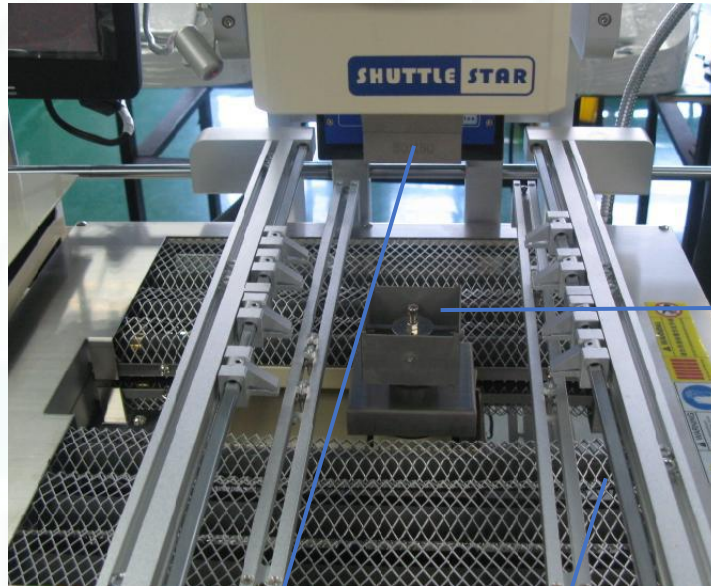


- Integrated design of hot air head and placement head, driven by stepper motor, with automatic welding and automatic desoldering functions;
- Up and down hot air, infrared at the bottom, independent heating in three temperature zones. Heating time and temperature are all displayed on the touch screen;
- The upper heating head can be moved, which is convenient for manual operation;
- The movable bottom has a large preheating area, and the PCB fixture can be adjusted flexibly on the X and Y axes, and the maximum splint size can reach 550*500mm;
- The powerful cross-flow fan at the bottom cools, and the temperature drops quickly and reliably;
- Color optical vision system, with dichroic, magnifying and fine-tuning functions, including color difference distinguishing device, automatic alignment Focus, software operation function, 27x optical zoom, maximum BGA size 70*70mm that can be reworked;
- Embedded industrial control computer, touch screen man-machine interface, PLC control, real-time temperature curve display, displayable settings
The temperature measurement curve can be analyzed by the fixed curve and the actual measurement curve, and can be compared with the historical preservation curve;
- Color LCD monitor;
- Built-in vacuum pump, Φ angle 60°rotation, precise and fine-tuning mounting nozzle;
- 8 sections of rising (falling) temperature + 8 sections of constant temperature control, mass storage of temperature curves, curve analysis can be performed on the touch screen;
- The suction nozzle can automatically identify the suction and placement height, and the pressure can be controlled within a small range of 30 grams-50 grams;
- Various size alloy hot air nozzles are easy to replace and can be positioned at any angle of 360°.
- The large-scale IR bottom preheats, so that the entire PCB is kept at a constant temperature to prevent deformation, ensuring the welding effect, and the heating plate can be independently controlled;
- BGA welding zone support frame, the support height can be fine-tuned to limit the local sinking of the welding zone;

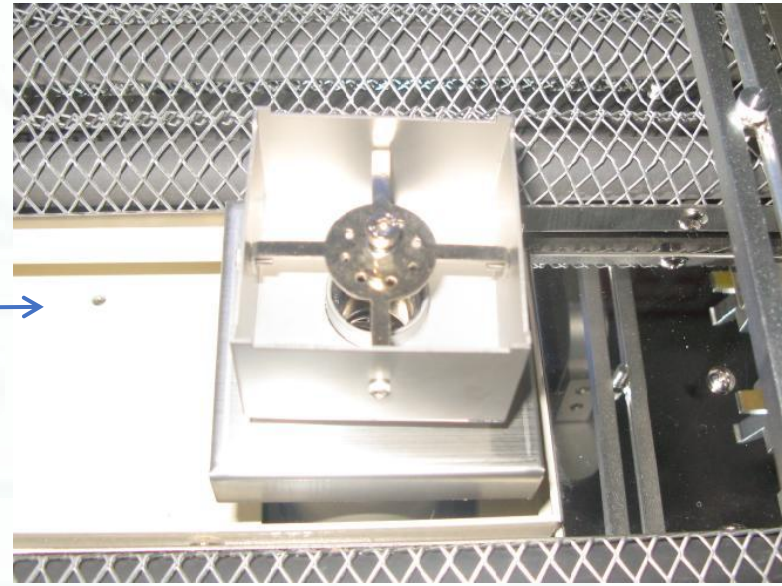
PCB maximum size	550mm x500mm
Maximum process area	120mm x 120mm
Maximum PCB thickness	4mm
Maximum component size	70mm x 70mm
Minimum component size	1mm x 1mm
Maximum component weight	80g
Maximum viewing area	40mm x 40mm
Minimum spacing	.30mm
Fine adjustment range Front/Rear	Front/Rear \pm 10mm Left/Right \pm 10mm
Rotation angle	60°
Maximum hot air temperature	350° C
Infrared maximum temperature	400° C
Temperature control debugging	8-Stage Programmable Temperature Settings
Upper heater power	1200W
Lower heater power	800W
Bottom infrared board power	3600W
Weight Appox	Appox 80Kg
Power requirements	Single Phase, 220VAC, 50/60 Hz
Machine size	850mm (L) 750mm (W) 630mm (H)

Heating system: Three independent temperature zones, (top hot air heating, under hot air heating, and bottom IR heating), temperature and time can be displayed digitally on the touch screen, able to rework BGA



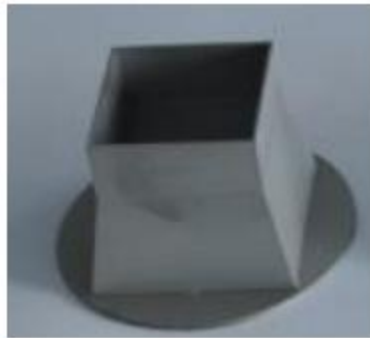
Top heater

Bottom heating plate

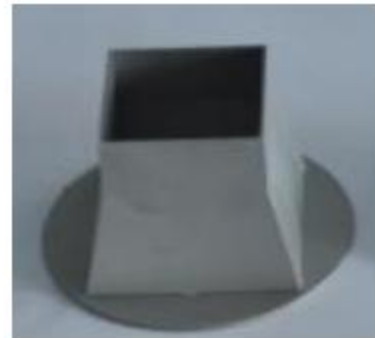


Lower hot air heater

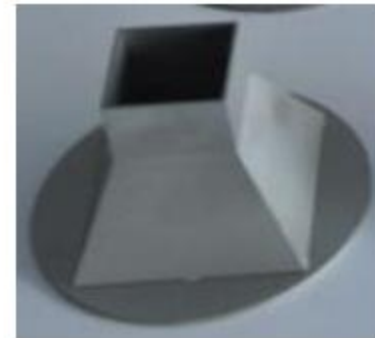
Nozzle: Different-sized nozzles for different-sized BGAs, for particular component, nozzle can be custom-made.



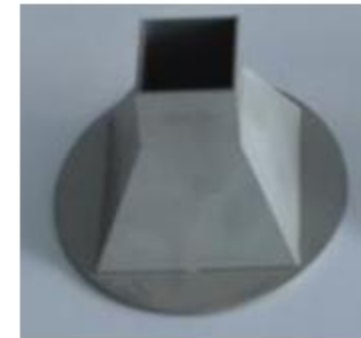
44x44mm



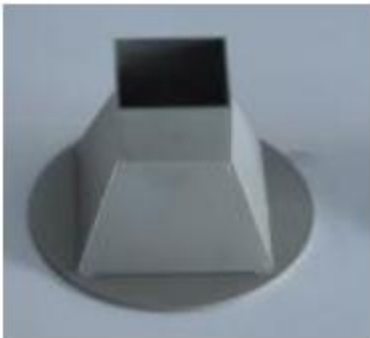
38x38mm



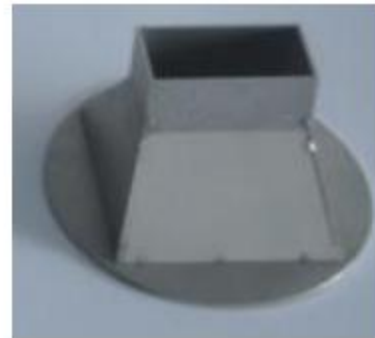
31x31mm



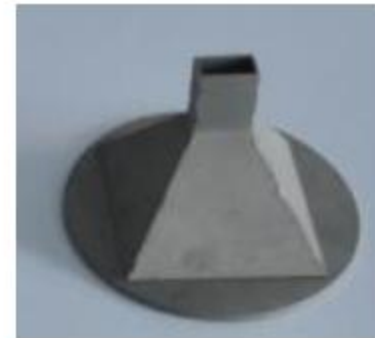
24x24mm



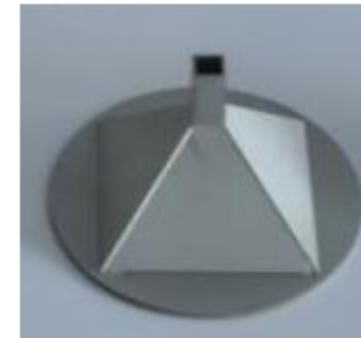
28x28mm



44x28mm

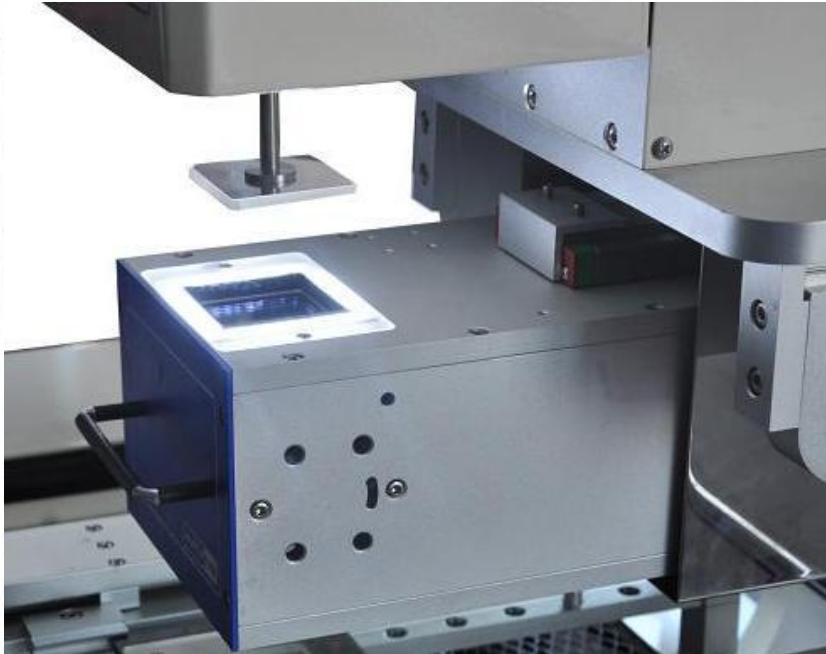


18x8mm

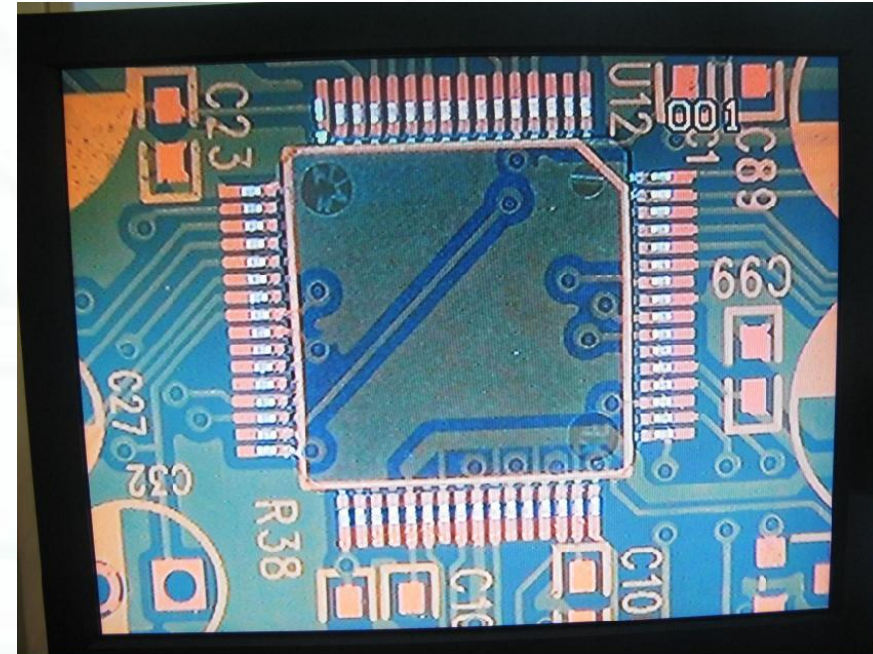


7x7mm

Alignment & placement: Mega pixels, high-definition color optical vision system, with functions of spectral, amplification and fine-tuning, including color difference distinguish device, automatic focus, software operation function, applying the prism optical principle to make both up and down image clear and accurate.

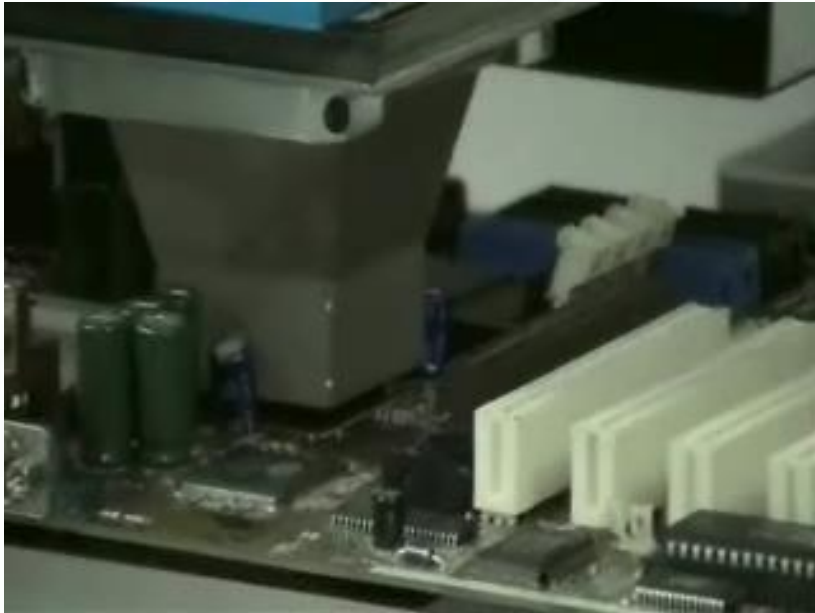


**Can be automatically
counterpoint, easy and
flexibly to operate**

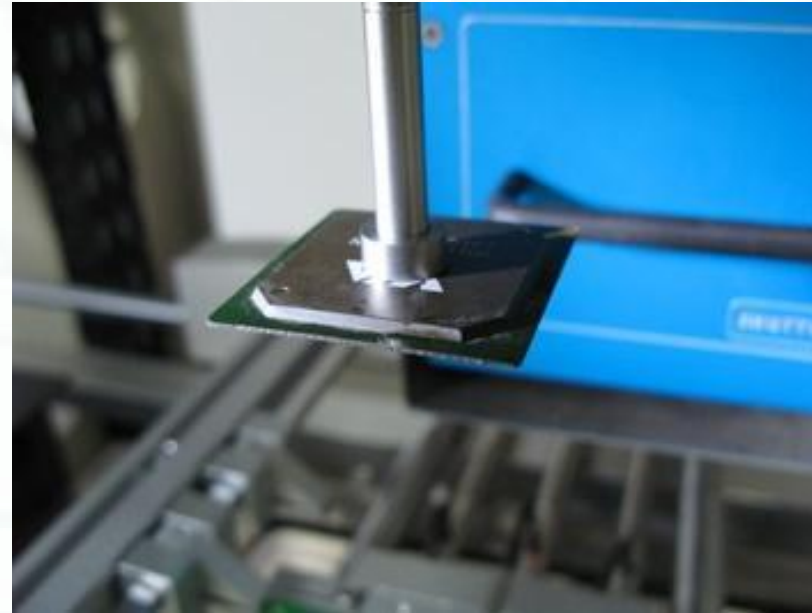


**Blue image for IC, yellow
image for PCB**

Hot air head and mounting head are designed 2 in 1, and have both the auto soldering and mounting function, easy to operate



BGA placement



BGA Removal

Pressure from the suction to the IC can be micro-adjusted, minimum pressure less than 30g, ensure BGA not leak lead while heating.

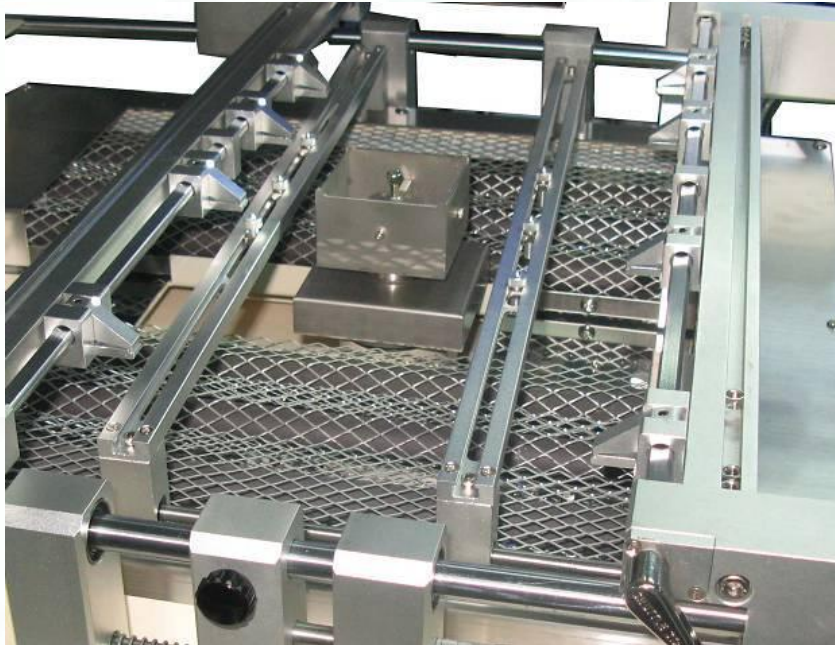


Pressure testing



Suction nozzles in package

Clamping device: Specially designed with flexibly-moving clamping device to clamp all kinds of PCB, also equipped with particular clamps for laptop motherboard

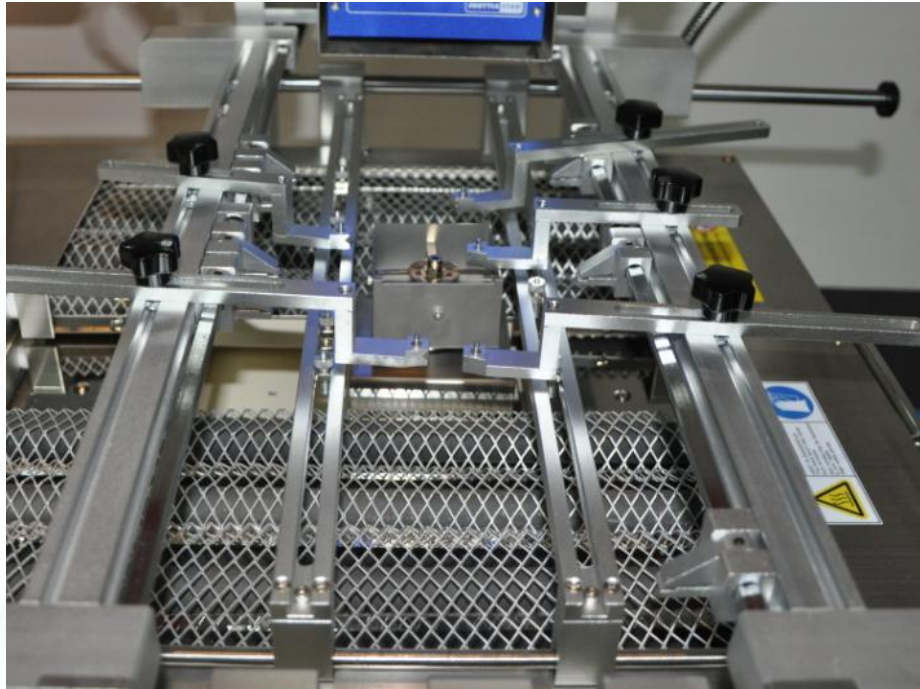


*flexibly-moving
clamping device*



*Particular clamps for
laptop motherboard*

Clamping device: Clamps installing schematic diagram; the irregular PCB like laptop motherboard can be grasped flatly by the clamps.

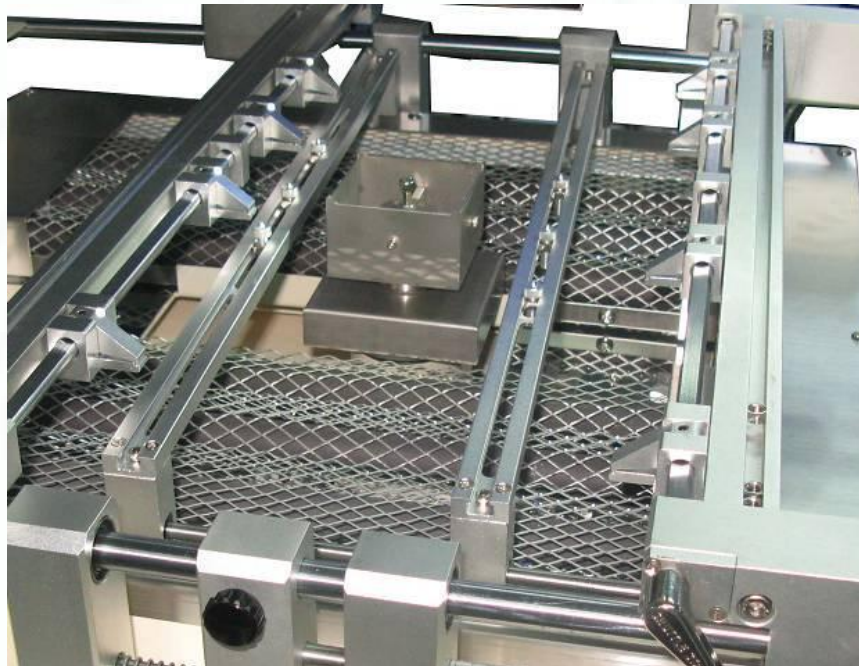


Installing diagram

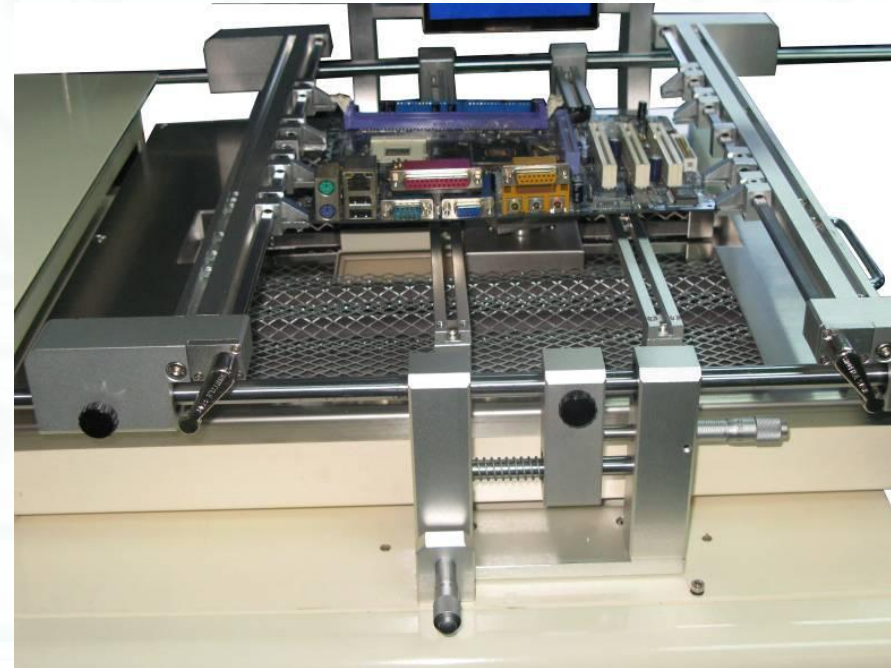


Clamping diagram

Clamping device: Special anti-warpage design ,the support pillars can be adjusted up & down to support the board to prevent the PCBA from sinking while heating.



Anti- Warpage support



**Anti- warpage support
working diagram**

Control interface: Touch screen interface, PLC control; able to display real-time temperature curves and detecting temperature curves at the same time



Main operation screen

Adjustment interface : Able to arrive at three independent temperature zones, temperature and time can be displayed digitally on the touch screen, 8 segments of temperature up (down) and 8 segments constant temperature control, more than 50000 groups of profile can be stored.

Menu	Set Para.	Analyze Pro.	Adv. Para.	Help	Camera	Adjust	<input type="checkbox"/>			
PCB		LEADED			Nozzle		38			
Upper	1	2	3	4	5	6	7	8	Pre. Temp	Offset
Rate	200.0	200.0	200.0	200.0	200.0	0.0	0.0	0.0	<input type="text" value="0"/>	<input type="text" value="0"/>
Target	55.0	185.0	160.0	230.0	180.0	0.0	0.0	0.0		
Dwell	45	75	40	60	5	0	0	0	Pre. Power	Cooling
Lower	1	2	3	4	5	6	7	8	<input type="text" value="0"/>	<input type="text" value="0"/>
Rate	200.0	200.0	200.0	200.0	200.0	0.0	0.0	0.0	Area	Alarm
Target	55.0	185.0	160.0	240.0	260.0	0.0	0.0	0.0	<input type="text" value="0"/>	<input type="text" value="5"/>
Dwell	45	75	40	15	50	0	0	0		
Pb		<input checked="" type="checkbox"/>	Select		Pb		<input type="checkbox"/>			

Parameter Setting

PCB: LEADED		PCB SUM: 2	
NO.	Name down	NO.	Name up
1	LEADED	11	
2	LEADED FREE	12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	
Up	NO. : <input type="text" value="1"/>	Page: <input type="text" value="1"/>	Down
Delete	Load	Close	

Profile Name Setting

Analysis interface: able to display 1 practically-tested temperature curve at the same time, and auto-calculate the preheat time, reflow time and max temp, so to control temp. of every point of BGA overall; can create profile for every kind of BGA accordingly.



profile analysis column

Screenshot



Analysis for points

Instant regulation: During heating, if find the TC temperature too low or too high, parameters can be changed while it is heating under the Instant Regulation function to avoid repeat heating.



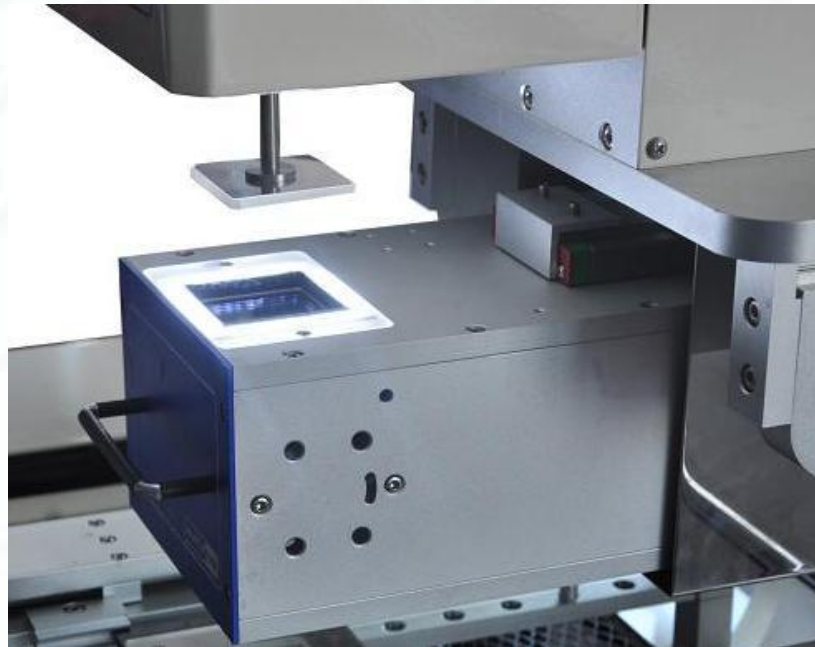
Click "L" or "T" in the down column to change parameters while heating

Alarm Interface: Under this menu, it points out troubles and error while machine is working. By this caution, we may know what problem the machine faces and make quick trouble shooting.

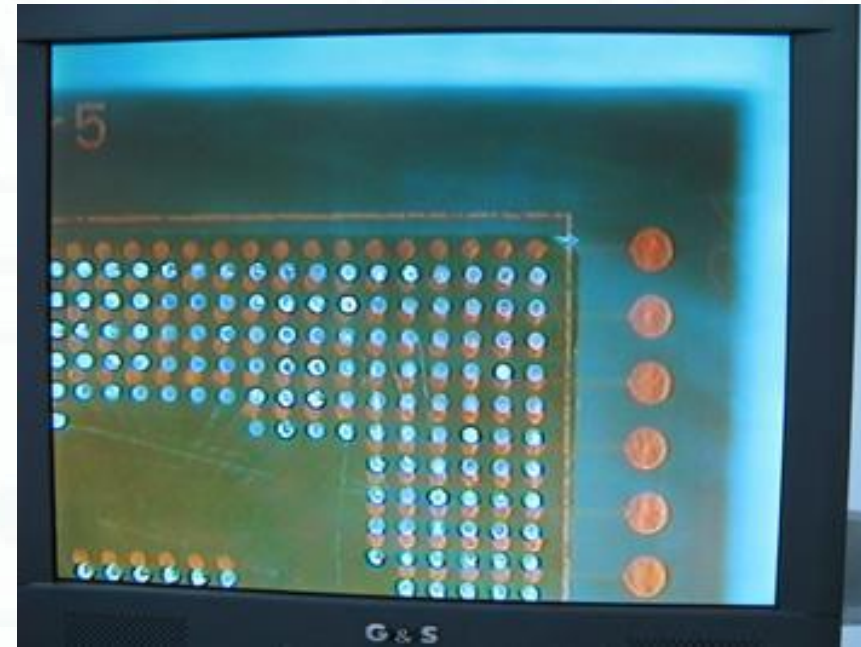


Abnormal alarm event description

Optical Alignment System: Mega pixels, high-definition color optical vision system, with functions of spectral, amplification and fine-tuning, automatic focus, software operation function, able to rework BGA sized up to 70mm*70mm

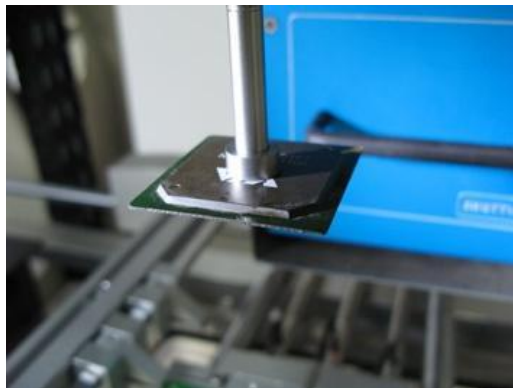


Alignment through camera



Color image in display

Alignment accuracy: automatic servo system controls BGA placement, desolder and solder; placement accuracy reaches 0.01mm, which is suitable for the smallest IC with pitch of 0.30mm

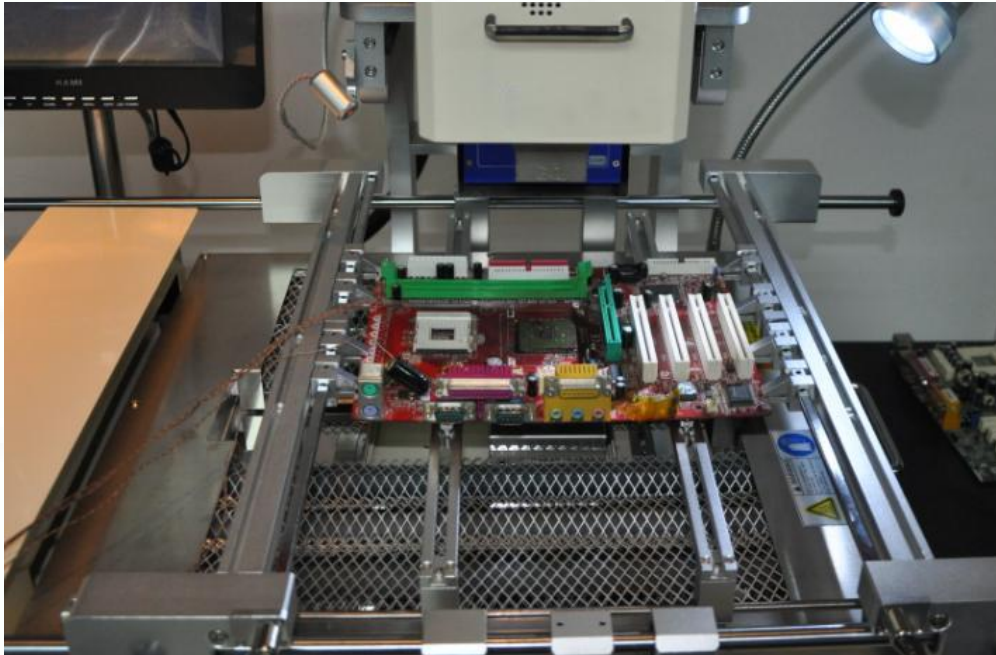


Desolder & Solder



Placement

Verification of temperature balance: The second step is to set up the temperature measuring board, as shown in the figure. Using a five-point monitoring method, Set five points on the corners and the center of the BGA to be repaired, and then use the instant heating function of the device. While heating, monitor at the same time, as shown in the figure.



Temperature measuring PCB



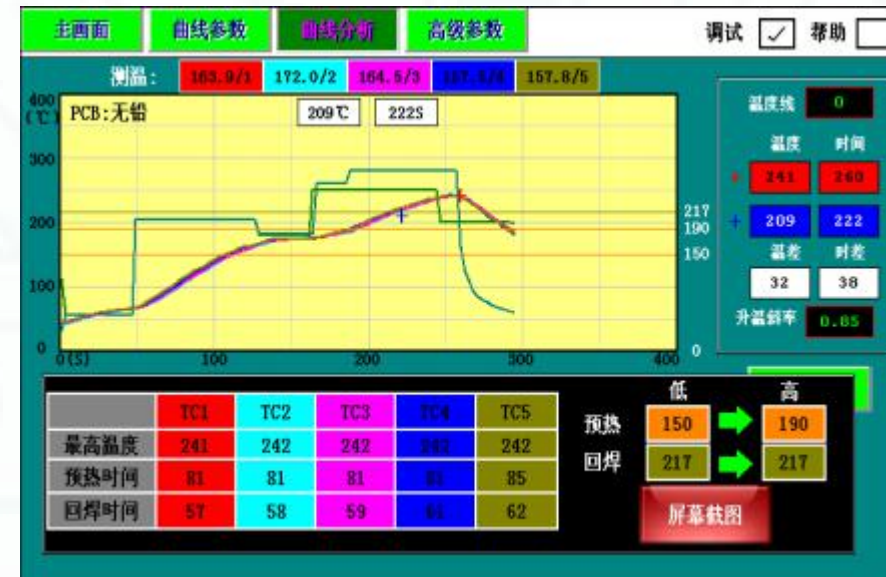
Close up view of heating

Verification of temperature balance: The third step is to compare the temperature difference of each point after repeated measurement. The temperature difference between the high temperature point and the lowest temperature point judges whether the temperature balance is good or bad.



experiment one

The highest temperature point: 242°C
 The lowest temperature point: 238°C
 Temperature balance difference: 4°C



experiment two

The highest temperature point: 242°C
 The lowest temperature point: 241°C
 Temperature balance difference: 1°C

Temperature stability verification: compare the temperature values measured twice at the same temperature point to Verify the stability of the heating system of the equipment.



TC1 temperature difference: $240^{\circ}\text{C} - 238^{\circ}\text{C} = 2^{\circ}\text{C}$
 TC2 temperature difference: $240^{\circ}\text{C} - 239^{\circ}\text{C} = 1^{\circ}\text{C}$
 TC3 temperature difference: $239^{\circ}\text{C} - 239^{\circ}\text{C} = 0^{\circ}\text{C}$



TC1 temperature difference: $242^{\circ}\text{C} - 239^{\circ}\text{C} = 3^{\circ}\text{C}$
 TC2 temperature difference: $239^{\circ}\text{C} - 238^{\circ}\text{C} = 1^{\circ}\text{C}$
 TC3 temperature difference: $242^{\circ}\text{C} - 239^{\circ}\text{C} = 3^{\circ}\text{C}$

Temperature stability verification: compare the temperature values measured twice at the same temperature point to Verify the stability of the heating system of the equipment.



TC1 temperature difference: $240^{\circ}\text{C} - 238^{\circ}\text{C} = 2^{\circ}\text{C}$
 TC2 temperature difference: $240^{\circ}\text{C} - 239^{\circ}\text{C} = 1^{\circ}\text{C}$
 TC3 temperature difference: $239^{\circ}\text{C} - 238^{\circ}\text{C} = 1^{\circ}\text{C}$



TC1 temperature difference: $239^{\circ}\text{C} - 239^{\circ}\text{C} = 0^{\circ}\text{C}$
 TC2 temperature difference: $242^{\circ}\text{C} - 239^{\circ}\text{C} = 3^{\circ}\text{C}$
 TC3 temperature difference: $242^{\circ}\text{C} - 239^{\circ}\text{C} = 3^{\circ}\text{C}$

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