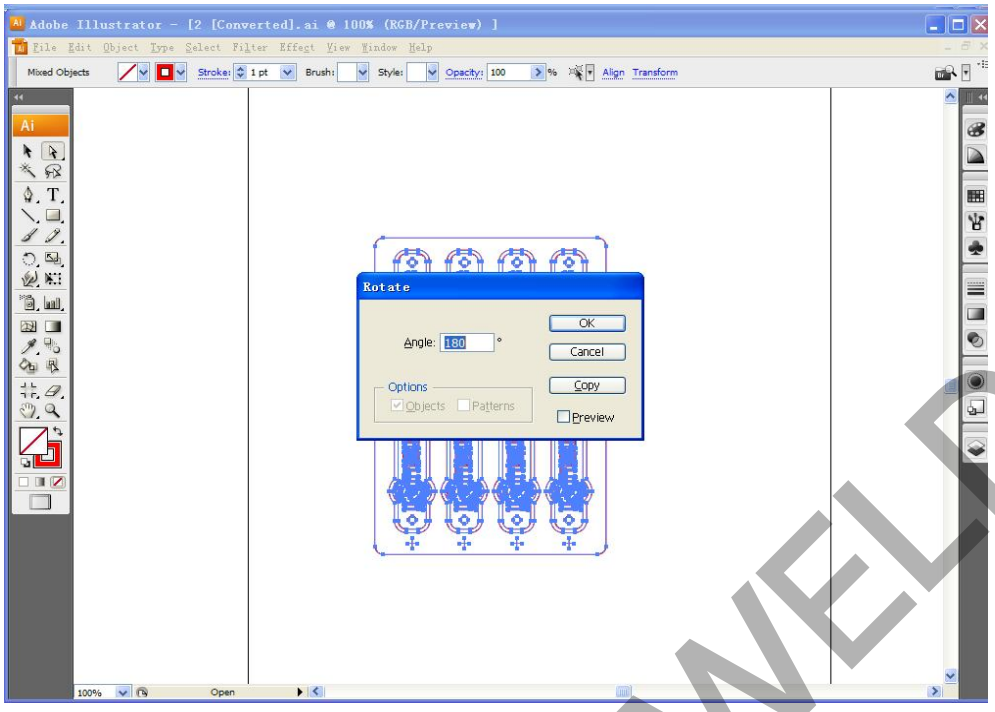
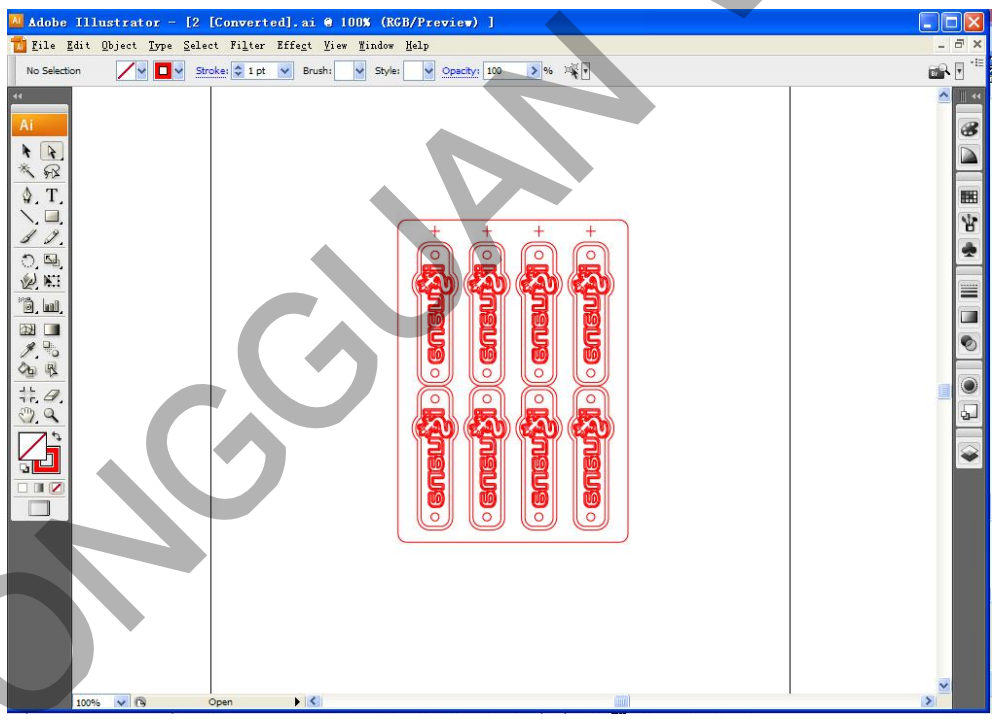
4.3、The rotate will pup out



4.4、Set the angle 180 ° , click “ok”, the graph will change the position,



4.5、stroke ： select the graph , choose stroke , always choose 0.25 pt

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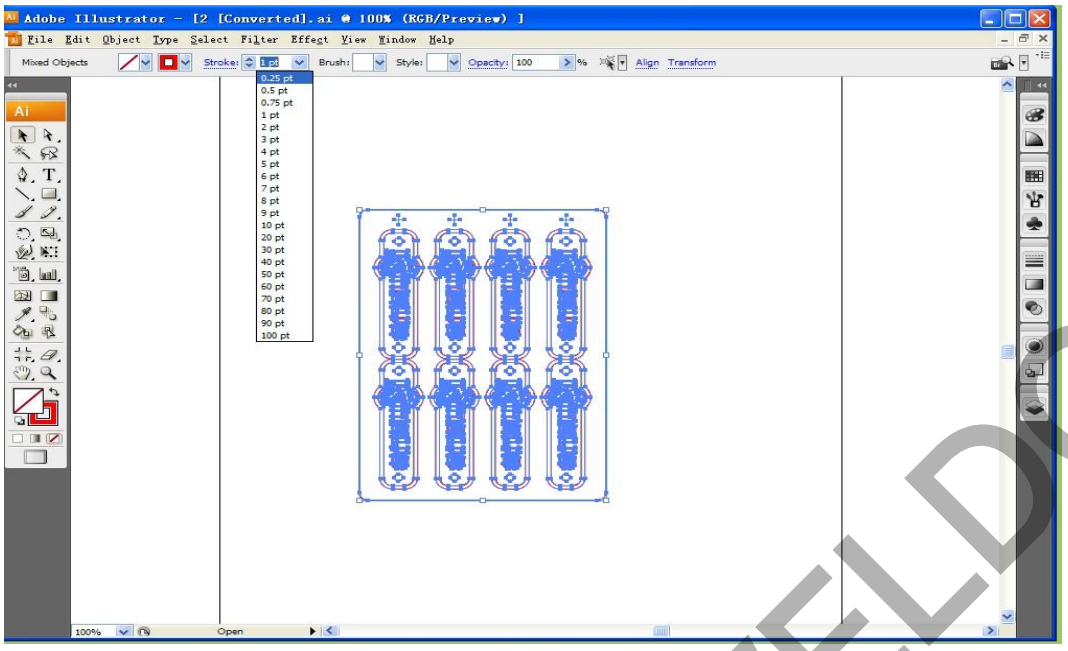

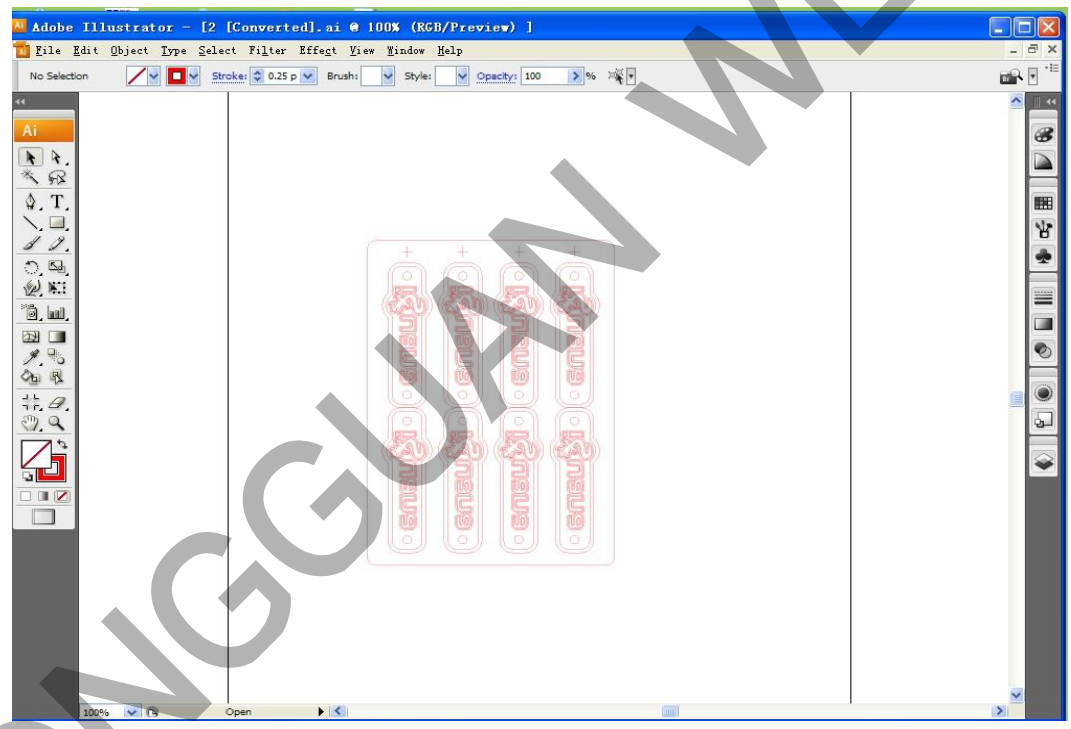

4.6、 crop

click ,crop the graph

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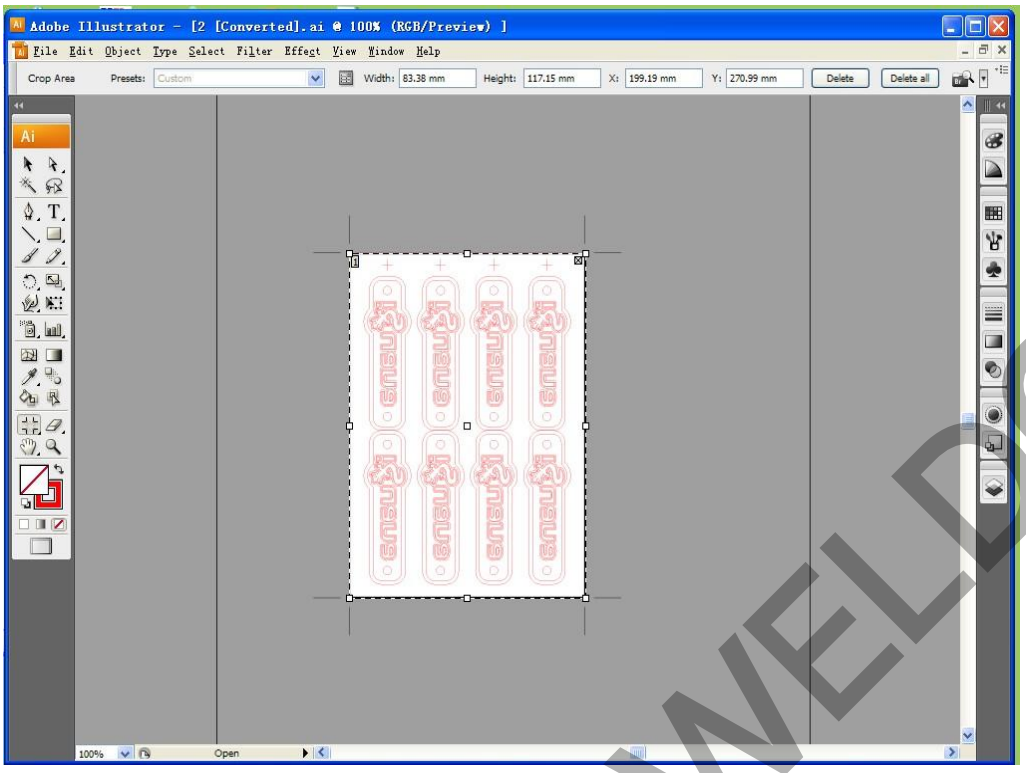
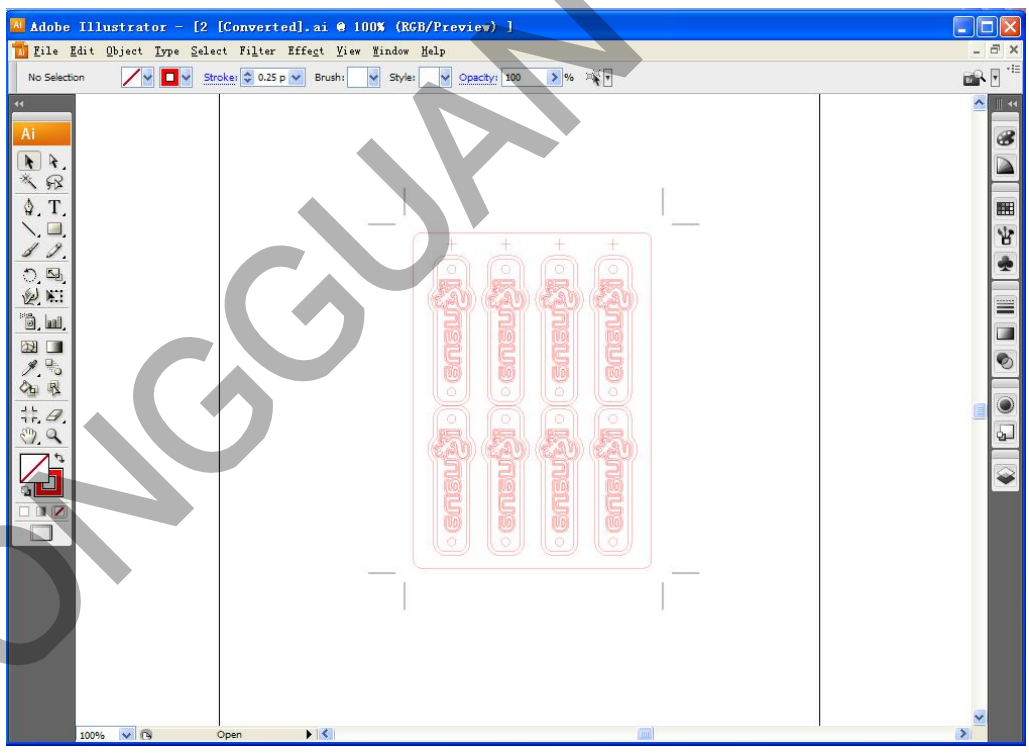


4.7、click :



4.8、Export

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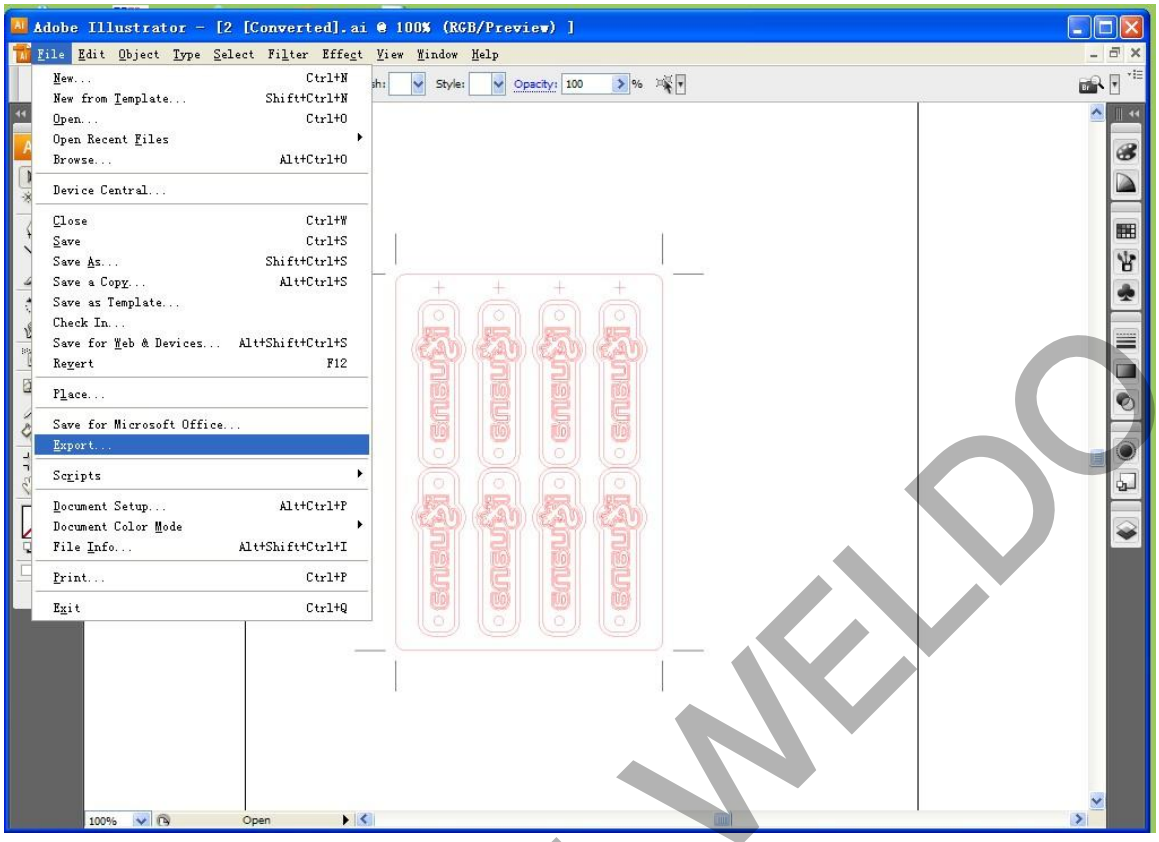
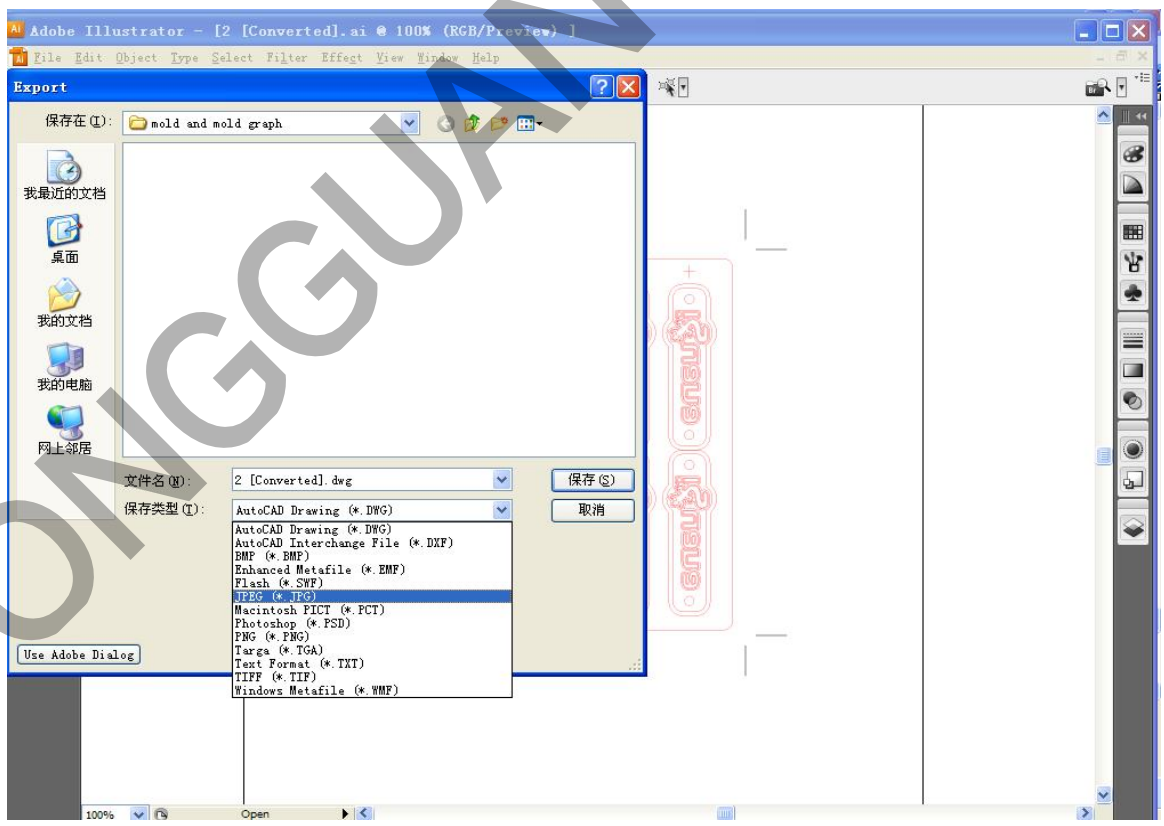


4.9、Choose the save type as JPEG ,



and save the graph to a folder(mold and mold graph) , JPEG Option will pup out , always choose

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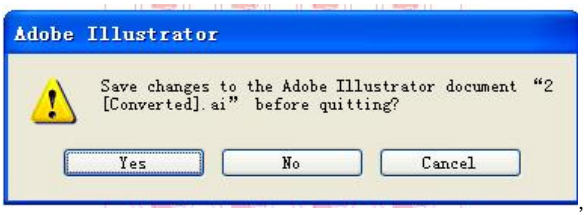
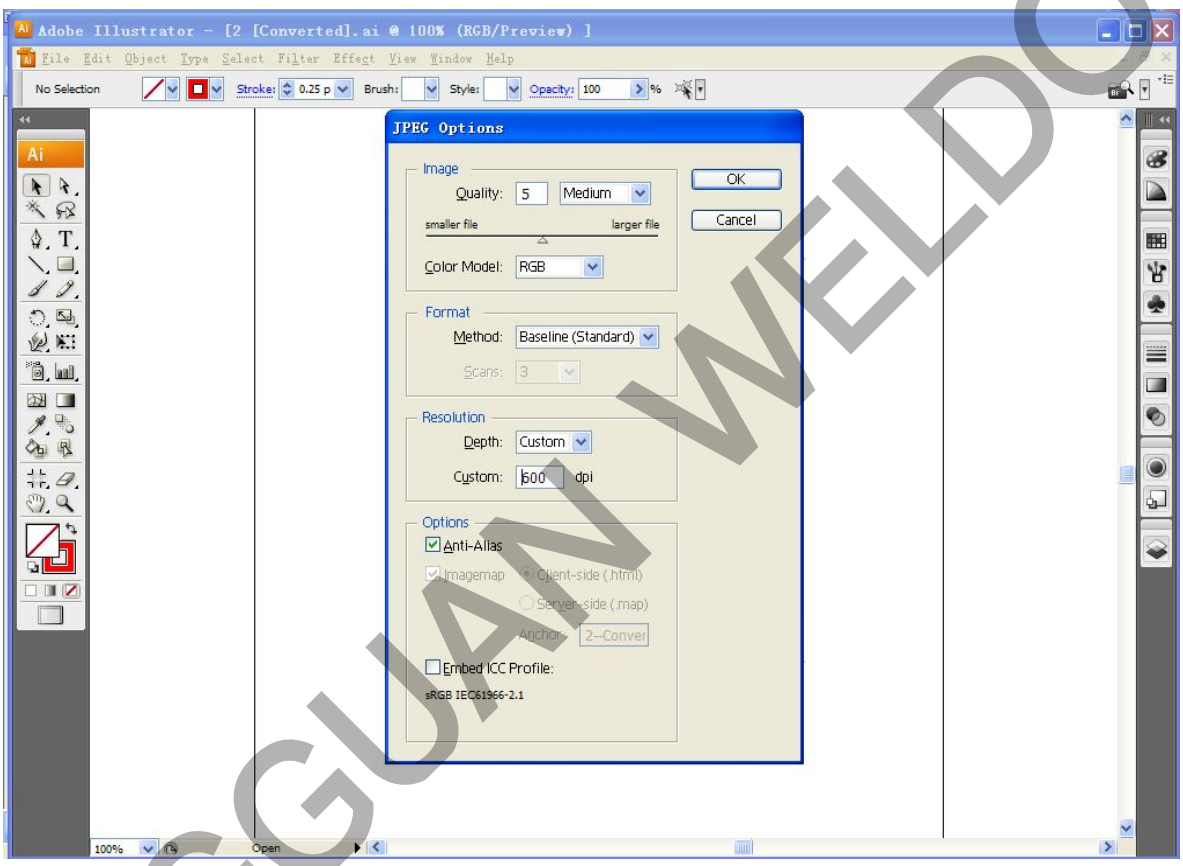
always choose

,and click “ok”, the convert part is finished, and close interface , adobe Illustrator pups out



, choose “No”.



Notice: If no ADOBE ILLUSTRATOR ,other vector software is okay, but must make sure the graph resolution is “ 600” DPI, color model is “RGB” , graph format is “JPEG” .

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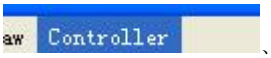
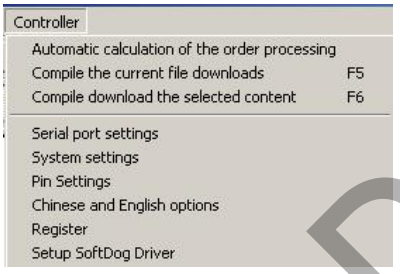
CHAPTER 5、EDITING PROCESS TEMPLATE FILE

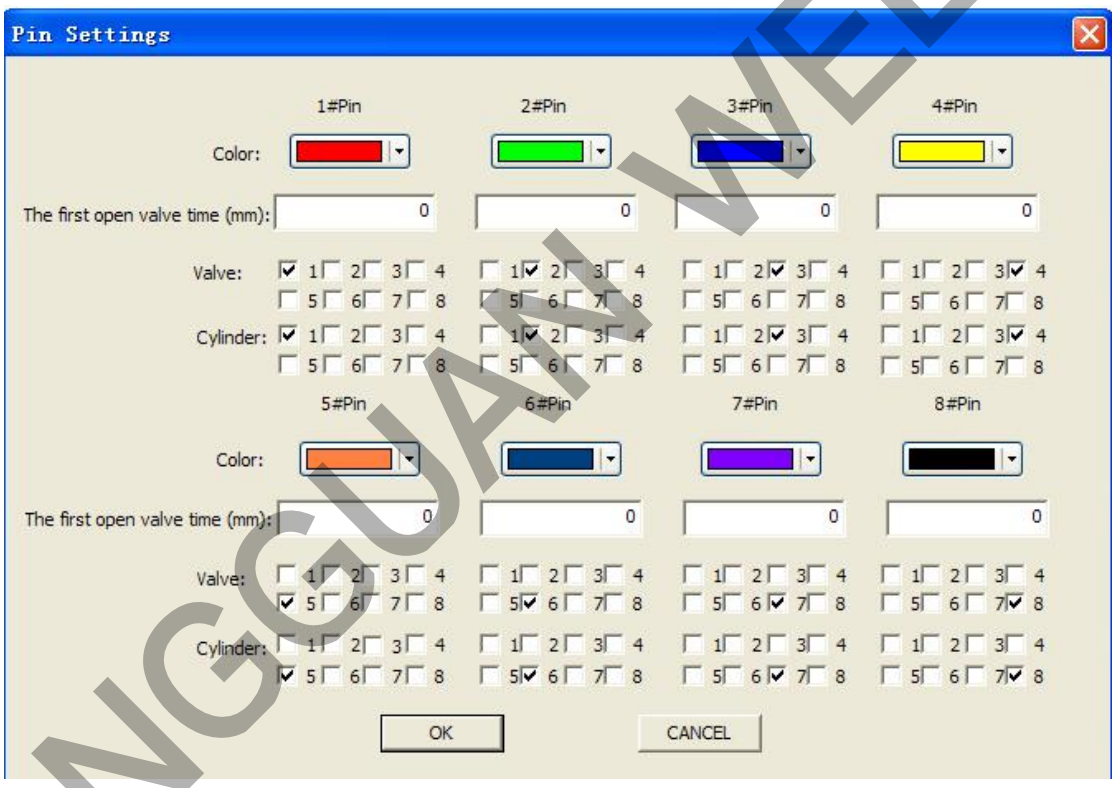
5.1 Recognize Pin setting, system setting, file property setting and Point No. & Line No. of the property

Before editing process file，there are 3 settings should be known，“pin settings”，“system settings”，“File property setting”

Open Weldo software， click 

、 

5.1.1 Pin settings: click “pin settings”, the pin settings interface pups out :



“1# pin” to “8 #pin” stand for “1~8” pins, the colors for each pin are the default colors, click ,choose different default color

for each pin.

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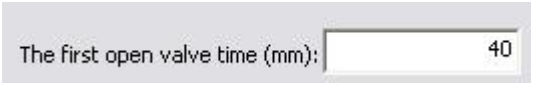
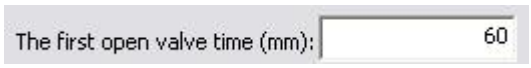
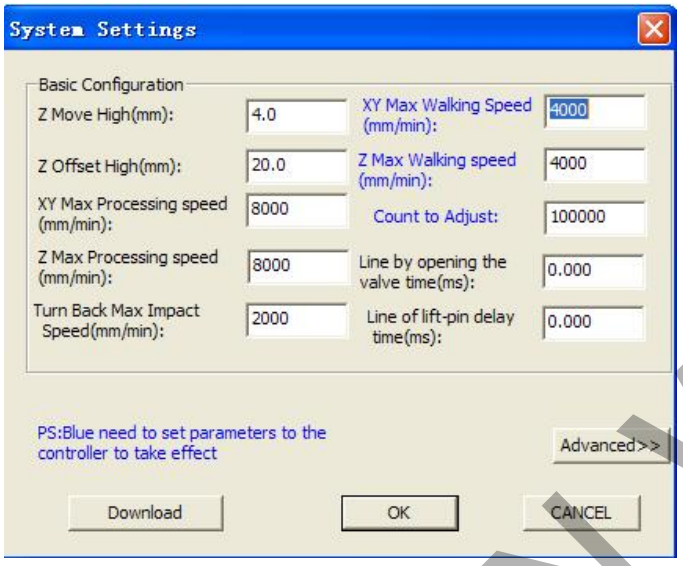
Usually set the first open valve time 40 -60 for "1# pin" 

or 

, because when the first pin starts to work , should give sometime to carry out the PVC materials .

5.1.2 : system setting: choose "system settings", System settings interface will pup out :



Z Move High(mm): the height of the pin from one position to another position .

Z Offset High(mm): the height of the pin from one cavity to another cavity.

Notice: the Z offset high should be based on the height of the products .If the mold is plane like below :

Should always fill below information in "system setting" :

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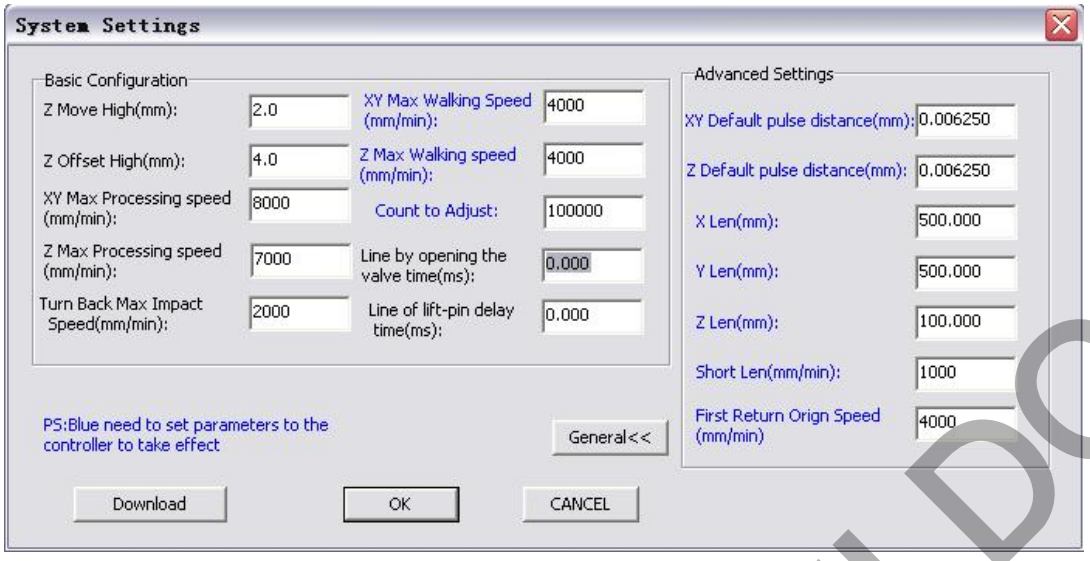
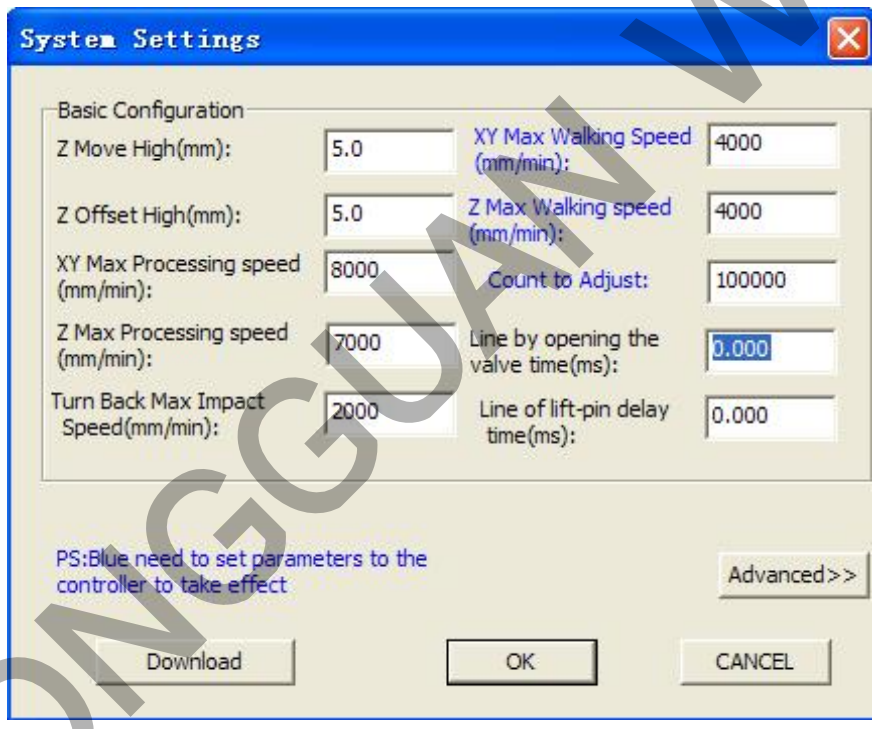


If the mold is stereoscopic ,fill below information in the “system setting”, and press “enter” on keyboard ,or click

, the “system setting” is finished



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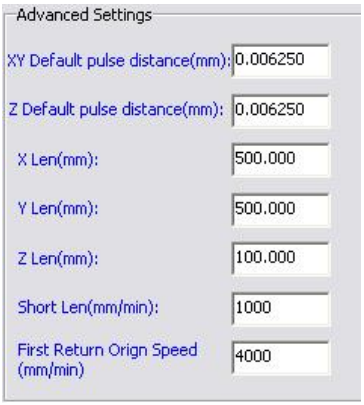
Click

, advance setting should always be 

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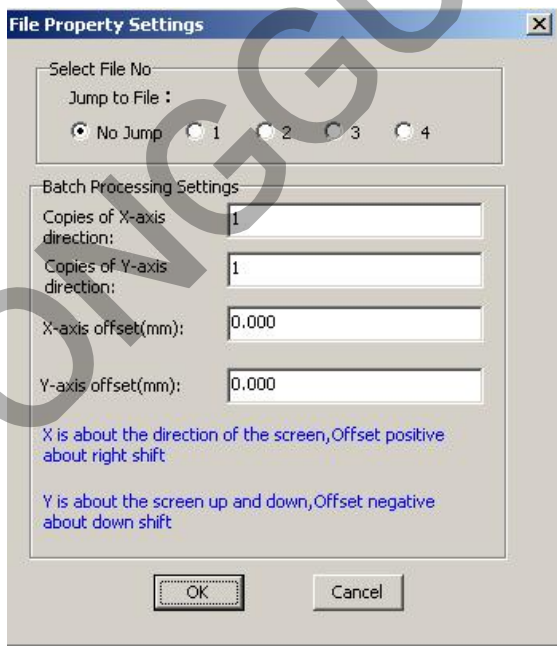
5.1.3 : File Property Setting : there will be many cavities in a mold ,to avoid edit process path for each copies , **File Property Setting** is necessary ,set copies of X&Y axis and X&Y axis offset to process this products.

Double click the blank drawing zone, below interface will be pup out.



Copies of X-axis : The times of the pin moves right direction. For example , the above picture that has 4 copies (cavities) ,

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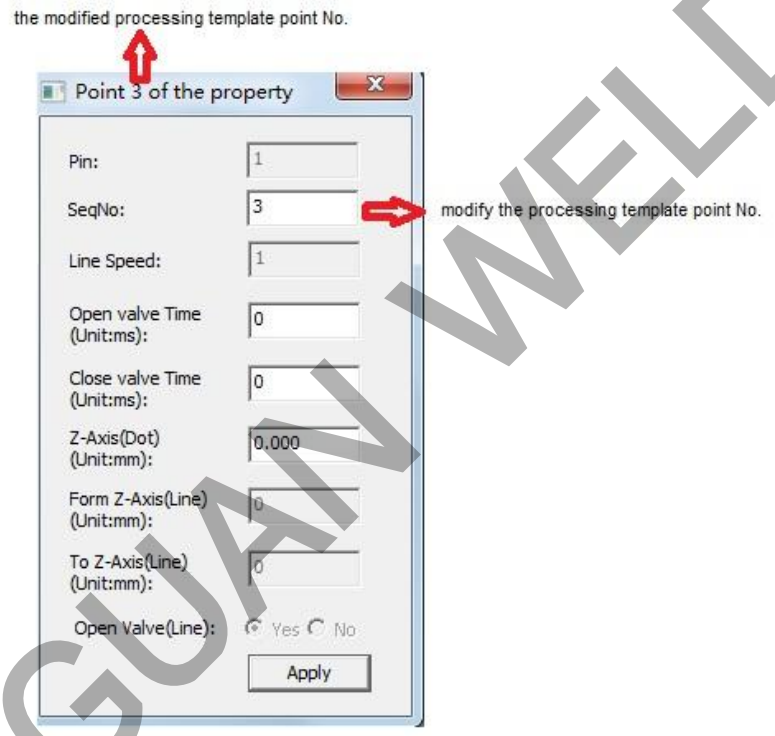
fill in 4, the pin will move 4 times toward right direction.

Copies of Y-Axis: The times of the pin moves down. For example, above picture has 2 copies in Y direction, fill in 2, the pin will move 2 times toward down.

5.1.4 Point No. and Line No of the property

[1] Point No. of the property.

Select the processing point No. and double click left mouse, Point No. of the property will be pup-out , modify the point No. in correct processing order.



[II] Line No. of the property.

Select the processing line No. and double click left mouse, line No. of the property will be pup-out , modify the line No. in correct processing order.

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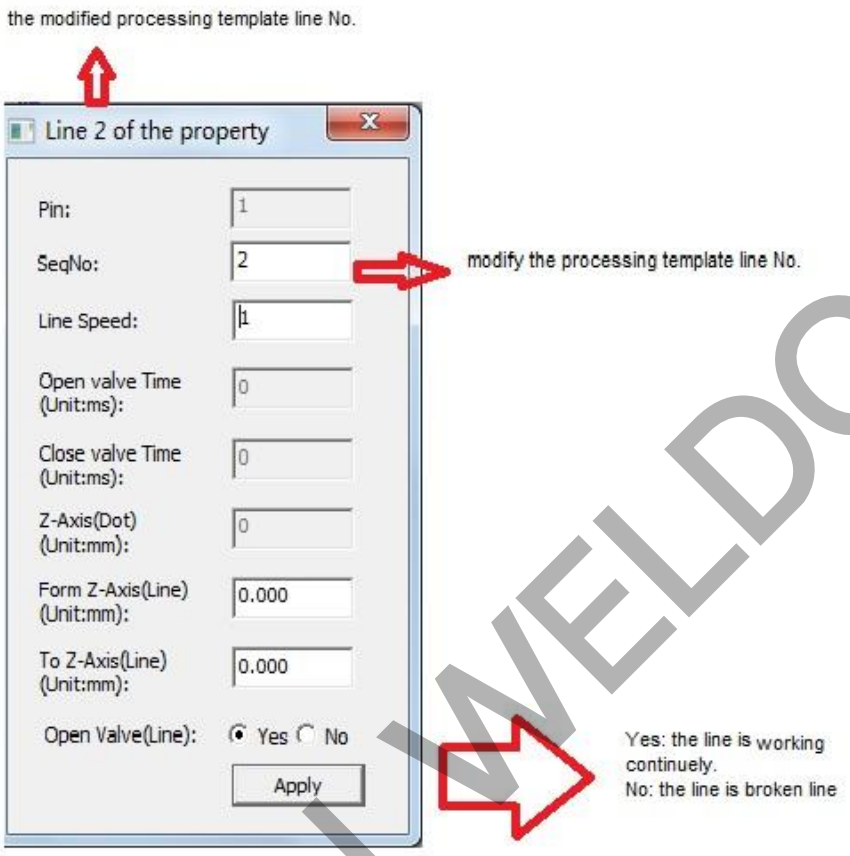
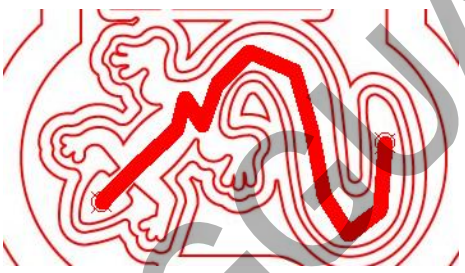
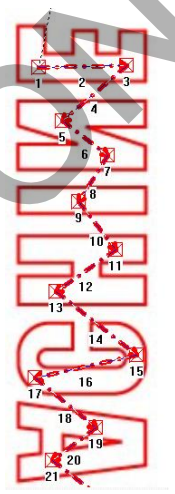


"Yes" : the line is working continually. Example as below.



"No": setting the line as broken, Example as below. Usually , the speed of line is 1.



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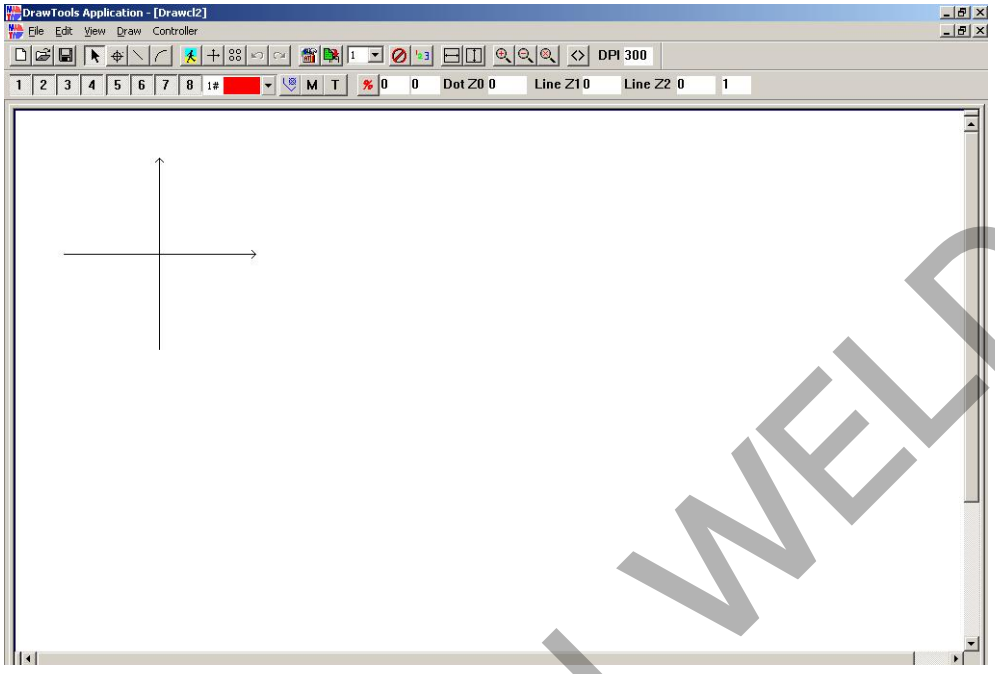
5.2 Procedure to edit process file

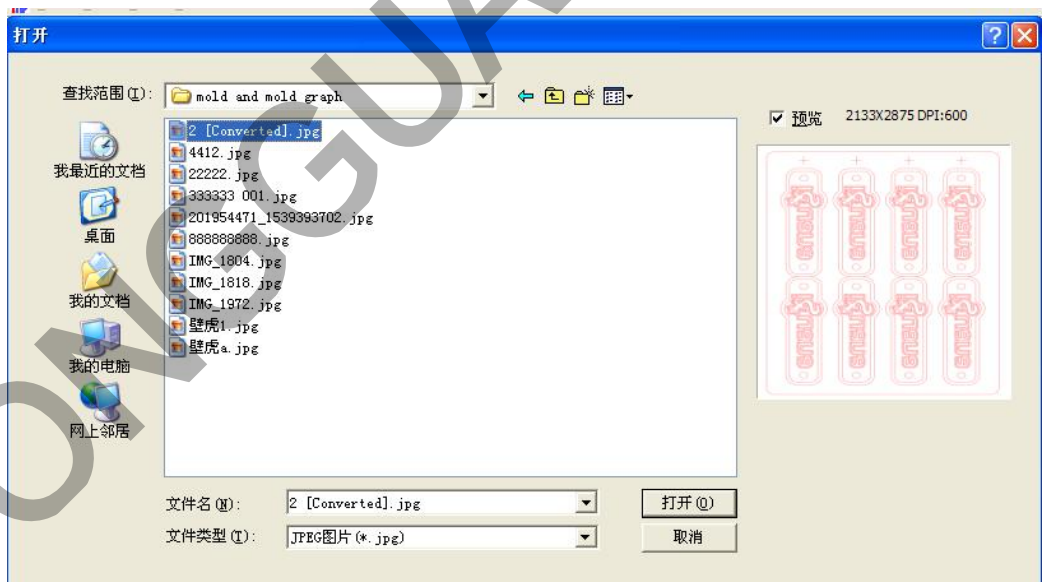
5.2.1 Create new process file

Create a new file in the “drawing zone”, click , or click “file” —>click “NEW”



5.2.2 Import a template file

Click , select the template graph from a file :



Click “ ”, “Draw Tools Application” will display on “Drawing Zone” , click

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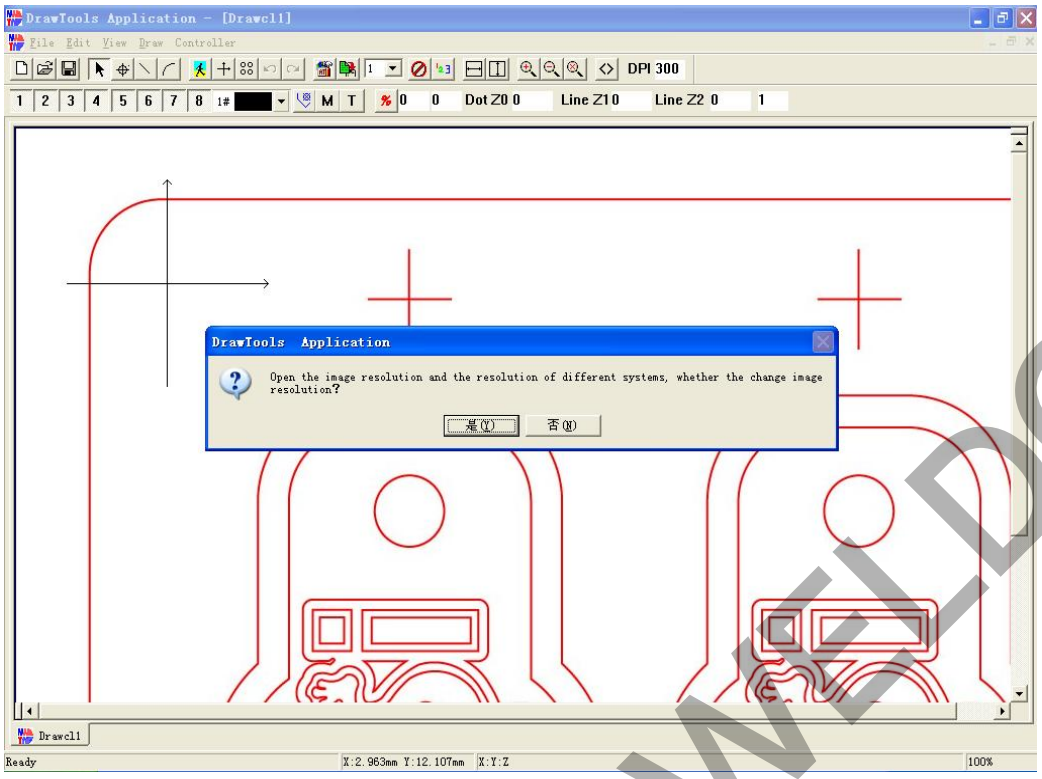
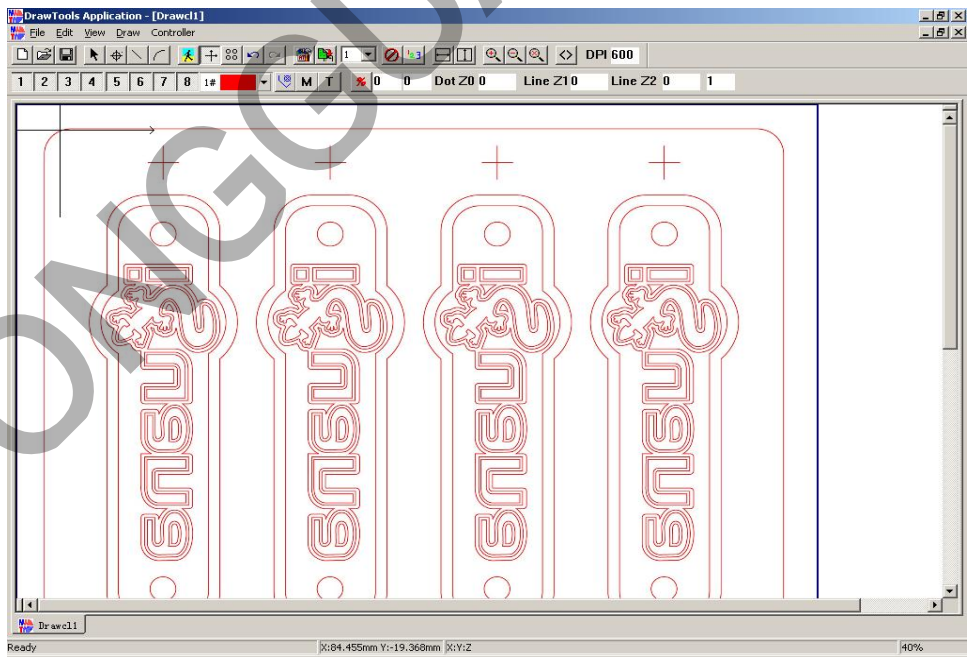


5.2.3 Set origin of file

Click , the cursor changes to "┼",put the cursor superpose on the first cross of process template file , and click , save the file. Example as below:

Before Superpose:



After superpose:

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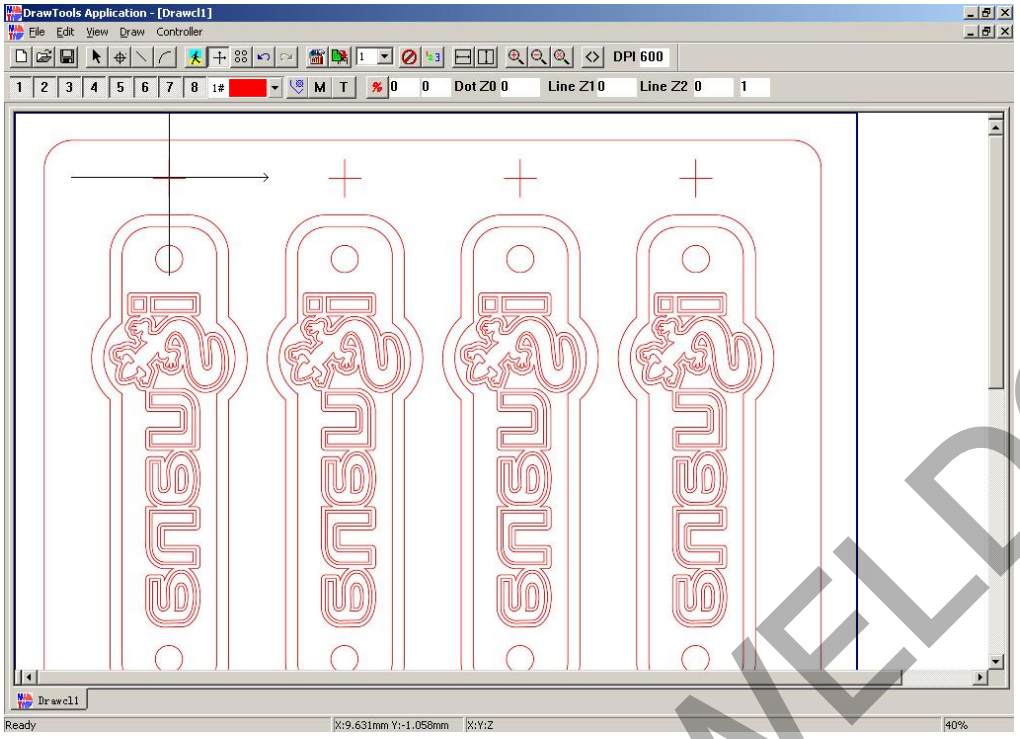

After set the superpose, click , the "┼"curse changes to .

5.2.4 Draw process path

Draw the process path on the process file that creates injection tracks in the process mold.

For small areas, please draw dot, for big areas, please draw line.

(i) Dot

1. Select "Draw" → "dot" or click 。
2. One click left key of mouse for one dot in drawing zone.
3. Click right key of mouse to exit this function.

(ii) Line

1. Select "Draw" → "line" or click 。
2. Click left key → move mouse → click left key → click right key.
3. If repeat "move mouse → click left key" before "click right key", Fold line be drawn.
4. If hold down "Shift" when draw line, only lines at 45 angle to horizontal line can be drawn.

Notice: （1）When draw each dot and line must make sure the dot ,or the line in the middle of the process file , press

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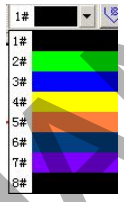
direction keys on keyboard moving the dot and line.

（2） When draw lines , at the beginning and ending of each line should draw a dot .

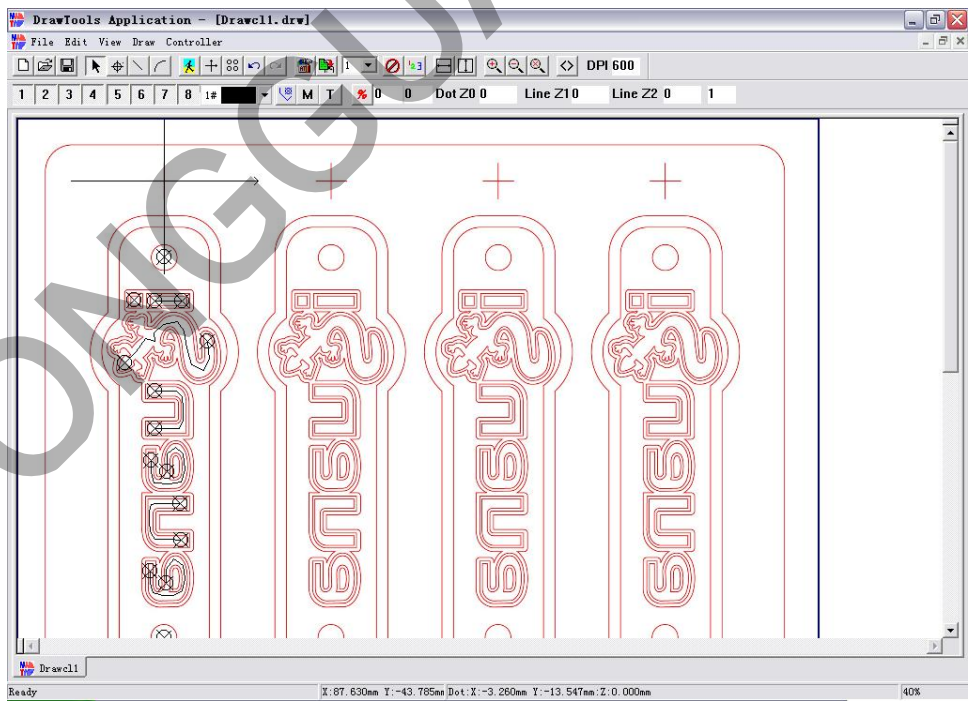
Example below :

（3） when draw process path like ,should set open valve time to the beginning dot that is to replenish the shortage material at the beginning , set close valve time to the ending dot that is to completely finish the materials at the ending position ,and then move to the next position.

5.2.5 Select pin number “1#-8#” to draw process path

For example, select pin 1# from 

to draw the process path.



5.2.6 Check and modify process number

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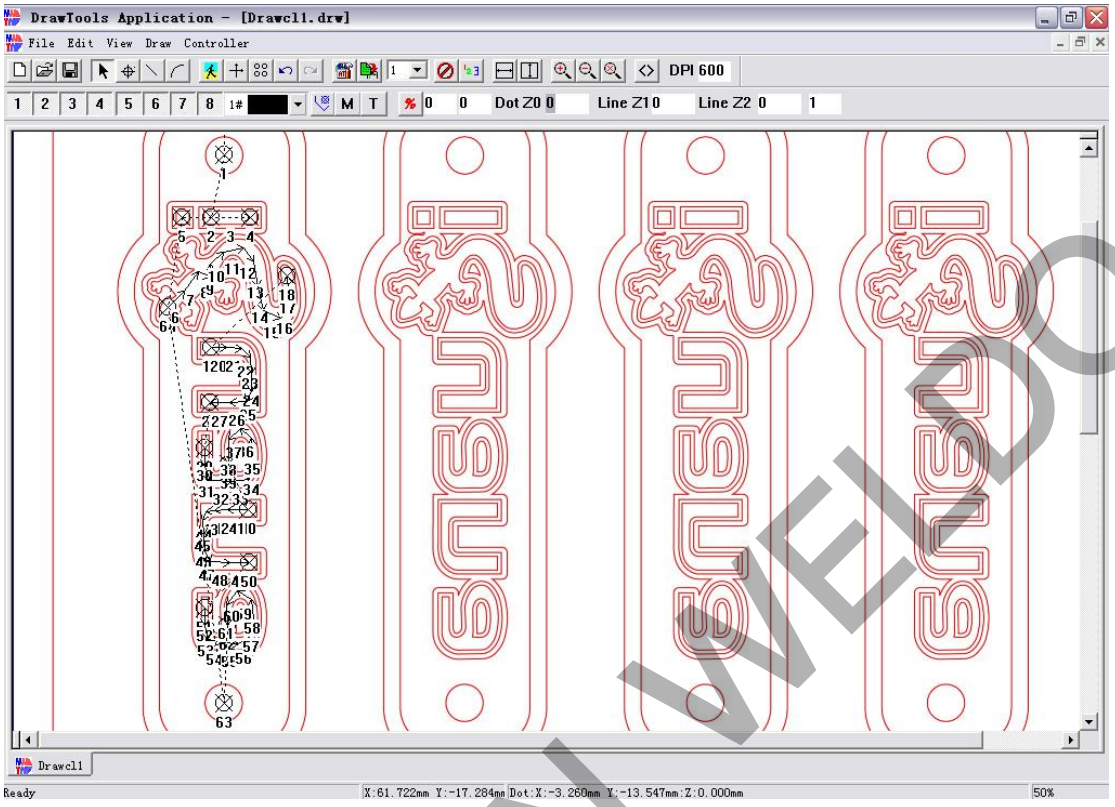
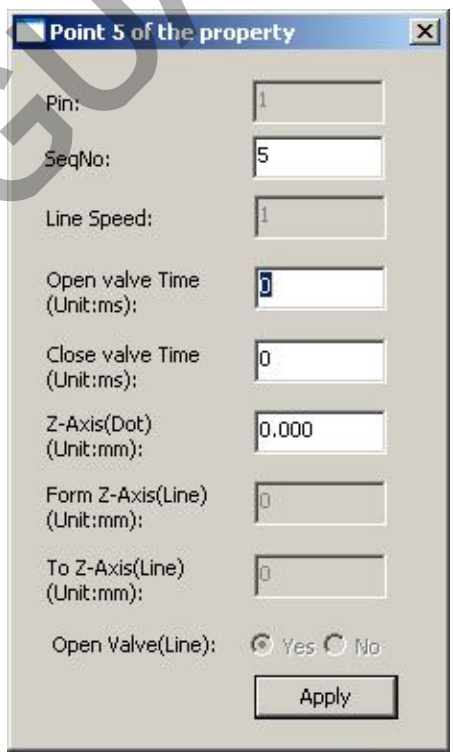
Click , the graph will show the process order ,click it again , hide the process order



Modify the process order : for example , modify to “2” on the graph .select , double click left mouse ,point 5

of the property will pup out 

, modify the SepNO: “ 5” to “2”, and click

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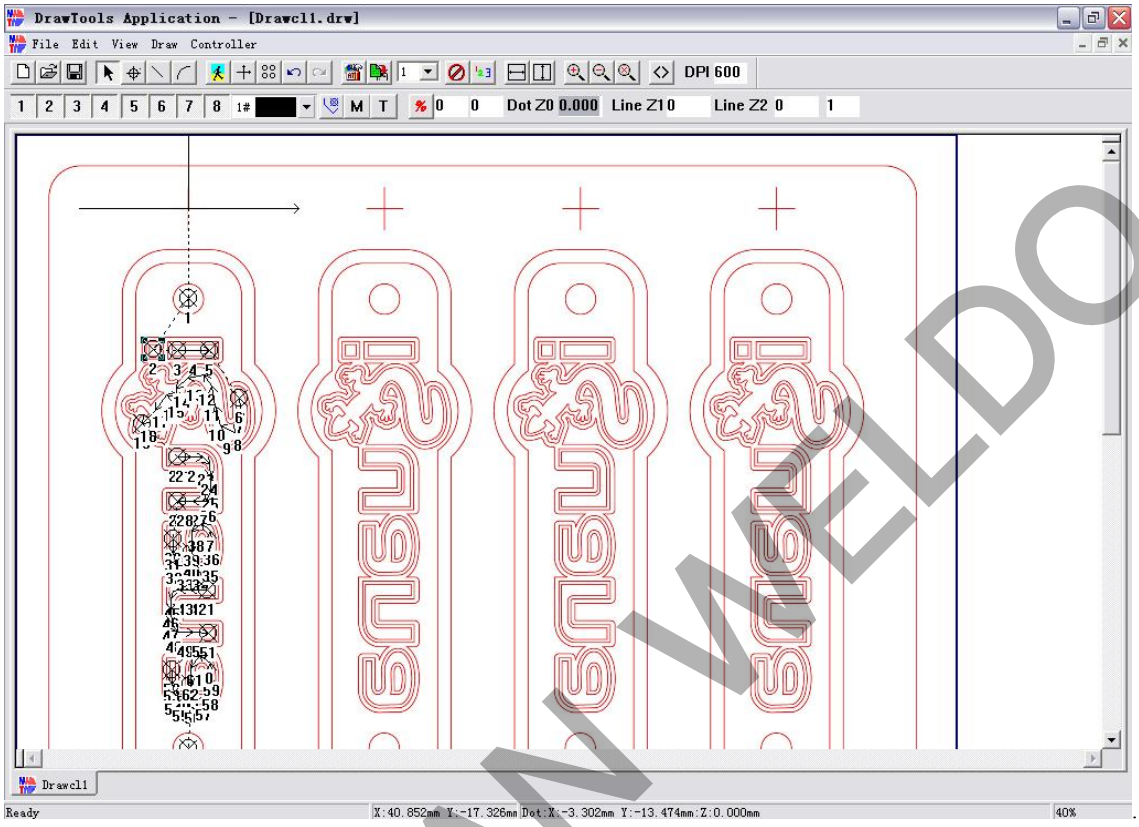
.modify other process orders are the same way.

example as below :



5.2.7 Set Injection quantum of PVC

(I) set the open valve time and close valve time

[i]Open valve time : the pin injection time on the process position of the mold. The open valve time is long , more quantity will be carried out.

[ii]Close valve time: the pin staying time on the process position of the mold. If increase the open valve time, the close valve time should be increase accordingly.

Notice: the time unit is milliseconds.

(II) set dot time

Select a dot, according to the process area on the mold, import an estimated open valve time into the first box , and import a default close valve time "50" or above 50 to the second box. When import each dot open valve time and close valve time to the blank, must remember to press "enter" to each number.

Example: select , import estimated time "80" in the first box ,and press "enter" , import "50"

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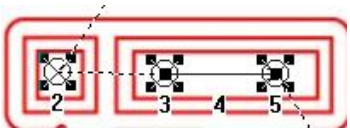
in the second box , and press “enter”. To check the time, click

, the time will show

. Set the other dots estimated time the same way as the “dot 1”.

if some dots in the process mold are the same depth ,can select those dots at one time , and set their estimated time all the same , so that need not to set the dot time one by one ,it will save much time.

Example : 

“dot2” ,”dot3” and “dot 5” in the same depth in the mold , select them at one time , set

,always remember pressing “Enter” when fill in each number .

To check their open valve time and close valve time , click the dot one by one , “dot2” ,”dot3” and “dot 5” all will show

.If there are other dots the same depth as “dot2” ,”dot3” and “dot 5” on the mold, set the same estimated time .

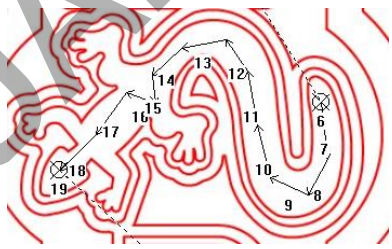
[III] set the speed of the line

There are 20 kinds of speeds , each number represents different speed , the bigger the number is , the slower speed of the pin , the more PVC quantity will be carried out.

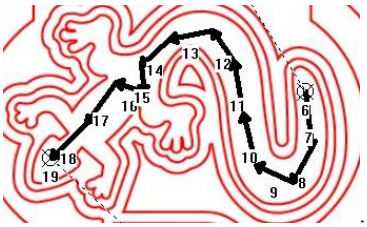
Example:

Select a line: based on the process area in the mold , import an estimated speed in

.

Example :select “line 7” to “line 15” 

, import an estimated number “5” to

,press “ENTER” , the line will be 

.

Complete Injection quantum of PVC process template process file as below:

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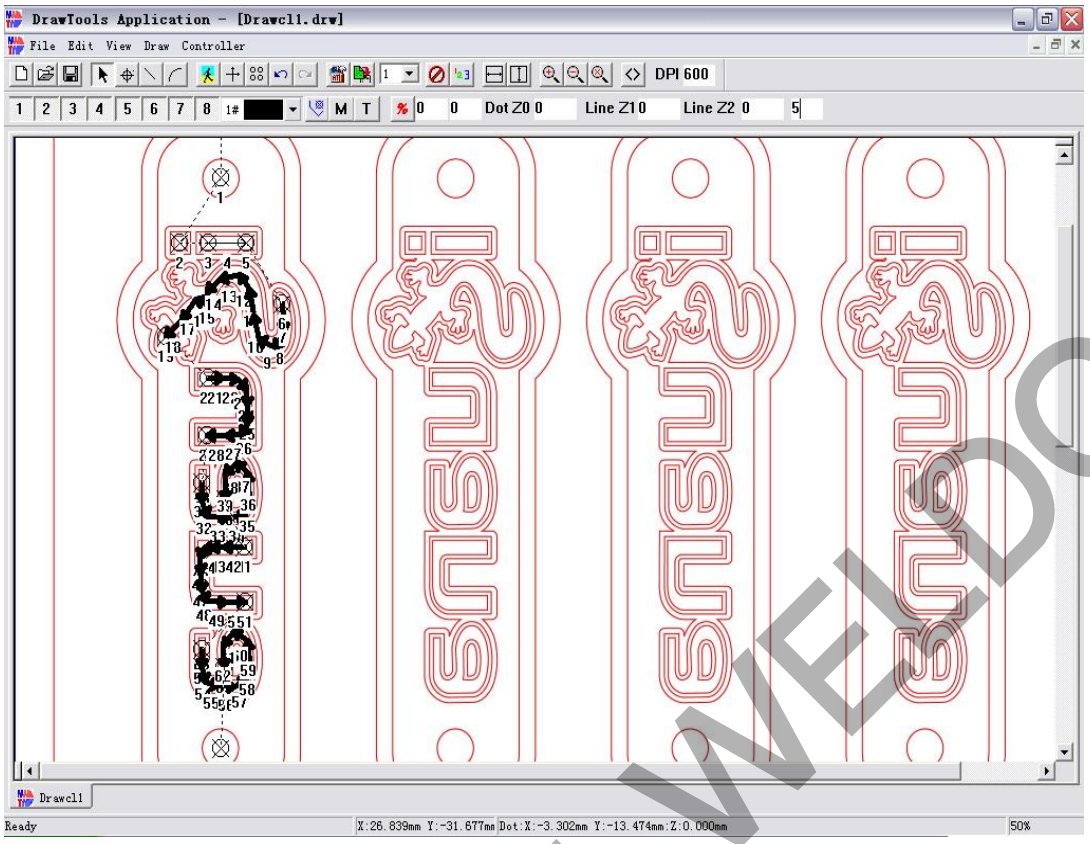

Notice : Air pressure , the type of the pin and the viscosity of PVC will effect the PVC dispense quantity.

5.2.8 Setting pin aim at the mold

(1) fix a clean flatness and square mold on the working table tightly

(2) turn on the machine switch . turn On cylinder

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(3) set “F” origin and “P” origin

a. F origin setting :

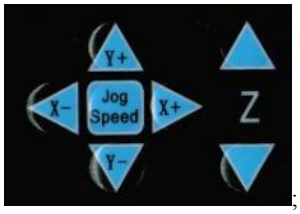
(i) . Fix the mold on the table , press

until

appears on LCD; press

(Notice: please press

to ascend the pin to avoid the pin touching the mold before press

,otherwise ,if the pin touches the mold , the pin will be twisted and distortion) ,and aim pin1# at the first cross in the mold by operating panel 

; the pin can be infinite close to the mold, but touch the mold is not allowed.

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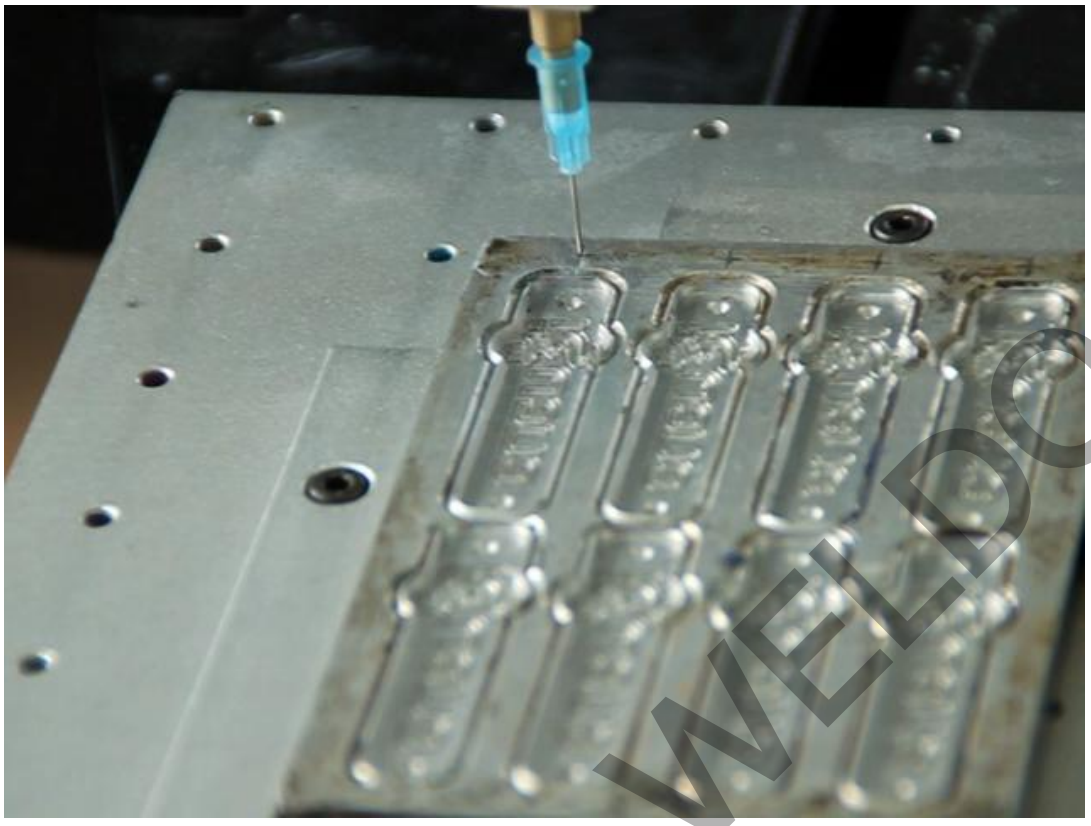

(ii) . Press

, then " F1 OK" will appear on LCD, F point setting is finished.

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[iii] .Press

,the machine will work and then move back to the F origin.

Notice：the insert-system can save four files at most; when set F1, press

to select file before press

, F2、F3 or F4 will be displayed on LCD as F1.

[2] Set origin of pin （also called P origin）

P origin setting for all pins can find correct injection location.

(i) Press

shift

to

that “P1 OK” appears on LCD

（iii） P1 point setting is finished.

（3） if there are two pins, press

until “P2” appears on LCD， press

to compress P#2， then operate the panel and aim pin #2 at the first cross in the mold， the method is the same as setting F origin.

(4) Setting pin#3-12 is the same way as pin #2.

(5) All pins original position from P#1 to P#12 are the same position. The operation way P#3-P#12 is the same way as P#2.

5.2.9 Download process template file to the machine

(1) select a dot to measure the height of the product area

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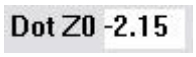
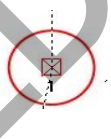
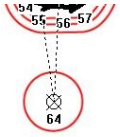
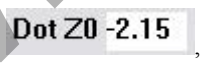
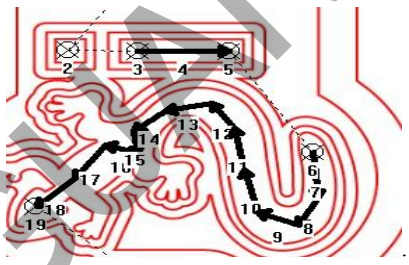
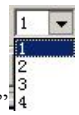
(i) select a dot ,for example select dot ”1” , and click ,the dot “1” is download to the machine .

(ii) Press the process file number on the panel (if the file is 1, press ,if it is 2, press)the machine will move the corresponding pin(needle) to the working point in the mold. Read the coordinate figure of Z on LCD.

(iii) Press to descend the pin (needle) approaching the mold slowly , please do not touch the mold, read the coordinate figure of Z on LCD. For example if the figure is :Z-00215 , -00215/100= -2.15 , import -2.15 to  , and press “ enter ”, the round dot “1” will change to square  . The dot “64”  is the same height as dot “1”, click , import “-2.15” in the  , press “enter”, round change to square .

(iv) “Dot 2 ”、“ dot 3—line 4—dot5” “dot 6~dot 16” are the same depth, so their height is the same, only need to measure the height of “dot 2”,  .

If all the dot or lines in the same depth, their heights are the same, if different dots and lines have different depth, should set their height one by one .

(v) If all the height of dots and lines are completed , select process file “1”  in the toolbar， press , the whole process file is downloaded to the machine , the process file is saved in inserted-system , and press , the pin will move in the mold.

5.2.10、 Release Air Bubble From the pipe

(1) turn on the “VALVE”

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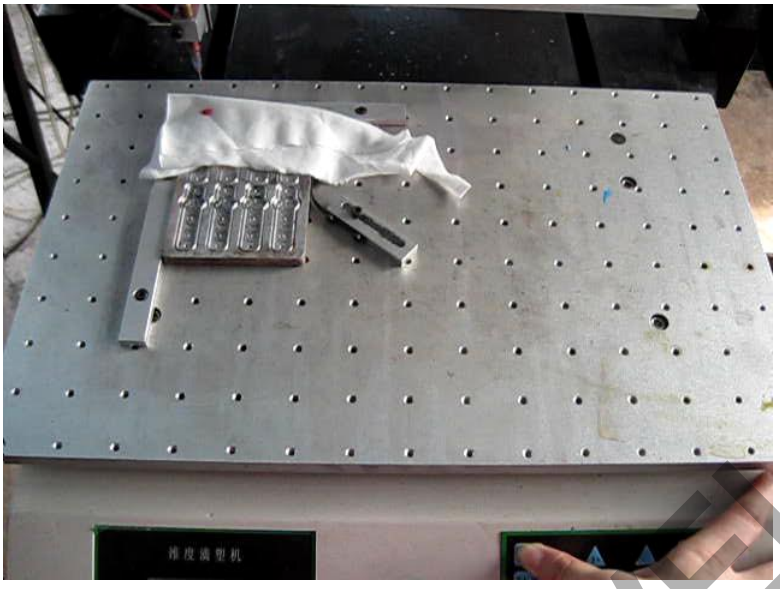
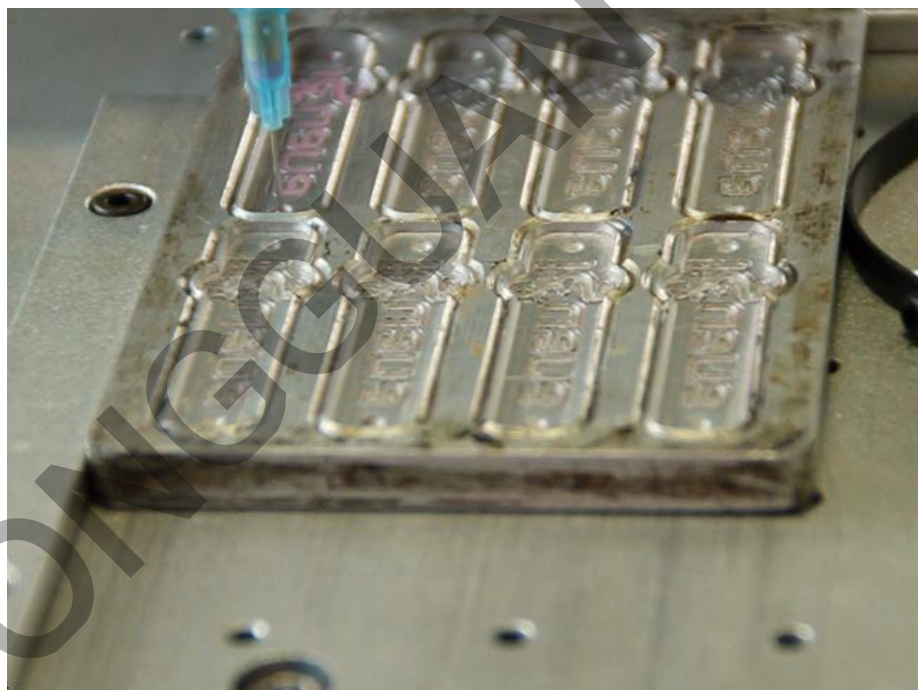
(2) put a cloth under the pin and hold to carry out the materials from the pipes until there is no air in the pipe.



(3) Press , the machine will carry out the materials to test if the color can completely fill in the first cavity or not , if not , need to reset the dot open valve time , close valve time and the speed of the line again and again until the materials can full the space .If the materials run over that should reduce the open valve time, close valve time and the speed of line.



5.2.11 Measuring cavities distance

Measuring cavities distance is to edit process path for each copies, set copies of X&Y axis and X&Y axis offset to process the products.

(1) Measure X direction distance. Measure the distance between two near cross.

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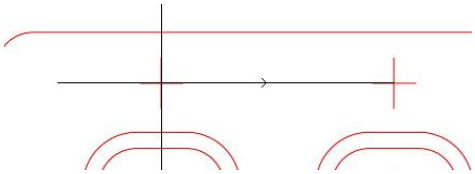
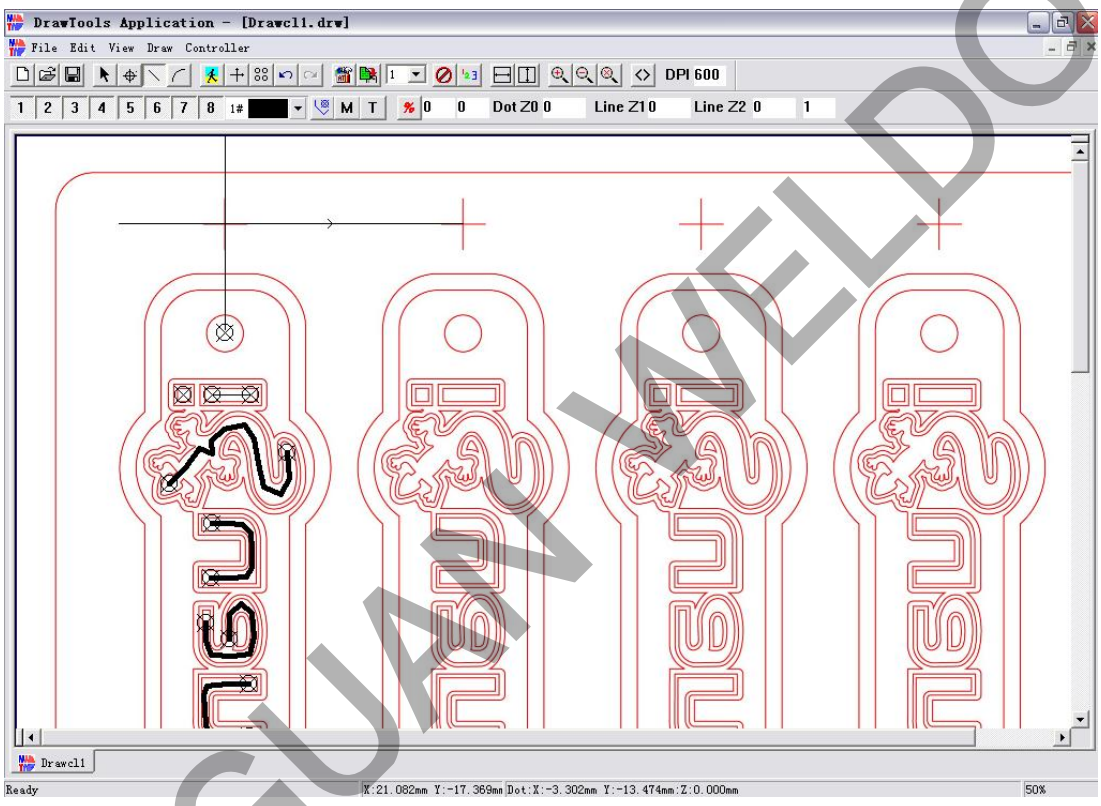
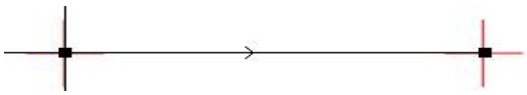
Click =>put the curse suppose on => move curse to the second ,there will be a line as below shows, the line is the distance between copies .





(2) Click to change the curse to arrow.

(3) Click the line by left mouse 

(4) Read the distance from the statue column L:18.881,

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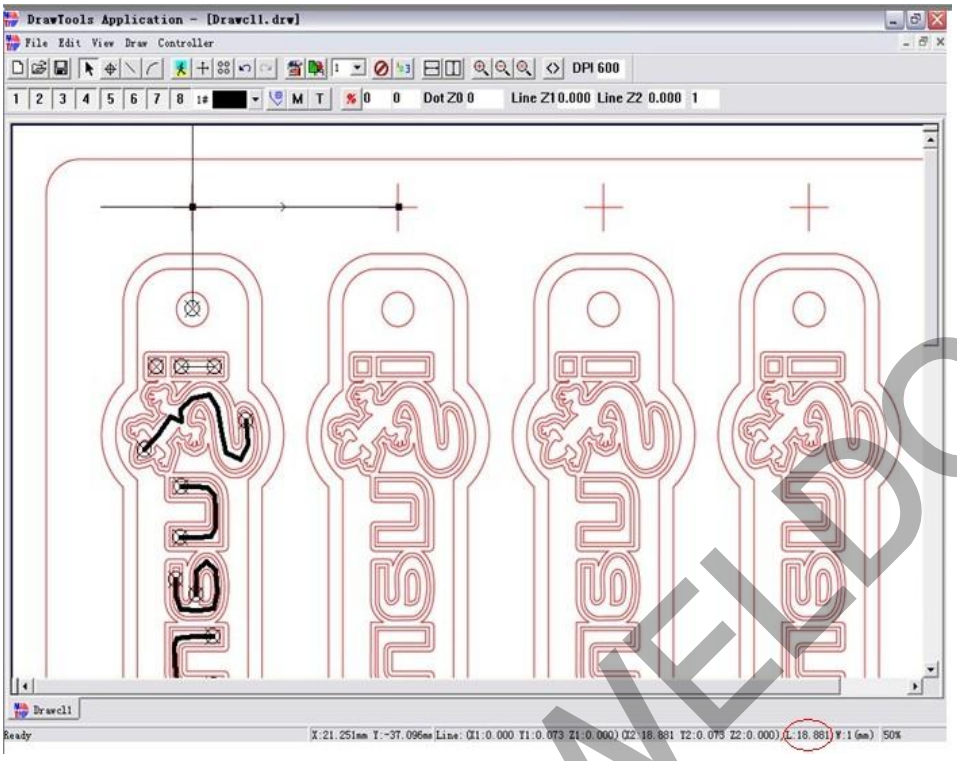
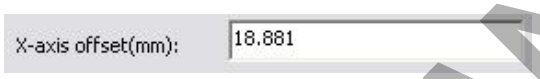
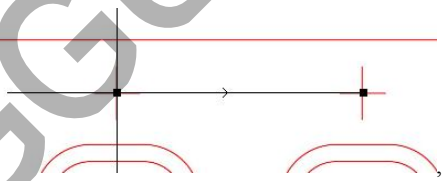


(5) double click blank , the File Property Setting will pup out, fill in 4 in Copies of X-axis direction that mean the pin will move 4 times to the right

; fill the distance 18.881 to X-axis offset 

that mean the distance between two near copies in X direction is18.881mm.

(6) Press



(7) Select the line , press “Delete” to delete the line

(8) Measure Y direction distance. Click , change the curse to “┼”

(9) Find a point from one copy, and find another point from the Y direction copy .Example below

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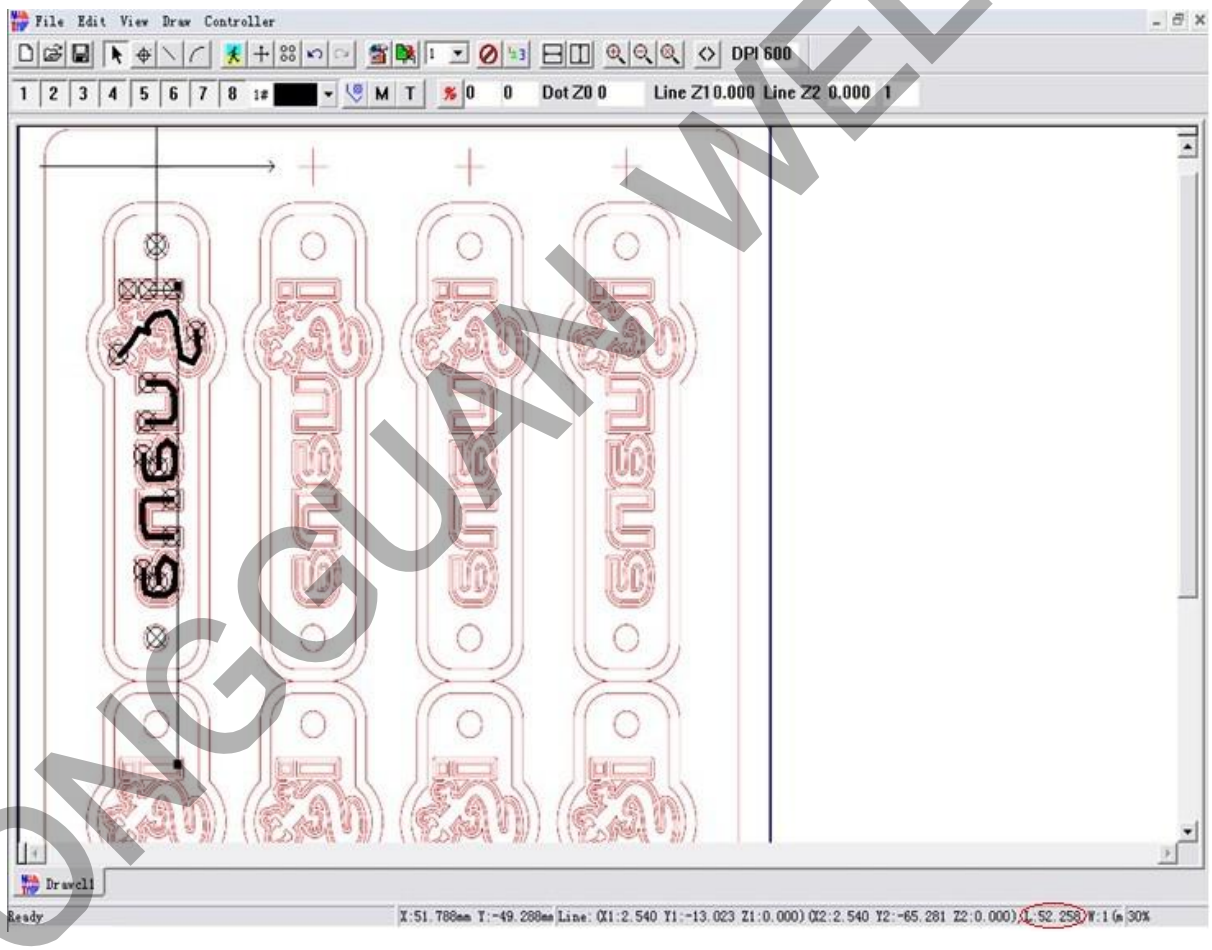
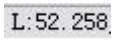
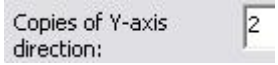


(10) click , change the curse to arrow .Or click right to exit this function.

(11) click the line by left mouse, read the distance 

from the statues column

(12) double click blank , the File Property Setting will pup out, fill in “2” in 

that mean the pin

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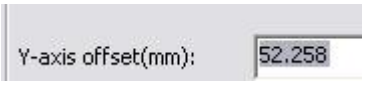
will move 2 times in the Y-axis direction; fill the distance 58.258 to Y-axis offset 

that mean the distance between near copies in Y direction is 52.258mm .

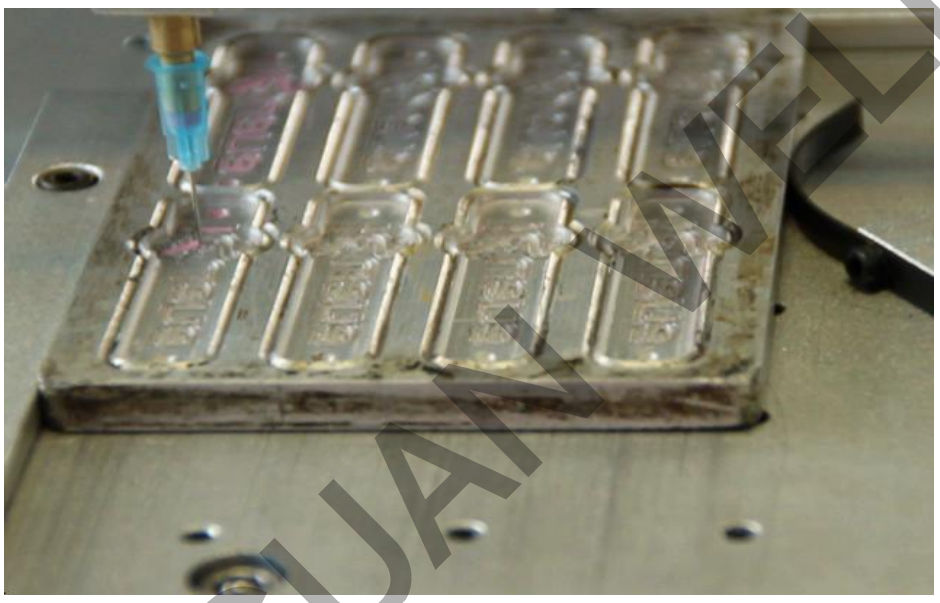
(13) Press

(14) Select the line, press “Delete” to delete the line.

5.2.12 Download process template file to the machine

(1) Click and download the whole file to the machine

(2) Press , the machine will carry out the materials to fill in the 8 cavities.



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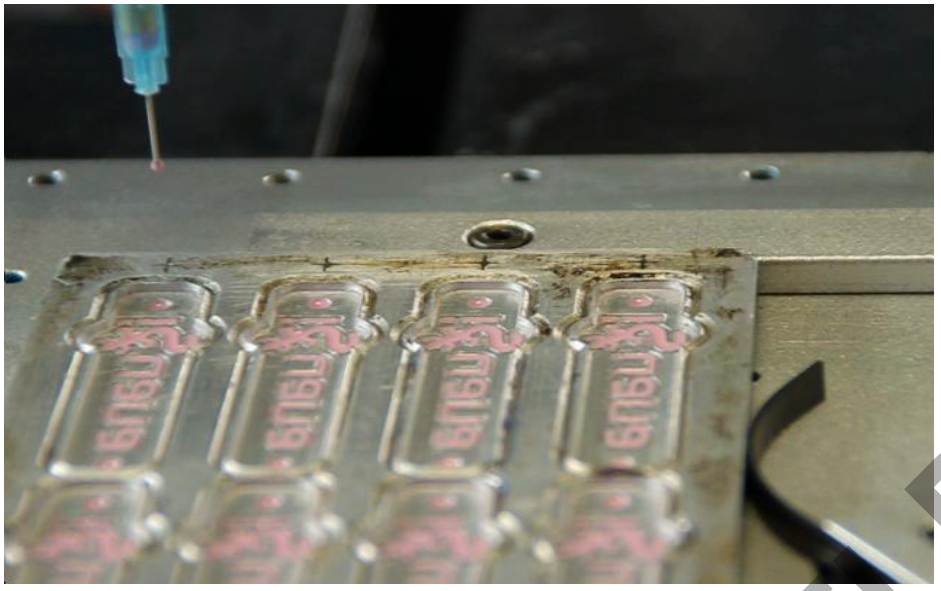

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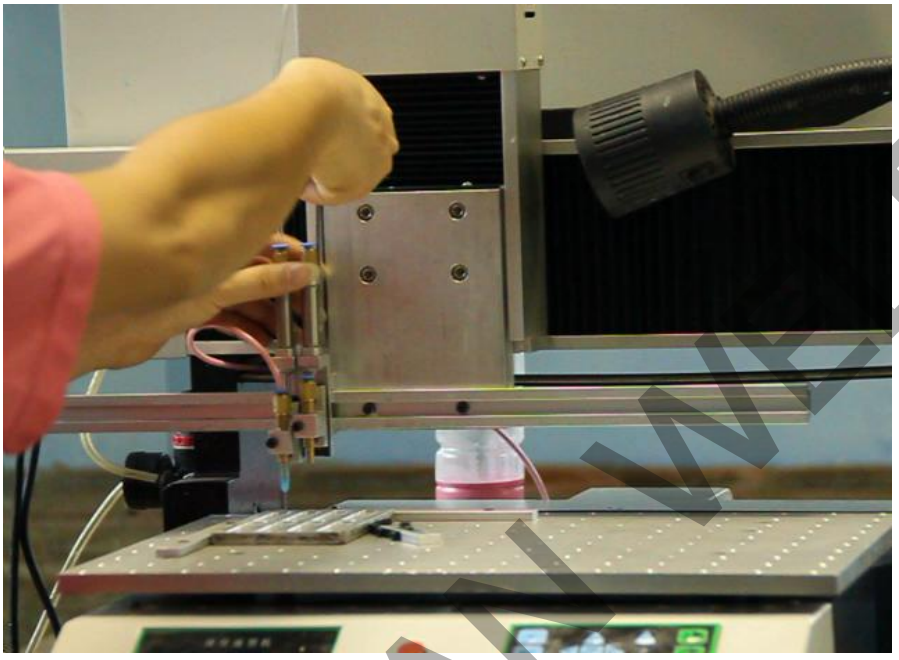
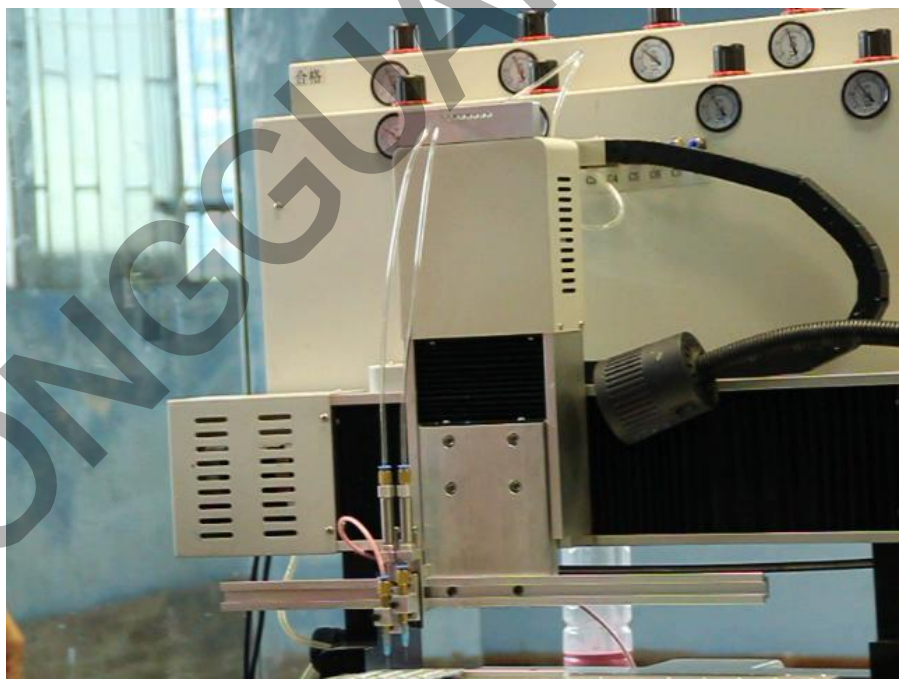
CHAPTER 6、TWO DIFFERENT COLORS

Chapter 5 is about the single pin with single color working in the mold. Because a design will have two or more colors, this chapter introduces how to dispense different colors in the mold.

6.1 Installation of charging valve, needle shelve and pneumatic System

This procedure is the same as the chapter 1





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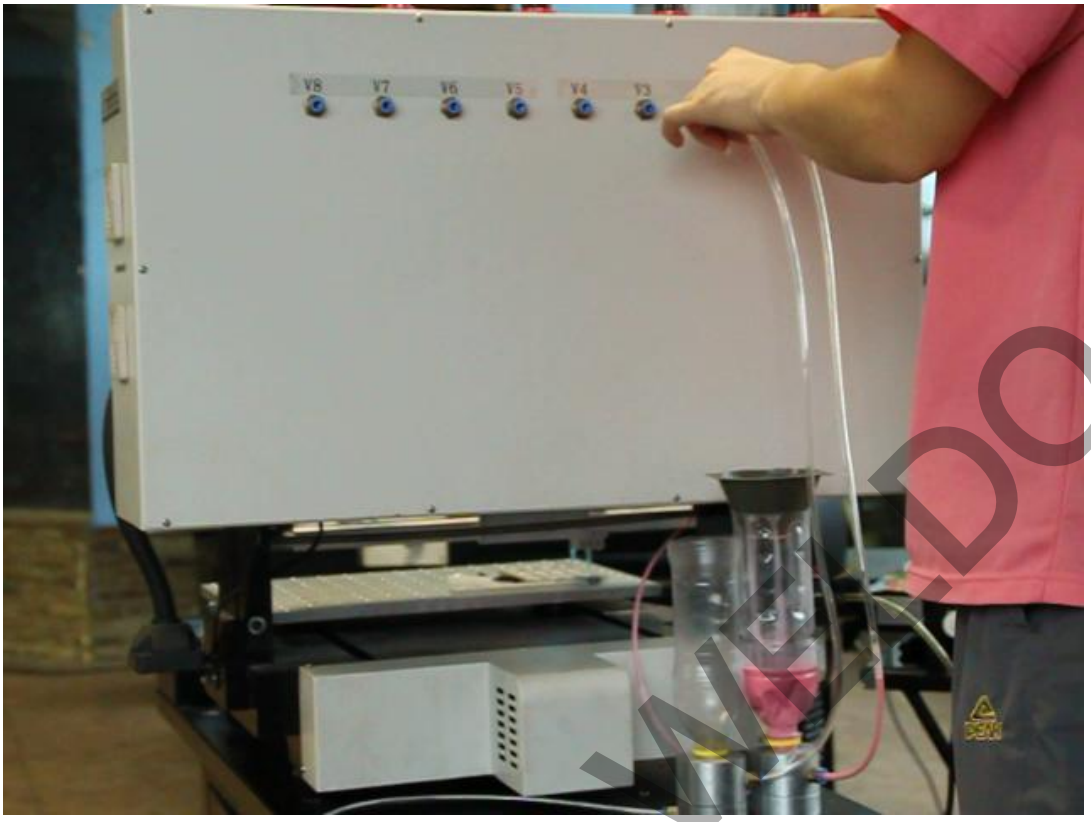

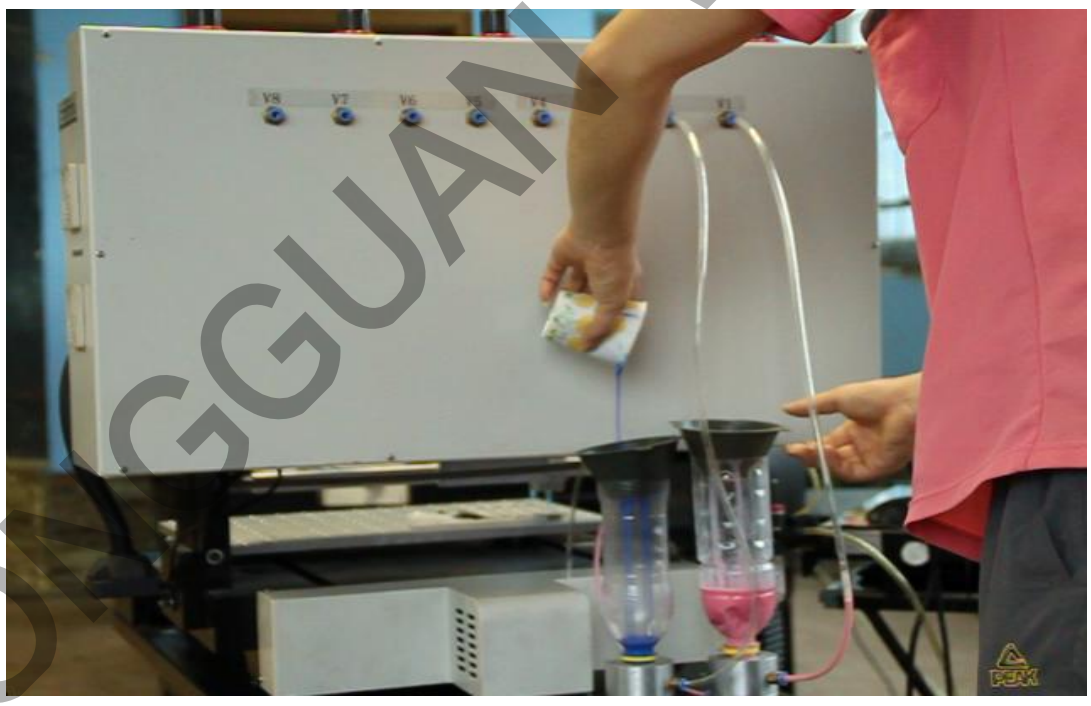

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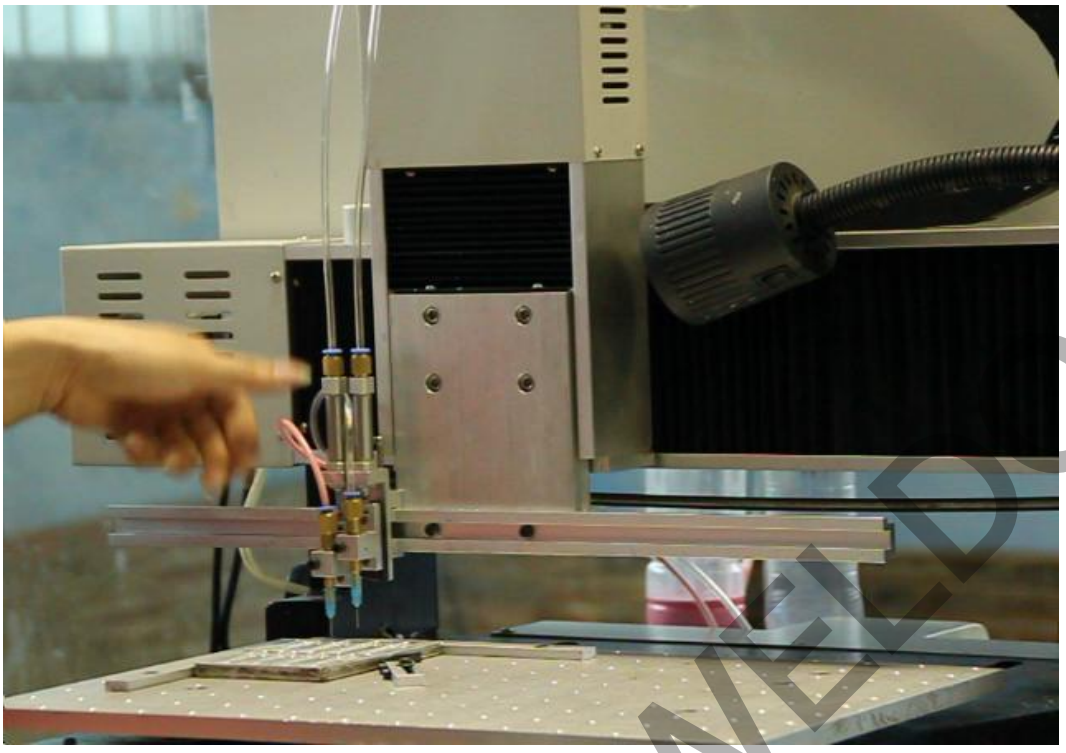
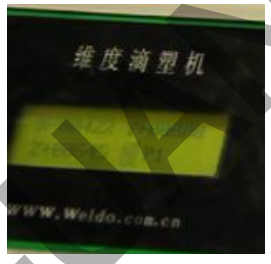


6.2 "P#2 " origin setting

[1] set "F" origin and "P#1" origin .The procedures are the same as chapter 5.

[1] press

, change P#1 

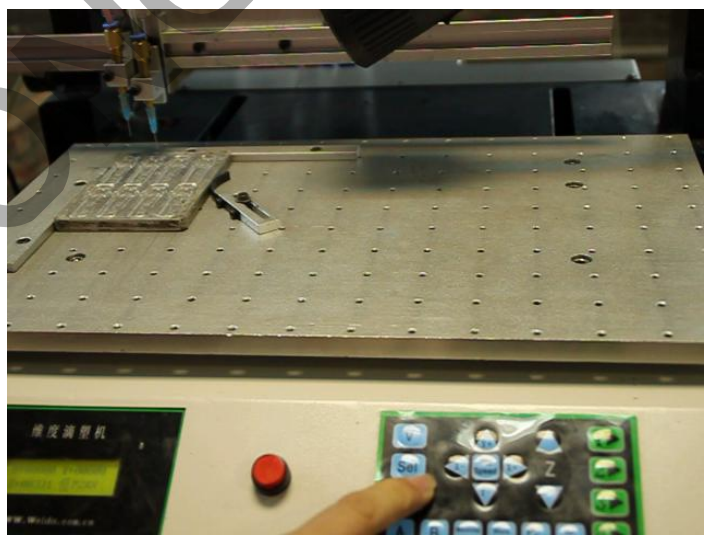
to P#2

.

[2] move panel and regulate P#2 the same height as P#1

[2] press

, P#2 will be compressed down



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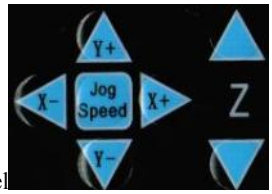
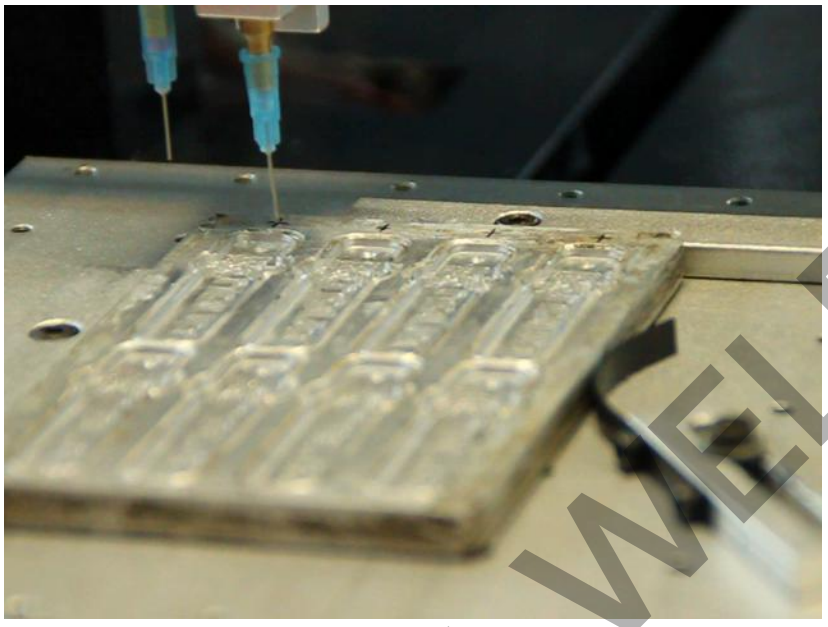
[3] Operation panel 

to move P#2 aim at the first cross in the mold.



[4] Press

to keep above operations, “P2 OK” will display on LCD.

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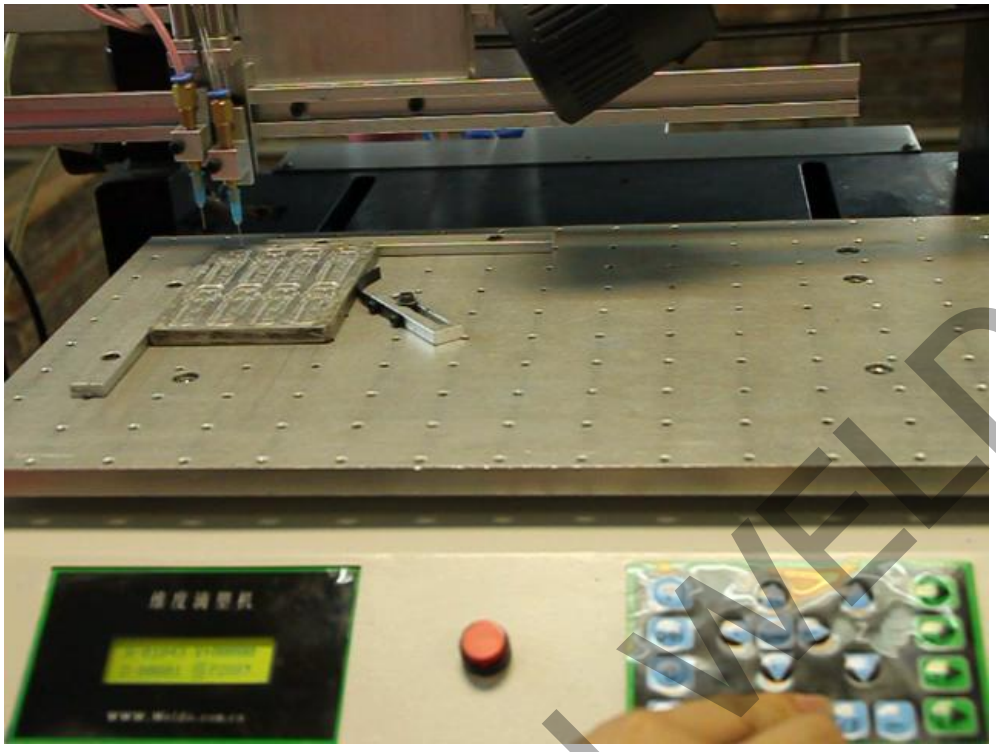
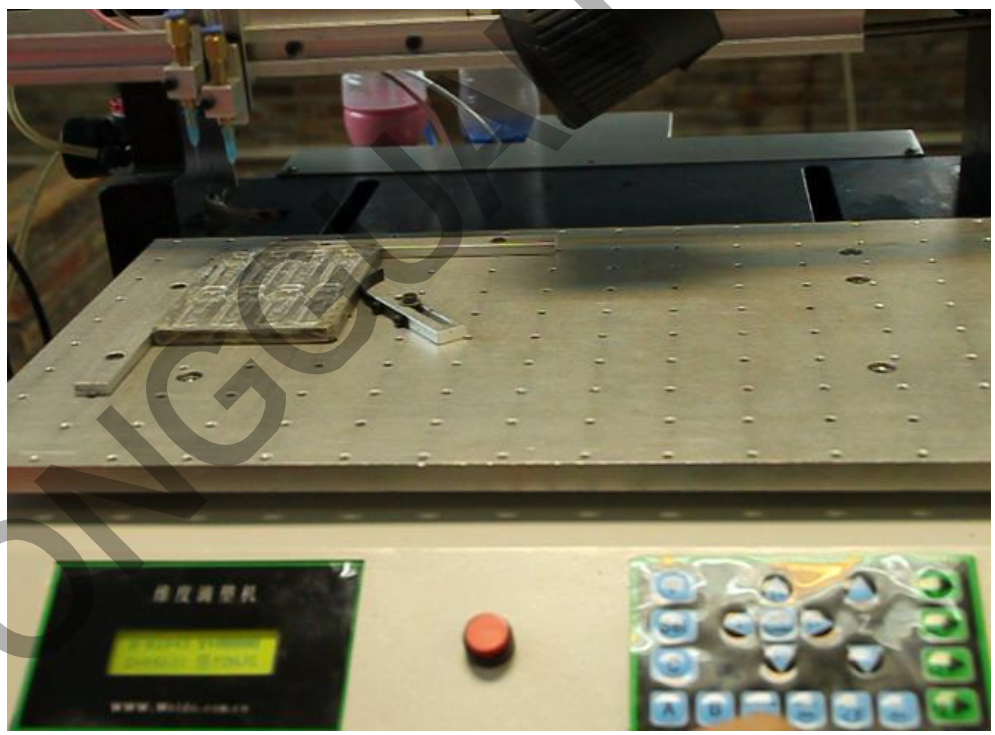
[5] Press

to check if P#2 can return to the origin or not.





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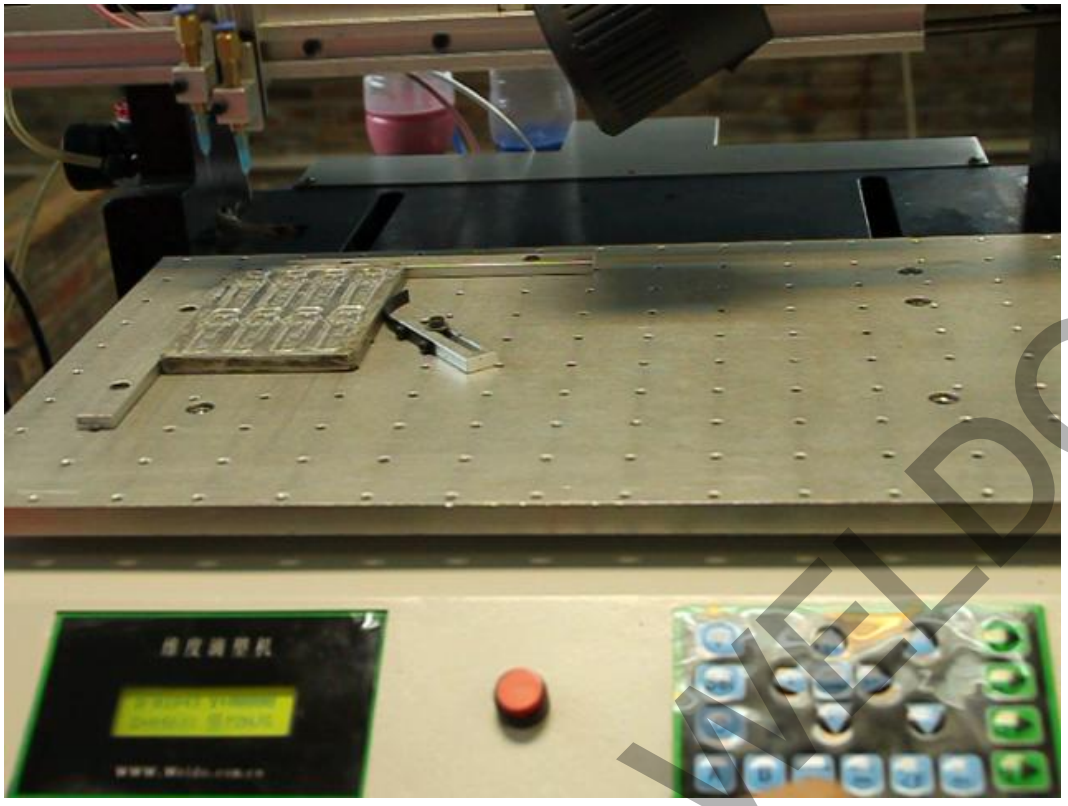

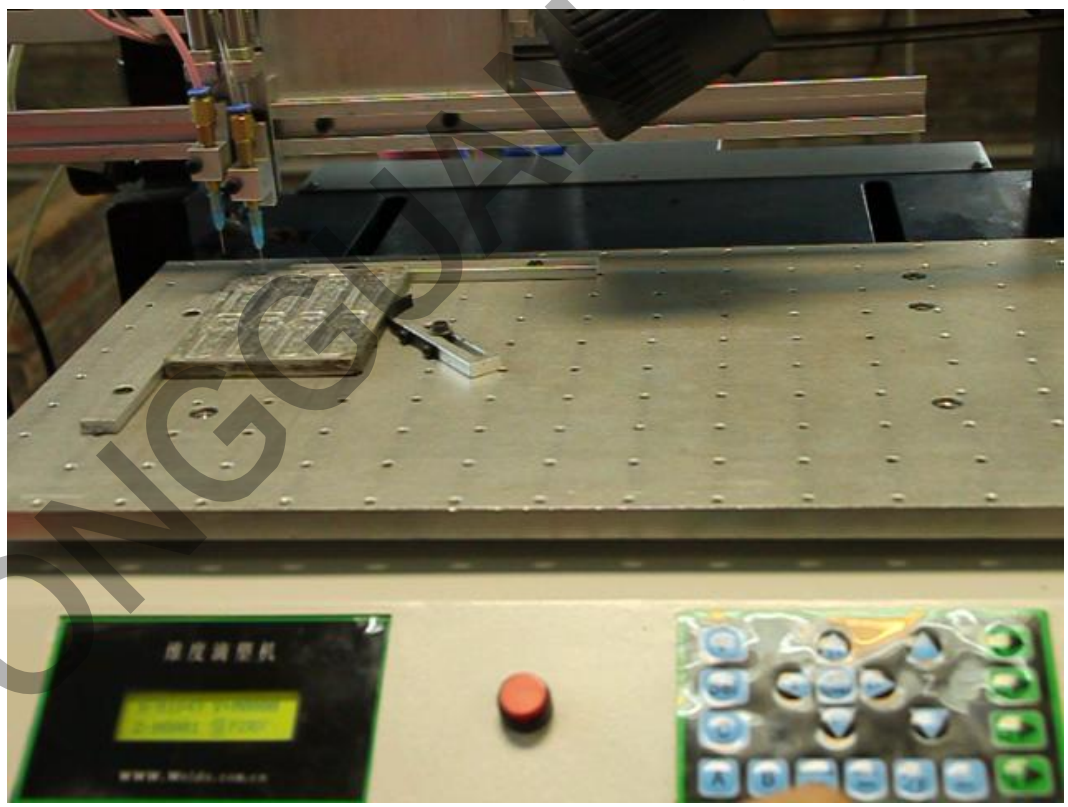

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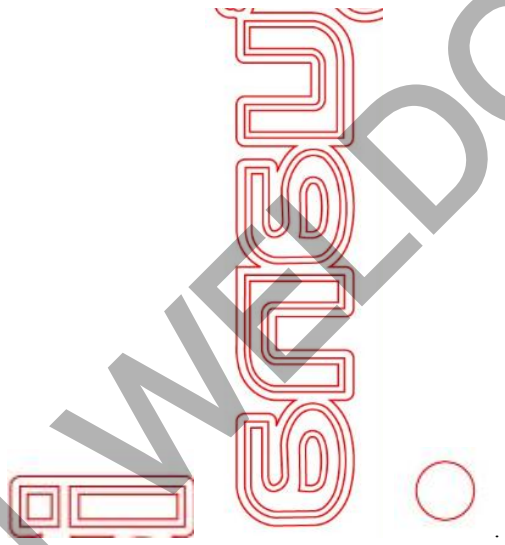
[6] go to software DrawTools, this step borrow the process path from chapter3 ,open valve time , close valve time and process area height from chapter 3. Hide another pins 3 4 5 6 7 8 , change the P# 2 color

Notice : Because previous chapters introduce the template file process path , so this chapter borrows the process path from them .But in the actual production , the operator gets the products will be more than one color , so when edit the process path ,the operator should draw each process path belong to the pin one by one .For example , this part is belong to pin 1#

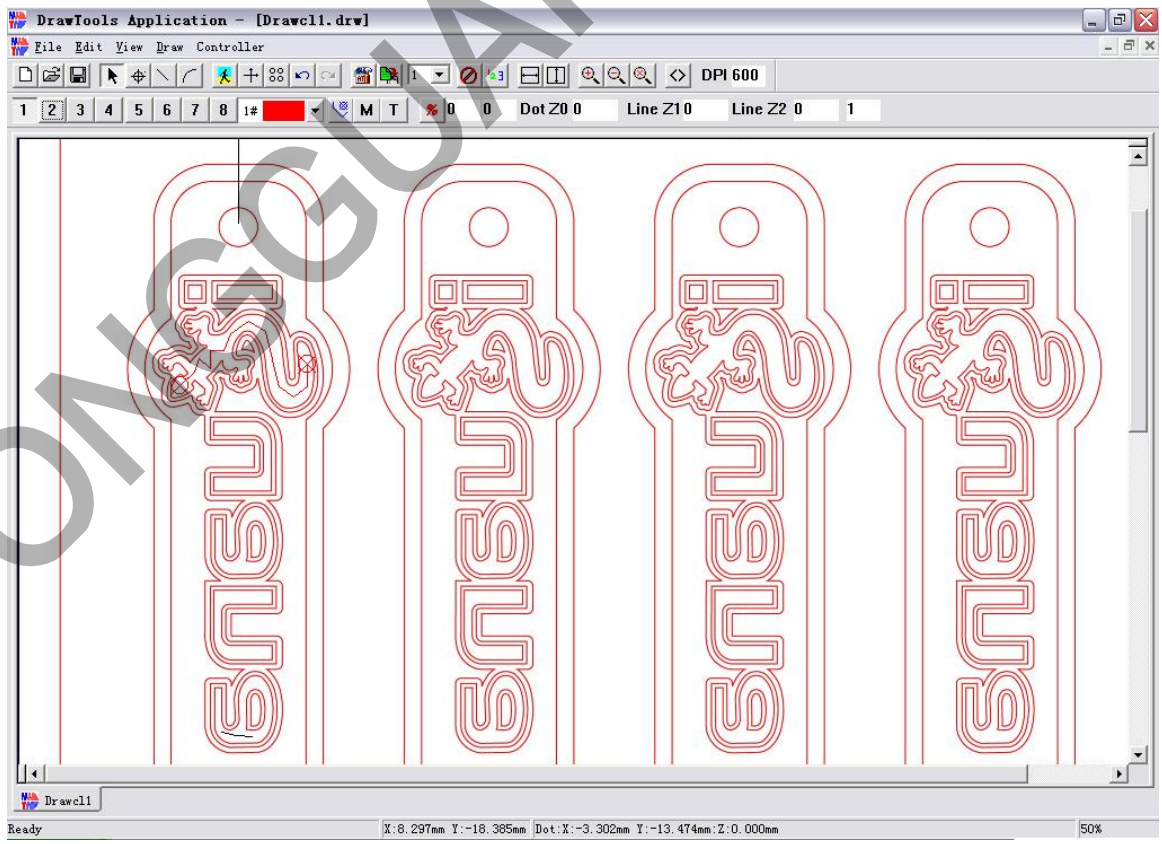
,this part belongs to P2#


.

Click and hide

, highlight

to draw the process belong to P1#



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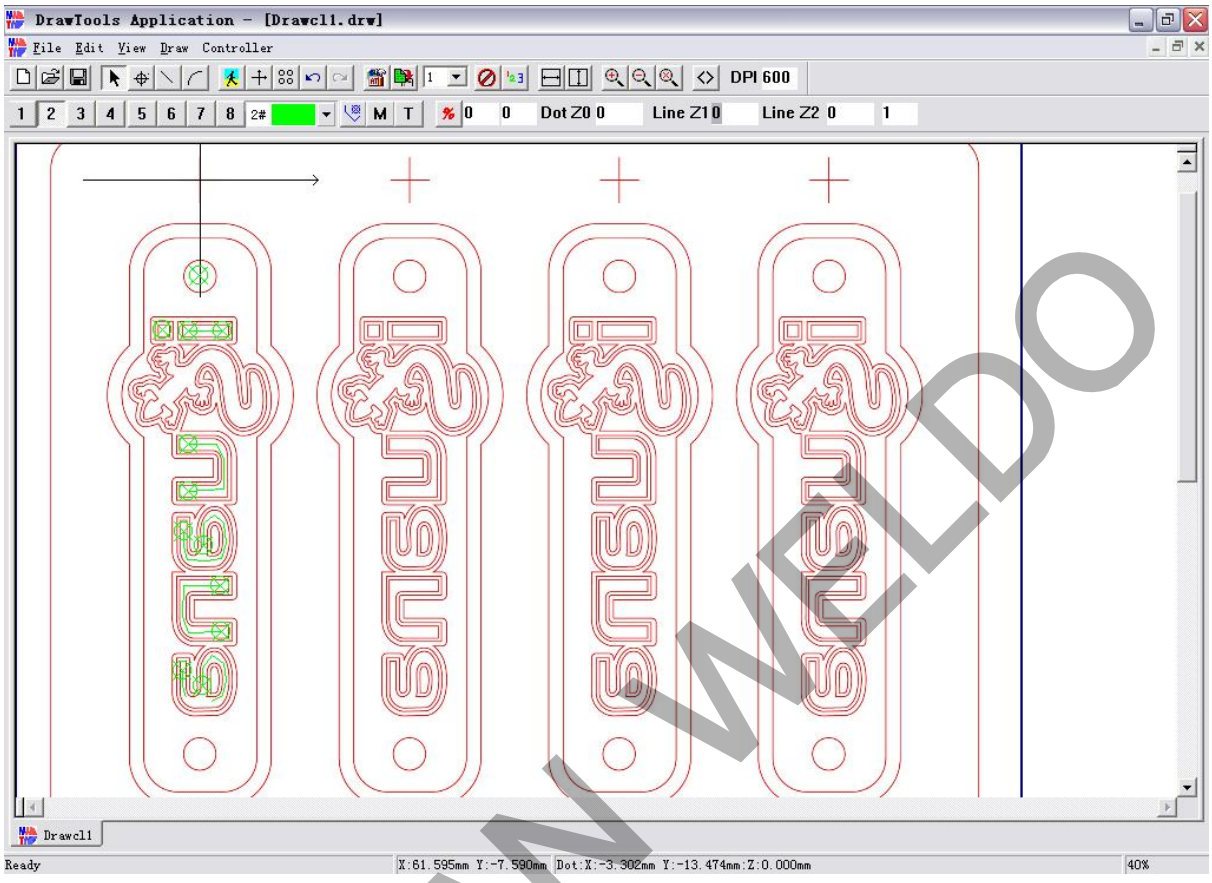
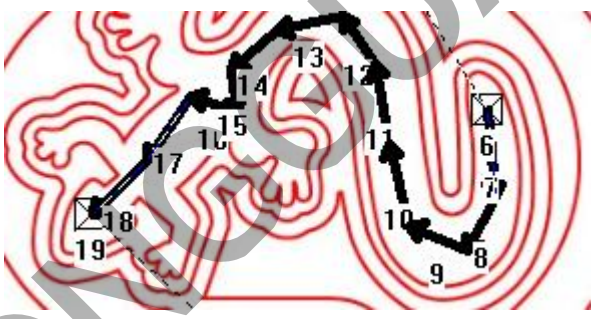
Click and highlight P1#=>click and hide P#1 .



[7] select the process area belong to P#2. For example P#2 processes



. select those areas , and click

, those areas will change to green.

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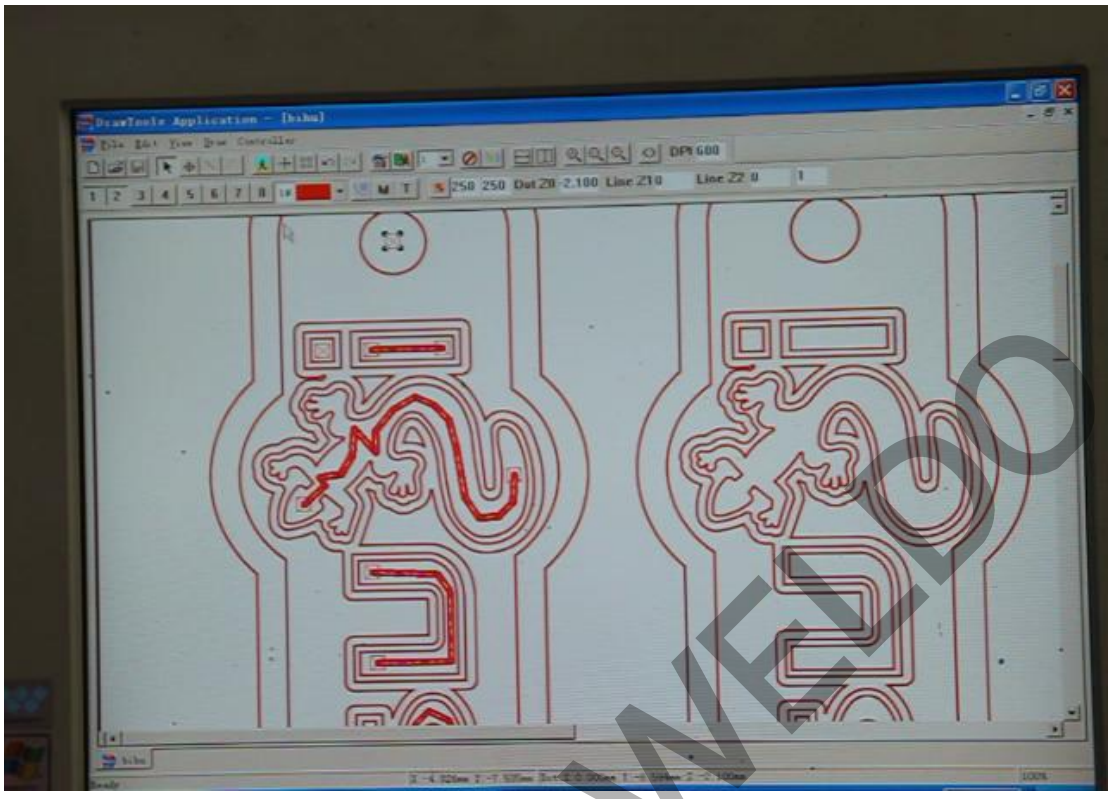

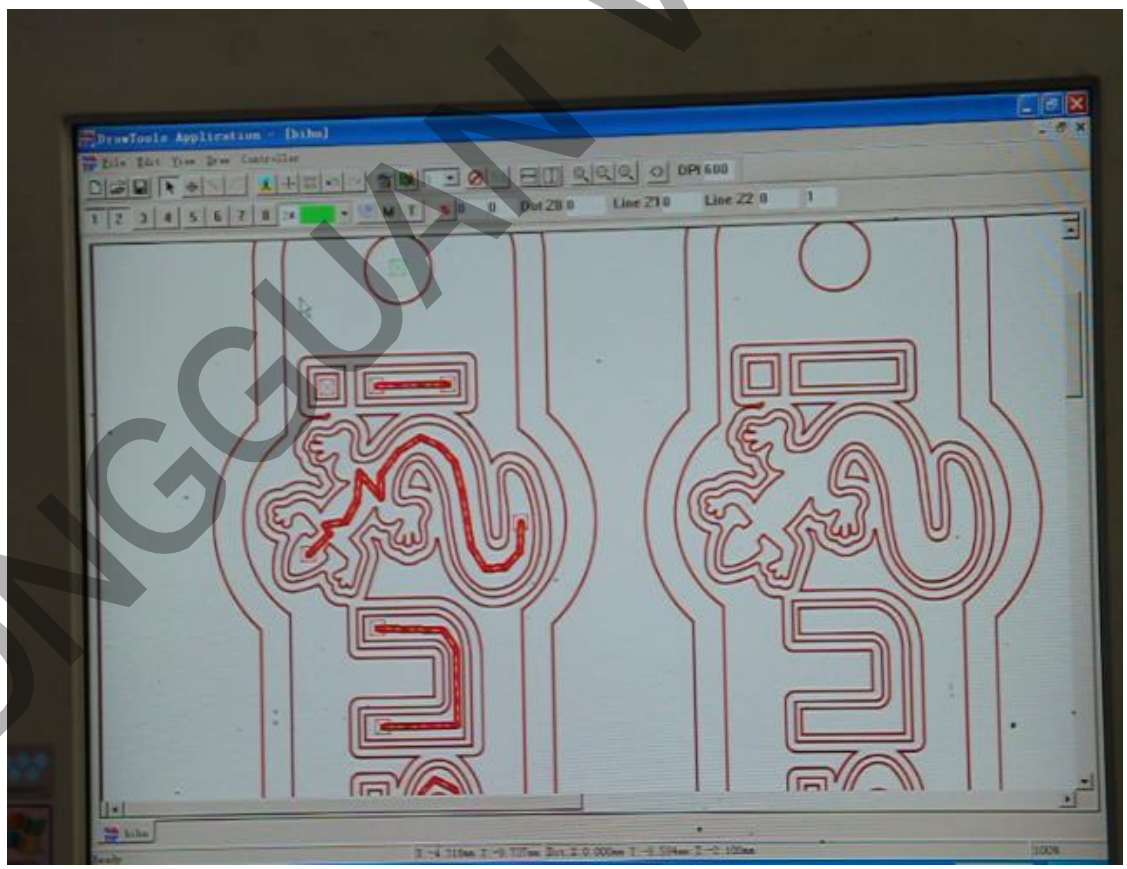

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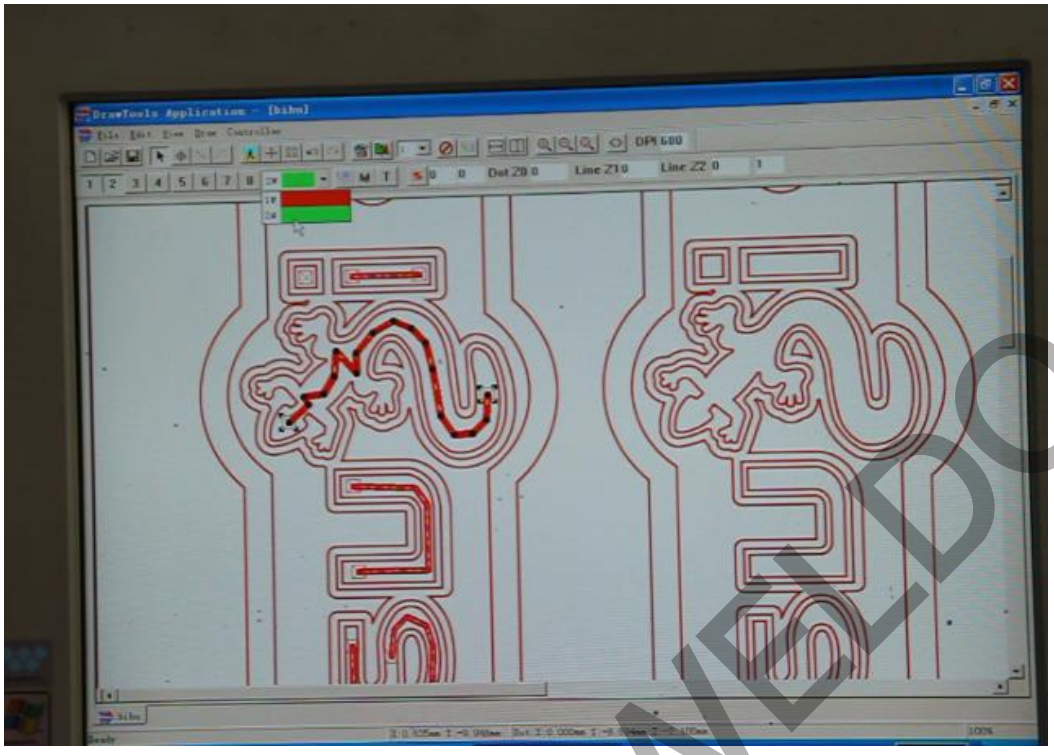

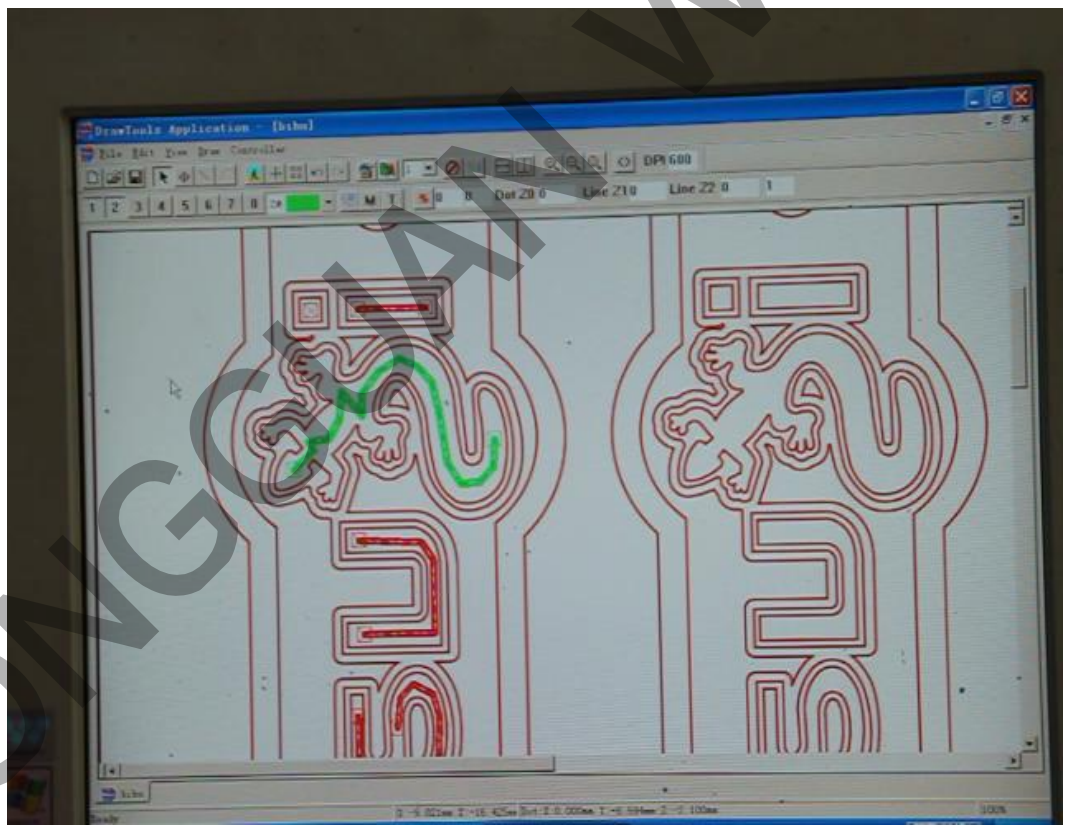

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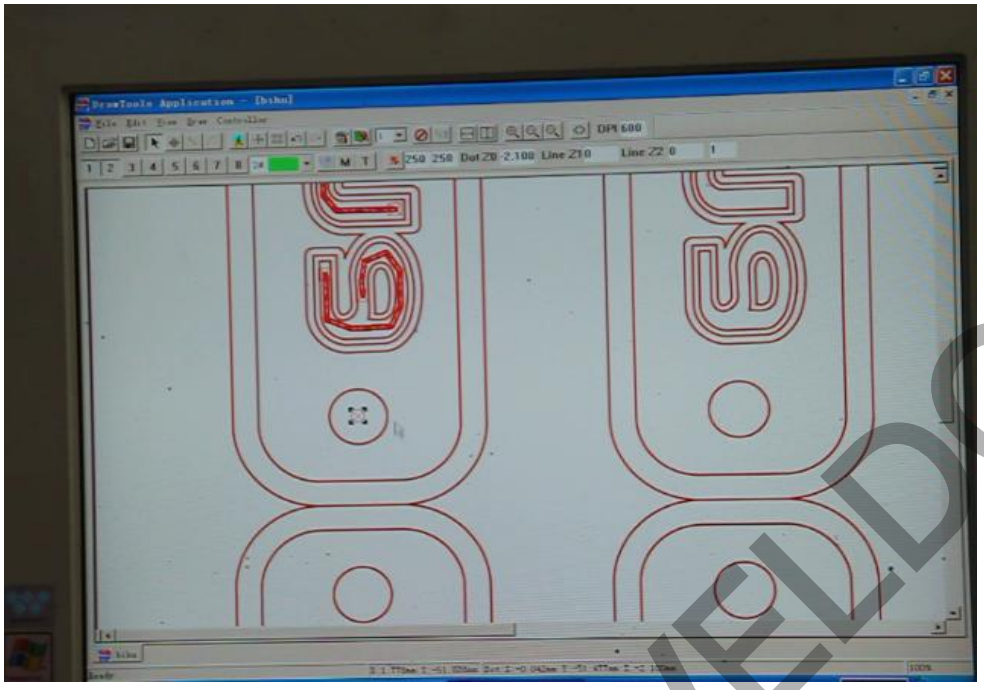
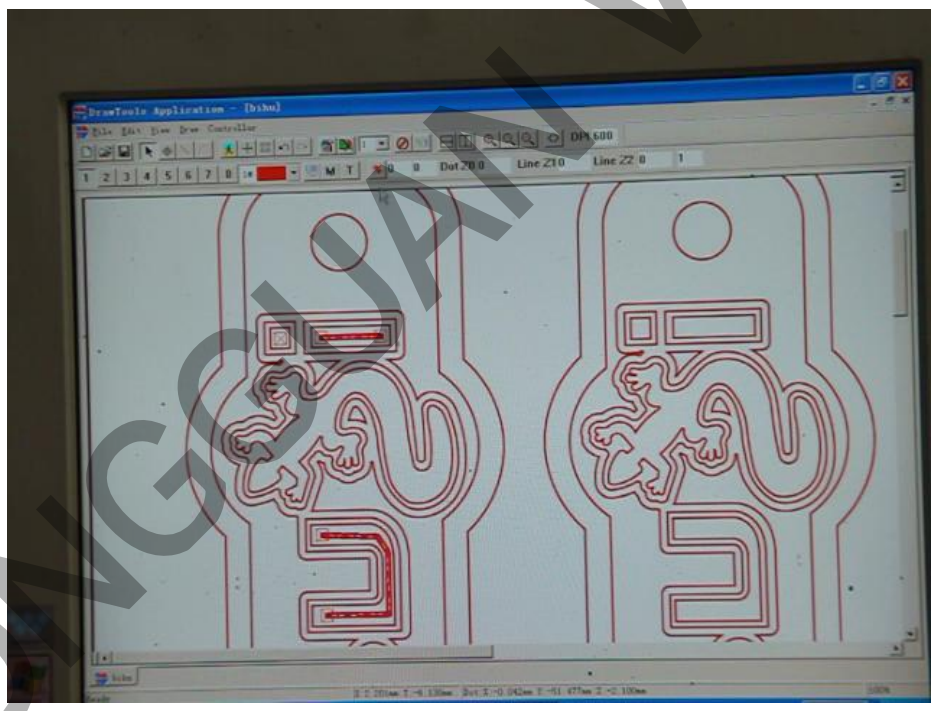


[8] click ,hide the green area



[9] click to show the P#1 process number

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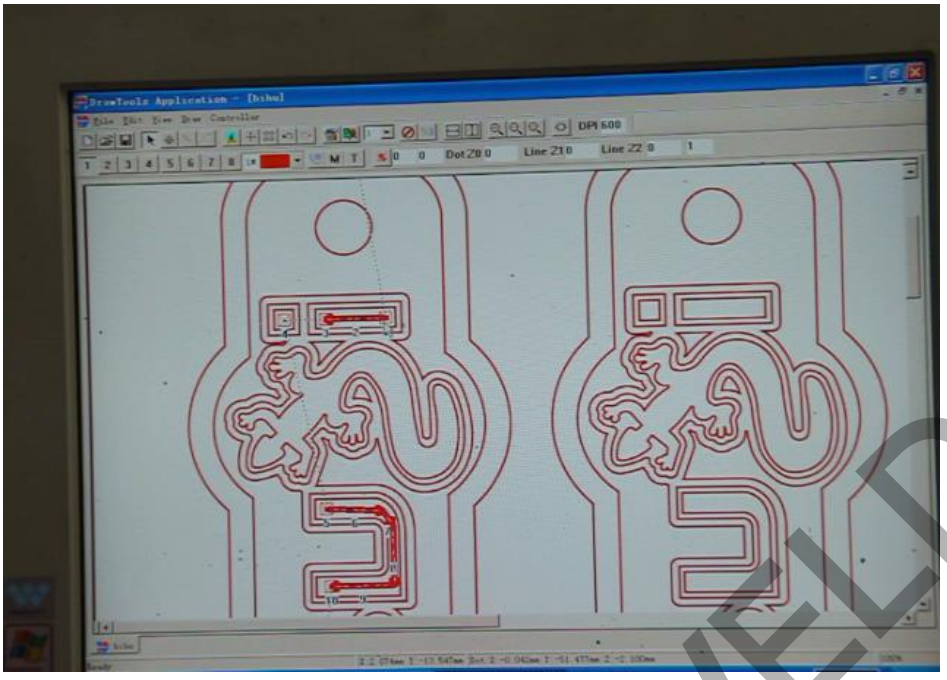
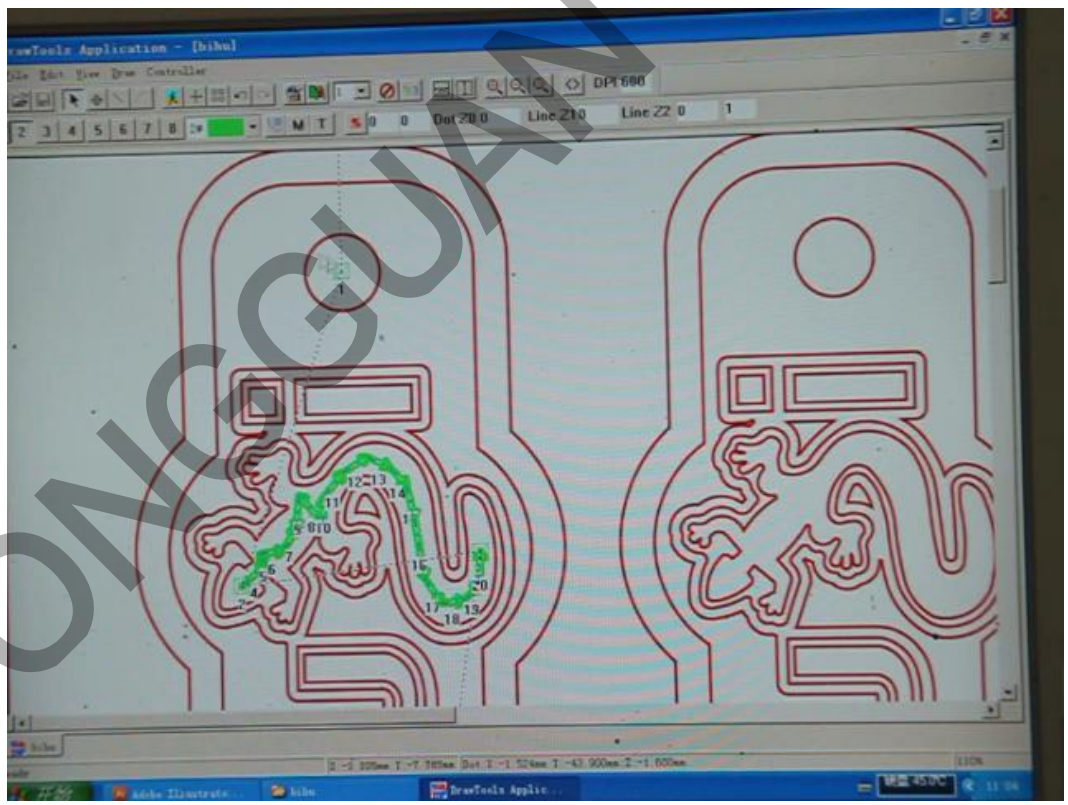


[10] click => click ,hide process area belong to P#1 =>click to show the process area and process number belong to P#2



[11] click and download the P#2 process area to the machine

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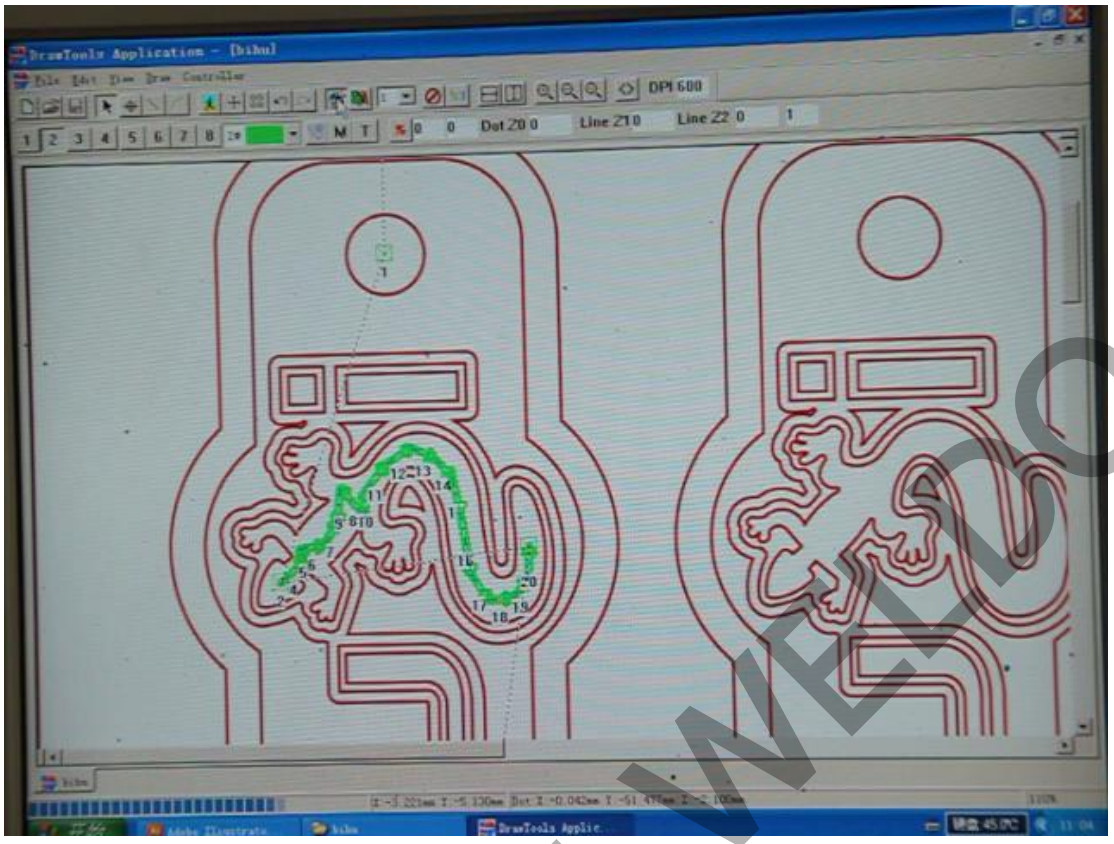

[12] Release the air from the pipe belong to P#2

(1) turn on the “VALVE”

(2) put a cloth below the pin#2 and hold

to carry out the materials from the pipes until there is no air in the pipe.

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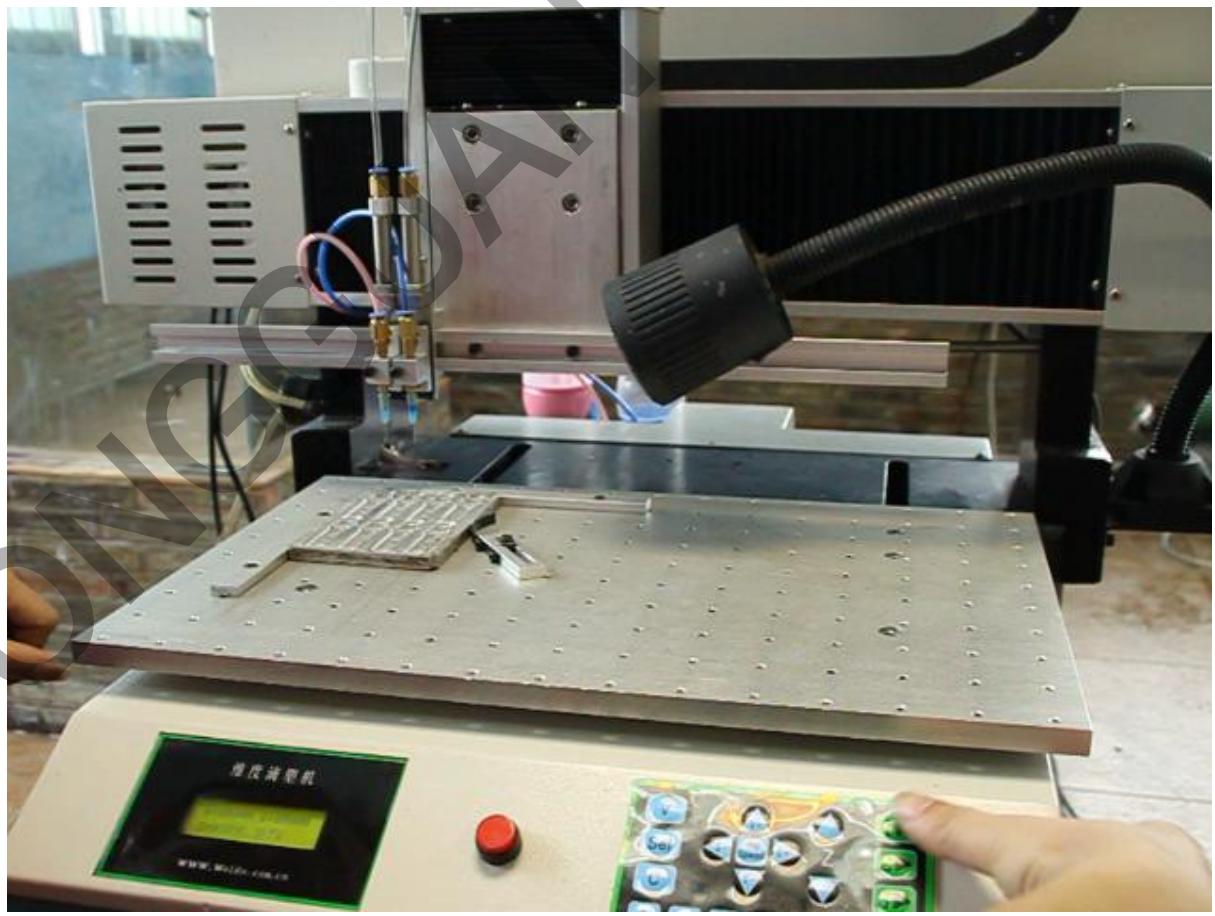
(3) press , machine works and carries out materials in the areas of mold belong to P#2.If the materials can full the molds ,and go to next step [4].



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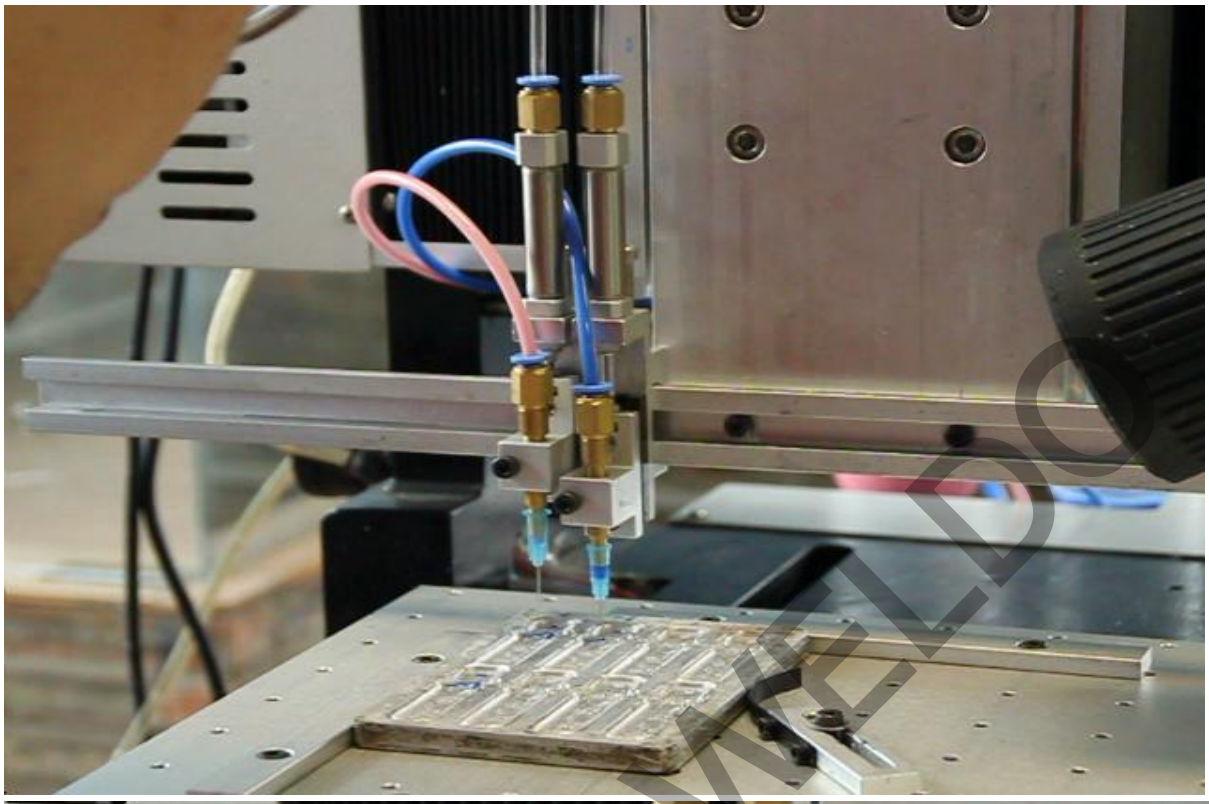

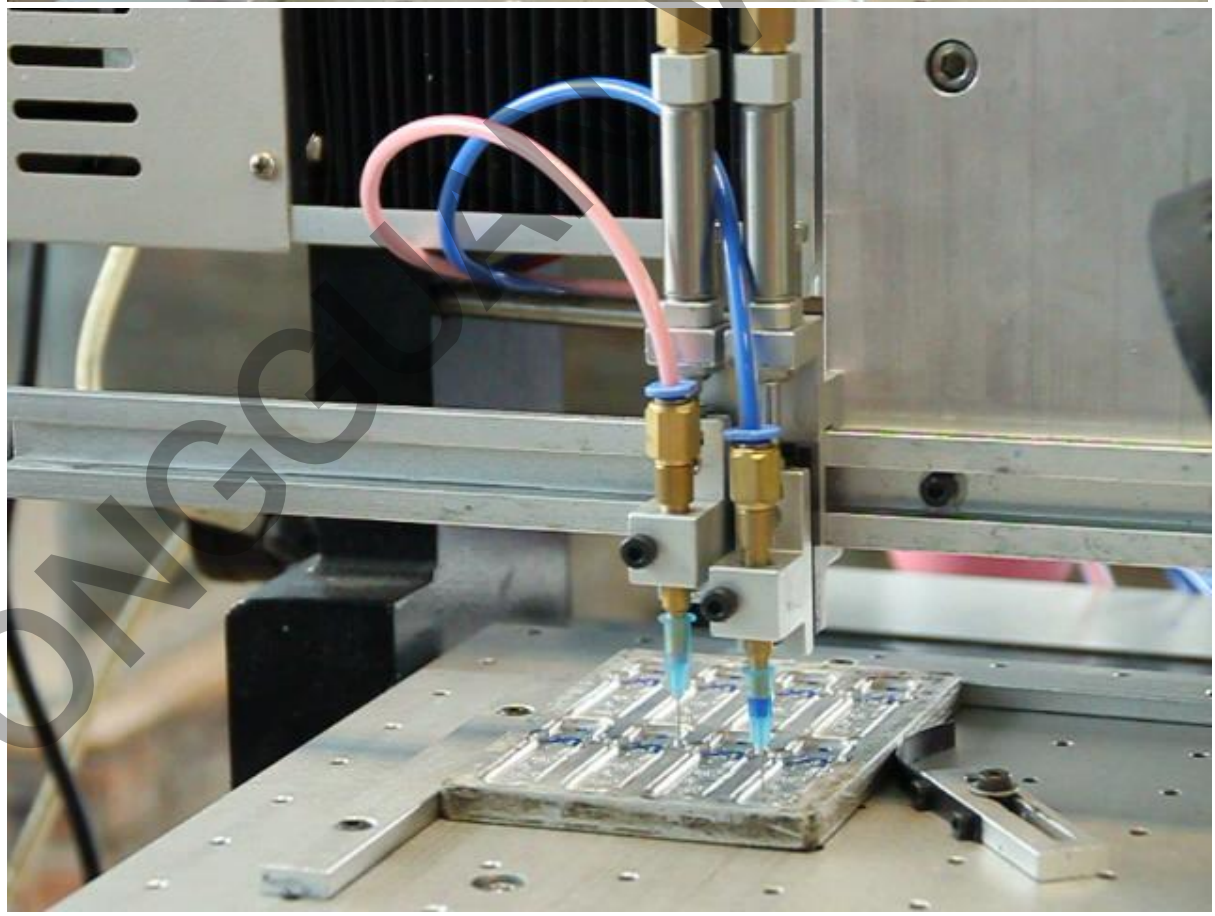

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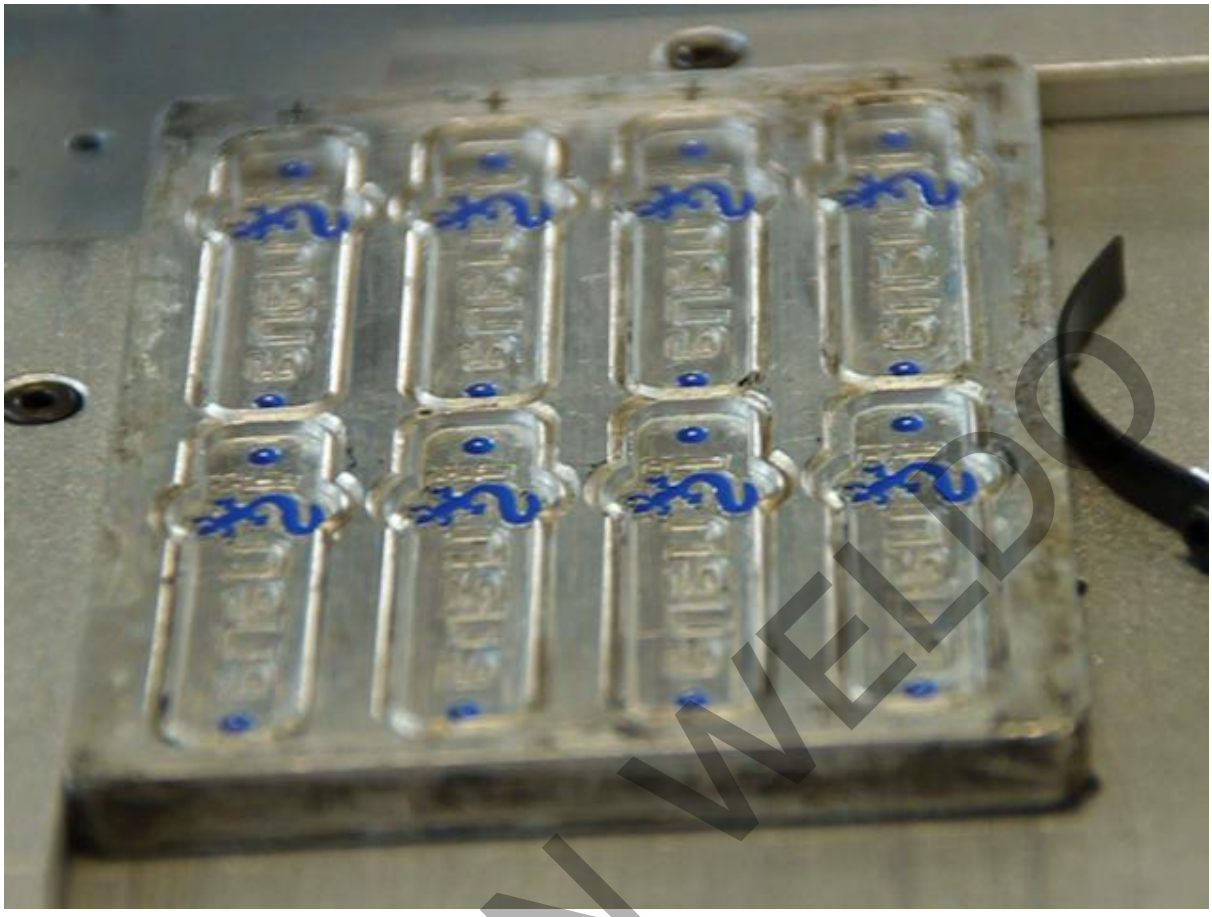
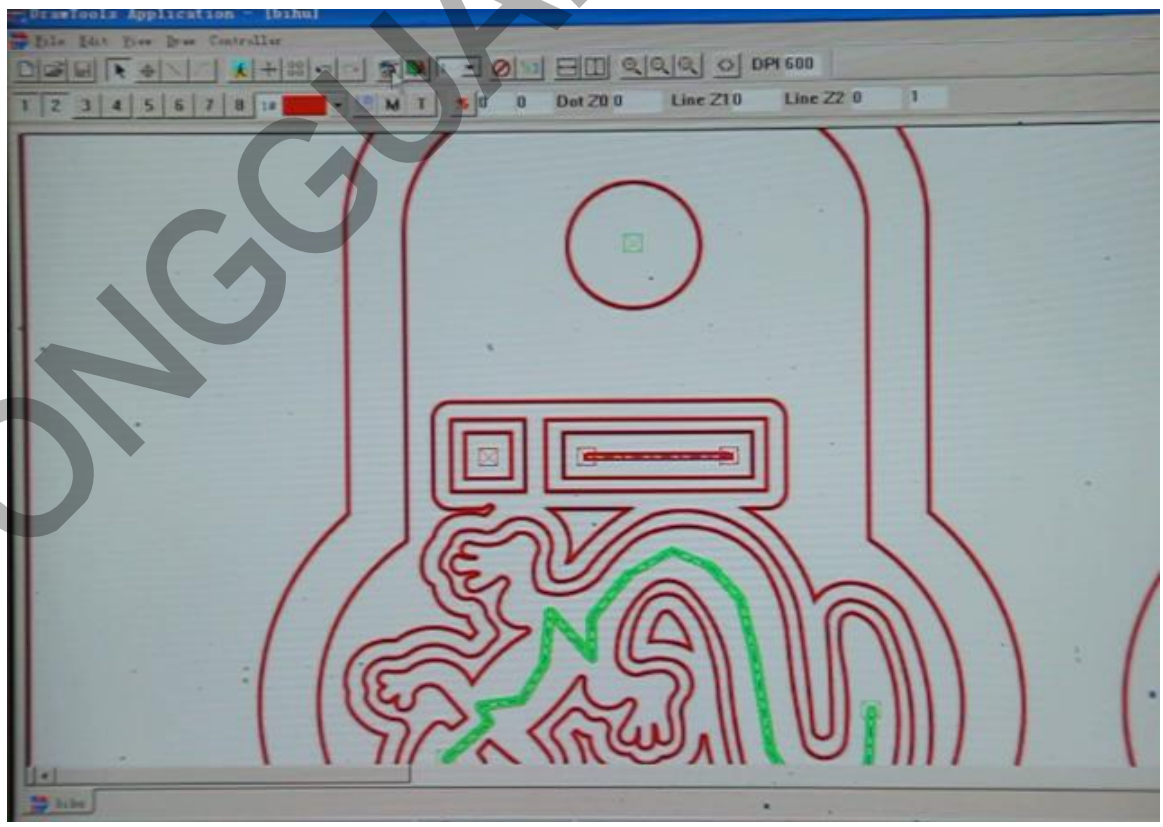


(4) click to show process area belong to P#1 =>click and download the whole process area to the machine



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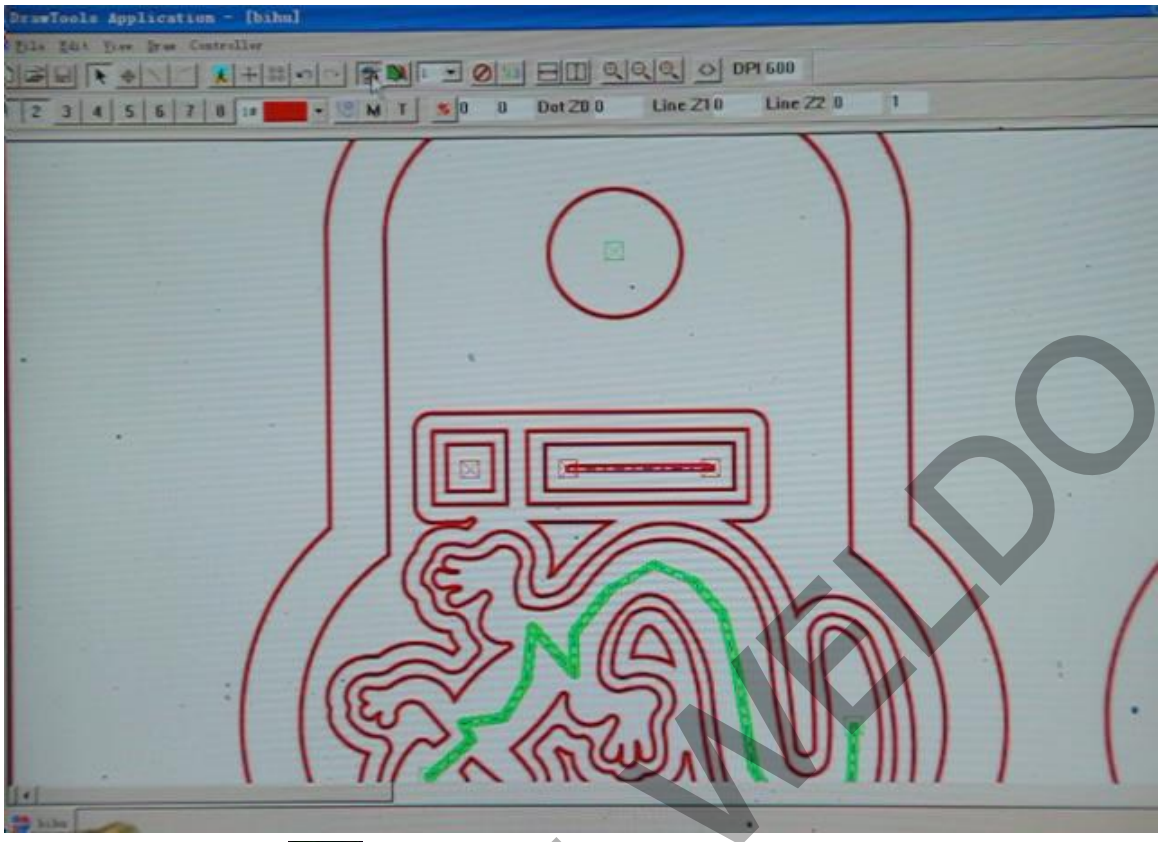
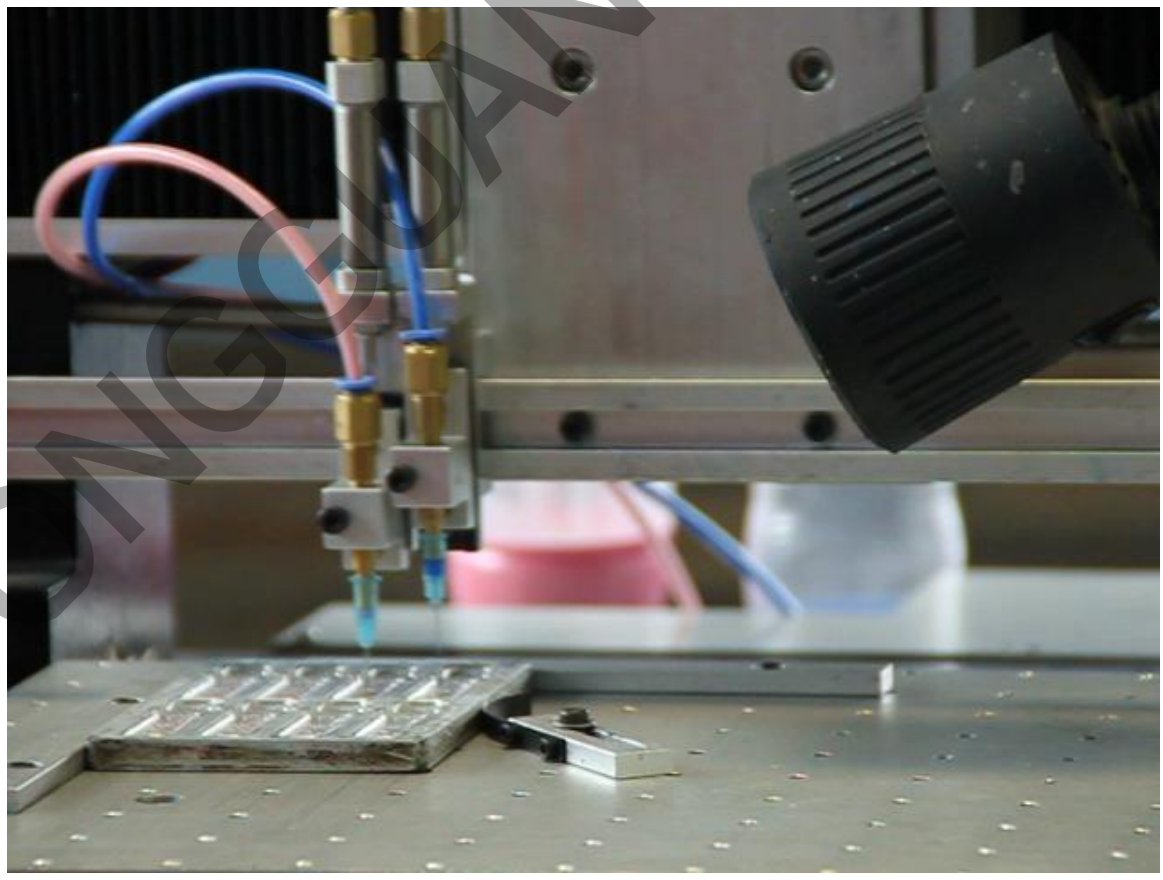


[5] go to the machine , press , the machine will works on the process area of molds belong to P#1 and P#2.



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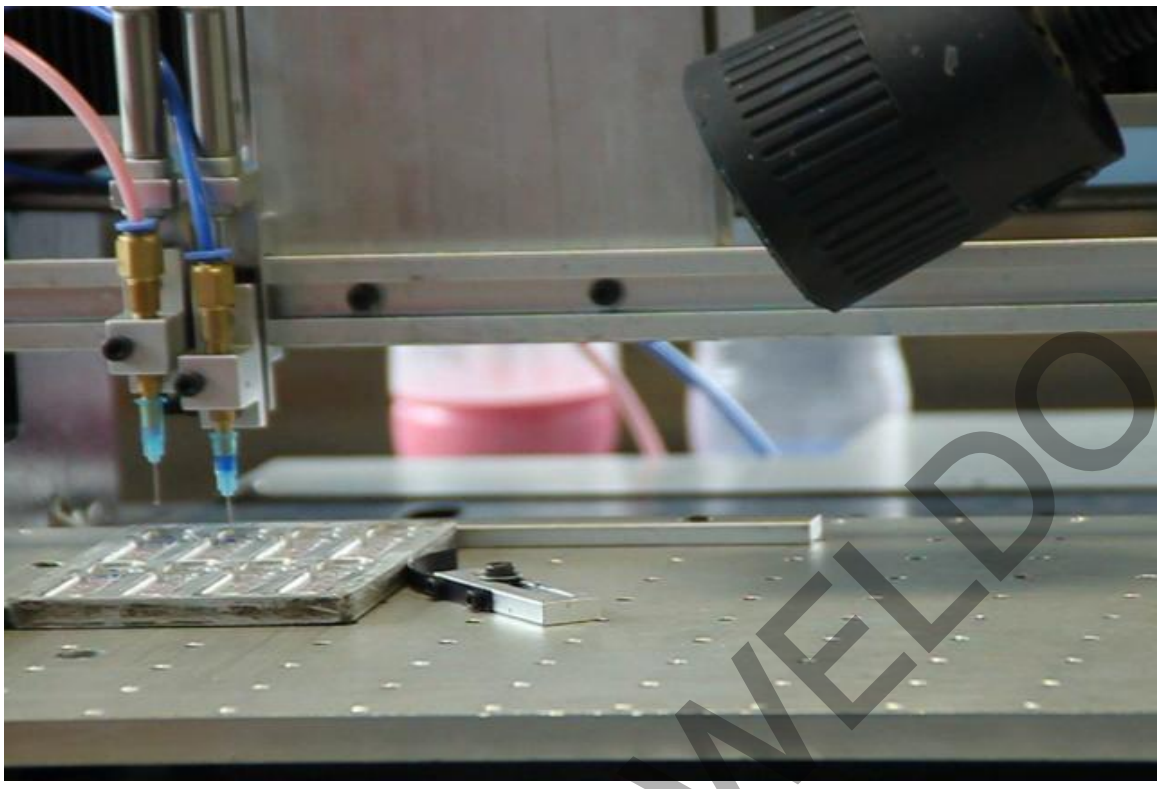

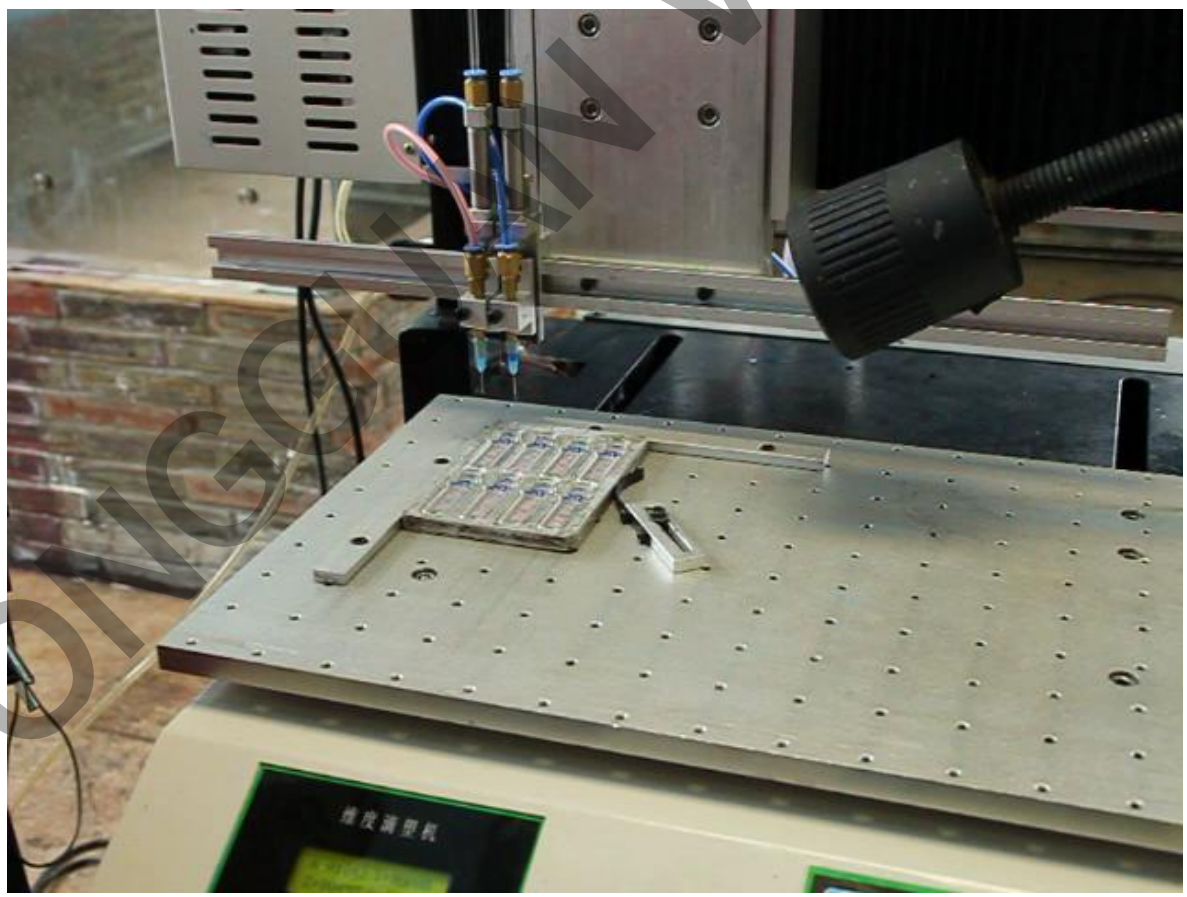

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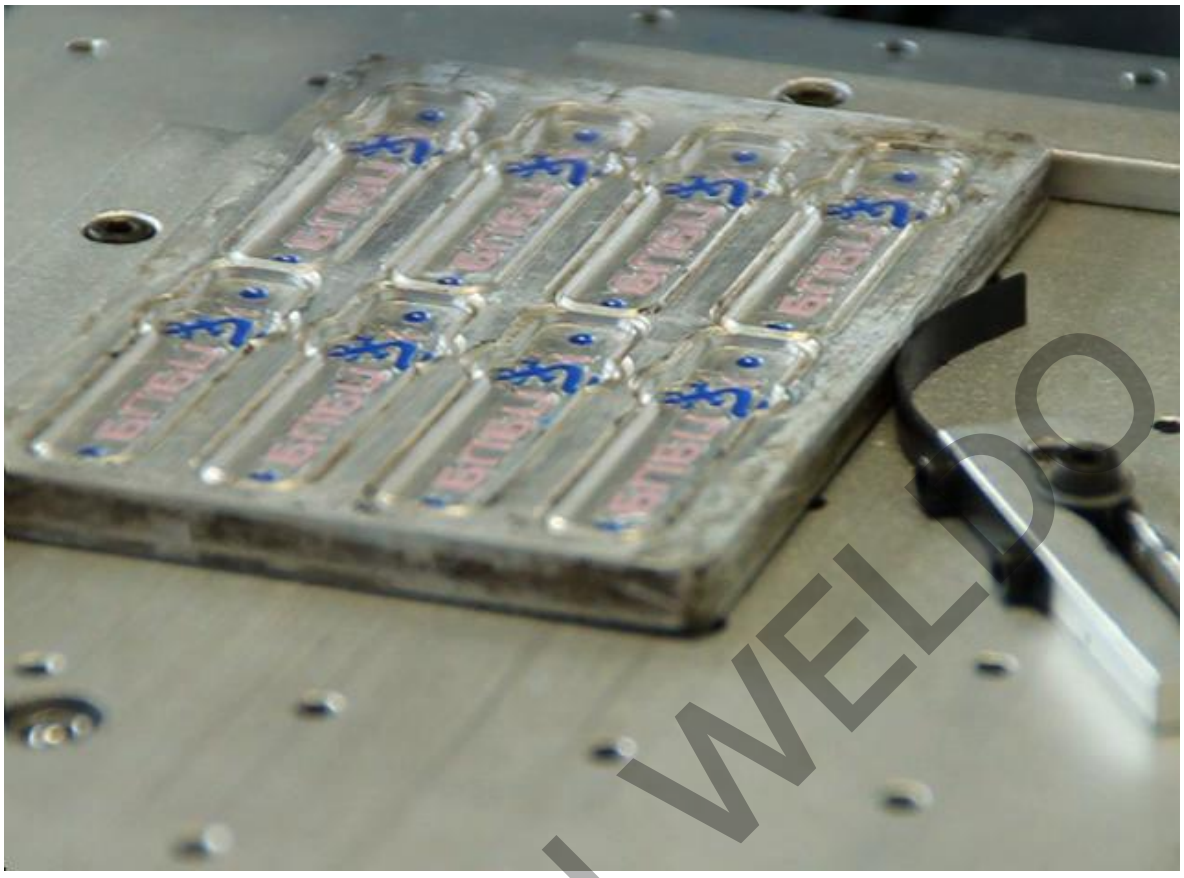

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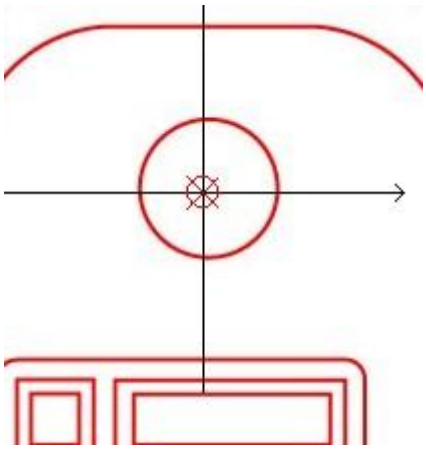
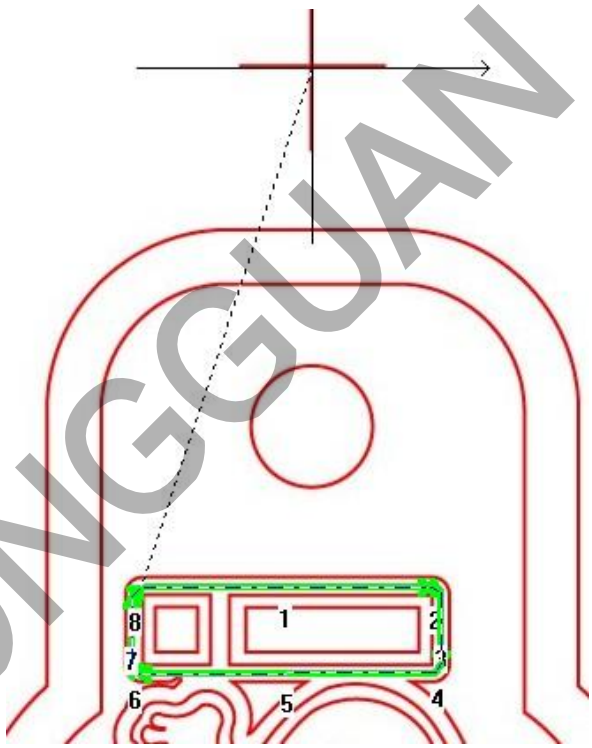
CHAPTER 7、THE COMMON PROBLEMS OF EDITING TEMPLATE PROCESS FILE AND ITS SOLUTIONS

[1] when edit process template file , the process template file origin“十” does not superpose with any dot or line of process template file , example about fault superposition



[2] When edit round or square process path, lines closed are not allowed, correct drawing path should be as following.



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CHAPTER 8 THE TIPS ABOUT HOW TO IMPROVE THE PRODUCTION

[1] **The cavities quantity of a mold .** how to engrave the mold is the key factor to the production. For example , a single color label , if 4 cavities in a row with 2 lines that 8 cavities in a mold ,if 6 cavities in a row with 2 lines that 12 cavities in a mold. If engrave 5-6 pieces molds for 8 cavities and 12 cavities in a mold respectively, a worker operates the machine, working time is 10 hours , the production of 12 cavities mold is 7000-8000pcs ,while the 8 cavities mold is 4000-5000pcs.

[2] Requirements to engrave the mold. Based on the products requirements, generally the size of the mold is around 20cm x10cm.Besides , the back of the mold should be flat and smooth, more molds in same design should be engraved by the same CNC engraving machine to ensure the mold with high precision . Many clients pay attention to the 4 angles (90 degree) of the mold, but ignore the difference thickness between molds. In actual production, the molds thickness can not be well grinded by sand paper. Plus, many mold makers are trying to use the brass molds and ignore the productive of production, they will engrave the 12 cavities to 8 cavities, actually ,this causes the client great loss

[3] Two key procedures to use the dispenser machine. First ,the installation of short rail is the basically procedure, because many operators think the short rail is on the working table that can not change shape ,so they is easy to ignore it . Move the pin of the needle shelve to observe if the rail is upright to the X axis and Y axis or not. Second, check the mold. It is need to check all the molds in same design, if there are big difference between the molds, it is hard to keep the production going on .There is a way to check the molds ,move the pin to measure the height of the left cross of the molds, and record all the small differences between molds. Because the difference thickness between molds will affect the software to set the height of the molds.

[4] The installation of pins. Many operators think it is the most easy thing to install the pins, figure out the numbers of parallel pin and install the pin aim at the cross centre of mold receptivity .But there is some needed to be attention, first, installation of each pin should ensure the pin tightly on the needle shelve, and the pin can not be dropped when compress cylinder. Second, each pin should be installed by pincers to ensure the pin tightly on the needle shelves. Third, move the steel part of the pin is not allowed during install , but can shake the plastic part of the pin right and left, because if shake the steel part of the pin that will cause the pin twisted , it will be hard to aim the pin at the molds accurately in following steps.

[5] It is the key factor to aim pin at the molds and set the height of the pin to make the products. Many customers operate the machines many years, but they can not set the material quantity ideal, the problem is that aim the pin at the molds and set the height of the pin in a wrong way, as we know, material quantity to each line and each dot can be

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set again and again, if the quantity is too much that can be reduced, if too less can be increased. There is no difference to the software and the operator , the key difference is how to well aim the pin at the molds and set the height of the pin.

[6] Regarding aim the pin at the molds. After finish the installation of the pin, please mark a cross "十" on the X axis short rail , "P origin" should be aimed at the cross of the X axis short rail always, and move each pin to close the X axis short rail, in this way, to check the difference of the height of each pin, if some pin is higher than the X axis short rail , relax the short screw of the needle shelve ,lower down the pin and lightly press the pin to close X axis short rail, but please do not spin the pin , if spin the pin that will lead to the left and right differences of the pin .After finish above procedures, and move each pin by left and right aiming at the cross("十") of the molds ,in this step, it need not to consider the height of the pin, the procedures of aiming the pin at the cross is completed.

[7] Regarding the height of the pin in the software. First , remember the height of the F origin, and compress down each pin and touch the injection area of mold bottom, and ascend the pin 0.05mm-0.10mm slowly always, but some lines are very small, in this situation, it needs to regulate the height of the pin ,because if the height of the pin is too low that the pin will touch the mold ,when the machine dispenses the lines that the pin touched the molds is not allowed , and the pin will be easy twisted. For the machine dispenses the dot that need not to consider the height of the pin , because the machine can carry out the materials and dispense on the dot.

[8] The operator should be carefully. How to use the machine is not difficult, first step is to learn operation of the machine, and then carefully operate the machine. Carefully is not hard and tired, more carefully, less operation time, and the less problem come out during the production. Some customer is lack of patient and carefully, so they find it is difficult to operate the machine , while some of customers can well master the machine during few hour studying. Therefore, the operator should be patient and carefully.

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CHARPTER 9 THE CUT WAY TO AIM THE PIN AT THE MOLDS

[1] Well installation X and Y axis short rail, and move a pin check if the X and Y axis upright to X axis direction and Y axis direction or not.

[2] Use a pin and check the mold, according to the quality requirement of the products to check if the molds meet the products requirements or not.

[3] Find the smallest stroke to select the pin，all the pins aim at the cross of the molds, and shake the pin to check the pin attached the needle shelve tightly or not

[4] Operate the panel and chose pin(P1P2P3P4P5P6P7P8.。。P12) (based on the colors to choose the "P" quantity). Move the first pin belong to each color aim at cross of the mold, and press "

". Checking other pin's height are the same height with the first pin or not , if not ,regulate other pins the same height as the first pin.

[5] Move each pin aim at the cross of mold, and shake the pin right and left lightly, but it is not allowed to shake the first pin for each color.

[6] All procedures should be step by step , shake the first pin belong to each color are not allowed. When set the open valve time /close valve time to the dot and speed to the line , the air regulator should be regulated to 4 KGS. If change the air pressure, please change the size of the pin.

[7] Operate panel and press F1, press C to compress down the current pin. The compressed down of the first pin aim at the first cross at left, and press work zero.

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