

# VECTECH EA-F16F

Automatic tin removal machine

Auto Solder Removal System

Make

use

hand

book



Thank you for purchasing our detinning machine. This product is specially designed for the detinning of surface components. Please read this carefully before use.

After reading the manual, please keep it in a safe place for future reference.

**table of Contents**

Chapter 1 Overview..... 1

Chapter 2 Product Overview..... 2

    2.1 Packing parts..... 2

    2.2 safety instructions..... 3

    2.3 Specifications and technical parameters..... 3

Chapter 3 Installation and Connection..... 4

    3.1 Equipment placement..... 4

    3.2 Connecting equipment..... 4

Chapter 4 Component Function Description..... 5

    4.1 Heating system..... 5

    4.2 Tin dross box..... 5

    4.3 Introduction to button functions..... 6

    4.4 Detinction nozzle..... 7

Chapter 5 Software Overview..... 8

    5.1 File processing interface..... 8

    5.2 File editing interface..... 10

    5.3 Advanced setting interface..... 14

Chapter 6 Basic Programming..... 14

    6.1 Point programming..... 14

    6.2 Advanced programming and process parameter setting... .. 18

Chapter 7 Equipment Troubleshooting and Maintenance... .. twenty three

    7.1 Precautions for power on and off..... twenty three

    7.2 Daily maintenance..... twenty three

    7.3 About faults and troubleshooting..... twenty four

    7.4 Equipment maintenance..... 25

## Chapter 1 Overview

Thank you for purchasing VECTECH EA-F16F In addition to tin machine. In recent years, with the intensive BGA Application design and pursuit higher BGA Rework yield, traditional manual tin removal can no longer meet the needs of the process; VECTECH EA-F16F

Effective solution to the launch of automatic tin removal machine BGA In the process of removing tin, the requirements for personnel, reduce the suction line and tin wire

Use amount to reduce occupational hazards caused by manual tin removal; its specially designed non-contact suction nozzle and strong blowing force,

Become an innovative product that can clean the pads, avoid oxidation, do not damage the pads, tin slag collection and safe operation.

VECTECH-EA-F16F The de-tin machine adopts the heating mode of hot air convection in the top and bottom central areas, which can complete the analogy

SMT Reflow soldering makes PCB Pad or BGA The tin on the surface of the wafer is melted and combined with a strong vacuum blowing force, the melted

Blow out the residual tin from the chemistry. The whole process of blowing tin is a non-contact working mode, which avoids to the greatest extent PCB Or crystal

The surface of the film is not damaged and oxidation is avoided.

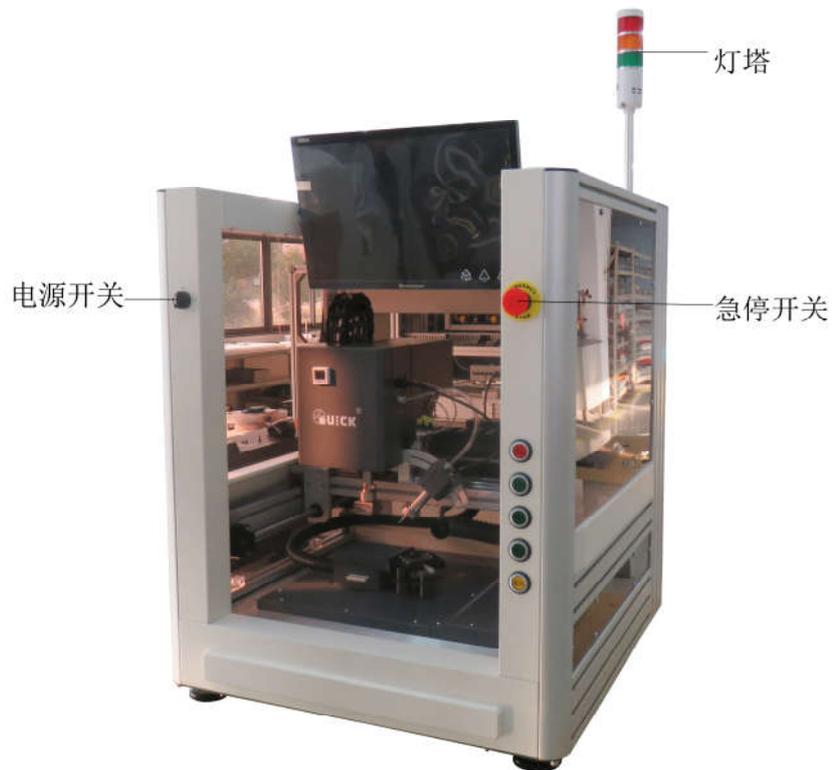
VECTECH-EA-F16F Sports part adopts VECTECH Three-axis precision movement of the robot platform structure, when removing tin

The path can be compiled according to the specific situation.

VECTECH-EA-F16F The loop heating temperature control system is adopted to monitor the heating temperature in real time, which is safe and efficient. and

And there are various types of cutter heads and rubber heads to choose from.

## Chapter 2 Product Overview



### 2.1 Packing parts

Please check whether the following parts are complete and intact:

name	Quantity
VECTECH EA-F16F Host	1PCS
VECTECH EA-F16F manual	1PCS
PC Host+LCD Display (optional)	1PCS
Product factory certificate	1PCS
Warranty Card	1PCS

# VECTECH EA-F16F

Toolbox	1PCS
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**note:**

The packing parts are subject to the packing list. If the optional parts are not ordered, there will be no such items in the package. If you find any parts are damaged, please contact me immediately

Contact the company or distributor.

Different specifications of nozzles can be customized according to customer requirements.

## 2.2 safety instructions



For the safety of the system and operators, please refer to this operating manual that includes safety before using the machine.

Please note that this product is only suitable for tin removal of electronic components.



**note:**

The infrared heaters on the top and bottom of the system will generate high temperature during the working period of the system. It is strictly forbidden to flammable and explosive objects or gas in the working area.

Do not touch the hot part of the shell.



**note:**

When the system breaks down and needs to be repaired, only experienced and authorized experts can repair the equipment, or contact the agent or the manufacturer.

Home contact.

Dangerous voltage inside the device! Inexperienced operation is dangerous to life!

## 2.3 Specifications and technical parameters

Total power:	4800W (Max)
Power Specifications:	AC220V/50HZ
Air pressure range:	0.5~0.7MPa
Bottom heater power:	2400W
Top heater power:	1200W
Side heater power:	1200W
Top temperature:	400°C

# VECTECH EA-F16F

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The highest temperature at the bottom:	400°C
Chip size:	10x10mm-40x40mm
Equipment size:	L750mmXW750mmXH925 mm ((Excluding lighthouse height)
equipment weight:	135Kg

## Chapter 3 Installation and Connection

### 3.1 Equipment placement

Unpack the equipment and put VECTECH EA-F16F The automatic tin removal machine is taken out and placed on a sturdy level workbench. Calibration machine

The level of the device.

Determine whether the functions of the equipment and components are intact.

### 3.2 Connect the device

- \* Please check whether the power supply voltage used is consistent with the rated voltage value on the equipment specification plate
- \* Before turning on the device, make sure that the component switch of the device is turned off.
- \* Connect the power cord of the device to a power outlet.
- \* Connect the video cable of the monitor or monitor to the video socket.
- \* will 232 Connect one end of the serial port cable to the computer 232 Serial port, the other end is connected to the back of the device 232 On the serial port. (If not on the computer 232 Serial port, available 232 turn USB line. )
- \* Connect the air source to see if the air pressure indicated by the air pressure gauge on the oil-water separator on the side of the machine is within the specified air pressure range.

After all the connections are completed, insert the power plug into the power socket and turn on the power switch to turn on the power.



1.Compressed air input port, used to connect external compressed air.

2.Power socket: connect to the outside 220V AC power supply.

3. Camera connection interface: Connect the video cable.

4. DB9 Port: Executive standard RS232 Communication protocol, can connect to computers and other equipment.

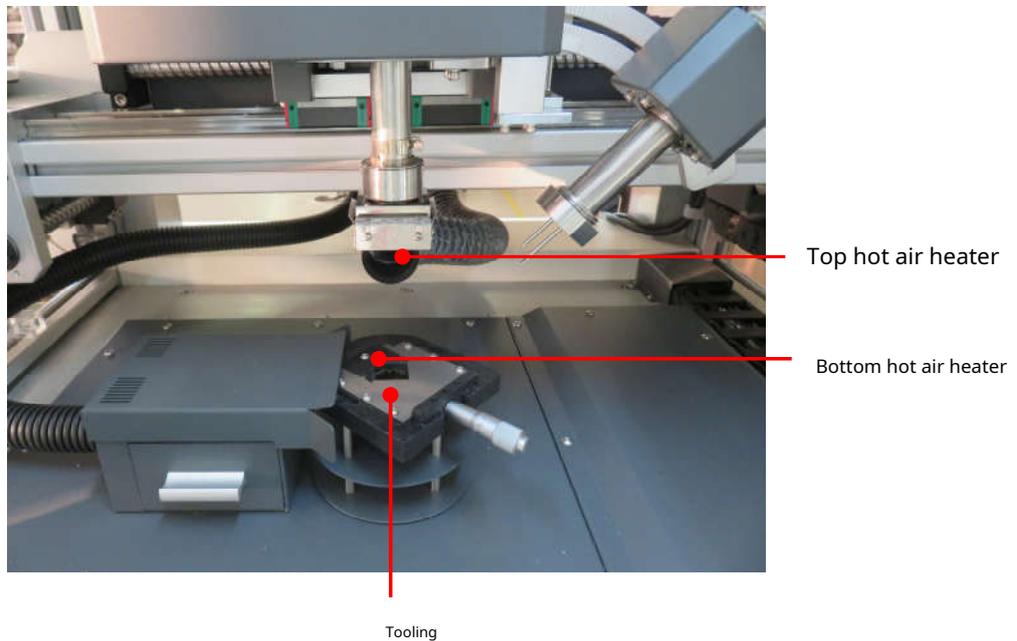
## Chapter 4 Component Function Description

### 4.1 Heating system

1.The main heater includes the top hot air heater and the bottom hot air heater.

2.Top hot air heater, side air knife and top hot air heater each provide the largest 1200W The hot air heating power, the hot air volume and temperature can be

Adjust to make the main heating zone heat up quickly and the heat is evenly distributed.

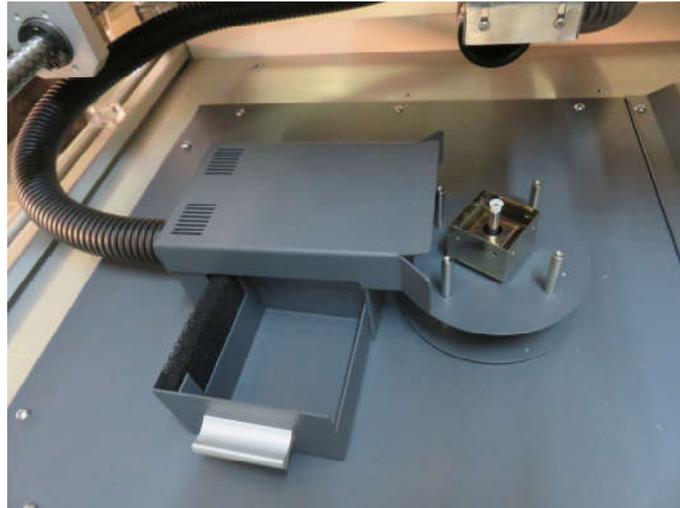


### 4.2 Tin dross box

The vacuum pressure gauge displays the vacuum suction force of the nozzle and can set the lower limit of the vacuum. If the vacuum value is below the lower limit, the machine will alarm. positive

The maximum pressure under normal circumstances is 0.07-0.075MPa between.

The tin dross box needs to be cleaned regularly, just pull out the handle of the small drawer when cleaning.



### 4.3 Introduction to button functions

Stop button: Press the stop button on the panel to automatically stop the process execution.

Start button: After selecting the corresponding tin removal program, press the start button to automatically start the execution process.

Reset button: After pressing the reset button,X,Y,Z The axis automatically returns to the origin.

Emergency stop switch: When an emergency accident occurs, press the emergency stop to start the station,X,Y,Z The movement and the upper and lower hot air and vacuum stop working:

Turn clockwise to release the emergency stop,X,Y,Z Three-axis reset.

Power switch: turn clockwise to turn on the power; turn counterclockwise to cut off the power.

**Note: The stop button is used in conjunction with the reset button. After pressing the stop button, if you continue to press the start button, the machine will not work.**

**To do this, you must press the reset button,X,Y,Z After returning to the origin, press the start button, and the machine will start working from the beginning.**



#### 4.4 In addition to tin nozzle

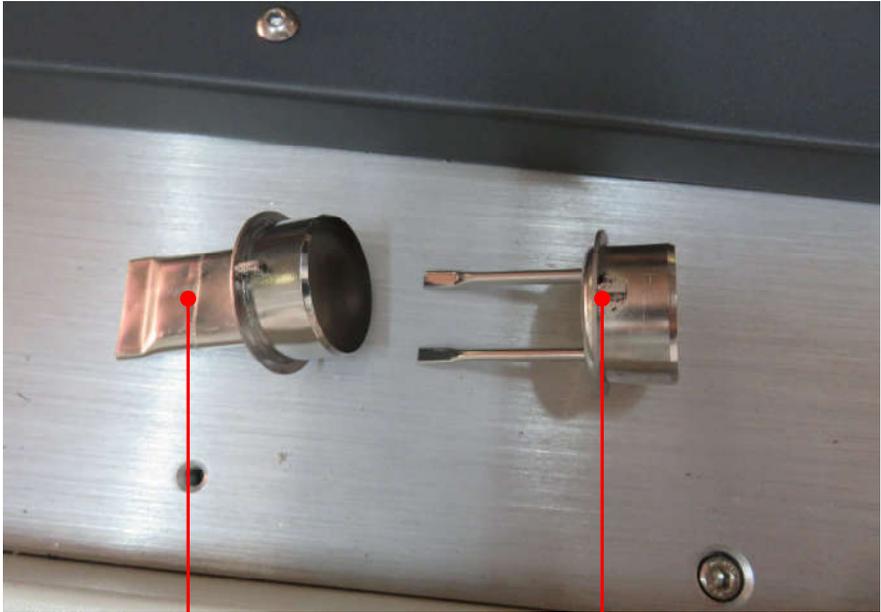
In order to prevent the tin removal nozzle from clogging, the tin removal nozzle should also be cleaned regularly. The cleaning cycle needs to be determined according to the customer's product. Cleaning method

It is cleaned with a through needle of corresponding thickness. (Note: Since the cleaning of the tin removal nozzle needs to be completed under heating, the operator needs

Pay attention to safety to prevent burns. In addition, since the tin removal nozzle is easily deformed at high temperatures, it is necessary to pay attention to the removal of the tin in the process of cleaning the nozzle.

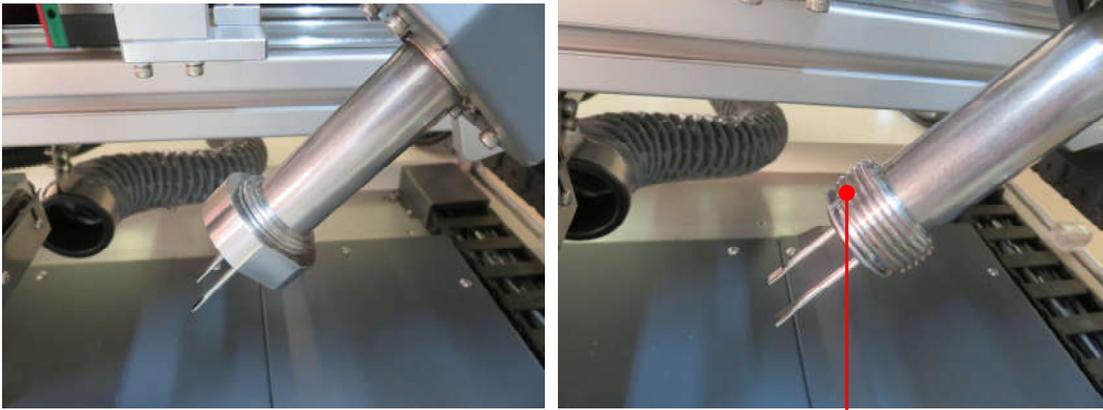
The tin nozzle is deformed. )

The nozzles can be customized with different calibers and different shapes to remove tin nozzles according to the needs of customers.



Air knife assembly

Wind knife buckle



Card slot

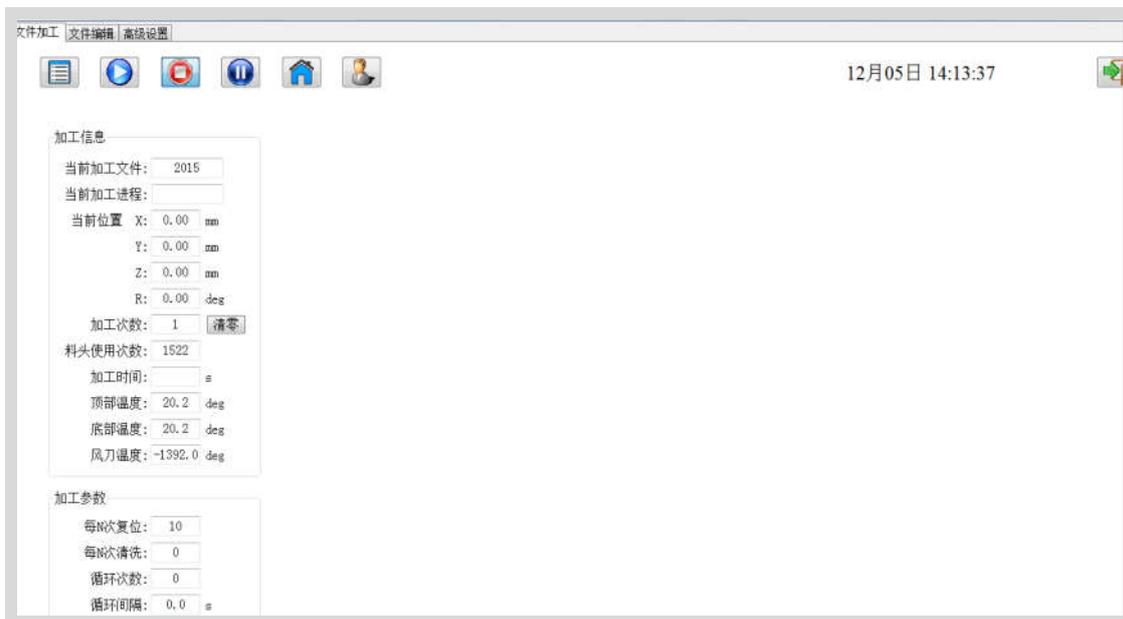
When disassembling the air nozzle, first loosen the fixed knob on the side air knife, and then pull out the air knife.

When installing, the buckle on the air knife needs to be aligned with the groove and inserted, and then the fixed knob is screwed in.

## Chapter 5 Software Overview

### 5.1 File processing interface

1. Double-click the desktop as shown in the figure  , Enter the software File processing operation interface, as shown in the figure.



2. This interface includes three modules of tool function list, processing information, and processing parameters, as shown in the figure.



### 3. Option menu function introduction

Icon	name	Features
	select Processing file	Select processing file
	run	start working
	Stop	stop working
	time out	Work suspended
	Reset	Return to zero
	Manual operation	manual adjustment XYZ Axis movement speed and direction

4.Introduction to the main functions of processing information

加工信息

当前加工文件:  ← Program execution file

当前加工进程:

当前位置 X:  mm

Y:  mm

Z:  mm

R:  deg

加工次数:

料头使用次数:

加工时间:  s ← Machine detinning process Usage time in

顶部温度:  deg

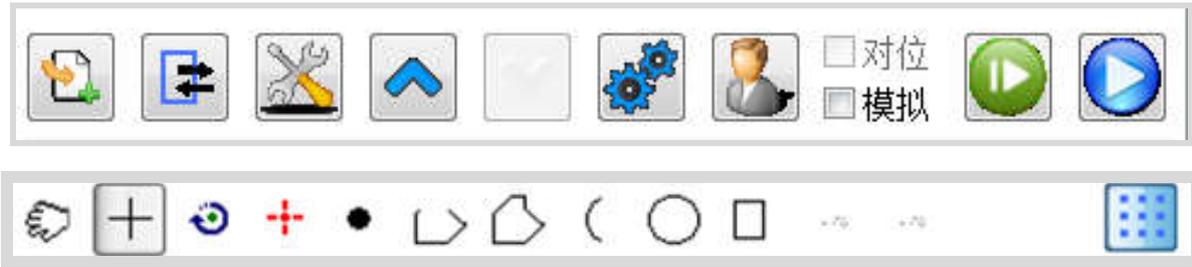
底部温度:  deg

风刀温度:  deg

The three are synergistic, and the bottom  
The hot air from the top and the top of the chip  
Line heating, air knife is used to remove  
tin.

5.Introduction to the main parameters of processing





	种类	X	Y	Z	速度	上抬	延时	温度	风速	标记
1	输出点									
2	底部温度									
▶ 3	孤立点	44.99	5.03	0.00						

顶部温度: 446.7 deg 底部温度: 20.4 deg 风刀温度: deg

焊点参数

图形速度: 0.0 mm/s 等待 0 s

顶部温度: 0.0 deg 风速 0 %

料头状态:

1 2 3 4 5 6 7 8

● ○ ○ ○ ○ ○ ○ ○

位置

X 44.99 mm  静态

Y 5.03 mm  静态

Z 0.00 mm  静态

R 0.00 deg  静态

出料参数 默认参数1 编辑

侧点参数 不使用 编辑 上抬高度 0.00

3.File editing interface

Features

Icon	name	Features
	create a new file	Create a new file
	open a file	Open an existing file

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Icon	name	Features
	save	Save the edited file
	upload	Upload the saved file to the processing file (not commonly used)
	download	Download the saved file and prepare for processing
	Pcb Graph import	Import the screenshot format for programming (not applicable to this machine)
	Dxf Format import	will dxf Format import for programming (not applicable to this machine)
	Cut	File cut
	copy	File copy
	Non-graphic points	Non-graphic points are mainly used: output point, bottom temperature, air knife temperature

Icon	name	Function and use
	Non-graphic point insertion	First select the non-graphic points that need to be inserted, and then click
	Input and output test	Used for maintenance and program testing, main output 2.3.4
	File parameter point	Mainly used for the setting and adjustment of system parameters.
	Move up	Select the block to be moved, and then click , Make upward adjustments
	Move down	Select the block to be moved, and then click , Make downward adjustments
	Device parameters	System factory parameter setting (initial passwordQK123456) , Generally not recommended for customers to repair by themselves change
	Manual operation	manual adjustmentXYZ Axis movement speed and direction

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Icon	name	Function and use
	Single step	Step through the block
	run	Run the program

Drawing menu bar		
Icon	name	Function and use
	drag	Select drag, and then drag the target point.
	Selected	Click this command, and then select the target point to select, (uncommonly used)
	Spin	Click this command, and then select the target line or graph to rotate, (uncommonly used)
	Processing starting point	Mainly used for position adjustment. After the processing starting point is adjusted, the original programming point is kept in relative position. Move along with the situation. (This paragraph may not be used)
	point	Mainly used for single point programming, can be set according to programming needs xyz Single point location.
	Polyline	You can draw a straight line or a diagonal line, and set the start of a straight line or a diagonal line by manual operation in the formula bar Point to achieve precise positioning of the air knife or top heating.
	Closed multi-segment line	Can be used to draw irregular closed graphics
	Arc	Draw an arc through the starting point, midpoint, and end point. You can click the start point, midpoint, end point in the program bar, And through manual operation to achieve precise positioning
	round	Draw an arc through the starting point, midpoint, and end point. You can click the start point, midpoint, end point in the program bar, And through manual operation to achieve precise positioning

# VECTECH EA-F16F

Drawing menu bar		
Icon	name	Function and use
	rectangle	Click and drag to draw a rectangle. In the program bar, you can click the start point, midpoint, end point, and connect  Manual operation to achieve precise positioning

## 5.3 Advanced settings interface

in File processing Click on the interface advanced settings Command to enter the advanced settings interface, as shown in the figure 1.3-1 Shown: Administrator password:QK123456 For the beginning

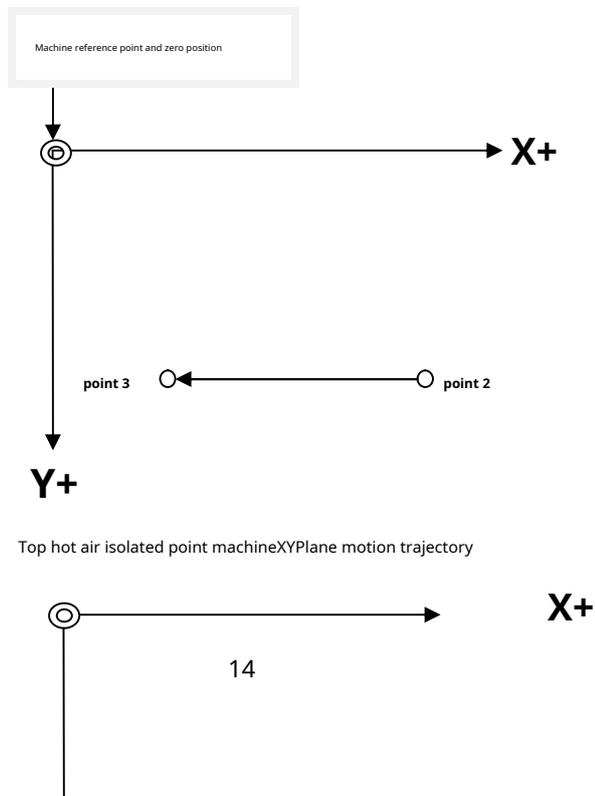
The initial password, the debugging password can be set according to the initial password. Other options can be preset

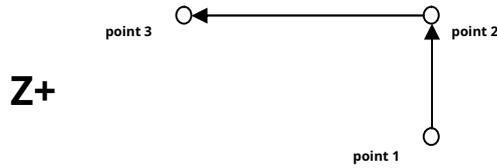


## Chapter 6 Basic Programming

### 6.1 Point programming

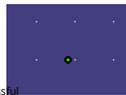
#### 1 Point programming and use





Top hot air isolated point machine XZ Plane motion trajectory

in **File editing** Click on the interface first **Drawing menu bar** In the isolated point **Command**, and then in **Drawing area** Click the left mouse button. As shown



Indicates that the creation of the outlier is successful

Then double click **Program bar** The isolated points need to be edited in the mode as shown in the **孤立点 55.26 9.23 0.00** Enter manual operation

figure, as shown in the figure below.



by X, Y, Z Use the arrow keys to move the top preheating or air knife to the place where you need to work, and then click OK. Only now is the completion of the solitary

The creation of a standpoint.

Manual operation menu introduction		
	Speed gear	Used to switch high-speed, medium-speed, low-speed, single-step and other commands.
	X Axis direction key	X Axis move left
	X Axis direction key	X Axis move to the right
	Y Axis direction key	Y Axis moves backward
	Y Axis direction key	Y Axis move forward
	Z Axis direction key	Z Axis move down

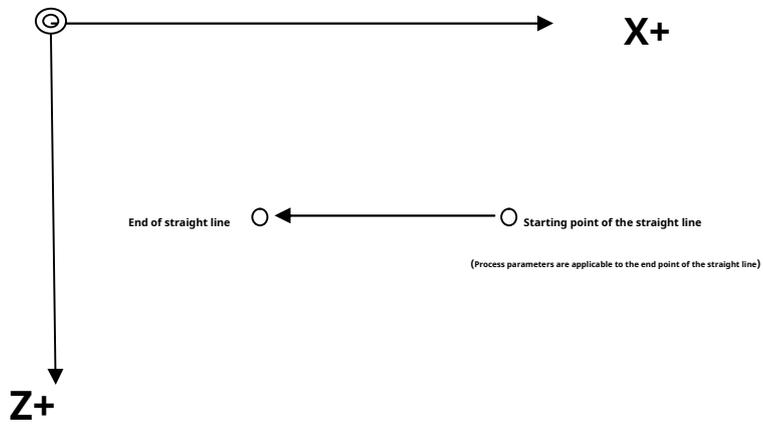
	ZAxis direction key	ZAxis move up
---	---------------------	---------------

Attached table manual operation function table introduction

Note: The process parameters (graphic speed, waiting time, top temperature) corresponding to the isolated point can be set separately. This difference is multi-line segment process.

Style design.

## 2.Programming and use of polylines



Wind knife in the machineXZPlane motion trajectory

in File editing Click on the interface first Drawing menu bar Center the isolated point of the starting point, Command and then Drawing area left mouse click as a straight line button to end the straight line drawing. As shown in the figure, the line is successfully created



Then double click Program bar The starting point of the straight line that needs to be edited is set as 

直线起点	47.42	14.00	0.00
------	-------	-------	------

 Enter manual operation

the pattern shown in the figure below.



by X,Y,Z Use the arrow keys to move the top preheating or air knife to the place where you need to work, and then click OK. Straight from now

Click Create to complete. Then double click **Program bar**. The end point of the straight line that needs to be edited is shown in the figure

直线终点	57.53	14.00	0.00
------	-------	-------	------

Enter manual operation mode and repeat the previous step to complete the creation of the end point of the straight line.

**Remarks:** The process parameters (waiting time, top temperature) corresponding to the multi-segment threaded design only need to be set once at the starting point of the straight line. The graphics speed can be set separately or together. At the same time, select the straight line start point and the straight line end point, and then modify Graphics speed.

直线起点	47.42	14.00	0.00	30.0	40	360.0
直线终点	57.53	14.00	0.00	23.0		

图形速度:	30.0	mm/s	等待	40	s
顶部温度:	360.0	deg	风速	0	%

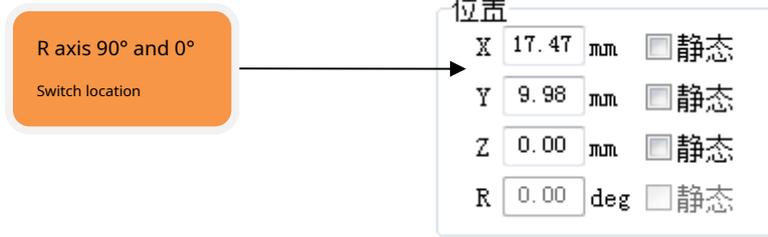
### 3 RShaft programming and use

RShaft mainly uses tooling 90°Rotation, mainly for removing tin from chip grooves.



initial 0°Location

90°Location

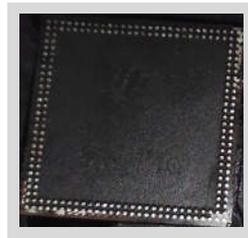


Note: After editing the program, click , then click , Download completed. Enter the file processing interface, click ,

Run the program.

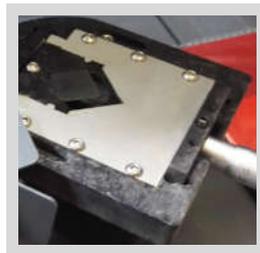
## 6.2 Advanced programming and process parameter setting

### 1 Detinning process and programming case on the concave surface of the chip



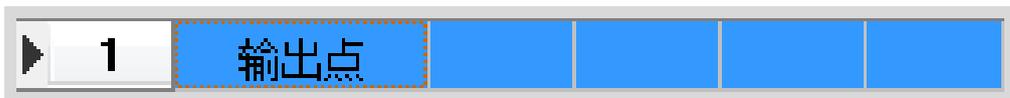
Concave tin removal

**first step:** Put the wafer into the tooling and clamp and fix it. (First flatten the wafer to prevent the wafer from warping, just tighten it)



**The second step:** in File editing interface Edit menu column Find the non-graphic point in it and select the output in the drop-down menu

Point and click , And select



In the lower right corner of the current interface 主输出     select 4, Turns green, it is the working state. (Bottom suction nozzle vacuum

open)

**third step:** in **File editing** interface **Edit menu column** Find the non-graphic point in it and select the bottom in the drop-down menu

Temperature then click  , And then click on the program bar  , In the current

Set the bottom temperature in the lower right corner of the interface 360deg(Celsius), the other parameters can be defaulted.

**the fourth step:** in **File editing** interface **Edit menu column** Find the non-graphic point in the drop-down

menu and select the air knife temperature and click, then click in the program bar, in the current 

Set the air knife temperature in the lower right corner of the interface 380deg(Celsius), the other parameters can be defaulted.

**the fifth step:** in **file editing** Click on the interface first **Drawing menu bar** In the isolated point command, and then in **Drawing area** Click the left mouse button. create

solitary

Set up the point and set the process parameters as shown in the figure (This isolated point is the top preheating position, and the precise position is manually operated Adjustment)

Remarks:**Graphics speed:** Is the operating speed of the device.**wait:**Wafer warm-up time.**Top temperature:**The initial temperature of the top hot air can be

The temperature measured by the solder ball of the international chip is adjusted appropriately.**Wind speed:**The default value is fine.

**Step 6:** in **File editing** Click on the interface first **Menu edit bar** Copy in  Command, copy **the fifth step**, Then paste  . Such as

Figure  , by hand **Action** adjust to

 , Settings workart Participate number

图形速度: 30.0 mm/s 等待 0 s

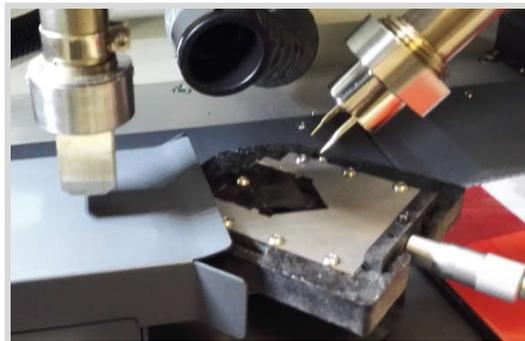
顶部温度: 360 deg 风速 30 %  
(Waiting time is 0, This outlier is The position where the top hot air lifts up)

**Step Seven: Repeat Step 6.**

 , Set process parameters

图形速度: 30.0 mm/s 等待 0 s

顶部温度: 360 deg 风速 30 %  
(Waiting time is 0, This isolation is the beginning of the wind knife Drop, prepare to blow the tin position).



**Step 8:** in **File editing** interface **Edit menu column** Find the non-graphic point in it and select the output in the drop-down menu

Point and click .

▶ 7 输出点 延时  ms  
持续  ms (Delay and keep silent)

recognize)

主输出      
 (2 The air knife cylinder is lowered to open, 3 Wind knife solenoid valve open) (Pay attention to the distance between the air knife and the surface of the wafer)

**Step 9:** in File editing Click on the interface first **Drawing menu bar** Middle outlier  Command and then **Drawing area** Left mouse click as

Start the straight line, and then drag the mouse to the end point and double-click the left mouse button to end the straight line drawing, as the picture shows:

Starting point of straight line: ▶ 8 直线起点 60.00 66.00 40.00 10.0 360.0 30

End of straight line: ▶ 9 直线终点 20.72 66.00 40.00 10.0

Enter process parameters: Straight line starting process parameters: (graphic speed, waiting time, top temperature can be set, and the graphic speed has an effect on the tin removal effect

Relatively large impact)

图形速度:  mm/s 等待  s  
 顶部温度:  deg 风速  %

Straight end process parameters: (only graphics speed parameters can be set)

图形速度:  mm/s 等待  s  
 顶部温度:  deg 风速  %

**Step ten:** in File editing interface **Edit menu column** Find the non-graphic point in it and select the output in the drop-down menu

Point and click .

▶ 10 输出点

延时  ms  
 持续  ms  
 主输出    

(2 The air knife cylinder descends off, 3 Wind knife solenoid valve closed)

**Step 11: choose 4-9 Block and click**  Command, click paste .

▶ 4	孤立点	95.00	66.00	57.00	30.0	38	360.0	
5	孤立点	95.00	66.00	40.00	30.0		360.0	30
6	孤立点	60.00	66.00	40.00	30.0		360.0	30
7	输出点							
8	直线起点	60.00	66.00	40.00	10.0		360.0	30
9	直线终点	20.72	66.00	40.00	10.0			

The effect after pasting is shown in the figure below:

▶ 11	孤立点	95.00	66.00	57.00	30.0	38	360.0	
12	孤立点	95.00	66.00	40.00	30.0		360.0	30
13	孤立点	60.00	66.00	40.00	30.0		360.0	30
14	输出点							
15	直线起点	68.12	63.00	0.00				
16	直线终点	51.99	63.00	0.00				

Then modify the program 11, Modify the insidewaiting time

▶ 11	孤立点	95.00	66.00	57.00	30.0	15	360.0	30
------	-----	-------	-------	-------	------	----	-------	----

图形速度: 30.0 mm/s 等待 15 s

顶部温度: 360.0 deg 风速 30 %

After completing the above operations, Select at the same time 11, 12, 13 Block

▶ 11	孤立点	95.00	66.00	57.00	30.0	15	360.0	30
12	孤立点	95.00	66.00	40.00	30.0		360.0	30
13	孤立点	60.00	66.00	40.00	30.0		360.0	30

In the lower right corner of this operation interface, you can see the location setting bar, change RThe axis is set to 90 deg.

位置

X 95.00 mm  静态

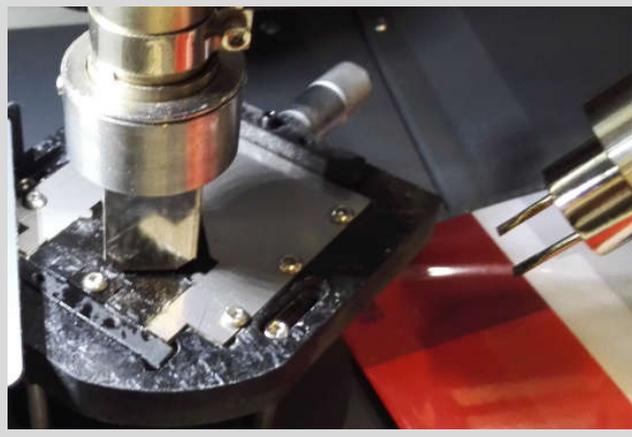
Y 66.00 mm  静态

Z 57.00 mm  静态

R 90.00 deg  静态

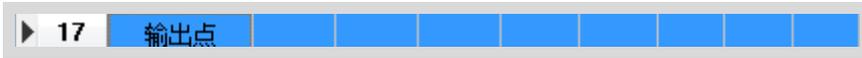
(Specify: Tooling rotation 90 After the degree, in order to ensure the accuracy of the position, the copied program segment needs to be passed **Manual control**

**module**For fine-tuning)



Tooling rotation 90 Warm up for the second time after

**Step 12: Repeat Step 10. create17 Block**



**Step 13: Choose 4-9 Block and clickcopy**



Command, click paste



▶ 18	孤立点	95.00	66.00	57.00	30.0		10	360.0	
19	孤立点	95.00	66.00	40.00	30.0			360.0	30
20	孤立点	60.00	66.00	40.00	30.0			360.0	30
21	输出点								
22	直线起点	68.12	63.00	0.00					
23	直线终点	51.99	63.00	0.00					

Then modify 18 Program segment, modify the **waiting time**, Since the wafer temperature difference is not large, adjust appropriately **waiting time**, One

Aspect helps to shorten work time, On the other hand, ensure that the wafer is not damaged.

**Remarks: (this time is the third preheating of the top of the chip)**

**The fourteenth step:** Repeat the tenth and eleventh steps.

**The fifteenth step:** Repeat the above steps until the program is created. Click on **save**



, then click



, Downloaded

to make. Enter the file processing interface, click  , **Run the program.**

(**Soldering paste:** Apply an appropriate amount on the surface of the chip before starting to run the program **Flux paste,** Apply once when running to the third pass)

## Manufacture of temperature measuring board and temperature measuring technology

In order to ensure that the chip body is not damaged, the surface temperature of the chip should not be greater than 260 Degrees Celsius. At the same time, it is necessary to ensure that the tin balls melt to achieve the effect of tin removal. So make a temperature measuring board to measure the temperature of the wafer surface.

You can use the edited program for temperature measurement,z The shaft is properly raised. Run the program and adjust appropriately through temperature measuring equipment

**The temperature and waiting time of the top hot air, bottom hot air, and air knife hot air. Note: (The temperature measuring board on**

**the front and back of the large and small chips on site has been completed, and the temperature has been calibrated)**

## Chapter 7 Equipment Troubleshooting and Maintenance

### 7.1 Precautions for switch machine

#### 1 Boot steps

First turn on the host computer-then power on the device (turn the black knob on the left side of the machine clockwise).



, Equipment preparation

#### 2 Shutdown steps

First save the current operation, turn off the computer-then power off the device (turn the black knob on the left side of the machine counterclockwise) to stop , The device stops working.

### 7.2 Daily maintenance

1.The daily maintenance of equipment is mainly**X,YShaft guides and ball screws**,After using for a period of time, pay attention to applying a certain amount of grease for lubrication.

2.Pay attention to cleaning when the tooling is used for a period of time. When cleaning, make sure that the liquid cannot flow into the hot air pipe at the bottom to prevent damage to the heating element.

#### Preheating for tin removal

Before starting to blow the tin, the working platform should be preheated for one to two minutes before operation; this can reduce the working error between the cold machine and the hot machine.

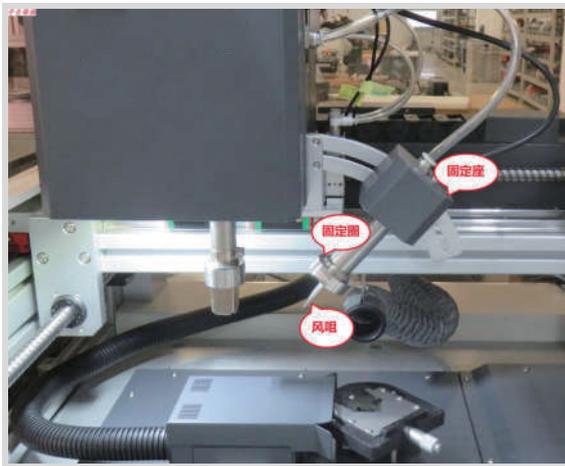
Click the run in the "file processing" to start heating, and when the working time on the interface is reached, click "stop" and then click "reset" the end.



**In addition to tin air knife replacement**

Before replacing the air knife nozzle, it must be operated in a cooling state. When the work is finished, after five minutes, wear electrostatic gloves.

Touch it first and operate when the temperature is acceptable.



After unscrewing the fixing ring, hold the fixed shell with your right hand, and rotate the air nozzle with your left hand to install the air nozzle.

The same is true at the same time. Hold your right hand, turn your left hand up, fix the circle on the top, and end.

**7.3 About faults and troubleshooting**

Chip or PCB The tin on the pad is not clean (not enough suction)

- 1, The tin storage tank is blocked
- 2, The suction nozzle is clogged
- 3, The total pressure is too small
- 4, Airway is blocked

- 5, The small air screening program is dirty

No heating at the top

- 1, The top heating core is open
- 2The control part of the power drive board is broken

No heating at the bottom

- 1, The bottom heating core is open
- 2The control part of the power drive board is broken

Can't connect to the machine

1, RS232 Bad connection      2, COM Port selection error

3, IR Host and IRSOFT The serial transmission rate set between the two is inconsistent

X, Y, Z Hit the anti-collision pillar when the axis returns to the origin

1, The origin limit switch is broken      2, The control limit element of the motherboard is partially damaged

Abnormal air pressure

1, The customer's total air pressure is abnormal      2, The total air pressure digital display meter is damaged

### 7.4 Equipment maintenance

#### Remarks:

Reliable functions can only be guaranteed by using original consumables and accessories.

When the equipment is not in use, please turn off the power switch of each component and pull out the power plug



#### note:

After the equipment is powered off, the shell is still hot. Please do the cleaning work after the equipment is powered off and cooled. Do not use any dangerous and flammable solvents.

clean.

#### Clean the parts:

- \* Use a clean lint-free cloth to clean the dust from the equipment.
- \* It is recommended to use a dry or damp lint-free cloth to clean the equipment.
- \* Clean with a lint-free cloth sprayed with cleaning oil PCB Bracket and its guide rails.
- \* The oil on the screw and guide rail needs to be cleaned regularly, clean the dirty oil on it, and replace with new special grease.

#### Replace the nozzle:

If you need to replace the nozzle, please turn off the power of the device and wait for the vacuum nozzle and top heater to cool down before proceeding.

**note:** QUICK EA-F16 It is a precision equipment, do not make any changes on the equipment, so as not to affect the accuracy of the equipment.

